







Water & Sanitation Challenges in North America



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PRESENTATION BRIEF

- Session number: RA1 (North America)
- Name of presenter: Dale Jacobson
- Institution: American Society of Civil Engineers / WFEO
- Key Phrases:
 - Clean Water Act of 1972
 - Safe Drinking Water Act of 1974
 - Future Wastewater & Drinking Water Needs





The ASCE Report Card for America's Infrastructure

- Prepared every 4 years for 17 Infrastructure Categories
- Wastewater Category
- Drinking Water Category



Report Card Criteria

- Capacity
- Condition
- Funding
- Future Needs
- Operation & Maintenance
- Public Safety
- Resilience
- Innovation



Wastewater Report Card Grade D+

- Basis of Grade
 - 81% of Wastewater Treatment Plants are at Design Capacity
 - 15% of Wastewater Treatment Plants have Exceeded Design Capacity
 - Needed Pipeline Replacement
 - Capital Investment Gap
 - Resilience Planning



Drinking Water Report Card Grade C-

- Basis of Grade
 - Aging Water Infrastructure Systems
 - Under Funded Systems
 - Needed Pipeline Replacement
 - Deploying Innovative Technologies
 - Resilience Planning



U.S. Laws for Wastewater & Drinking Water

- 1972 – Clean Water Act
- 1974 – Safe Drinking Water Act



Clean Water Act Major Provisions

- Designated the Environmental Protection Agency (EPA) as the Regulatory Authority
- Mandated Secondary Treatment
- Discharges Regulated by a Permit System – NPDES
- Funded Construction of Treatment Plants through Grants



Clean Watershed Needs Survey

- Secondary Wastewater Treatment
- Advanced Wastewater Treatment
- Infiltration / Inflow Correction
- Sewer Replacement / Rehabilitation
- New Collection Sewers
- New Interceptor Sewers
- Combined Sewer Overflow Correction
- Stormwater Management
- Water Reuse



Safe Drinking Water Act Major Provisions

- Established Minimum Standards for Tap Water – MCL's
- Standards to Consider Risk & Cost Assessment
- Delegation to State Agencies
- Standards for Underground Injection of Fluids



Drinking Water Needs Survey

- Distribution & Transmission
- Water Treatment
- Water Storage
- Source Water



Water Infrastructure Financing

- Clean Water State Revolving Fund
- Drinking Water State Revolving Fund



Clean Water State Revolving Fund

- EPA Capitalization Grants
- Required 20% State Match
- Objective is Low-Cost Financing
- Has been a Success
 - \$163 Billion of Financing
 - 46,200 Low-Cost Loans
- Repaid Loan Funds Recycled to Finance New Projects



Drinking Water State Revolving Fund

- EPA Capitalization Grants
- Required 20% State Match
- Objective is Low-Cost Financing
- Has been a Success
 - \$41 Billion of Financing
 - 15,425 Low-Cost Loans
- Repaid Loan Funds Recycled to Finance New Projects

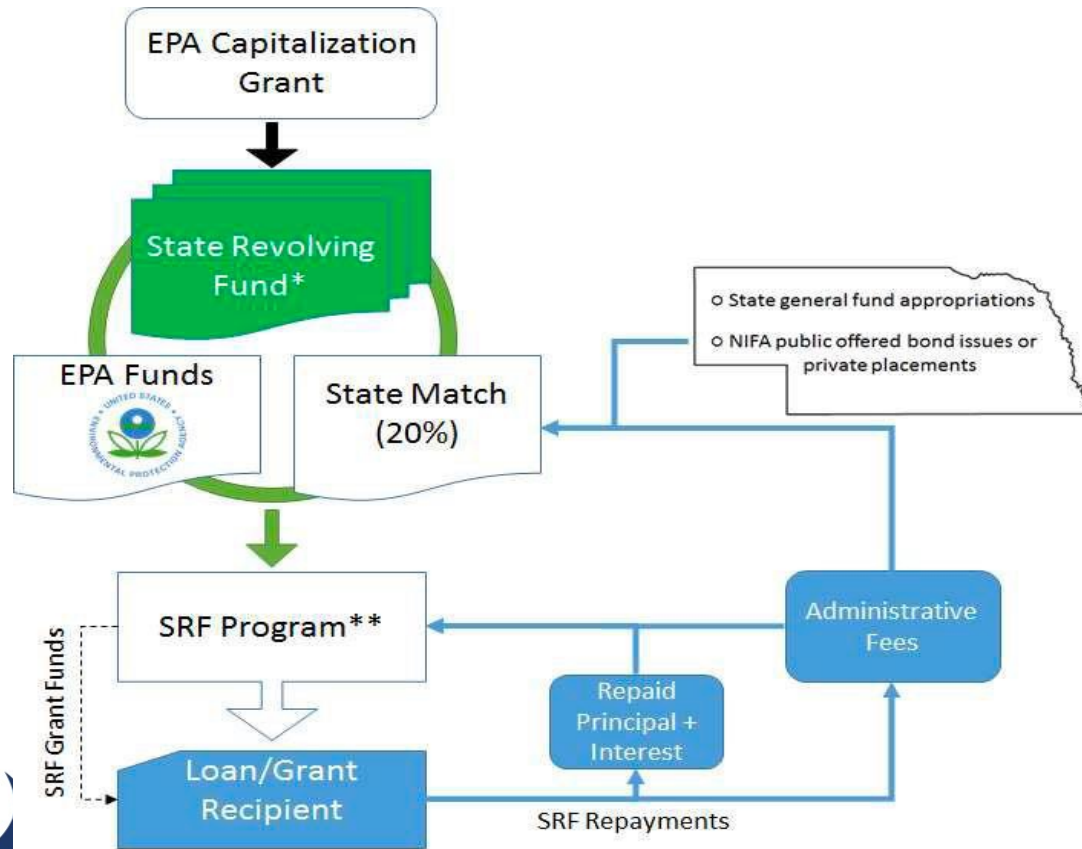


CWSRF & DWSRF from the State Level

- State of Nebraska
 - Department of Environment & Energy
- Intended Use Plan
 - Project Needs
 - Cost Projections
 - Timing of Loans
- Funding Model



Cash Flow Funding Model



State of Nebraska 2024 Needs

- Wastewater = \$ 72,568,000
- Drinking Water = \$ 575,519,232
- 2024 Total Needs = \$ 648,087,232



State of Nebraska Revolving Funding Total Needs

- Clean Water Revolving Fund
Total Needs = \$ 1,315,882,789
- Drinking Water Revolving Fund
Total Needs = \$ 1,537,391,643
- Total Needs = \$ 2,853,224,432



ASCE Report Card Wastewater Recommendations

- Asset Management
- Address PFAS
- Expand Financing Programs
- Eliminate Combined Sewer Overflow
- Increase Wastewater Treatment Efficiency
- Address Climate Change
- Ensure Rates are Adequate
- Address Risk & Resilience



ASCE Report Card Drinking Water Recommendations

- Expand Financing Programs
- Asset Management
- Integrate Smart Water Technologies
- Encourage Private Financing
- Address Workforce Issues
- Ensure Rates are Adequate & Equitable
- Support Small Community Systems





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THANK YOU

QUESTIONS???

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