This presentation premiered at WaterSmart Innovations

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Regional Water Efficiency and Demand Management Planning – From Colorado to NYC

PETER MAYER, P.E.
WATER DEMAND MANAGEMENT
Regional Water Efficiency and Demand Management Planning

- New York, New York
- Roaring Fork Valley, Colorado
- Northern Water, Colorado

- 3 unique initiatives
NYC - Upstate Wholesale Demand Management Program
New York City Department of Environmental Protection (DEP) is the largest combined water and wastewater utility in the United States, with 6,000 employees and an annual budget of more than $1 billion.

**WATER SUPPLY**
- Deliver almost 1 billion gallons of water to 9 million New Yorkers every day and maintain 7,000 miles of water mains
- Protect approximately 2,000 square miles of watershed, including 19 reservoirs and three controlled lakes

**WASTEWATER TREATMENT**
- Treat almost 1.3 billion gallons of wastewater each day
- Operate and maintain 14 plants, 96 pumping stations, and over 7,500 miles of sewers

**AIR, NOISE, AND HAZARDOUS WASTE**
- Enforce the NYC Air Pollution Control Code to reduce local emissions, enforce the NYC Noise Code, and regulate hazardous waste
DEP’s Water Demand Management Program

Working toward a 20 MGD reduction in demand by 2022

Retrofit and replace water fixtures at Schools, Parks, WWTPs, NYCHA, FDNY and Colleges

Replace inefficient fixtures in residential buildings

Create voluntary conservation programs in non-residential sectors and provide cost sharing

Continue leak detection, pressure management, and metering

Adopt Water Shortage Rules, and emergency rates

Develop demand management plans for 10 upstate wholesale customers and implement them
2022 Delaware Aqueduct Repair

The Water for the Future program has been initiated to address leaks in one of the two main aqueducts that supplies drinking water to New York City and other upstate communities, the Delaware Aqueduct. Together, through engineering repairs and innovative conservation, we will enjoy the safe, clean, reliable drinking water for generations to come.
Utility Partners

1. Village of Ossining
2. Town of New Windsor
3. City of Mount Vernon
4. Village of Scarsdale
5. City of Yonkers
6. Westchester Joint Water Works
7. Town of Greenburgh
8. SUEZ Westchester
9. Village of Tarrytown
10. Westchester County: White Plains*
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<tr>
<td>Village of Scarsdale 0.16 MGD Goal</td>
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<td>City of Mount Vernon 0.38 MGD Goal</td>
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<td>City of Yonkers 1.31 MGD Goal</td>
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<td>Town of New Windsor 0.15 MGD Goal</td>
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<td>Westchester Joint Water Works 0.45 MGD Goal</td>
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<td>Town of Greenburgh 0.32 MGD Goal</td>
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<td>SUEZ 0.92 MGD Goal</td>
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<td>Village of Tarrytown 0.09 MGD Goal</td>
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NYC Lessons Learned

- $$$ and shared purpose brings people to the table
- Many, but not all fundamental practices in place (metering in place, billing practices lagging)
- Changing fundamental practices is hard
- Water loss and economics of non-revenue water long ignored
- NYC has very specific requirements and rules including the timing of water savings
- Differences between public and investor owned utilities (SUEZ)
- Cooperation between agencies exists (interconnections), but not in demand management space
Roaring Fork Water Efficiency Plan

Beom Courtney, P.E.

Peter Mayer, P.E.
Project Overview (2013 – 15)

- Municipal Water Efficiency Planning
  - Reduce future municipal demands relative to without the plans
  - Part of overall watershed effort to increase stream flows

- 5 Individual Plans
  - Programs that can be implemented under local codes, resources, etc.
  - Provide flexibility to make implementation effective

- Regional Plan
  - Programs that benefit from consistency and sharing resources
  - Unifies efforts
  - Funded by Colorado Water Conservation Board
Regional Water Efficiency Plan Goals:
To implement municipal water efficiency programs on a regional scale and to achieve higher and more effective benefits, compared to implementing the same programs individually.
Common Activities Across 5 Individual plans

<table>
<thead>
<tr>
<th>Water Efficiency Activities</th>
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<tr>
<td><strong>FOUNDATIONAL ACTIVITIES</strong></td>
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<tr>
<td>Automatic Meter Reading Installation and Operation</td>
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<td>Enhanced Water Loss Control</td>
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<td>Conservation-Oriented Rates</td>
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<td><strong>TARGETED TECHNICAL ASSISTANCE AND INCENTIVES, AND NATURAL REPLACEMENT OF FIXTURES AND APPLIANCES</strong></td>
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<td>Fixtures, Appliances, and Incentives</td>
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<td>Outdoor Water Efficiency</td>
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<td>Commercial, Institutional, and Industrial Water Efficiency</td>
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<td><strong>ORDINANCES AND REGULATIONS</strong></td>
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<td>Regulatory Measures</td>
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<td>Water Reuse, Recycling, and Raw Water Use</td>
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<td>Waste of Water Ordinance</td>
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<td>Landscape development regulations for new construction</td>
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<td><strong>EDUCATIONAL ACTIVITIES</strong></td>
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<td>Public Information, Customer Outreach and Education</td>
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Potential Regional Programs

- Water Loss Control Technical Assistance
- Regional Water Efficiency Education and Information Campaign
- Reduce Outdoor Water Use
- Improve Water Resources Management
January 6, 2017 Board Retreat

- Municipal water conservation, efficiency, and demand management are critical for future water supply.
- Increased urban efficiency has minimized agricultural dry ups.
- More can be achieved.
- Northern can provide needed leadership in urban water conservation.
1. Work collaboratively with water users/constituents
2. Recognize the diversity of needs and adapt the program accordingly
3. Develop a balanced approach that integrates the complexities of water management
4. Focus on urban water conservation
Northern’s Steps

**Implement**
Water Conservation officer – Frank Kinder
Restructuring of existing program

**Review**
Presentation to and review by the Board

**Assess**
Existing program and resources

**Compile**
Results from focus groups/interviews
Recommendations

**Carry Out**
Focus groups/interviews

**Case Studies**
Compile menu of water conservation measures from Case Studies
Interviews and Focus Groups

- Focus Groups - 2
  - Small Municipalities and Urban Irrigators
  - Water Districts and Medium Size Municipalities

- 6 individual interviews: Boulder, Broomfield, Fort Collins, Greeley, Longmont, Loveland
Implementation Progress

- Created Water Efficiency Program Manager position
- Hired Frank Kinder
- Changes to Berthoud campus
- Changes to Fall Field Day
- Landscaper training and certification
- Shared messaging opportunities
- Much more to come....
Region Planning – Lessons Learned

- It's a lot of work. Do it, when it makes sense
- Scale of the regional plan critical
  - Watershed
  - Wholesale provider
- Bring People to the Table
  - $$
  - Opportunity
  - Sense of purpose
- Flexibility
  - Adapt to provider constraints
  - Expand/contract/adapt
- Shared opportunity
  - Communication
  - Water loss control
  - Drought response
Thank You

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