



Office of the State Auditor  
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*Making government work better*



# The Cost of Water Infrastructure: Implications for State Policy and Municipal Budgets

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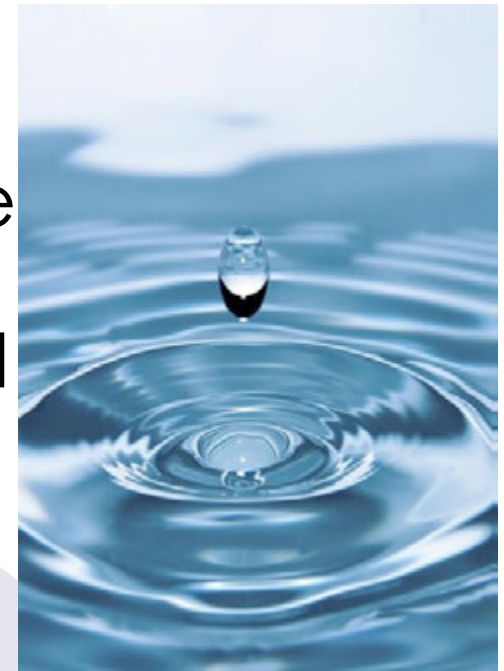
# Water Systems and the Concept of a “Holistic” Approach

Mass WIFC: “Need to look at regulation more holistically . . . in funding projects to give us the highest public benefit [and to] use scarce resources in the most efficient way.”

Mass Waterworks Assoc: “Unlike regulators, [communities] not have the luxury of only concentrating on each program one at a time.”

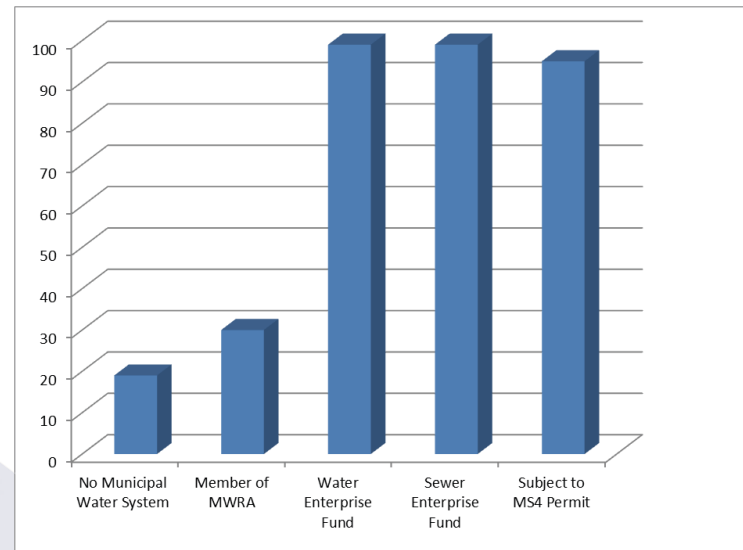
# A “Holistic” Approach in Action

- Treat all aspects of water infrastructure – drinking, waste and storm – as a single system
- Regionalize and share resource for greater efficiency and better sustainability of affected watersheds
- Municipalities need to invest more: fiscal policy and the regulatory environment should incentivize investment.



# 146 Survey Respondents

- 19 (13%) owned no water systems.
- 30 (20%) were MWRA members.
- 99 (68%) had enterprise funds for drinking water delivery.
- 99 (68%) had enterprise funds for wastewater; and
- 95 (65%) reported that they were subject to MS4 process

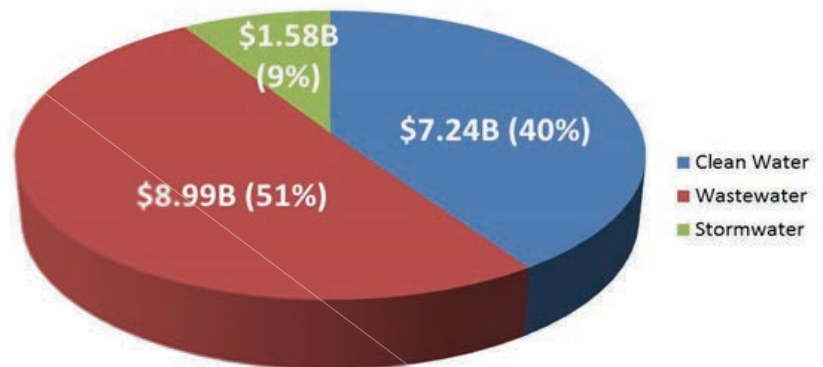


- 42% of all MA communities.
- 88% of all communities >50K residents.
- Sample covered 64% of total state population.

# Finding 1: \$17.8 billion in projected municipal water spending needs

- \$8.99 billion for Wastewater
- \$7.24 billion for Clean Water
- \$1.58 billion for Stormwater

Estimated Local Municipal Water Infrastructure Costs by Category (\$ Billions) Based on Actual Projects



# Recommendations, Pt. 1

- Legislature should expand SRF to provide not only low-interest loans and limited principal forgiveness but **full grants** as well.
- Adopt WIC recommendation report that the state establish a new Trust Fund for water infrastructure.
- Authorize the new Trust Fund to provide at least **\$50 million** annually for the next ten years in direct state aid for local water infrastructure projects.

# Finding 2: MS4 Permit compliance will add \$1.58 billion to 20-year projected municipal water spending needs

- Includes \$240 million in additional personnel cost



"Rain Garden" – City of Chelsea DPW



# Recommendations, Pt. 2

- To provide additional funding for capital and operating requirements, municipalities should consider the creation of dedicated stormwater enterprises similar to local water and sewer enterprises in structure, operation and fee-based revenue streams.

# Finding 3: For most communities , regional collaboration remains a goal rather than a reality

- Only 36% of survey respondents reported membership in regional collaboratives for water infrastructure planning and management.



The MFN (Mansfield-Foxboro-Norton) Regional Wastewater Facility in Norton is managed by a regional entity that took six years to create.

# Recommendations, Pt. 3

- Legislation to promote municipal collaboration and regionalization by simplifying the process of creating regional public entities that have the power to operate facilities as well as to plan across multiple municipal jurisdictions.

# Finding 4: Municipalities may not be taking full advantage of current loan and grant programs

- Only 42% of responding communities have received water infrastructure grants or loans from the state or federal governments in the past 10 years.

**Benefits of Financing thru State Revolving Fund vs Market rates**

	Financing rate	Principle Borrowed	Term of years	Debt Service Payments		Savings: SRF vs Market		Grant Equivalency
				Annual	Life of Loan	Annual	Life of Loan	
<b>SRF</b>	2.00%	\$ 1,000,000	20	\$61,156.72	\$1,223,134.36	n/a	n/a	
<b>Market</b>	3.00%	\$ 1,000,000	20	\$67,215.71	\$1,344,314.15	\$6,058.99	\$121,179.79	12.12%
	3.25%	\$ 1,000,000	20	\$68,778.88	\$1,375,577.68	\$7,622.17	\$152,443.31	15.24%
	3.50%	\$ 1,000,000	20	\$70,361.08	\$1,407,221.54	\$9,204.36	\$184,087.17	18.41%
	3.75%	\$ 1,000,000	20	\$71,962.10	\$1,439,241.95	\$10,805.38	\$216,107.58	21.61%
	4.00%	\$ 1,000,000	20	\$73,581.75	\$1,471,635.01	\$12,425.03	\$248,500.64	24.85%
	4.25%	\$ 1,000,000	20	\$75,219.83	\$1,504,396.70	\$14,063.12	\$281,262.33	28.13%
	4.50%	\$ 1,000,000	20	\$76,876.14	\$1,537,522.89	\$15,719.43	\$314,388.52	31.44%
	4.75%	\$ 1,000,000	20	\$78,550.47	\$1,571,009.35	\$17,393.75	\$347,874.98	34.79%
	5.00%	\$ 1,000,000	20	\$80,242.59	\$1,604,851.74	\$19,085.87	\$381,717.38	38.17%
	5.25%	\$ 1,000,000	20	\$81,952.28	\$1,639,045.66	\$20,795.57	\$415,911.30	41.59%
	5.50%	\$ 1,000,000	20	\$83,679.33	\$1,673,586.60	\$22,522.61	\$450,452.24	45.05%
	5.75%	\$ 1,000,000	20	\$85,423.50	\$1,708,469.98	\$24,266.78	\$485,335.61	48.53%
	6.00%	\$ 1,000,000	20	\$87,184.56	\$1,743,691.14	\$26,027.84	\$520,556.78	52.06%
	6.25%	\$ 1,000,000	20	\$88,962.27	\$1,779,245.37	\$27,805.55	\$556,111.01	55.61%
	6.50%	\$ 1,000,000	20	\$90,756.40	\$1,815,127.91	\$29,599.68	\$591,993.54	59.20%
	6.75%	\$ 1,000,000	20	\$92,566.70	\$1,851,333.91	\$31,409.98	\$628,199.55	62.82%
Project cost		\$ 1,000,000						
Term of Years (max -20)			20					

DEP's Division of Municipal Services table showing potential cost savings (depending on project size and current market interest rates) for cities and towns using the SRF loan program. Source: DEP

# Recommendations, Pt. 4

- State should work to enhance municipal eligibility for loans and grants by reviewing repayment options
- State should consider additional funding in the DEP budget for expanded outreach in order to educate municipalities about benefits for current and future water infrastructure loan and grant resources

# Finding 5: Climate change impacts on water systems aren't receiving the attention they deserve

- Only 6% of survey respondents indicated that they developed any formal climate change plans or policies that affect water infrastructure systems.

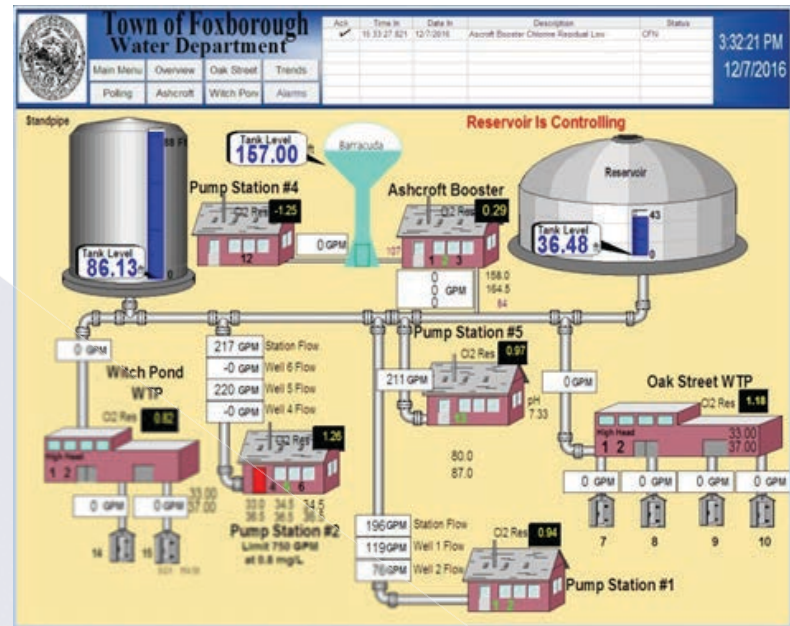


# Recommendations, Pt. 5

- ⦿ Gov. Baker should follow up 2016 EO 569 by convening a statewide summit on climate change implications for municipal water systems.
- ⦿ Legislature should authorize funds for expert assistance to municipalities that need help in developing water infrastructure resiliency and capital investment plans related to climate change impacts.

# Finding 6: Low rates of adoption for innovative technologies that can reduce cost and increase efficiency

- 18% of respondents reported adopting innovative or alternative technologies to achieve cost savings, enhance capacity or improve performance.



Foxborough's SCADA (supervisory control and data acquisition) system gives managers easy-to-use, real-time data on key performance metrics.



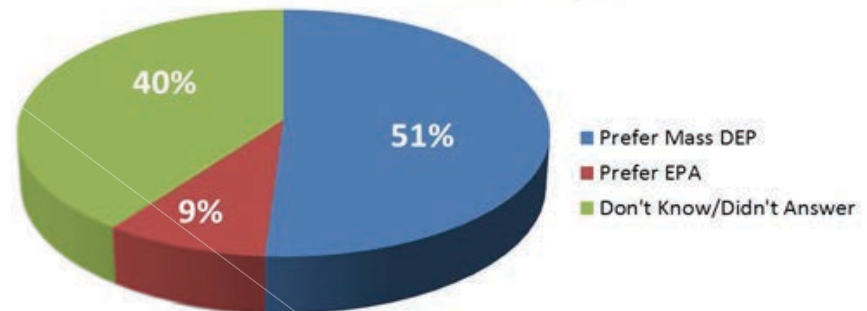
# Recommendations, Pt. 6

- Require Operational Services Division (OSD) and the Division of Capital Asset Management and Maintenance (DCAMM) to review regulations and practices to spur adoption of innovative technologies
- Legislation to provide interest rate and/or principal forgiveness on projects that may require additional investment if innovative technologies do meet performance standards.

# Finding 7: Municipalities favor state administration of stormwater permits

- 51% of all respondents – and 90% of the communities expressing a preference – indicated they would rather have DEP administer the MS4 stormwater permit program.
- Only 9% indicated a preference for EPA to continue direct administration

Question: Should Mass DEP or US EPA Manage MS4 Municipal Stormwater Permit Program?



Response to the Question: "Would your municipality prefer to have Mass DEP issue MS4 permits or have US EPA retain this role?"

# Recommendations, Pt. 7

- Legislature should enable DEP to assume responsibility stormwater permits under EPA's NPDES regulatory standards, mandating that funding come **from a combination of sources**.
- DEP should work with municipalities to develop 10-year rolling capital investment compacts for water infrastructure in order to provide greater stability and predictability to communities in allocating water system dollars.



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