WATER SUPPLY IN THE I-495 REGION:

Understanding its Importance to Public Health, Safety and a Robust Economy

Presentation to the 495 Metrowest Suburban Edge Community Commission

January 27, 2017

Introduction

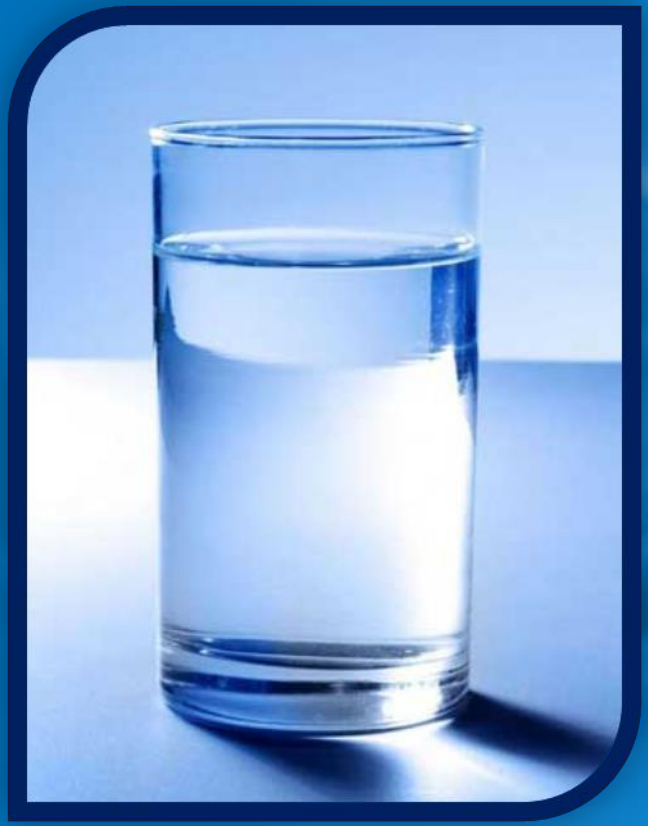
Who we are…

- MWWA is a non-profit based in Acton, MA.
- MWWA's 1,100 members include public officials, water system managers and operators, regulators, consulting engineers, contractors.
- MWWA members provide their expertise on a number of state committees and workgroups.

Mission Statement:
The Massachusetts Water Works Association is a membership organization dedicated to the advancement of the drinking water profession. Through education and advocacy, MWWA is committed to public health by promoting a safe and sufficient supply of drinking water to Massachusetts consumers.

What do water suppliers do?

- Support public health by maintaining water quality from the source through the distribution system to the customer.
- Construct and maintain the infrastructure needed to collect, treat, store and distribute the water.
- Provide public education and outreach.
- Enhance the economy and support the overall quality of life we enjoy in the Commonwealth.



The Current State of Water Systems

- Water Systems are highly regulated and must comply with federal drinking water standards.
- MassDEP regulates water suppliers on water quality and water quantity.
- Water suppliers have very high compliance rates with both MassDEP's health based standards and monitoring requirements.

Regulatory Programs Affecting Public Water Suppliers

State Initiatives:

- Water Management Act
- Manganese
- Perchlorate
- MassDEP Guidelines
- Guidance for the Removal of Asbestos Cement Pipe and associated certification
- Cross Connection Control
- Water Conservation Standards
- Security – Emergency Response Plans and annual training
- Hoisting License Continuing Education Requirements
- Operator Licensing Requirements

Federal Initiatives:

- Groundwater Rule
- Long Term 2 Enhanced Surface Water Treatment Rule
- Stage 2 Disinfection Byproduct Rule
- Lead & Copper Rule
- Consumer Confidence Reporting
- NPDES Treatment Plant Discharge Permit
- UCMR 3 — (Unregulated Contaminant Monitoring Rule)
- Revised Total Coliform Rule
- Air Pollution Requirements for Emergency Generators

Ongoing discussions:

- Distribution System Rule
- Pharmaceutical Impacts on Water Quality

Conservation

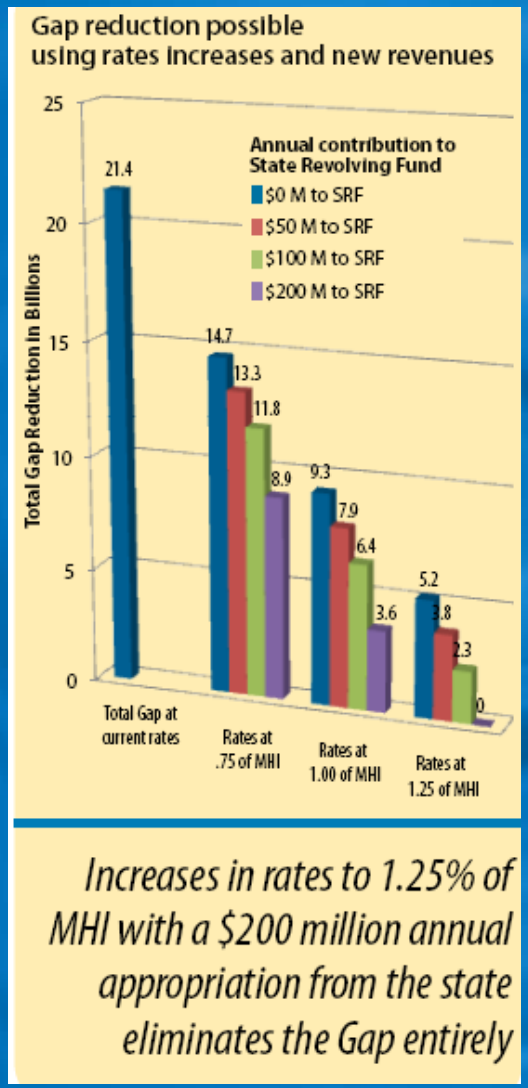
- Massachusetts has some of the strictest water use conservation standards in the country and water suppliers are meeting the challenge.
  - EPA estimate = 100 gallons per day
  - MA State Conservation Standards Residential Gallons per Capita Day = 65 gallons
  - MA Average Residential Gallons per Capita Day reported in 2015 = **58 gallons**
- Conservation, while important, is a double-edged sword. Many water system costs are fixed and as people conserve, revenues decline.

Aging Infrastructure

- The Water Infrastructure Finance Commission (WIFC) issued a report in 2012 citing a significant gap between available funding and what is needed for infrastructure improvements over the next 20 years.
  - $10.2 billion for drinking water
  - $11.2 billion for wastewater
- DLM Water Study released January 17, 2017
  - Called for increased state funding in the form of grants
  - Adoption of Enterprise Funds locally to fund stormwater improvements
  - Incentives for regionalization
  - Incentives/reduction of risk for adoption of innovative technologies
  - Increased water system resiliency in light of climate change

Aging Infrastructure

- Water is undervalued and the public takes it for granted, but even if rates rise to a measure of affordability a gap will still exist.
- An approach that incorporates rate increases to 1.25% of Median Household Income with a $200 million annual appropriation from the state, eliminates the gap entirely
- In 2012 rates across the Commonwealth averaged:
  - Water Rates =.52% of MHI
  - Sewer Rates = .75% of MHI



Increases in rates to 1.25% of MHI with a $200 million annual appropriation from the state eliminates the Gap entirely

Aging Infrastructure

From the Tighe & Bond 2014 Rate Survey:

Littleton, Town of

Annual Cost (120 HCF)	Water Rate	System Ownership	Separate Business Rate	Billing Cycle	Last Rate Change	RGPCD	Persons per Household	Annual Local Water Use (gallons)	Annual Local Water Use (HCF)	Annual Cost Local Data
$543	Ascending	City/Town	Yes	Quarterly	11/25/14	52	2.61	49,538	66	$334

Notes: Base customer charge: $20.00 per billing. $3.84/HCF, 0 - 2,500 CF; $3.94/HCF, 2,501 - 5,000 CF; $4.70/HCF, 5,001 - 7,500 CF; $4.82/HCF, 7,501 - 10,000 CF; $4.92/HCF over 10,001 CF.

Sudbury Water District

Annual Cost (120 HCF)	Water Rate	System Ownership	Separate Business Rate	Billing Cycle	Last Rate Change	RGPCD	Persons per Household	Annual Local Water Use (gallons)	Annual Local Water Use (HCF)	Annual Cost Local Data
$400	Ascending	District/Authority	No	Quarterly	6/09	63	3.06	70,365	94	$285

Notes: Base charge: $5.00 per billing. $4.00/1000 gals. - 1,000 - 20,000 gals.; $6.00/1000 gals. - 21,000 - 30,000 gals.; $7.00/1000 gals. - 31,000 - 40,000 gals.; $9.00/1000 gals. - 41,000-50,000 gals.; $11.00/1000 gals. - 51,000 - 60,000 gals; $13.00/1000 gals. - 61,000 gals. and above.

Hopkinton, Town of

Annual Cost (120 HCF)	Water Rate	System Ownership	Separate Business Rate	Billing Cycle	Last Rate Change	RGPCD	Persons per Household	Annual Local Water Use (gallons)	Annual Local Water Use (HCF)	Annual Cost Local Data
$338	Ascending	City/Town	No	Biannually	7/1/14	61	2.98	66,350	89	$247

Notes: Base charge: $23.71 per billing for up to 1,000 CF; $2.91/HCF - from 1,001 - 8,000 CF; $6.00/HCF - 8,000 CF+.

Sustainable Water Management Initiative
Water Management Act Permitting

- 1986—Water Management Act
  - Registration: Grandfathering of existing withdrawals
  - Permits: Conditioned increases in withdrawals
- 2004—“The Policy” introduced
  - “Baseline” – introduced
  - Conservation standards
  - Safe Yield definition reverts to statutory definition
- 2006—Blue Ribbon Panel Convened
- 2009-10—Exec. Office Energy & Enviro. Affairs launches Sustainable Water Management Initiative (“SWMI”)
- November 2014—New Water Management Act Regulations Adopted

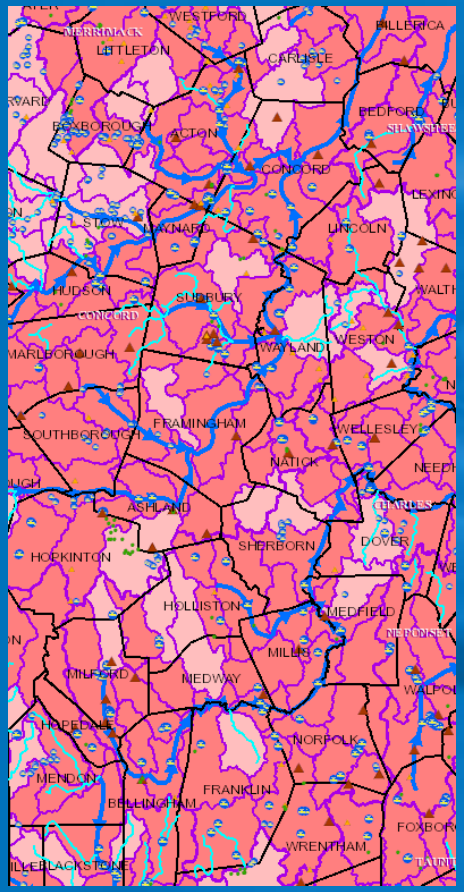
“Balance Among Competing Uses”

Sustainable Water Management Initiative
Water Management Act Permitting

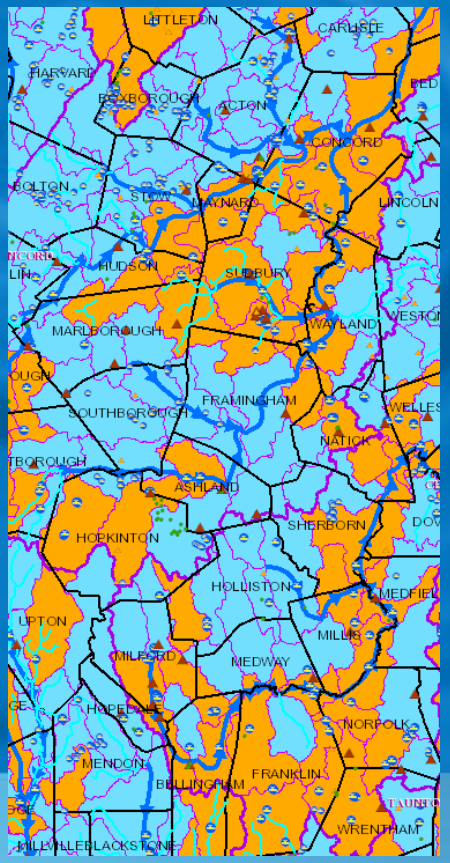
Environmental Tenents:

- New Water Withdrawals Shall Not
  - Degrade Healthy, Natural Streams or
  - Make “Poor” Streams Worse (Backsliding)
- Basin/Sub-Basin Categorization:
  - Biological Health:(River fish abundance)
    - Biological Category 1 – Most Natural to
    - Biological Category 5 - Most Impaired
  - Flow Alteration:(Based on groundwater withdrawals in August)
    - Groundwater Withdrawal Category 1 - Least Altered to
    - Groundwater Withdrawal Category 5 – Most Altered
  - Net Depleted Sub-basins
    - Greater than 25% depletion between groundwater withdrawals and wastewater discharges back to the basin

Biological Categories



Net Depleted Sub-basins



Sustainable Water Management Initiative
Water Management Act Permitting

WMA Regulations (310 CMR 36.00) now include:

- Safe Yield: Environmental Protection Factor
- Streamflow Criteria

Impacts Permitted Users, NOT Registered Users*

- Baseline: 5% “allowance” (unless it is the registered volume)
- Minimization
- Offsets and Mitigation
- Coldwater Fisheries Consult

Impacts Permitted Users, NOT Registered Users*

- Non-Essential Outdoor Water Use Restrictions
  - Calendar day trigger vs. Index stream-flow trigger
  - Residential Gallon Per Day Per Capita:
    - Greater than 65 RGPCD = more restrictive restrictions
    - Less than 65 RGPCD = less restrictive restrictions
  - Only one day per week of watering allowed upon a low flow condition

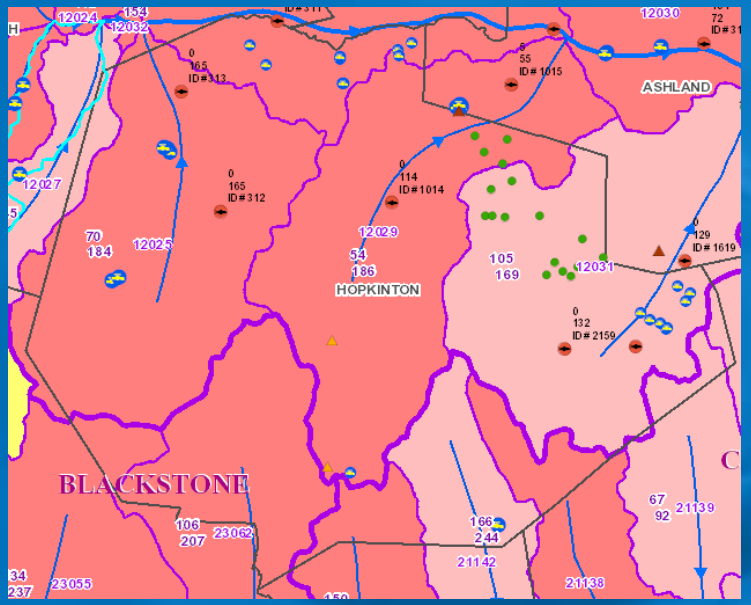
Will not impact any communities that are fully served by the Massachusetts Water Resources Authority (MWRA)

Sustainable Water Management Initiative
Water Management Act Permitting

Example:

Hopkinton

- Existing Total WMA Authorization = 1.21 MGD
- Reported Use in 2014
  - Actual Withdrawal =.62 MGD
  - Purchased Volume = .41 MGD
  - Total = 1.03 MGD
- Baseline = .98 MGD (2005)
- Projected Increase above Baseline = .23 MGD
- Permit Tier = 3 (will cause change in GWC)
- Mitigation Plan Required = Yes
- Coldwater Fishery Consult = No
- Minimization Required = Yes

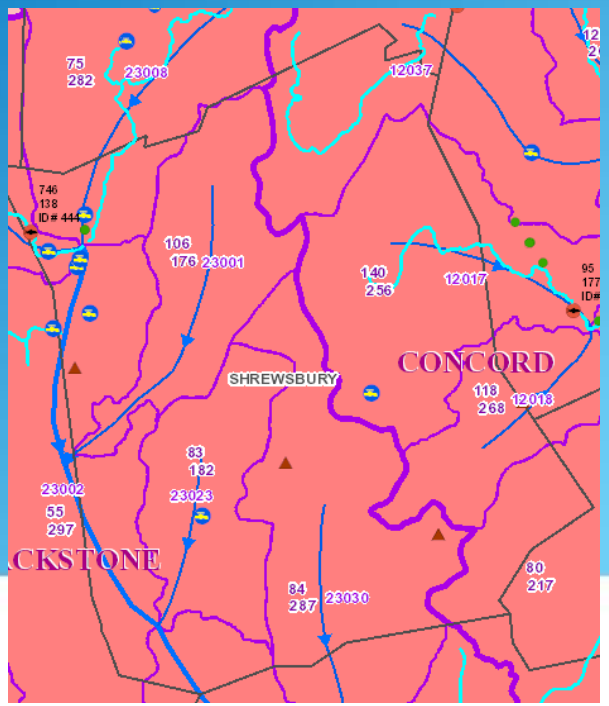


Sustainable Water Management Initiative
Water Management Act Permitting

Example:

Shrewsbury

- Permit Issued by MassDEP on January 21, 2014 (before new regulations)
- Appealed by Blackstone River Coalition, et. Al on February 11, 2014
- Settlement agreement signed on June 17, 2015



- Total WMA Authorization = 4.35 MGD
- Baseline = 3.91 MGD (2005)
- Projected Increase above Baseline = .44 MGD
- Permit Conditions:
  - Groundwater and Streamflow Monitoring
  - Performance Standards for Residential Gallons Per Capita Day Water Use and Unaccounted for Water
  - Seasonal Limits on Non-essential Use
  - Water Conservation Requirements
  - Submission of a Mitigation Plan
    - I/I Elimination Program, Stormwater Recharge Projects, Septic Recharge, Habitat Improvement, Dam Removal, Land Purchase
    - Identified .257 MGD of credit
  - Unaccounted for Water Compliance Plan

Sustainable Water Management Initiative
Water Management Act Permitting

Water Management Act Permit Renewal Schedule:

- Concord Basin
  - Towns: Acton, Ashland, Hopkinton, Hudson, Marlborough, Maynard, Sudbury, Wayland, Westborough
  - Applications filed by August 31, 2015-Existing Permits Administratively Continued
  - Meetings with MassDEP ongoing
- Taunton Basin
  - Towns: Foxborough, Wrentham
  - Applications filed by November 2009-Existing Permits Administratively Continued
  - Meetings with MassDEP ongoing
- Boston Harbor Basin
  - Towns: Foxborough, Medfield
  - Applications filed by November 2009-Existing Permits Administratively Continued
  - Meetings with MassDEP ongoing

Water Management Act Permits Already Renewed:

- Charles Basin
  - Towns: Bellingham, Franklin, Holliston, Medfield, Medway, Milford, Millis, Natick, Norfolk
  - Renewed February 2010
  - New conditions when next reviewed??
- Blackstone Basin
  - Towns: Bellingham, Grafton, Hopedale, Shrewsbury, Upton
  - Renewed February 2010
  - New conditions when next reviewed??

Additional Resources

Conservation:

- MA Water Conservation Standards: http://www.mass.gov/eea/docs/eea/wrc/water-conservation-standards-rev-june-2012.pdf

Water Funding/Rates:

- WIFC Report: https://mwwa.memberclicks.net/assets/documents/wifc_report.pdf
- Division of Local Mandates Water Study: http://www.mass.gov/auditor/docs/dlm municipal/011717-costs-regulation-and-financing-of-mass-water-infrastructure-implications-for-municipal-budgets.pdf
- Tighe & Bond Rate Survey: http://rates.tighebond.com/
- UNC Environmental Finance Center Rates Dashboard: http://www.efc.sog.unc.edu/reslib/item/massachusetts-water-and-wastewater-rates-dashboard#

Water Management Act:

- Sustainable Water Management Initiative: http://www.mass.gov/eea/agencies/massdep/water/watersheds/sustainable-water-management-initiative-swmi.html
- Water Management Act Regulations: http://www.mass.gov/eea/agencies/massdep/water/regulations/310-cmr-36-00-the-water-management-act-regulations.html
- Water Management Act Permits: http://www.mass.gov/eea/agencies/massdep/water/watersheds/water-management-act-permits-and-decisions.html

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