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

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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



About NYC DEP

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



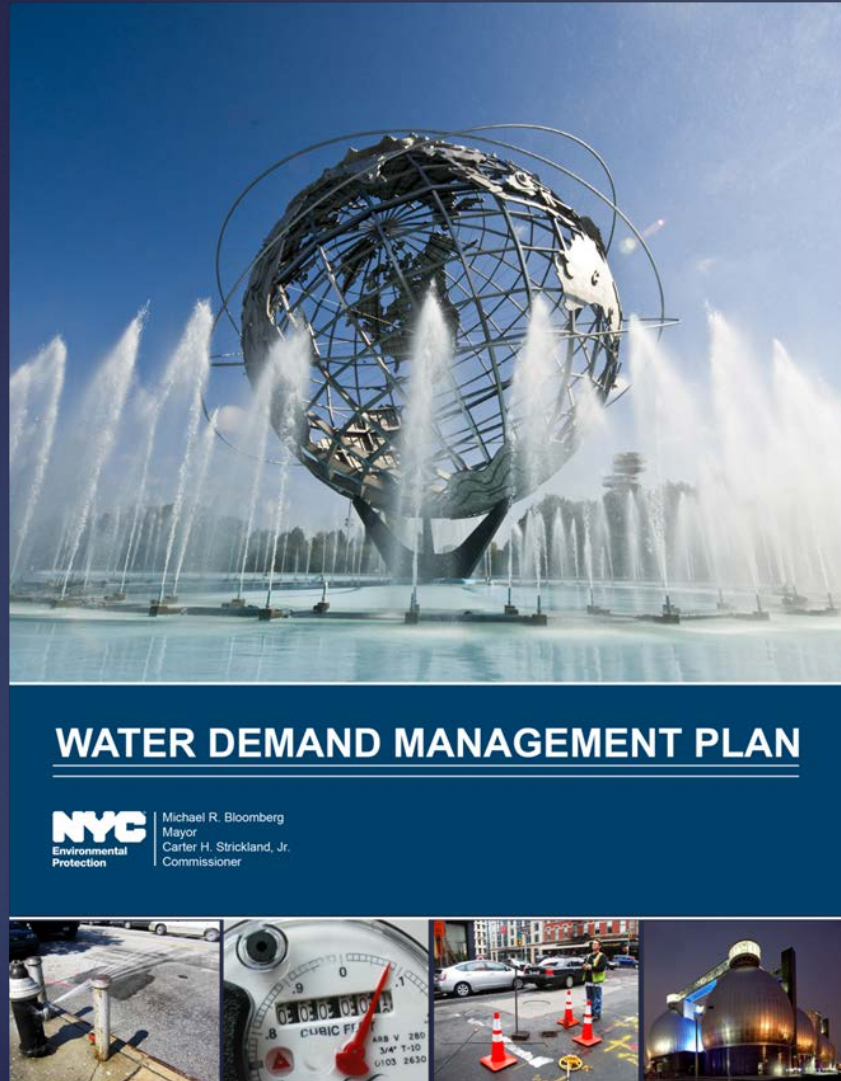
AIR, NOISE, AND HAZARDOUS WASTE

- 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

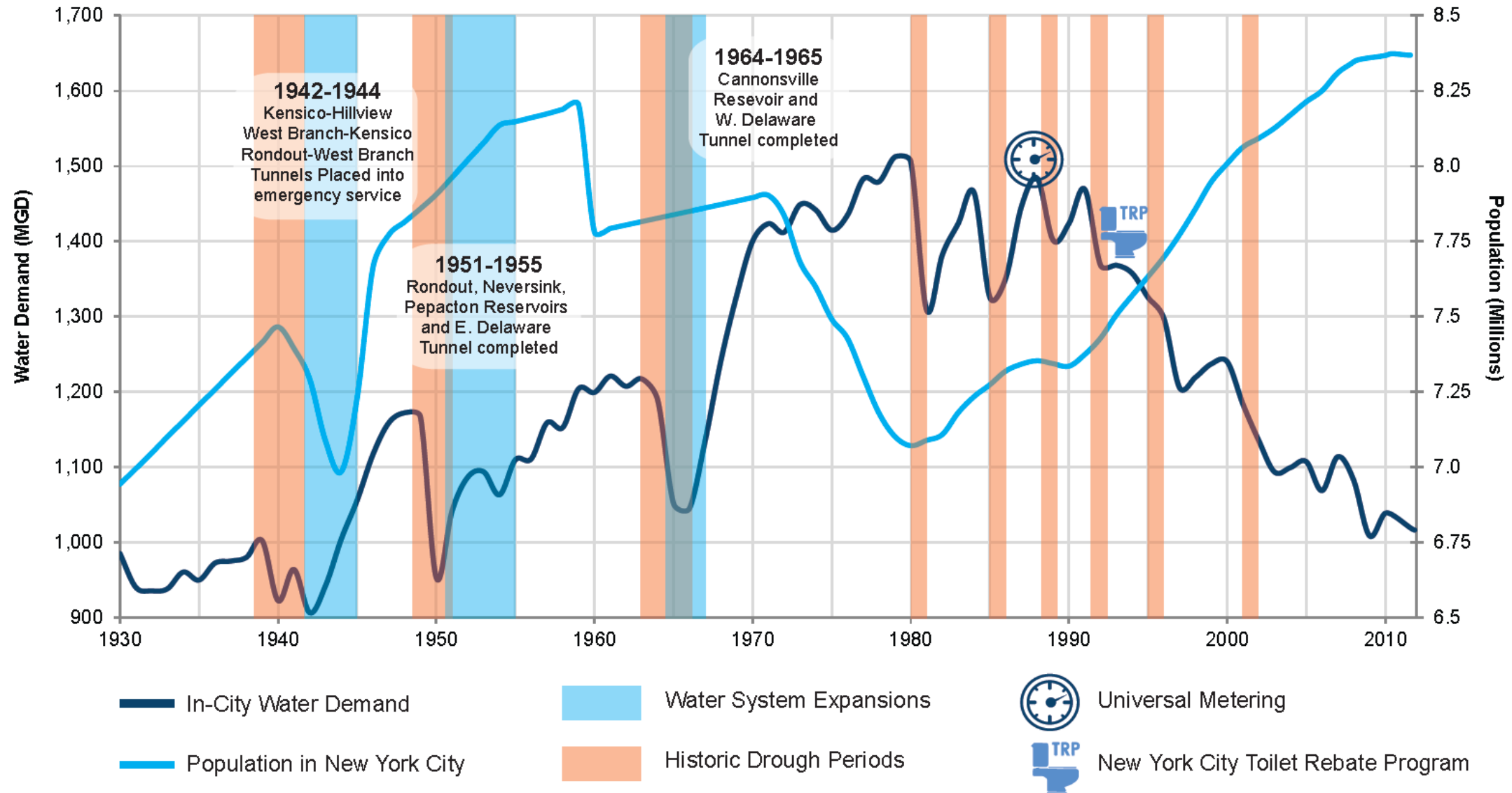


Adopt Water Shortage Rules, and emergency rates



Develop demand management plans for 10 upstate wholesale customers and implement them

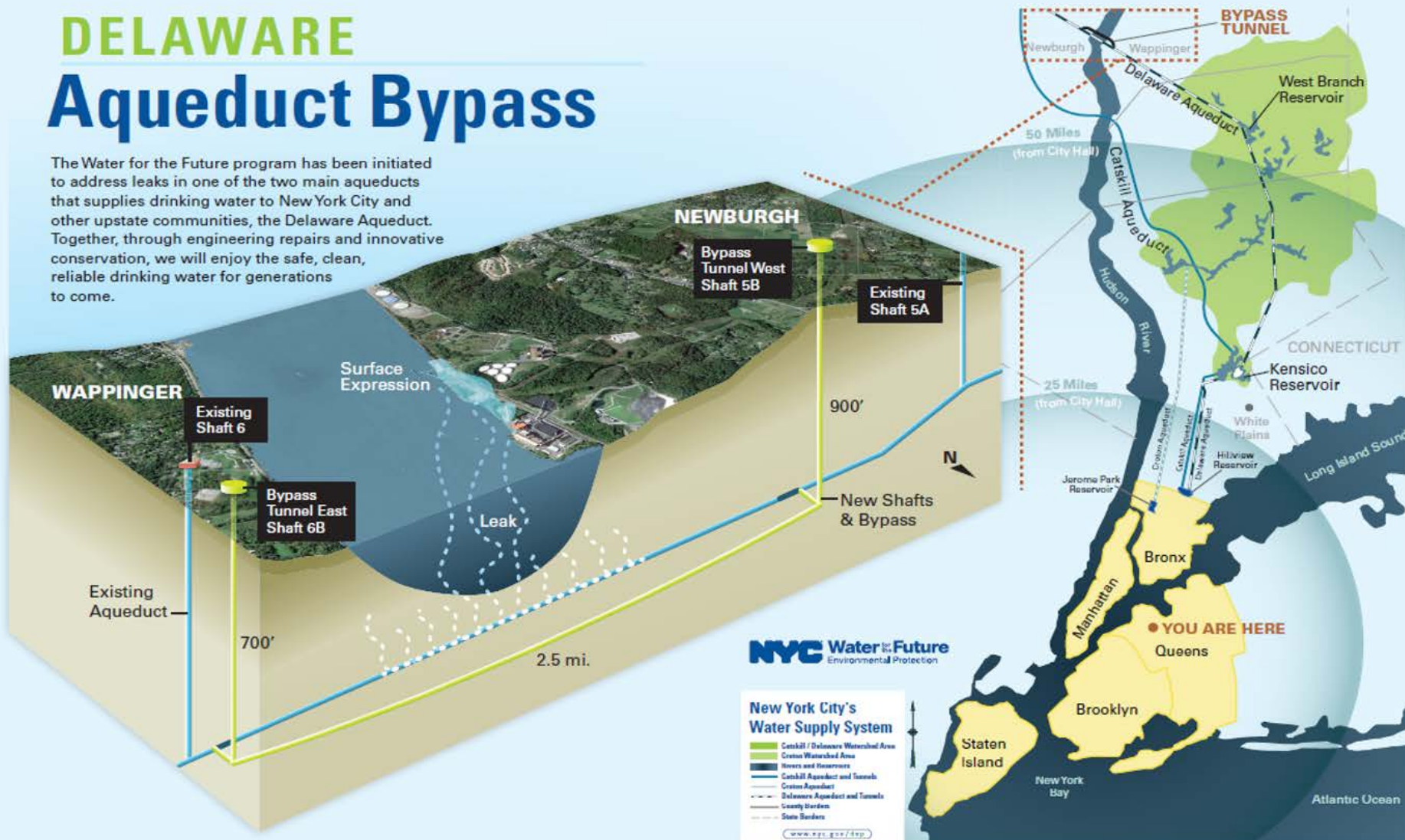
New York, New York



2022 Delaware Aqueduct Repair

DELAWARE Aqueduct Bypass

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.



Regional Planning

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*



Utility Partners

Village of Scarsdale
0.16 MGD Goal

- Water Loss Control – Leak Detection & Line Repair
- System-wide AMI
- Transition to monthly billing

City of Mount Vernon
0.38 MGD Goal

- Water Loss Control – Leak Detection and Line Repair
- Indoor Fixture Voucher Program
- Municipal Upgrades

City of Yonkers
1.31 MGD Goal

- Water Loss Control – Leak Detection & Line Repair
- AMI installations

Town of New Windsor
0.15 MGD Goal

- Water Loss Control – Leak Detection & Line Repair
- Water Filtration Plant Upgrades

Westchester Joint Water Works
0.45 MGD Goal

- Water Loss Control – Leak Detection & Line Repair
- System-wide AMI
- Transition to Monthly Billing

Town of Greenburgh
0.32 MGD Goal

- Water Loss Control – Leak Detection & Line Repair
- Indoor Fixture Voucher Program
- Transition to Monthly Billing

SUEZ
0.92 MGD Goal

- Extensive Water Loss Control

Village of Tarrytown
0.09 MGD Goal

- Water Loss Control – Leak Detection & Line Repair
- Municipal Upgrades

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



Beorn Courtney, P.E.

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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

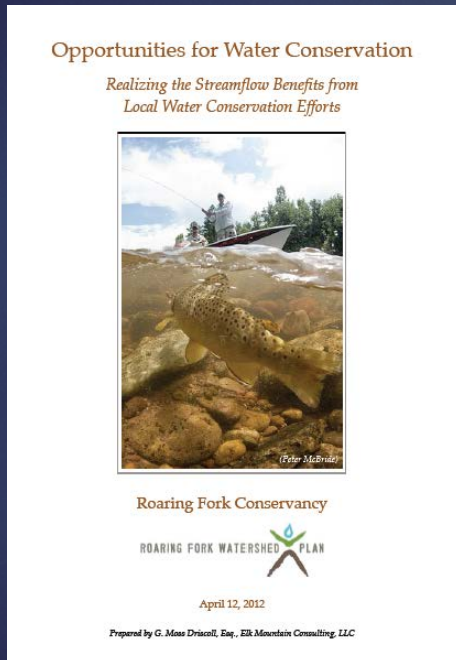
■ 5 Individual Plans

- 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

Watershed Plan -> Efficiency Plan



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



Water Efficiency Activities

FOUNDATIONAL ACTIVITIES

Automatic Meter Reading Installation and Operation

Enhanced Water Loss Control

Conservation-Oriented Rates

TARGETED TECHNICAL ASSISTANCE AND INCENTIVES, AND NATURAL REPLACEMENT OF FIXTURES AND APPLIANCES

Fixtures, Appliances, and Incentives

Outdoor Water Efficiency

Commercial, Institutional, and Industrial Water Efficiency

ORDINANCES AND REGULATIONS

Regulatory Measures

Water Reuse, Recycling, and Raw Water Use

Waste of Water Ordinance

Landscape development regulations for new construction

EDUCATIONAL ACTIVITIES

Public Information, Customer Outreach and Education

Potential Regional Programs



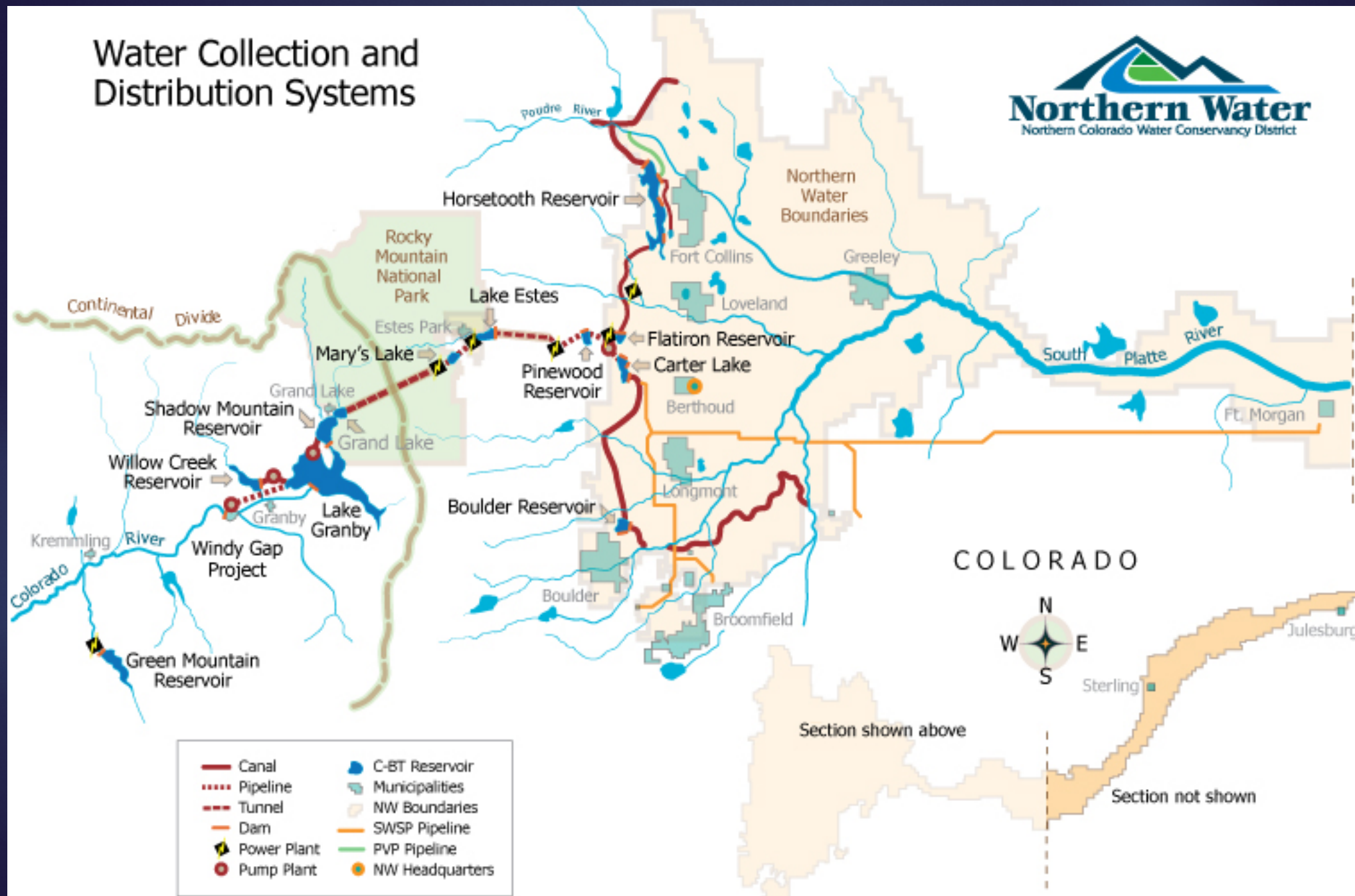
- Water Loss Control Technical Assistance
- Regional Water Efficiency Education and Information Campaign
- Reduce Outdoor Water Use
- Improve Water Resources Management



Northern Colorado Water Conservancy District

REGIONAL CONSERVATION PROGRAM DEVELOPEMENT

Water Collection and Distribution Systems



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

Approach

Northern's Steps



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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