Garrison Diversion

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

presentation to the

Water Topics Overview Committee

September 5, 2013
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

North Dakota Constitutional Convention 1889

Drought 1930

Flood Control Act of 1944 1940

Construction of the Garrison Dam 1950

Garrison Diversion Conservancy District Created 1960

1965 Garrison Diversion Unit Act 1970

Construction of GDU Principal Supply Works 1980

Garrison Diversion Unit Commission 1990

Garrison Diversion Unit Reformulation Act of 1986 2000

Dakota Water Resources Act of 2000
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 - 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

Snake Creek Pumping Plant
1968 – 1984 Construction of GDU Principal Supply Works

Lake Audubon

- Recreation
- Wildlife Refuge
1968 – 1984 Construction of GDU Principal Supply Works

McClusky Canal

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)
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

Board of Directors

Dave Koland - General Manager

Kip Kovar
District Engineer

John Odstrcil
Maintenance Engineer

Darren Murray
Foreman, McClusky

McClusky
O&M Staff

Judy Allmaras
Safety Coordinator

OAKES
O&M Staff

Dale Esser
O&M Supervisor, Oakes

New Rockford
O&M Staff

Kerry Beckman
O&M Superintendent

Marty Koepplin
O&M Supervisor, New Rockford

Kim Cook
Communications Director

Renae Duchscherer
O&M Accountant

Julee Erdmann
Secretary

Stacey Gussiaas
Administrative Assistant

Meri Mooridian
Administrative Officer

Dave Koland – General Manager

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Chief Accountant

Lisa Schafer
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Kim Cook
Communications Director

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Secretary

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Garrison Diversion COMMITTEES

- Executive
- Agriculture & Natural Resources
- Public Relations
- Engineering & Operations
- Missouri River
- Recreation
- Red River Valley
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
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

FEDERAL

- GDU Reformulation Act (1986)
- Funding Priority Ranking System Instituted (1990)
- 1st Revision of Funding Priority Point System (1992)
- 2nd Revision of Funding Priority Point System (1994)
- Funding Priority Point System Abandoned (1996)
- Dakota Water Resources Act (1998)

STATE & FEDERAL

- State of North Dakota MR&I Funding Increased (2000)
- Federal Appropriations Reach $200M (2002)
- 2006
- 2008
- 2010
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

North Dakota Regional Water Systems

February 2013
Providing a much needed, reliable and quality water supply

$310M spent to date $185M remaining
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
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
Project Area Shortages in 1930s Drought

<table>
<thead>
<tr>
<th>Year</th>
<th>2050 Demand (Scenario 2)</th>
<th>2005 Demand</th>
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The Need
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.
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
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
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
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 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
Preferred Alternative Overview

GDU Import to Lake Ashtabula

Cost: $660 million (2010$)
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
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

![Construction Costs Comparison Graph](image)

Construction Costs Comparison

- Preferred Alternative
- 1-94 Pipeline
- Replacement Water Supply

Construction Cost ($M)
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

OBJECTION

Determine “Plan B”

- Considered multiple potential alternatives to Missouri River
- One alternative emerged:
  - Washburn to Baldhill Creek
Plan B Washburn to Lake Ashtabula

Intake & WTP Options
Discharge Location Options
Baldhill Dam
Pipeline
Pipeline Route Options
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

<table>
<thead>
<tr>
<th>Project Planning</th>
<th>Missouri River Extension</th>
<th>Preferred Alternative Route</th>
<th>Discharge Locations</th>
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<td>Pipeline</td>
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### Project Costs

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<td><strong>Sub-Totals</strong></td>
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<td><strong>Total Costs</strong></td>
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Strategic Water Development Critical to Continued Economic Growth
Strategic Water Development Vision is All Encompassing

- Supply
- Municipal
- Regional
- Irrigation
- Flood Protection
- Recreation
- Fish & Wildlife
- Navigation
- Hydro Electric Power
Collaborative Vision and Implementation

Public Policy and Direction of State Goals

Strategic Use of Water Resources

Stewardship of North Dakota's Water Resources

Irrigation Development and Water to the Red River Valley
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!