

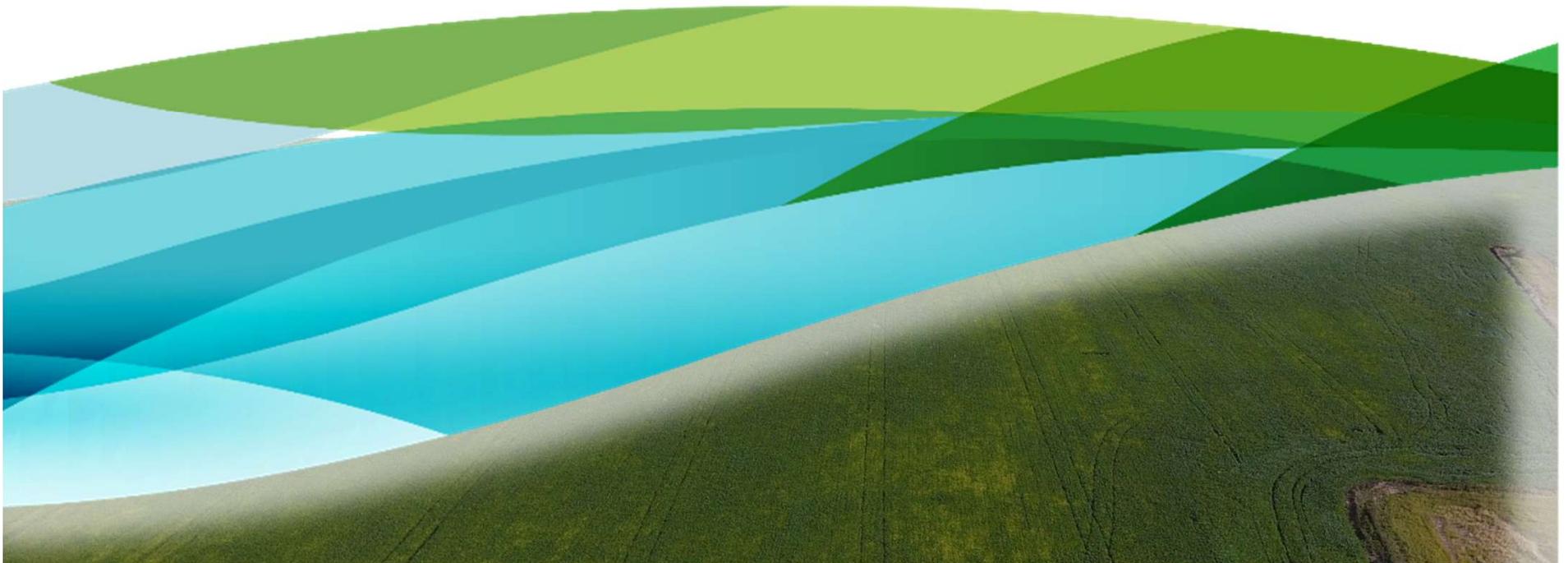


Phase 1 Flowage Easement Study

Summary of Findings

December 19, 2018

Land Management Committee



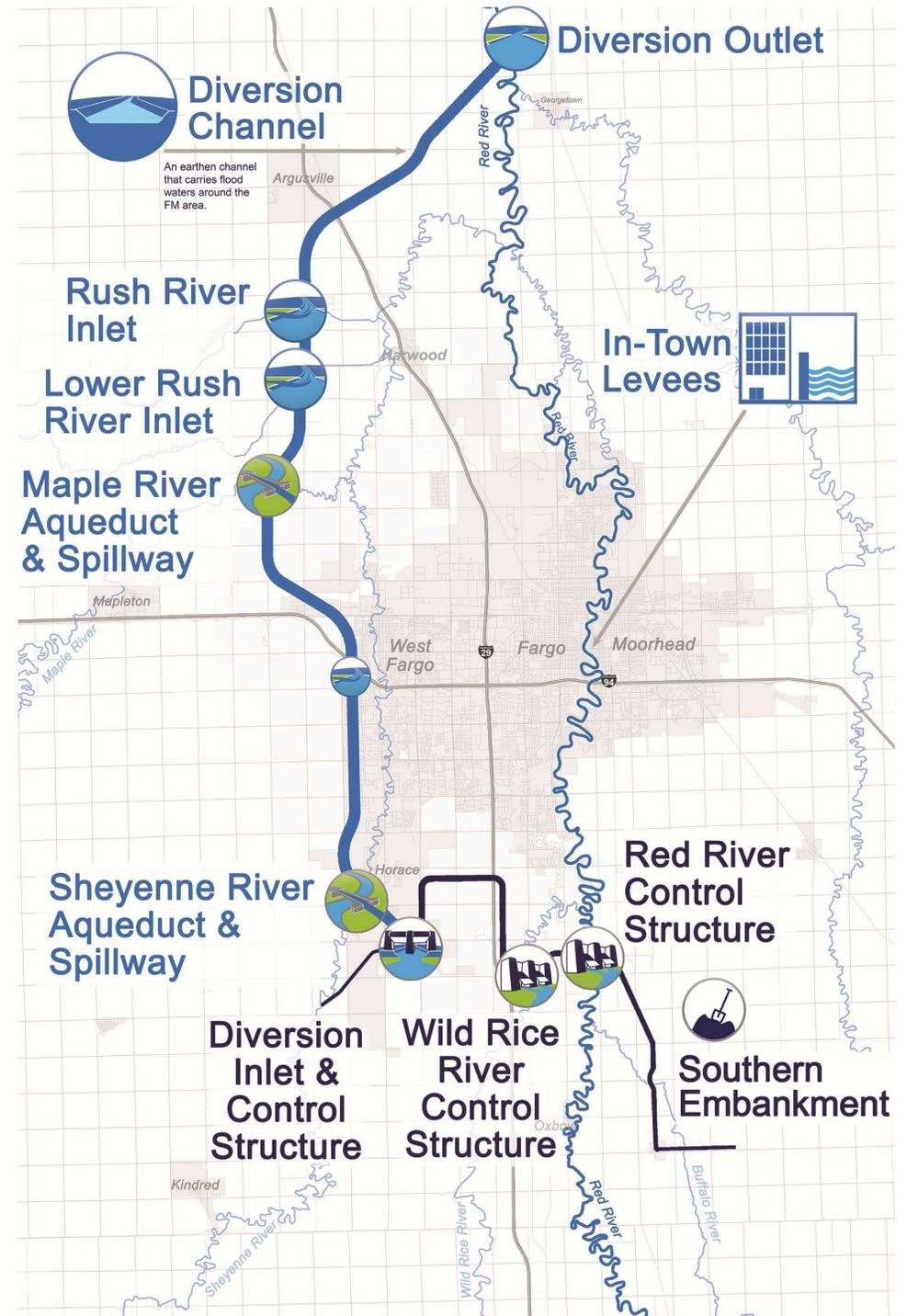
Presentation Outline

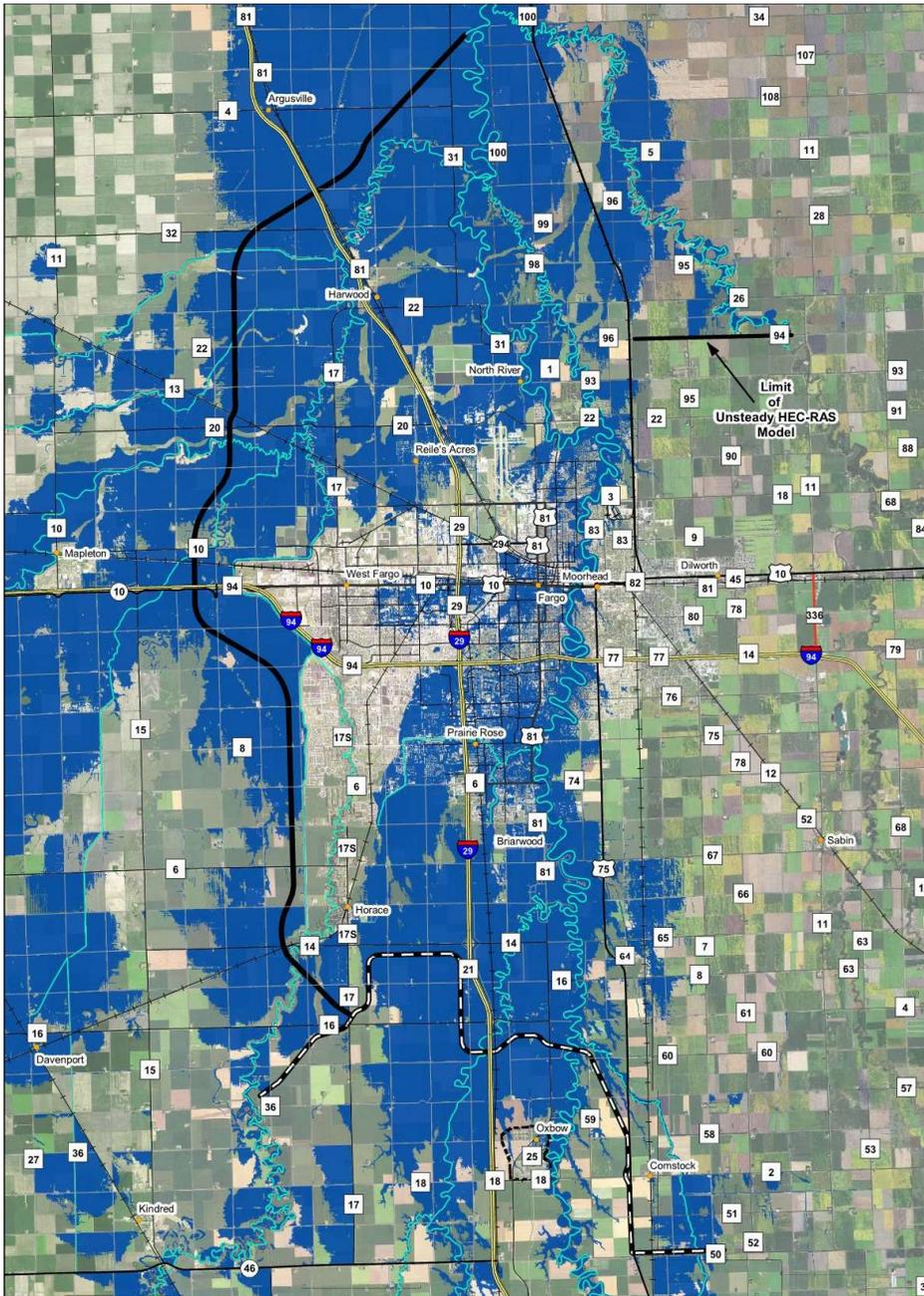
- ▶ Project Overview
- ▶ Project Impacts and Mitigation Approach
- ▶ Ag Mitigation Planning
- ▶ Flowage Easement Study
- ▶ Next Steps



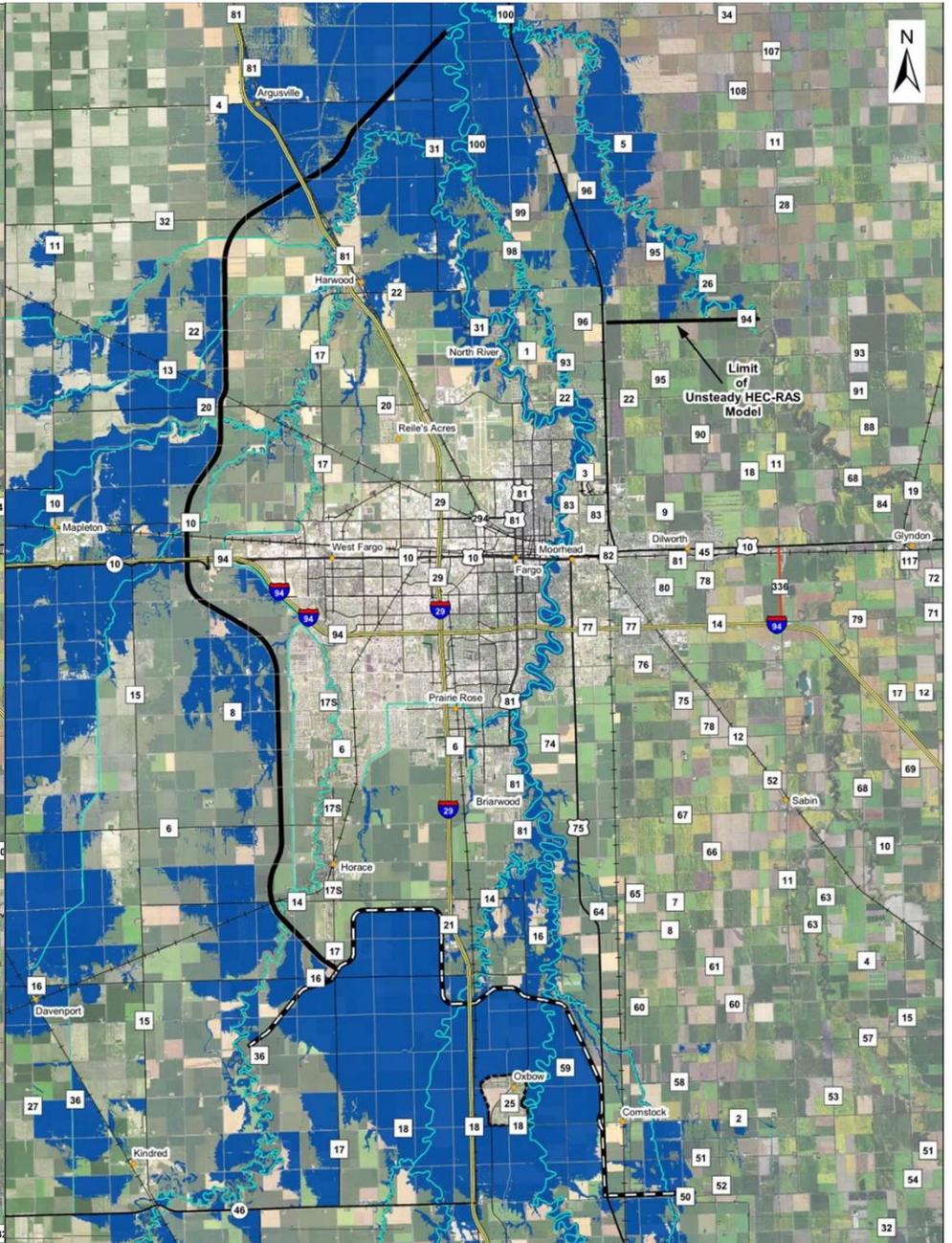
Project Overview

- ▶ Diversion Channel
- ▶ In-town levees
- ▶ Southern Embankment with 3 gated controls structures
- ▶ Upstream Mitigation Area (temporary storage of floodwaters to avoid uncontrollable downstream impacts)





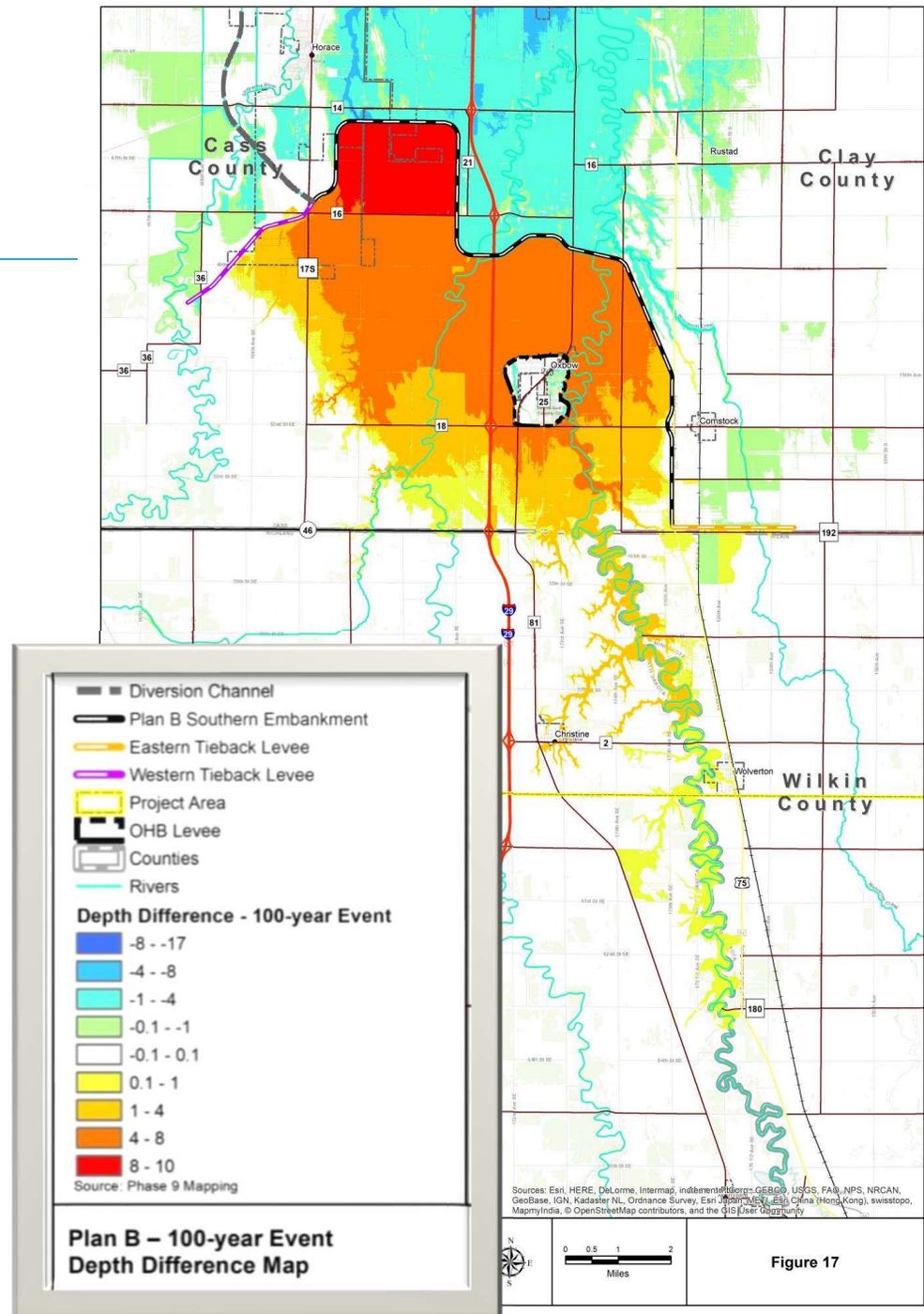
100-Year Event Without Project



100-Year Event With Project

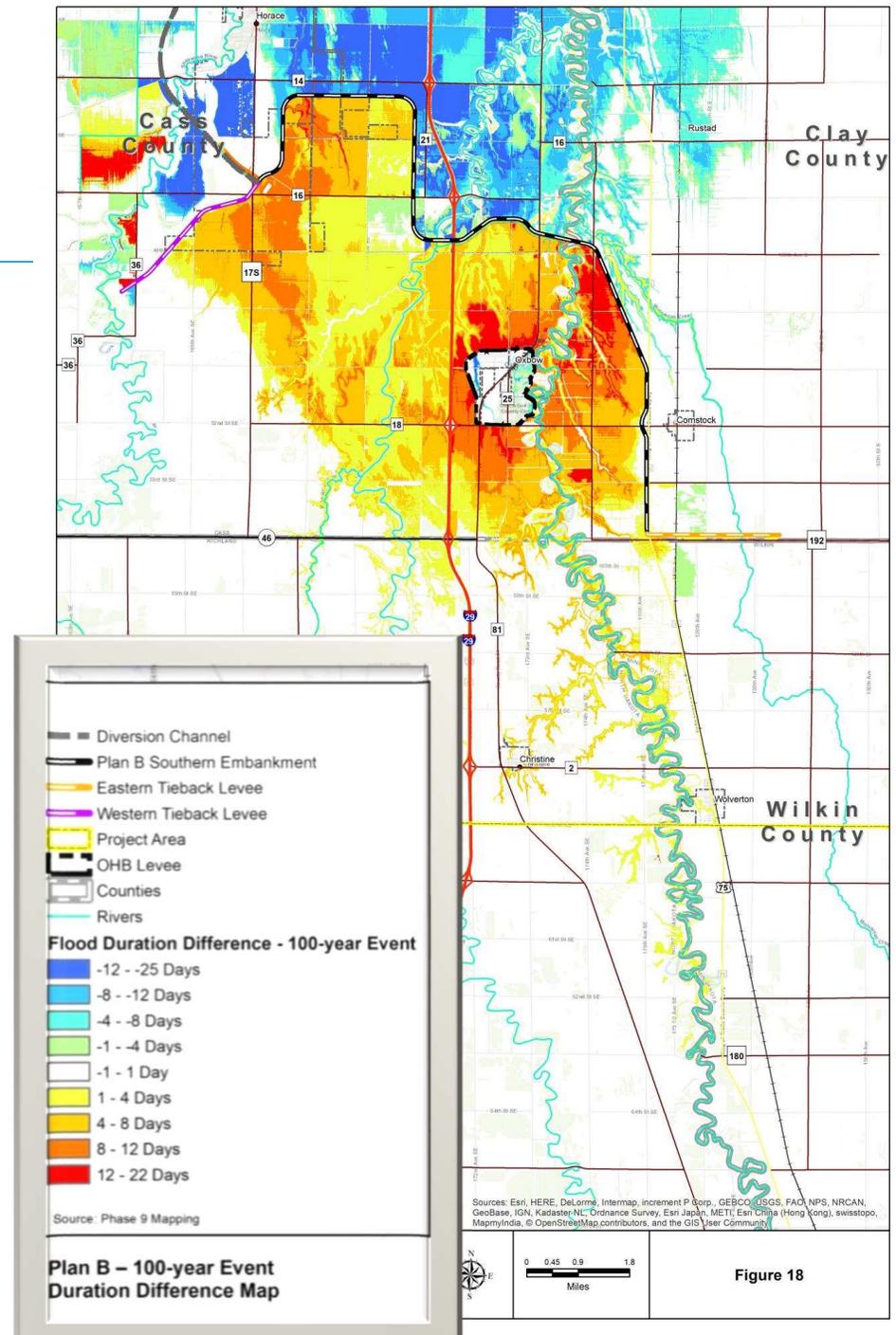
Project Impacts & Upstream Mitigation Area

- ▶ Project Operation Requires Temporary Storage of Flood Waters
- ▶ Impacts require payment to property owner for purchase of “Property Rights”
- ▶ Property Right assumed to be a Flowage Easement
- ▶ Flowage Easements are one of several mitigation measures for Ag Impacts
 - ▶ Supplemental Crop Loss
 - ▶ Debris Clean-Up
 - ▶ Dispute Resolution Board



Project Impacts & Upstream Mitigation Area

- ▶ Project Operation Requires Temporary Storage of Flood Waters
- ▶ Impacts require payment to property owner for purchase of “Property Rights”
- ▶ Property Right assumed to be a Flowage Easement
- ▶ Flowage Easements are one of several mitigation measures for Ag Impacts
 - ▶ Supplemental Crop Loss
 - ▶ Debris Clean-Up
 - ▶ Dispute Resolution Board



Ag Mitigation Planning

- ▶ FEIS assumed a budgetary value for flowage easements
- ▶ Formation of Ag Policy Subcommittee – collaborate, discuss ag impacts
- ▶ Watts & Associates – hired consultant to study ag impacts, specifically crop insurance
- ▶ Tinjum & Associates – hired to conduct a sample flowage easement appraisal on parcel owned by the Project
- ▶ Steve Herzog – retained expertise to provide guidance on appraisal procedures
- ▶ NDSU Ag Econ department
 - ▶ Hired by Diversion Authority to study ag impacts caused by Project
 - ▶ Hired by State Water Commission to expand their initial study
- ▶ Value of Flowage Easements
 - ▶ Diversion Authority issued RFP for appraisal services for valuing flowage easements
 - ▶ DA retained Crown Appraisals, Inc. – Focus on Phase 1 given the project uncertainty
 - ▶ Parallel track Phase 1 effort with Governors' Task Force and development of Plan B
- ▶ Future efforts...



Flowage Easement Study

Phase 1

- ▶ Initiated in January 2018
- ▶ Team of experts, led by Crown Appraisals, Inc.
- ▶ Focus on researching comparable sales data and building a regression model to analyze market value changes due to similar flood risk in other areas across the nation
- ▶ Findings from Phase 1 Study, including the Regression model, will be foundation for specific parcel Flowage Easement Valuations in Phase 2 Study

*Statistical Analysis/
Regression Analysis*

*Paired Sales Analysis
Similar Areas & Properties*

Phase 1 Report

```
graph TD; A[Statistical Analysis/Regression Analysis] --> C((Phase 1 Report)); B[Paired Sales Analysis Similar Areas & Properties] --> C;
```

Flowage Easement Study

Phase 2 – Future Work

- ▶ Initiated if/when a Permit is issued
- ▶ Apply findings from Phase 1 Study
- ▶ Incorporate final Project configuration & hydraulic modeling
- ▶ Incorporate findings from updated NDSU Ag Impacts Study
- ▶ Will produce flowage easement compensation amounts for non-developed parcels in the Upstream Mitigation Area
- ▶ Results to include a “before” & “after” valuation
- ▶ Valuation will address the entire parcel (and potentially the “larger parcel”) not only the affected acres of each parcel
- ▶ The “after” valuation will be identified as a value reduction (percentage) from the “before” condition

```
graph TD; A((Phase 1 Report)) --> B((Phase 2 Report  
Detailed parcel  
information and  
specific values));
```

Phase 1 Report

Phase 2 Report
*Detailed parcel
information and
specific values*

Flowage Easement Study – Phase 1

Study confirmed that
Market Data is available

- ▶ Nationwide investigation
- ▶ Identified market data in
ND, MN, MO, NE, IA

Built a robust regression
model using market data
(1,644 sales) and 12
attributes

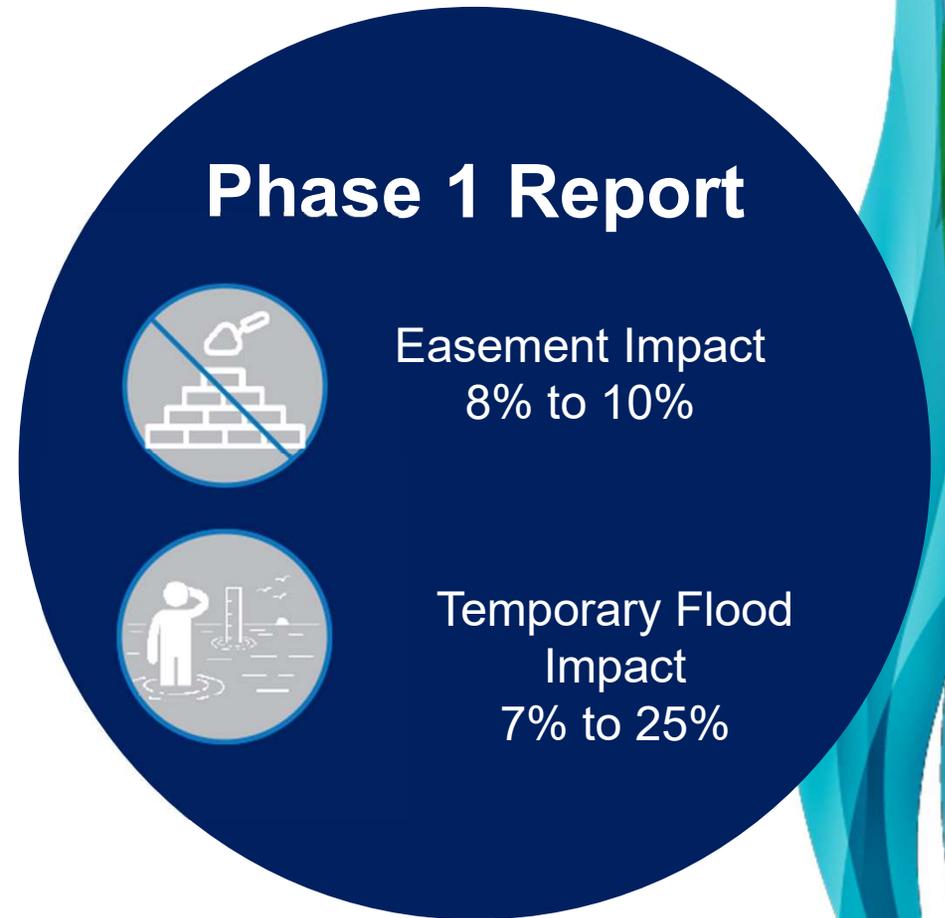
Reflect market
conditions to establish
compensation for
mitigation of impacts



Flowage Easement Study – Phase 1

Temporary Flooding Separated into 2 Impacts:

1. **Easement Impact**
 - ▶ Development Rights
 - ▶ No development in “Floodway”
 - ▶ Restricted development outside of “Floodway”
 - ▶ Right to Not be Flooded
 2. **Temporary Flood Impact**
 - ▶ Additional flooding in some areas
 - ▶ New flooding in other areas
 - ▶ Potential loss of growing days
- ▶ Not all parcels will have the same impact



Flowage Easement Study – Phase 1

Easement Impact

- ▶ Based on examination of areas with similar flowage easements in MO
- ▶ Paired sales analysis concluded a value reduction in a range of 8% to 10%
- ▶ Range depends on location of parcel, location of floodway, and the impacts caused by the FM Diversion Project
- ▶ Some properties may not currently have all development rights



Figure 6: 1997 Flood and Agricultural Land Sales from 1992-2018

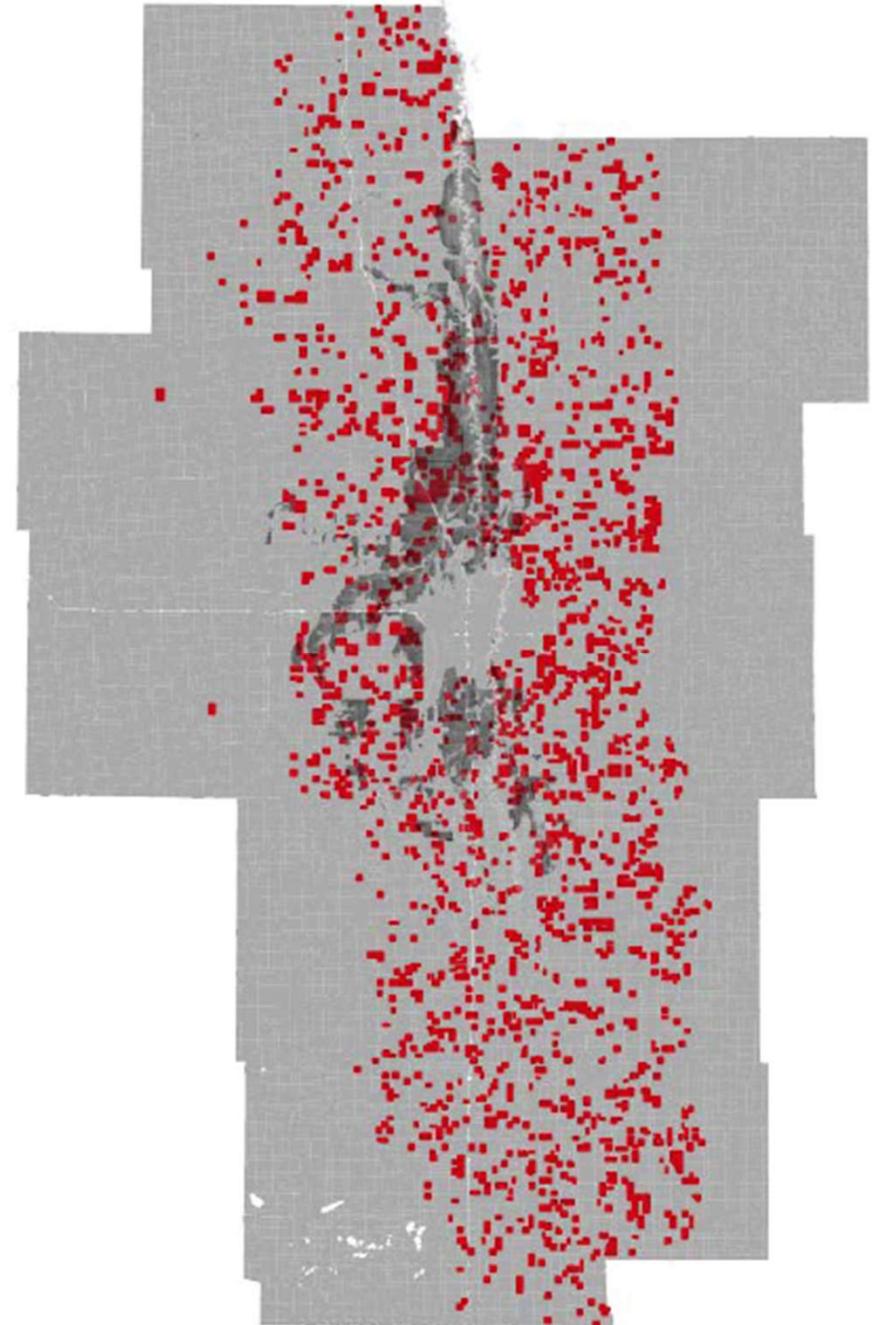
Flowage Easement Study – Phase 1

Temporary Flood Impact

- ▶ Based on:
 - ▶ Regression analysis of actual sales data within the 6 county area
 - ▶ Paired sales analysis from the northern Red River Valley
- ▶ Regression analysis examined 12 attributes to determine how flooding impacted market value
- ▶ 1,644 “arms length” sales from 27 years of data

Temporary Flood Impact Summary

- ▶ Regression analysis concluded that increased flood risk reduces property value 7% to 10%
- ▶ Paired sales analysis concluded that increased flood risk reduces property value 11% to 36%
 - ▶ **Reconciled impact of 7% to 25%**



Flowage Easement Study – Phase 1

Applying the Findings

Loss of property rights

8% to 10% (Missouri)

Plus increased flood risk

+7% to 25% (RRV)

TOTAL diminution in value

15% to 35%



Budget Perspective

- ▶ Easement cost estimates from Phase 1 study findings are consistent with Project Cost Estimate assumptions

*Updated Cost Estimate accepted
Dec. 3, by Diversion Board*

*Video of presentation available at
[youtube.com/FMDiversion](https://www.youtube.com/FMDiversion)*



Ag Mitigation Planning – Next Steps

▶ Future efforts:

- ▶ Pending Permit decision by MDNR
- ▶ Initiate Phase 2 study
- ▶ Finalize hydraulic modeling
(FEMA approval through CLOMR process)
- ▶ Update of NDSU ag impacts study (based on Plan B)
- ▶ Finalize Phase 2 – valuation of easements for the Project
- ▶ Initiate acquisition of easements from property owners
(hopefully in 2020)





Phase 1 Flowage Easement Study

Questions / Discussion

