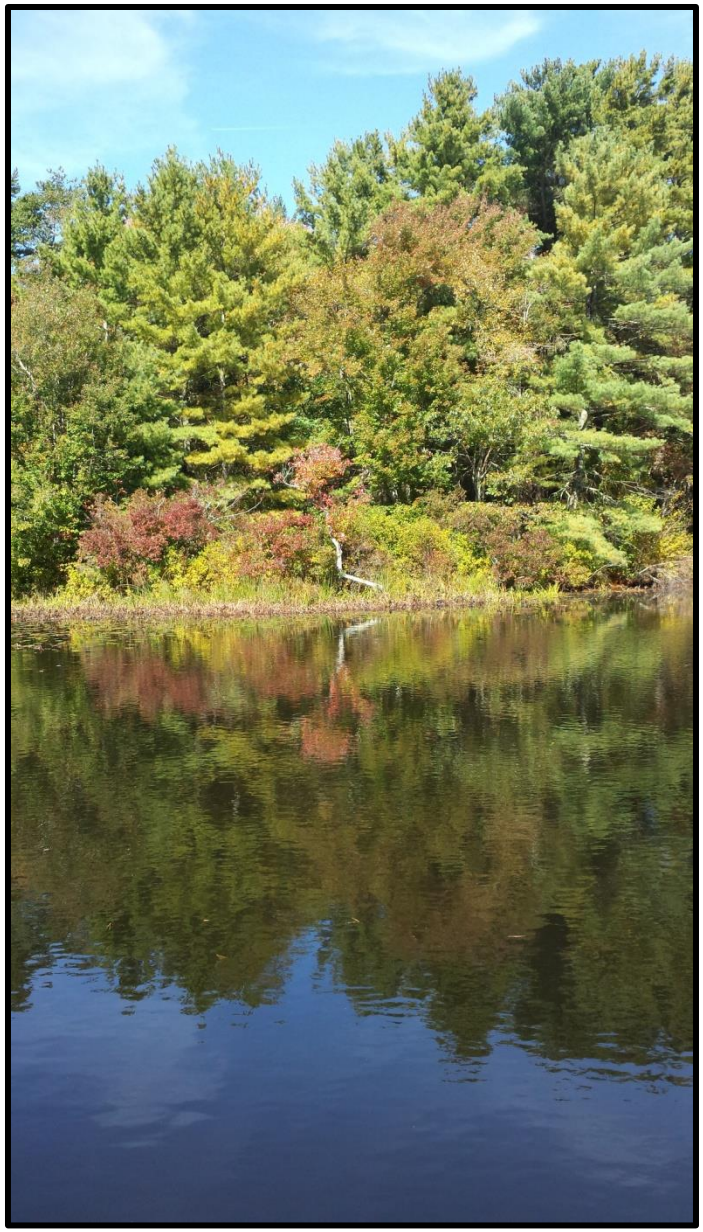
Proposed Revisions to the Massachusetts Water Conservation Standards

Massachusetts Water Resources Commission
February 8, 2018
Vandana Rao, EOEEA
Anne Carroll, DCR Office of Water Resources

Presentation Overview

- Purpose of the Water Conservation Standards (WCS)
- WCS Timeline
- Revision Process
- Summary of Comments
- Summary of Revisions
- Next Steps

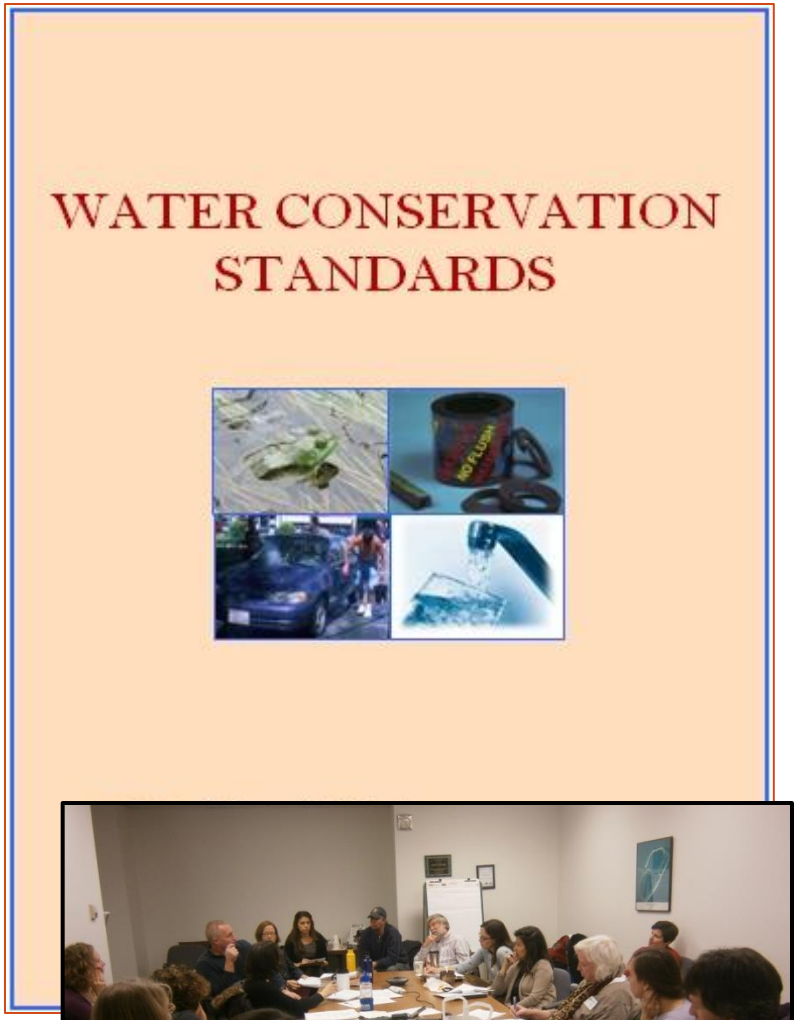


Purpose of the Standards

- Set statewide goals for water conservation & water-use efficiency; provide guidance on effective conservation measures.
- Standards represent best practices; should be adopted by water suppliers, water users, & state agencies in water resources planning & management programs, and in issuing water-use permits or approvals.
- Recommendations indicate trends in water-use efficiency; encouraged where practicable.

WCS Timeline

- 1992, Water Conservation Standards
- 2006, major update
- 2012, minor update
- 2013 – 2015, work on major updates
- 2015, Presentations to WRC and March, April, & May
- 2016-17, Revisions in response to comments; internal review



Revision Process

- Workgroups convened 2013-2014 with stakeholders and content experts
- 12 meetings
- Focus on updates to
  - Metering
  - Water Audits and Leak Detection
  - Residential
  - Outdoor Water Use
  - Pricing
  - Agriculture
- Drafts presented to MA WRC March, April, May 2015

Workgroup Members

- Wayne Castonguay, Ipswich River Watershed Association
- Eileen Commane, Dedham Westwood Water District
- Stephen Estes-Smargiassi, MWRA
- Colleen Heath, CDM Smith
- Christine Millhouse, Attleboro Water Dept
- Matt Mostoller, Acton Water District
- Leah Stanton, Weston and Sampson
- Samantha Woods, North and South Rivers Watershed Association
- Staff from DCR, DEP, DFG, DAR and EEA

Content Experts Chapter 4, Pricing

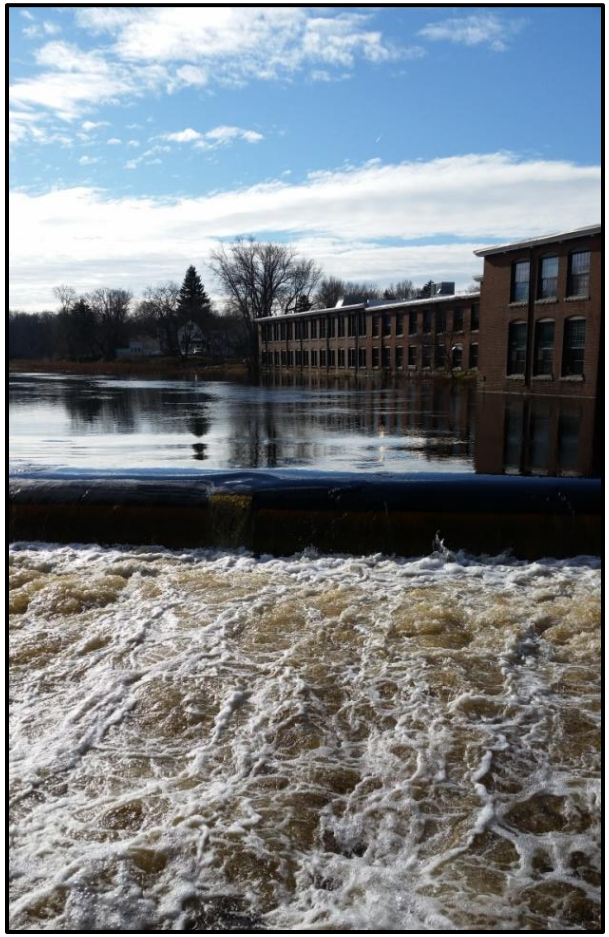
- Alan Cathcart, Concord Water & Sewer
- Eric Hooper, Sharon DPW
- Nancy Hammett, Consultant
- Dr. Rob Johnston, Clark University
- Chris Woodcock, Woodcock Associates

Content Experts Chapter 9, Outdoor

- Rich Bradley, Superscape Landscape
- Dr. J. Scott Ebdon & Mary Owen, UMass

Overall Revision Goals

- Reflect current best management practices in the water industry
- Incorporate updates in technology and national efficiency standards
- Improve readability and user experience
- Address 2015 Comments
- Review in light of 2016 drought



Comments Received

Comments received from these organizations and individuals:

- Massachusetts Water Works Association, April 8, May 22 and June 9, 2015
- Paul Lauenstein (via email to WSCAC, April 22, 2015)
- Ian Cooke (via email), June 8, 2015
- Christopher Woodcock and Kenneth Mirvis, June 15, 2015
- Other informal email communications

Summary of Comments

General

- Stakeholder process appreciated
- Request at least 45 days for public comment
- Request cost-benefit analysis, monetary assistance to those affected
- Should include more quantitative measures

Water Loss Control (Chapter 2)

- New title to reflect more comprehensive approach to water loss control
- Align chapter with latest industry guidance from:
  - International Water Association (IWA)
  - American Water Works Association (AWWA)
  - Environmental Protection Agency, (EPA)
  - Water Research Foundation (WRF)
- Introduction includes:
  - IWA Water Balance
  - EPA Water Loss Control Program steps
  - Summary of real loss intervention strategies

2.2 THE WATER BALANCE

System Input Volume	Authorized Consumption	Billed Authorized Consumption	Billed Metered Consumption	Revenue Water
			Billed Un-metered Consumption	
		Unbilled Authorized Consumption	Unbilled Metered Consumption	Non Revenue Water (NRW)
			Unbilled Un-metered Consumption	
	Water Losses	Apparent Losses (Commercial Losses)	Unauthorized Consumption	
			Customer Meter Inaccuracies	
			Systematic Data Handling Errors	
		Real Losses (Physical losses)	Leakage in Transmission and Distribution Mains	
			Storage Leaks and Overflows from Water Storage Tanks	
			Service Connections Leaks up to the Meter	

Figure 2-1. The AWWA/IWA Water Balance Table.

Water Loss Control (Chapter 2)

- Standards reworked to emphasize importance of:
  - Implementing comprehensive water loss control program
  - performing AWWA M36 Water Audit
  - performing leak detection as part of a program
- New recommendations added for:
  - water loss control programs
  - pressure management
  - service leakage
  - automated leak detection

Plate 5 – Leak on customer service connection

Summary of Comments

Chapter 2 – Water Loss Control

- Support for majority of proposed changes
- Clarify CEMU definition
- Eliminate 10% UAW standard
- Include comprehensive audit as a recommendation

Metering (Chapter 3)

- Updated to incorporate new AWWA guidance & input from Working Group

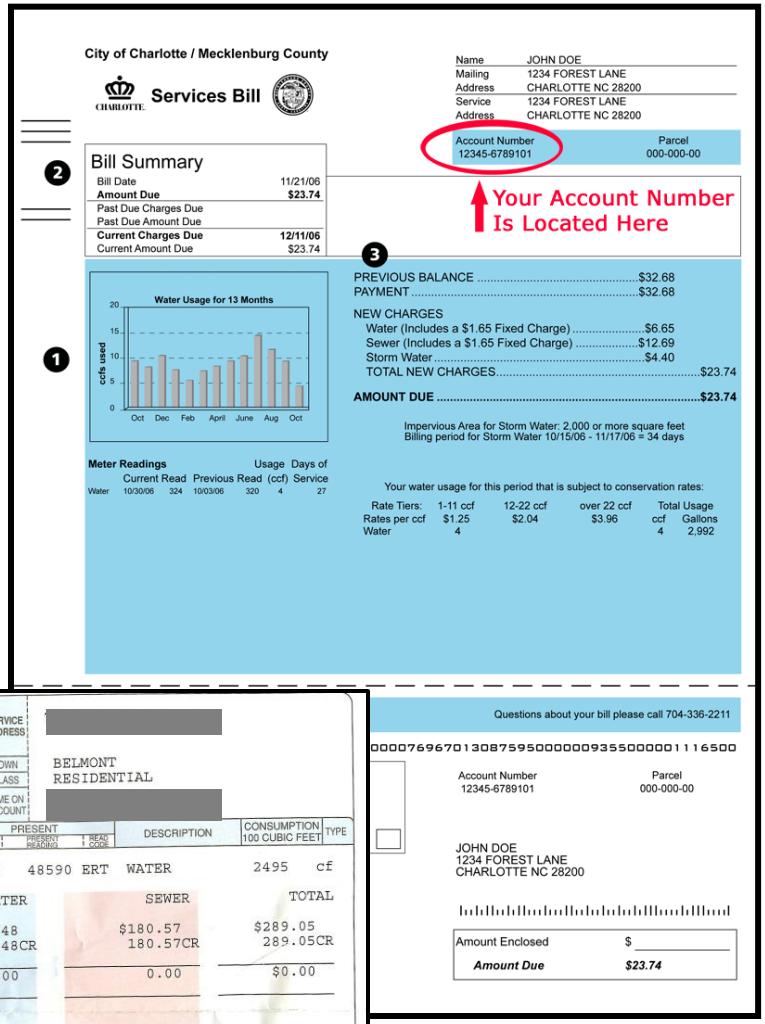
Updates to Standards:

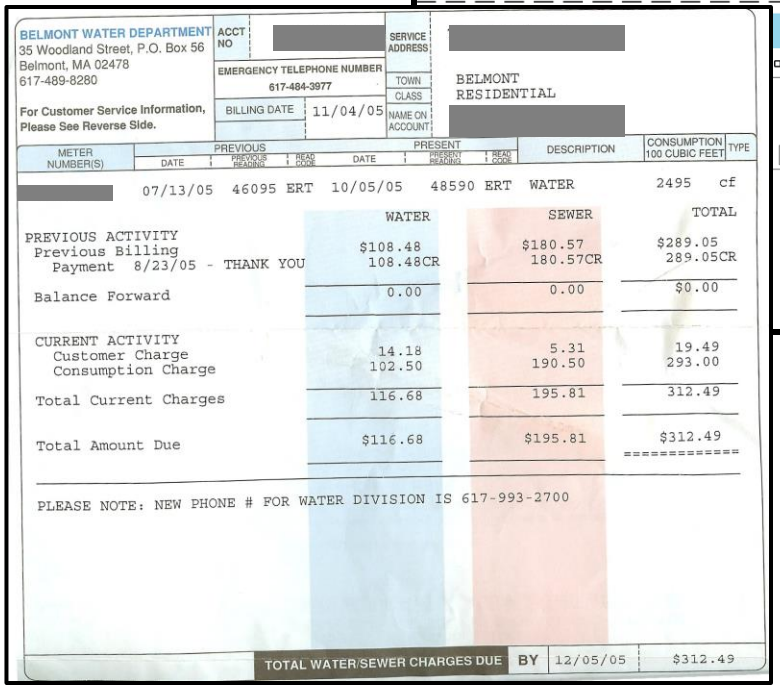
- New standard for metering water sources
- New standard requiring <u>annual</u> calibration of source, raw, treatment, & finished master meters
- Combined two standards to clarify calibration requirements for other meters, including large customer meters
- Minor edits to meter/repair replacement policy, meter sizing, and billing frequency

Metering (Chapter 3)

Recommendations, updates:

- New: bill monthly (or at a minimum, bi-monthly)
- Expanded remote reading recommendation includes advanced metering (e.g., AMR & AMI)





Summary of Comments

Chapter 3 – Metering

- Support for proposed changes
- Change language throughout from “smart-metering” to “advanced metering technology”

Pricing (Chapter 4)

- Updated to emphasize balancing competing goals of water supply budgeting & rate setting.
- Focus on sending strong water conservation price signals while achieving necessary cost recovery, stable revenue streams, & affordability.
- Standards include minor updates for clarity.
- Recommendations augmented to provide new guidance on:
  - innovative conservation-oriented rate structures
  - long-term planning & budgeting
  - pricing tools to improve equity and affordability of customer costs & utility revenue stability
  - billing practices & positive messaging that support conservation price signals
  - robust public engagement practices
- Lists tools to help suppliers meet standards & implement recommendations.

Summary of Comments

Chapter 4 - Pricing

- "Use Price Signals to Reduce Inefficient and Nonessential Use"
  - YES as Standard- cites conservation rates as AWWA best practice
  - NO as Standard- Rate setting very individual, not a good permit compliance measure, difficult to evaluate/enforce
- Clarify "budget-based rates", "meaningful" spread for block rates
- Concerns about fixed charges
- Enterprise Fund should be a standard

Residential Water Use (Chap. 5, Appendixes D & E)

- Highlights EPA's Water Sense program (2006), esp. higher efficiency standards for water-using fixtures & appliances
- Standard 2 rewritten & divided into two parts:
  - New Standard 1: directed to the public; states residential per capita standard simply & clearly for all water users.
  - Standard 2: directed to communities; states 65 rgpcd standard as a performance standard for communities & water suppliers.
- Recommendations consolidated & reorganized by audience
- Lawn & landscape recs moved to Chap. 9, Outdoor Water Use
- Appendixes D & E: updated content to reflect more recent data & studies

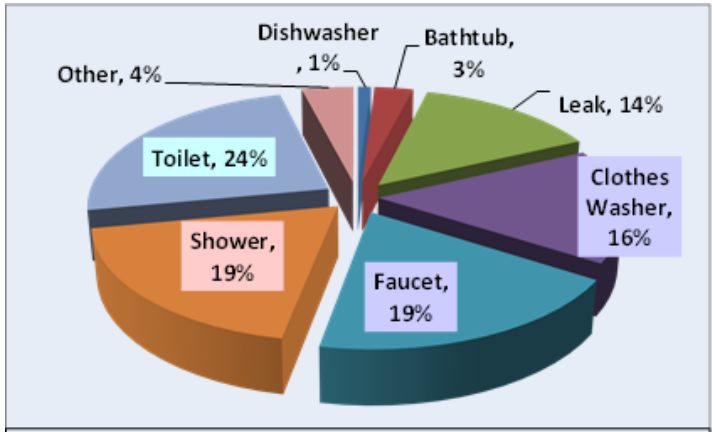


Figure 5-1. Daily household indoor water use (%) (737 homes, nationwide)

Data based on Residential End Uses of Water, Version 2. (DeOreo et al. 2016)

Summary of Comments

Chapter 5 – Residential Water Use

- Support for majority of proposed changes
- State should lead on "facilitate leak repair", not utilities
- Use caution on reuse - protect public health
- Strongly concur that WRC work on updating State Plumbing Code to encourage greater efficiency

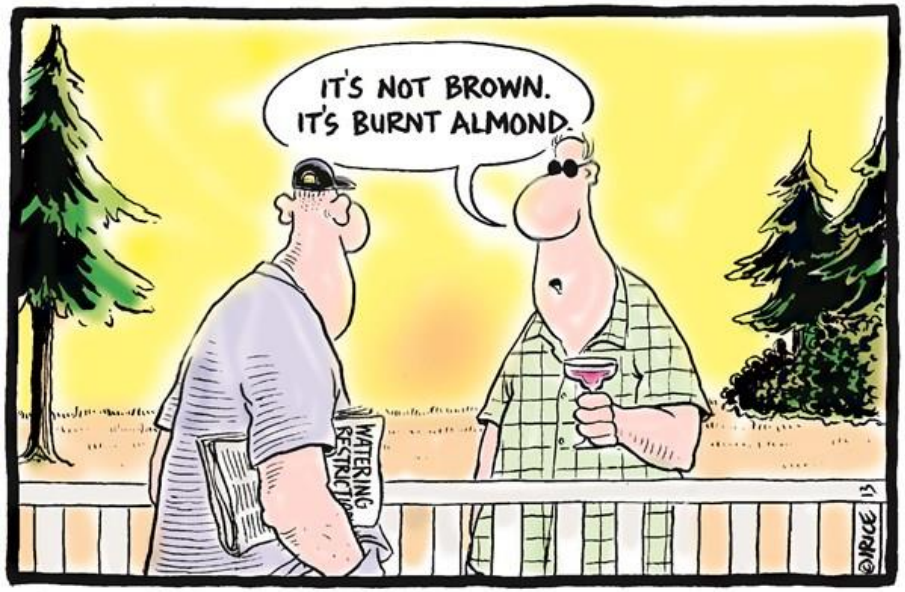
Outdoor Water Use

(formerly Lawn & Landscape: Chap. 9 & Appendixes I, J, & K)

- New title, broadened focus
- Emphasis:
  - Minimize <u>need</u> for watering by following established **water-smart principles**
- Water-Use Restriction Bylaw Standard
  - Apply to private wells *where warranted*
  - Clarifies applicability-Municipal Governments and Water Districts
- Two new standards added:
  - #2, addressing efficiency of irrigation systems
  - #3, addressing actions during drought conditions

Outdoor Water Use

- Recommendations consolidated & reorganized
- New recommendations:
  - #1, planning landscapes to reduce watering needs
  - #2 – 5, other outdoor uses of water besides landscape watering
  - #7 and #10, municipal government actions
- Added case study highlighting a success story



WHEN THE PRETENTIOUS EMBRACE WATER CONSERVATION...

Summary of Comments

Chapter 9 – Outdoor Water Use

- Support for majority of proposed changes
- Agree that "fully enforcing" be removed from standard

Agricultural Water Use - Chapter 8

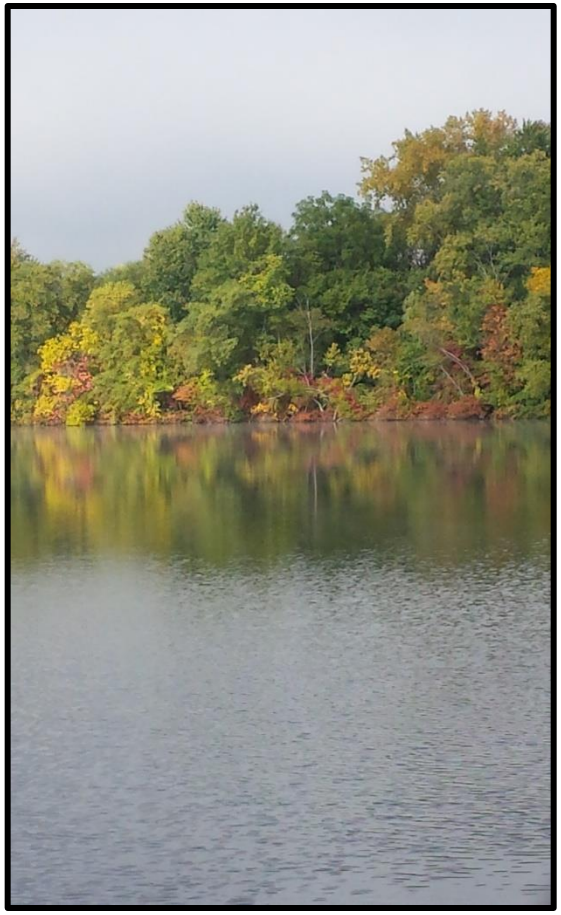
- Standards: One new standard was added to address soil health management.
- Recommendations, some new ones added; old recommendations reworked to advance and encourage:
  - #1, maintaining industry-specific best management practices
  - #2, developing and implementing a conservation plan
  - #3, use of micro-irrigation as a supplement
  - #4, uniform application of water from sprinkler systems
  - #5, periodically evaluating irrigation system efficiency
  - #6, maintaining adequate soil moisture
  - #7, adding organic matter to soil
  - #8, covering production soils throughout the year

Chapters 1, 6, 7 & 10

- **Chapter 1**: minor updates to reference recent drought & reflect current sources of planning guidance, including state-developed guidance
  - Added information on new resources for innovative water banking & water-neutral community growth
- **Chapter 6**: no additional changes
- **Chapter 7**: minor edits clarifying existing language
- **Chapter 10**: minor updates & improvements for clarity; eliminated recommendation to establish a State Water Conservation Coordinator at EEA

Next Steps

- 45-day comment period
- Continued discussion at March WRC meeting
- Accepting written comments
- Anticipated vote at April WRC meeting



Thank You For Your Input!

Send Comment Letters to:

VANDANA RAO

Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Boston, MA 02114

Email:
Vandana.rao@state.ma.us

Questions?
Comments?