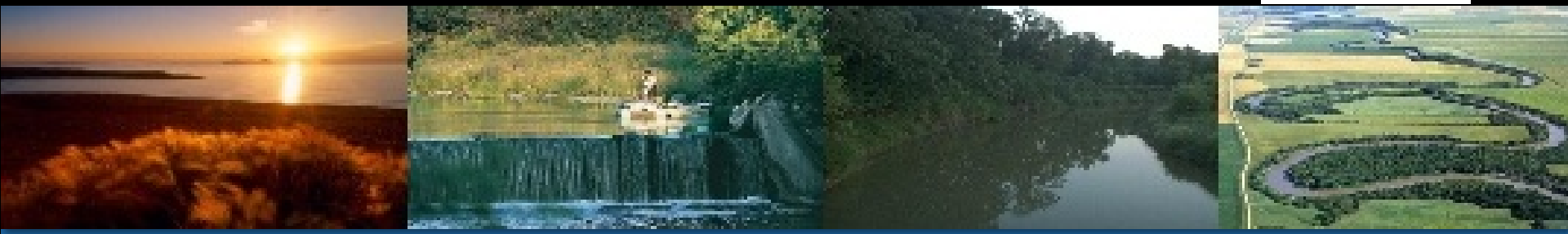


Garrison Diversion

Water Development: A Long History and a Strong Plan for the Future

presentation to the

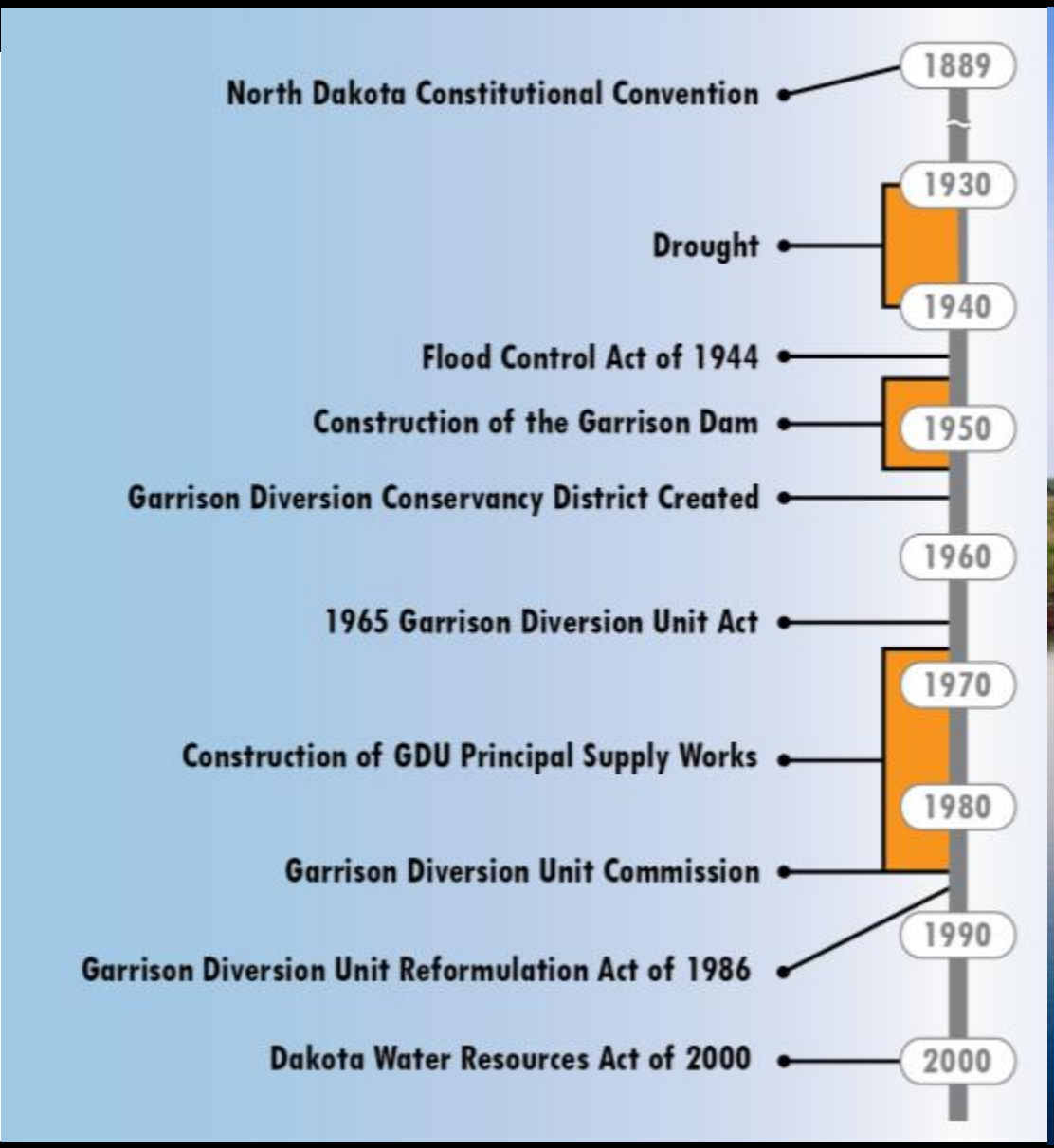
Water Topics Overview Committee

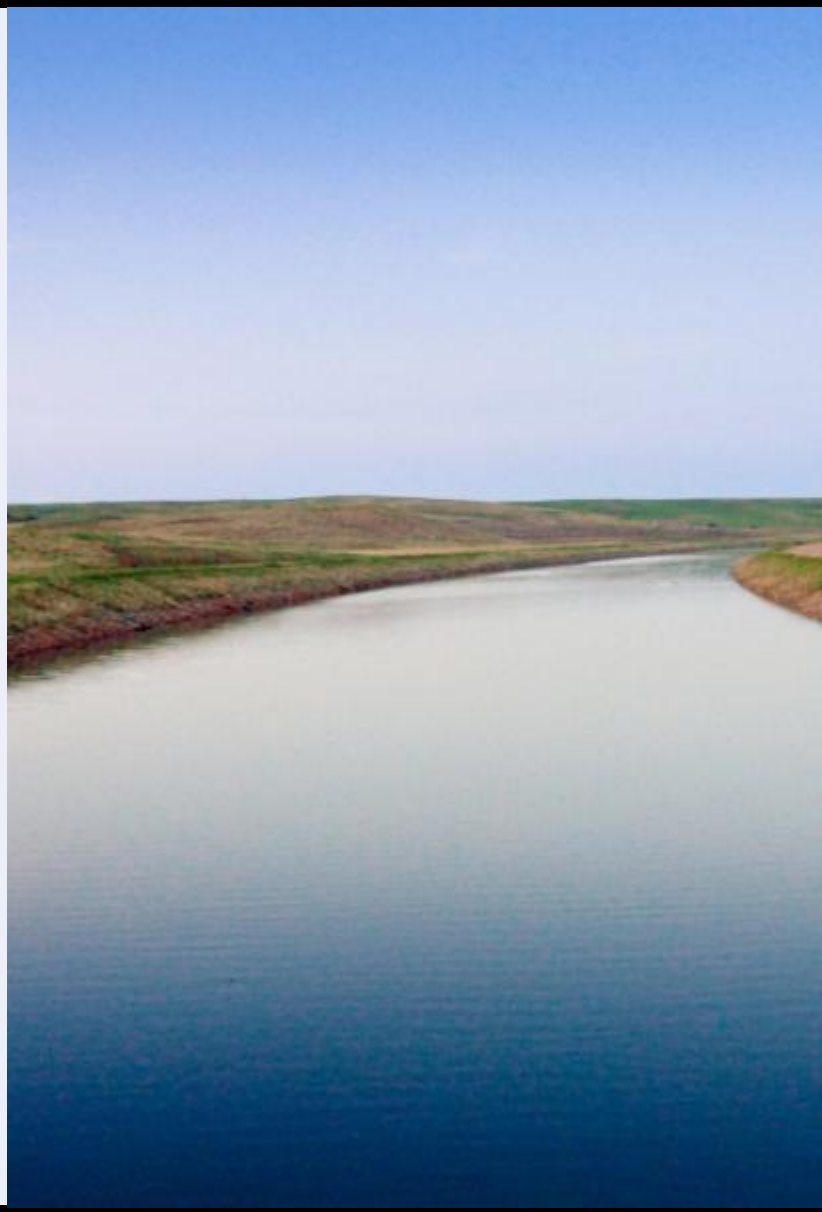
September 5, 2013

Presentation Overview

1. History of Garrison Diversion Conservancy District (GDCD)
2. GDCD Today
3. MR&I
4. Red River Valley Water Supply Project
5. Vision for Water Development

ND Water Development and the GDCD





1889 - ND Constitutional Convention

Renowned geologist John Wesley Powell cautioned

"…in the middle portion there will be a series of years with abundant rain and crops. There will also be years with significant less rainfall and there will be failure of crops and disaster will come on thousands of people, who will become discouraged and leave…"

1936 - Red River In Fargo

1944 - Flood Control Act

Purposes

- Flood Control
- Irrigation
  (North Dakota)
  1.2 million acres
- Water Supply
- Hydropower
- Navigation
- Recreation
- Water Quality
- Fish and Wildlife

1955 - Garrison Diversion Conservancy District Created

Created by ND legislature (Century Code Ch. 62-24)

- Promote the establishment, construction, development, maintenance, and operation of the Garrison Diversion Unit, or any part thereof.
- To make available…waters diverted from the Missouri River for irrigation, domestic, municipal, and industrial needs, and for hydroelectric power, recreation, fish, wildlife, and other beneficial and public uses.
- To study and provide for the water needs of eastern North Dakota communities and water districts and western Minnesota communities through a Red River Valley Water Supply Project.

July 18, 1955 - First meeting of the board of directors held at Harvey, with Governor Norman Brunsdale calling the meeting to order.

1965 – Garrison Diversion Unit Act

1965 - United States Congress enacted new legislation

Garrison Diversion Unit

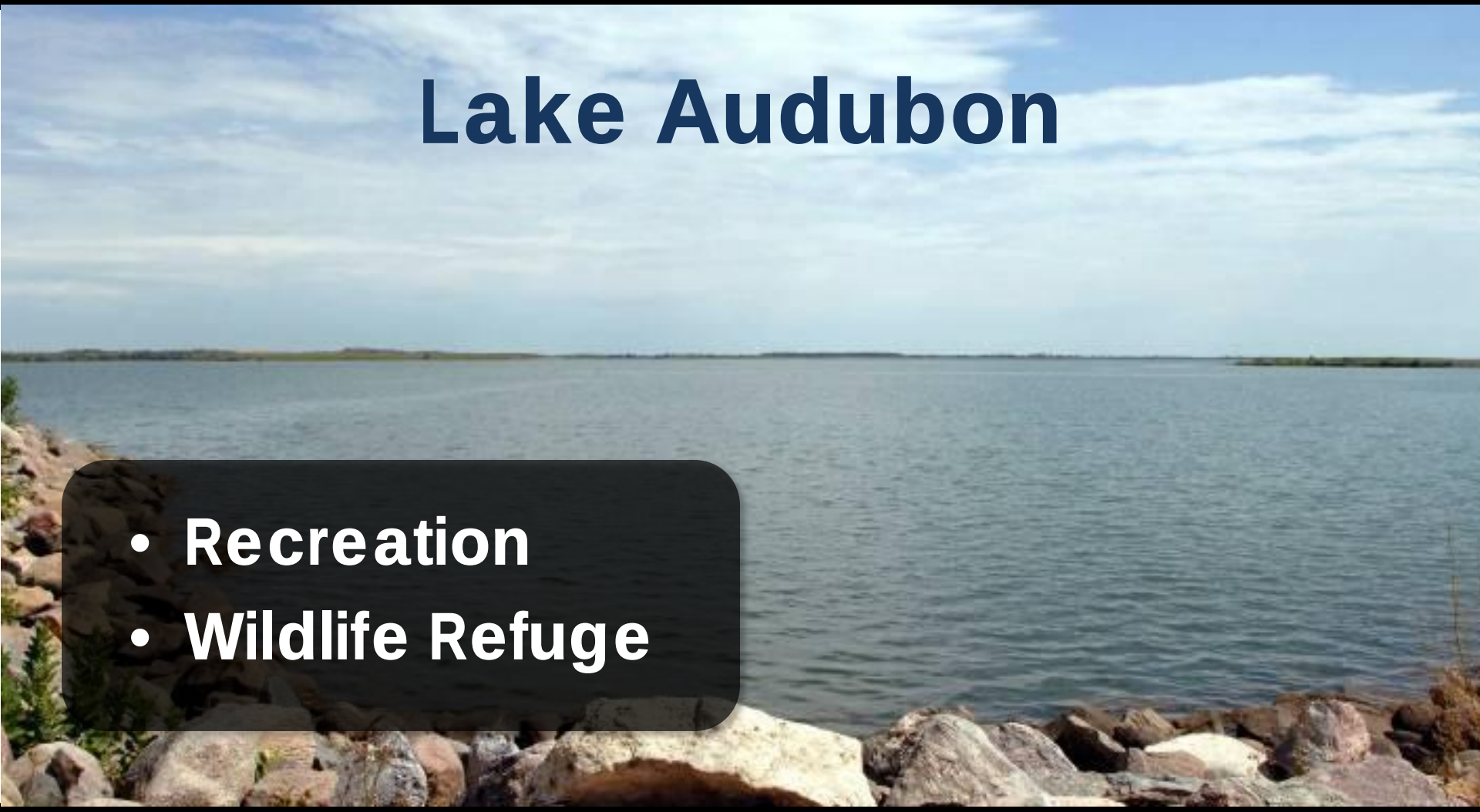
Irrigation acres reduced to 250,000

Added:
- Municipal, rural and industrial water
- Fish and wildlife development
- Recreation

1968 – 1984 Construction of GDU Principal Supply Works

1968 – 1984 Construction of GDU Principal Supply Works

1968 – 1984 Construction of GDU Principal Supply Works



- Recreation
- Wildlife Refuge

1968 – 1984 Construction of GDU Principal Supply Works

Principal supply canal
74 miles long
Designed to provide water to irrigate 250,000 acres

GDU Transition

Commission Appointed – **August 11, 1984**

Commission Hearing – **December 13 & 14, 1984**

Commission Report – **December 20, 1984**

Resulted in 1986 GDU Reformulation Act

1986 - Garrison Diversion Unit Reformulation Act

- **Reduced irrigation** development to 130,940 acres
- **$200 Million Grant** Municipal, Rural and Industrial (MR&I)
- Water treatment, wildlife mitigation, and recreation also included
- **$20.4 Million for Tribal MR&I**

2000 – Dakota Water Resources Act

- MR&I
  - State - $200M, Tribal - $200M (indexed)
- Recreation & Natural Resources - $32.5M
- Irrigation development
  - Reduced to 75,480 Acres
- Red River Valley Water Supply Project
  - $200M Loan (indexed)

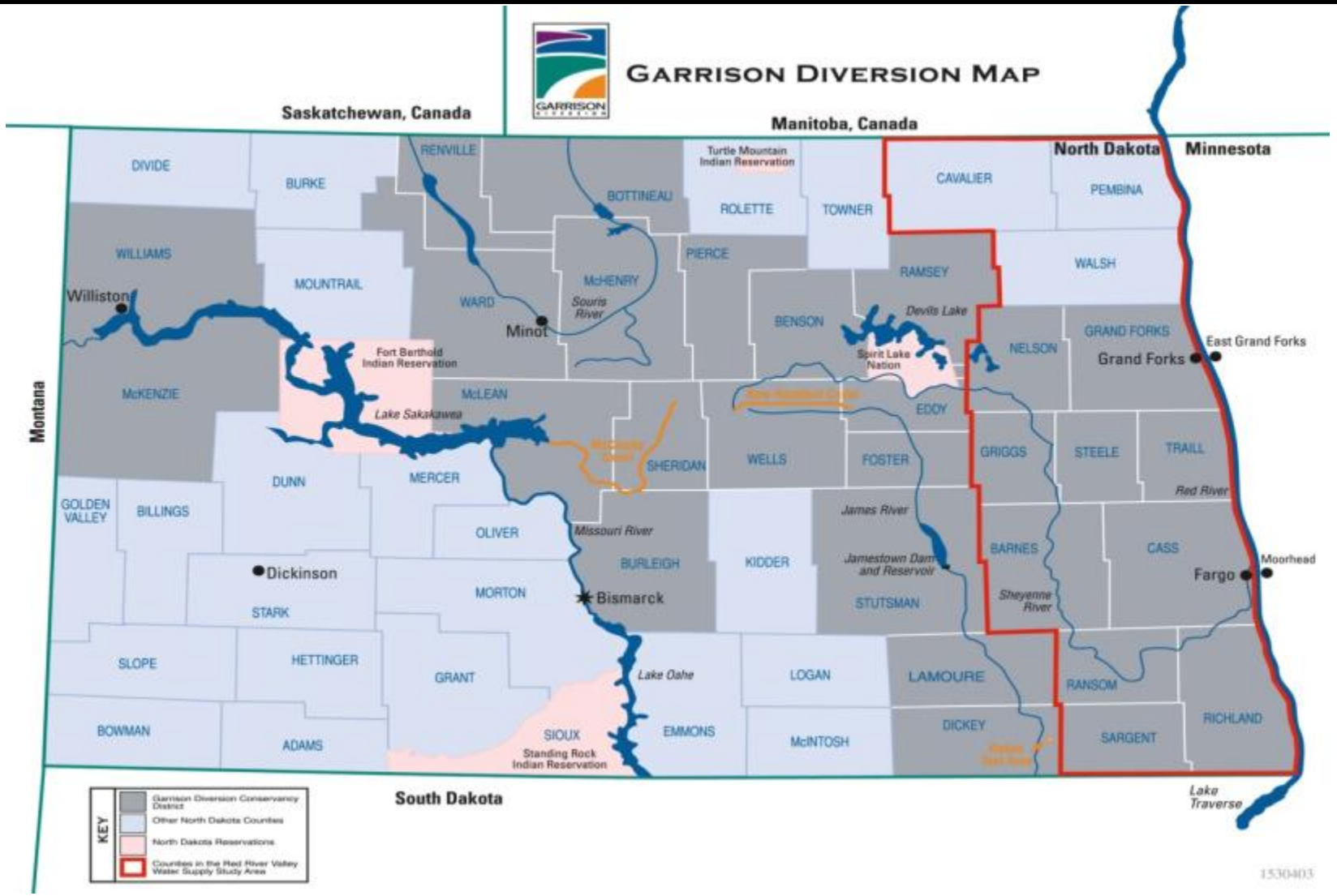
Garrison Diversion TODAY

Our Mission

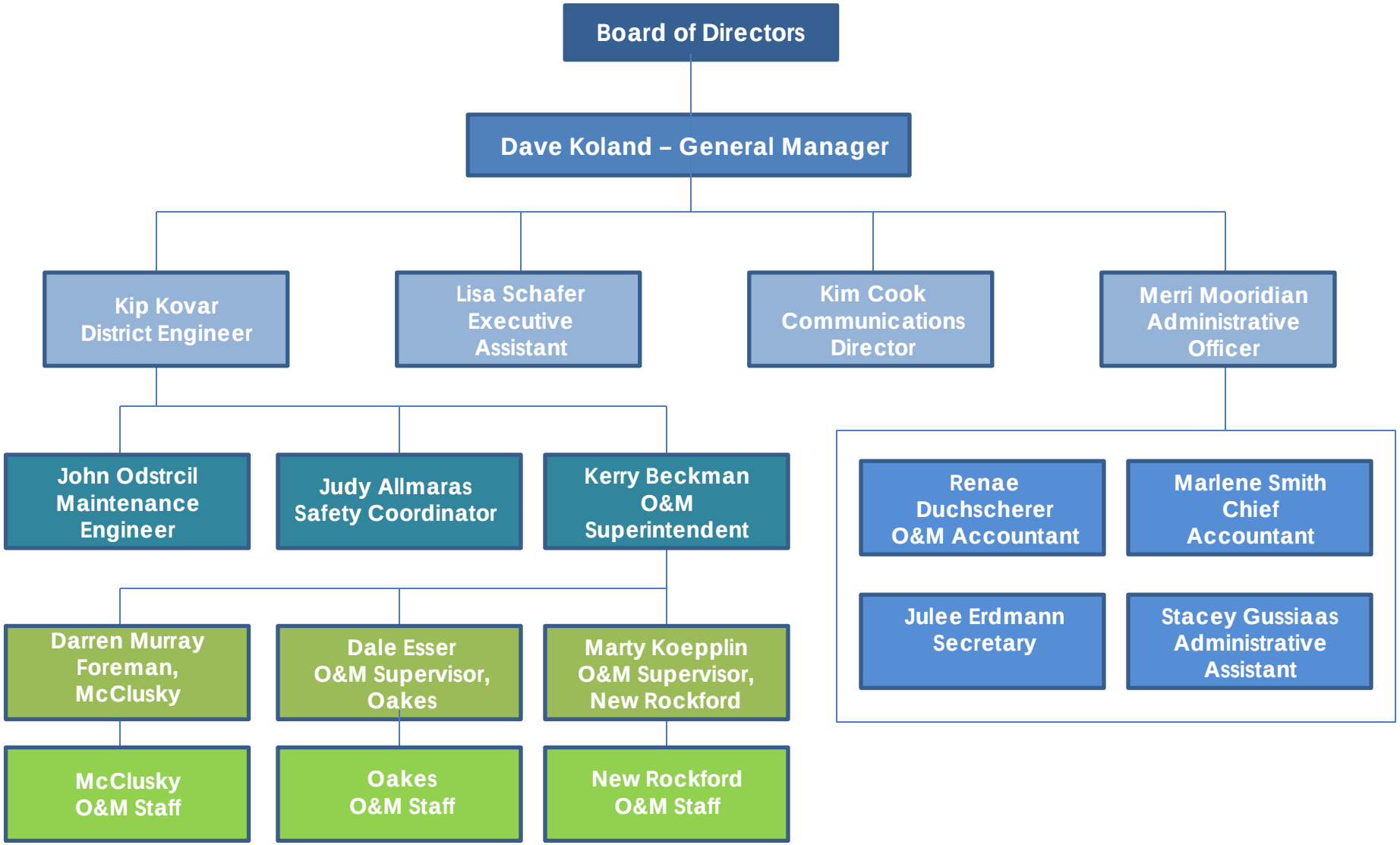
To provide a reliable, high quality and affordable water supply to benefit the people of North Dakota

www.garrisondiversion.org

Garrison Diversion TODAY



Garrison Diversion STAFF



Garrison Diversion COMMITTEES

Garrison Diversion TODAY

Federal Focus

- **Cooperative agreements with Bureau of Reclamation**
  - MR&I
  - O&M of Principal Supply Works
  - Recreation

State Focus

- **Century Code**
  - Garrison Diversion Conservancy District (Ch. 61-24)
  - Lake Agassiz Water Authority Administration (Ch. 61-39)
- **Joint Powers Agreement with State Water Commission**
  - *MR&I*
  - *Red River Valley Water Supply Project*

Garrison Diversion TODAY

Funded by:

- County Mill Levy (1 mill)
- Bureau of Reclamation Cooperative Agreements
- Irrigator Water Service Contracts

Completes work for:

- Bureau of Reclamation
- ND State Water Commission
- Other Government Entities

PROGRAMS - Agriculture

Mile Marker 7.5 Irrigation Project
= 3,372 Acres Irrigated

Signed 40-year water service contract with Reclamation for water from McClusky Canal

PROGRAMS - Agriculture

Oakes Test Area

- Operates for Dickey-Sargent Irrigation District
- 5,000 Acres

Oakes Irrigation Research Site

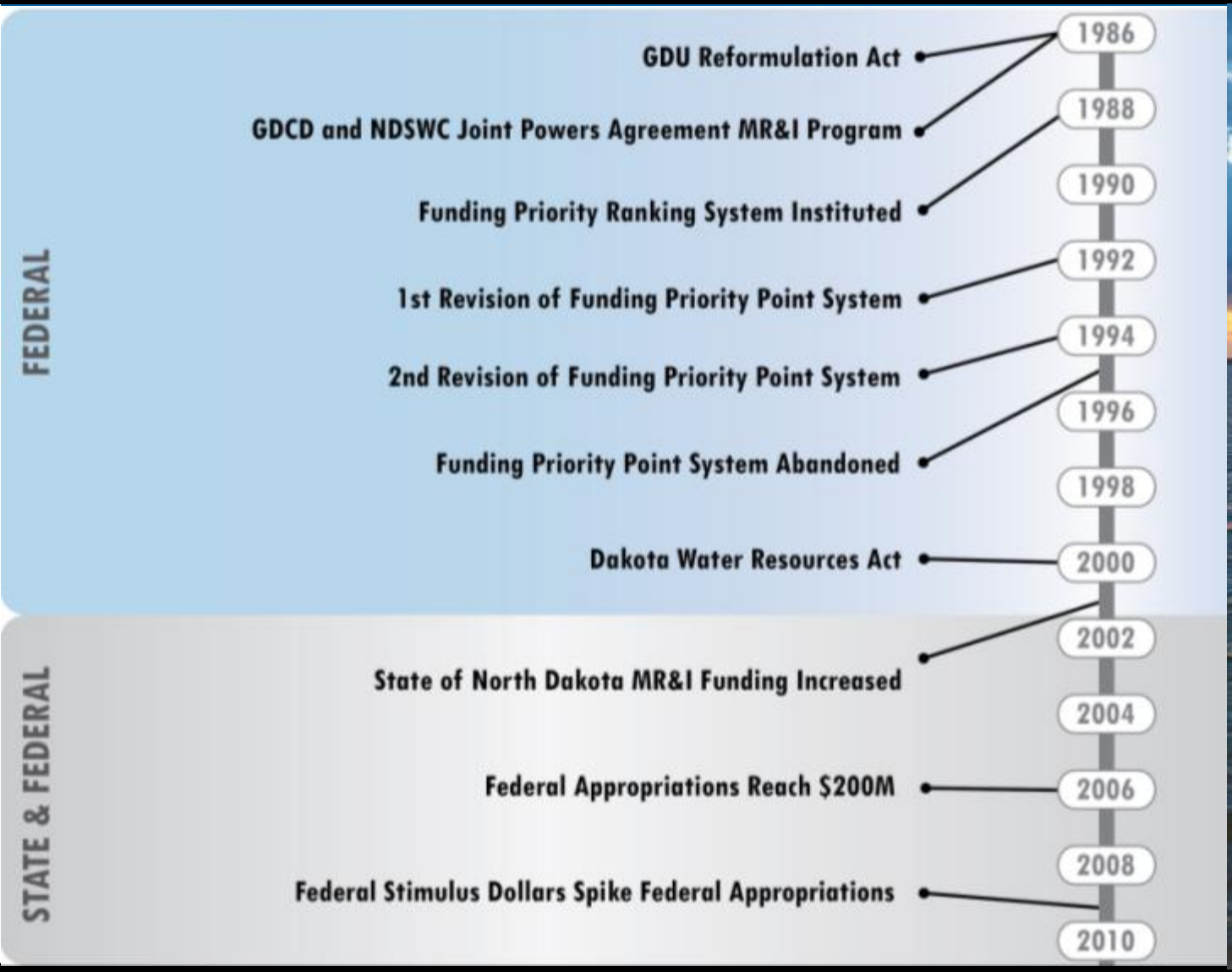
- Provide funding to NDSU for operations

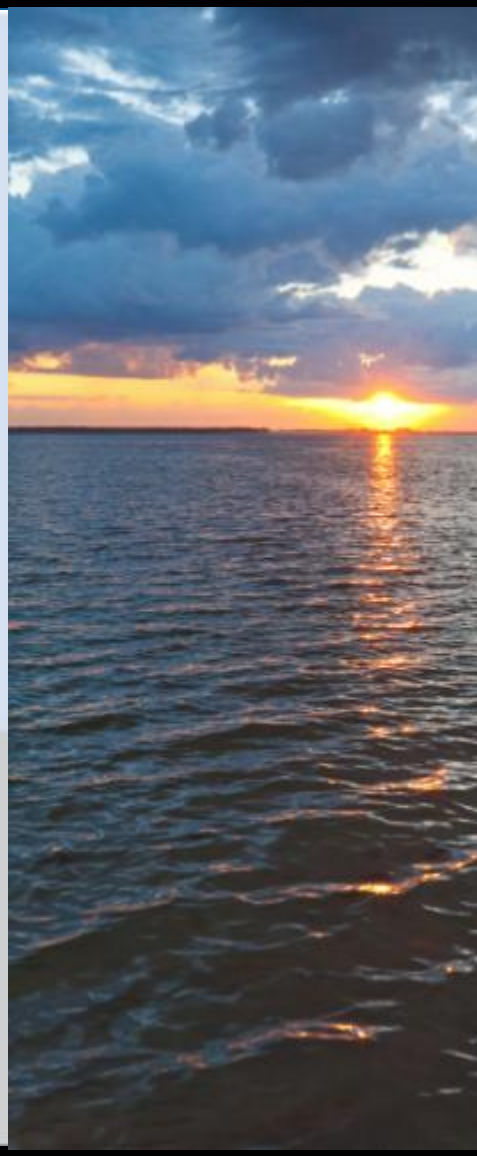
PROGRAMS - Recreation

2/10th of mill levy dedicated to recreation

$3.9 Million awarded since program's inception in 1990

MR&I - Timeline



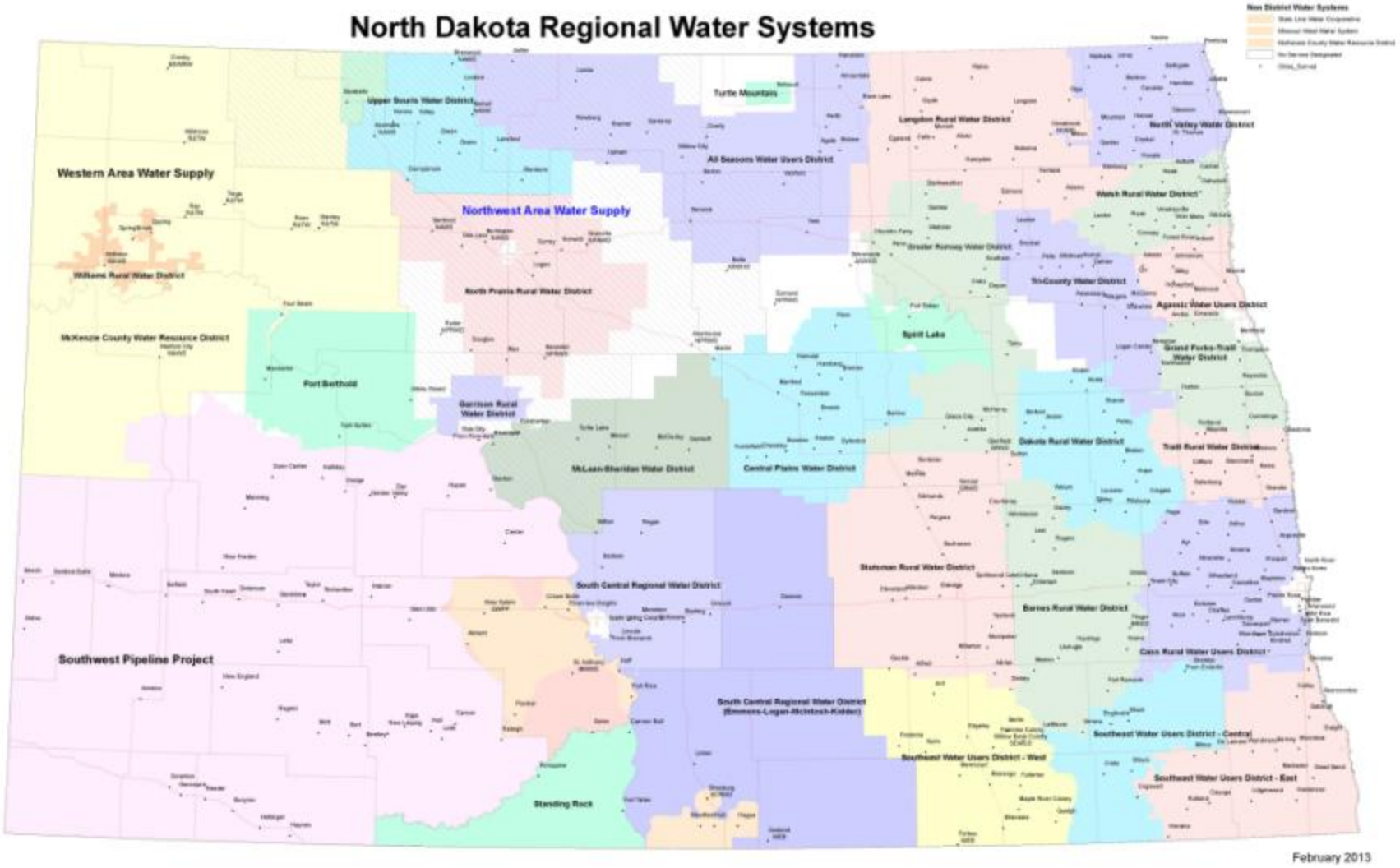


Joint Powers Agreement

Executed July 18, 1986

- Joint resources utilization of the SWC and Garrison Diversion in administering the MR&I Program
- Designates Garrison Diversion as the Fiscal Agent of the State of North Dakota for Federal Monies received for the MR&I Program

MR&I – Regional Water Systems



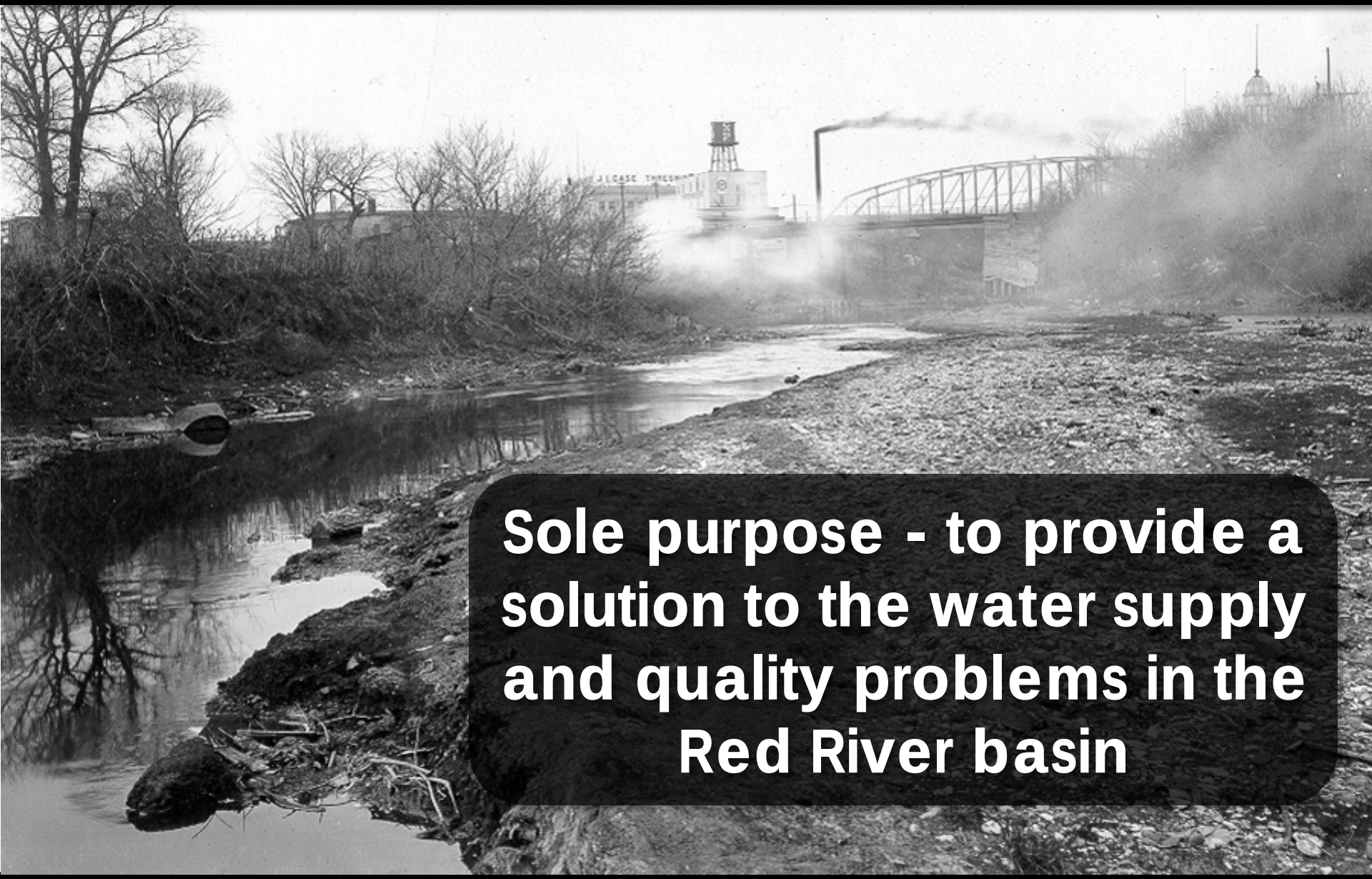
PROGRAMS

MR&I

$310M spent to date $185M remaining

Quality Drinking Water

Red River Valley Water Supply Project



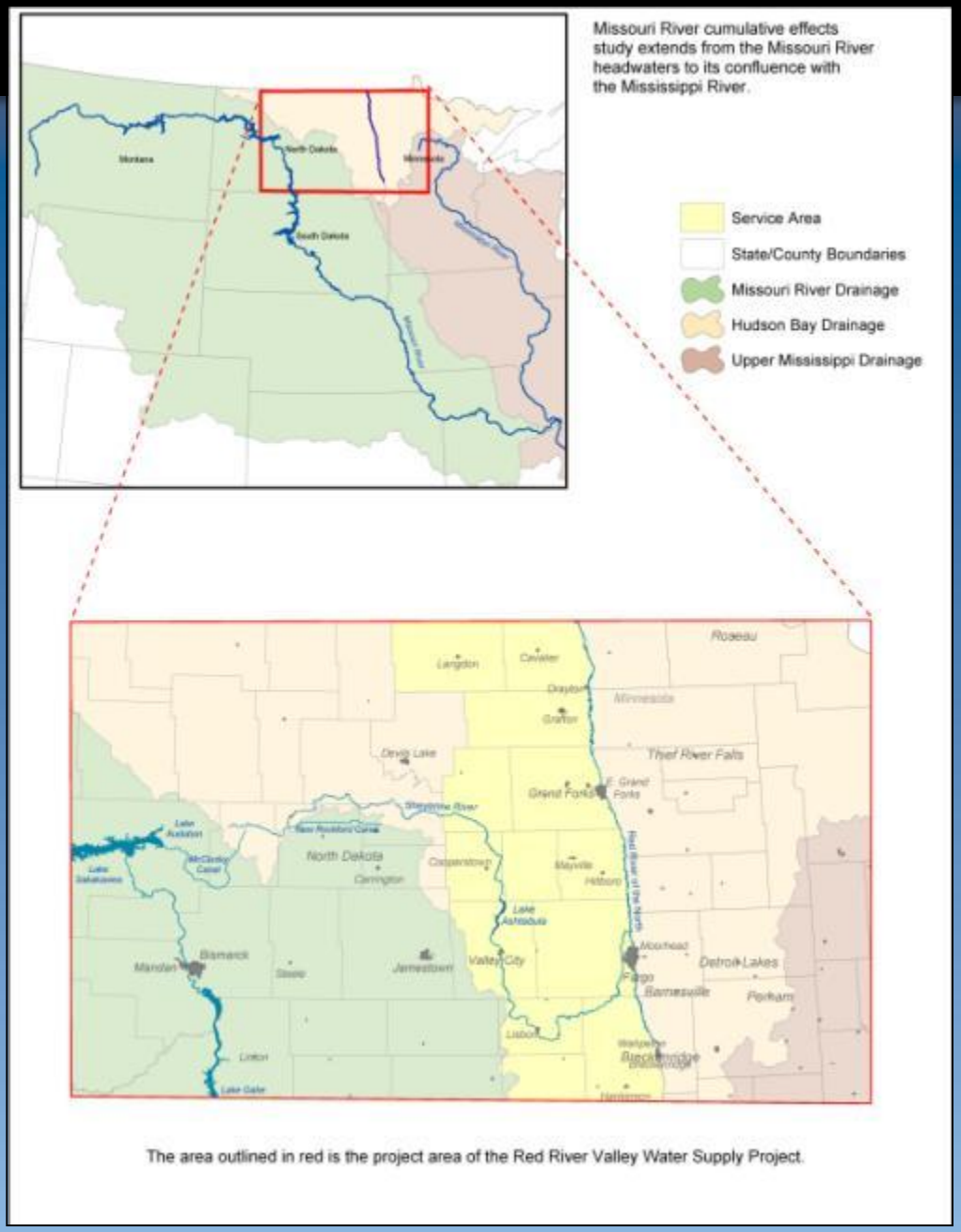
Sole purpose - to provide a solution to the water supply and quality problems in the Red River basin

Project Area

13 Eastern North Dakota Counties

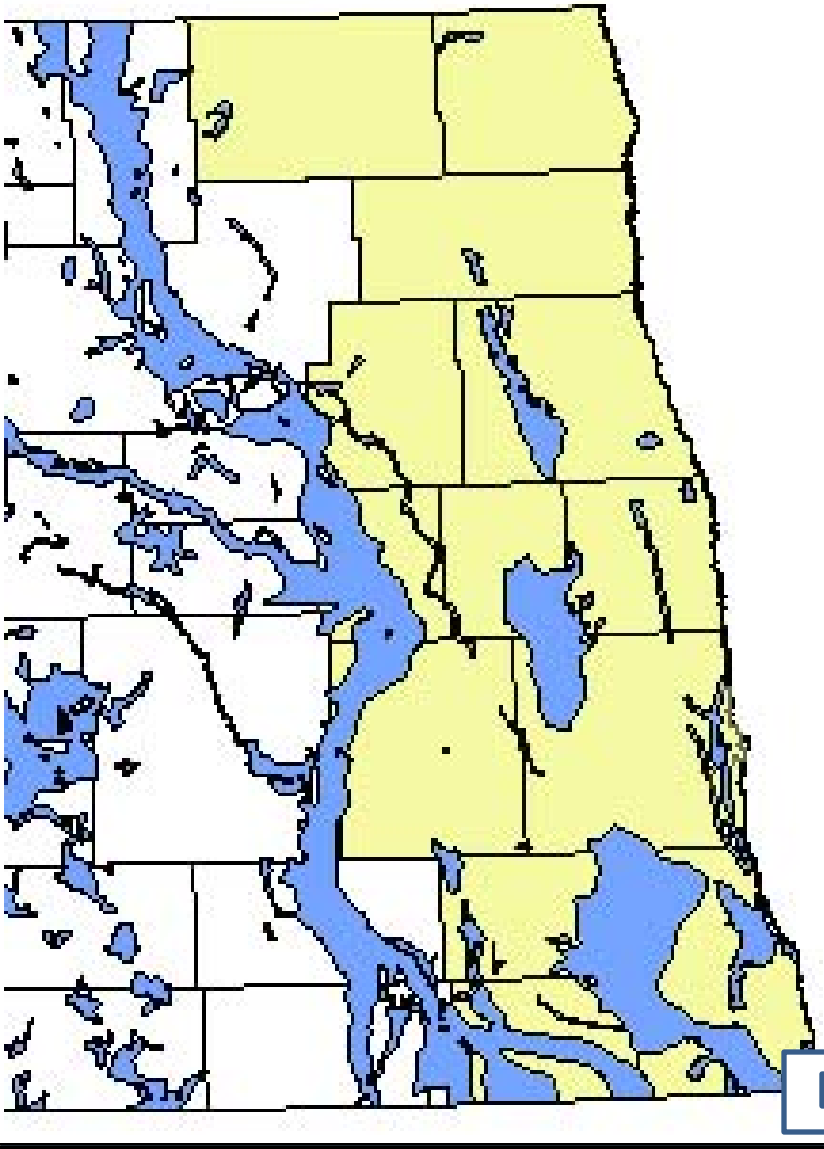
3 Minnesota Cities:

- East Grand Forks
- Moorhead
- Breckenridge



The area outlined in red is the project area of the Red River Valley Water Supply Project.

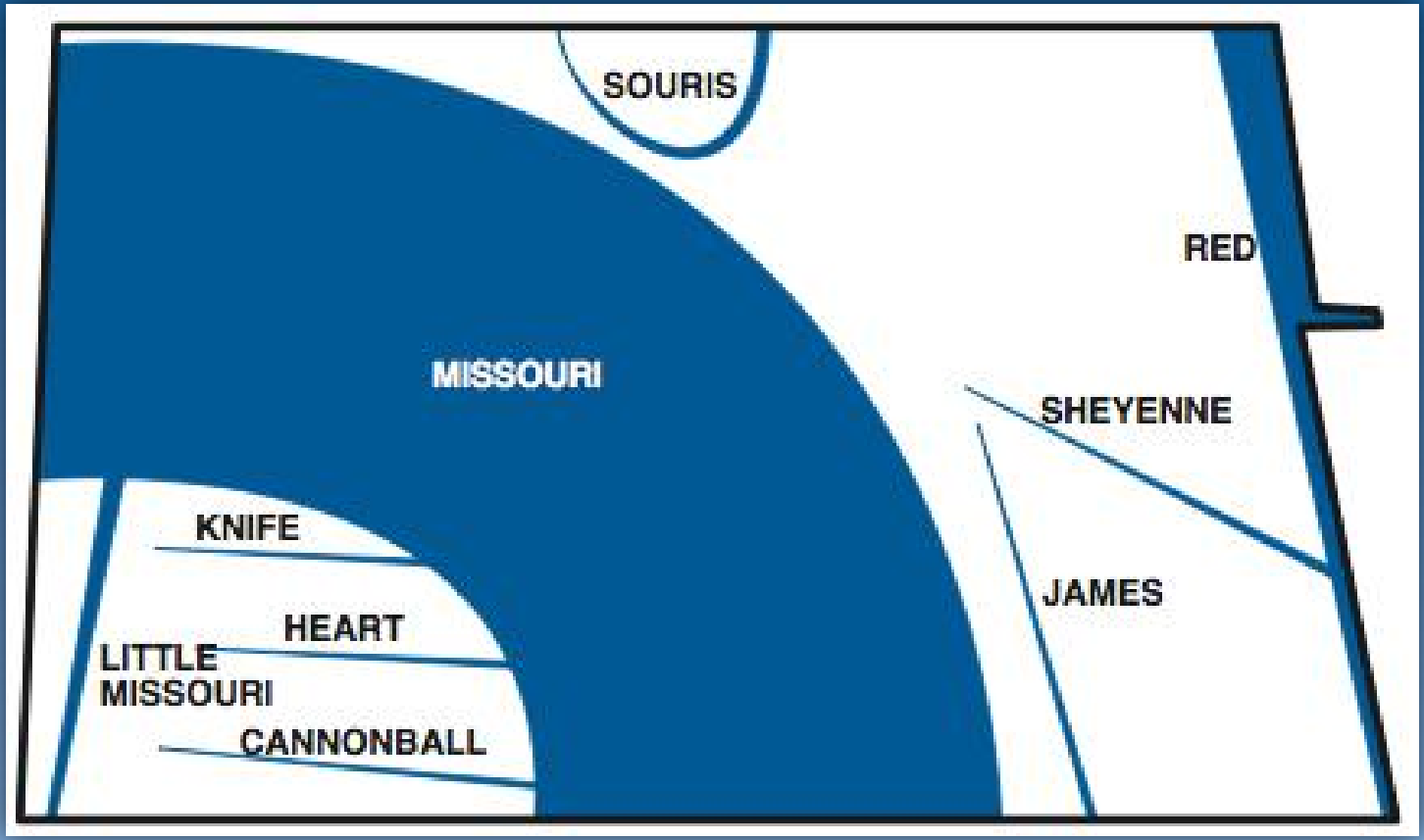
Limited Red River Valley Water Supply



- **Groundwater supplies are fully appropriated**
- **State law discourages groundwater drinking water conversion**

Existing Freshwater Aquifers

Relative Discharges of the Principal Rivers in ND



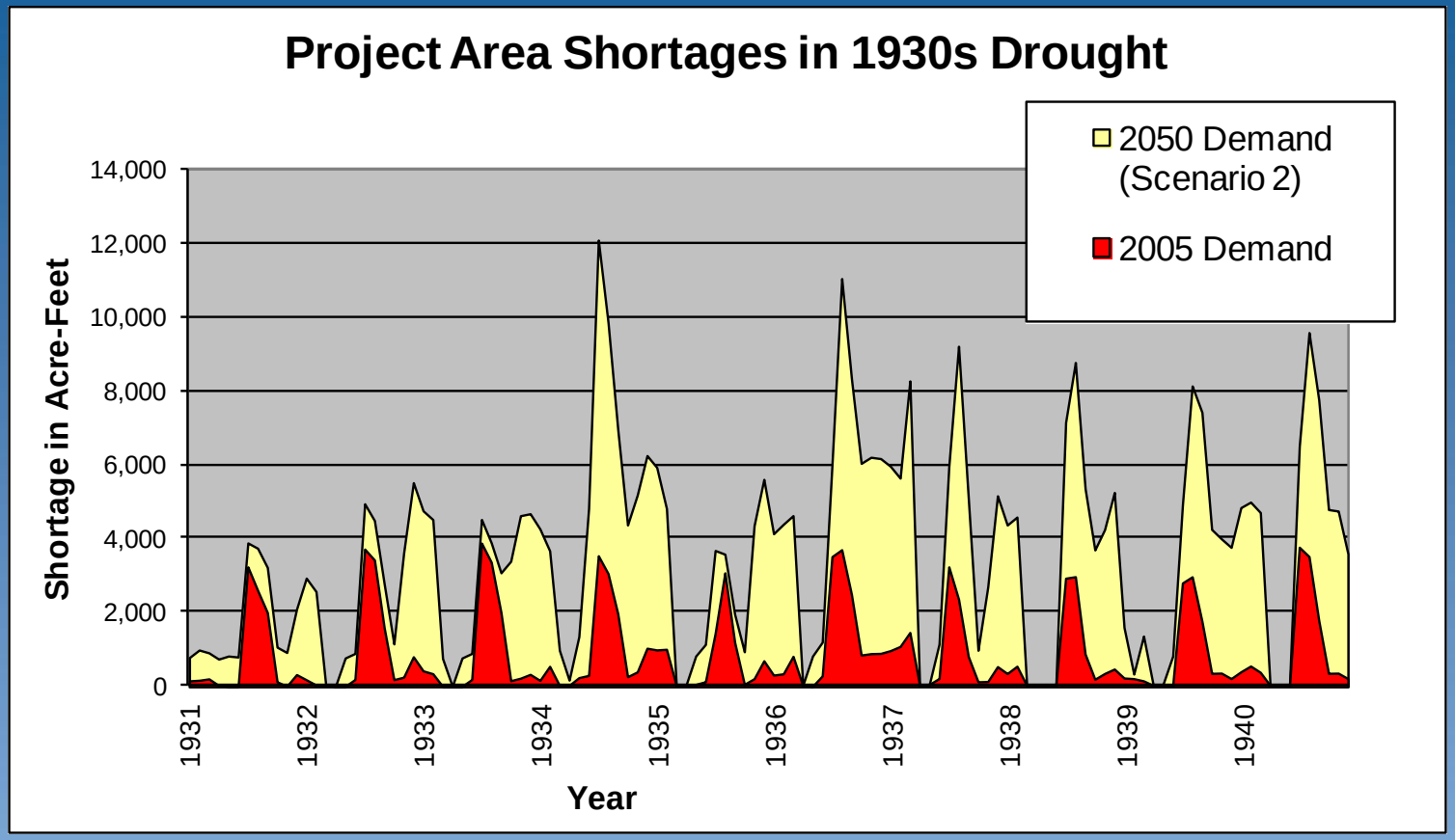
Regional Water Demands

- 2050 MRI Needs
  - 142,380 acre-feet/yr. (46.4 billion gallons/year)
- Recreation Needs
  - Non-consumptive/consumptive
- Aquatic Needs
  - Minimum stream flows
- Water Quality
  - Meets beneficial uses

Project Need

- Existing water supplies will be inadequate during drought
- In 1934, five months of zero flow in Red River at Fargo
- Projected 41% maximum annual water shortage during 1930s-type drought
- Expected economic impact ~$20.4 billion over 10 years

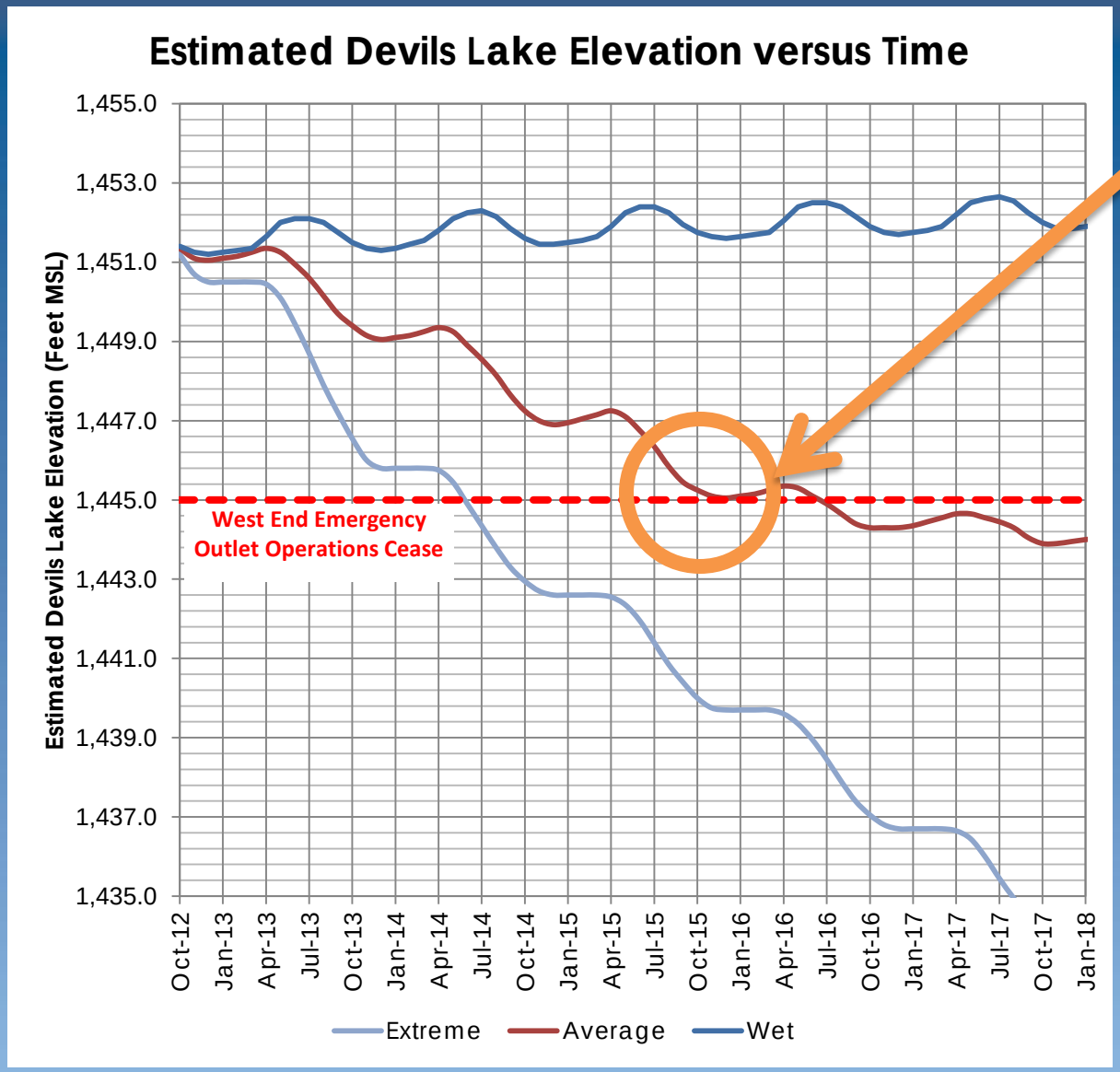
The Need


Project Area Shortages in 1930s Drought
2050 Demand (Scenario 2)
2005 Demand
Shortage in Acre-Feet
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
1931
1932
1933
1934
1935
1936
1937
1938
1939
1940
Year

Problem

- Project will take a minimum of six years to construct
- Conversely, only one year of back-up water supply is contained in Lake Ashtabula
- Industrial demand exceeds current supply

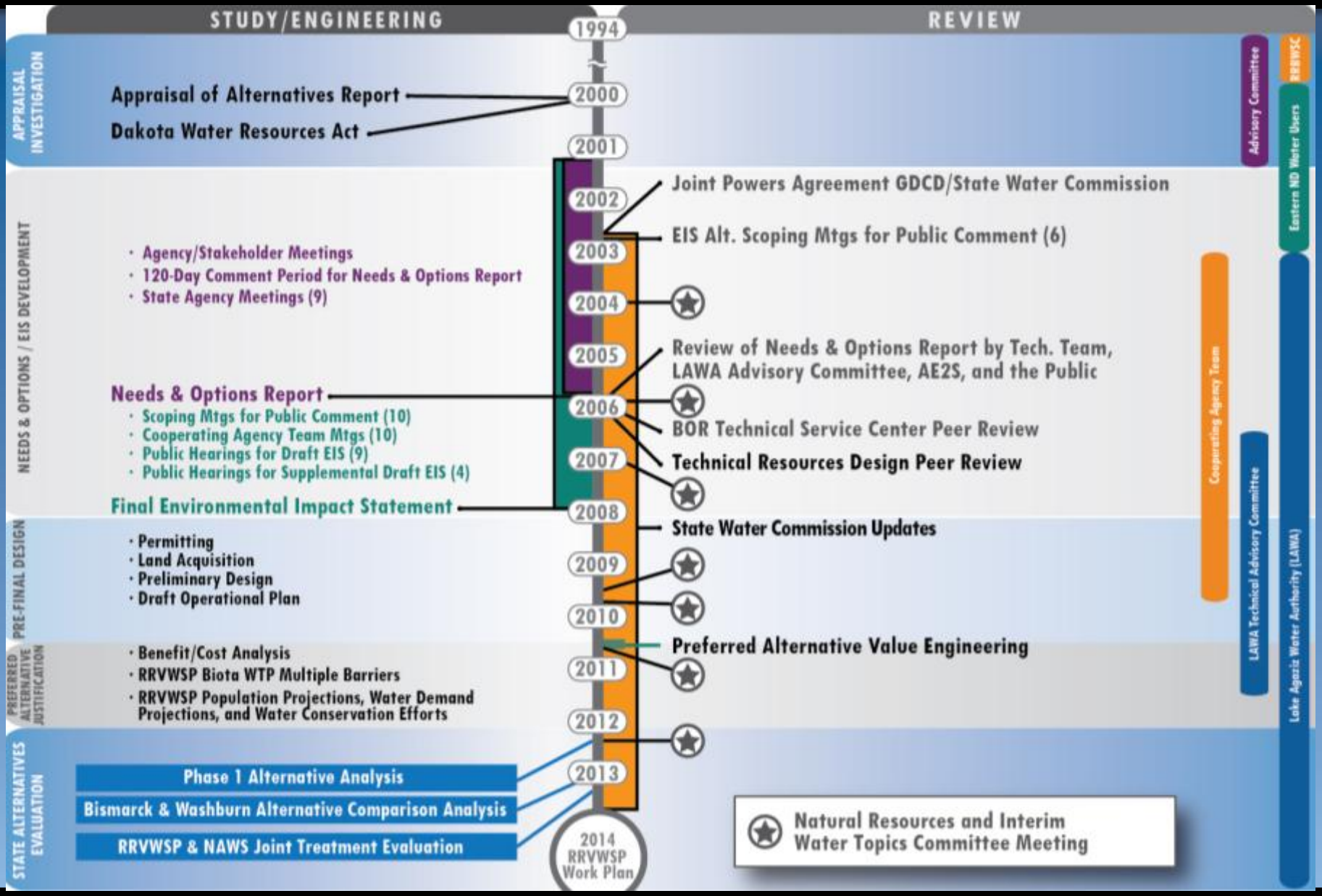
Devils Lake and Outlet Operations



Devils Lake discharges will provide 2-3 years of water during drought.

Lake Ashtabula will provide an additional 1 year.

Project Development Summary and Work Plan



Appraisal of Alternatives

Collaboration Process

- **1994 – 2000**
- ***Appraisal of Alternatives Report* – released January 2000**
- **Report concluded: "If no action is taken the Red River Valley would experience significant water shortages. Additional studies are needed before a preferred alternative can be selected."**

Red River Valley Water Supply Project

Authorized by the Dakota Water Resources Act

***MR&I** ***Water Quality**
***Recreation**
***Aquatic Environment**
***Water Conservation Measures**

Dakota Water Resources Act

Authorized two studies

- Needs & Options Report
  - To be completed by Reclamation
- Environmental Impact Statement (EIS)
  - To be completed jointly by Reclamation and the State of North Dakota

3-Pronged Solution

1. Water Conservation Measures
2. The "Project"

   One of Seven Action Alternatives Considered

   - » 3 – In-Basin Alternatives
   - » 4 – Import Alternatives
3. Drought Contingency Plans

Possible Solutions

Seven Action Alternatives

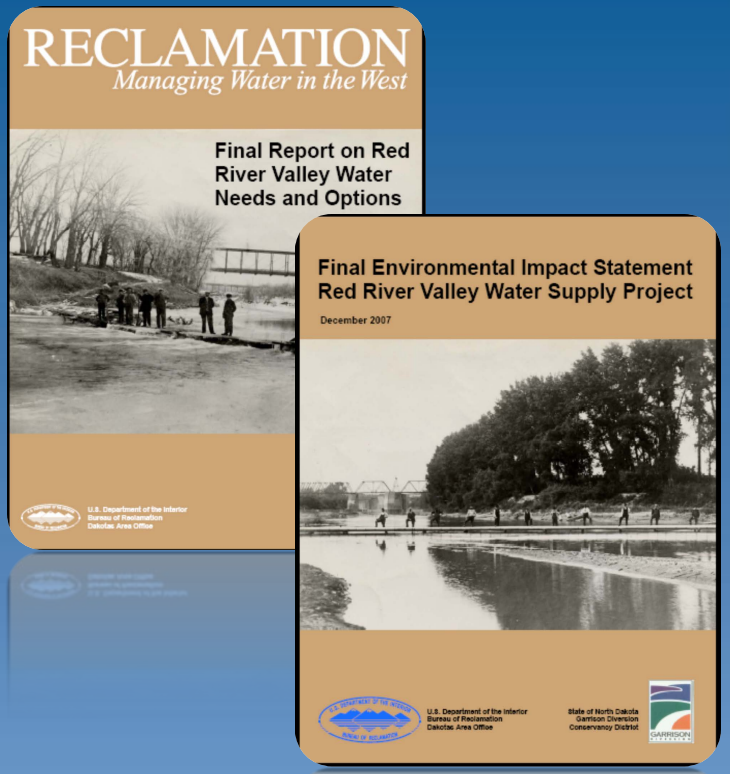
- In-Basin Alternatives
  - North Dakota In-Basin
  - Minnesota Groundwater
  - Lake of the Woods
- Import Alternatives
  - Missouri to Red River Valley
  - GDU Import Pipeline
  - GDU Water Supply Replacement
  - GDU Import to Lake Ashtabula

Decision Making Process

- Governor appointed Garrison Diversion to represent North Dakota in the EIS Study
- Reserved policy decisions to the State Engineer
  - "The State Engineer will continue to be responsible for interstate, international, and general policy issues."

Federal Process

- Needs & Options Report
  - Released November 2005
- Environmental Impact Statement
  - Final EIS released December 2007
- 2001 – 2007
- $18 million ($25 million total)



Federal Process

Resource Meetings

- 52 individual meetings with one or more agencies
- 27 Agencies involved, such as:
  - Corps of Engineers
  - U.S. Fish & Wildlife Service
  - EPA
  - USGS
  - State Water Commission
  - Minnesota DNR

State Process

Included coordination and input from:

- Lake Agassiz Water Authority
- State Agencies
- State Legislators

Evolution of Local Entities

Red River Basin Water Supply Coalition

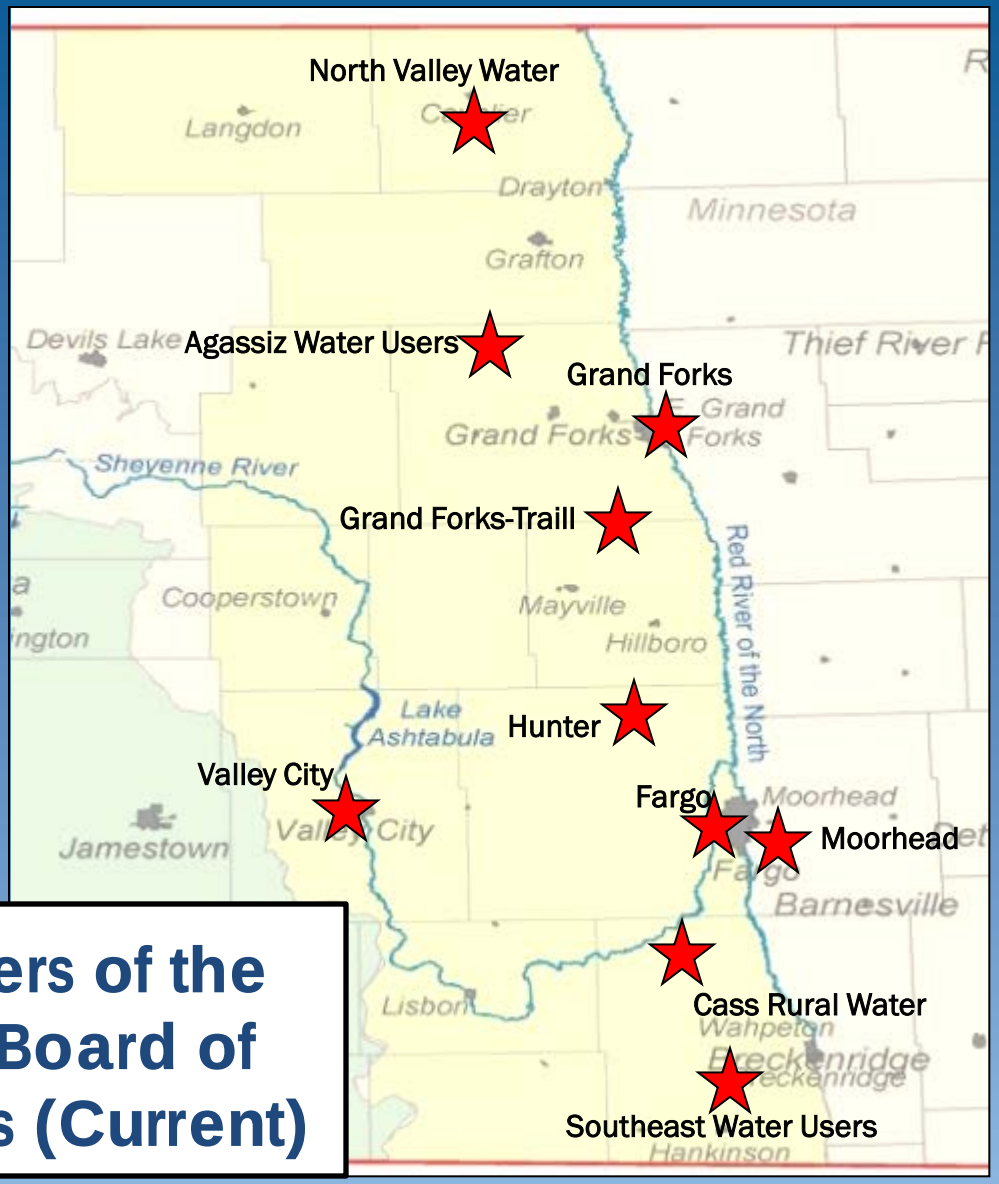
Eastern ND Water Users

Lake Agassiz Water Authority

Lake Agassiz Water Authority

Board of Directors

- Created by state legislature
- 10 members
  - 5 – city members
  - 5 – rural water system members



★ Members of the LAWA Board of Directors (Current)

State Process

State Agency Meetings

- 9 Meetings (May 2003 - February 2007)
- 46 monthly status reports on the Project (August 2004 – January 2008)

Agencies:

- Governor's Office
- Department of Transportation
- Department of Health
- Department of Commerce
- Department of Agriculture
- Department of Tourism
- State Parks & Recreation
- ND Forest Service
- State Water Commission
- State Game & Fish Department
- ND Geological Survey

State Process

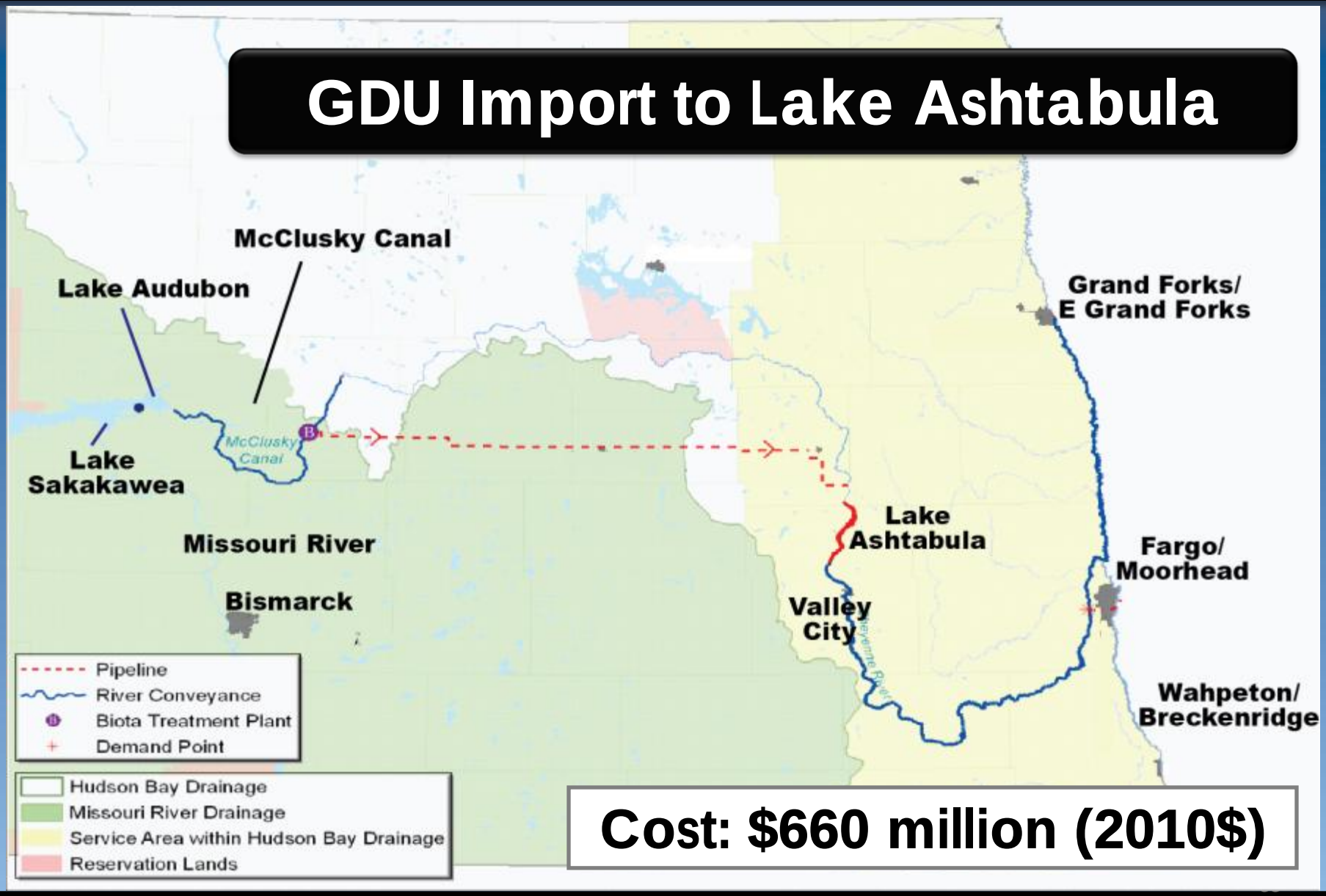
State Water Commission

- Briefed about Project at SWC meetings
  - » Dec 2002 – Present
- Received 46 Monthly Status Reports on the Project
  - » August 2004 – January 2008
- Full day workshop held for commissioners regarding Project
  - » October 18, 2005
- SWC official recommendation of GDU Import to Sheyenne River as Preferred Alternative
  - » November 1, 2005

State Process

- State Legislature
  - Natural Resources Committee
    - Received presentations at committee meetings in 2004, 2006 and 2007
  - Red River Valley Legislators
    - March 3, 2005, Bismarck
    - December 12, 2005, Fargo
    - January 24, 2006, Fargo
    - December 12, 2006, Fargo
    - December 21, 2006, Grand Forks
  - Interim Water Topics Committee Meetings on the GDCD and RRVWSP
    - August 2009, December 2009, September 2010, and April 2012

Preferred Alternative Overview



Background – Preferred Alternative

- Convey Missouri River water from McClusky Canal to Lake Ashtabula

Main Project Components:

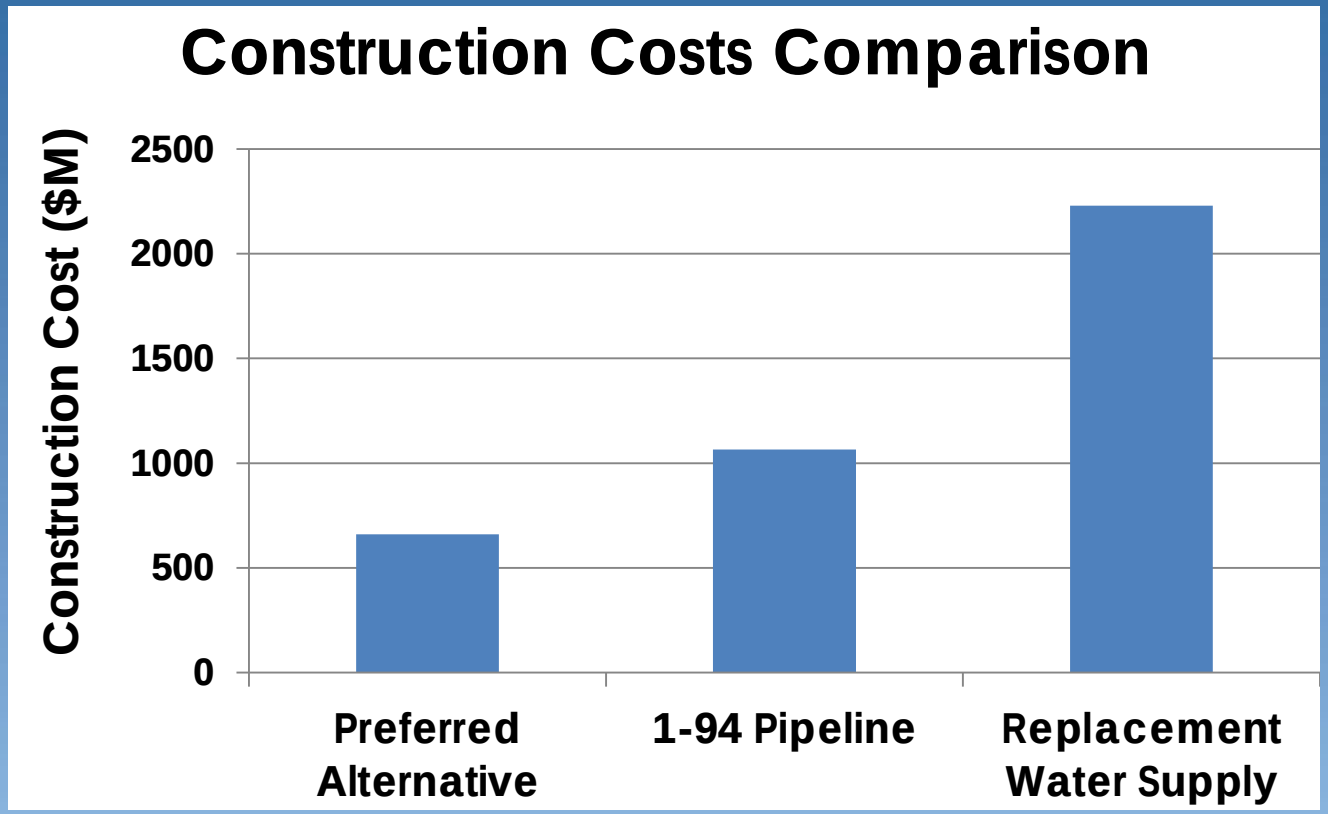
- Utilizes Principal Supply Works
- Capacity: 122 cfs
- McClusky Canal Intake & Biota WTP
- Conveyance Pipeline:122 miles, 66 inches in diameter

GDU Import to Lake Ashtabula Alternative Facts

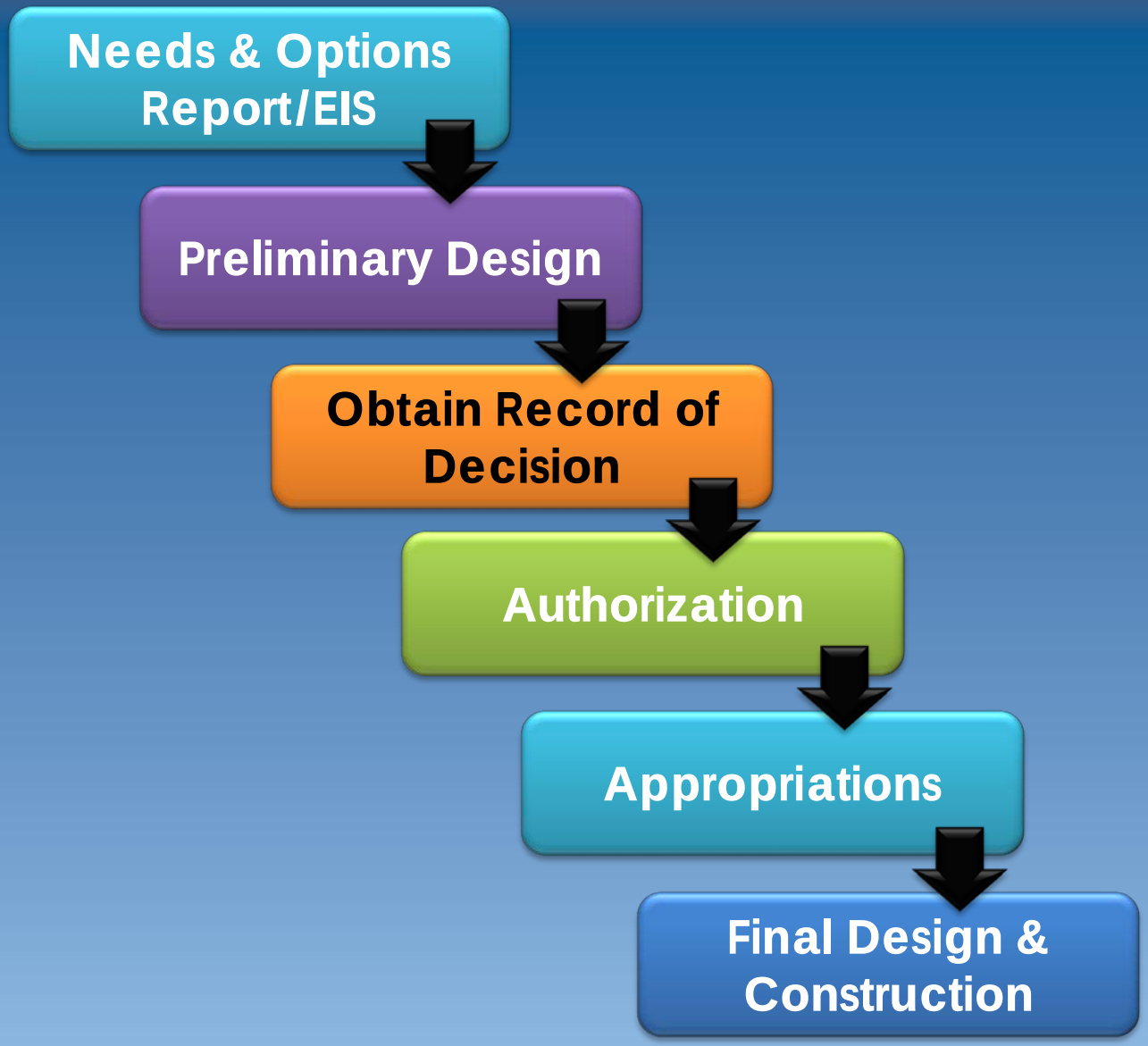
- Water supply needs of the Red River Valley now and in the future
- Core infrastructure for all 27 water systems
- No significant negative environmental impacts
- Most positive environmental benefits

GDU Import to Lake Ashtabula Alternative Facts

Least Cost Missouri River Alternative



RRVWSP Development Process



Preferred Alternative Preliminary Implementation

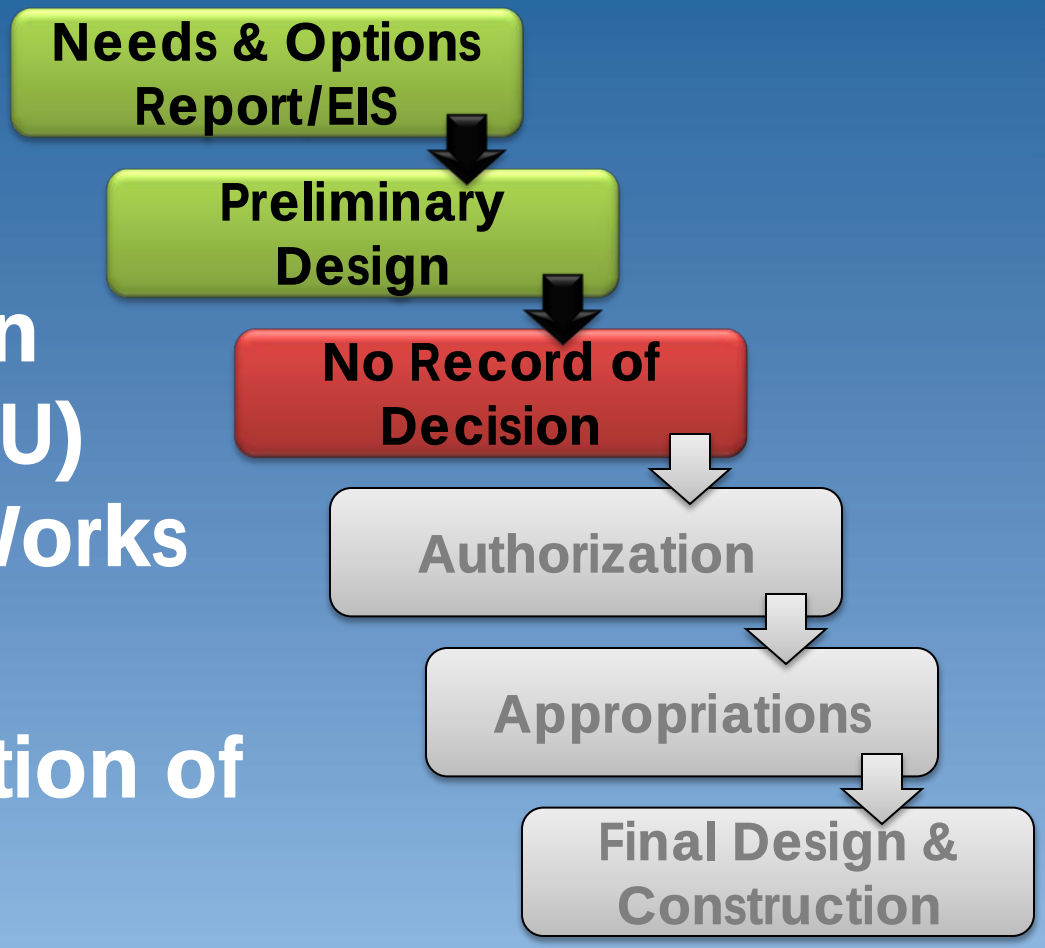
- Work completed from 2008 through 2010
  - Preliminary design of pipeline system
  - Acquired easement options for 76% of route (begin expiring July 2014)
  - Draft operational plan
  - Environmental and permitting

OMB Interaction

- Developed Benefit/Cost Analysis
- Meetings with OMB
- The GDU Import to Lake Ashtabula Alternative is exposed to the least amount of risk and provides the most benefits.
- Developed OMB White Papers
  - RRVWSP Biota WTP Multiple Barriers
  - RRVWSP Population Projections, Water Demand Projections, and Water Conservation Efforts

No Federal Approval

- No Federal Authorization received for Preferred Alternative



- Access to Garrison Diversion Unit (GDU) Principal Supply Works not available
- Forced consideration of Plan B

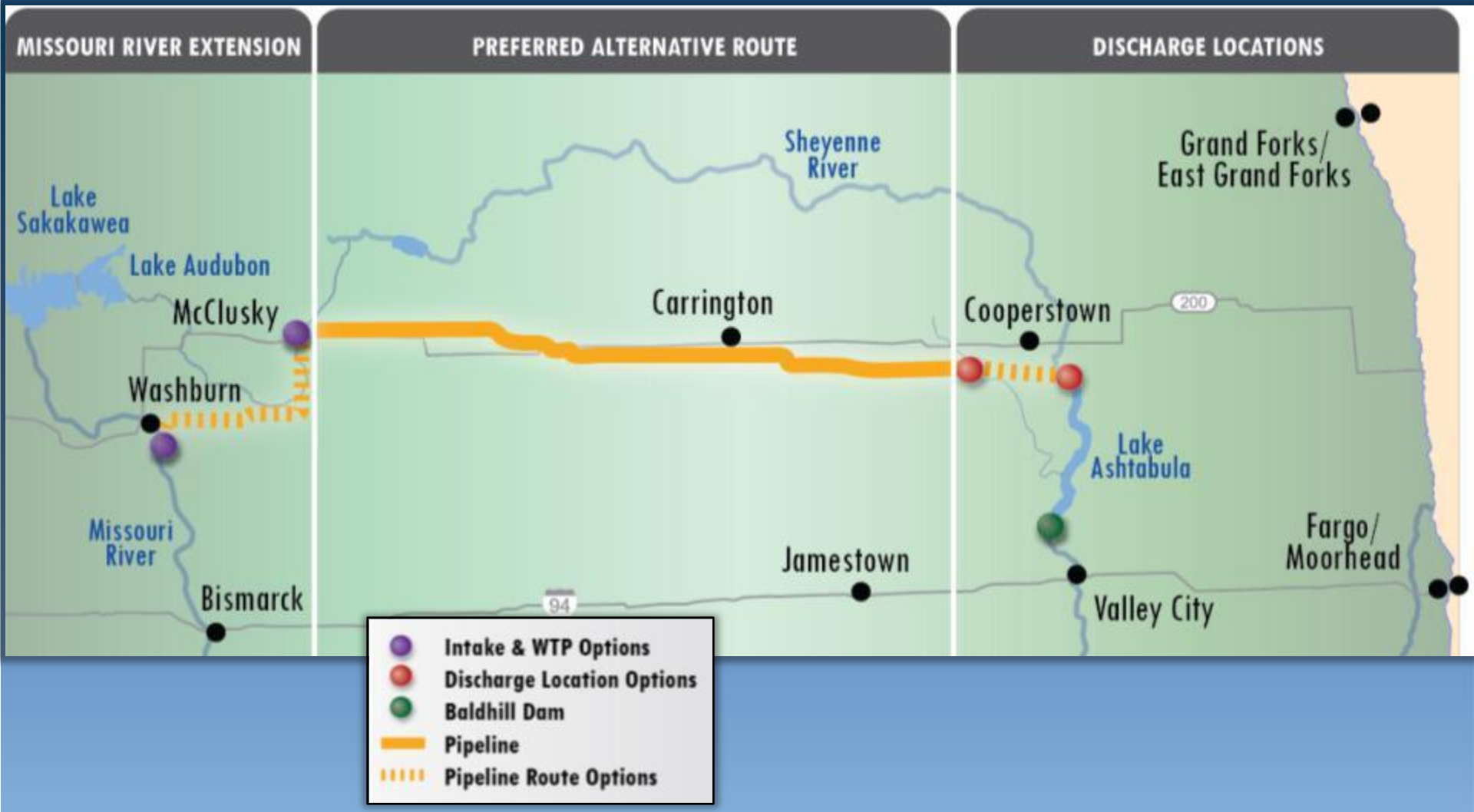
Plan B

OBJECTIVE

Determine "Plan B"

- Considered multiple potential alternatives to Missouri River
- One alternative emerged:
  - Washburn to Baldhill Creek

Plan B Washburn to Lake Ashtabula



Selected Plan B Alternative Advantages

- Lowest cost
- Less congested corridor
- FEIS completed for majority of route
- ROW options 76% secured
- Preliminary design 83% completed
- Required permits identified
- Access to McClusky Canal in the future

Conclusions

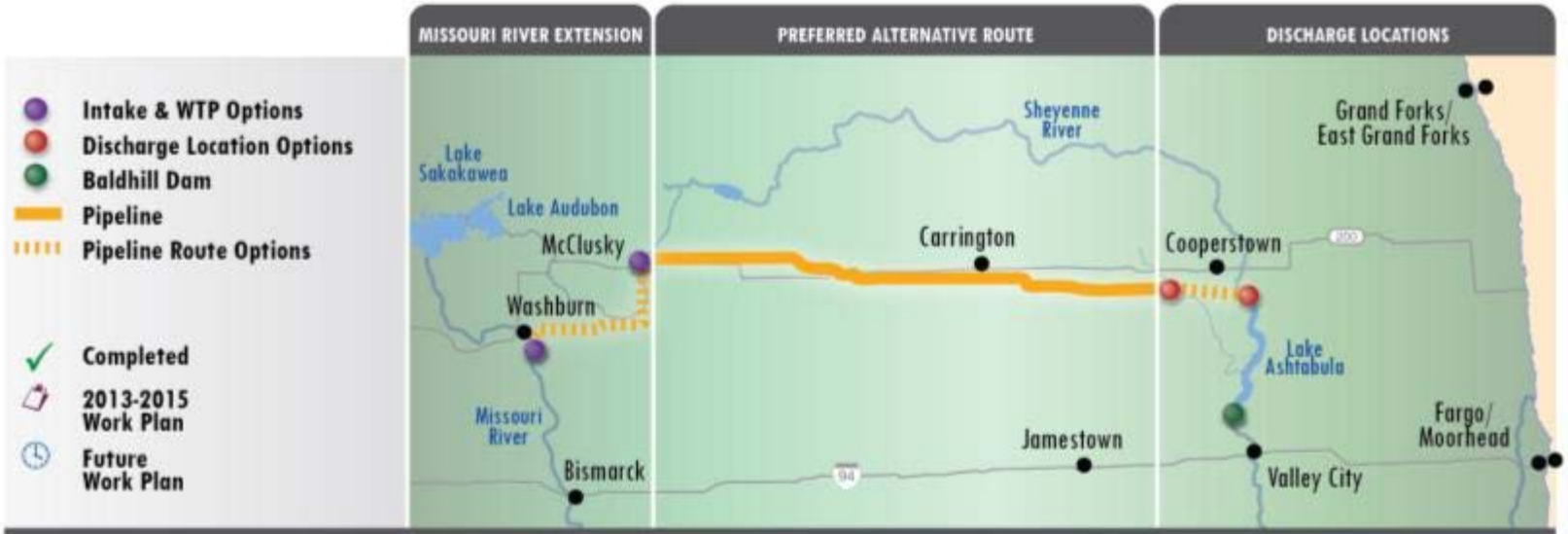
- Preferred Alternative is the most economical option for both capital and operation & maintenance costs

Plan B: Washburn Alternative

Synergistically Utilize Previous Preferred Alternative Route

2013 – 2015 Work Plan

Red River Valley Water Supply Project Implementation Work Plan

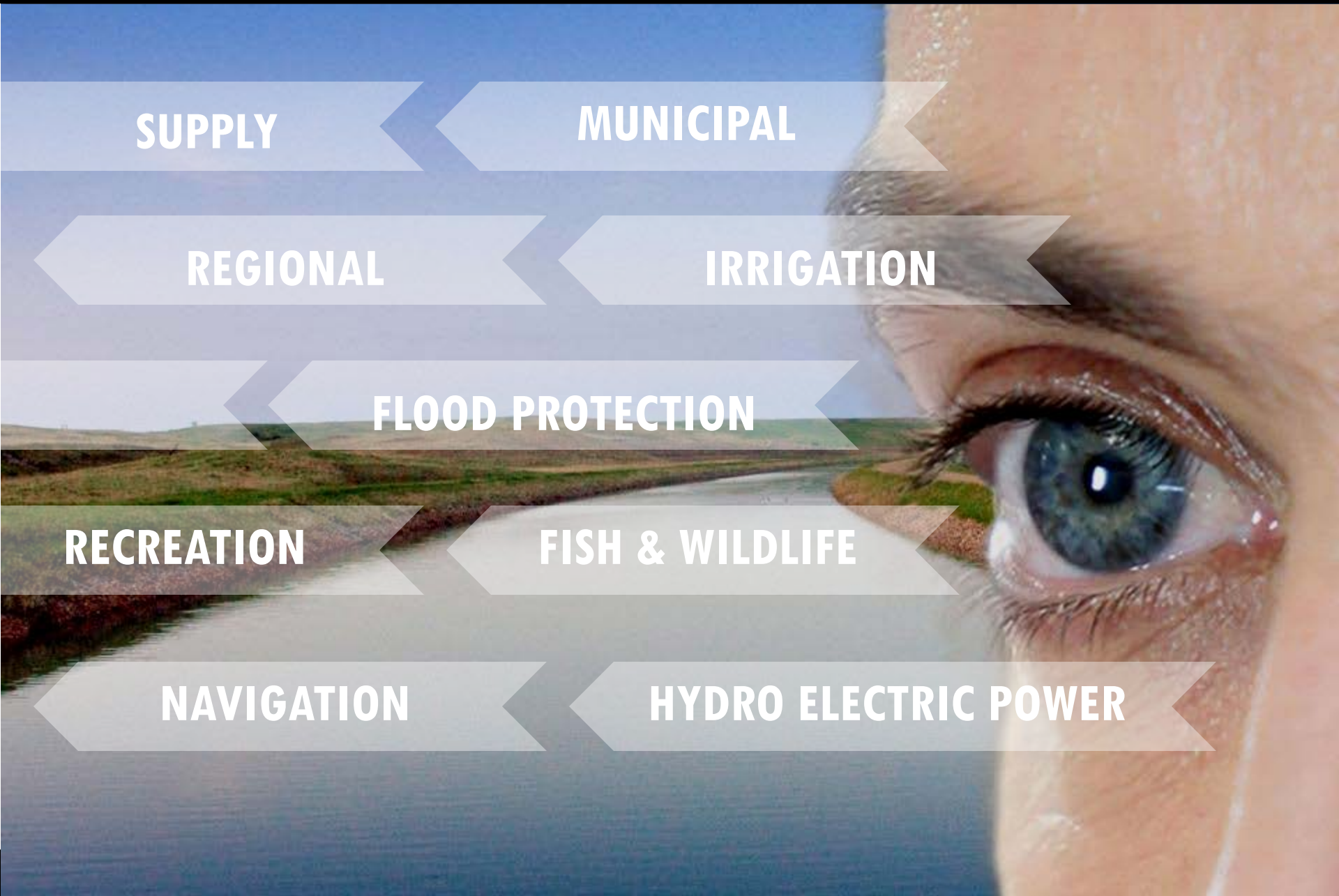


	MISSOURI RIVER EXTENSION	PREFERRED ALTERNATIVE ROUTE	DISCHARGE LOCATIONS
Project Planning	✓	✓	✓
Intake Predesign & Biota WTP Siting	$ 1,600,000	✓	
Discharge Location Evaluation			$ 700,000
Pipeline System Predesign	$ 1,000,000	✓	
Pipeline/Flowage Easement Acquisition	$ 500,000	$ 7,400,000 (Options Begin Expiring July 2014)	$ 1,400,000
Pipeline System Final Design			
Intake & Biota WTP Pre-Final & Final Design			
Project Construction			
Sub-Totals	$ 3,100,000	$ 7,400,000	$ 2,100,000
2013/2015 Work Plan Costs			$ 12,600,000

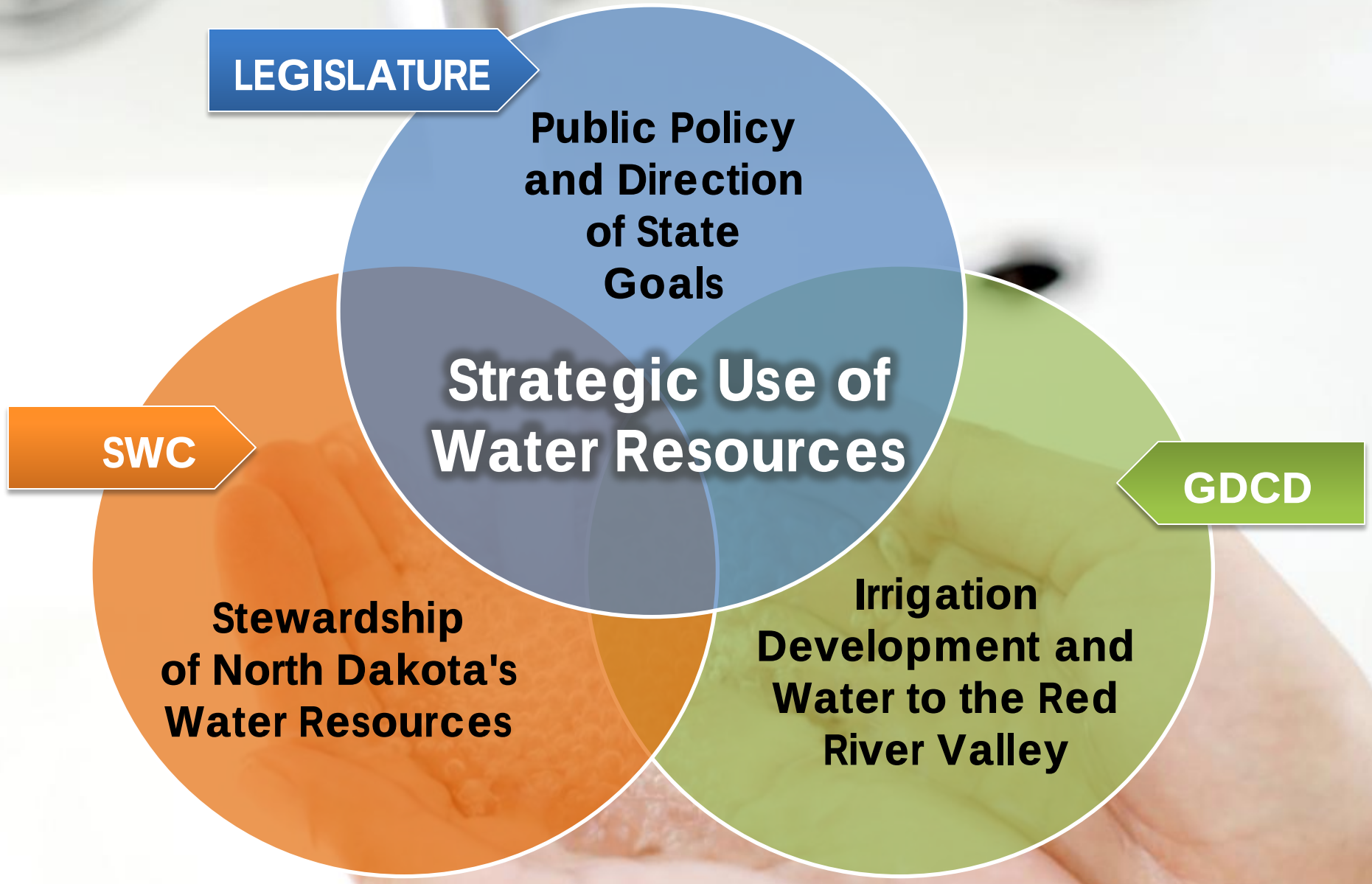
North Dakota : World of Opportunity

Strategic Water Development Critical to Continued Economic Growth

Strategic Water Development Vision is All Encompassing



Collaborative Vision and Implementation



Conclusion

GDCD Mission:

To provide a reliable, high quality and affordable water supply to benefit the people of North Dakota

1. **Strong Track Record of Collaborative Leadership in ND Water Development**
2. **Committed to Moving Irrigation and the Red River Valley Water Supply Project Forward**
3. **Excited to Support a Common Strategic Vision for the Future of North Dakota Water Development**

THANK YOU!

GARRISON
DIVERSION