



FM Area Diversion Project Update

“Speaker”

ND Senate Appropriations Committee

Jan. 10, 2019

Flood Protection 10 Years in the Making

- ▶ The City of Fargo and the City of Moorhead began working with the Corps on a Federal Feasibility Study in 2008
- ▶ Progress continues to be made and final studies are anticipated to be complete by the end of 2018
- ▶ This would not be possible without the strong and early support of the State, which allowed us to better navigate the federal approval system.

THANK YOU!



Timeline of Project Milestones

Feasibility Study Began	Sep 2008
Flood of Record	Spring 2009
Chief's Report Signed	Dec 2011
Record of Decision Signed	Apr 2012
<i>*Water Resource Reform Development Act</i>	<i>June 2014</i>
Federal Appropriations & New Start	Dec 2015
<i>*Federal Appropriation for Construction</i>	<i>Feb 2016</i>
<i>*Project Partnership Agreement Executed</i>	<i>July 2016</i>
Minnesota Permit Approved	Dec 2018

*Required before ND State Funding was allowed (HB1020 in 2013)

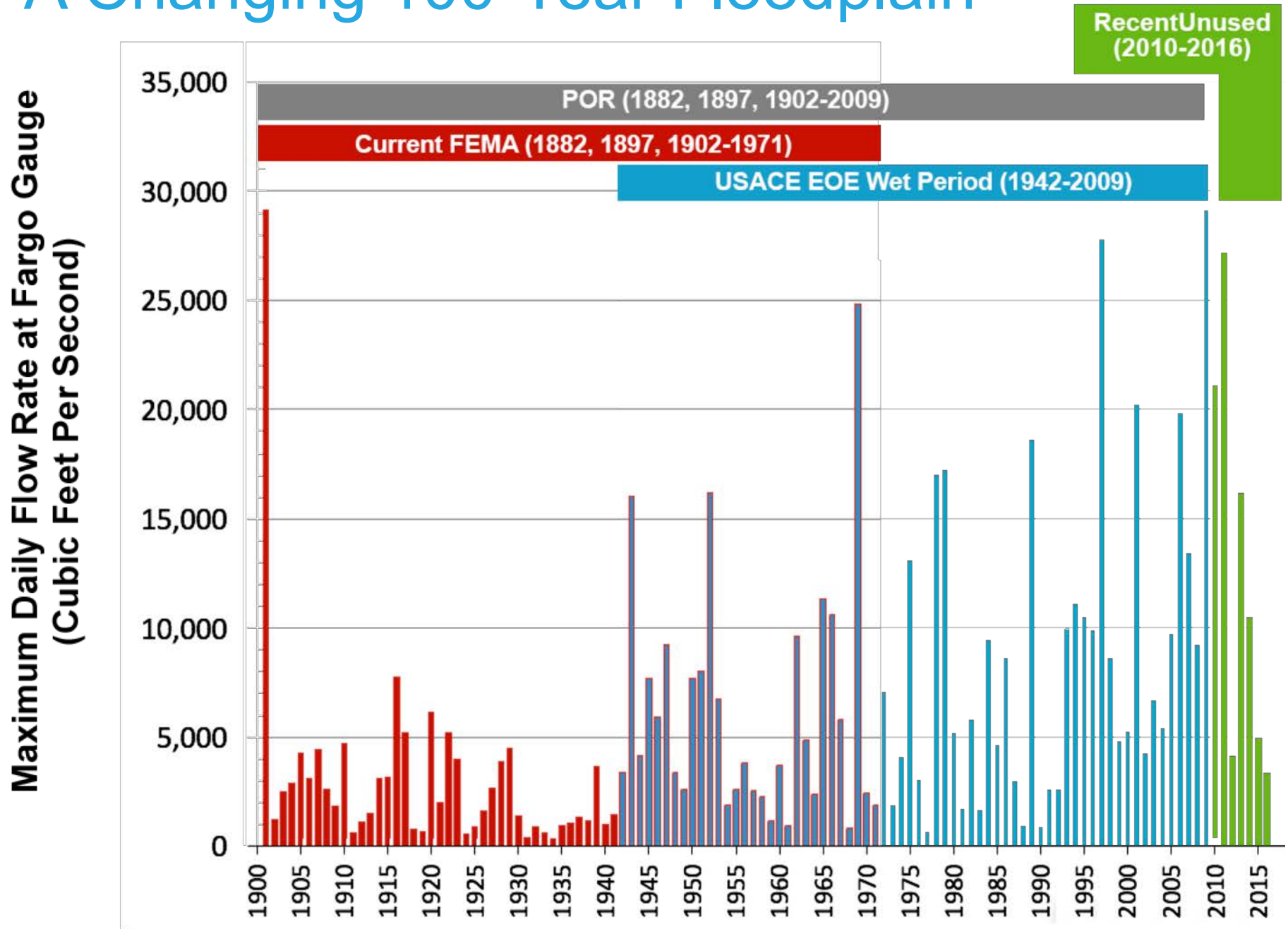


Flood Protection 10 Years in the Making

- ▶ To date, \$450M has been spent enhancing the flood protection in Fargo and Cass County
- ▶ 20+ miles of permanent levees and flood walls have been constructed at a cost of \$215M
- ▶ In Fargo and Cass County combined, 416 properties have been acquired since 2009.
- ▶ Land acquisition for federal project includes 200 parcels acquired to date, including 150 residential units



A Changing 100-Year Floodplain



Flood Insurance Risk

**11,000
homes**

impacted by future
FEMA floodplain

**\$3,000-
\$5,000
per family**

Average annual flood
insurance premium per home

**~\$30
to \$50
million**

In total, annual flood
insurance premiums



Governors' Task Force

Why did the Project change?

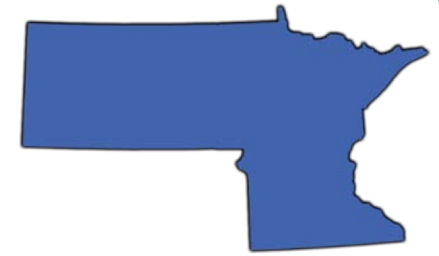
- ▶ The Richland/Wilkin County JPA filed a lawsuit against the U.S. Army Corps of Engineers in 2013. The lawsuit was later joined by the Fargo-Moorhead Diversion Authority and by the State of Minnesota.
- ▶ State of Minnesota denied a permit for the Project in Oct. 2016
- ▶ An injunction stopping construction was ordered in Sept., 2017

“It is time for all parties to work together to find common ground.”

- Chief Judge John A. Tunheim



Governors' Task Force



- ▶ **Governors Dayton (MN) and Burgum (ND) agreed to form and co-chair a 16-person Task Force**

- ▶ **Purpose**

- ▶ To develop design principles and concept-level engineering solutions to achieve balanced flood risk management for the Fargo-Moorhead region



Governors' Flood Task Force

Thank you for your service

Front Row (L to R): Bernie Dardis – Greater North Dakota Chamber Board Chair, Tami Norgard – Natural resources attorney, Tim Fox – Former Wilkin County Attorney, Jenny Mongeau – Clay County Commissioner, Del Rae Williams – Mayor of Moorhead, MN, Gov. Mark Dayton – Governor of Minnesota, Gov. Doug Burgum – Governor of North Dakota, Heidi Durand – Moorhead City Council member, Barb Naramore – Minnesota Department of Natural Resources Assistant Commissioner, Mark Anderson – Treasurer of Buffalo-Red Watershed District

Back Row (L to R): Curt Johannsen – Mayor of Hendrum, MN, Ken Vein – Grand Forks City Council member, Craig Hertsgaard – Richland County farmer, John Strand – Fargo City Commissioner, Tom Landwehr – Minnesota Department of Natural Resources Commissioner, Jason Benson – Cass County Engineer, Steve Jacobson – Norman County Commissioner, Nathan Berseth – Richland County Commissioner, Joel Paulsen – Moorhead City Council member, Ron Bergan – Fargo business leader and entrepreneur



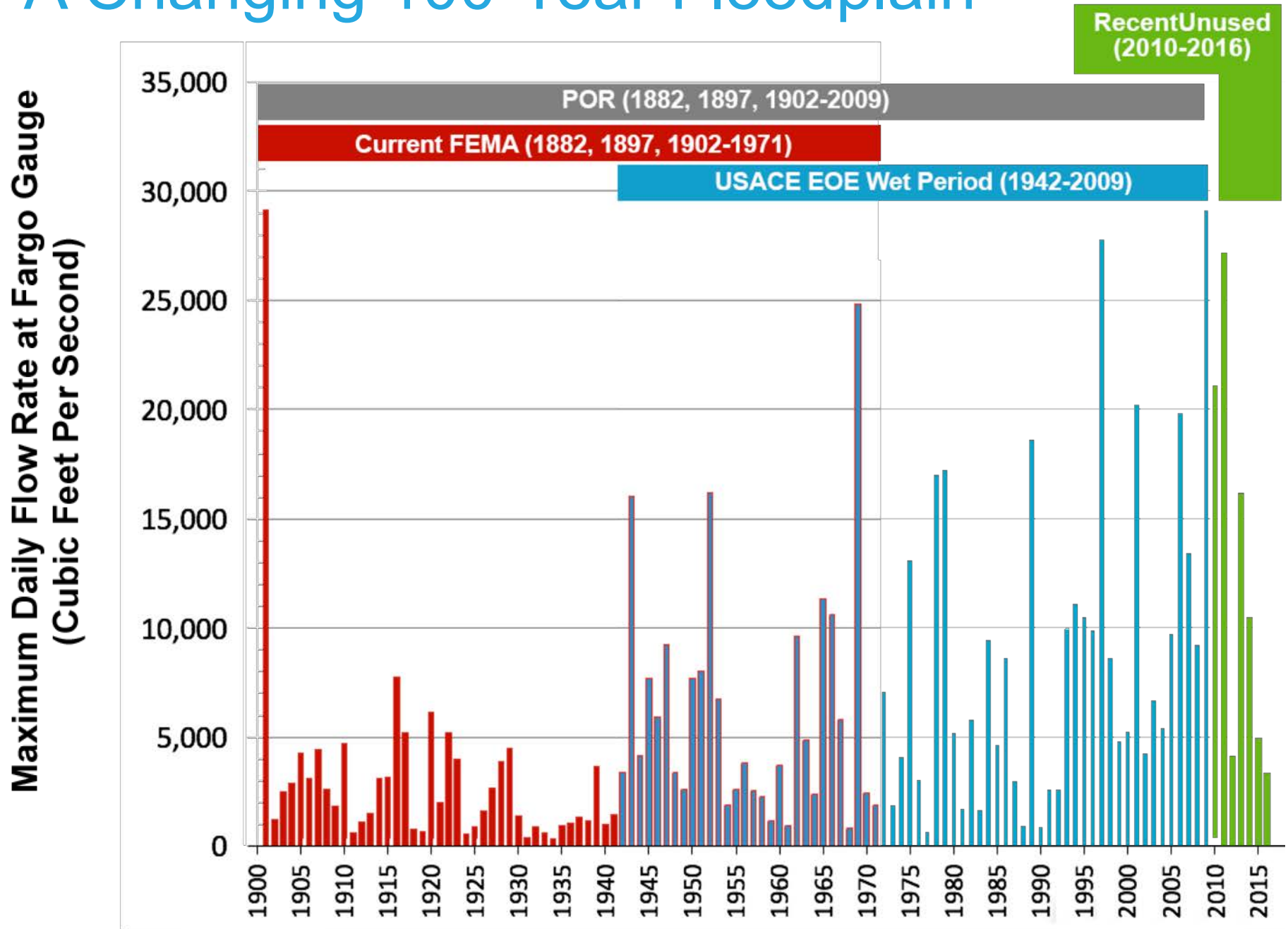
Task Force Consensus



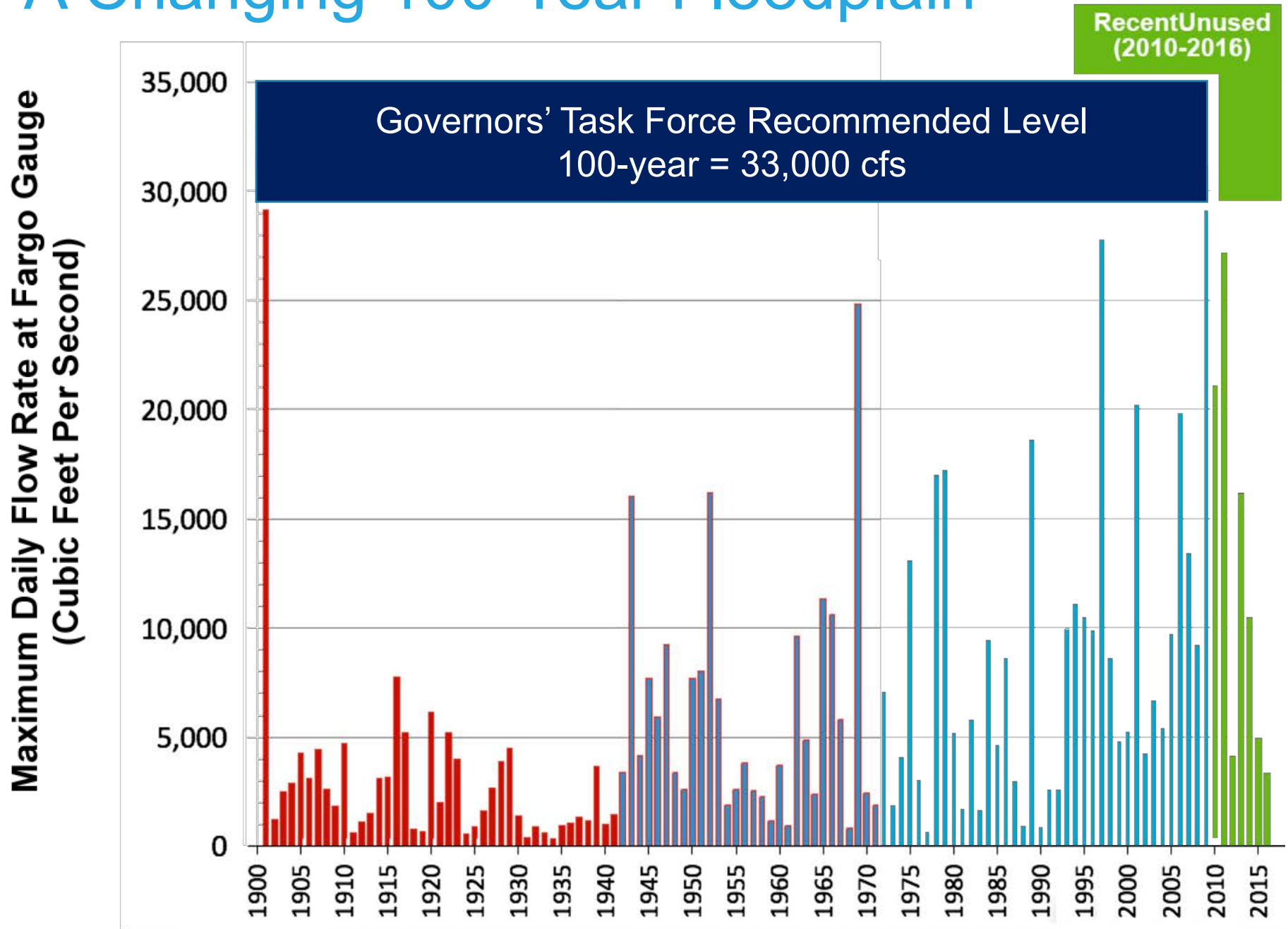
- ▶ Utilize full Period of Record hydrology
 - ▶ 100-yr flood = 33,000 CFS
- ▶ Allow control of flood water flows through town to 37-feet during a 100-yr flood event
- ▶ New Western Tie-back Levee alignment in North Dakota
- ▶ Add an Eastern Tie-back Levee alignment in Minnesota
- ▶ Distributed storage is valuable for long-term risk management; however, it is not a component of the near-term Project that needs to provide 100-year flood protection for the F-M Metro



A Changing 100-Year Floodplain

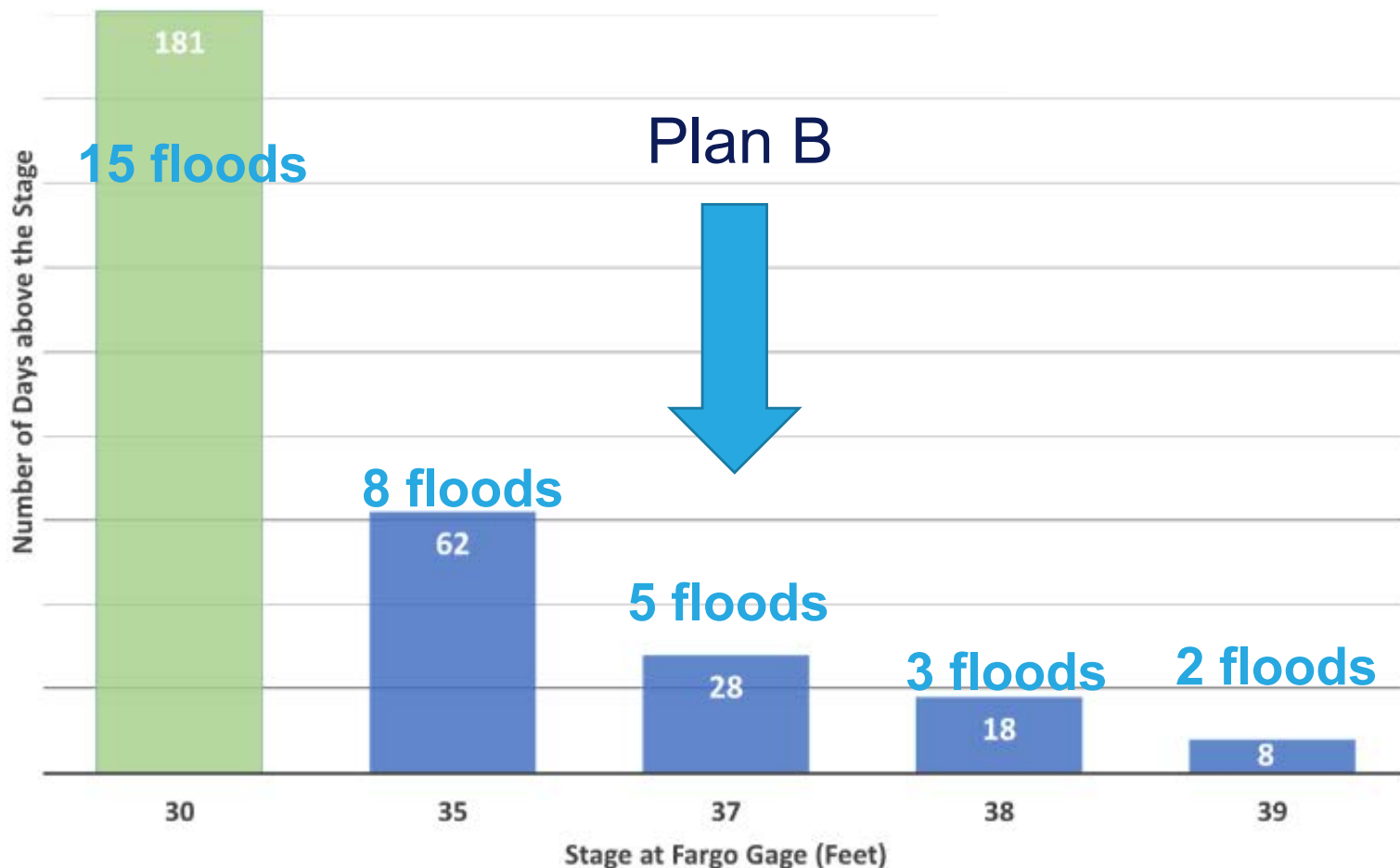


A Changing 100-Year Floodplain



Increased flow through Fargo-Moorhead (37-feet)

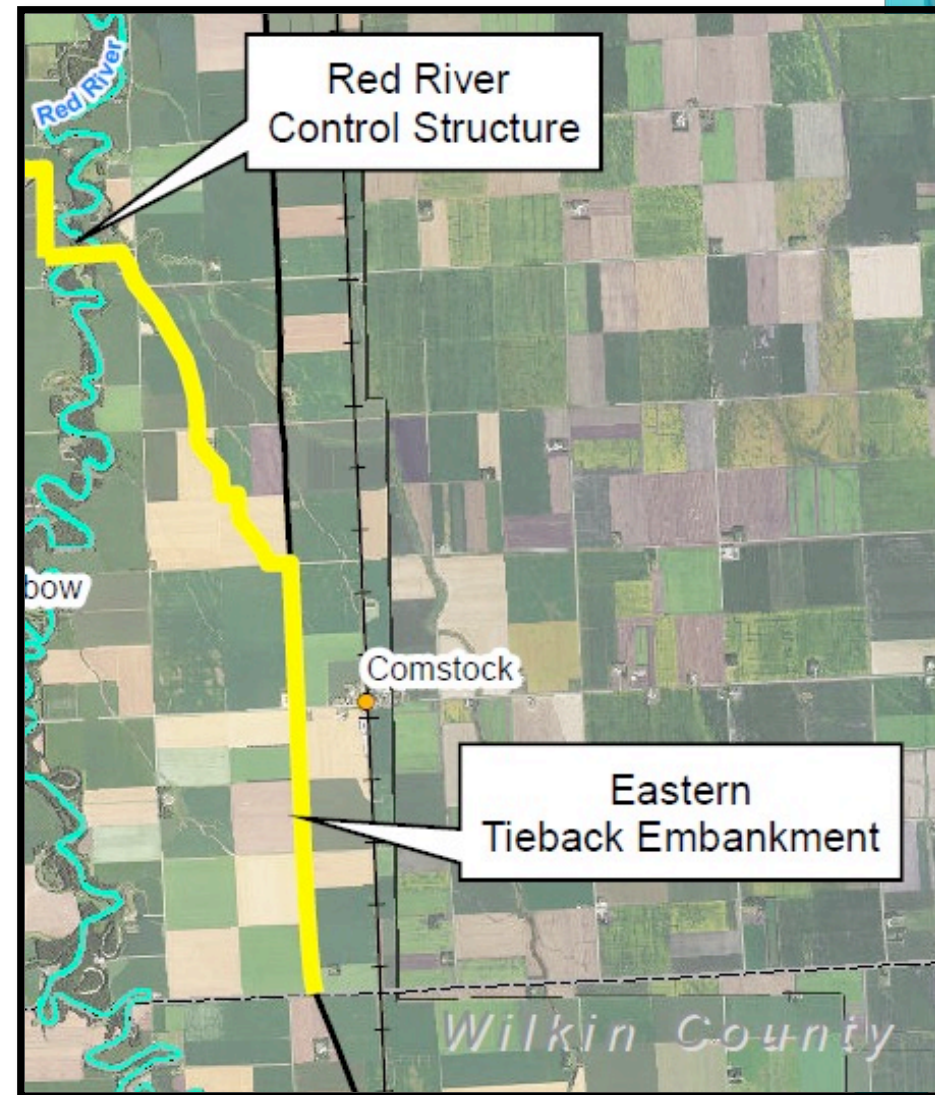
- ▶ Design will allow 37-feet through town (up from 35-feet)
- ▶ Project will only operate 1 in 20 years, on average



Eastern Tie-Back Levee

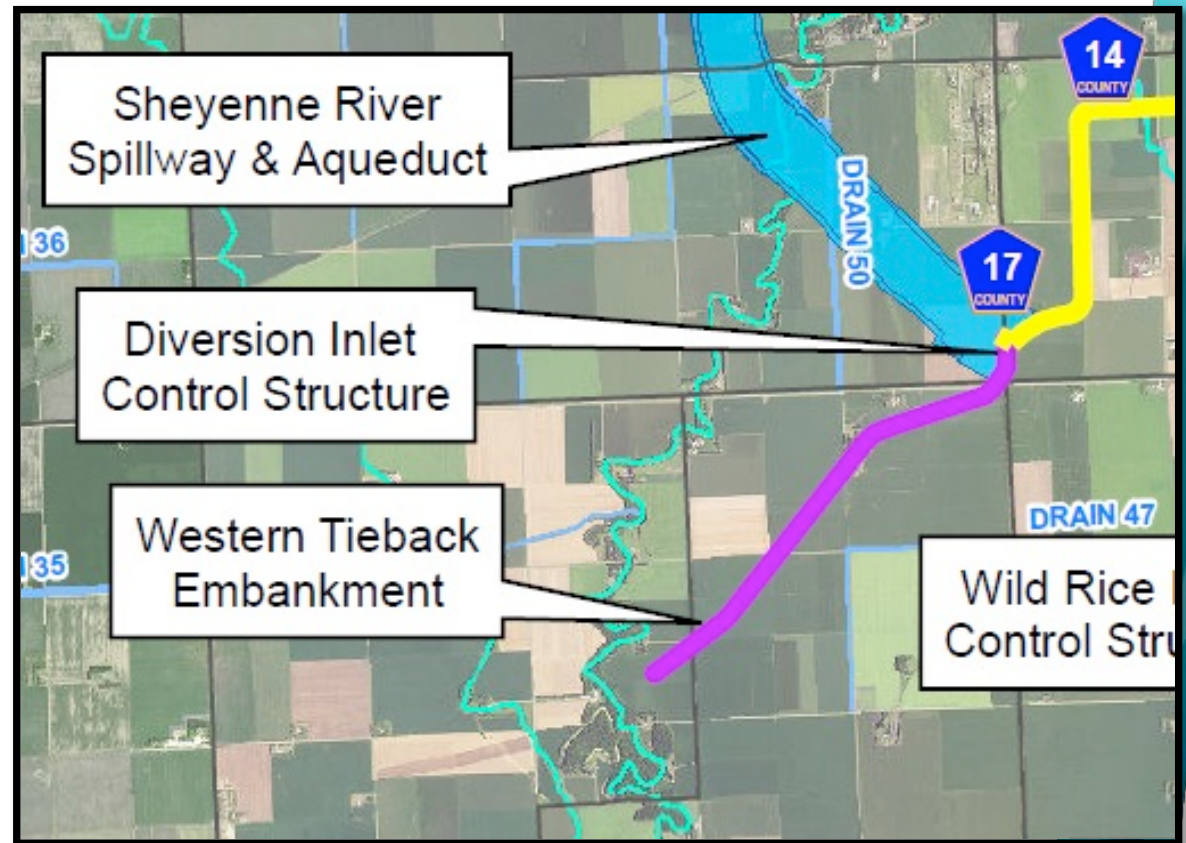
Limits the extent of impacts in Minnesota

- ▶ Eliminates any impacts to the City of Comstock, thus eliminating the need for a ring levee
- ▶ Eliminates the need to raise Hwy 75 or the BNSF railroad
- ▶ Impact to organic farms has been reduced nearly 90 percent from an estimated 2,900 acres to 300 acres



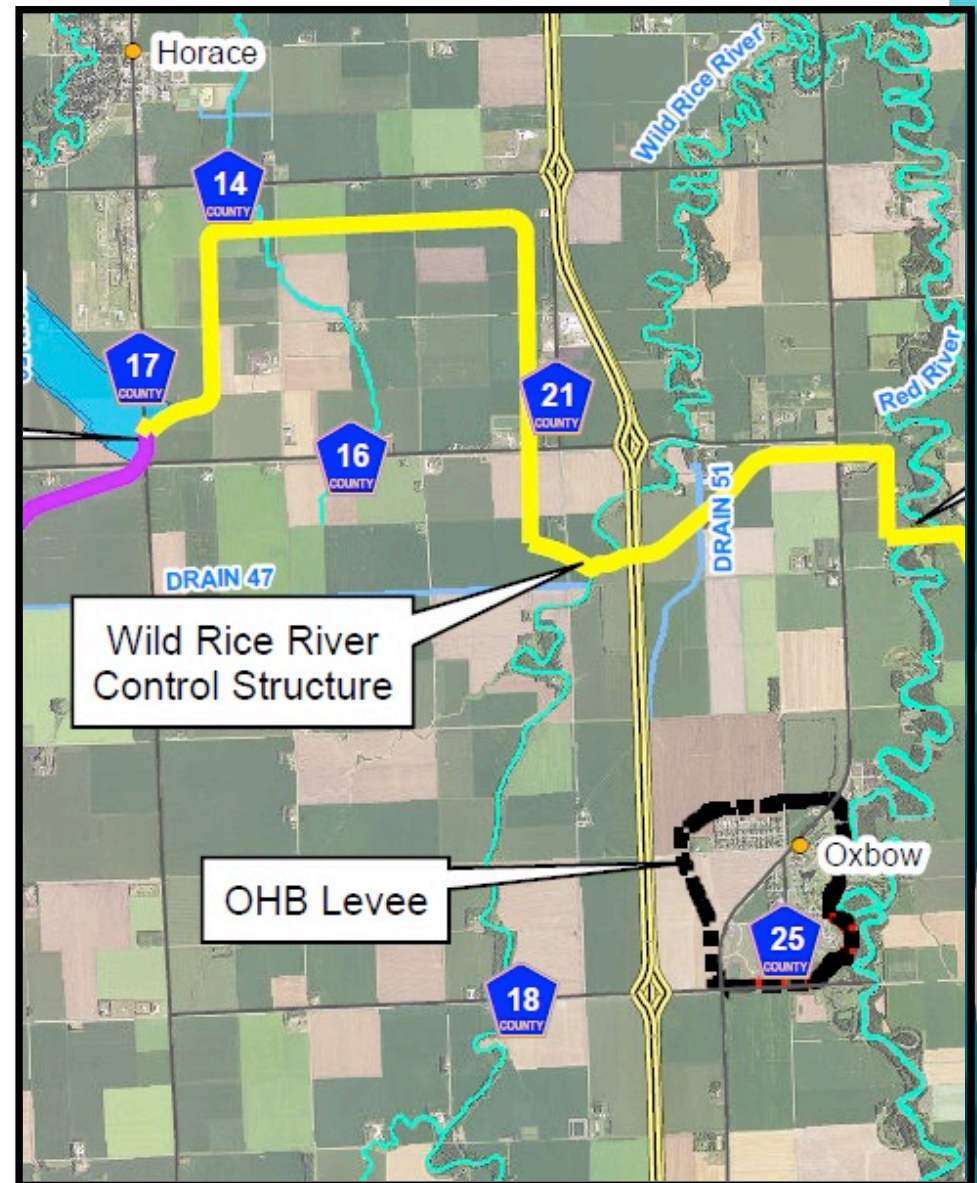
Revised Western Tie-Back Levee

- ▶ Shifts the western tie-back levee south and west from Horace
- ▶ Helps balance the impacts between North Dakota and Minnesota
- ▶ Reduces the impacts to Richland and Wilkin counties



Moving the Southern Embankment North

- ▶ Move the southern embankment north in balances the impacts between ND and MN
- ▶ Reduces the impacts to Richland and Wilkin counties
- ▶ Removes 4 of 11 cemeteries from the impacted area

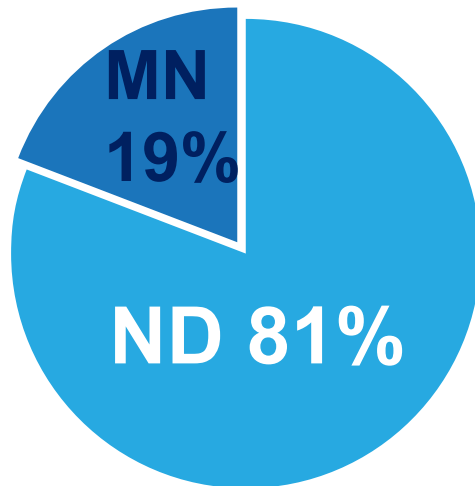


Balanced Impacts between MN and ND

PRE-TASK FORCE

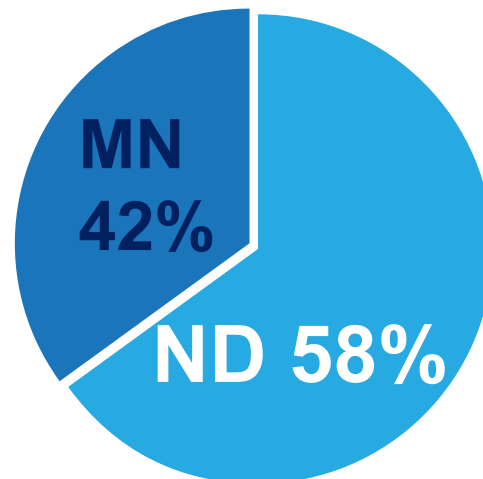
PROTECTED ACRES

- ND = 47,100
- MN = 11,000



STAGING AREA ACRES

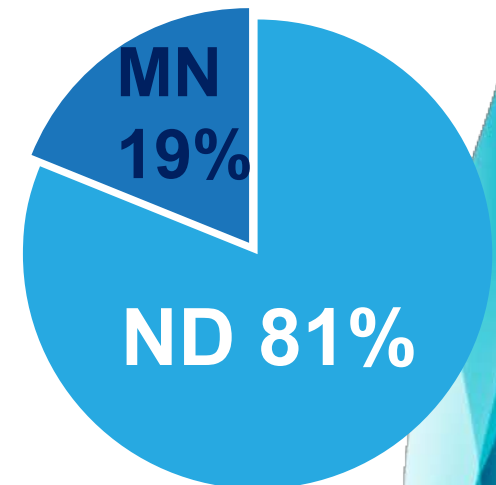
- ND = 20,700
- MN = 14,800



PLAN B

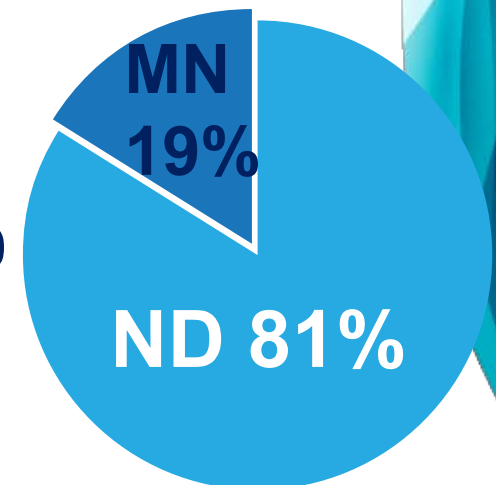
PROTECTED ACRES

- ND = 41,200
- MN = 9,500



STAGING AREA ACRES

- ND = 22,600
- MN = 5,400



Mitigating Upstream Impacts

City of Oxbow

- ▶ Flood protection through the City of Oxbow has been built to mitigate potential Project impacts
- ▶ Over 50 homes upstream have been acquired to preemptively mitigate the impacts of operation of the Diversion Project

Kindred School District

- ▶ Between 2011-2017, since Project was first announced to the public, enrollment had increased from 665 to 758 students with a tax base increasing from approximately \$15.4M to \$23.0M.
- ▶ Tax base increases were led by the City of Oxbow property valuations increased 38 percent in 2016 and another 58 percent in 2017.



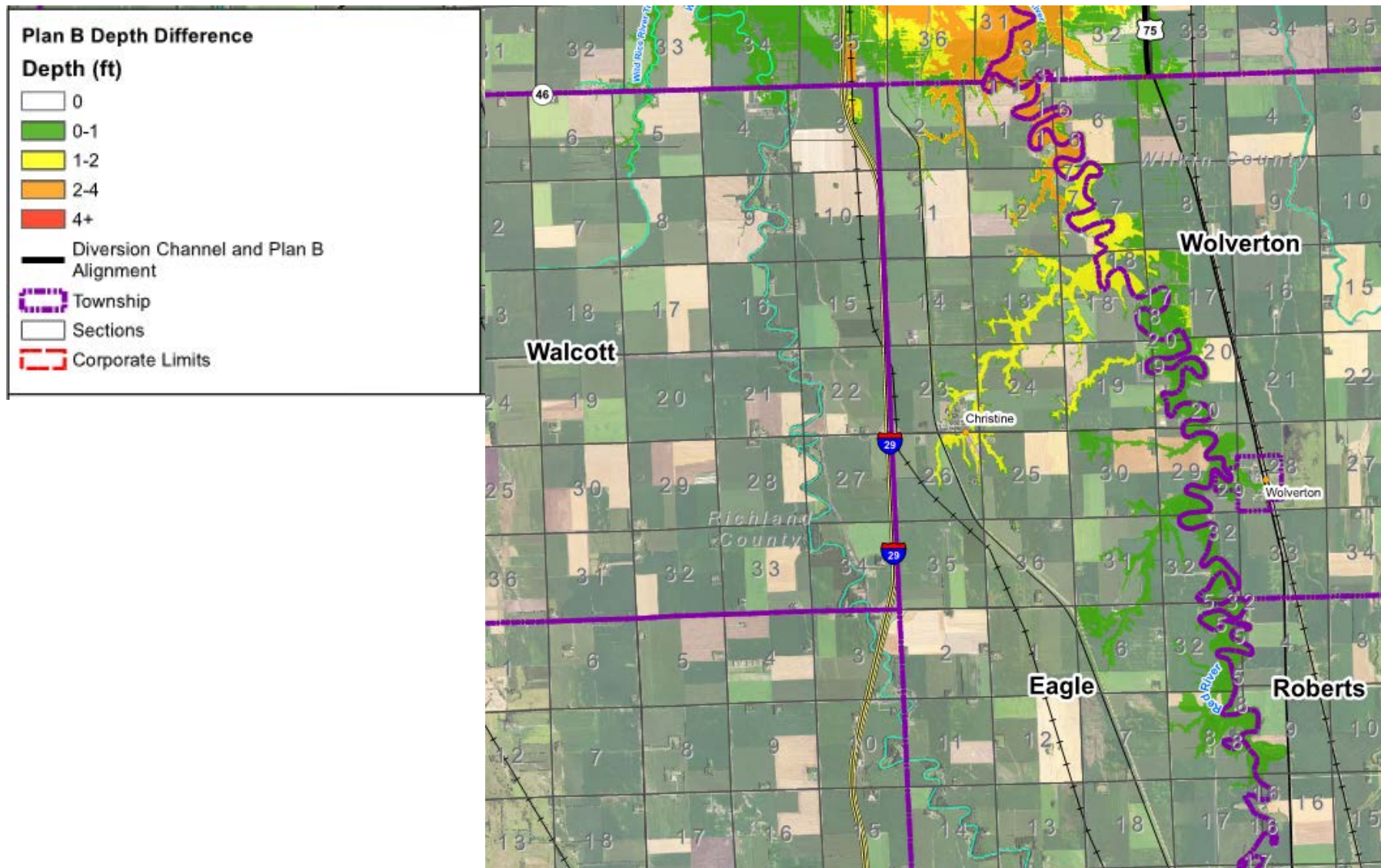
Cass County Impacts (100-yr flood)

	Pre-Task Force Project Impacts	Plan B Impacts	Change
Staging Area Total Area (Acres)	16,290	19,802	+3,512
Staging Area Additional Area (Acres)	5,964	7,155	+1,191
Total Impacted Residential Structures in Staging Area	41	58	+17
Newly Impacted Residential Structures in Staging Area	32	42	+10

Richland County Impacts (100-yr flood)

	Pre-Task Force Project Impacts	Plan B Impacts	Change
Staging Area Total Area (Acres)	4,387	2,783	(1,604)
Staging Area Additional Area (Acres)	1,124	596	(528)
Total Impacted Residential Structures in Staging Area	3	2	(1)
Newly Impacted Residential Structures in Staging Area	3	2	(1)

Richland County Impacts (100-yr flood)



Community Outreach

Plan B Presentations and Information Distribution

- ▶ Clay, Cass, Richland, and Wilkin Counties
- ▶ Cities of Fargo, Harwood, Horace, Oxbow, Reiles Acres, and West Fargo in ND
- ▶ Cities of Moorhead, Dilworth, and Comstock in MN
- ▶ Townships:
 - ▶ Barnes, Berlin, Harwood, Mapleton, Pleasant, Raymond, Reed, Stanley, and Wiser in ND
 - ▶ Holy Cross in MN
- ▶ Buffalo Red River Watershed District
- ▶ Cass County Joint Water Resource District



Listening & Gathering Input



September 2017

- ▶ Gov. Burgum and Gov. Dayton meet in Moorhead to discuss the flood protection



Governor's Task force assembled

- ▶ Five meetings between Oct. and Dec. 2017
- ▶ Wide geographic representation



Technical Advisory Group

- ▶ Diversion Authority, MDNR, USACE, and R/W JPA engineer
- ▶ Further analysis and iteration of unresolved issues from the Task Force



Policy Group

- ▶ Leadership from the USACE, MDNR, Diversion Authority, and R/W JPA
- ▶ Held four meetings





New Permit Application (Plan B)

Permit Submittal for Plan B

- ▶ The Diversion Authority accepted all recommended Project changes from the Governors' Task Force
- ▶ A new permit application was submitted to the State of Minnesota in March of 2016
- ▶ A Supplemental Environmental Impact Statement (EIS) was required due to the new application.
- ▶ Environmental review included screening of 33 Project Alternatives
 - ▶ “Plan B” is the only Project that was not screened out by the Minnesota DNR



Permit Approved!

- ▶ On Dec. 27, DNR granted a Dam Safety and Public Waters for the Project, known as Plan B – which authorizes construction to commence.
- ▶ The permit includes more than 50 conditions governing project design, construction, operation, and maintenance.
 - ▶ For reference: two other dam safety permits issued in Nov. 2018 included 46 and 51 conditions respectively
 - ▶ Conditions were expected, even requested, by the DA to define the terms
- ▶ The DNR will have an ongoing regulatory role to ensure that the project is built and maintained properly and all mitigation is completed.



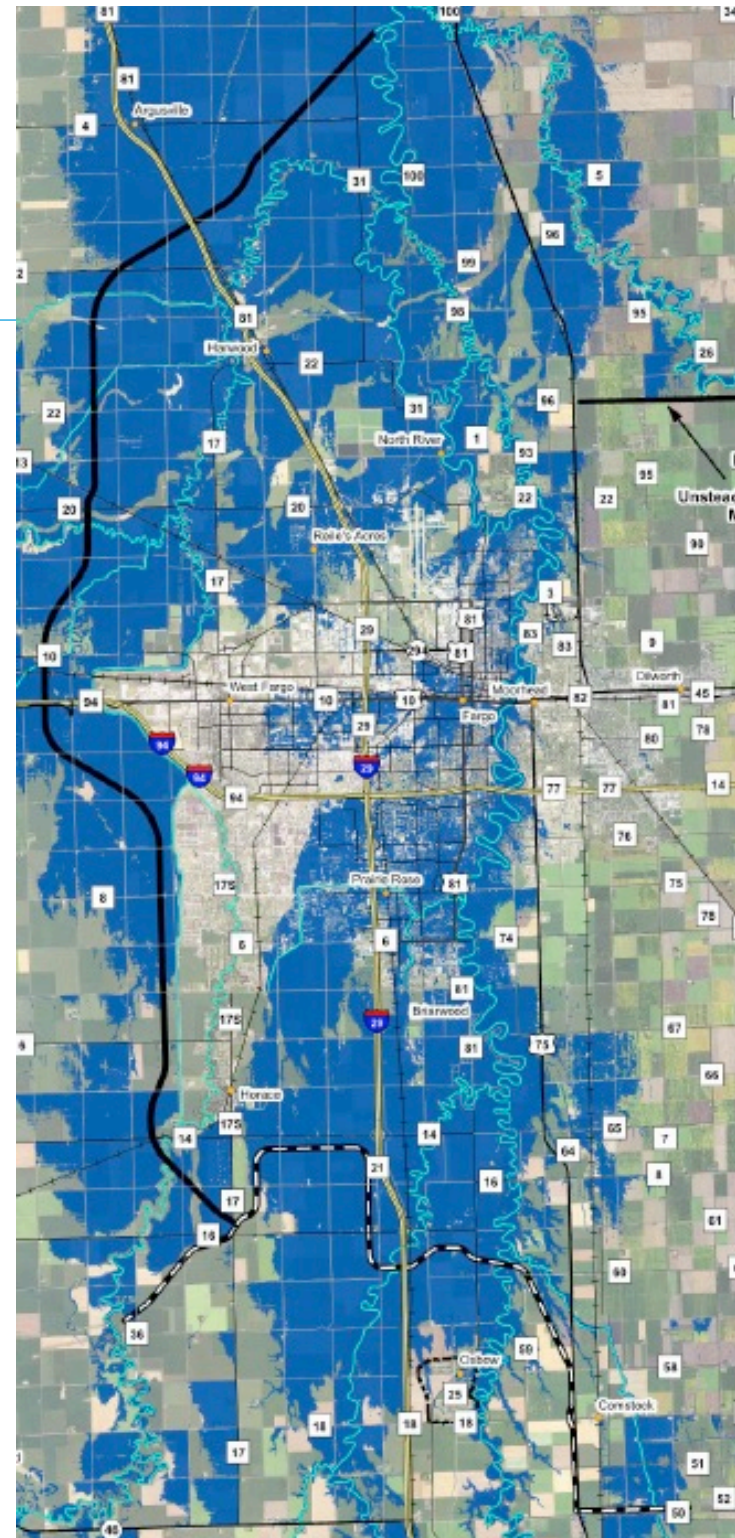
What is Plan B?

- ▶ 100-year Flood Protection Minimum
 - ▶ Some features designed to PMF (Probable Maximum Flood) as required by State and Federal Dam Safety Requirements
- ▶ Diversion Channel
- ▶ Southern Embankment and Control structures
- ▶ Temporary Staging of Flood Waters Upstream
- ▶ In-town Levees through Fargo-Moorhead



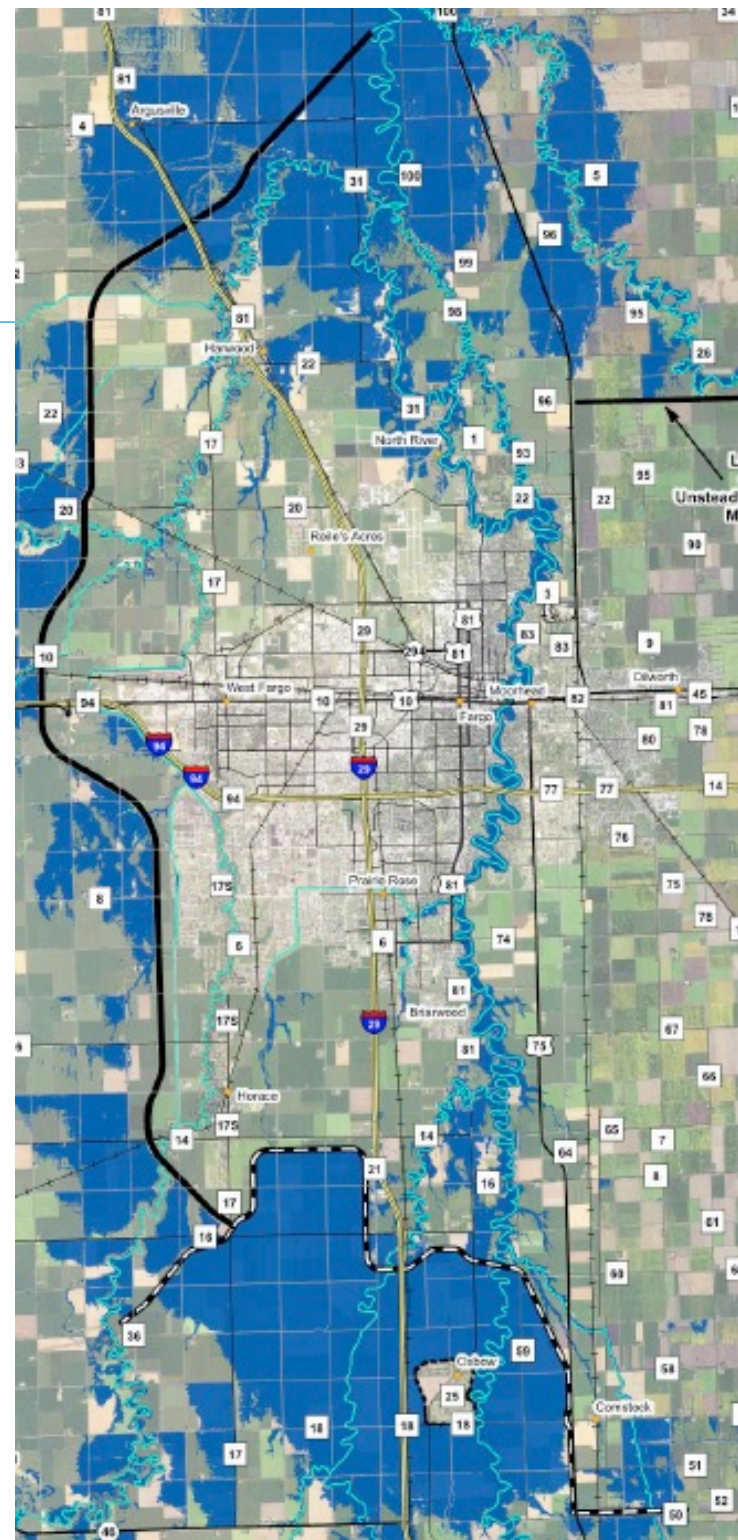
Existing Conditions

- ▶ 100-year floodplain shown in Blue



With Project

- ▶ 100-year floodplain with project shown in Blue
- ▶ Project also gives the ability to defend against a 500-year flood
 - ▶ Would require 18-20 miles of temporary clay and sandbag levees





Land Acquisition and Property Mitigation

Land Acquisition Progress

Property Rights needed for Project Construction & Operation

In-Town Levees

- ▶ Fargo & Mhd
- ▶ ~100 homes
- ▶ ~10 businesses
- ▶ ~30 acquired to date

Diversion Channel

- ▶ ~220 parcels impacted
- ▶ ~45 acquired to date

▶ ~200 parcels acquired to date

▶ ~150 residential units mitigated to date
(includes 120 residents in Park East Apartment Building)

Southern Embankment

- ▶ ~150 parcels impacted
- ▶ ~10 acquired to date

Upstream Mitigation Area

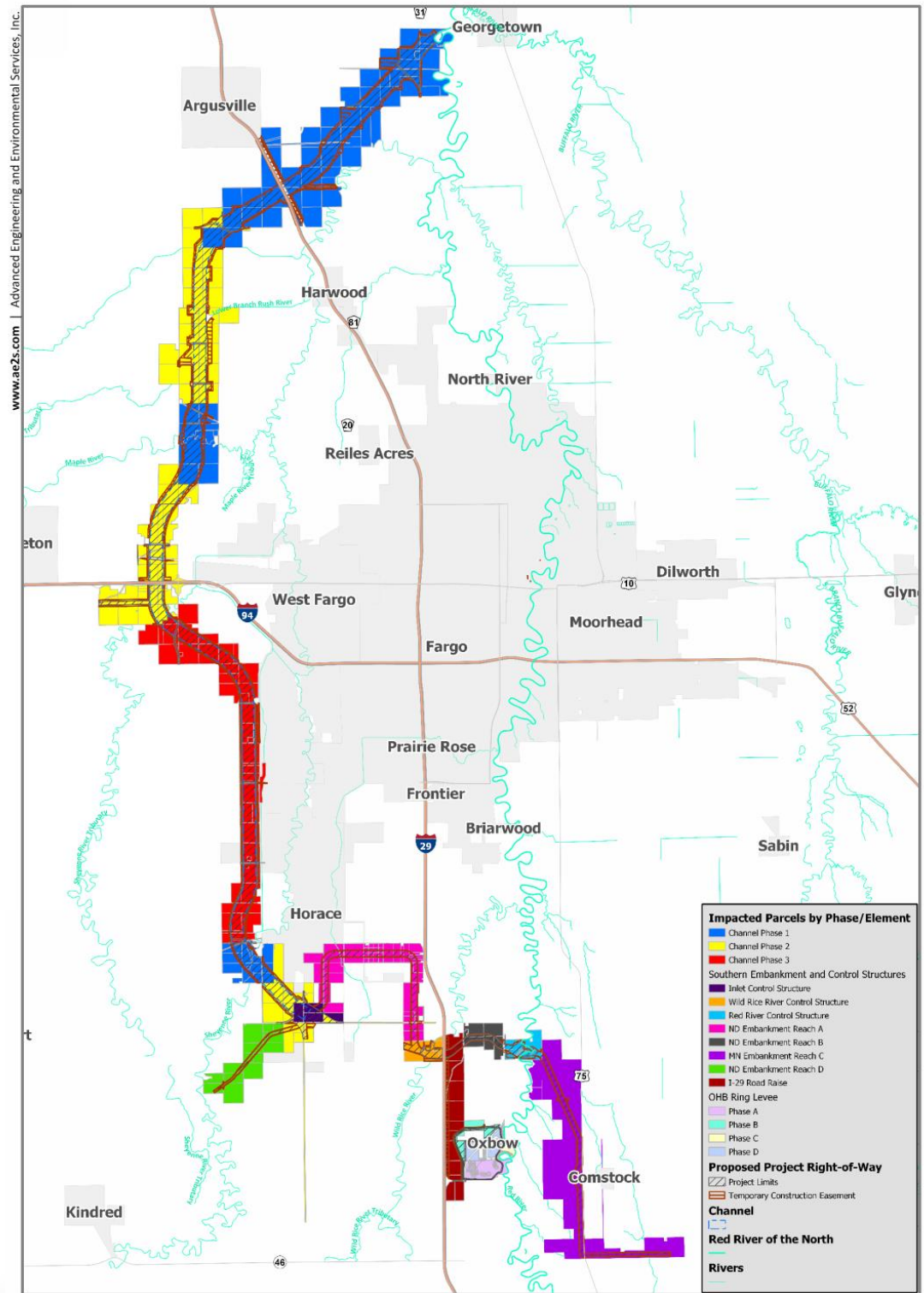
- ▶ OHB Ring Levee
- ▶ Flowage easements
- ▶ ~750 parcels total
- ▶ ~100 residential properties
- ▶ ~20 farmsteads



Land Acquisition

Parcels impacted by footprint of the Diversion Channel and Southern Embankment

Approximately 8,000 acres needed for Project Construction



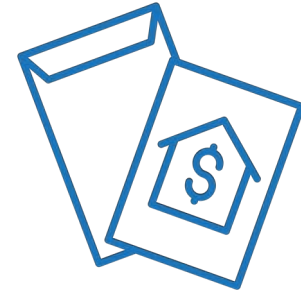
Property Rights Acquisition and Mitigation Plan

- ▶ The 115-page Plan was drafted in coordination with U.S. Army Corps and in consultation with the ND State Water Commission and the MN Department of Natural Resources
- ▶ The comprehensive Plan details the approach and process for property acquisitions and the methods to mitigate property impacts

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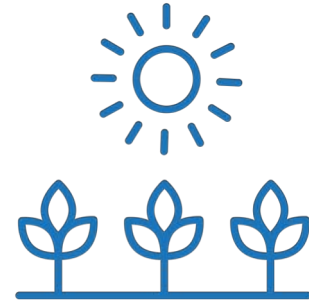
- Property Acquisition Philosophies
- Typical Property Acquisition Process
- Appraisal Review Plan
- Offer Presentation and Negotiation Process
- Property Rights Map
- Property Acquisition Schedule
- Early Property Acquisition Program
- Organic Farmland Acquisition Plan
- Disposal of Excess Property
- Mitigation of Properties Upstream
- USACE/FEMA Coordination Plan
- Flowage Easement Plan
- Sample Flowage Easement
- Dispute Resolution Board
- Cemetery Mitigation Plan
- Mitigation of Historic Places
- Post-Operation Debris Clean-Up Plan: Private Lands
- Post-Operation Repair and Clean-Up Plan: Public Lands
- Summer Operation Supplemental Crop Loss Program
- Financial Assurance Plan for O&M, On-going Mitigation
- Mitigation Communications Plan
- Oxbow-Hickson-Bakke Mitigation Project
- In-Town Levee Mitigation Projects
- Pre-PPA Medical Hardship Acquisition Program

Property Acquisition Process



- ▶ Property rights determined by project design
- ▶ Valuation determined by Appraisal following state law
- ▶ Property Owners receive:
 - ▶ ‘Just Compensation’ = payment for real estate
 - ▶ ‘Relocation Benefits’ = moving, relocation, re-establishment
- ▶ ~200 acquired to date
 - ▶ Mostly satisfied with process and result

Flowage Easements



- ▶ Project includes a mitigation area upstream of the Project
 - ▶ Occasionally and temporarily used store flood waters
- ▶ A Flowage Easement will be purchased and applied to properties upstream.
 - ▶ Value of the easements will be determined through an appraisal that will consider the depth, duration, and frequency of additional flooding.
- ▶ The Diversion Authority has contracted with Crown Appraisals to develop a process and policy to value the easements. Phase 1 of the study is underway now.

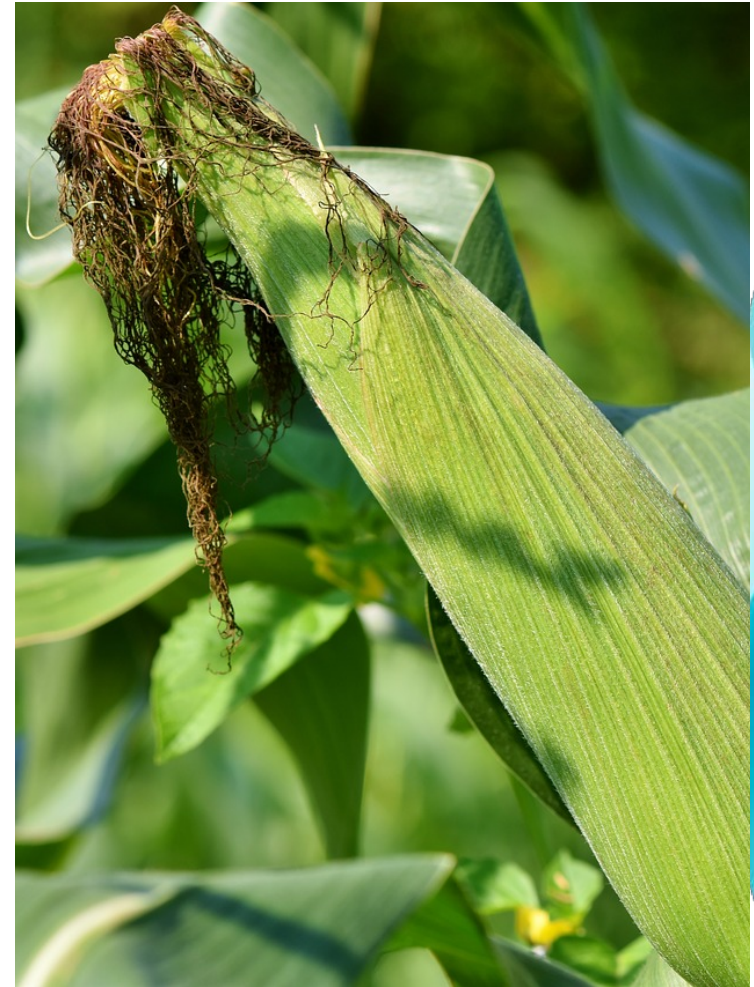
Post-Operation Clean-Up Programs



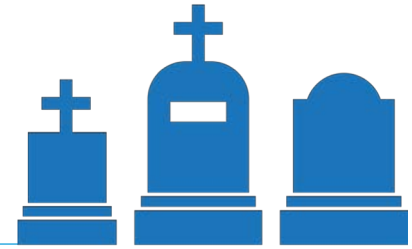
- ▶ Concern from producers about debris and damage left after Project Operation
- ▶ Operation anticipated ~20-year return frequency
- ▶ Flowage easements compensate landowners for impacts associated with the Project
- ▶ Project may cause debris to accumulate within the upstream mitigation area, impacting producers
- ▶ Diversion Authority developed a post-operation debris clean-up plans for both private property and public properties
 - ▶ Private Property plan is mirrored after clean-up week
 - ▶ Public Property plan is mirrored after FEMA disaster assistance

Supplemental Crop Loss Program

- ▶ Summer operation of the Project is extremely unlikely
- ▶ If the Project were to operate in summer:
 - ▶ Summer flooding would likely damage growing crops
 - ▶ Diversion Authority will provide a program for producers to cover the crop loss risks associated with Project-induced flooding during summer months



Cemeteries



- ▶ There are 5 cemeteries upstream of the Project that may be impacted at varying levels during major floods due to operation of the Project
 - ▶ Plan B reduced the impacted cemeteries from 11 to 5
 - ▶ Additionally, there are 21 cemeteries that currently flood that will now have improved flood protection due to the Project
- ▶ Flowage easement will be purchase from each cemetery
- ▶ Potential additional mitigation for each site will be reviewed and discussed with each cemetery after completion of environmental and permitting review

Dispute Resolution Board

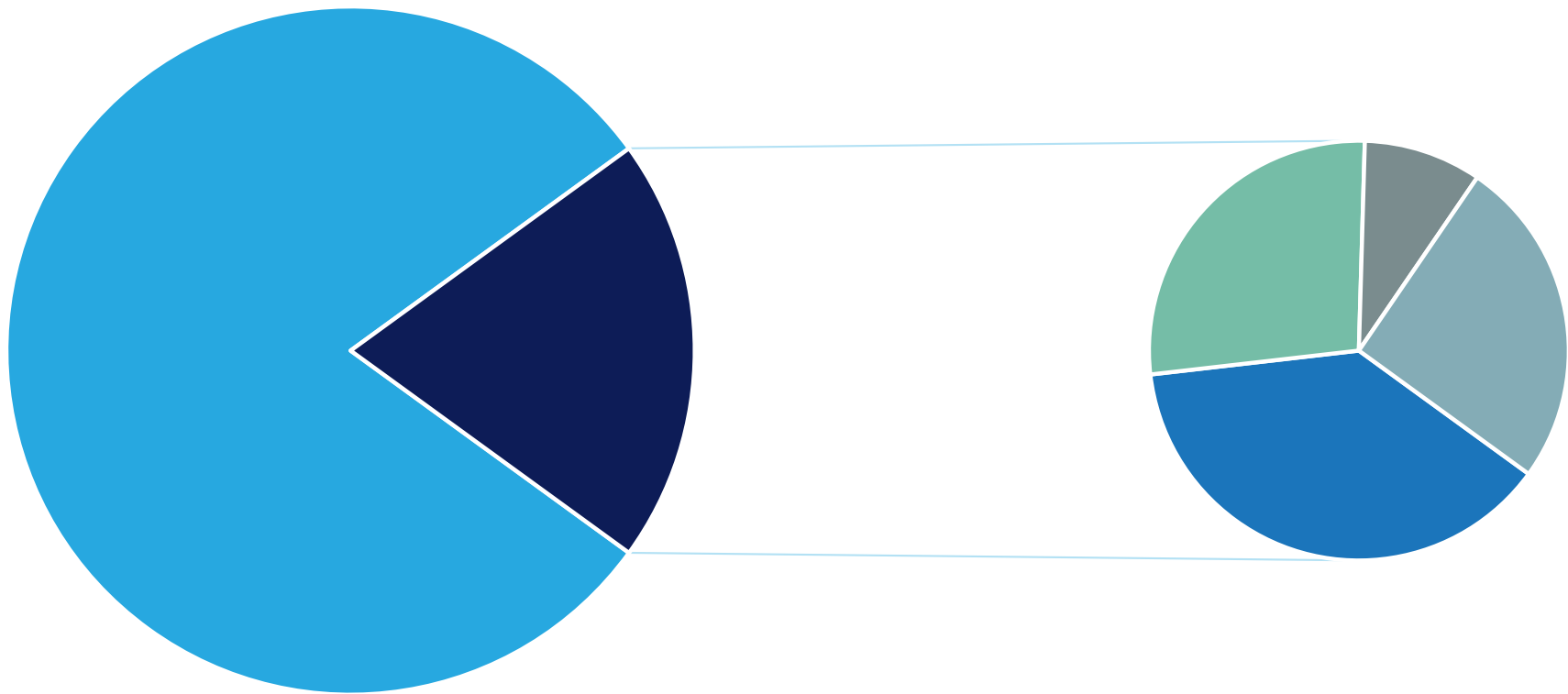


- ▶ Administrative program for properties that believe they are impacted by Project, but do not receive direct mitigation
- ▶ Modeled after a similar process created by the NDSWC for the Devils Lake outlet project
- ▶ Allows a forum for property owners to file claims and an independent and fair process to determine damages from the Project
- ▶ Avoids expensive legal action



Diversion Project Financial Overview

Current opinion of estimated cost is \$2.75B in 2018 dollars

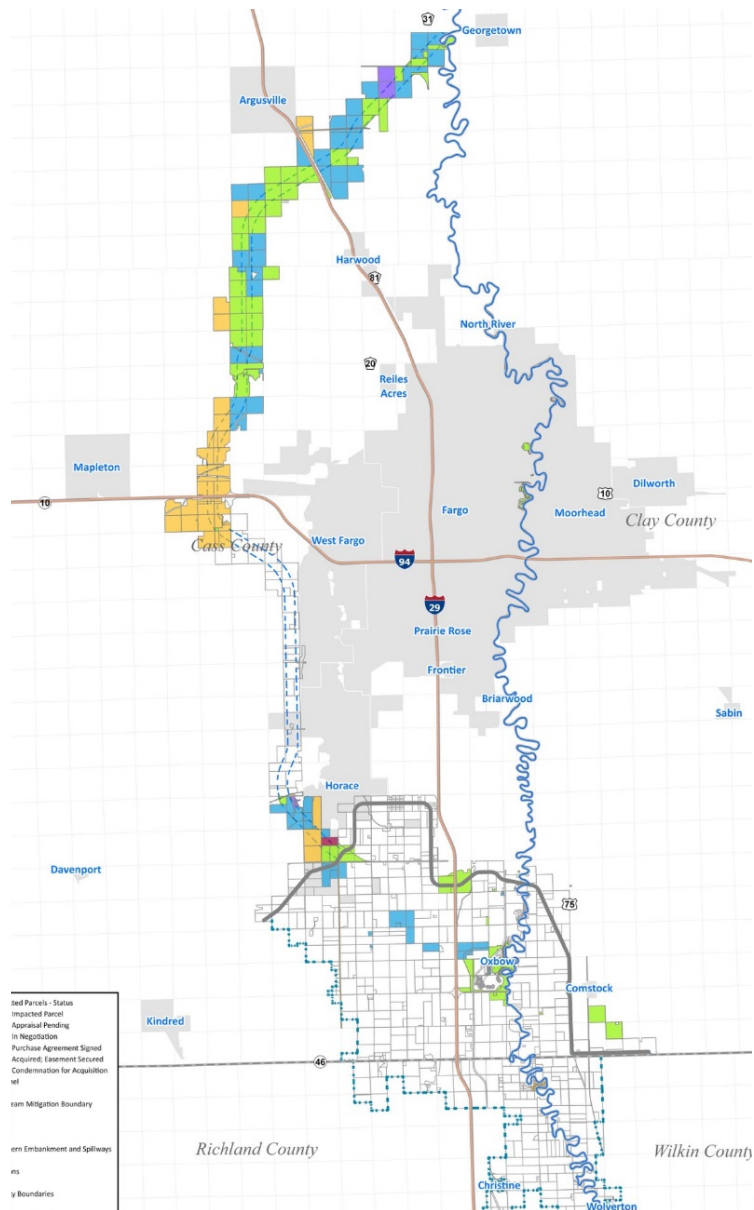


Costs Include USACE, Diversion Authority, Fargo, and Moorhead flood mitigation projects

Category	Base Cost	Contingency and Risk/ Opportunity	Current Opinion of Estimated Cost
Lands/Impacted Properties Mitigation	\$466	\$36	\$502
Channel / P3	\$979	\$10	\$989
USACE / SEAI	\$585	\$118	\$703
Fargo and Moorhead In-Town Projects	\$240	\$26	\$266
Other/Mitigation Construction	\$44	--	\$44
Non-Construction Costs*	\$185	\$65	\$250
TOTAL	\$2,499	\$255	\$2,754

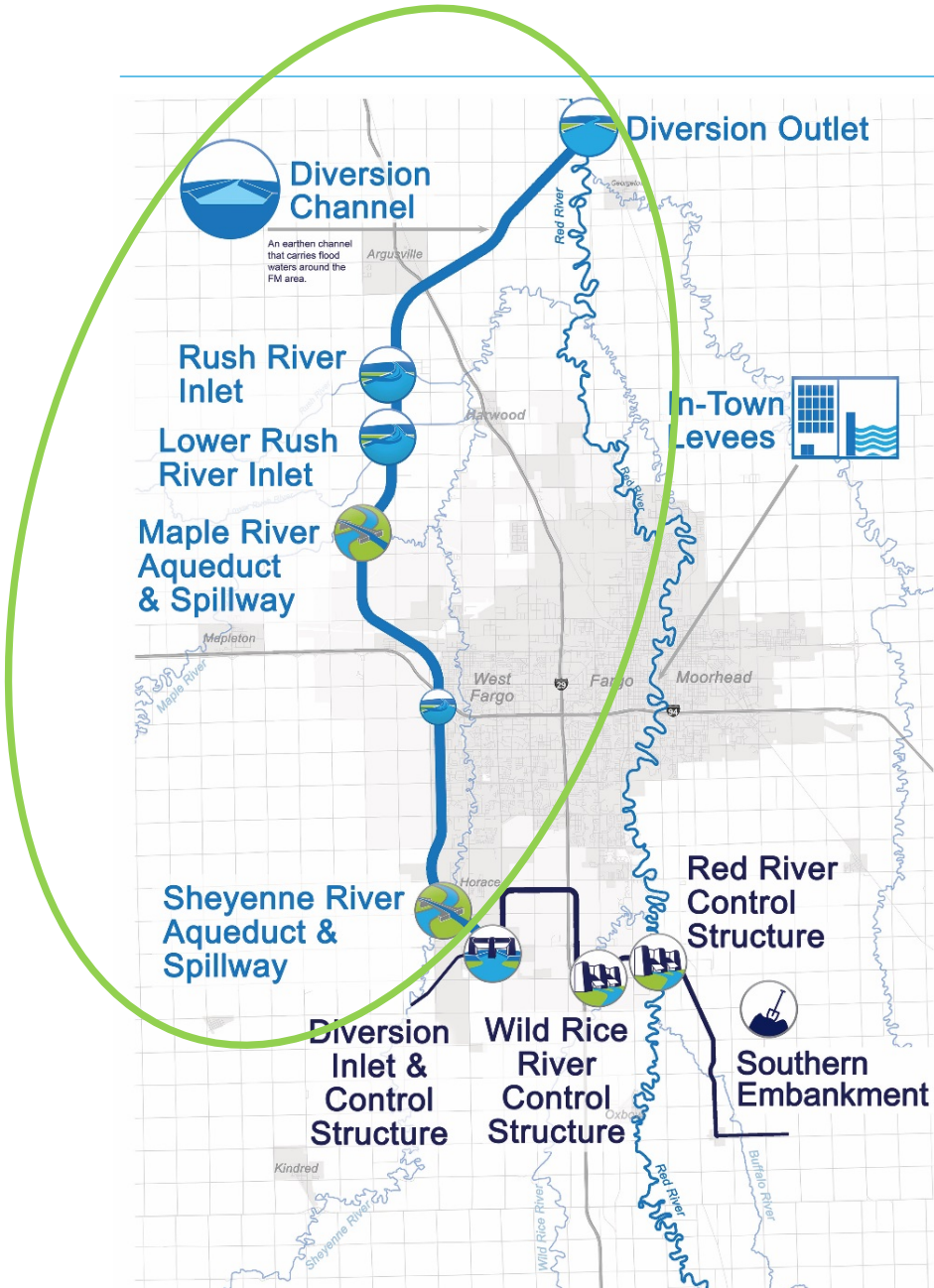
*Legal/Financial/Designs/Studies/Procurement/PgM/CM/General Contingency

Lands and impacted property mitigation = \$502M



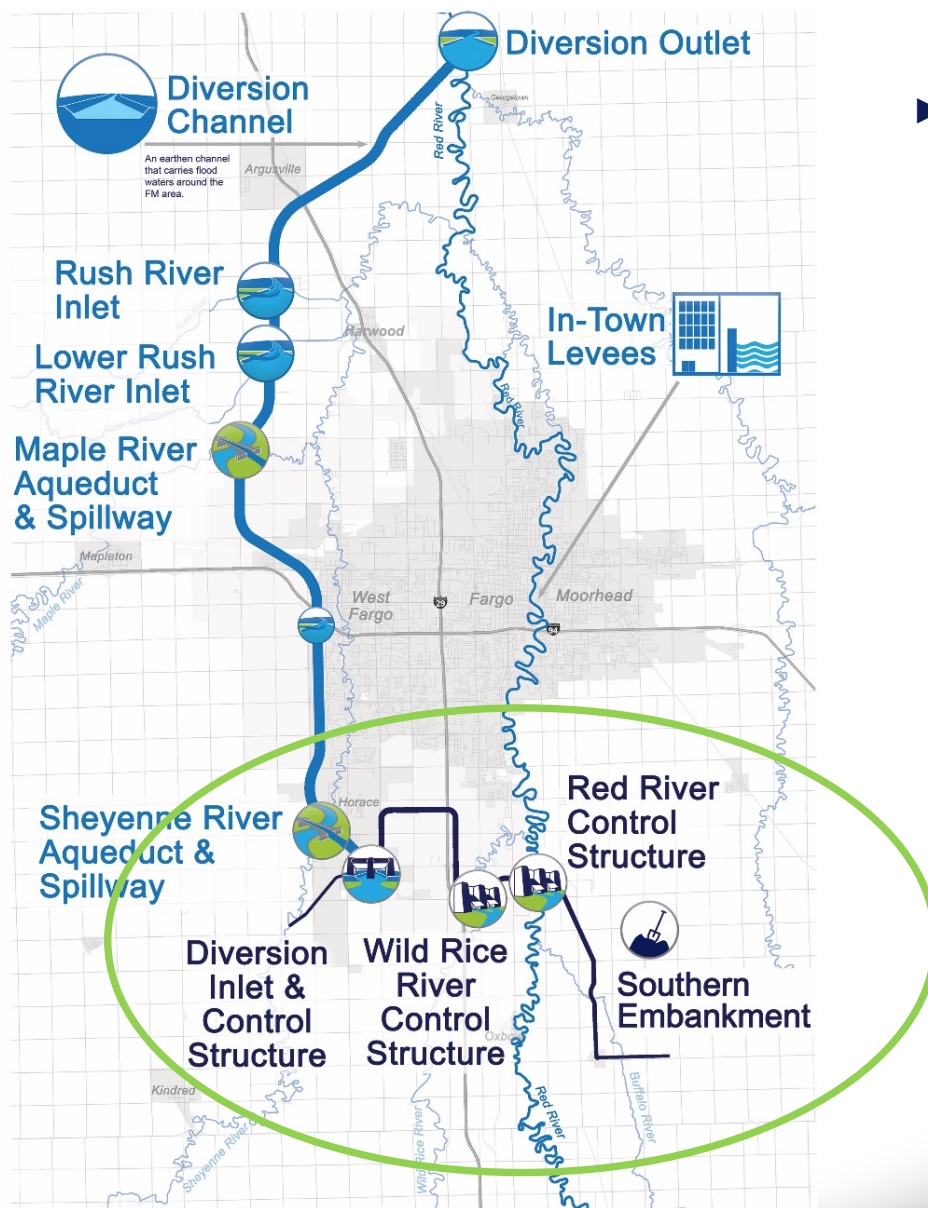
- ▶ Mitigation of Impacted Properties
- ▶ Acquisition of Property Rights
 - ▶ Buyouts
 - ▶ Flowage Easements
- ▶ Business and Residential Relocations

Channel/P3 = \$989M



- ▶ Channel / P3
 - ▶ Channel
 - ▶ Highway Crossings
 - ▶ Railroad Crossings
 - ▶ Aqueducts
 - ▶ Drain Inlets
 - ▶ Utility Relocations
 - ▶ Outlet

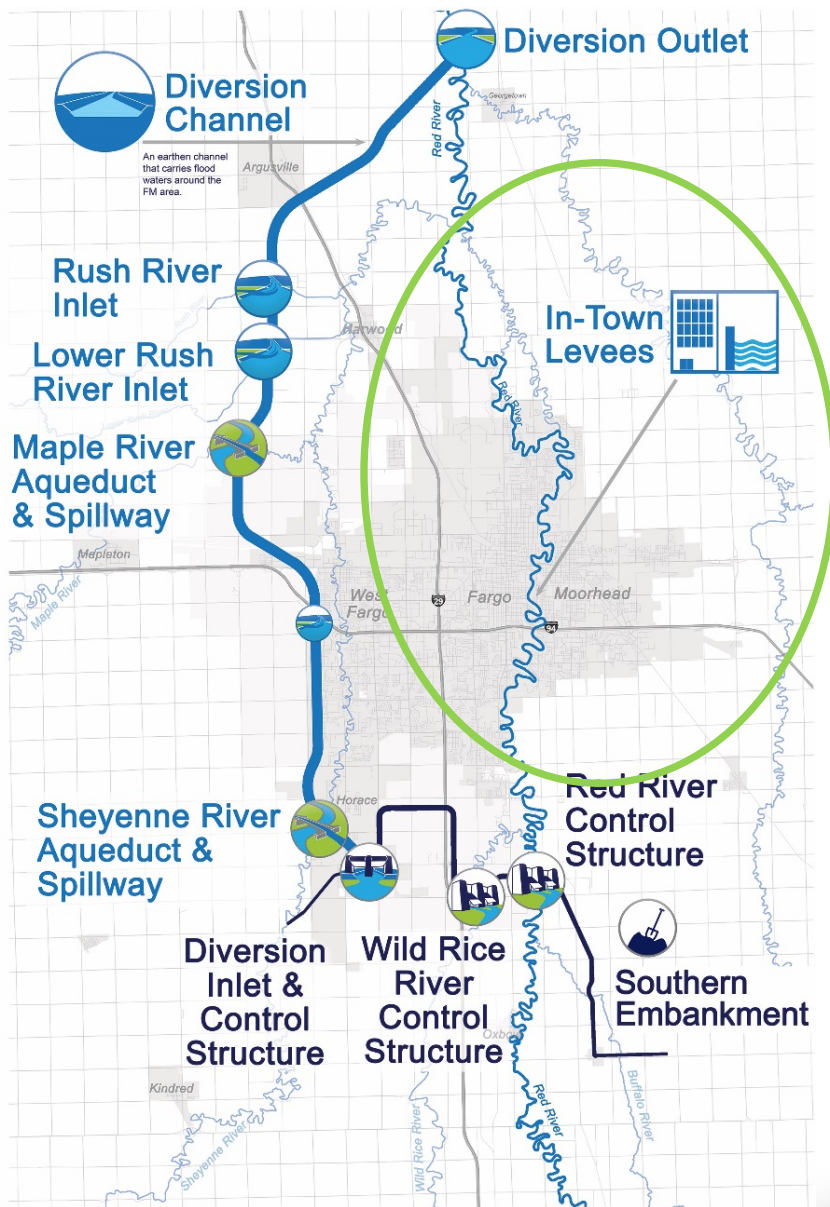
Southern Embankment/USACE Projects = \$703M



▶ USACE Projects

- ▶ Southern Embankment
- ▶ Control Structures
- ▶ I-29 and Other Road Raises
- ▶ Environmental Mitigation Projects

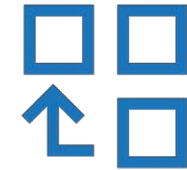
Fargo and Moorhead In-Town projects = \$266M



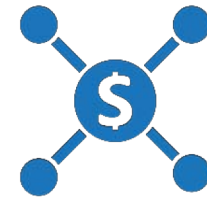
- ▶ Projects to Accommodate Increased Flows Through Town (River Stage 37 ft.)
 - ▶ City of Fargo
 - ▶ City of Moorhead
 - ▶ Cass County Road Raises
 - ▶ Clay County Road Raises
- ▶ City of Fargo Comprehensive Flood Control Plan Projects

Non-Construction costs = \$250M

- ▶ Studies
- ▶ Design
- ▶ Procurement
- ▶ Legal
- ▶ Financial
- ▶ Program Management
- ▶ Construction Management
- ▶ General Contingency



▶ Legal

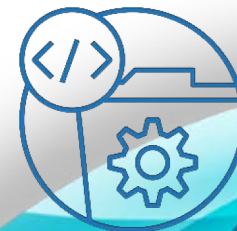


▶ Financial



▶ Program Management

▶ Construction Management



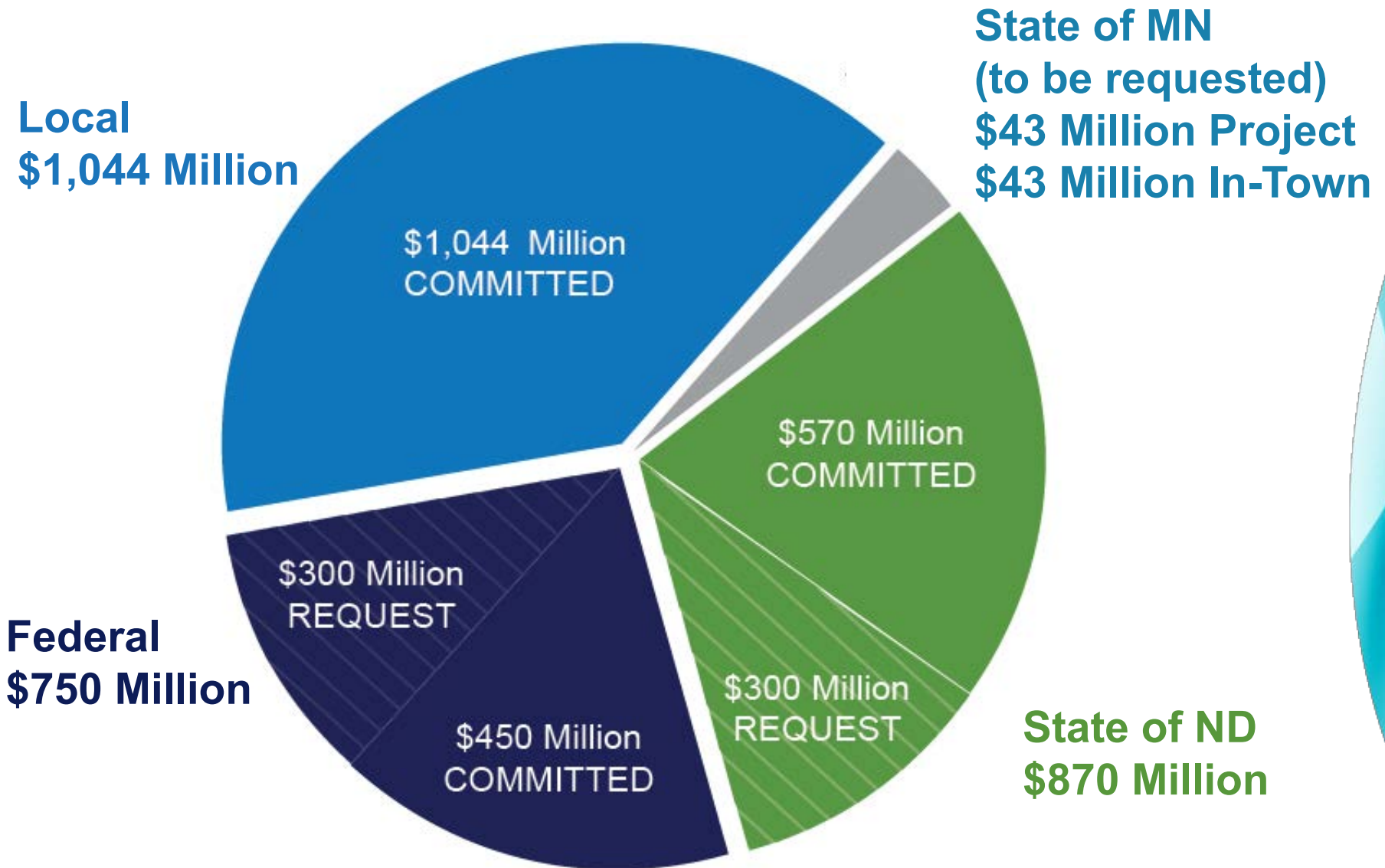
▶ General Contingency

Costs to date are \$427M
 Remaining costs are approximately \$2.3B

Category	Current Opinion of Estimated Cost	Spent to Date (Sept 2018)	Remaining Costs
Lands/Impacted Properties Mitigation	\$502	\$178	\$324
Channel / P3	\$989	\$14	\$975
USACE / SEAI	\$703	\$41	\$662
Fargo and Moorhead In-Town Projects	\$266	\$80	\$186
Other/Mitigation Construction	\$44	\$24	\$20
Non-Construction Costs*	\$250	\$90	\$160
TOTAL	\$2,754	\$427	\$2,327

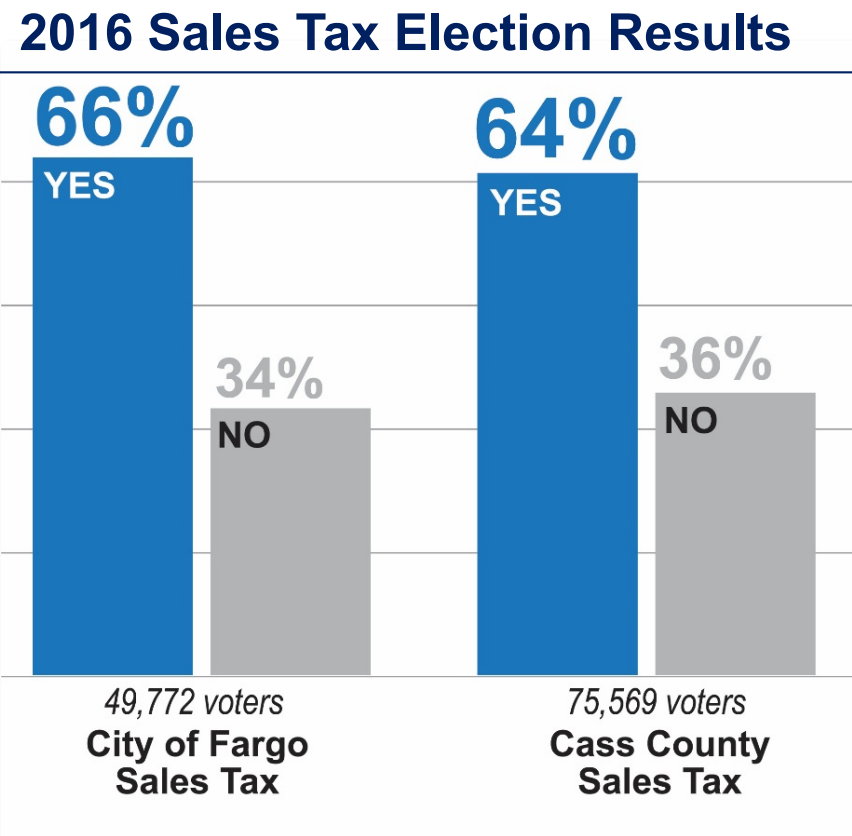
*Legal/Financial/Designs/Studies/Procurement/PgM/CM/General Contingency

Proposed Funding to balance Financial Plan and avoid Special Assessments



Local Funding Summary

- ▶ Local funding makes up over 50% of the proposed Non-Federal share
- ▶ Voters approved sales tax extensions until 2084
- ▶ Sales tax used to fund local share of Project
 - ▶ ~\$42M in collections / year
- ▶ \$725M assessment district also approved as a financing tool, not for capital expenditures



Federal Funding Summary

- ▶ Federal funding to date = \$127 Million
 - ▶ \$35 Million included in 2018 USACE Work Plan
- ▶ Current federal commitment = \$479 Million
 - ▶ Total funding commitment increases with inflation
- ▶ Additional federal request = \$300 Million



Minnesota Funding

- ▶ Minnesota has appropriated \$130M for flood protection locally to date,
 - ▶ Clay County and Moorhead, as members of the Diversion Authority, have agreed to request additional funding for the Diversion Project.
- ▶ Minnesota does not allow for funding requests prior to approvals being granted for the Project itself, but the legislature is aware of the needs
- ▶ It had been discussed previously that the Minnesota share of the Diversion Project would be 2% of the costs
- ▶ Future funding request for Diversion Project and other in-town totals \$86M



ND Funding Summary

- ▶ Current legislative intent for \$570M for flood protection funding
- ▶ Additional \$300M being requested (\$166.5M in 2019)

Year	Amount	
2009	\$45 M	
2011	\$30 M	
2013	\$100 M	
2015	\$129 M	
2017	\$66.5 M	
2019	<i>\$66.5 M</i>	\$100 M
2021	<i>\$66.5 M</i>	\$100 M
2023	<i>\$66.5 M</i>	\$100 M



DO WE NEED A SLIDE LIKE THIS??





Questions?

FMDiversion.com

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