

Regional Infrastructure: Water



April 9, 2014

Overview

Infrastructure plays a critical role in helping us meet our *Region Forward* goals

Critical Water Infrastructure

- Drinking water
- Wastewater & Combined Sewer Overflow
- Stormwater



Regional Infrastructure



mwcog.org

Overview

Purpose of water infrastructure

- Provides water supplies needed by our people and our economy
- Protects the public health
- Protects and restores the quality of our rivers, streams and lakes



Regional Infrastructure



mwcog.org

Wastewater

- 16 collection systems
 - Est. 16,000 miles of pipes
- 19 major wastewater plants
 - 777 million gallons per day (MGD)
- Mix of local governments, authorities, & the federal government
- Over \$1 billion in capital program costs (in 2013)

COG Region WWTPs - Major Plants (>= 2.0 MGD)



Regional Infrastructure



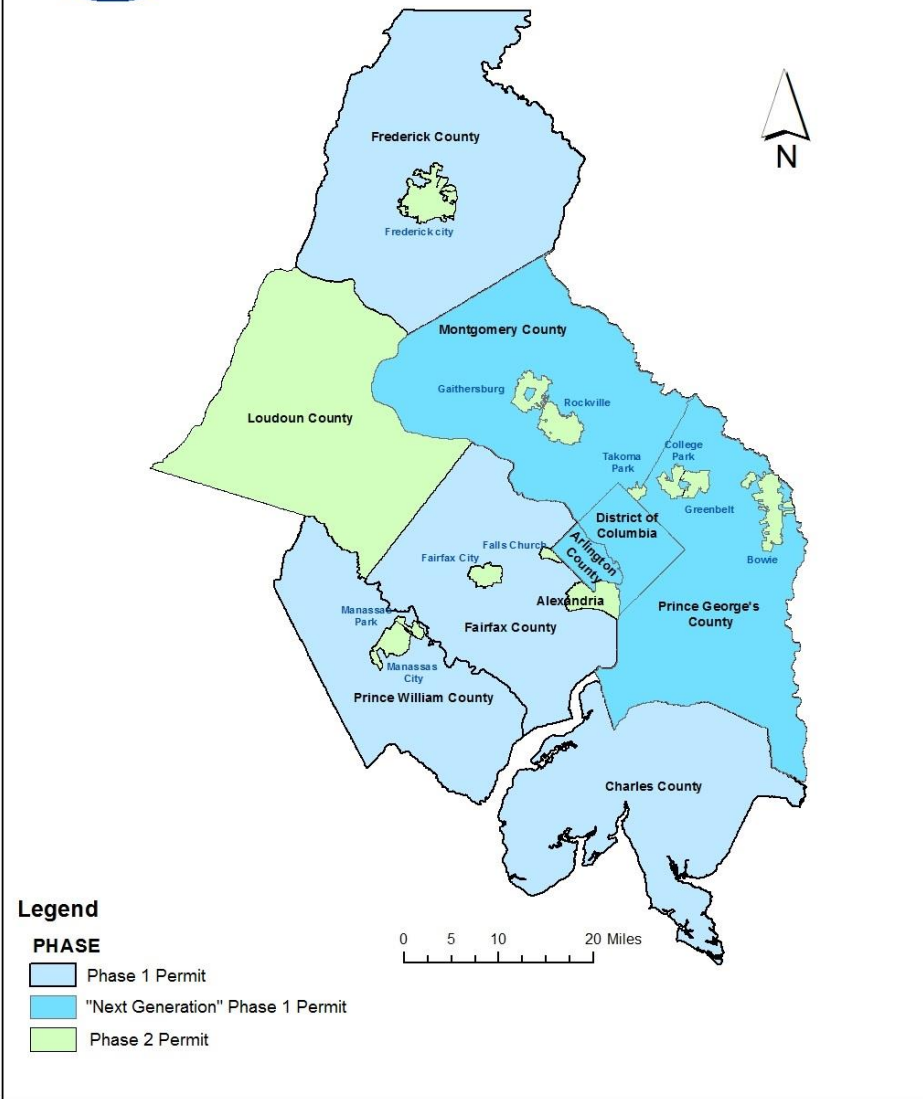
mwcog.org

Stormwater

- 22 local stormwater management programs
 - Phase I - Larger population municipalities/greater requirements
 - Phase II – Generally smaller population municipalities/less stringent requirements
- Estimated \$10 to 15 Billion costs to meet stormwater requirements



MS4 Permit Status of COG's Member Jurisdictions



Regional Infrastructure



mwkog.org

Drinking Water

- What are the primary end uses of water?
 - Drinking water
 - Sanitation
 - Firefighting
 - Agriculture (limited in NCR)
 - Industry
 - Losses
- What are the primary sources of water?
 - Surface Waters
 - Groundwater



Regional Infrastructure



mwcog.org

Drinking Water

- Metropolitan Washington Drinking Water at a Glance
 - Average daily water production about 370 million gallons per day (MGD).
 - More than 14,500 miles of water mains.
 - About 114,000 fire hydrants.
 - Over 1,000,000 metered accounts.
 - More than 5,250,000 people served.

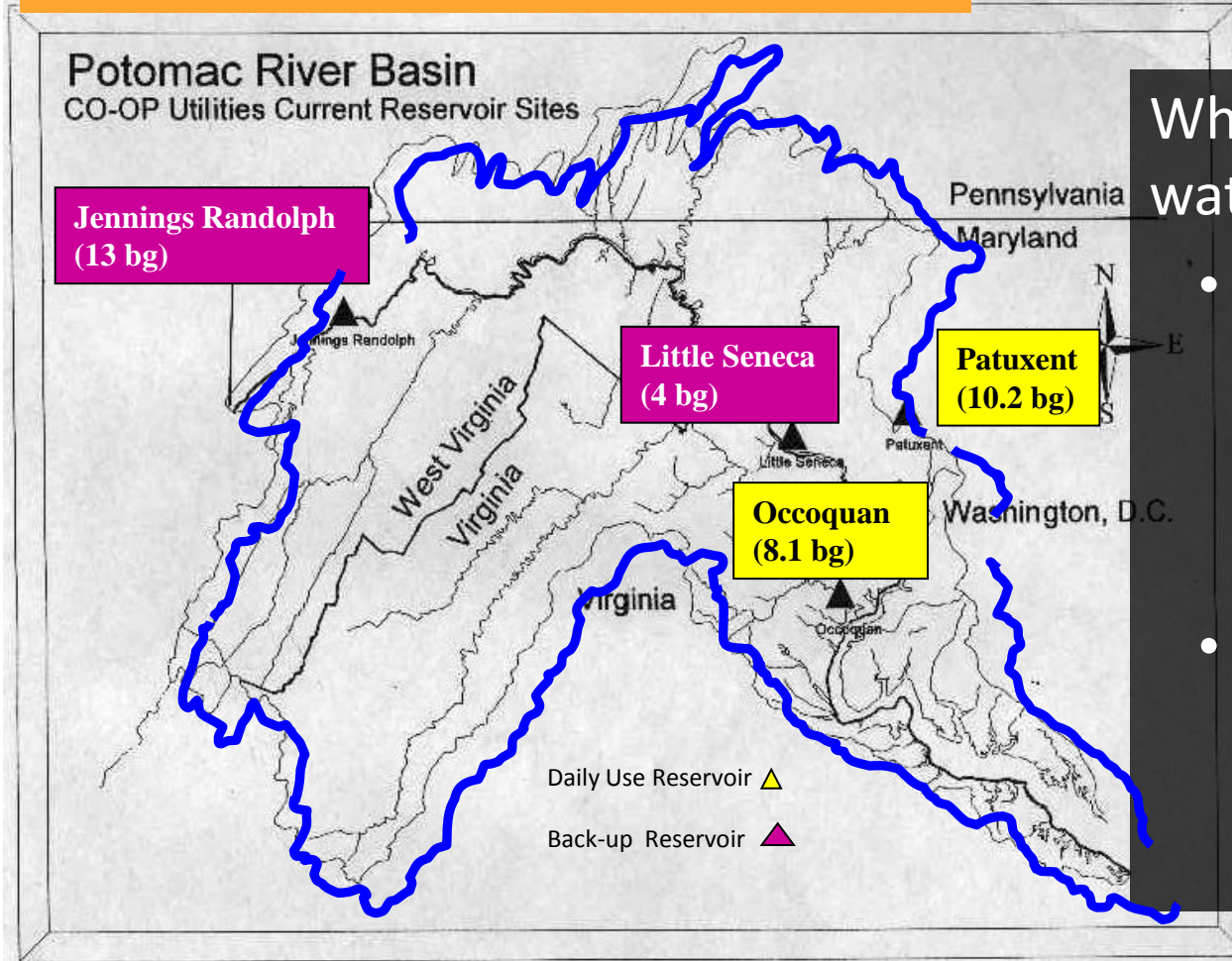


Regional Infrastructure



mwcog.org

Surface Drinking Water Sources



Where do we get our water from?

- Surface water
 - 4.5 Million people in our region rely on the Potomac River for drinking water
- Reservoirs
 - Two for daily use
 - Two for backup

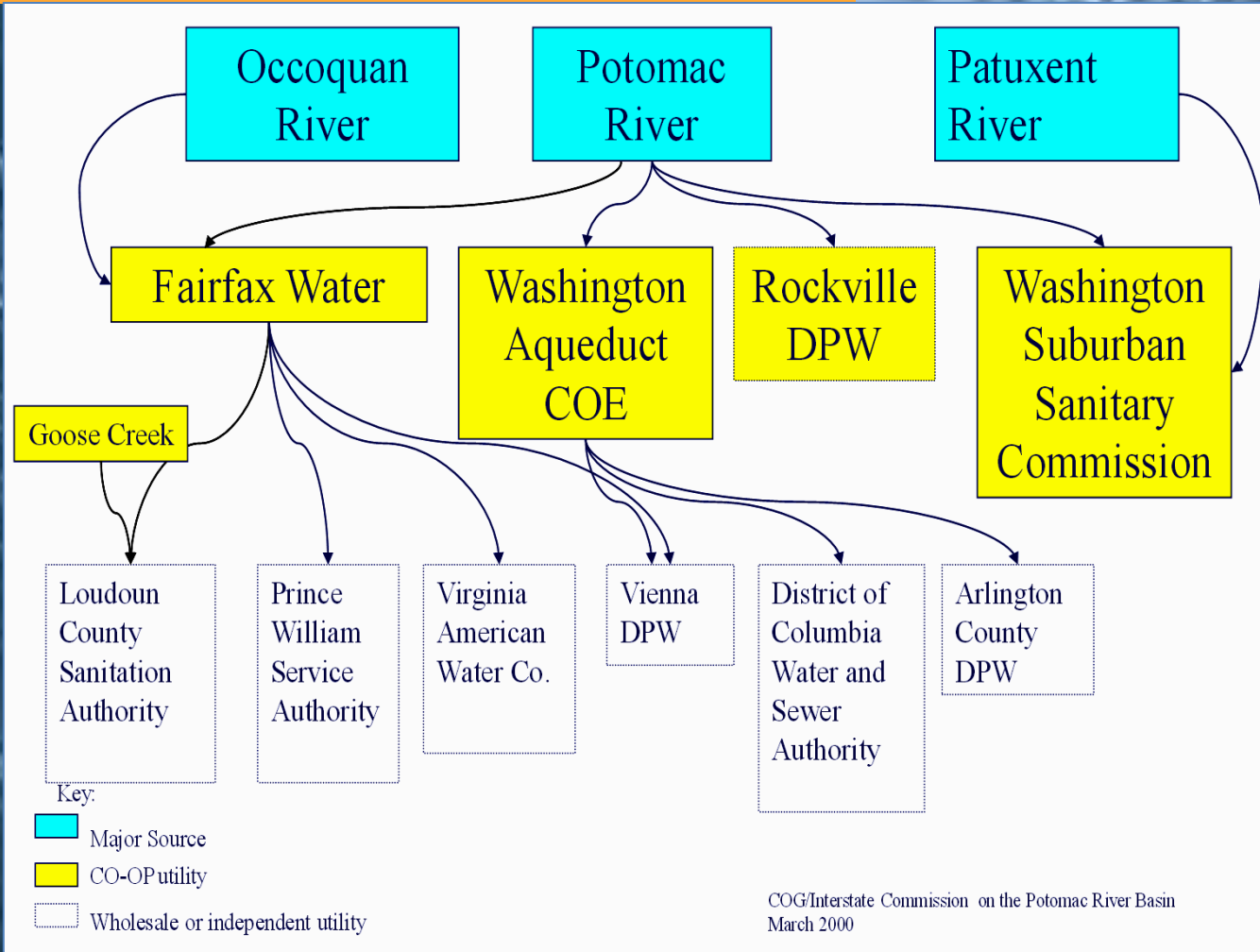


Regional Infrastructure



mwcog.org

NCR Water Supply System Schematic



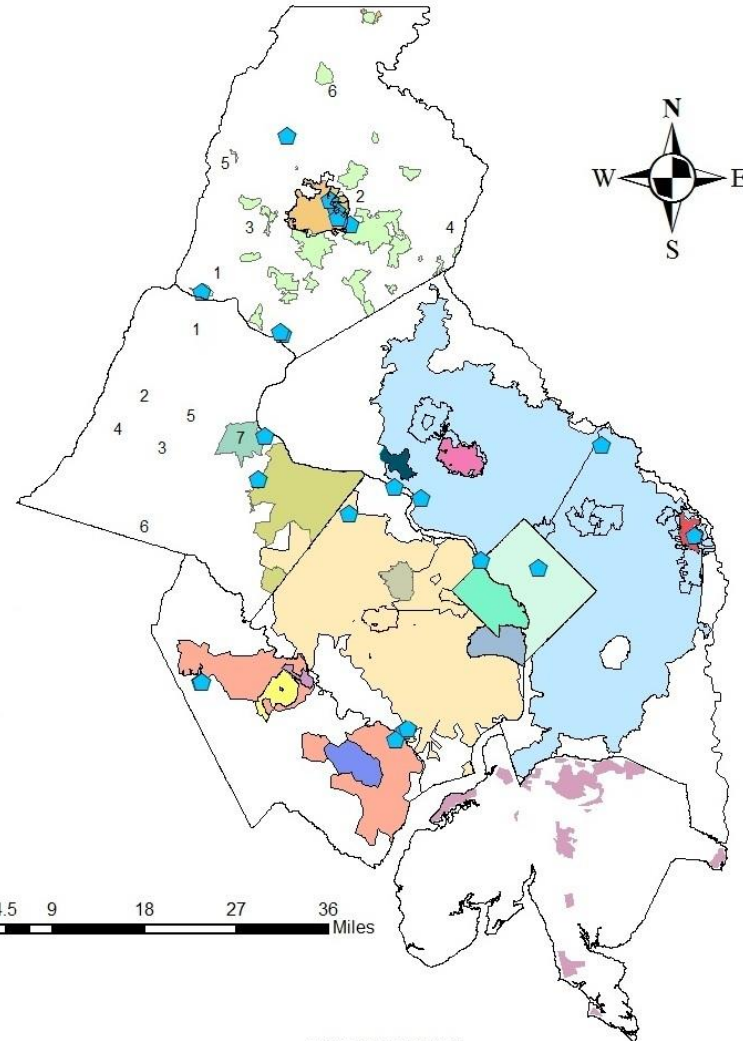
Drinking Water Providers



Drinking Water Treatment Plant Service Areas -COG Region-

Legend

- Water Treatment Plants
- Drinking Water Suppliers and Distributors**
- City of Bowie Dept. of Public Works
- City of Manassas DU
- City of Manassas Park DPW
- Rockville
- Loudoun County Town Systems
 - 1. Town of Lovettsville
 - 2. Town of Hillsboro
 - 3. Town of Purcellville
 - 4. Town of Round Hill
 - 5. Town of Hamilton
 - 6. Town of Middleburg
 - 7. Town of Leesburg
- Frederick County Utilities and Solid Waste
- City of Frederick
- Frederick County Town Systems**
 - 1. City of Brunswick
 - 2. Fort Detrick
 - 3. Town of Middletown
 - 4. Town of Mt. Airy
 - 5. Town of Myersville
 - 6. Town of Thurmont
- Fairfax Water
- Loudoun County Sanitation Authority
- Prince William County Service Authority
- Virginia-American Water Company
- Virginia-American Water Company - Alexandria
- Vienna DPW
- Washington Aqueduct U.S. Army Corp of Engineers (COE)**
 - Arlington DPW
 - District of Columbia
- Washington Suburban Sanitary Commission - Current area
- Washington Suburban Sanitary Commission - Potential area
- Charles PWS
- Areas served by private systems



-I:WRTC\DW & WW Maps

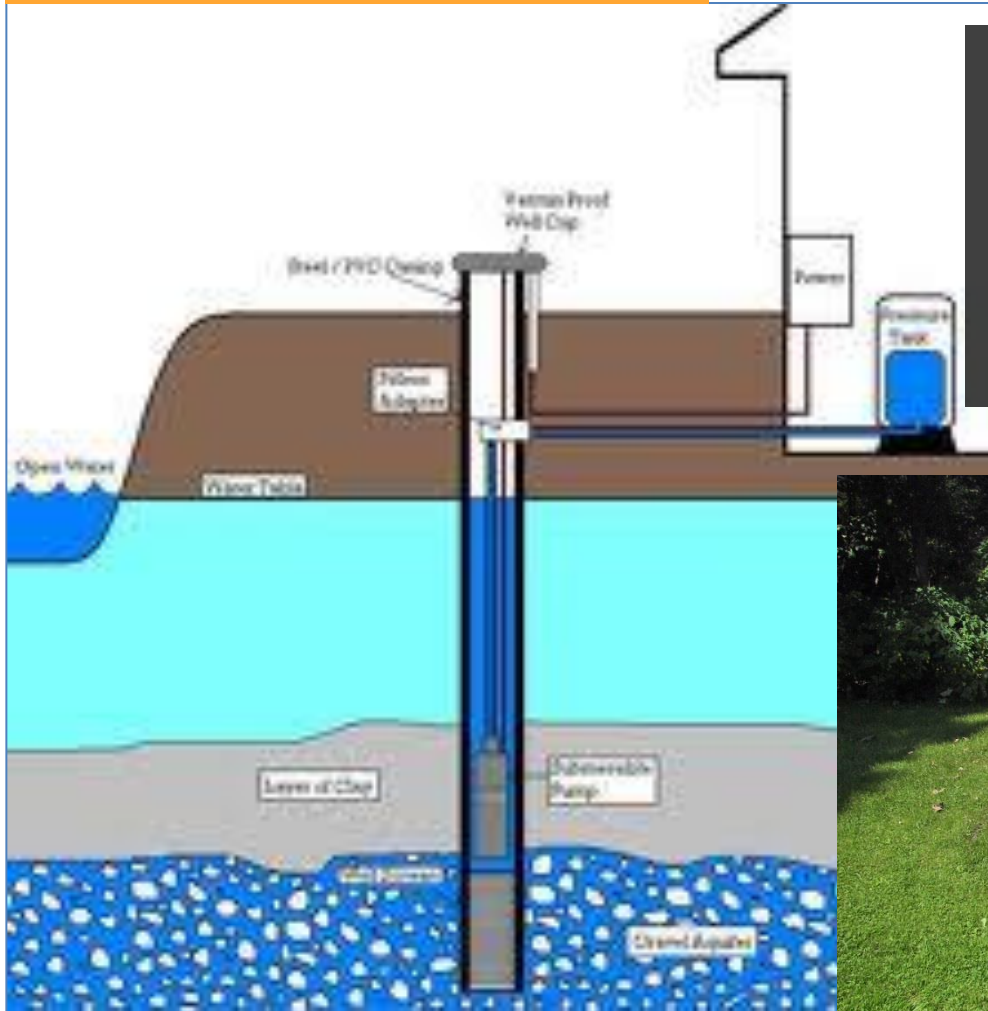


Regional Infrastructure



mwkog.org

Groundwater Sources



Other Supplies

- Groundwater wells
 - Community systems
 - Individual users



Regional Infrastructure



mwcog.org

Drinking Water



- Who controls / regulates
 - Supply
 - Regional Water Supply Coordination Agreement (1982)
 - Technical assistance from ICPRB
 - Quality
 - U.S. Environmental Protection Agency
 - Maryland Department of the Environment
 - Virginia Department of Health
- Water reuse & reclamation



Drinking Water

- System Value

- Capital investment – about \$1.5B per year
- Operation and Maintenance budget – about \$1.3B per year



Regional Water Security



- What are the threats?
 - Drought
 - Petroleum pipelines and storage facilities
 - Accidental spills
 - Combined Animal Feeding Operations
- Most potential threats are outside of the region



Regional Infrastructure



mwcog.org

Regional Water Security

- How are we prepared?
 - Regional Drinking Water Monitoring Network
 - Exercises and Training
 - Regional Water Supply Emergency Plan
 - Source Water Assessments
 - Mutual Aid - NCRWARN



Regional Infrastructure



mwcog.org

Challenges & Opportunities



- Aging Infrastructure
- Reducing Demand, Rate Design & Revenues
- Future Water Supply Needs
 - New Infrastructure
 - Expanding system
 - Additional reservoir/storage
- Conservation
- Asset Management



Regional Infrastructure



mwcog.org

Challenges & Opportunities

- Drinking Water Quality
 - Meeting Federal Standards
 - Bottled Water
- Unregulated Contaminants
 - Chemicals
 - Endocrine Disrupting Compounds
- Intentional and Accidental Contamination



Regional Infrastructure



mwcog.org

Issues & Best Practices

- Water infrastructure and land use
 - Local Land use
 - Limits to growth
 - System expansion
 - Source water protection



Issues & Best Practices

- Workforce
- Interdependencies
 - Energy & water
 - Development; Dig once
- Communications, outreach & messaging



Regional Infrastructure



mwcog.org

COG Support Activities

- Drinking Water
 - Drought plan, source water protection, supply/demand planning, & water conservation
- Wastewater
 - Regional water quality assessments, coordination on wastewater issue, & Blue Plains coordination support
- Stormwater
 - Permitting & regulatory coordination, & watershed restoration)



Regional Infrastructure



mwkog.org