



# FM Diversion Project Update

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# Why are we here?

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- ▶ Flood Protection for the Fargo-Moorhead Area
- ▶ A new Minnesota Permit Application
- ▶ How the Project has Changed



# Why did the Project change?

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- 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.
- While the majority of claims were dismissed, 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



# 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



# Governors' Task Force

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# Governors' Task Force

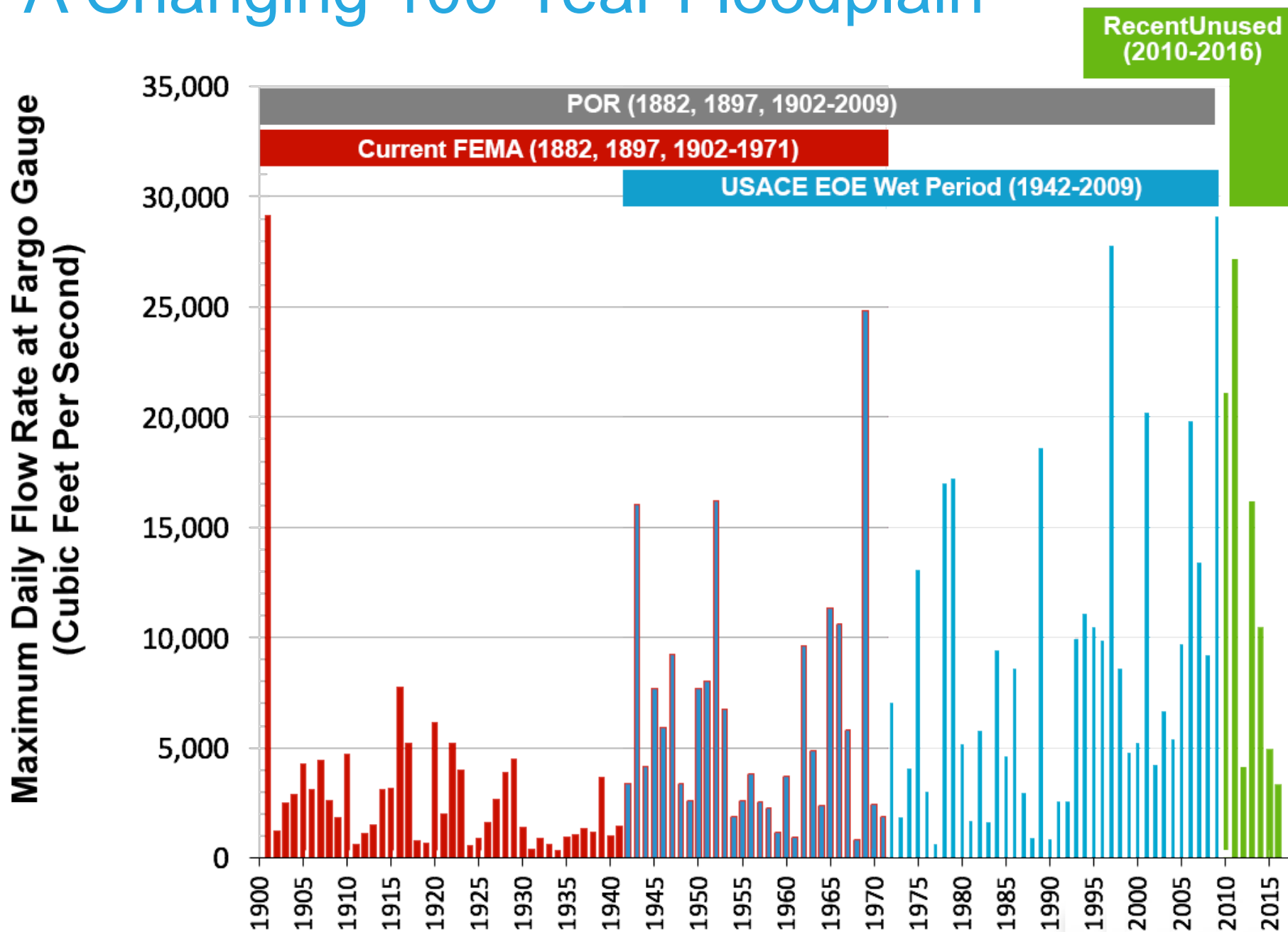
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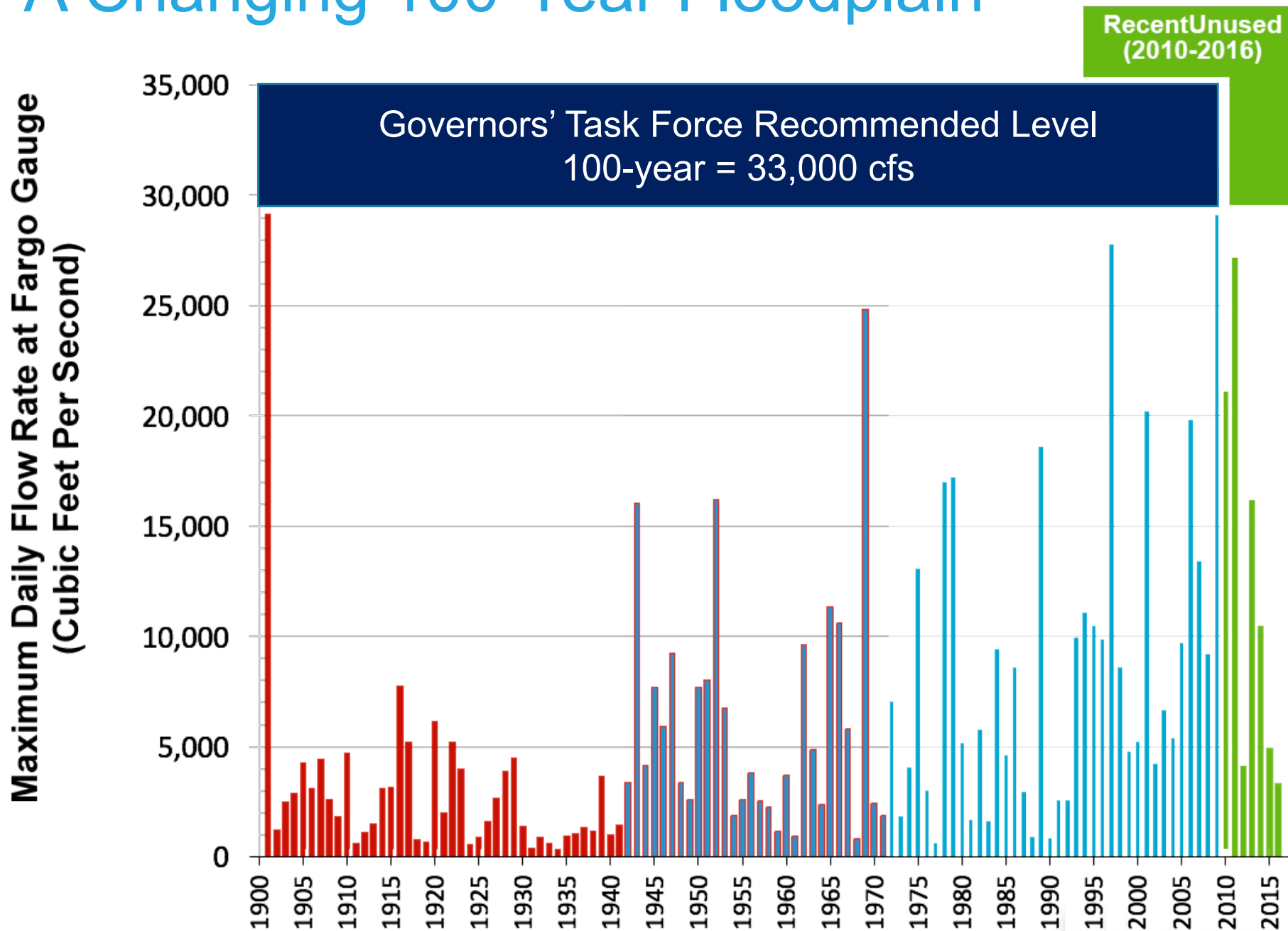
- **Purpose:** To develop design principles and concept-level engineering solutions to achieve balanced flood risk management
- **Key Parameters for the Task Force**
  1. Find solutions within the parameters established by applicable Minnesota, North Dakota and local law.
  2. Maintain federal authorization and associated funding for permanent flood protection...



# A Changing 100-Year Floodplain



# A Changing 100-Year Floodplain





# Formation of TAG

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- ▶ **Technical Advisory Group (TAG) was formed**

- ▶ Includes engineering representation from MDNR, the Diversion Authority, U.S. Army Corps of Engineers, and Richland/Wilkin JPA

- ▶ **Key Parameters for TAG**

- ▶ Strive for balanced flood protection and impacts
- ▶ Minimize acres removed from the floodplain
- ▶ Minimize newly impacted acreage and structures
- ▶ Minimize impacts in Wilkin and Richland County
  - ▶ Goal to reduce the newly impacted acreage to 640 acres or less
- ▶ Consider economics – cost increases and reductions



# Task Force Consensus

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- ▶ 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



## 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



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*“The Diversion Authority now has the responsibility to take all of these views and recommendations and combine them into a permittable application to the Minnesota DNR.”*

*- Governor Dayton (MN)*





# New Permit Application (Plan B)

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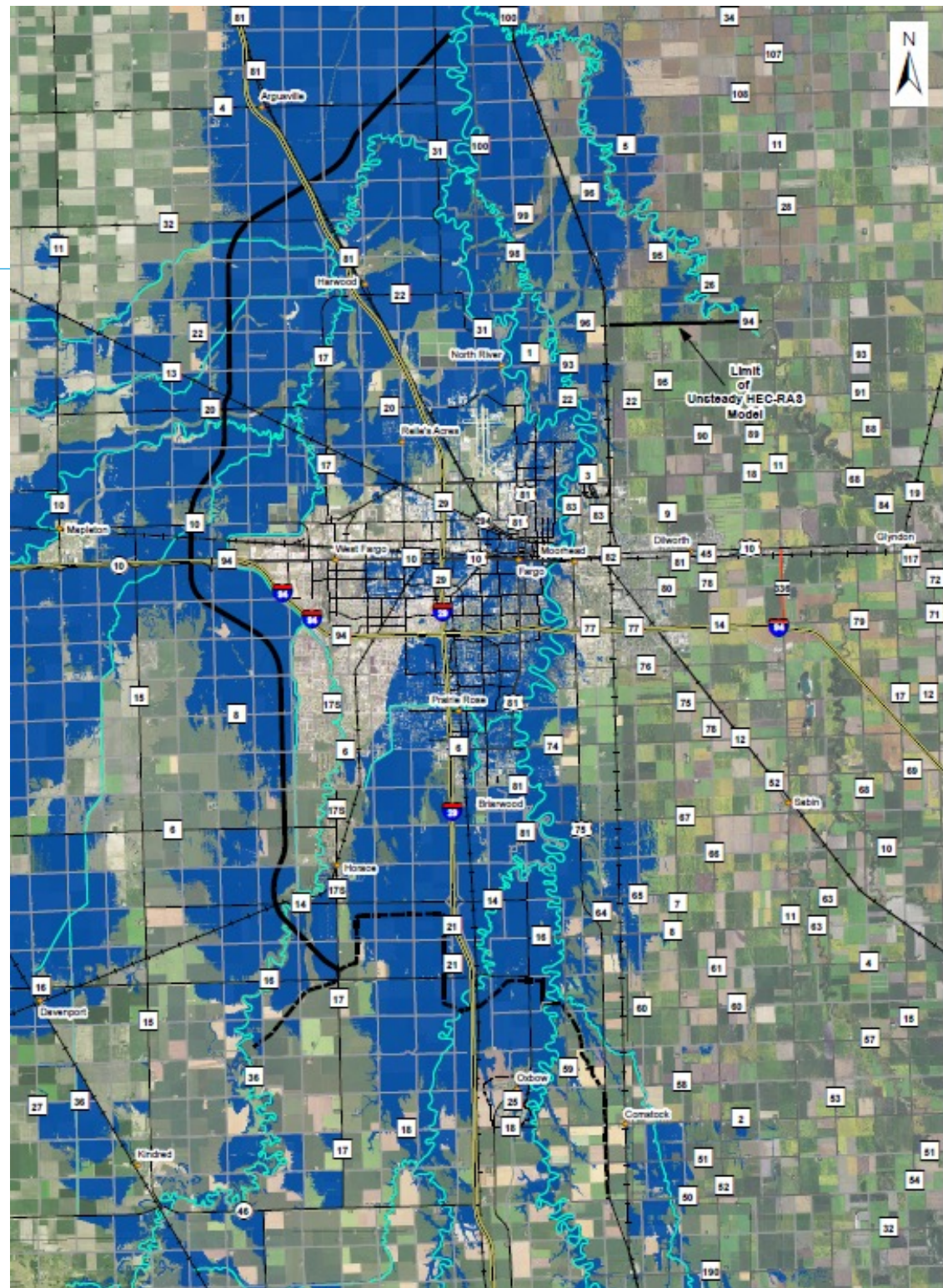
# What is Plan B?

- ▶ 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



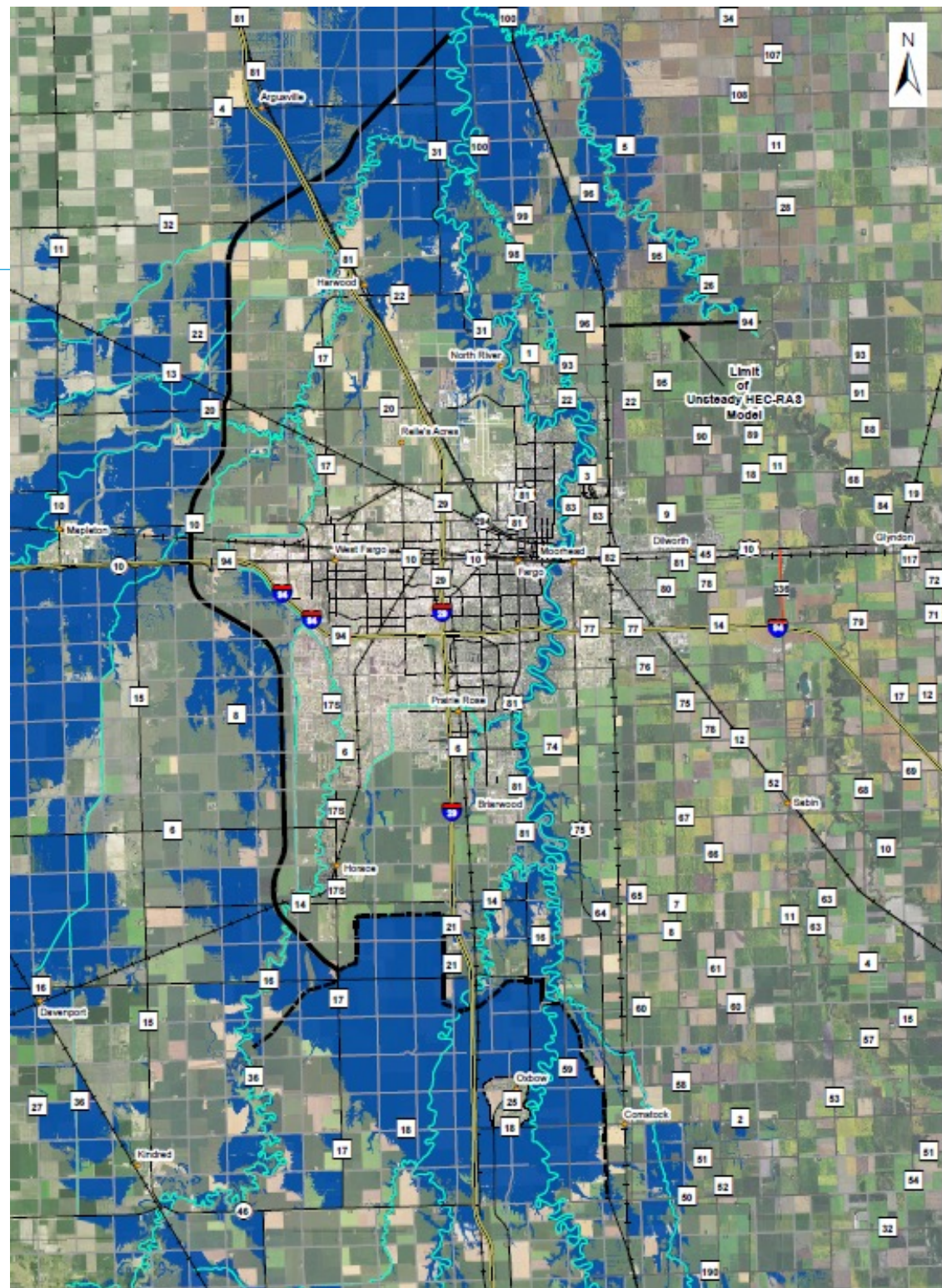
# Existing Conditions

- ▶ 100-year floodplain shown in Blue



# With Project

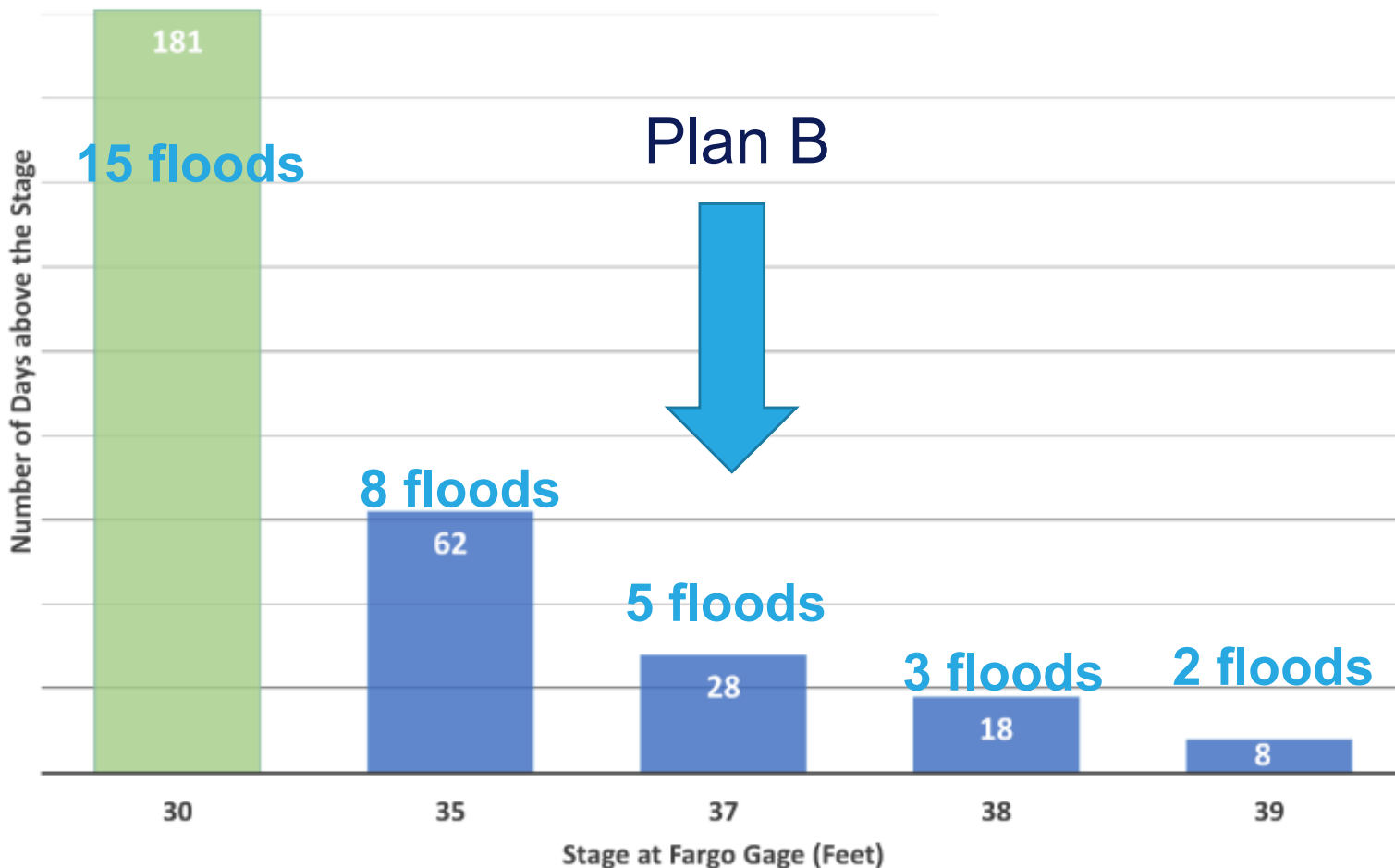
- ▶ 100-year floodplain with project shown in Blue





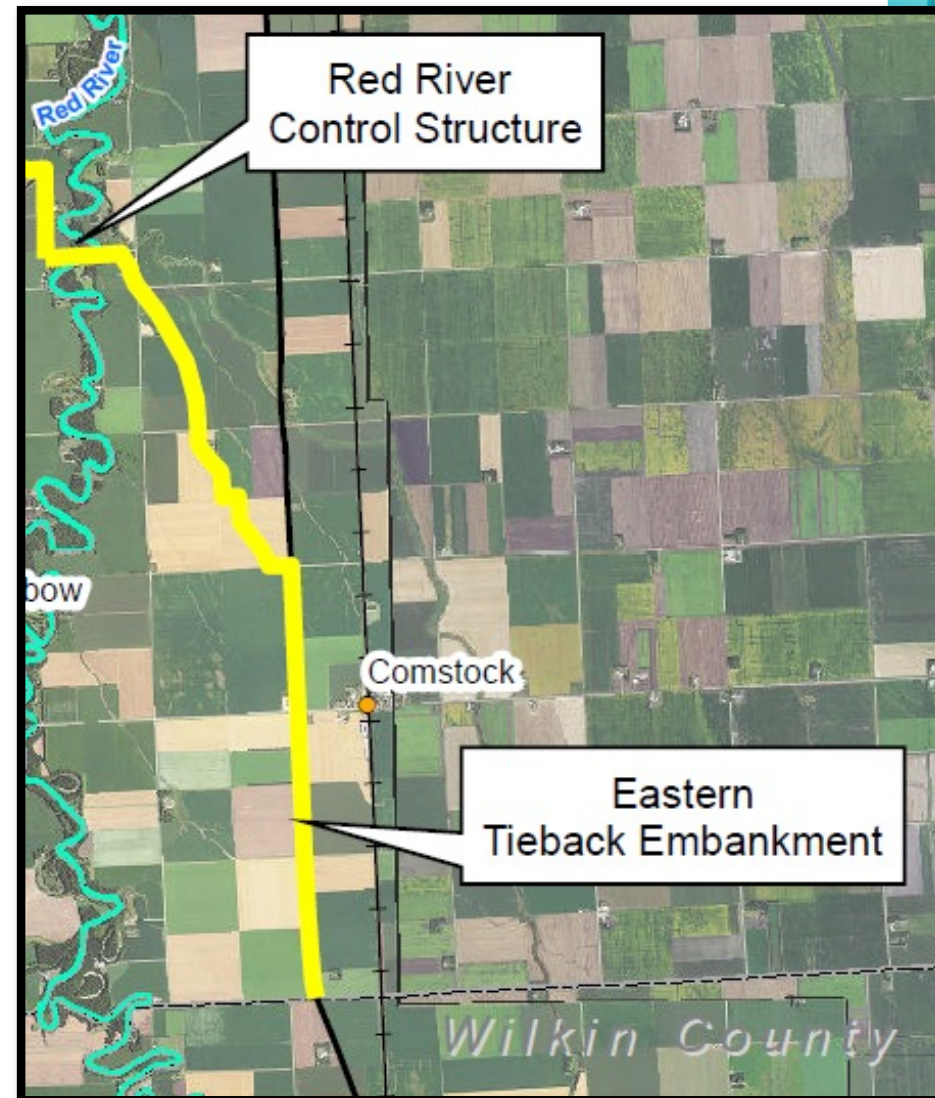
# Increased flow through Fargo-Moorhead (37-feet)

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



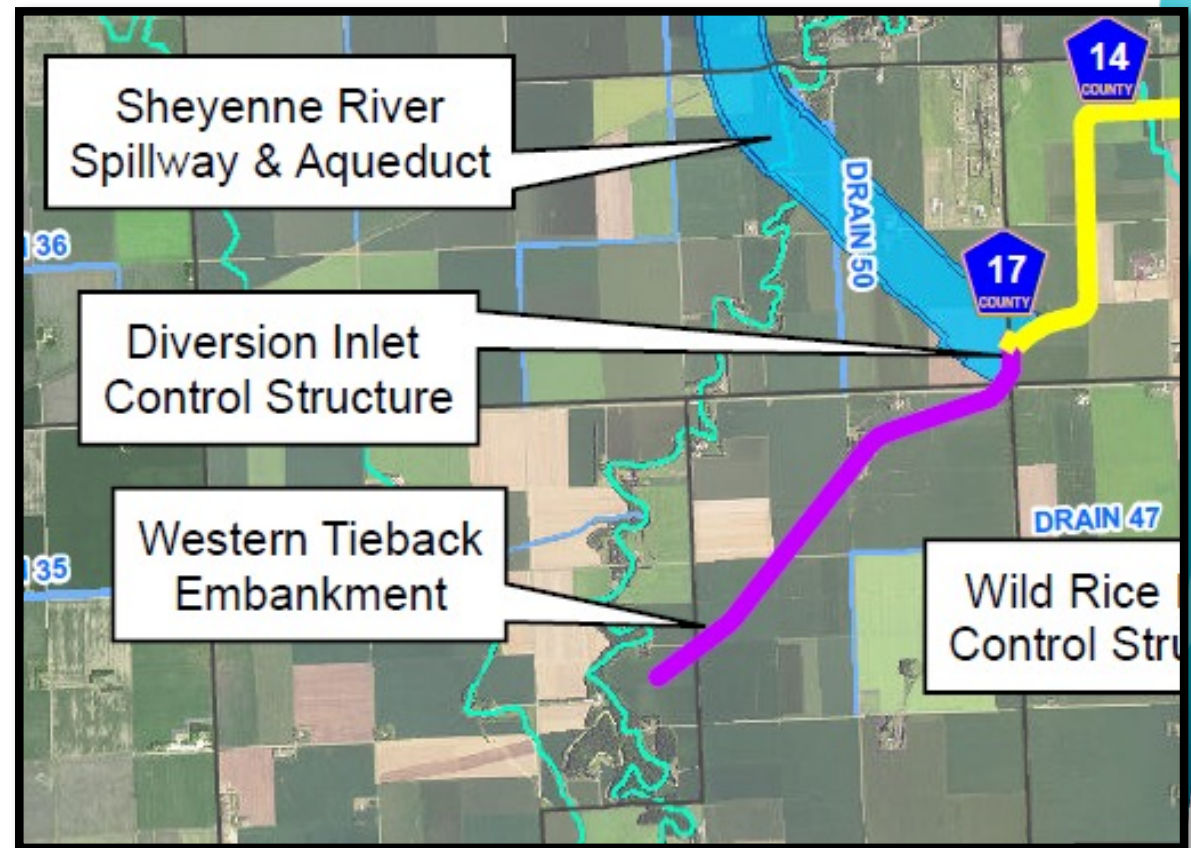
# Eastern Tie-Back Levee

- ▶ 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



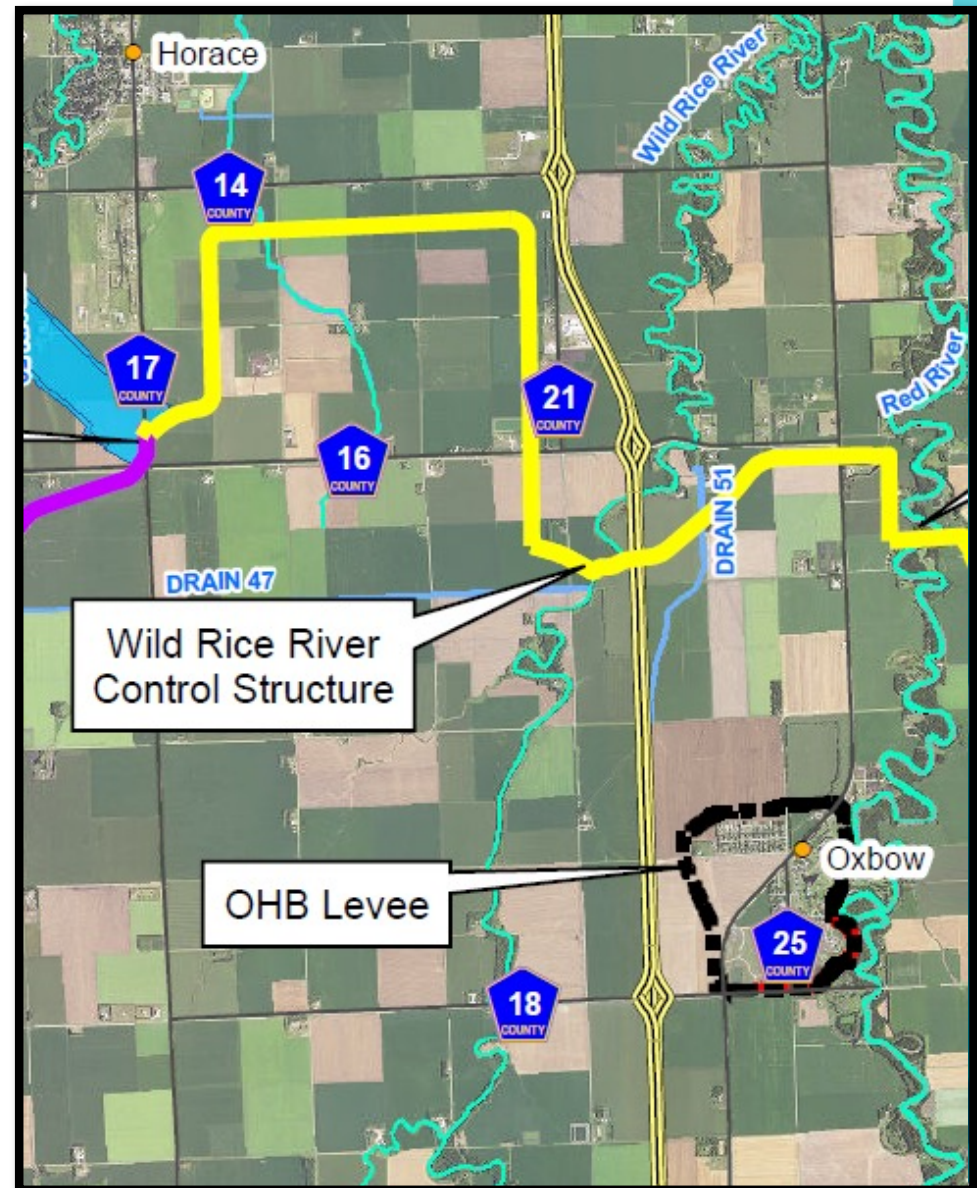
# Revised Western Tie-Back Levee

- ▶ 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

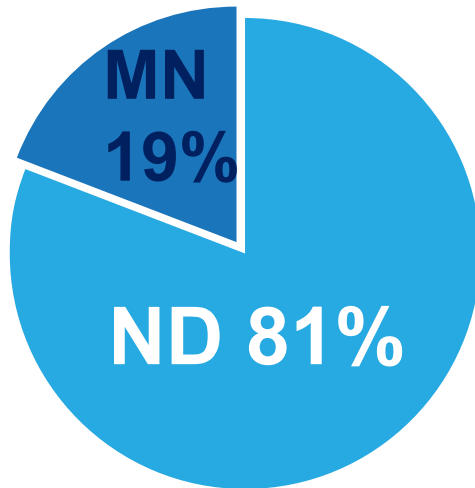


# Balanced Impacts between MN and ND

## PRE-TASK FORCE

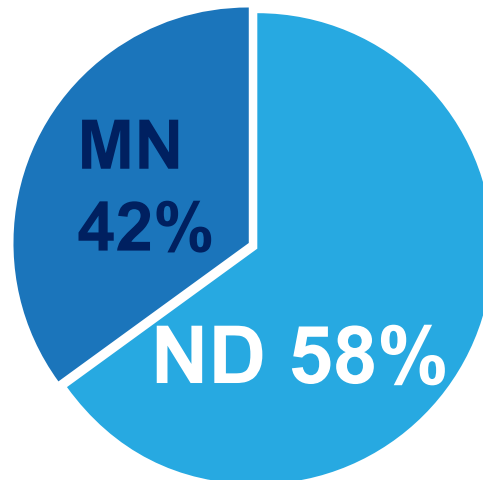
### PROTECTED ACRES

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



### STAGING AREA ACRES

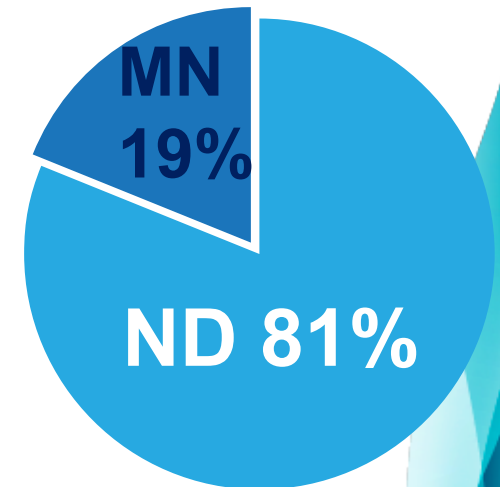
- ND = 20,700
- MN = 14,800



## PLAN B

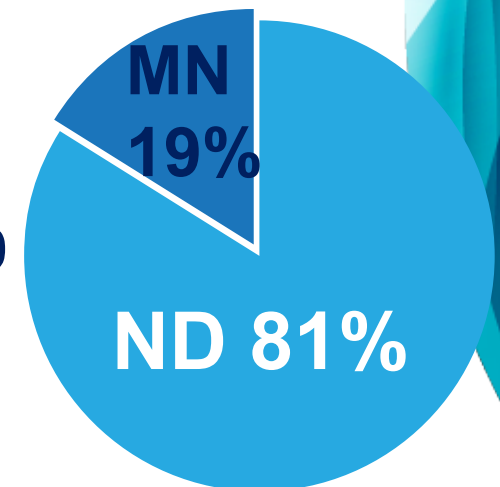
### PROTECTED ACRES

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







### STAGING AREA ACRES



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












# Temporary Upstream Staging (100-yr flood)

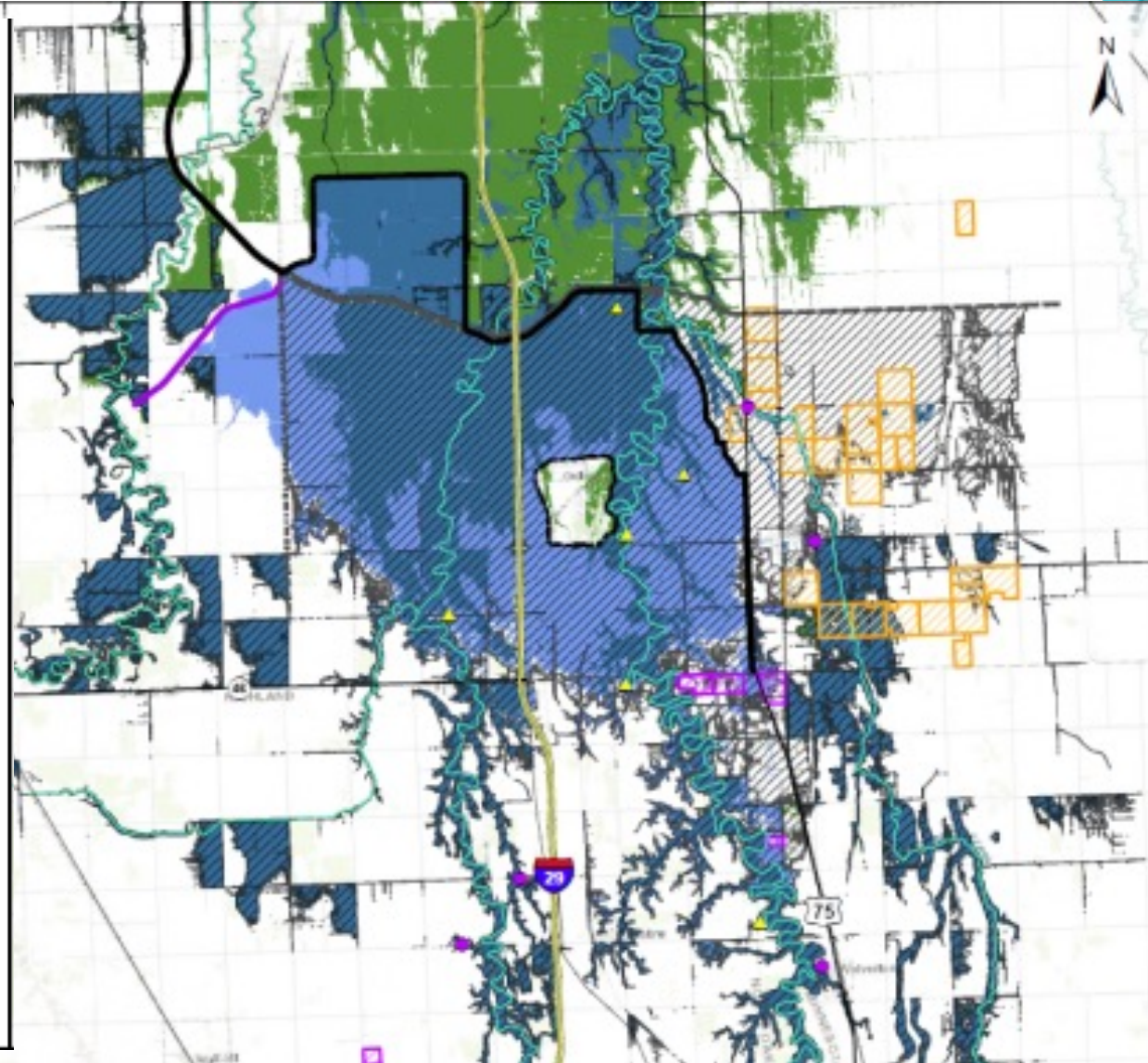
-  Floodplain with or without Project
-  New 100-year Floodplain with Project
-  100-year Floodplain Removed with Project (i.e., Benefitted Area)
-  Pre-Task Force With Project 100-year Floodplain

## Cemetery Impact

-  Impacted by Base Project, Not Impacted by Plan B
-  Impacted by Base Project and Plan B

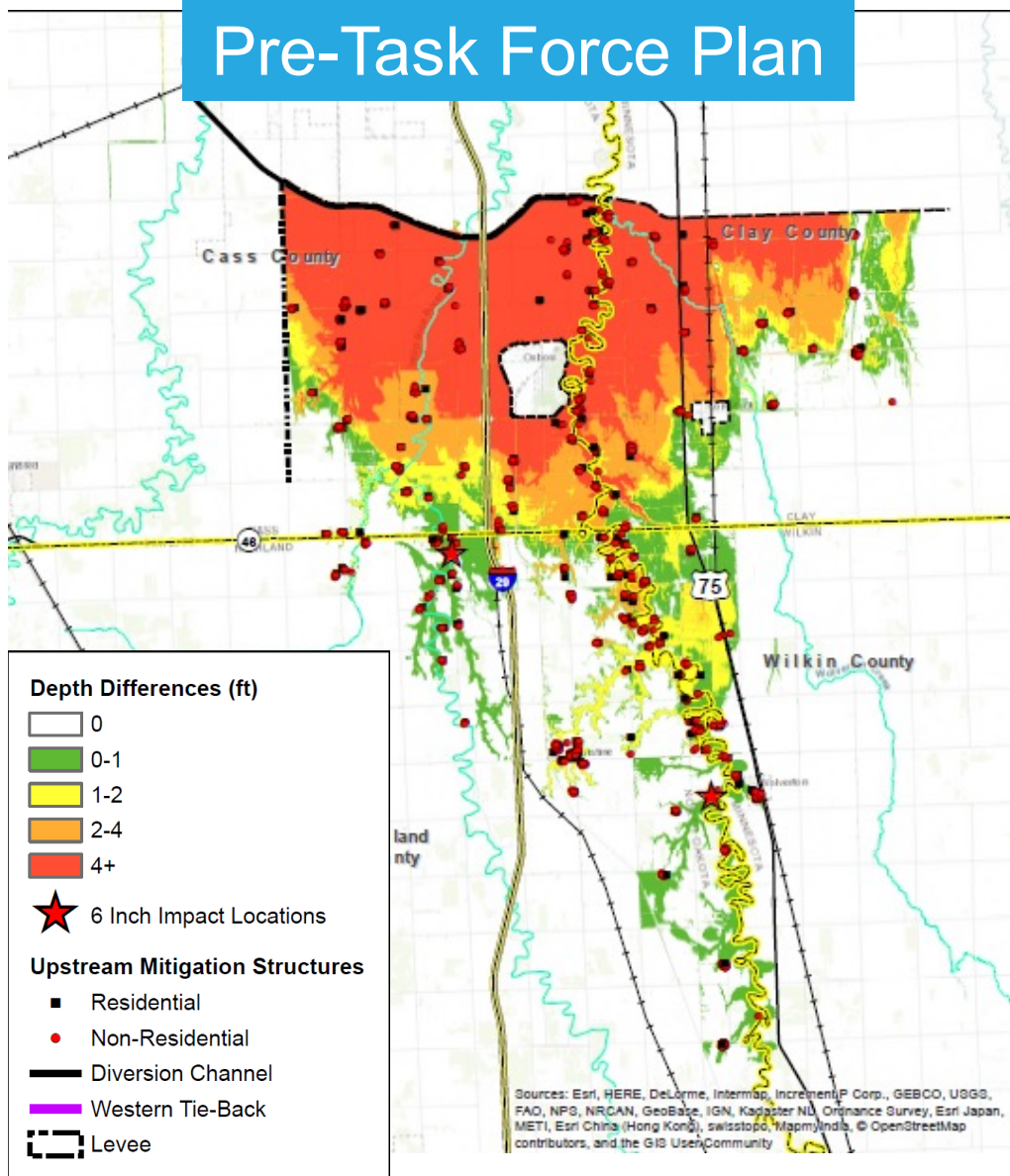
## Upstream Mitigation Structures

-  Residential
-  Non-Residential
-  Organic Farms (Impacts To Be Determined)
-  Organic Farms (No Longer Impacted)
-  Diversion Channel and Southern Embankment
-  Western Tie-Back
-  Pre-Task Force Southern Embankment Alignment
-  Levee
-  River

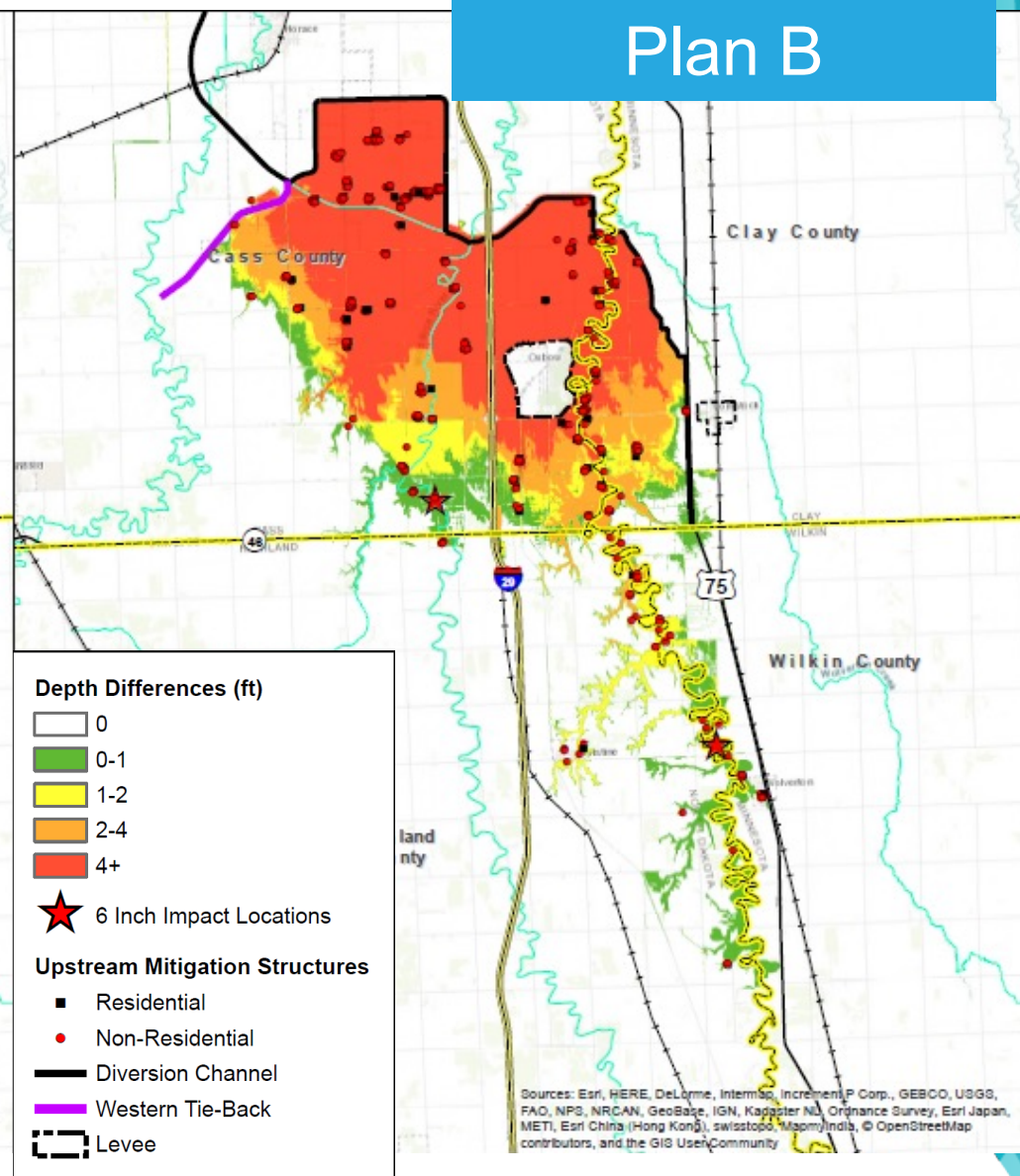


# Additional Depth of Water (100-yr flood)

## Pre-Task Force Plan



## Plan B



# Flowage Easement Parcel (SAMPLE)

- ▶ State and Federal Regulations require property rights to the Spillway Elevation
  - ▶ Estimated elevation = 923.5'
  - ▶ Easement applied to parcel areas below 923.5'
- ▶ Development allowed in accordance with floodplain rules
- ▶ Study underway with Crown Appraisal to value easements







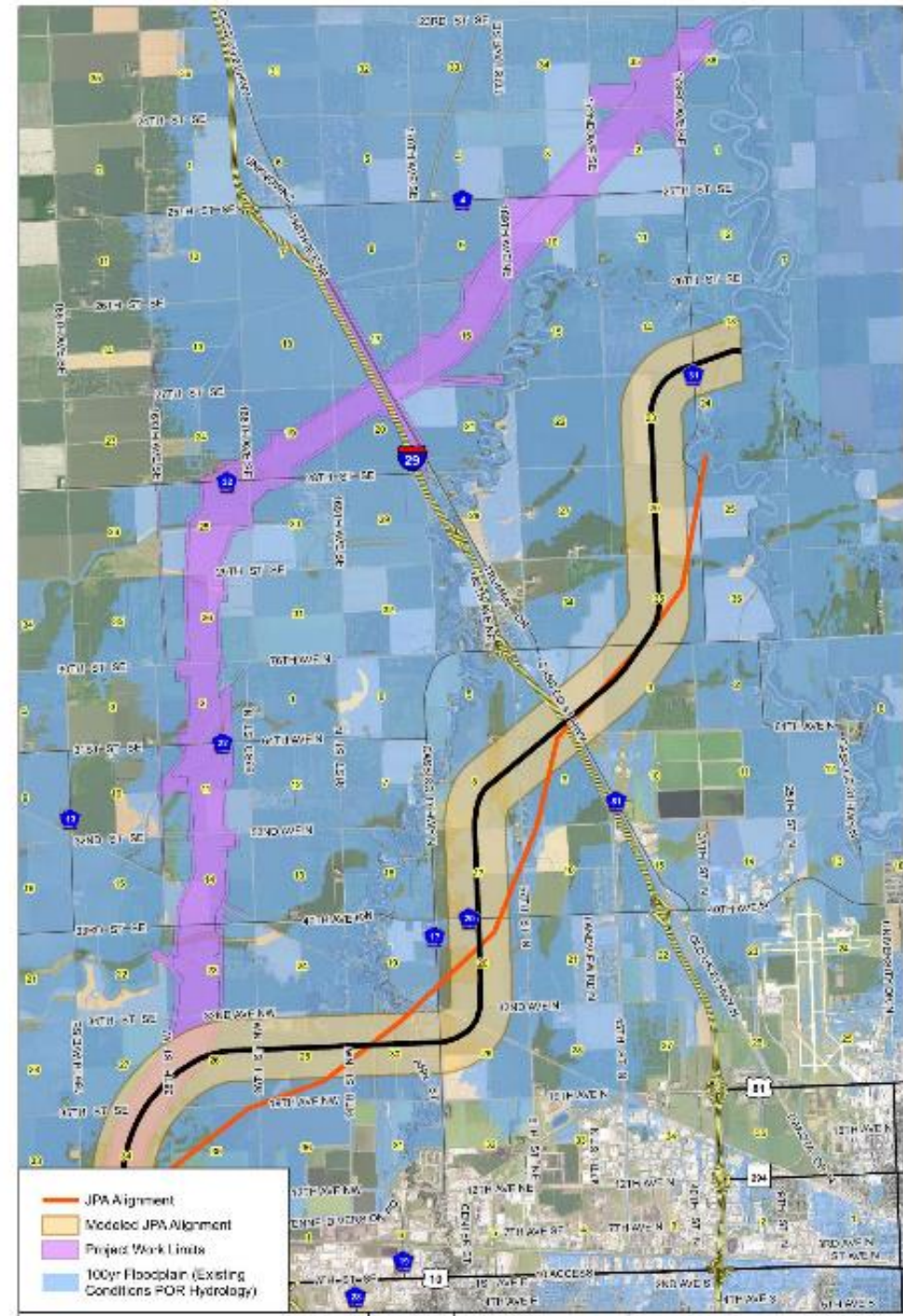
Many Other Alternatives  
Considered

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# NW Channel Alignment Alternative

- ▶ Shorter, shallower & wider channel
- ▶ Eliminates Maple aqueduct
- ▶ Eliminates Rush & Lower Rush channel abandonment

Upstream Staging Elevation	Elevation (feet)	Change (feet)
Pre-Task Force	921.66	--
Plan B	920.98	(0.68)
Plan B + NW	919.61	(1.37)



# NW Channel Alignment Alternative

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- ▶ Longer bridges & 1-2 additional bridges
- ▶ Larger footprint & land impact (1,700 acres)
- ▶ Property rights area still defined by dam safety criteria ( $\approx$ 200,000 cfs)
- ▶ Net additional cost: \$112M
- ▶ Leaves approximately 1,500 people without flood protection
  - ▶ 1,381 structures (579 primary) between alignments

Reduction in New Inundation in Upstream Staging Area	Plan B + NW vs Plan B
Cass County	2,237
Clay County	476
Richland County	368
Wilkin County	167



# What's Next

## Process



September 2017



Task Force assembled



Technical Advisory  
Group



Policy Group

Permit submittal

Community Outreach

Public Comment period  
as part of Permit

## Technical & Financial

Flowage Easement  
Valuation Study

Draft Mitigation Plan  
Review

“Micro-siting” of Alignment

New Cost Estimate

Funding and Financial  
Planning

# Community Outreach

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## 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





End of Presentation

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