

Public/Private Partnerships: How They Can Be Used in Water Resource Management



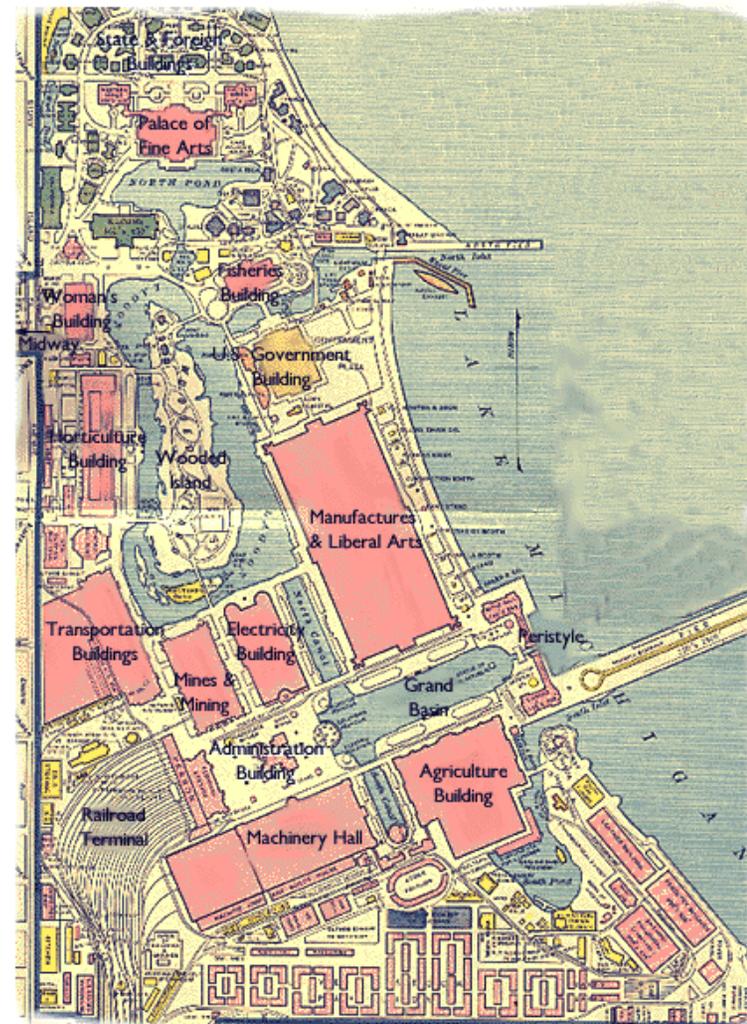
Presented at

**Straddling the Divide: Water Supply Planning in
the Lake Michigan Region**

**Dan Thompson
February 16, 2005**

1893 World's Fair in Chicago

- In 1892, a midnight raid to build a water pipeline from Waukesha, WI to the fair failed – ending with an armed standoff
- 100-mile pipeline was built from Big Bend, Wisconsin to supply “fresh” spring water
- Lake Michigan water was also supplied after it was aerated and boiled



Presentation Summary

- Private utilities' current role in the region
 - American Water background

- Common interests for resource management

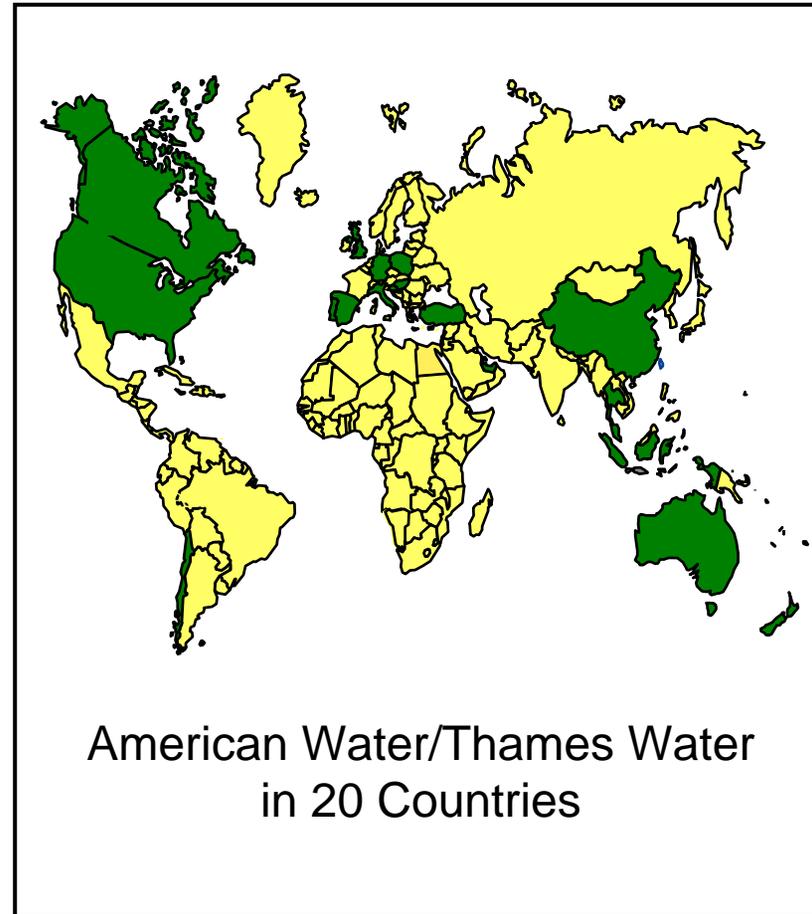
- Innovative solutions for resource management through Public/Private partnerships
 - Examples and success stories

Private Utilities Role in Water Resource Management

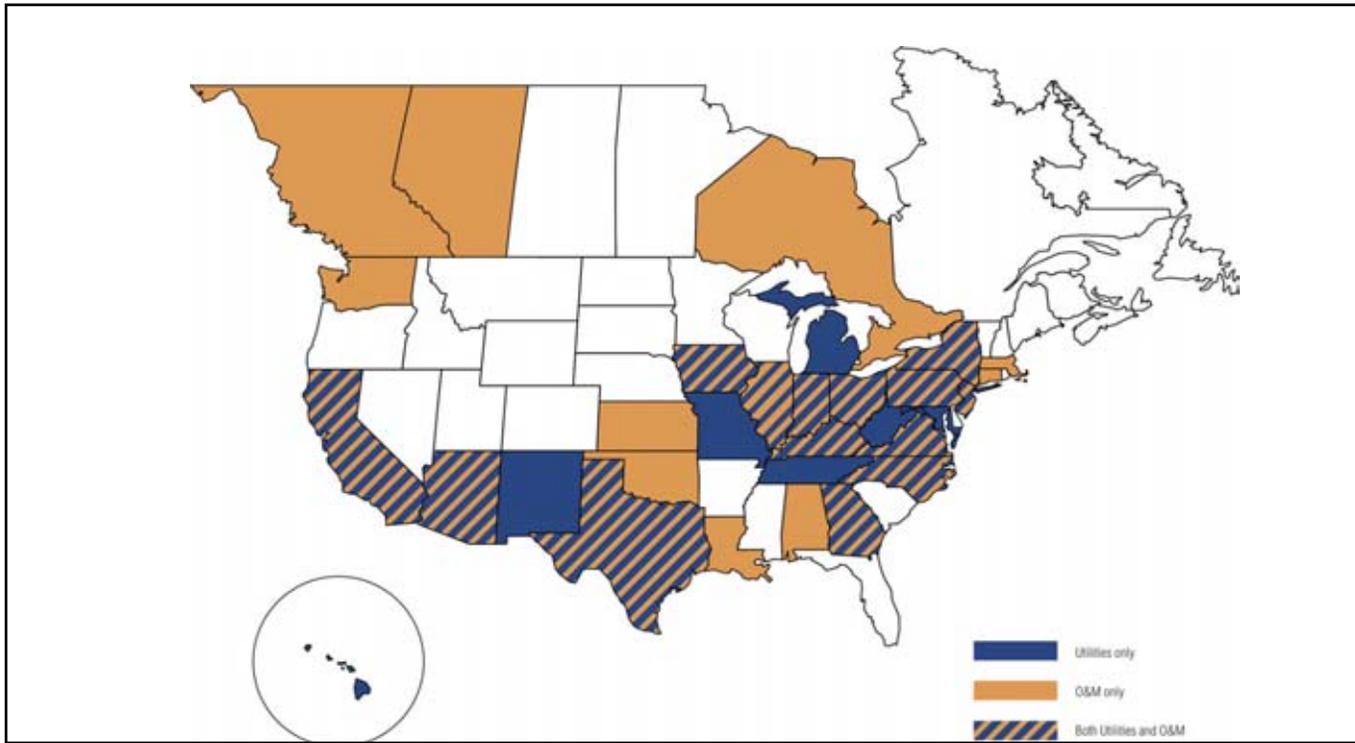
- Private utilities have a strong presence in the region
 - Provide water and wastewater service to more than two million people in Illinois and Indiana
 - Service provided in more than 200 municipalities
- Private utilities can bring nationwide and worldwide experience to help craft innovative solutions to regional issues
- Public/Private partnerships allow the public sector to capitalize on the strengths of the private partner

American Water Scope & Size

- Serves more than 18 million people in North America with water and/or wastewater service
- American Water and Thames Water are part of the water division of RWE group -- a Fortune 100 Company based in Germany
- Together with Thames Water we supply 70 million people around the world
- Operate over 600 water treatment plants and 600 wastewater treatment plants around the world



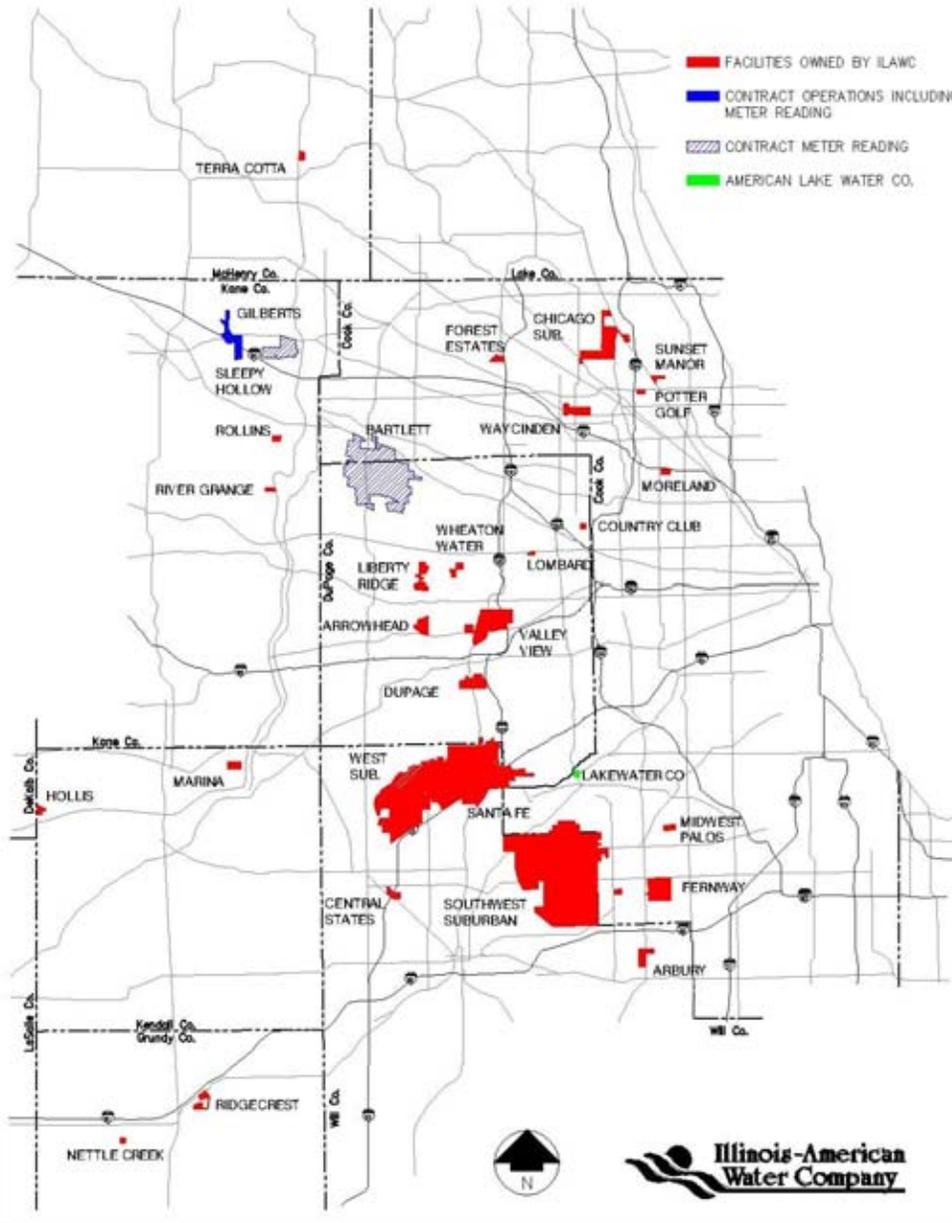
American Water Scope & Size



- In 29 States and 3 Canadian Provinces
- We operate more than 318 water treatment plants and 169 wastewater treatment plants in North America

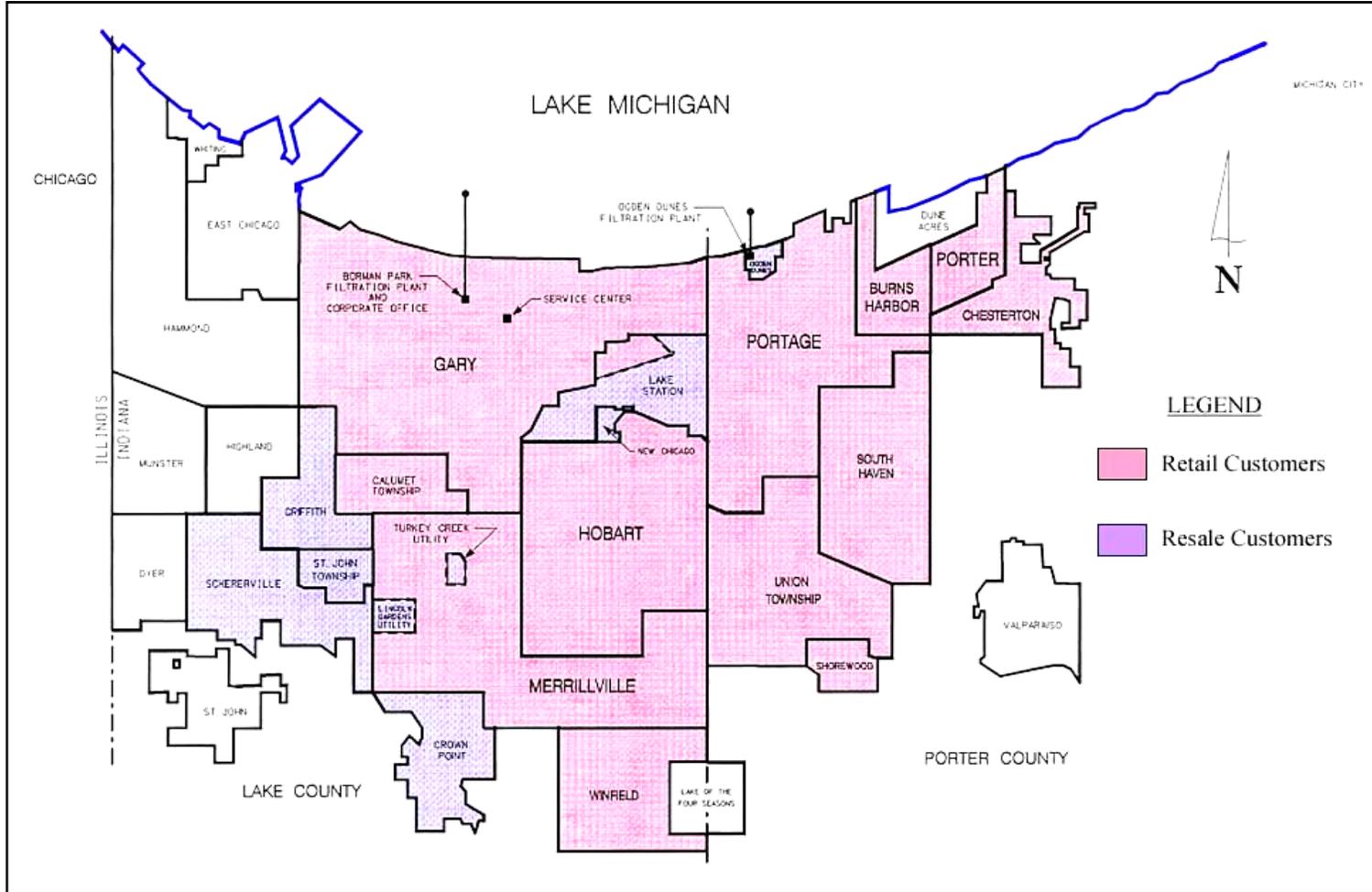
Short-term and long-term water resource management is fundamental to our business

ILLINOIS-AMERICAN WATER CO. CHICAGO-METRO DIVISION DISTRICTS



American Water – Chicago Metro

- Water and wastewater services to more than 150,000 people in the Chicago Metro area
- 25 Water Districts (15 Lake Water and 10 Well Water)
- Operate over 45 storage tanks, 565 miles of water main
- 11 wastewater treatment plants
- Lake Michigan water pipeline serving Southwest suburban area



- Water supply service to more than 250,000 people
- Deliver more than 11 billion gallons of water annually (Lake Water)

Common Interests

- Key issues we face in water resource management
 - Resource availability
 - Protecting the quality of the resource
 - Responsible use of the resource
 - Regulatory influences

The key resource management issues are the same regardless of ownership.

Common Interests – Existing Solutions



- Resource Availability
 - Groundwater or Lake Michigan water

- Quality protection
 - Watershed management and wellhead protection
 - Storm water management initiatives
 - Treatment techniques for radium, iron, and more

- Responsible use & reduction of waste
 - Leak detection and lost water management
 - Conservation initiatives and low flow fixtures
 - Metered consumption and conservation rates

Progress has been made with existing solutions.
Are they enough?

Common Interests – Existing Solutions

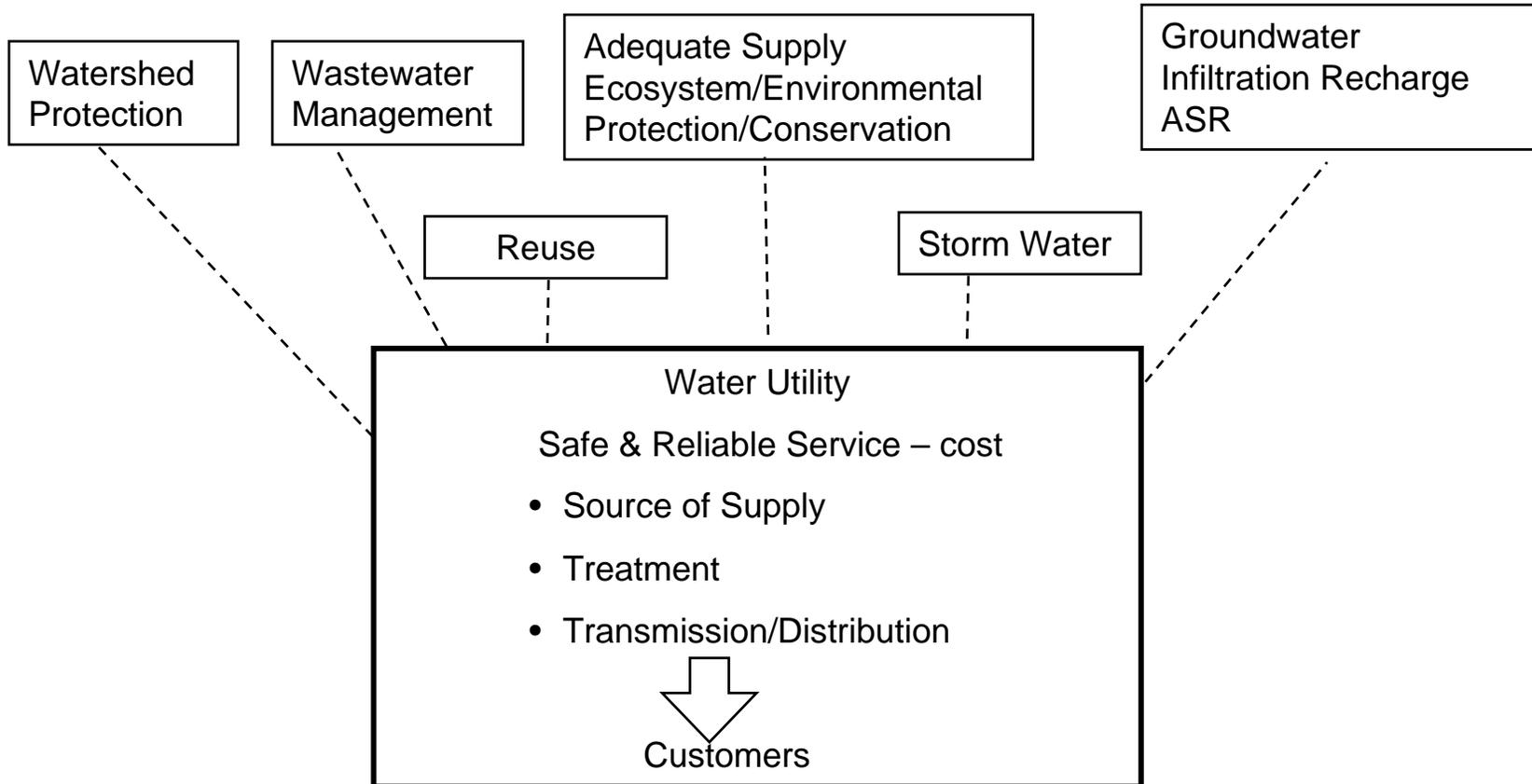


■ Regulatory Influences

- The Great Lakes Initiative and Annex 2001
- SDWA and the Clean Water Act
- Drought Planning Initiatives
- Water Allocations

If we as water and wastewater service providers don't work together to manage these key issues, regulators will certainly step in and do so.

Common Interests: Integrated Approach to Water Resource Management



Providing safe, reliable and cost-effective service requires a holistic approach to water resource management



Success Stories: Innovative Solutions Through Public/Private Partnerships

- Innovative solutions – Regional Water Supply
 - Lake Water Pipeline – Southwest Suburban Chicago
 - Lake Water Supply System – Northwest Indiana Tunnel Project
 - Southern Indiana Regional Water Supply – Newburgh Area

- Innovative solutions – Resource Sharing
 - Jefferson County, MO wholesale supply
 - LeClaire, IA wholesale supply and system acquisition

Success Stories: Chicago Lake Water Pipeline

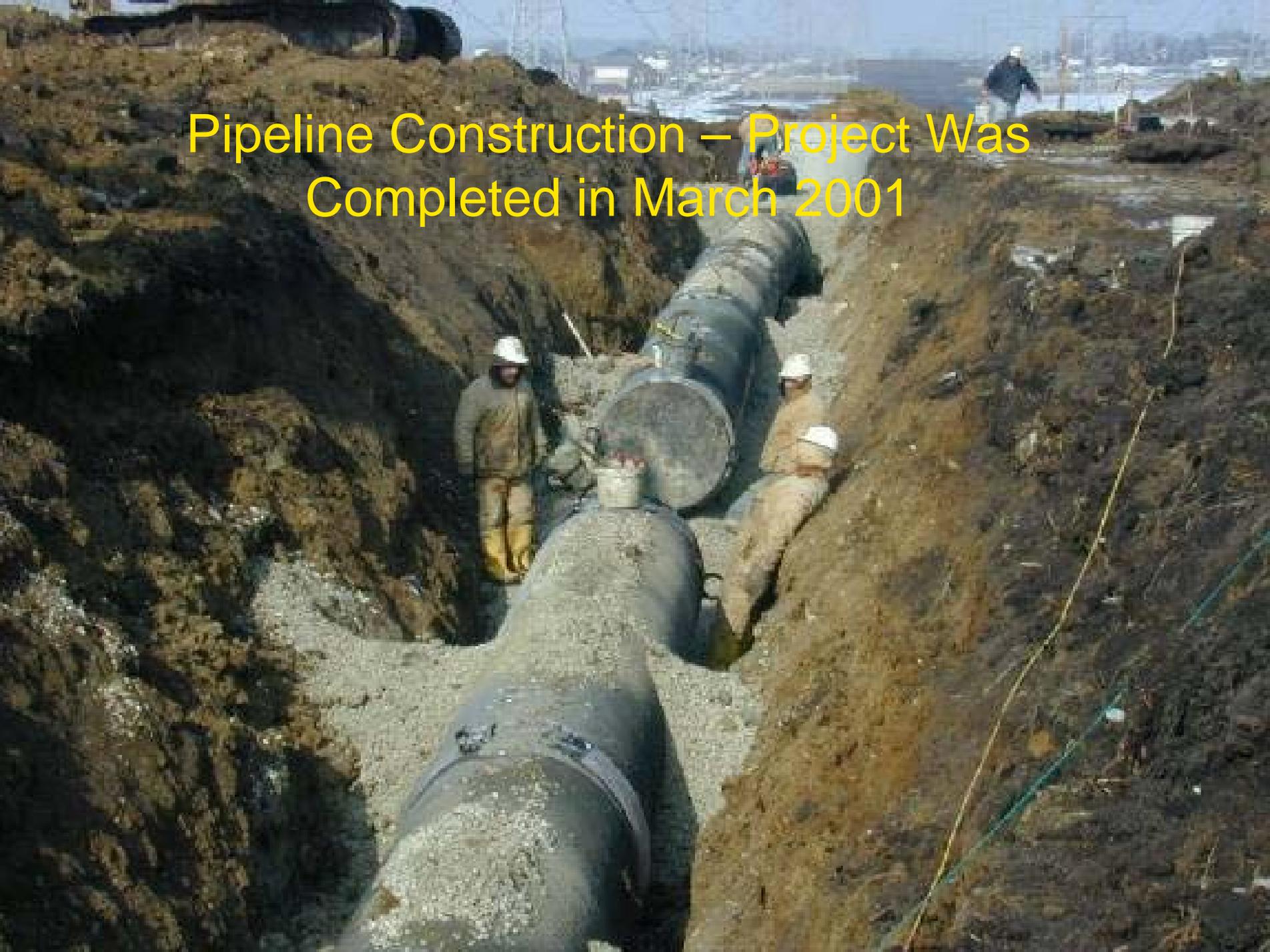
- Project was conceived to supply multiple suburbs with Lake Michigan Water. Currently serves:
 - Bolingbrook
 - Homer Glen
 - Plainfield
 - Other Illinois American Water service areas
- Existing systems had poor water quality and radium from groundwater
- System was designed with capacity to support the massive growth expected plus the addition of other communities – current capacity 38 MGD

A Public/Private partnership allowed multiple communities to benefit from a collaborative effort

Tunnel Construction

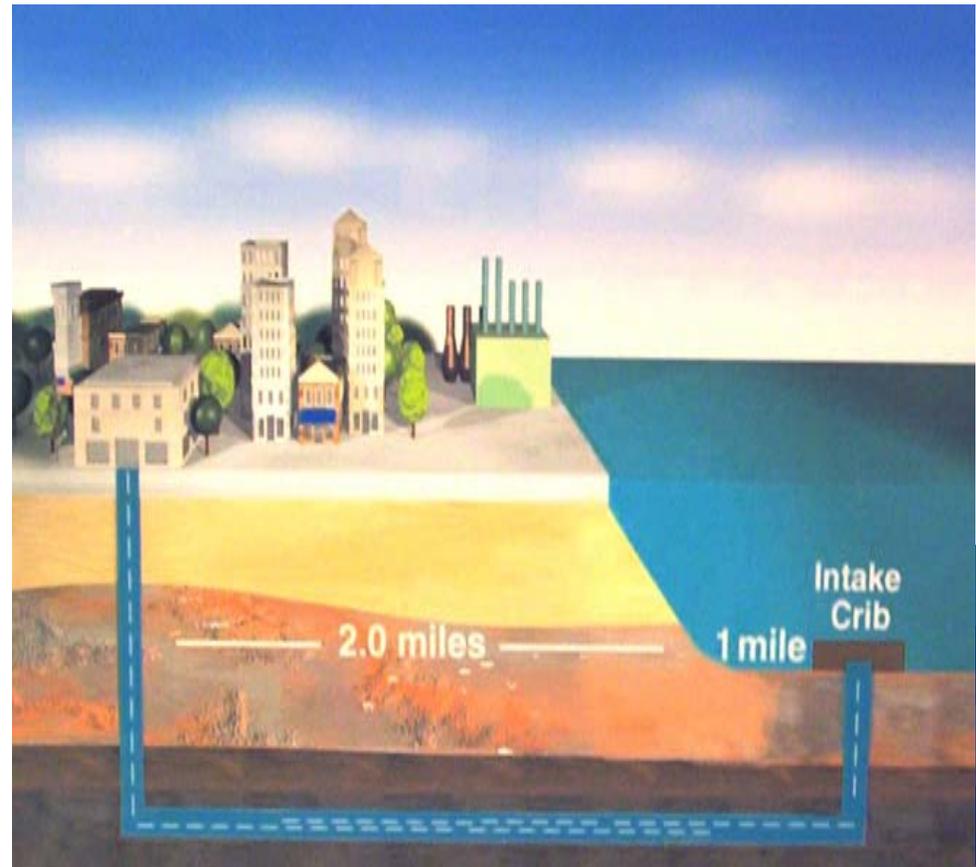


Pipeline Construction – Project Was Completed in March 2001



Success Stories: Gary, Indiana Lake Water Supply Reconstruction Project

- \$55 M reconstruction of Lake Michigan water supply system
- Original supply facilities were nearly a century old
- New tunnel was drilled below old tunnel – no interruption in service to our customers
- 3 mile tunnel drilled through solid limestone
- Updated system with capacity to supply new customers



Success Stories: Consortium Development Tri-State Water Resource Coalition



Innovative solutions – Long Term Planning & Cooperation

- Problem:**
- Groundwater resource in Tri-State area of Southwest Missouri, Southeast Kansas, and Northeast Oklahoma has limited capacity for long term supply. Initial study indicated shortages in 10 years.
- Solution:**
- American Water led the formation of the Tri-State Water Resource Coalition (TSWRC) - formed to foster cooperation to develop solutions. Dues to the organization are compiled based on percentage of population served.
 - Members include municipalities, private companies, regulatory agencies, US Army Corps of Engineers.
 - 24 Month Study is underway to determine other feasible alternatives to groundwater.

Success Stories: Innovative Solutions Through Public/Private Partnerships

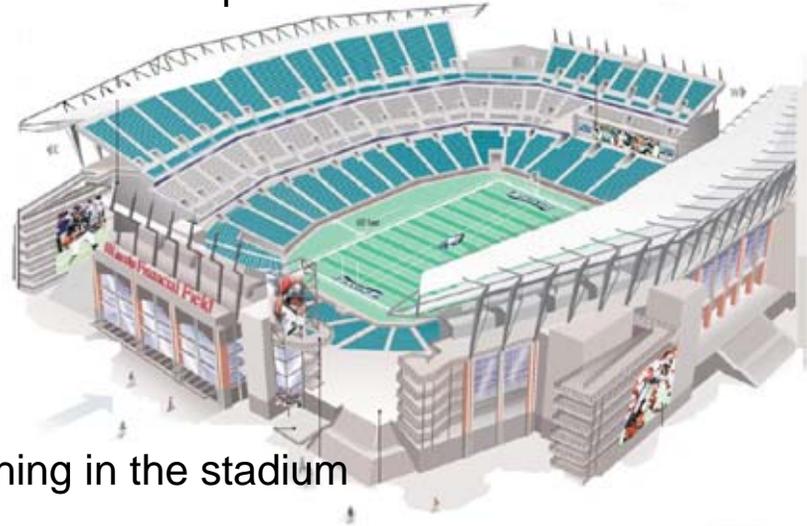
- Innovative solutions – Responsible Use
 - Wastewater effluent reuse examples
 - Patriot's stadium, Foxboro, MA
 - Residential tower, Battery Park, NY
 - Large scale development, Casa Grande, AZ

Water reuse is a large and growing practice with an estimated 1.7 billion gallons per day reused in the US and growing 15% per year

Success Stories: Patriots Stadium Wastewater Treatment & Water Reuse



- New 68,000 seat new NFL stadium
- 250,000 GPD WWTP membrane bio-reactor WWTP expandable to 1.1 MGD
- 680,000 gal. equalization tank
- 3500 GPM submersible lift station
- 2.4 acre leach field
- 3000 I.F. Of 16" and 4" force main
- Reclaimed water to be utilized for toilet flushing in the stadium
- Town of Foxboro built a 500,000 gal. Reclaimed water, elevated storage tank
- Patriots have constructed all reclaimed water lines on their site to distribute the reclaimed water
- 20 year operations contract



Engineered Leach Field Going In At New England's Patriots Stadium



Success Stories: The Solaire – Decentralized Urban Water Reuse, Battery Park City, NY



Success Stories: The Solaire – Decentralized Urban Water Reuse, Battery Park City, NY

- **First on-site water reuse & recycling system built in a multi-family residential building**
 - 293 unit high rise building
 - 25,000 gallon per day membrane bioreactor wastewater treatment plant
 - Wastewater treatment plant is located in the basement of the building
 - Recycled wastewater is used for flushing toilets, cooling tower make-up, and irrigation for landscaping



Success Stories: Del Webb Development – Water Reuse for Irrigation

- 7 MGD Water and 3 MGD Wastewater treatment plant
- Both water and wastewater use membrane treatment technology

Water Campus



- Treated wastewater is used for irrigation (green spaces and golf course)
- Groundwater recharge is used as a back-up to irrigation



Conclusion

- Resource management issues are shared by both the public utility providers and the private utility providers
- Responsible management of these issues is in everyone's interest.
- The search for innovative solutions should not be limited
- Public/private partnerships can lead to a sharing of knowledge and experiences that enhance our ability to manage water resources issues

Water is life

- We recognize we are caretakers of an essential element of life
- Our practice is to apply private-sector discipline with a strong public-service ethic.
- We are proud to make a difference in people's lives.

