



Red River Valley Water Supply Project

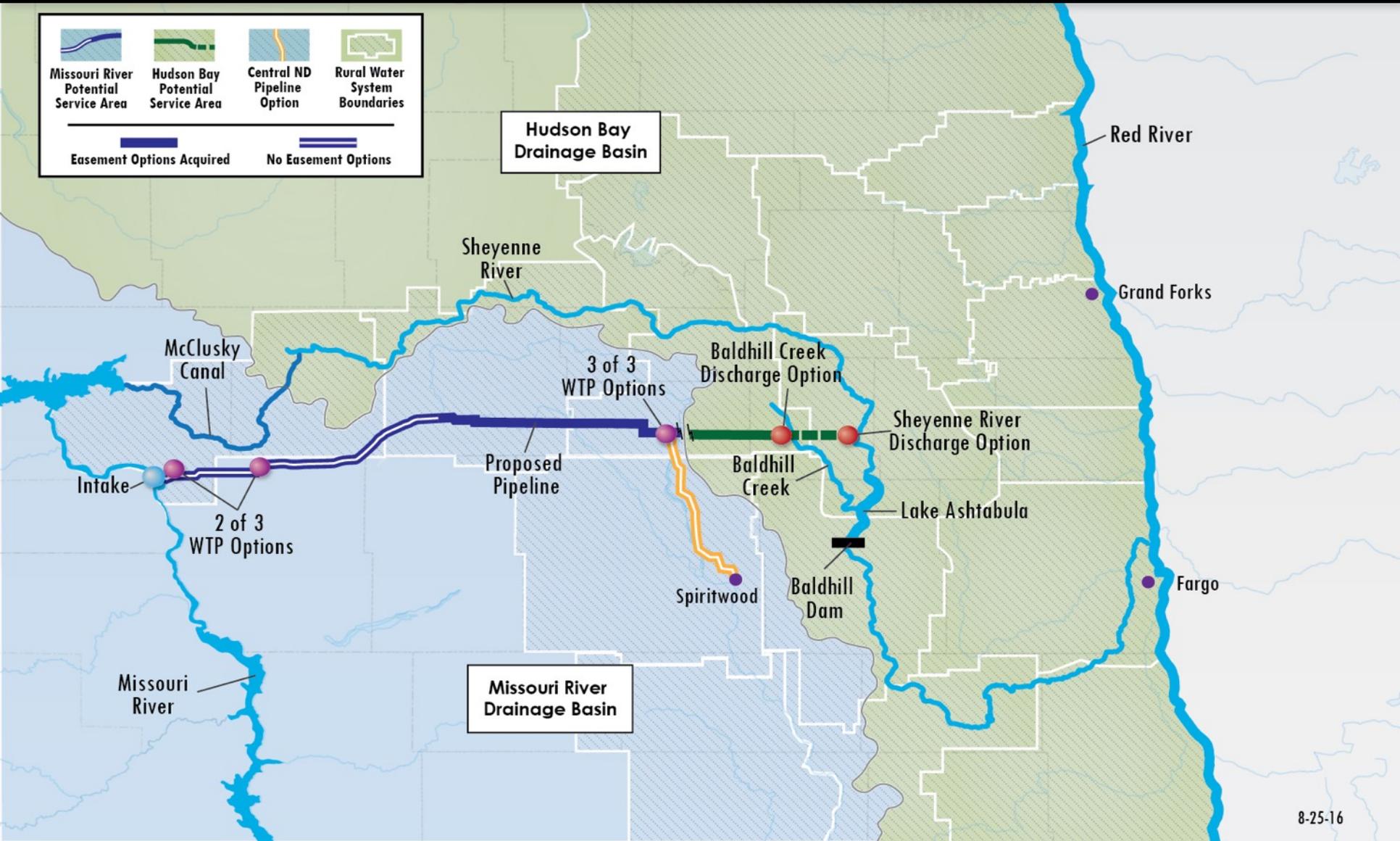
Presented to:

Water Topics Overview Committee and
State Water Commission Joint Meeting

September 22, 2016



State & Local Plan System Overview



Red River Valley Water Supply 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 \approx \$20 billion over a 10-year time period (2005\$)
- Industrial demand exceeds current supply



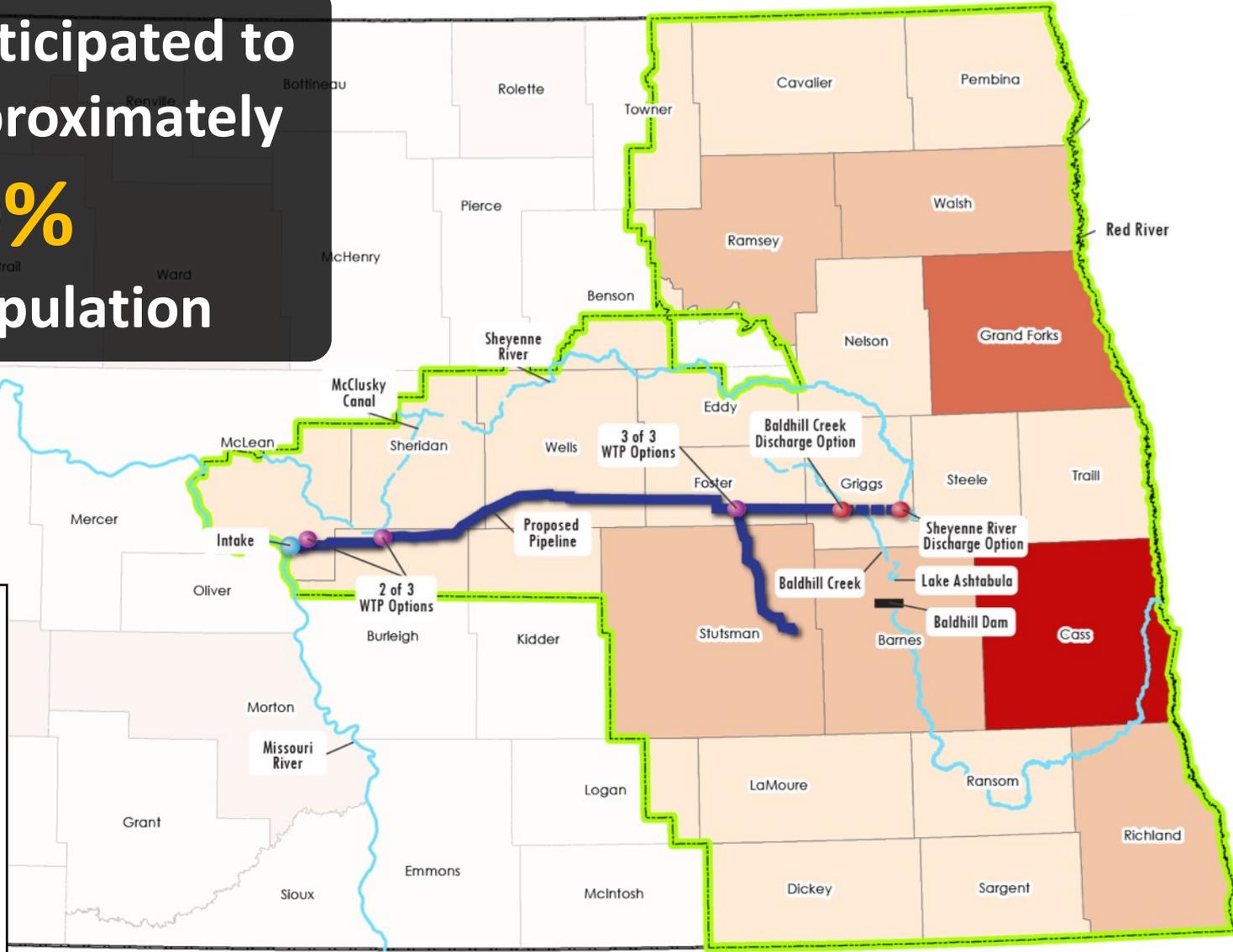
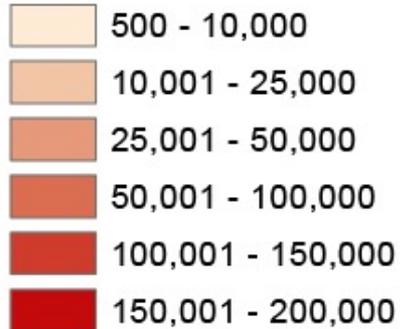
Current Potential Population Served

RRVWSP Anticipated to Benefit Approximately

50%

of ND Population

2015 Population



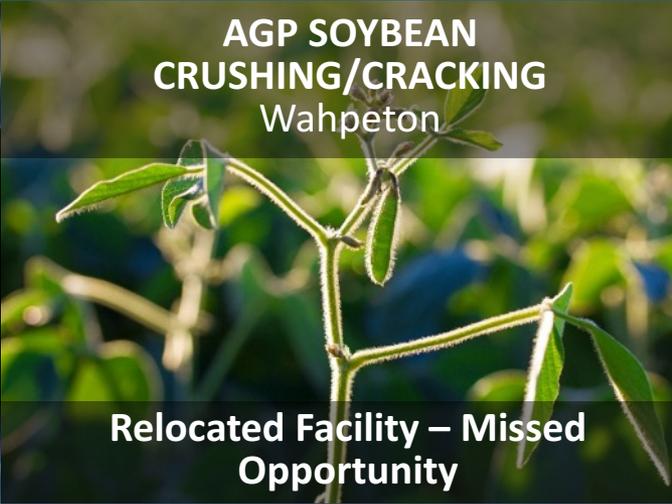
Extensive Industrial Opportunities

Industrial Water Demand Exceeds Current Supply



CHS NITROGEN FACILITY
Stutsman RWD

Limited Water Supply – Major Project Challenge



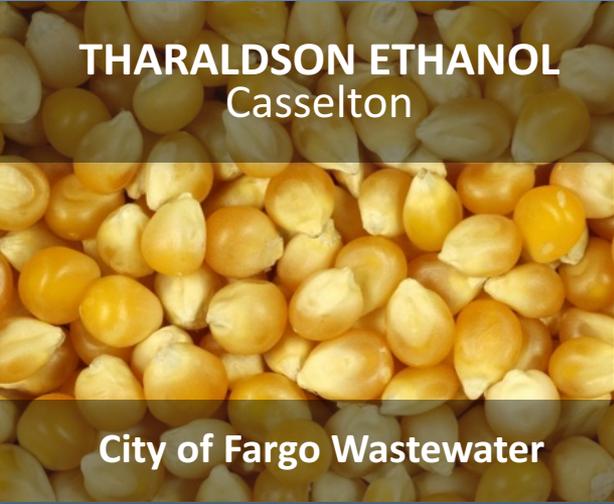
AGP SOYBEAN CRUSHING/CRACKING
Wahpeton

Relocated Facility – Missed Opportunity



CARGILL (PRO-GOLD)
Wahpeton

Permit Restrictions



THARALDSON ETHANOL
Casselton

City of Fargo Wastewater



NORTHERN PLAINS NITROGEN
Grand Forks

Considering City of Grand Forks Wastewater Effluent Discharge



DAIRY/POTATO WASHING & HOG/BEEF OPERATIONS
Misc. Rural Water Districts

Water Options are Limited

User Commitments

SIGNED	
User	Nomination (cfs)
Grand Forks	26.00
Stutsman Rural Water District/Jamestown	15.00
Wahpeton	4.50
Grand Forks-Traill Water District	3.00
Southeast Water Users District	2.50
East Grand Forks	2.10
Grafton	2.00
Traill Rural Water Users	1.10
Tri-County Rural Water District	1.00
Walsh Rural Water District	1.00
Agassiz Water Users District	1.00
Dakota Rural Water District	0.70
Central Plains Water District	0.60
Hillsboro	0.50
Mayville	0.50
Larimore	0.30
Tuttle	0.02
SUBTOTAL	61.82

PLANNED	
User	Nomination (cfs)
Fargo/West Fargo	73.70
Cass Rural Water Users District	6.00
Northeast Regional Water District	2.50
Valley City	2.00
Barnes Rural Water District	0.50
SUBTOTAL	84.70

TOTAL = 146.52 cfs

User Commitments

UNCERTAIN

Cando	Lisbon
Carrington	Maddock
Cooperstown	Medina
Devils Lake	McLean-Sheridan Rural Water
Enderlin	McVille
Fairmount	Michigan
Forman	Minnewauken
Greater Ramsey Water District	Moorhead
Gwinner	New Rockford
Langdon	Washburn

REGIONALIZATION

Abercrombie
Cathay
Goodrich
Hannaford
Harwood
Horace
Oberon
Oxbow
Robinson
Sheyenne
Wing

NOT INTERESTED AT THIS TIME

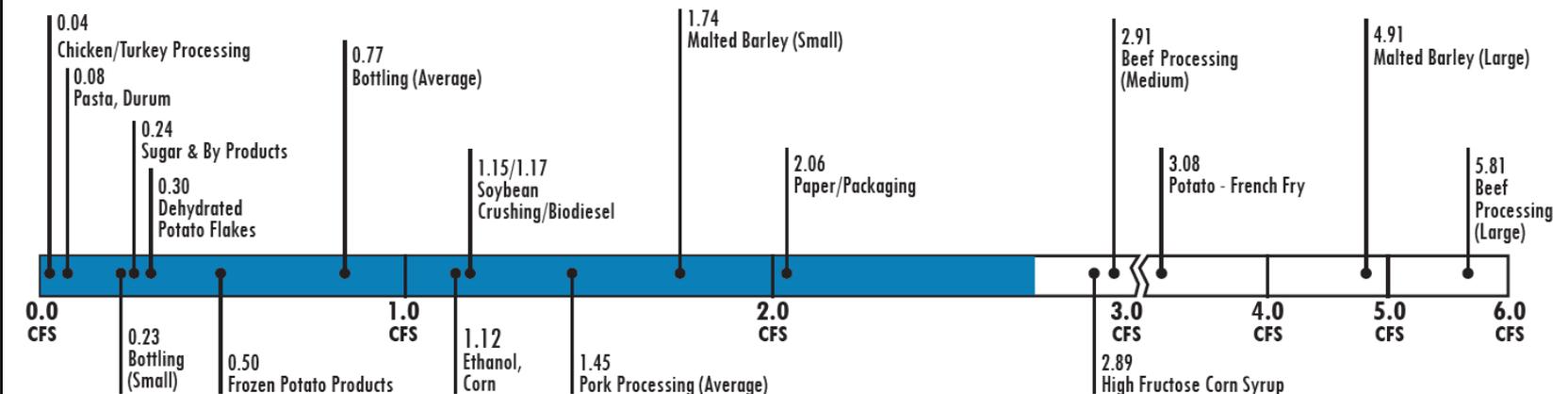
Breckenridge
Drayton
Lakota
Oakes
Steele

Facilitated Regional Cooperation

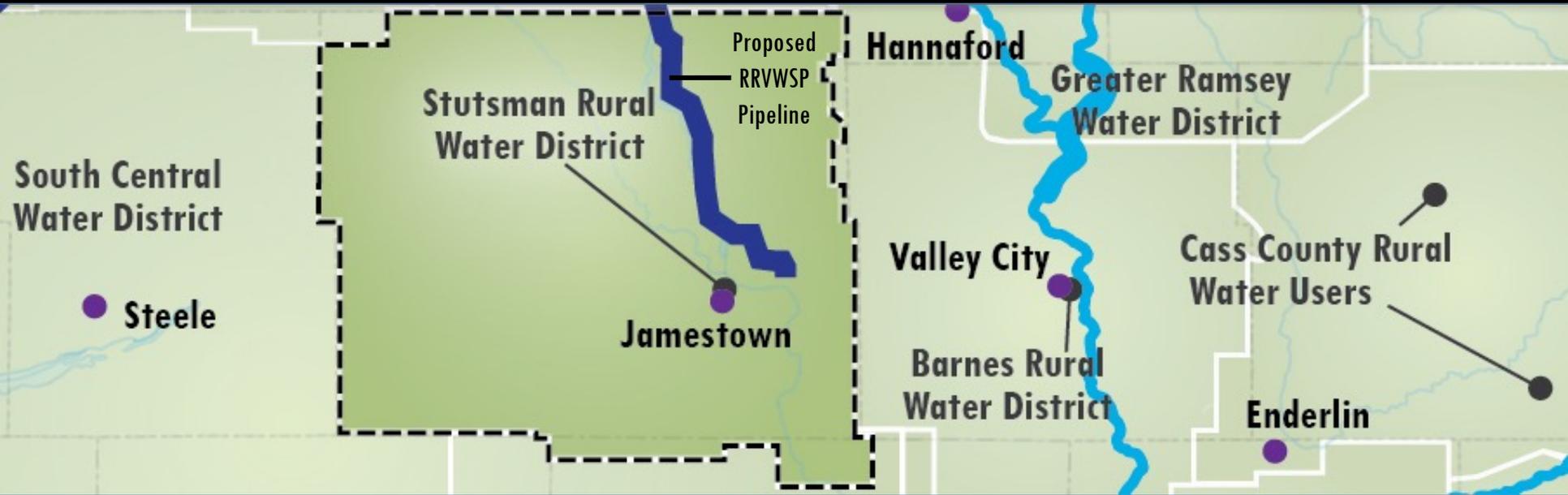


INDUSTRIAL: REGIONAL NOMINATION STRATEGY COULD HELP ATTRACT MORE AND/OR LARGER INDUSTRIAL WATER USERS

HILLSBORO		TRAILL		MAYVILLE	TOTAL AVAILABLE (CFS)
NOMINATION (CFS)	EXISTING PERMIT (CFS)	NOMINATION (CFS)	PROJECTED PERMIT SURPLUS (FUTURE INDUSTRIAL) (CFS)	NOMINATION CFS)	
0.50	0.59	1.10	0.11	0.50	2.80



Facilitated Regional Cooperation



Stutsman Rural Water District

4 cfs

Jamestown/Stutsman Development Corporation

11 cfs

90% City Funds

10% Stutsman County Funds

15 cfs

LAWA Development Agreement with Stutsman Rural Water District

Red River Valley Water Supply Project

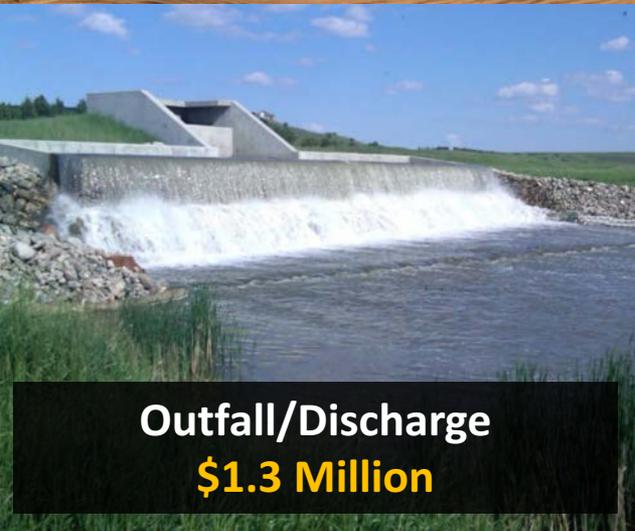
2015 to 2017 ND Senate Bill 2020 Funding

	2015-2017 Funds
ND Legislature Appropriation (90%)	\$12.359 M
LAWA Match (10%)	\$ 1.373 M
Total	\$13.732 M
Total (Rounded)	\$14 M

S.B. 2020 Enacted Legislative Intent to fund the project at \$150 million per biennium over four biennia (\$600 million total)

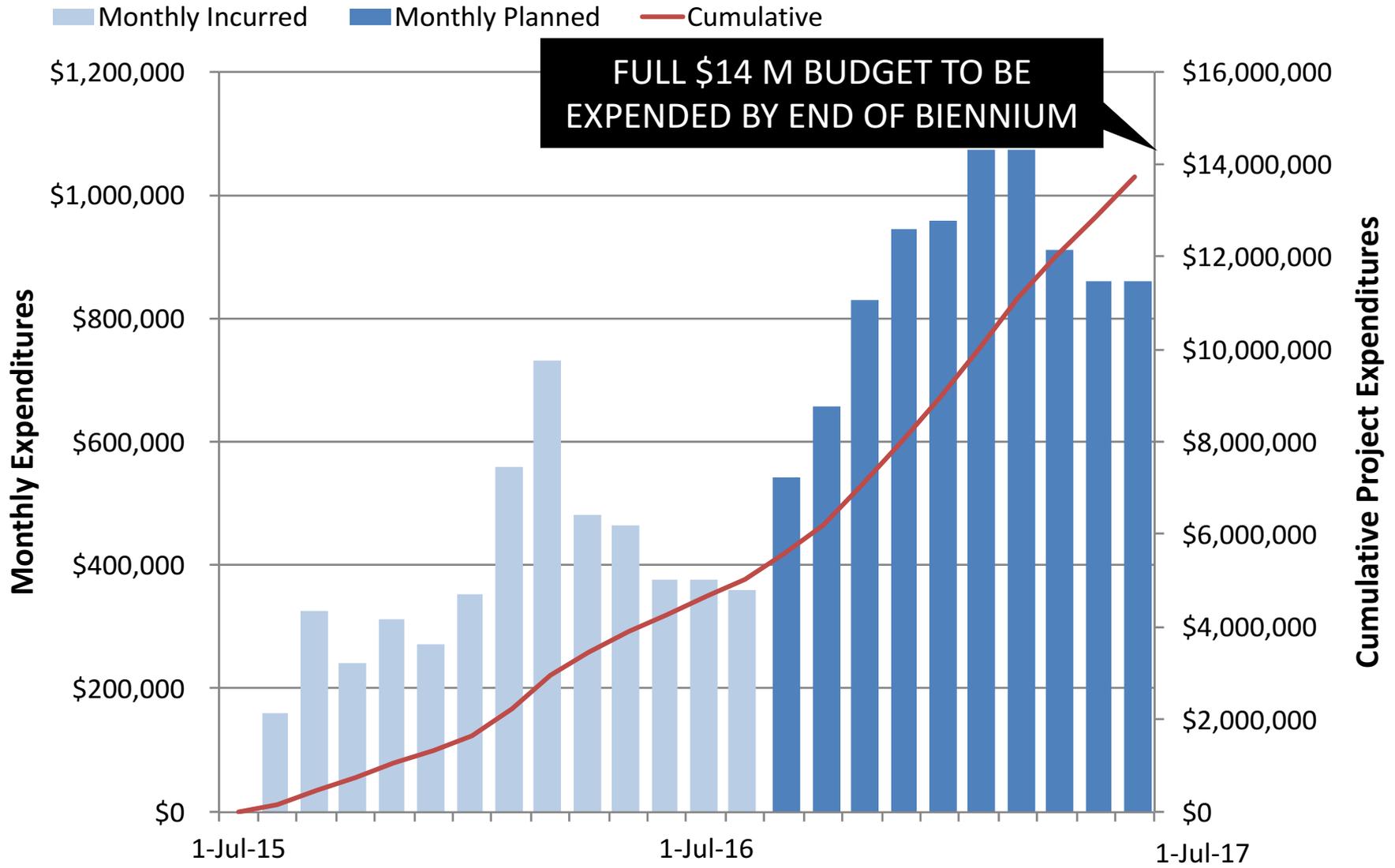
Red River Valley Water Supply Project

2015-2017 Work Plan

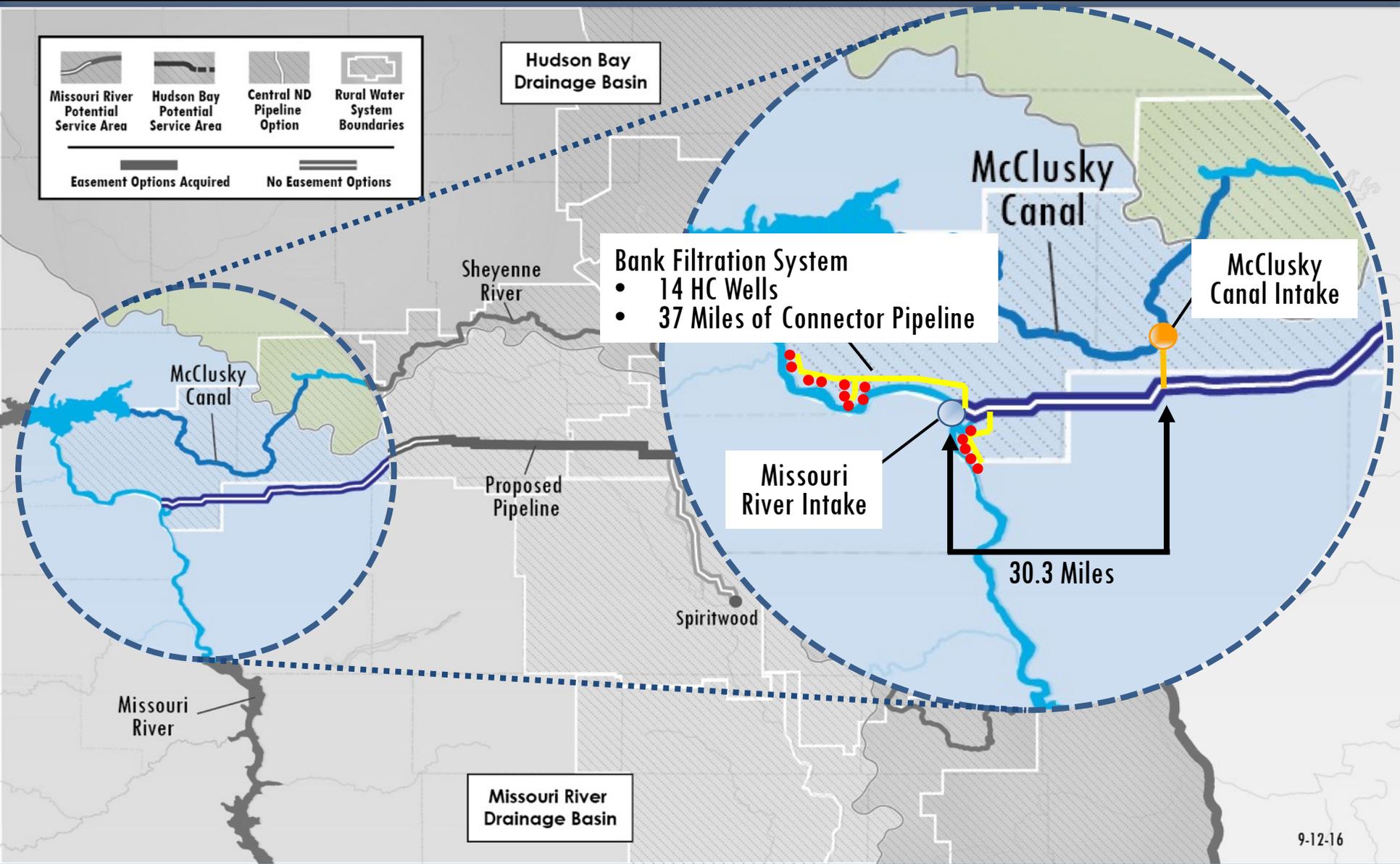
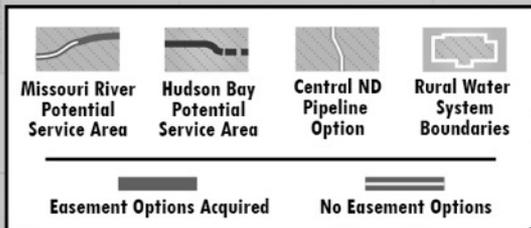


TOTAL = \$14 Million

2015 to 2017 Work Plan



RRVWSP Intake System Overview



RRVWSP Intake Options

McClusky Canal



RELATIVE COSTS:

- Least expensive, lowest O&M costs

REGULATORY AUTHORITY:

- Requires water supply contract with BOR for Missouri River Basin. Currently, BOR is unwilling to provide water supply to serve Red River Valley.

Intake Cost	\$55 M
Intake Pipeline Cost	\$38 M
Added Transmission Pipe and Pump Station Costs	\$0 M
TOTAL	\$93 M

Conventional Intake on Missouri River



RELATIVE COSTS:

- Additional pipeline adds capital costs & lower elevation adds significant O&M costs

REGULATORY AUTHORITY:

- Requires Corps of Engineers permits under NWP 12 or CWA 404, and requires NDDH water quality compliance

Intake Cost	\$57 M
Intake Pipeline Cost	\$14 M
Added Transmission Pipe and Pump Station Costs	\$116 M
TOTAL	\$187 M

Bank Filtration/HCW on Missouri River



RELATIVE COSTS:

- Significant additional capital costs, greater O&M costs than both other options

REGULATORY AUTHORITY:

- Potential North Dakota Department of Health interface
- No Federal Permits required

Intake Cost	\$158 M
Intake Pipeline Cost	\$150 M
Added Transmission Pipe and Pump Station Costs	\$116 M
TOTAL	\$424 M

RRVWSP Water Treatment Options

Water to Water Transfer



WATER QUALITY CERTIFICATION:

- No permit or treatment required if there is no impact to receiving waters
- Sedimentation – sand and silt removal

COST: \$23 M

Practical Treatment



PUMPABILITY AND PIPELINE CONSIDERATIONS:

- Clarification
- Chlorination/Dechlorination

COST: \$54 M

Extensive Treatment



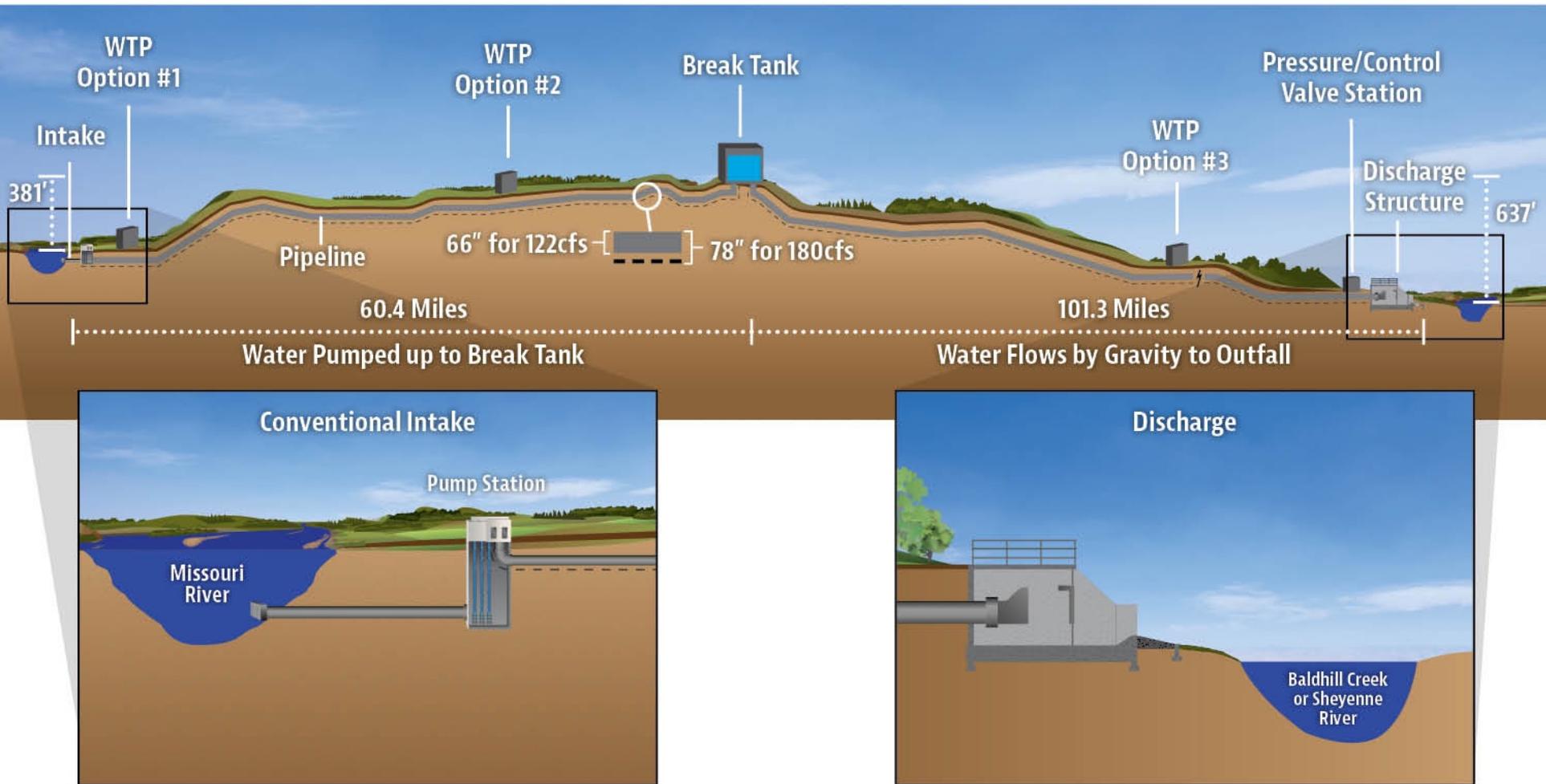
POLICY DECISION:

- Clarification
- Filtration
- UV Disinfection
- Chlorination/Dechlorination

COST: \$233 M

State & Local Plan

System Profile Overview



Estimated Total Project Cost (2016\$)

RRVWSP ESTIMATED PROJECT COST*

	122 cfs System (66-inch pipe)	180 cfs System (78-inch pipe)
Conventional Intake , Intake Pumps, & Supply Cost	\$64.0 M	\$78.0 M
Transmission Pipeline Costs (including ROW)	\$662.0 M	\$957.0 M
Pump Stations, Break Tank, & Hydraulic Structures	\$59.0 M	\$76.0 M
Practical Treatment - Water Treatment Plant Costs	\$48.0 M	\$61.0 M
Discharge Structure Costs	\$2.0 M	\$2.0 M
TOTAL PROJECT COST	\$835.0 M	\$1.174 B

*Excludes Pipeline Extensions

Preliminary Total Annual O&M Costs

PARAMETER	WTP – 4 CFS		WTP – 150 CFS	
	Practical	Extensive	Practical	Extensive
Chemical Costs	\$50,000	\$180,000	\$1,360,000	\$6,590,000
Energy Costs	\$220,000	\$280,000	\$6,050,000	\$7,650,000
Labor and Equipment	\$700,000	\$810,000	\$2,100,000	\$2,400,000
Total	\$970,000	\$1,270,000	\$9,510,000	\$16,640,000

*Based on Conventional Intake

State & Local Plan

Suggested Schedule

Summer 2016

- Conceptual Design

Spring 2017 Goal

- Preliminary Design

2017-2019 Goal

- Implement Phased Final Design
- Initiate Construction to Grandfather Current Regulations

2019-2027 Goals

- Phased Bidding
- Phased Construction



2017 to 2019 Funding Priorities



Exercise existing easement options that will otherwise expire



Wrap up preliminary design of pipeline



Acquire remaining easement options



Complete final design of section of pipeline for construction

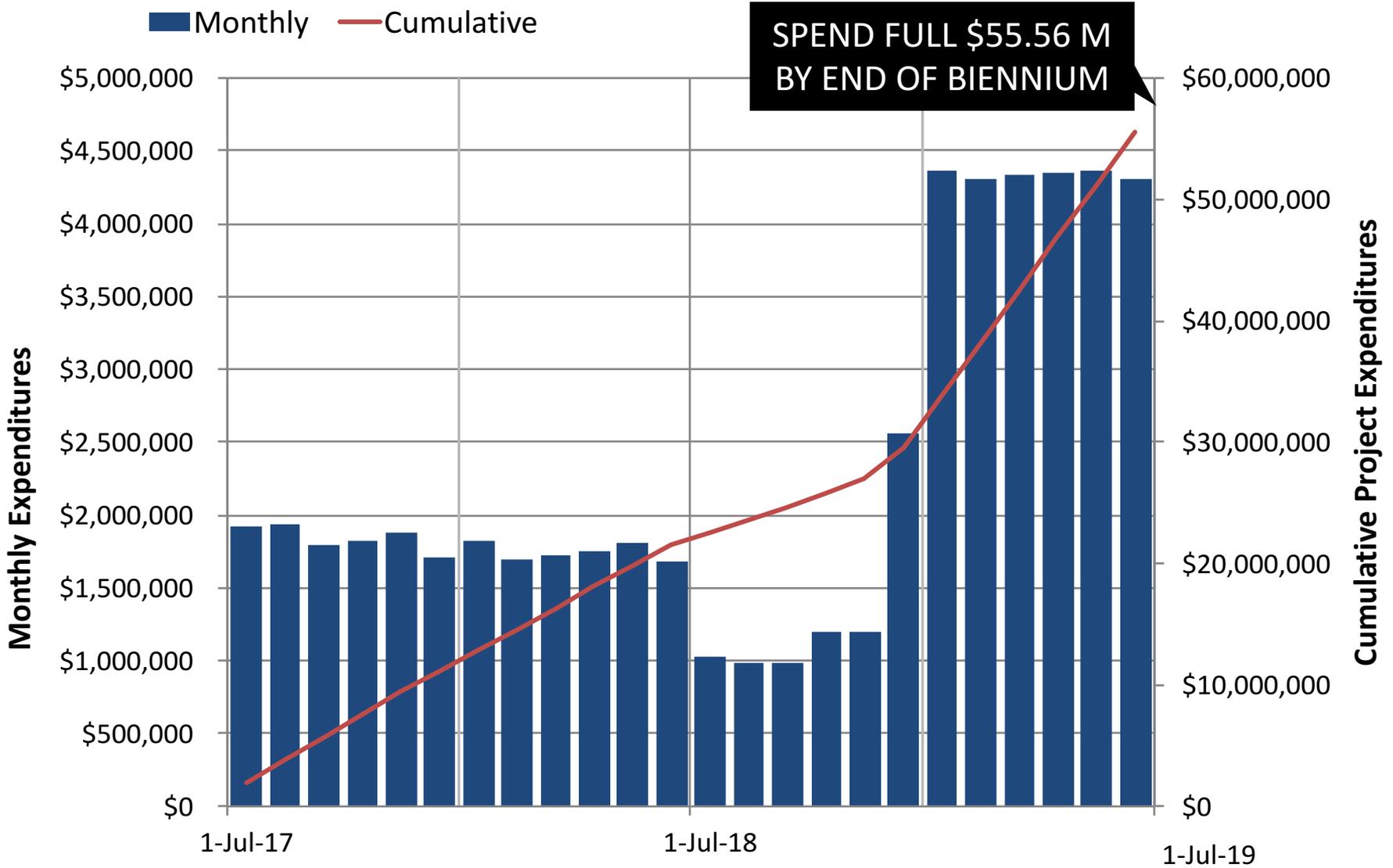


Complete final design of Missouri River Conventional Intake and Baldhill Creek Discharge Structure



Start construction to trigger coverage under current regulations and permitting (i.e., anticipating Waters of the United States (WOTUS) and other changes)

2017 to 2019 Work Plan



Funding Request

2017 to 2019 FUNDING REQUEST

\$150 MILLION OF LEGISLATIVE INTENT

LAWA and GCD realize this is not realistic this biennium with lower oil prices and lower deposits into the Resources Trust Fund

REDUCED TO

\$30 MILLION TO \$50 MILLION

Requested from NDSWC and Grass Roots Committee
(\$50 M Includes Construction to Ensure Coverage Under Current Regulations)

Initiation of Construction Minimizes Risk of Regulatory Changes

RISKS

AVOIDANCE

REGULATORY

WOTUS Rule Puts North Dakota Projects like RRVWSP in Jeopardy

Reissuance of Nationwide Permit 12 in 2017 Causes Regulatory Uncertainty

Starting Construction Grandfathers Project Under Current Regulations

COST

Delay Elevates Cost of Project

Starting Construction Begins to Minimize Inflation

Importance of Affordable Cost-Share

Continue Agreement

90% State / 10% Local

Through Development and Design

- **Project is Unique**
 - Supplemental water supply to primarily be used in times of draught
 - Largest water supply project in ND, serving half of state population
 - Economic impact of not doing project is \$20 B over 10 years
- **Supplemental Water Costs are Additive and do not Replace Existing Infrastructure and Operational Costs**
- **Project Affordability Drives System Participation**
- **Limited Water Supplies Prevent Industrial Growth**
 - Users can't afford to pay for speculative development
 - Industrial growth provides statewide benefits

THANK YOU!

