Joshua Schimmel
Executive Director

Introduction
Overview of System
Presentation Summary

• Commission Goals and Services
• Systems Overview
• Capital Projects
• Water System Infrastructure Improvements
• Wastewater System Infrastructure Improvements
• Combined Sewer Overflows
• Commission Financials
• Proposed Changes to Rules and Regulations
• Summary and Closing Remarks
Commission Goals

Provide safe and reliable services through sustainable management:

- Meet federal and state standards for water and wastewater quality
- Maintain high quality drinking water
- Properly collect and treat wastewater
- Invest in our water and sewer systems
- Keep rates affordable
The Commission Provides Essential Services All Day, All Night, Every Day

Cobble Mtn. Reservoir → Water Treatment Plant → Transmission, Storage & Distribution System

Discharge to River → Wastewater Treatment Plant → Collection System
Major Commission System Components

- Littleville Reservoir
- Cobble Mountain Dam, Outlet Works and Hydro Tunnel
- Borden Brook Reservoir 2 BG Capacity
- Cobble Mountain Reservoir 22 BG Capacity
- Springfield Pumping Stations Flood Control: 7
  Sewage: 27
- 6 Miles 3 Transmission Mains to the City
- Cobble Mountain Hydro-Power Plant 33 MW Capacity
- 5 Miles Three Transmission Mains to Storage
- West Parish Filters Water Treatment Plant 100 MGD Capacity
- Springfield Regional Wastewater Treatment Plant 67 MGD Capacity
- Provin Mountain Storage Tanks 60 MG Capacity
- Standby System - Springfield Reservoir 2.2 BG Capacity
- Ludlow - Water Distribution System: 80 miles of pipe
- Springfield - Water Distribution System: 500 miles of pipe
  Sewer Collection System: 450 miles pipe

Legend:
- Transmission Main
- Commission Owned Land
- Wholesale Water Communities
- Retail Water Communities
- Peak/Emergency Water Communities

[Map showing the locations and components of the major commission system]

Connecticut
Robert Stoops
Chief Engineer

Capital Projects
System-Wide Major Projects

- Power Plant Improvements: $221,300
- SCADA Upgrade: $1,500,000
- Facilities Planning Project: $1,200,000
- West Parish Filters Water Treatment Plant
- Provin Mountain Storage Facility
- South Transmission Main Replacement Project: $24,000,000
- Springfield Infrastructure Improvements: $7,600,000
- Main Interceptor Rehabilitation and CSO Improvements Project: $23,400,000
Facilities Plan
Dams, Raw Water Conveyance System, Treatment Plant, Transmission Mains, and Storage Facility

Phase 1
• Assess asset condition, hydraulic capacity, structural integrity, redundancy, and reliability - complete
• Implement improvements based on findings in next 1-3 years

Phase 2
• Assess systems in context of meeting and exceeding water quality criteria, regulatory criteria, and operational optimization in FY 18
• Implement improvements in the next 3-10 years

Facilities Planning Project Cost (Phase 1 & 2) = $1.2 million
Green Energy Production & Plant Improvements
33-MW Cobble Mountain Hydro Power Plant

Energy production in FY 2015 = 21,800 Megawatts

Enough to supply power to 25,000 homes

Improvements in FY 15 = $221,300

FY 2015 Net Revenue $1,480,656
Intake Dam Assessment
Repair Project

Circa 1910 290-ft x 59-ft Concrete Gravity Dam and Spillway

- Performed a detailed Mechanical and Structural Condition Assessment
- Findings indicate significant mechanical repairs required within 3 to 5 years and structural concrete repairs required within 5 to 10 years
- Preliminary design to be complete in 2016

Estimated Project Cost = $12 million
Water Treatment Plant Projects

SCADA Upgrade

• Computer system that automates and monitors Treatment Plant operations
• Completed in Nov. 2015

Total Project Cost = $1,500,000

FRP Backwash Troughs

• Filters 1, 4, and 6 replaced in FY 16
• Remaining filters to be completed in FY 17-18

Estimated Project Cost = $480,000
South Transmission Main Replacement Project
South Transmission Main
Replacement Project

• A leak detection survey, internal inspection, and lab analysis of the main were performed, concluding that the pipe reached the end of its useful life

• Project consists of replacing the 6 mile pipeline from Provin Mountain to the Route 5 rotary by the South End Bridge

• Completion in Summer 2016

Total Project Cost = $24 million

Installation of 48-inch PCCP along Route 57
Infrastructure Improvements - Completed

Program Developed from Asset Management Information

- Rehabilitated:
  - 8,345-ft of sewer main
  - 44 manholes
- Replaced:
  - 334-ft of sewer main
  - 80-ft of water main
- Multiple sites throughout the City
- Completed in FY 16

Total Project Cost = $1,600,000

Replacement of 18-inch sewer within Stockbridge Street
Infrastructure Improvements - Upcoming

Program Developed from Asset Management Information

- Rehabilitating approximately
  - 6,300-ft of sewer main
- Replacing approximately
  - 3,700-ft of sewer main
  - 7,400-ft of water main
- Multiple sites throughout the City
- Project to begin in Summer 2016

Estimated Project Cost = $6,000,000
Main Interceptor Rehabilitation and CSO Improvements Project
Rehabilitation of a Critical Combined Sewer Pipeline

• Pipeline located in Springfield’s South End
• Carries flow for more than 60% of the City
• Inspection identified need for immediate rehabilitation
• Project consists of rehabilitating:
  • 3,200 feet of 60 and 66-inch diameter sewer pipe and associated manholes
  • Three CSO structures along the Connecticut River
• Anticipated Completion in FY 2017

Estimated Project Cost = $23,476,000
CT River Crossing and York Street Pump Station
Required under USEPA Administrative Order

Design and Permitting Phase 2017-2019 for the pipe crossing, new wastewater pump station, CSO Throttles and Influent Structure

**Estimated Project Cost = $6,000,000**

River Pipe Crossing Construction 2019-2022 includes three redundant conduits open cut across the CT River

**Estimated Project Cost = $31,500,000**

New York Street Pump Station Construction 2020-2022

**Estimated Project Cost = $36,300,000**

CSO Throttle Controls and Influent Structure Construction 2018-2020

**Estimated Project Cost = $6,600,000**
Daniel DiRienzo
Director of Field Services

Water Distribution System
Springfield and Ludlow Water Systems

- Approximately 580 miles of distribution mains
- Many distribution mains are unlined cast-iron 75 to 100 years old:
  - 77 miles of 6-inch diameter
  - 125 miles of 8-inch diameter

<table>
<thead>
<tr>
<th></th>
<th>Springfield</th>
<th>Ludlow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrants</td>
<td>5,584</td>
<td>673</td>
</tr>
<tr>
<td>Valves</td>
<td>16,697</td>
<td>2,270</td>
</tr>
<tr>
<td>Pipes (miles)</td>
<td>494</td>
<td>90</td>
</tr>
</tbody>
</table>
Distribution System
Infrastructure Maintenance

**Water Quality Statistics**

<table>
<thead>
<tr>
<th>Year</th>
<th>FY 15</th>
<th>Total*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrants Inspected</td>
<td>3,924</td>
<td>28,312</td>
</tr>
<tr>
<td>Hydrants Rebuilt/Repaired</td>
<td>627</td>
<td>5,062</td>
</tr>
<tr>
<td>Hydrants Painted</td>
<td>1,071</td>
<td>9,828</td>
</tr>
<tr>
<td>Valves Exercised</td>
<td>3,194</td>
<td>32,875</td>
</tr>
<tr>
<td>Pipe Flushed (miles)</td>
<td>103.75</td>
<td>759</td>
</tr>
</tbody>
</table>

*Since program began, 2006

**Water Main Replaced FY 15 = 7,009 feet**

**Water Main Breaks**

<table>
<thead>
<tr>
<th>Year</th>
<th>2014</th>
<th>2015</th>
<th>2016*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>57</td>
<td>67</td>
<td>20</td>
</tr>
</tbody>
</table>

*through May

**Water Distribution System Updates**

| New Hydrants | 17 |
| Replacement Hydrants | 97 |
| New Valves Installed | 151 |
| Valves Replaced | 45 |

**Water Main Breaks Statistics**

- Residential Water Consumption Surveys Performed: 391
- Primary Meters Installed/Replaced: 5,542
- Secondary Meters Installed/Replaced: 366
Joshua Schimmel
Executive Director

Wastewater Collection System
Wastewater Collection System

- 461 miles of sewer and combined sewer pipe
- 11,000 manholes
- Portions of pipe network up to 120 years old
- Partially separated storm and combined sewer system
- 27 sewage pumping stations
- 7 flood control pumping stations

Appliances used in the maintenance of sewers, 1899
Sewer Collection System

2015 Metrics & Performance

### 2015 Collection System Statistics

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewer Mains Jetted by the Commission</td>
<td>581,729 ft.</td>
</tr>
<tr>
<td>Sewer Mains Jetted by Contractors</td>
<td>161,002 ft.</td>
</tr>
<tr>
<td>Service Connections Rodded</td>
<td>284</td>
</tr>
<tr>
<td>Sewer Backup Complaints Responded To</td>
<td>759</td>
</tr>
<tr>
<td>Sanitary System Repairs</td>
<td>17</td>
</tr>
<tr>
<td>House Connection Repairs</td>
<td>129</td>
</tr>
<tr>
<td>Standing Mains Cleared</td>
<td>50</td>
</tr>
<tr>
<td>Manholes Washed and Cleaned</td>
<td>1,215</td>
</tr>
<tr>
<td>Cave-ins Repaired</td>
<td>171</td>
</tr>
<tr>
<td>Siphons Checked</td>
<td>266</td>
</tr>
<tr>
<td>Siphons Cleared</td>
<td>0</td>
</tr>
</tbody>
</table>

71% reduction in sanitary sewer overflows (SSO) as a result of O&M optimization and investment
Asset Management and Maintenance Program

2015 Metrics & Performance

- CCTV assessment of 109,000-ft of sewer system
- Removal of 305 tons of grit
- GIS mapping of 2,035 manholes and pipe segments
- Creation of maintenance maps for roots, grease, and structural defects
- Creation of Prioritized Capital Project List

Project Cost = $3,000,000 annually
Wastewater Treatment Facility

• Completed in 1977
• 95% federal funding grant
• Service population of 250,000

Design flow = 67 MGD
Average flow = 38 MGD
13.8 billion GPY treated
24/7/365 operation

Improvements in FY 15 = $340,000
Combined Sewer Overflows

- 700+ CSO communities across US
- CSO Discharges regulated by USEPA and MADEP
- 23 CSO Locations in Springfield
- Program administered via series of USEPA Administrative Orders
## CSO Program History

Required under EPA National Compliance Program
Driven by EPA Administrative Orders

<table>
<thead>
<tr>
<th>Project</th>
<th>Time Period</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mill River CSO</td>
<td>2003-2004</td>
<td>$4,800,000</td>
</tr>
<tr>
<td>Watershops Pond</td>
<td>2003-2006</td>
<td>$1,200,000</td>
</tr>
<tr>
<td>Washburn CSO Replacement</td>
<td>2006-2007</td>
<td>$7,900,000</td>
</tr>
<tr>
<td>Chicopee River CSO</td>
<td>2004-2009</td>
<td>$36,400,000</td>
</tr>
<tr>
<td>Phase I Connecticut River CSO</td>
<td>2005-2012</td>
<td>$18,352,000</td>
</tr>
<tr>
<td>Washburn CSO Phase II Design</td>
<td>2009-2012</td>
<td>$2,500,000</td>
</tr>
<tr>
<td>Washburn CSO Phase II Construction</td>
<td>2012-2016</td>
<td>$20,536,000</td>
</tr>
<tr>
<td>Integrated Wastewater Plan</td>
<td>2009-2014</td>
<td>$8,700,000</td>
</tr>
<tr>
<td>Main Interceptor and CSO Project</td>
<td>2015-2017</td>
<td>$9,126,000</td>
</tr>
</tbody>
</table>

$109,514,000
Integrated Wastewater Plan (IWP)
Balancing Regulatory Requirements with Sustainable Investment

• Plan balances regulatory requirements with investment in the Commission’s wastewater infrastructure
• Identifies and prioritizes more than $300 million of wastewater infrastructure investment over 40 years which satisfies USEPA and MassDEP existing regulations
• Includes Combined Sewer Overflows, Wastewater Treatment, and the Wastewater Collection System
• Financially feasible and affordable to customers
• Approval of the plan received in 2015
Anthony Basile
Comptroller
The Financial Plan
Revenue Fiscal Year 2017

Estimate - $71,005,873

- Retail Water: $22,486,965 (32%)
- Regional Water: $9,741,631 (14%)
- Regional Sewer: $8,160,908 (11%)
- Retail Sewer: $27,721,056 (39%)
- Power Generation: $1,500,000 (2%)
- Grant Revenue: $526,813 (1%)
- General: $868,500 (1%)

Total Estimate: $71,005,873
Spending By Category FY2017

Budget - $70,952,099

- Debt Service: $14,215,249 (20%)
- Bond Reserves: $757,977 (1%)
- Capital from Revenue: $9,045,000 (13%)
- Payroll: $14,080,700 (20%)
- Fringe: $7,649,136 (11%)
- Purchased Services: $20,428,130 (29%)
- Supplies & Materials: $3,022,550 (4%)
- Other: $1,753,357 (2%)

Total: $70,952,099
Spending By Division FY2017

Budget - $70,952,100

- Wastewater Treatment $14,481,879 20%
- Administration $6,378,288 9%
- Bond Reserves $757,977 1%
- Engineering $2,979,170 4%
- Water Supply $17,476,187 25%
- Sewer Collection $17,651,254 25%
- Water Distribution $11,227,345 16%
Capital Spending 2017-2019

Total $95,101,000

- Spending from Revenues
- Spending from Bond

<table>
<thead>
<tr>
<th>Year</th>
<th>Spending from Revenues</th>
<th>Spending from Bond</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>$9,045,000</td>
<td>$6,350,000</td>
</tr>
<tr>
<td>2018</td>
<td>$8,969,000</td>
<td>$12,900,000</td>
</tr>
<tr>
<td>2019</td>
<td>$10,879,000</td>
<td>$46,958,000</td>
</tr>
<tr>
<td>3-YearTotal</td>
<td>$28,893,000</td>
<td>$66,208,000</td>
</tr>
</tbody>
</table>

Total $95,101,000
## Retail Water and Sewer Rates

<table>
<thead>
<tr>
<th></th>
<th>FY2016 Eff. July 1</th>
<th>FY2017 Eff. July 1</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential &amp; Commercial</td>
<td>$2.78</td>
<td>$2.89</td>
<td>4.0%</td>
</tr>
<tr>
<td>Industrial &amp; Municipal</td>
<td>$2.07</td>
<td>$2.15</td>
<td>4.0%</td>
</tr>
<tr>
<td><strong>Sewer:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential &amp; Municipal</td>
<td>$4.56</td>
<td>$4.74</td>
<td>4.0%</td>
</tr>
<tr>
<td>Commercial &amp; Hospital</td>
<td>$5.01</td>
<td>$5.21</td>
<td>4.0%</td>
</tr>
<tr>
<td>Industrial</td>
<td>$5.46</td>
<td>$5.69</td>
<td>4.2%</td>
</tr>
<tr>
<td>Restaurant</td>
<td>$5.92</td>
<td>$6.16</td>
<td>4.2%</td>
</tr>
<tr>
<td><strong>Combined Water and Sewer:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typical Annual Household Bill</td>
<td>$916.53</td>
<td>$953.13</td>
<td>4.0%</td>
</tr>
</tbody>
</table>

Note: rates above are for each 100 cubic feet (or 748 gallons) of metered water.
## Average Annual Household Water and Sewer Bills

Source: MWRA December 2015 - for Fiscal Year 2016

<table>
<thead>
<tr>
<th>Location</th>
<th>Average Annual Bill</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revere, MA</td>
<td>$2,300</td>
</tr>
<tr>
<td>Gloucester, MA</td>
<td>$2,200</td>
</tr>
<tr>
<td>Quincy, MA</td>
<td>$2,100</td>
</tr>
<tr>
<td>Watertown, MA</td>
<td>$2,000</td>
</tr>
<tr>
<td>Portland, ME</td>
<td>$1,900</td>
</tr>
<tr>
<td>Chelsea, MA</td>
<td>$1,800</td>
</tr>
<tr>
<td>MWRA Average</td>
<td>$1,700</td>
</tr>
<tr>
<td>Walpole, MA</td>
<td>$1,600</td>
</tr>
<tr>
<td>Fitchburg, MA</td>
<td>$1,500</td>
</tr>
<tr>
<td>Lynn, MA</td>
<td>$1,400</td>
</tr>
<tr>
<td>Chicopee, MA</td>
<td>$1,300</td>
</tr>
<tr>
<td>Beverly, MA</td>
<td>$1,200</td>
</tr>
<tr>
<td>Providence, RI</td>
<td>$1,100</td>
</tr>
<tr>
<td>Worcester, MA</td>
<td>$1,000</td>
</tr>
<tr>
<td>Everett, MA</td>
<td>$900</td>
</tr>
<tr>
<td>Wilbraham, MA</td>
<td>$800</td>
</tr>
<tr>
<td>Springfield, MA 2017</td>
<td>$700</td>
</tr>
<tr>
<td>Brockton, MA</td>
<td>$600</td>
</tr>
<tr>
<td>Holyoke, MA</td>
<td>$500</td>
</tr>
<tr>
<td>Lawrence, MA</td>
<td>$400</td>
</tr>
<tr>
<td>Lowell, MA</td>
<td>$300</td>
</tr>
</tbody>
</table>

Source: MWRA December 2015 - for Fiscal Year 2016
Domenic Pellegrino
Finance Director

Proposed Rules and Regulations Changes
Chapter 5 – Schedule of Rates, Fees, Charges and Penalties

### Section 5.2 Water Rates

<table>
<thead>
<tr>
<th>Class of Customer</th>
<th>FY 2016</th>
<th>FY 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential (per 100 cu.ft.)</td>
<td>$2.78</td>
<td>$2.89</td>
</tr>
<tr>
<td>Commercial (per 100 cu.ft.)</td>
<td>$2.78</td>
<td>$2.89</td>
</tr>
<tr>
<td>Industrial (per 100 cu.ft.)</td>
<td>$2.07</td>
<td>$2.15</td>
</tr>
<tr>
<td>Municipal (per 100 cu.ft.)</td>
<td>$2.07</td>
<td>$2.15</td>
</tr>
</tbody>
</table>

### Section 5.8 Sewer Rates

<table>
<thead>
<tr>
<th>Class of Customer</th>
<th>FY 2016</th>
<th>FY 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential, Institutional and Municipal (per 100 cu.ft.)</td>
<td>$4.56</td>
<td>$4.74</td>
</tr>
<tr>
<td>Commercial and Medical Facility (per 100 cu.ft.)</td>
<td>$5.01</td>
<td>$5.21</td>
</tr>
<tr>
<td>Industry Wet &amp; Dry (per 100 cu.ft.)</td>
<td>$5.46</td>
<td>$5.69</td>
</tr>
<tr>
<td>FSE (per 100 cu.ft.)</td>
<td>$5.92</td>
<td>$6.16</td>
</tr>
</tbody>
</table>

All Changes Effective FY 2017: July 1, 2016
Rules and Regulations Proposed Changes
All Changes Effective FY 2017: July 1, 2016

Copies of the Rules and Regulations Proposed Changes are available by request.
Joshua Schimmel
Executive Director
Summary and Closing Remarks
What is the Value of Water?

Reliable Water and Sewer Services are Vital for:

- Public Health
- Fire Protection
- Economic Development
- Quality of Life
What is the Value of Water?

Facing Aging Infrastructure and Regulatory Challenges

**Challenge 1: An Aging Infrastructure**

Parts of the water and sewer infrastructure in the City of Springfield date back to the late 1800s. The pipes are aging and in some cases, in need of repair and replacement.

![Example of corrosion on a 1928 transmission main](image)

In February 2012, the Commonwealth of Massachusetts’ Water Infrastructure Finance Commission published a report estimating the funding gap for needed water and wastewater investments at **$21.4 billion**.
What is the Value of Water?

Facing Aging Infrastructure and Regulatory Challenges

**Challenge 2: Regulatory Mandates**

The Commission has been working to reduce overflows from Combined Sewer Overflows since 2003, and will continue to do so for the next 40 years and beyond.

In addition to CSOs, the Commission meets and surpasses multiple Safe Drinking Water Act regulations every single day.
Legislation and Regulations

Safe Drinking Water Act: 90 Regulated Contaminants, Stage 2 Disinfection Byproduct Rule, Long Term 2 Enhanced Surface Water Treatment, Lead and Copper Rule, Total Coliform Rule, Unregulated Contaminant Monitoring, Contaminant Candidate List

Clean Water Act: NPDES Permit for Water Treatment Plant, NPDES Permit for Wastewater Treatment Plant, Solids Regulations, Zero Discharge, Nutrient Removal, CSO’s, Stormwater BMP’s, CMOM

What is the Value of Water?
Facing Aging Infrastructure and Regulatory Challenges

**Investment**
- Water Facilities Plan
  - Phases 1&2
  - $1.2 million
- South Transmission Main Replacement Project
  - $24 million

**Regulatory Requirements**
- CSO Reduction Spending to Date
  - $100+ million

**Sustainability**
- Infrastructure Improvements (three years)
  - $14.6 million
- Main Interceptor Rehabilitation Project
  - $23.4 million
Springfield Water is a Great Value!
Springfield Water is a Great Value

Average Annual Household Water and Sewer Bills
Source: MWRA December 2015 - for Fiscal Year 2016

- Revere, MA
- Gloucester, MA
- Quincy, MA
- Watertown, MA
- Portland, ME
- Chelsea, MA
- MWRA Average
- Walpole, MA
- Fitchburg, MA
- Lynn, MA
- Chicopee, MA
- Beverly, MA
- Providence, RI
- Worcester, MA
- Everett, MA
- Wilbraham, MA
- Springfield, MA 2017
- Brockton, MA
- Holyoke, MA
- Lawrence, MA
- Lowell, MA

Average Annual Household Water and Sewer Bills

- $0
- $500
- $1,000
- $1,500
- $2,000
- $2,500

Source: MWRA December 2015 - for Fiscal Year 2016
Springfield Water and Sewer Commission, Continuously Working for a Better Future

For more information, please contact:
Joyce Mulvaney, Public Communications Manager
413-452-1302
Info@waterandsewer.org