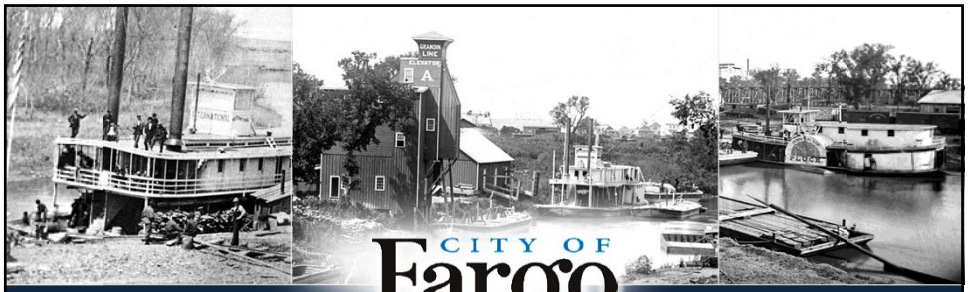

CITY OF Fargo

WATER INFRASTRUCTURE NEEDS

Water Topics Overview Committee Meeting

February 2014

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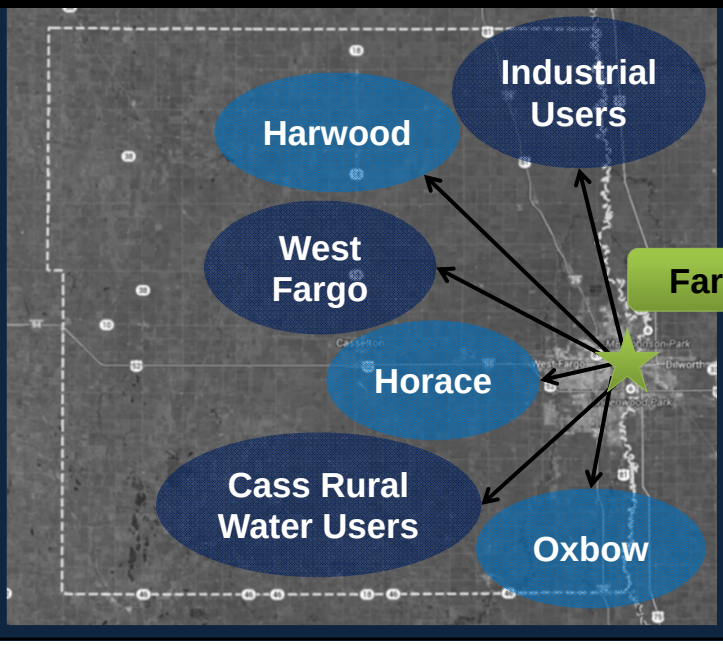
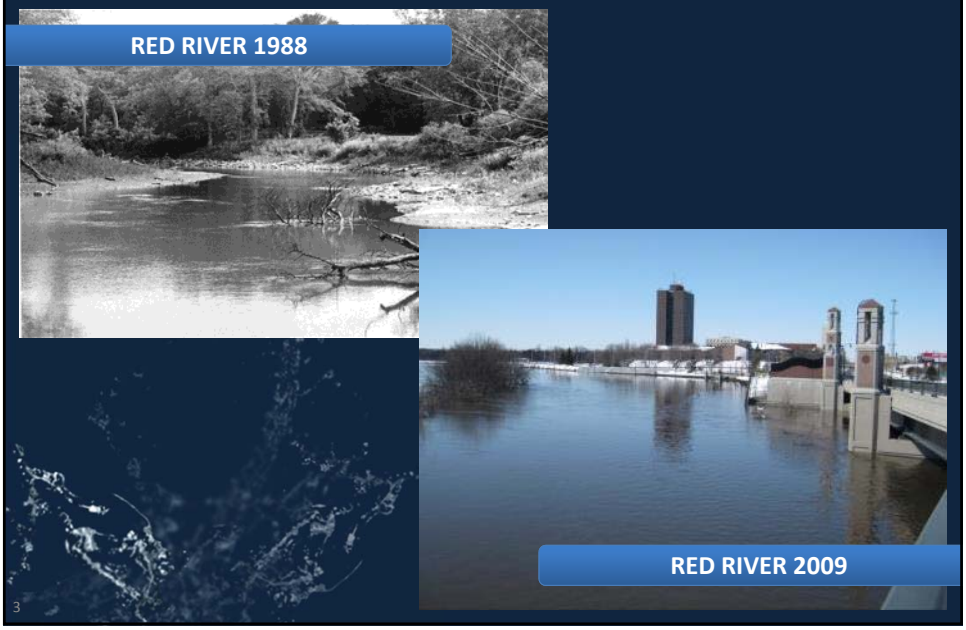
FARGO'S ROLE IN REGIONAL UTILITY SERVICES



TOO WET / TOO DRY PARADOX



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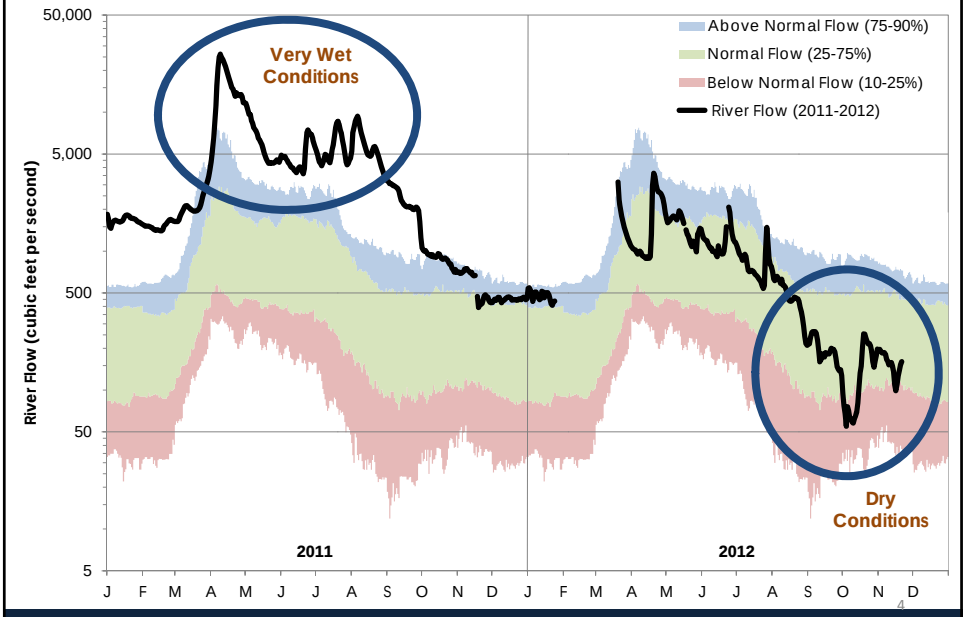
RED RIVER AT FARGO

2011-2012 River Flow Versus Historical Percentiles Since 1908



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PRESENTATION OUTLINE

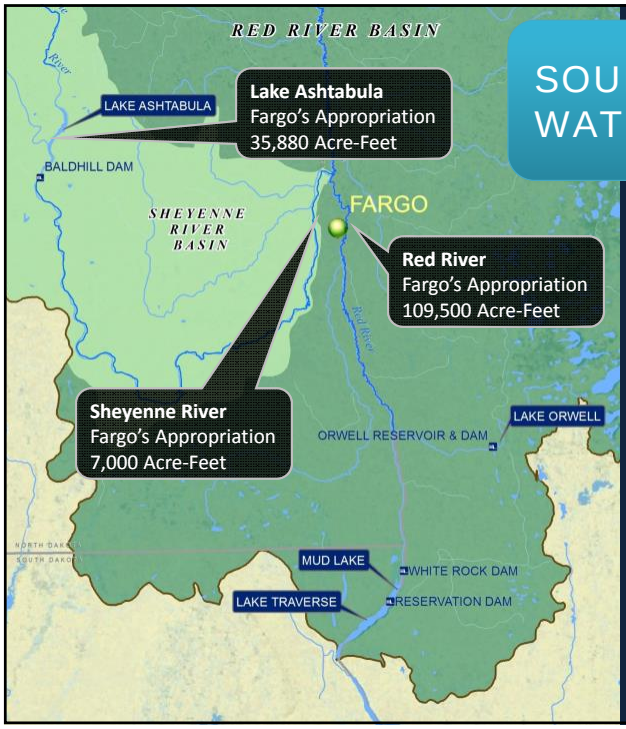
WATER SUPPLY & DROUGHT MANAGEMENT

WATER INFRASTRUCTURE NEEDS

Water | Wastewater

FUNDING & FINANCING

WATER SUPPLY & DROUGHT MANAGEMENT



SOURCES OF WATER FOR FARGO

Fargo utilizes multiple water sources:

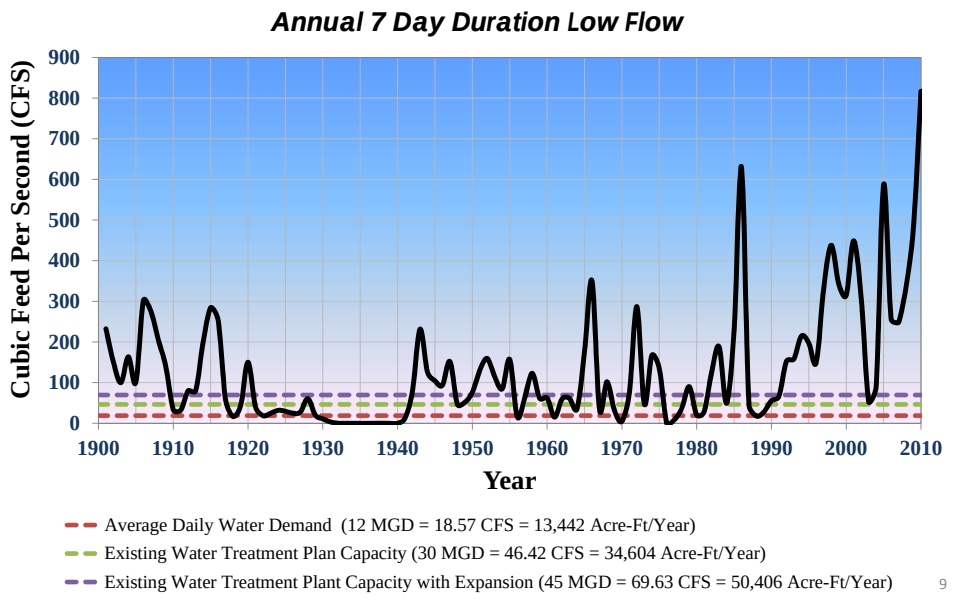
- Drought and water shortage preparedness
- Redundancy for water quality variations
- Manage treatment operations
- Minimize chemical use and cost
- Control taste and odor events
- Recommended by Professional Organizations

DROUGHT IMPACTS & WATER SUPPLY NEEDS

RED RIVER 1936

- Existing Red River Valley water supplies will be inadequate during drought
- A 1930s type drought would be devastating to our water supplies
- Expected economic impact **≈ $20 Billion over 10 years**
- The water supply needs will continue to grow

RED RIVER DROUGHT LIKELIHOOD AT FARGO



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FARGO'S NEEDS FOR WATER SUPPLY & DROUGHT MANAGEMENT

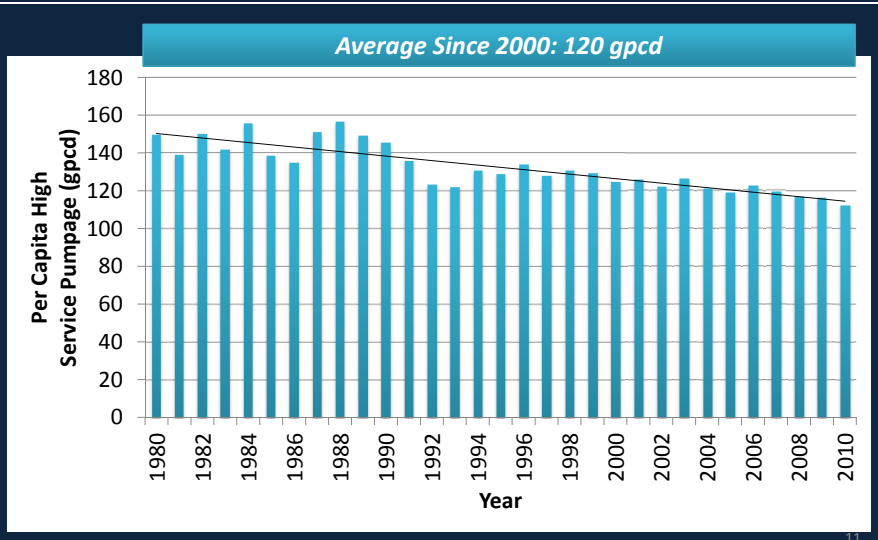
SHORT-TERM SOLUTION

- Drought management plan
- Devils Lake water

LONG-TERM SOLUTION

- Red River Valley Water Supply Project
- Adaptive Drought Management Plan

FARGO PER CAPITA AVERAGE DAY DEMAND



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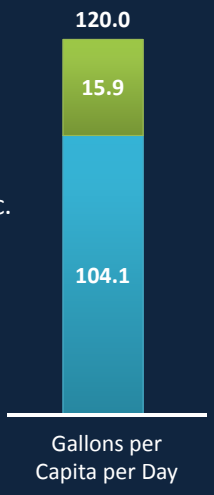
WHAT MAKES UP WATER DEMAND?

Residential/Commercial Water Demand

- Essential Water Use (Baseline Water Demand)
  - Indoor use, consumption, hygiene, etc.
- Non-Essential Use
  - Lawn care, water features, swimming pools, etc.

Industrial Water Demand

- Large Industry Water Use
- Not Forecasted for Fargo since Industrial Demand is Relatively Small or Follows Residential/ Commercial Trends



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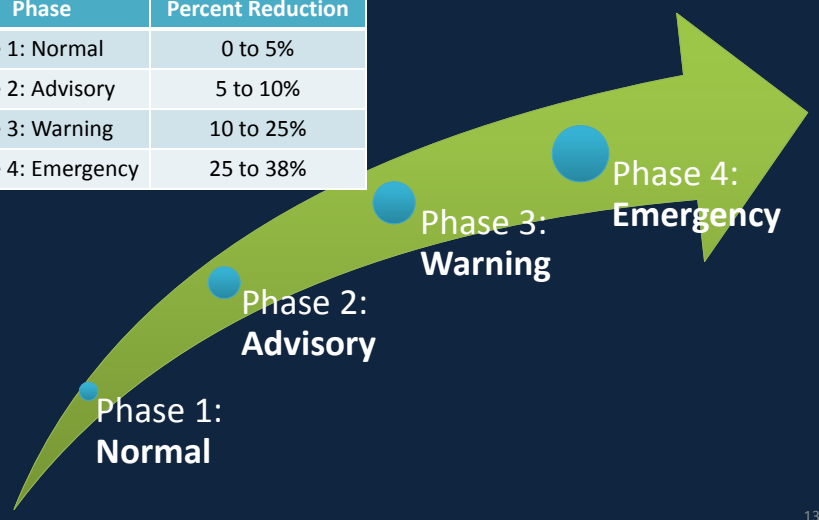
PHASED DROUGHT MANAGEMENT PLAN

Phase	Percent Reduction
Phase 1: Normal	0 to 5%
Phase 2: Advisory	5 to 10%
Phase 3: Warning	10 to 25%
Phase 4: Emergency	25 to 38%



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DROUGHT INDICATORS THAT CAUSE PHASE CHANGES

- **Palmer Drought Severity Index (PDSI)**
- **Standard Precipitation Index (SPI)**
- **Stream Flows**
- **Reservoir Levels**
- **Infrastructure Triggers**
  - Watermain break
  - Water Tower Failure
  - Treatment Plant Issues

DROUGHT RESPONSES

Drought Phase Response	Phase 1	Phase 2	Phase 3	Phase 4
Promote Conservation	V	V	V	V
Promote Residential Reduction		V	V	V
Odd/Even Lawn Watering	V	M	B	B
1-Day Lawn Watering		V	M	B
Other Outdoor Use Restriction		V	M	B
Vehicle Washing Restrictions		V	M	B
Hydrant Flushing Restrictions	V	M	M	B
Water Cops and Fines		V	M	B

V = Voluntary / No Enforcements
M = Mandatory / Enforcement with Warnings / Lesser Penalties
B = Ban / Enforcement with Penalties

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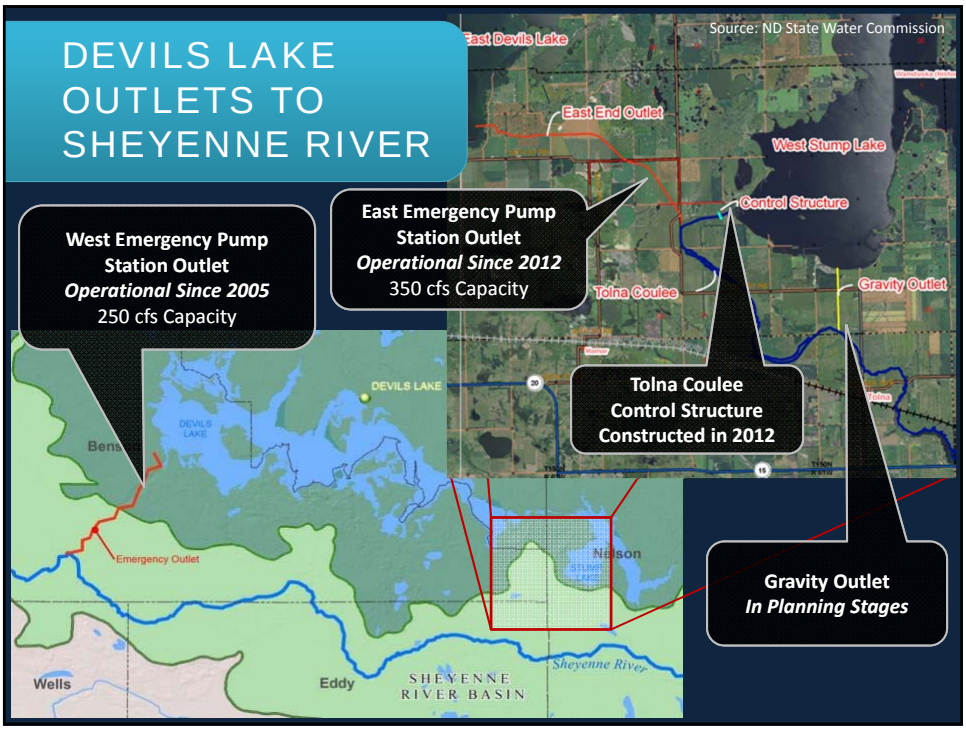
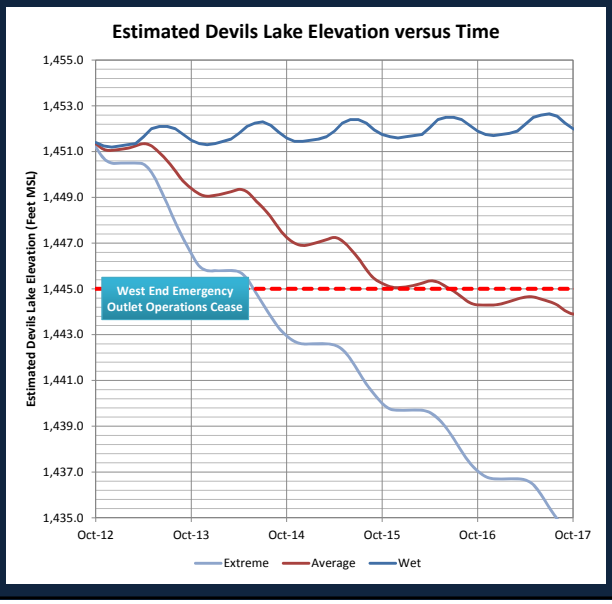
DEVILS LAKE OUTLETS TO SHEYENNE RIVER



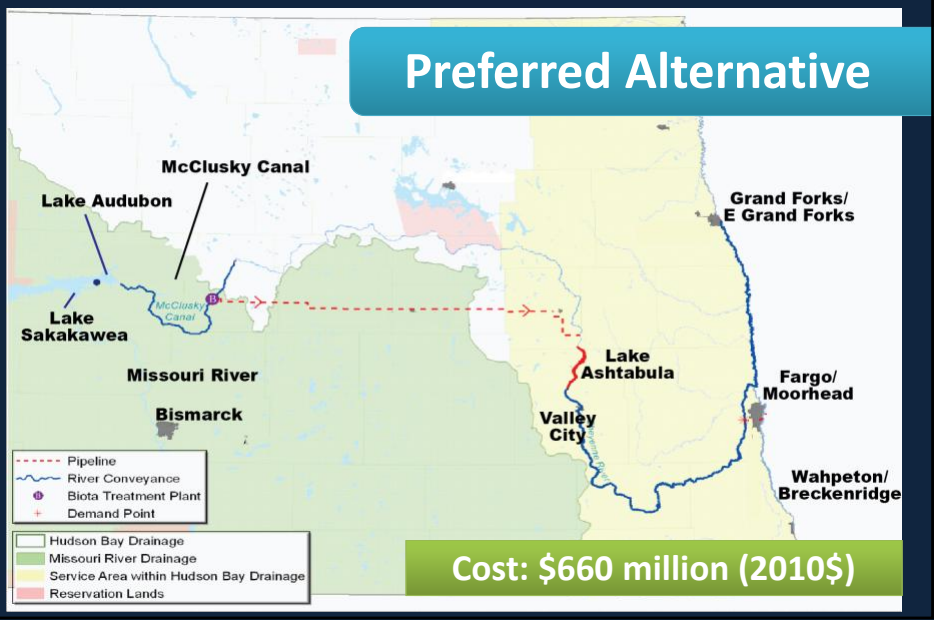
DEVILS LAKE OUTLET & OPERATIONS



Devils Lake discharges may provide 2-3 years of water.

Lake Ashtabula will provide an additional 1 year.

RED RIVER VALLEY WATER SUPPLY PROJECT



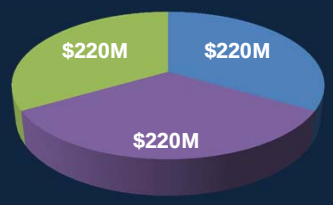
RED RIVER VALLEY WATER SUPPLY PROJECT

Plan B Alternative

RED RIVER VALLEY WATER SUPPLY PROJECT

COST SHARE

Preferred Alternative Cost Share
(2010$ - $660M)
(With Intake and Biota WTP)



Plan B Cost Share
(2012$ - $674M)
(Without Intake and Biota WTP)

- Federal
- State
- Local
- Unmet Need

PLANNED WATER PROJECTS

Long-term Water Master Plan
Guided By 20-Year Capital Improvements Plan

WATER REHABILITATION & REPLACEMENT HIGHLIGHTS

- Water Tower Reconditioning ($12M)
- Sheyenne River Pump Station ($9M)
- WTP Residuals Management Facility ($25M)
- Water Meter Replacement ($6M)
- Watermain Replacement ($57M)
- WTP Rehabilitation ($12M)

WTP Expansion and Upgrade ($96M)

PLANNED WASTEWATER PROJECTS

Long-term Wastewater Master Plan
Guided By 20-Year Capital Improvements Plan

WASTEWATER REHABILITATION & REPLACEMENT HIGHLIGHTS

Headworks & Influent Pump Station ($9M)
Broadway Interceptor ($10M)
Sanitary Sewer Rehabilitation ($19M)
Lift Station Rehabilitation ($8M)
WWTP Rehabilitation ($17M)

WWTP Expansion and Upgrade ($85M)

WATER CAPITAL ASSETS

- Largest group of capital assets
- Total Investment = $116 million
- 28% of utility funds assets are water related

DEMANDS FOR WATER PROJECTS

- New Housing Subdivisions
- Rehab & Reconstruction of Existing Infrastructure
- Water & Wastewater Treatment Plants
- Water Distribution & Wastewater Collection
- Ongoing Maintenance Costs

FARGO'S FINANCING RESOURCES

User Rate Revenue (Rehabilitation)

Water & Wastewater Main Replacement Program

Special Assessments: (Provides Partial Funding)

New Developments
Reconstruction & Rehabilitation
Paid Directly by Property Owners

Sales Tax Resources: (City share of Funding)

Not all Cities have dedicated sales tax forcing higher special assessment or utility fee burden
Construction inflation is eroding sales tax resources

FARGO'S WATER RESOURCES

Utility Rate Revenue / User Fees

Special Assessments

Sales Taxes

LOCAL SALES TAX RATES

Overall Tax Rate = 2% = $48 million

Flood Diversion =	.50% = $12m
Water Projects =	.25% = $6m
Wastewater Projects =	.25% = $6m
Street Projects =	.50% = $12m
Non-Diversion Flood =	.50% = $12m

FUNDING GAPS

Construction Cost Inflation

-Limits number of projects as prices rise

-Increases special assessment costs to homeowners

Major Projects (Plants & Expansions)

Multigenerational Facilities – Treatment Plants and Flood Control Projects – long term financing necessary

FUNDING

CHALLENGES/OPPORTUNITIES

How to allocate the cost of construction inflation?

How to lower long term financing costs?

Who gets the money from long term financing?

Consider a State sponsored infrastructure revolving loan pool with low financing rates?

Multi-generational equity for taxpayers

QUESTIONS/CONCERNS?