



METRO  
FLOOD  
DIVERSION  
AUTHORITY

# FM Area Diversion Project



Greg Thompson, PE



Lyndon Pease, PE



# Fargo Moorhead Flood Protection History

## FM Area Diversion Project



# 1997 Flood



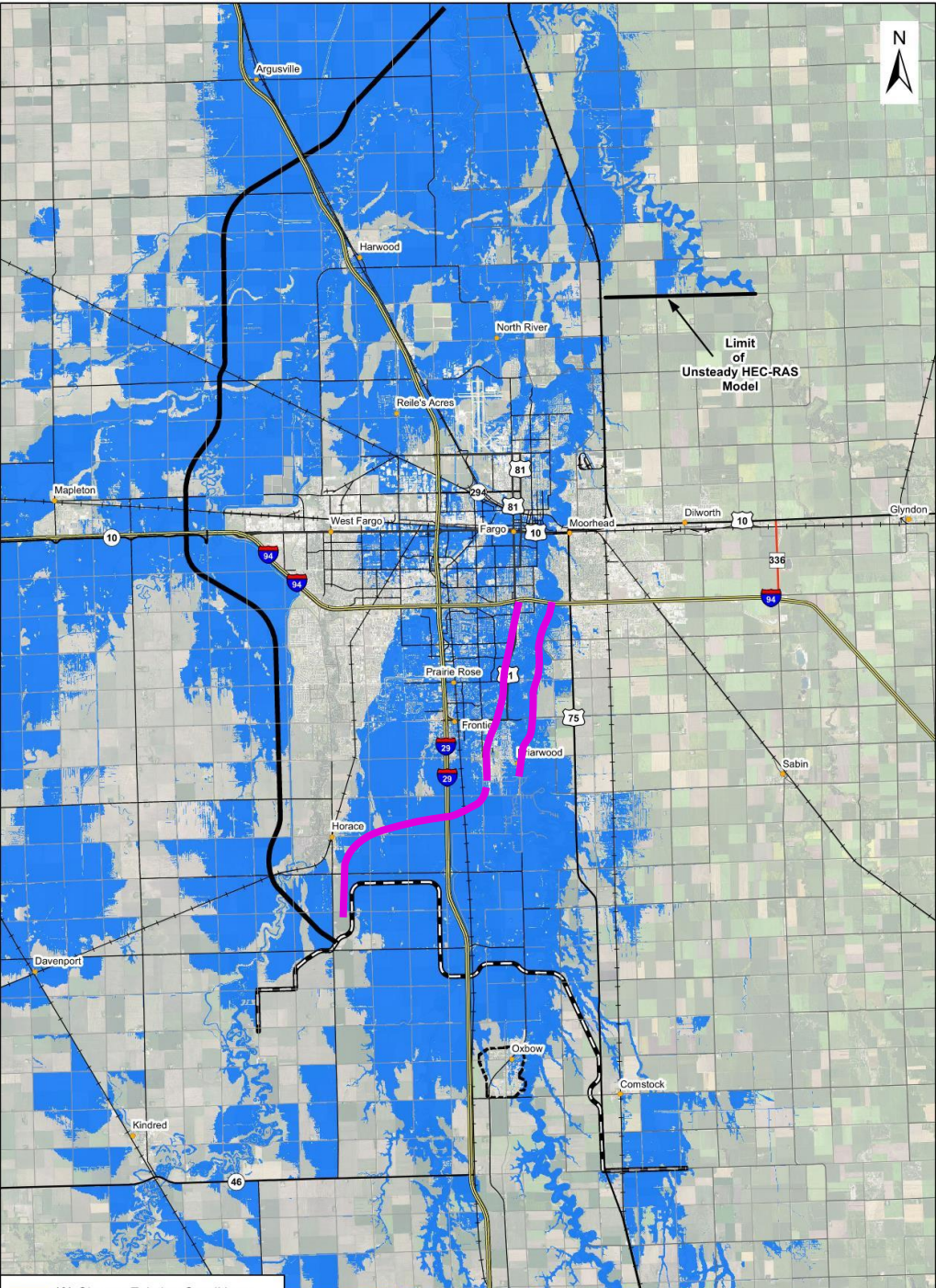
Photo by: Mark McCourt

# 2000 – 2008 Southside Flood Control

Southside Diversion

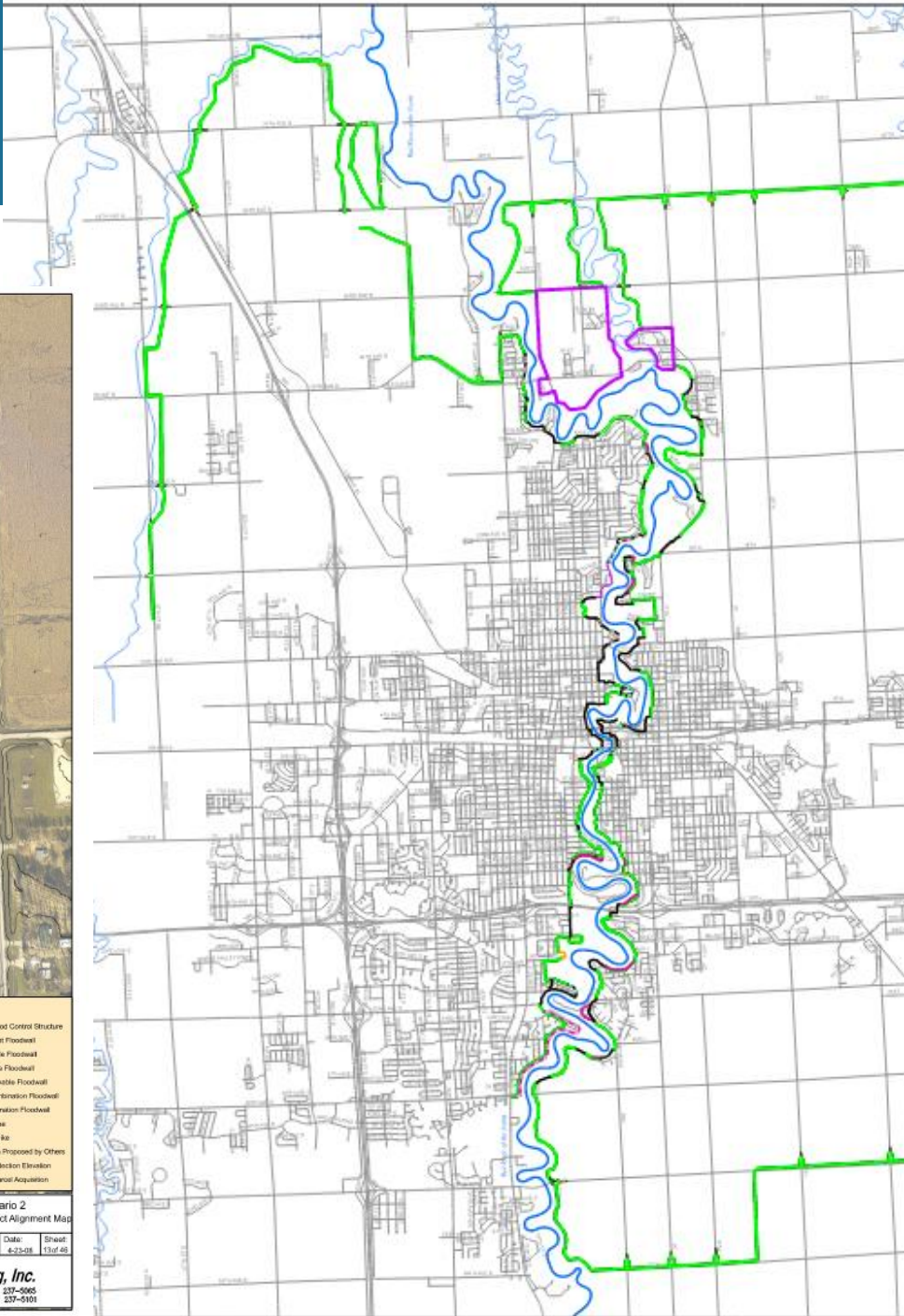
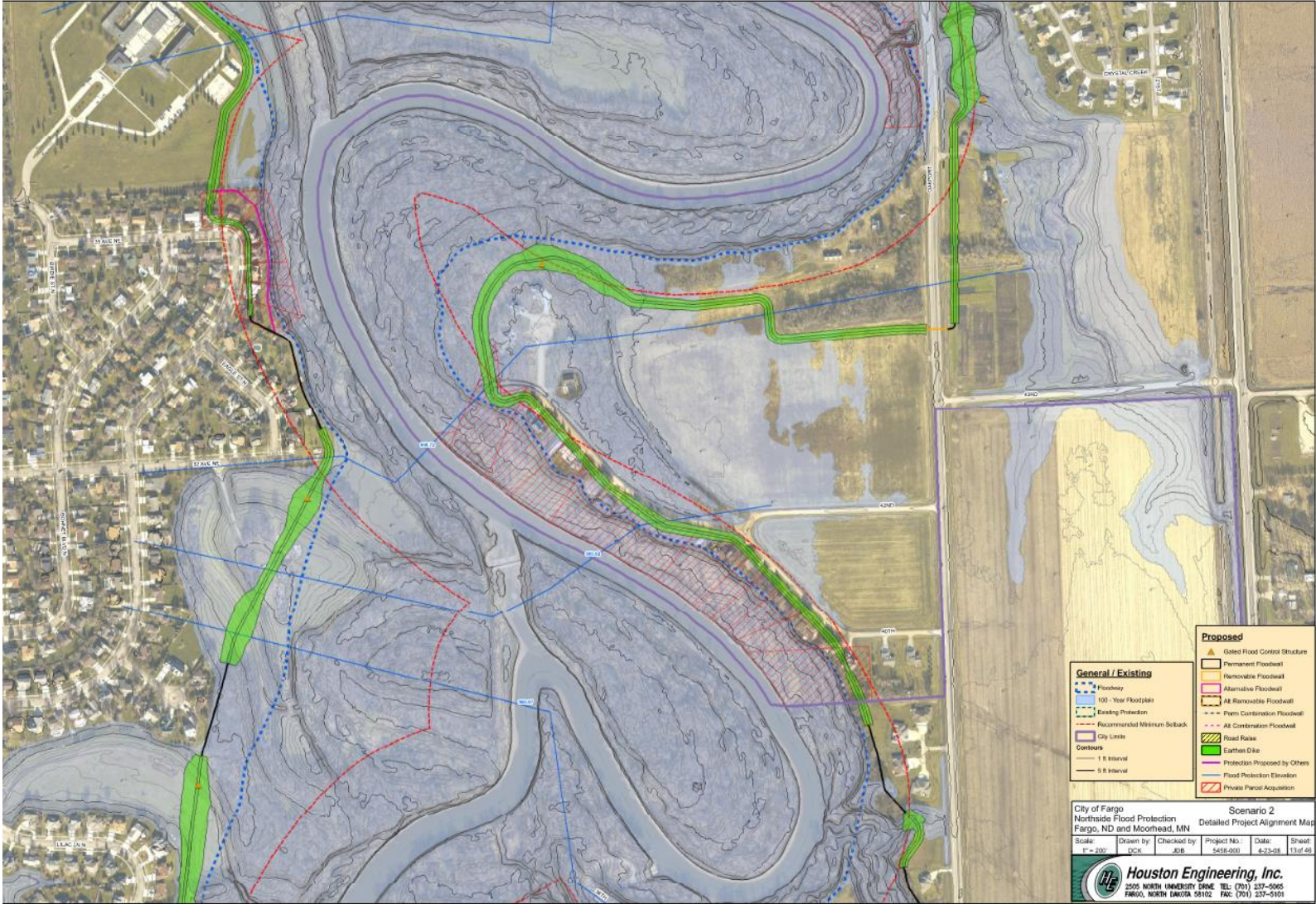
Levees/Floodwalls

Rural Flood Protection



# 2008 Northside Flood Control

## Levees/Floodwalls



# 2008 Began Feasibility Study



## RED RIVER DIVERSION

### FARGO – MOORHEAD METRO FLOOD RISK MANAGEMENT PROJECT, FEASIBILITY STUDY, PHASE 3

Report for the US Army Corps of Engineers, and the cities of Fargo, ND & Moorhead, MN

#### APPENDIX B – HYDRAULICS

By: MOORE ENGINEERING

May 17, 2010

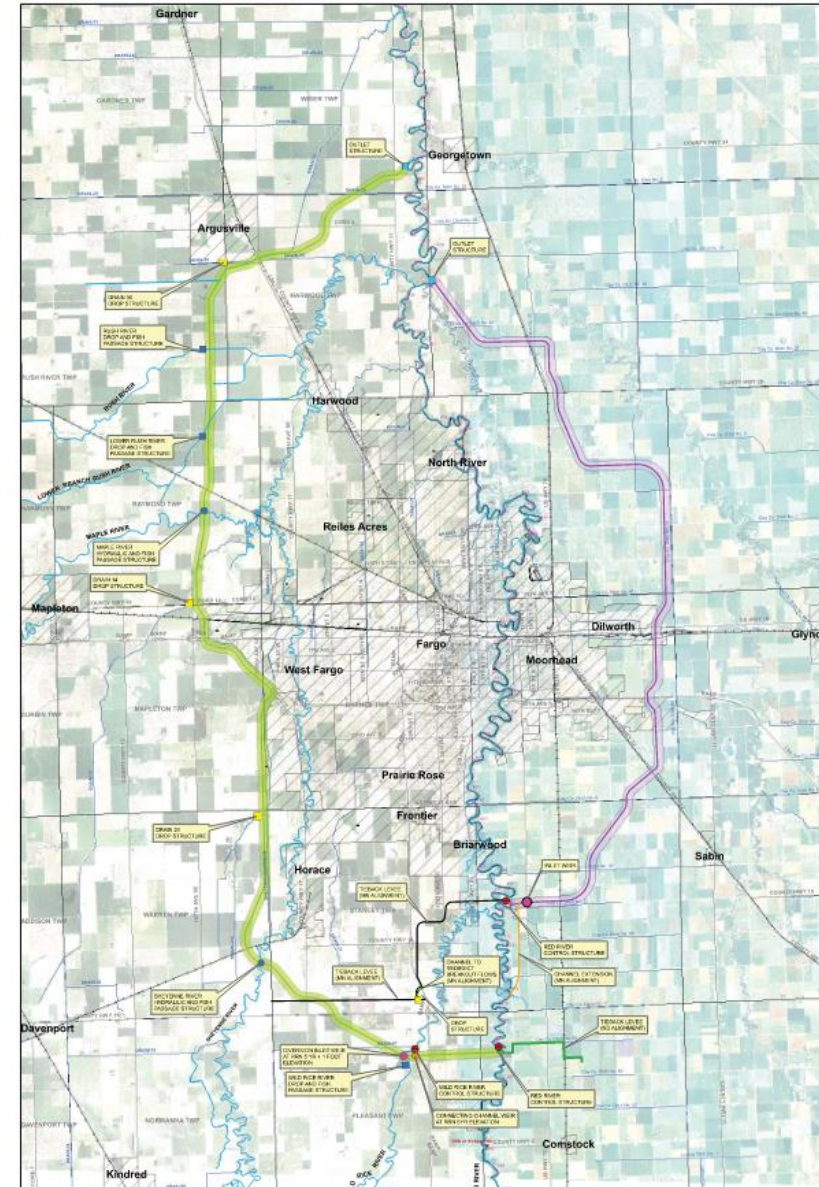
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ND EAST  
ND WEST

ND DIV 25K  
ND DIV 35K  
ND DIV 45K

ND EAST 35K



MN SHORT  
MN LONG

MN DIV 20K  
MN DIV 25K  
MN DIV 30K  
MN DIV 35K  
MN DIV 40K  
MN DIV 45K

MN SHORT 35K

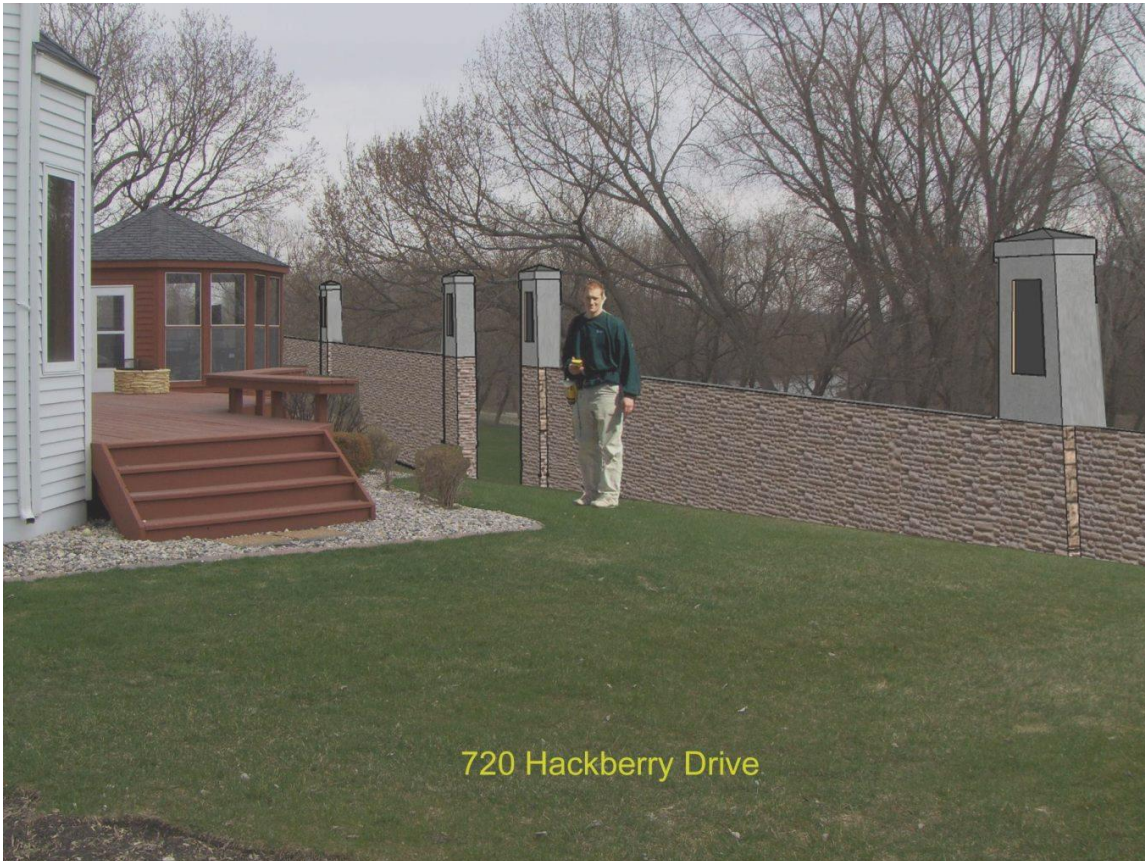
# 2009 Flood



Photo by: Daniel Reetz

# Post 2009

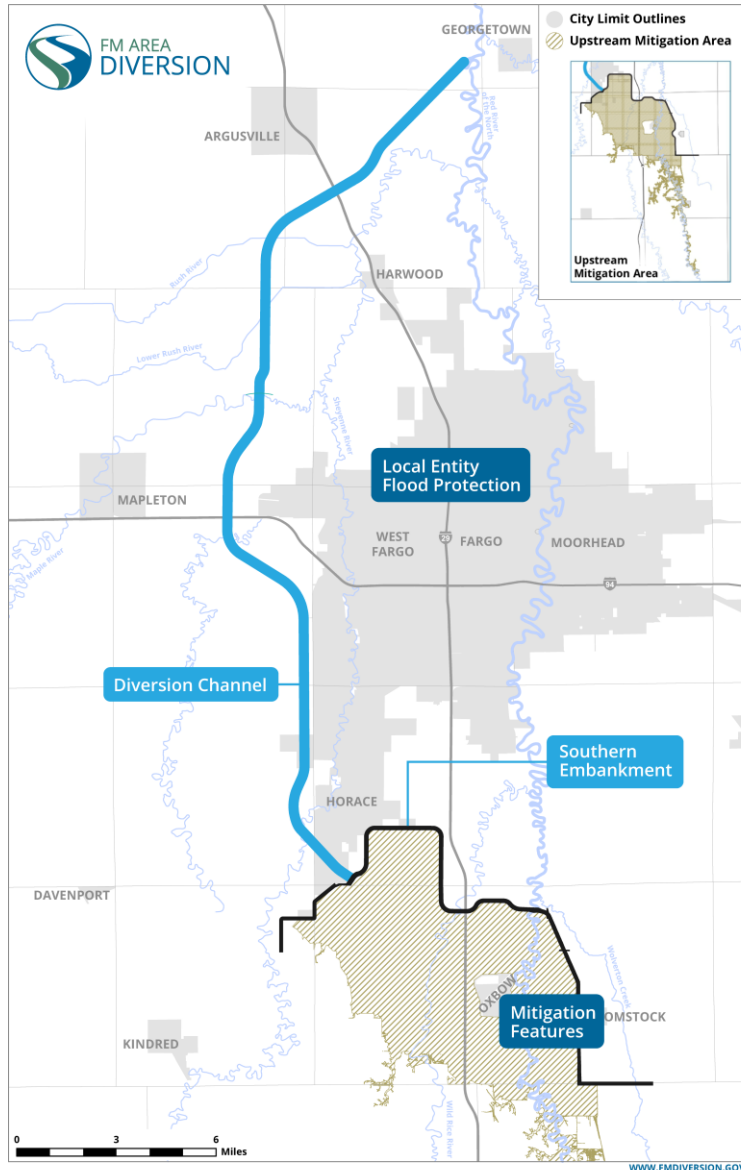
Southside Diversion  
Levees/Floodwalls  
Rural Flood Protection



Summer 2009



# Feasibility Study Team



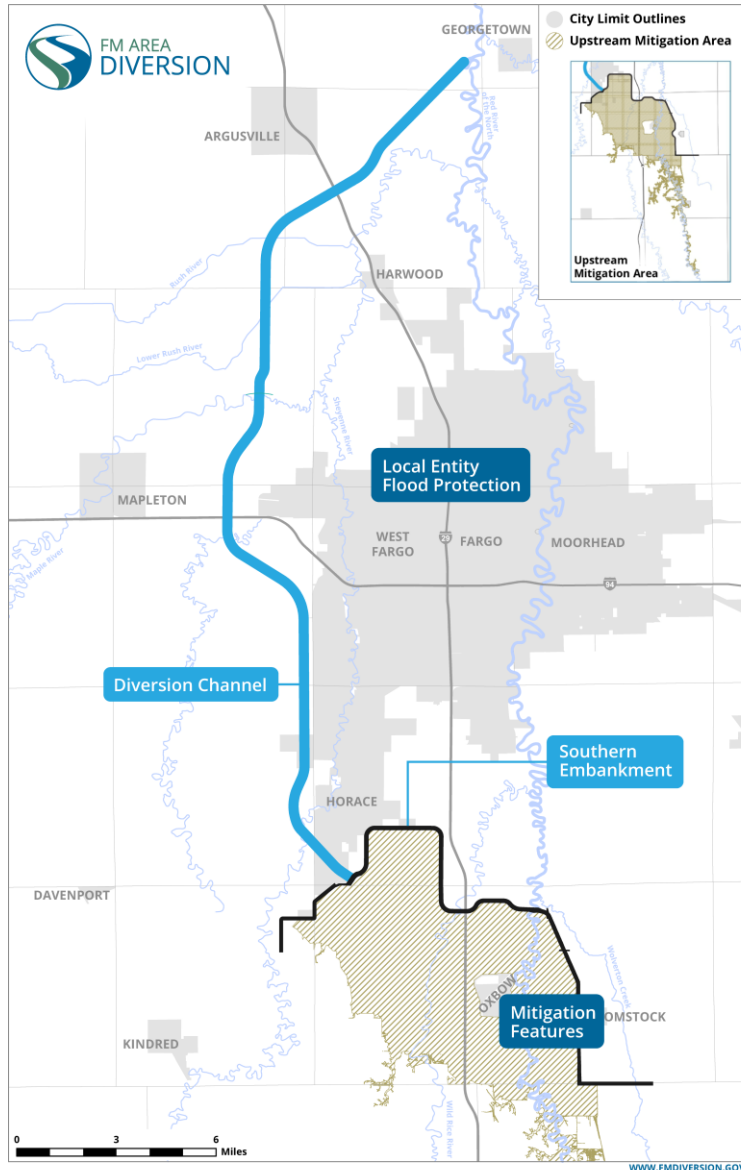
## Fargo-Moorhead Metro Flood Risk Management Project

The project team includes HMG Houston-Moore Group, HOUSTON engineering, inc., and moore engineering, inc.

Fargo, ND  
Moorhead, MN  
Cass County  
Clay County



# Feasibility Study Team



## Fargo-Moorhead Metro Flood Risk Management Project

HMG  
Houston-Moore Group

HOUSTON  
engineering, inc.

moore  
engineering, inc.



2011



# 2011 Final Feasibility Study



## RED RIVER DIVERSION

### FARGO–MOORHEAD METRO FLOOD RISK MANAGEMENT PROJECT, FEASIBILITY STUDY, PHASE 4

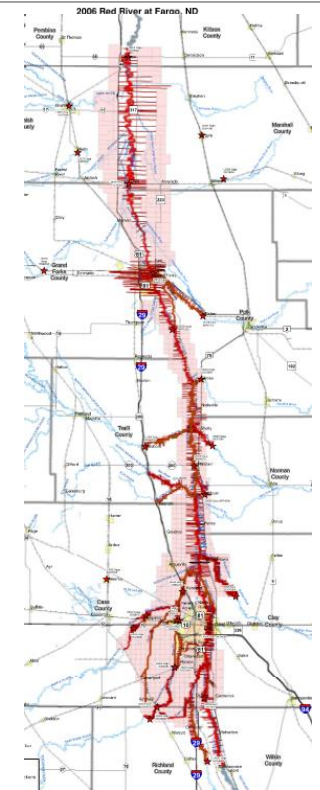
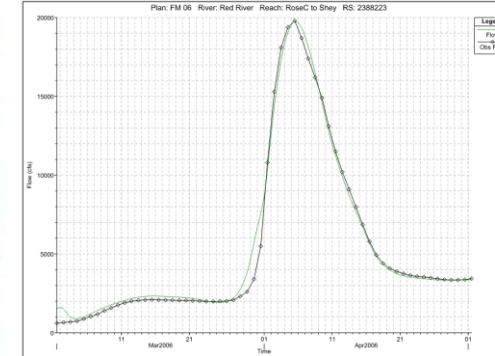
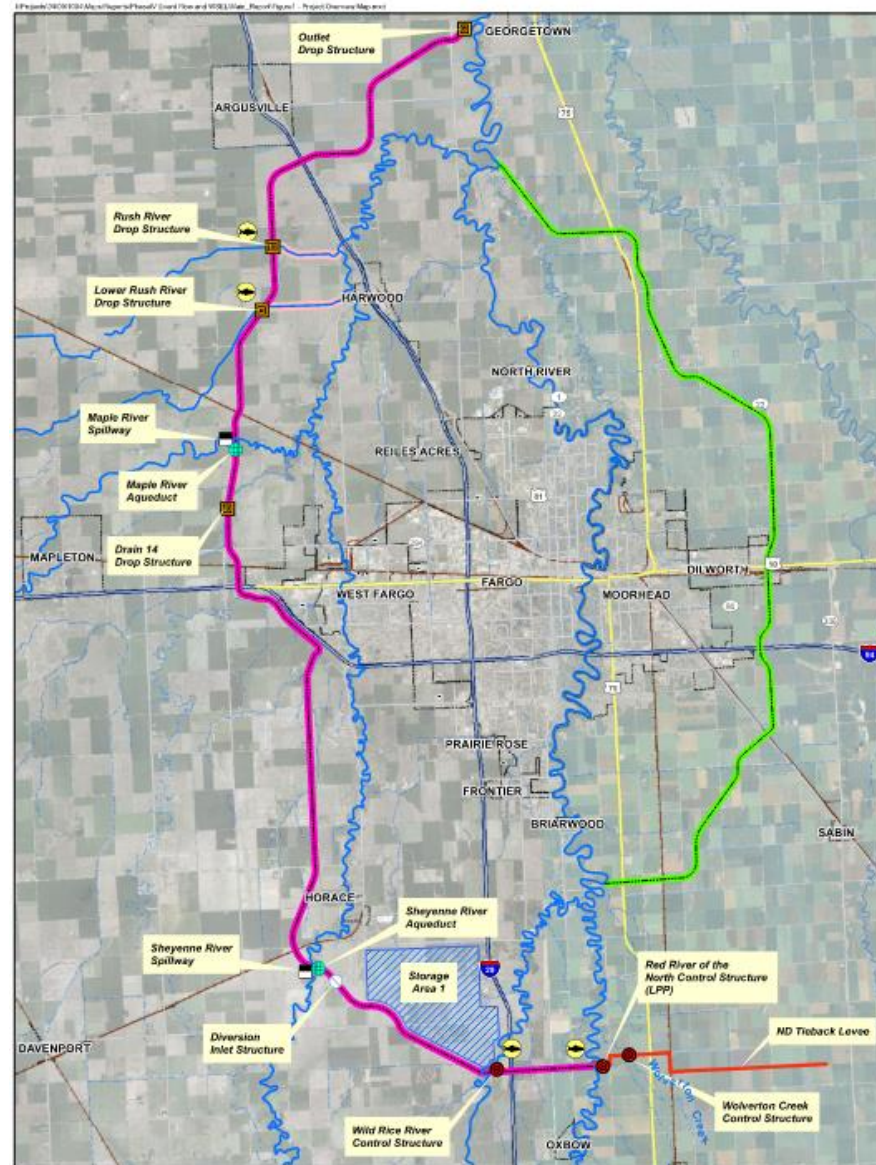
Report for the US Army Corps of Engineers, and the Cities of Fargo, ND and Moorhead, MN

By: Moore Engineering, Inc.; Houston Engineering, Inc.; and Barr Engineering Co.

February 28, 2011

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# 2011 Final Feasibility Study



## RED RIVER DIVERSION

### FARGO-MOORHEAD METRO FLOOD RISK MANAGEMENT PROJECT, FEASIBILITY STUDY, PHASE 4

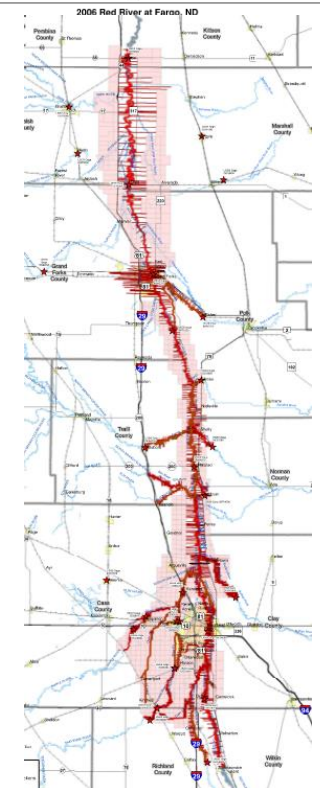
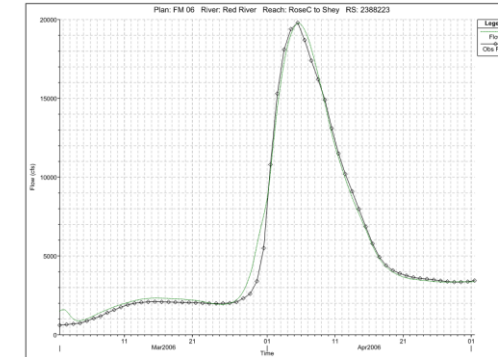
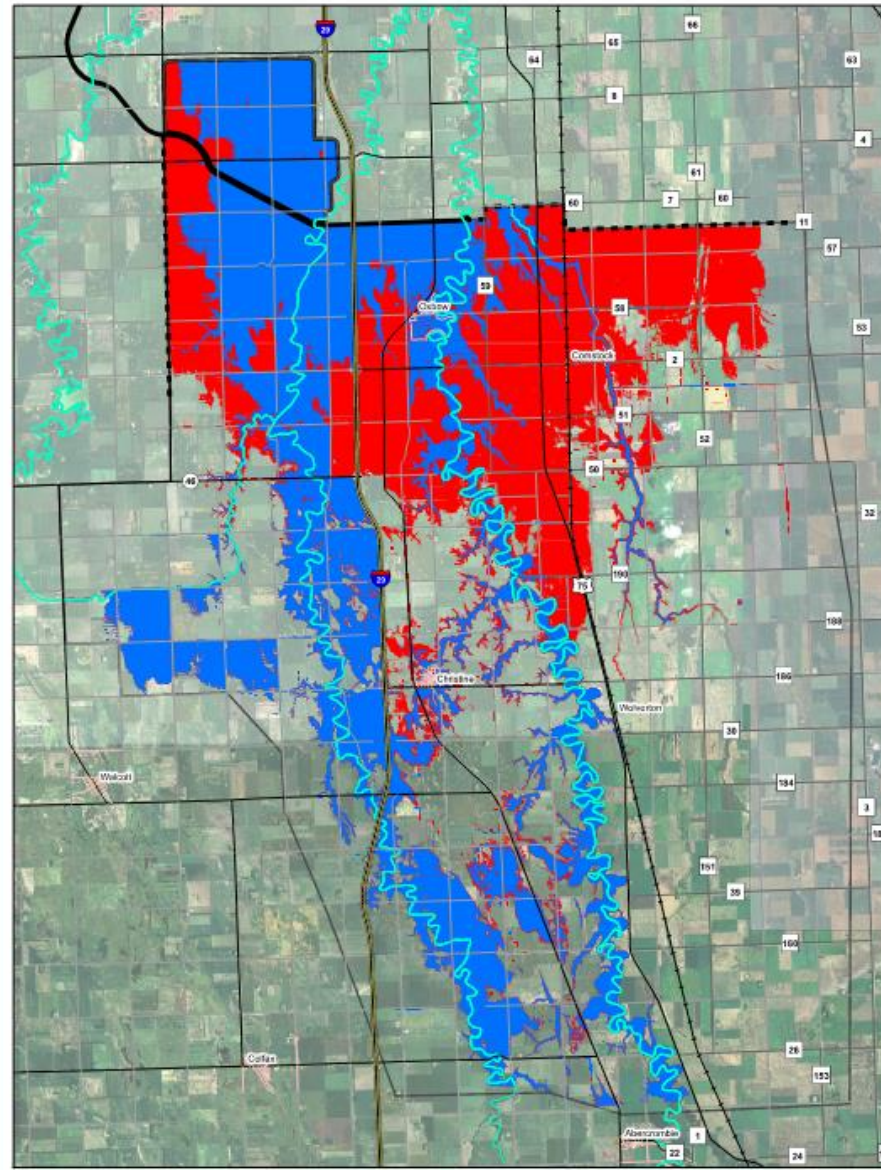
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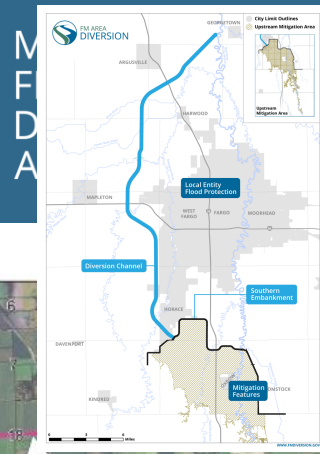
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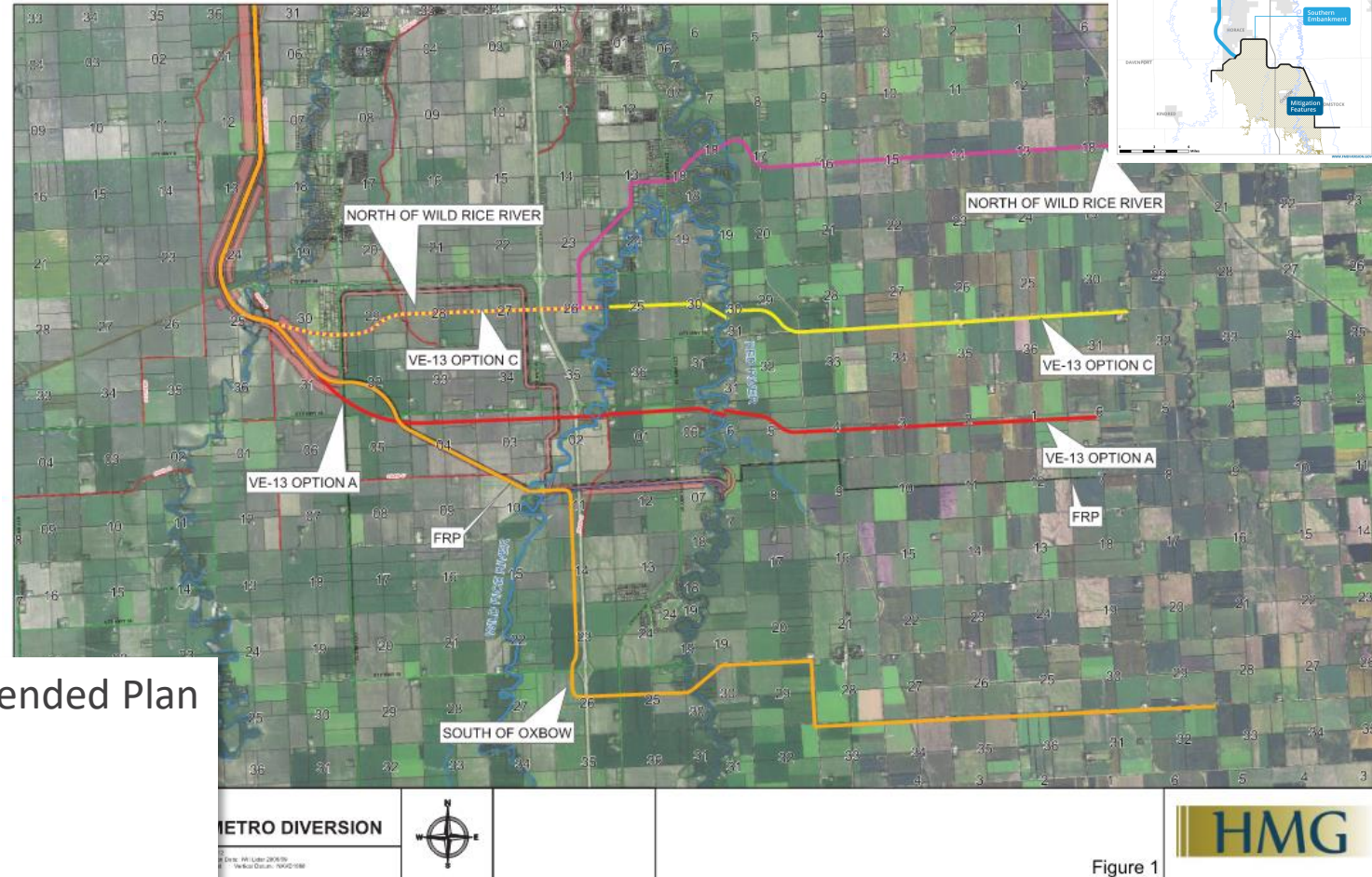


# 2012 Post-Feasibility Southern Alignment



## DRAFT TECHNICAL MEMORANDUM

FM DIVERSION POST-FEASIBILITY SOUTHERN ALIGNMENT  
 ANALYSIS: VE-13, NORTH OF WILD RICE RIVER, SOUTH OF OXBOW  
 July 31, 2012



1. Federally Recommended Plan
2. VE-13 Option A
3. VE-13 Option C
4. South of Oxbow
5. North of Wild Rice River

Figure 1



# 2013 Supplemental EA

## Diversion Channel Realignment

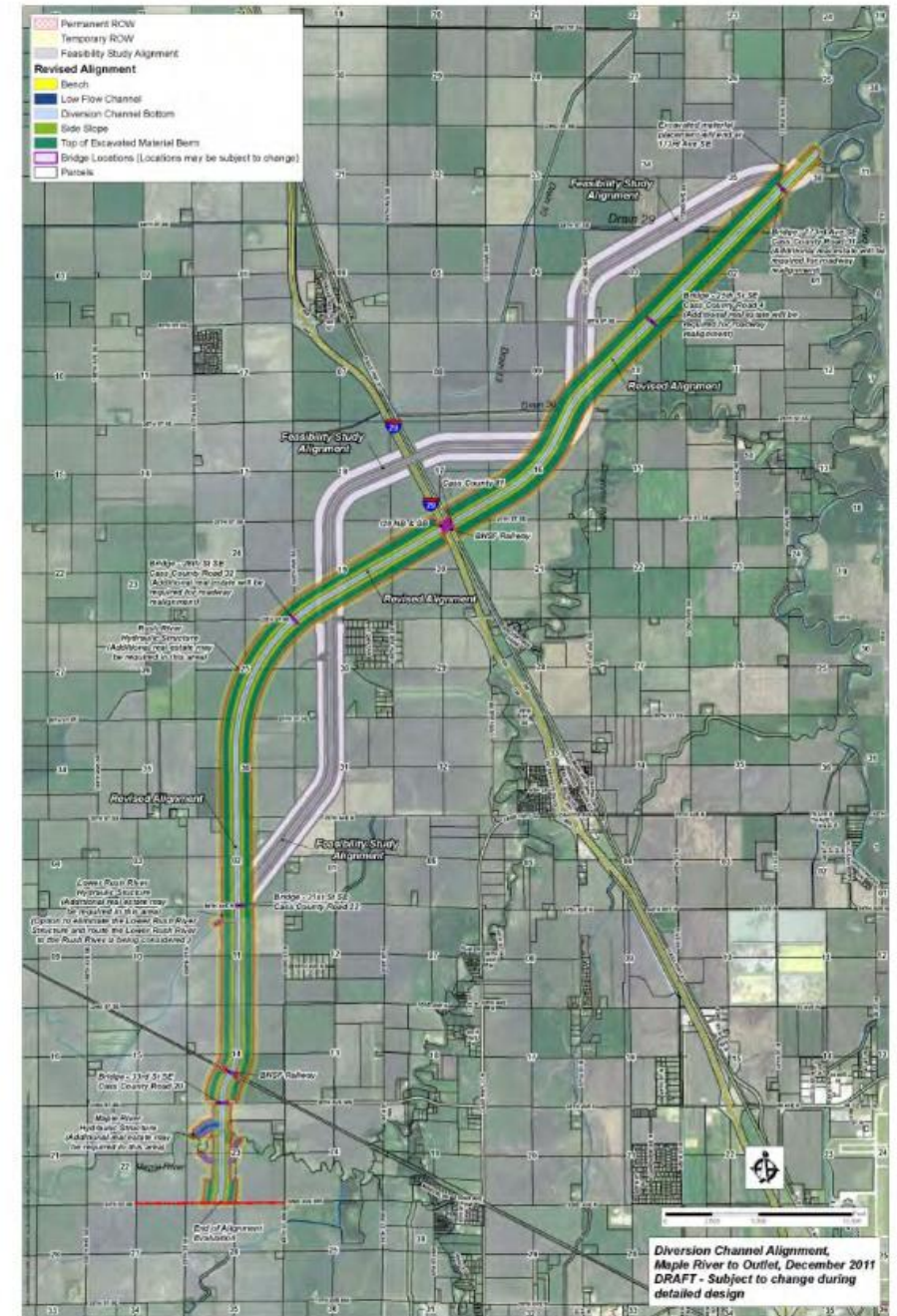


Figure 2: Proposed Northern Alignment Shift

- 2014 – Project authorized by Congress in the WRRDA Bill
- 2015 – Decide to go with Public Private Partnership (P3) for Channel
- 2016 – Authorized for new start for construction
- 2016 – USACE receives construction funding
- 2016 – Submitted CLOMR (#1, Plan A)
- 2017 – Begin construction on Diversion Inlet Structure
- 2017 – Injunction – stop work order
- 2017 – Governor’s Task Force



# 2017 Governor's Task Force

- Fall 2017
- Governors from ND and MN
- Task Force
- Technical Advisory Group
  
- 100-year Flow – 33,000 cfs
- River Stage 37 feet through town
- Change Dam Alignment
  - Less impacts in MN
  - More impact in ND

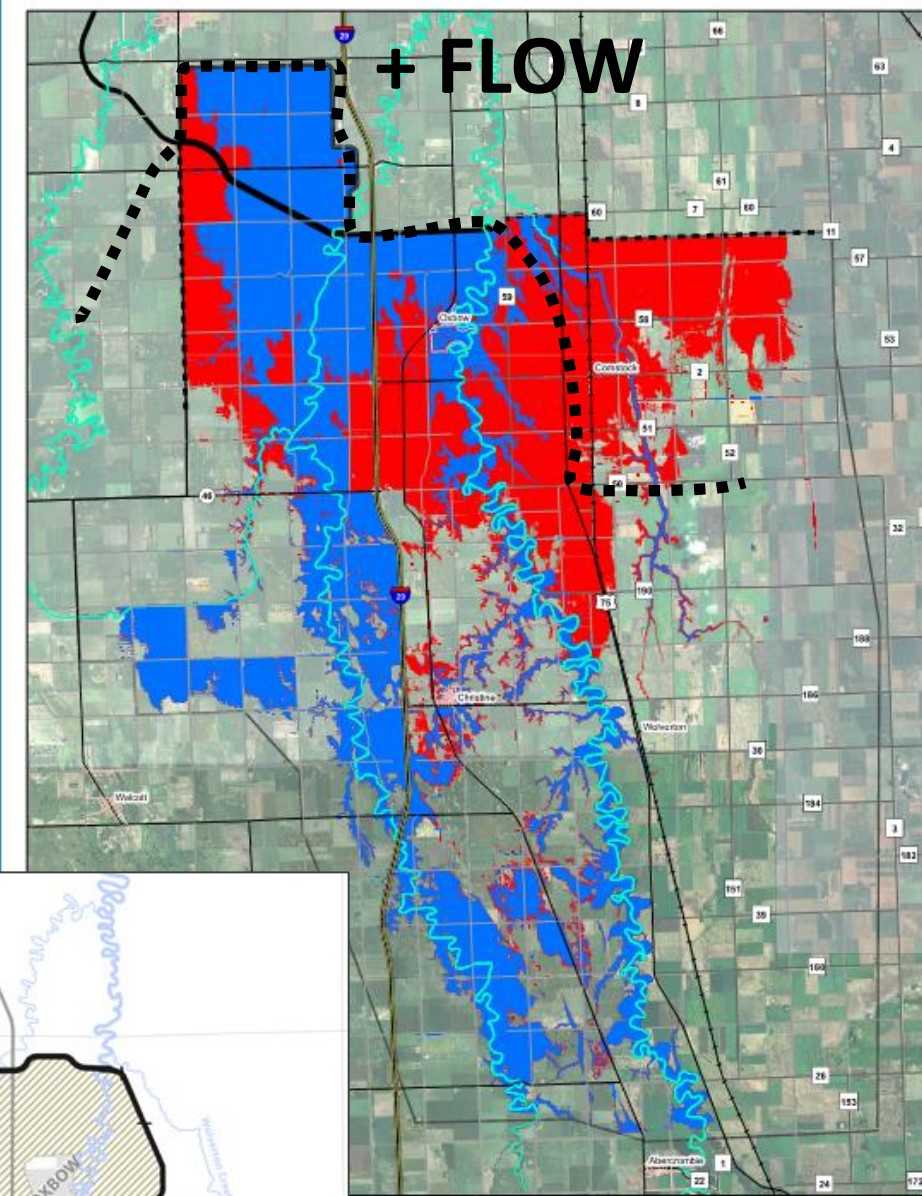
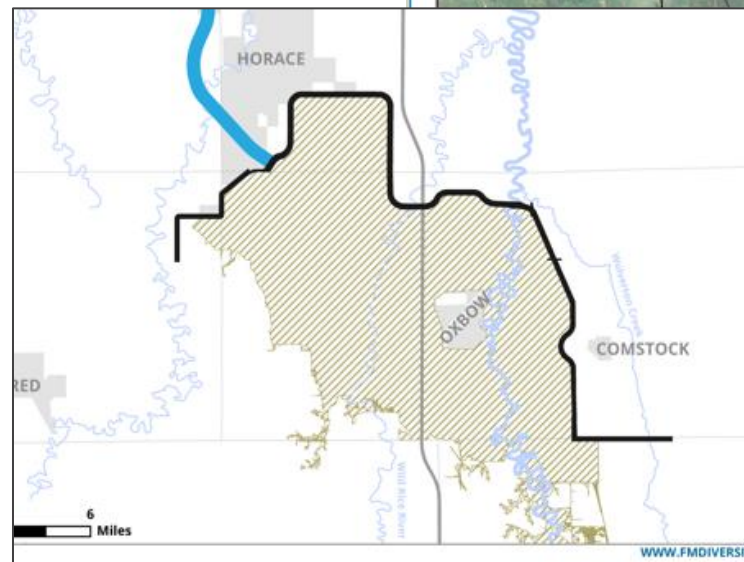


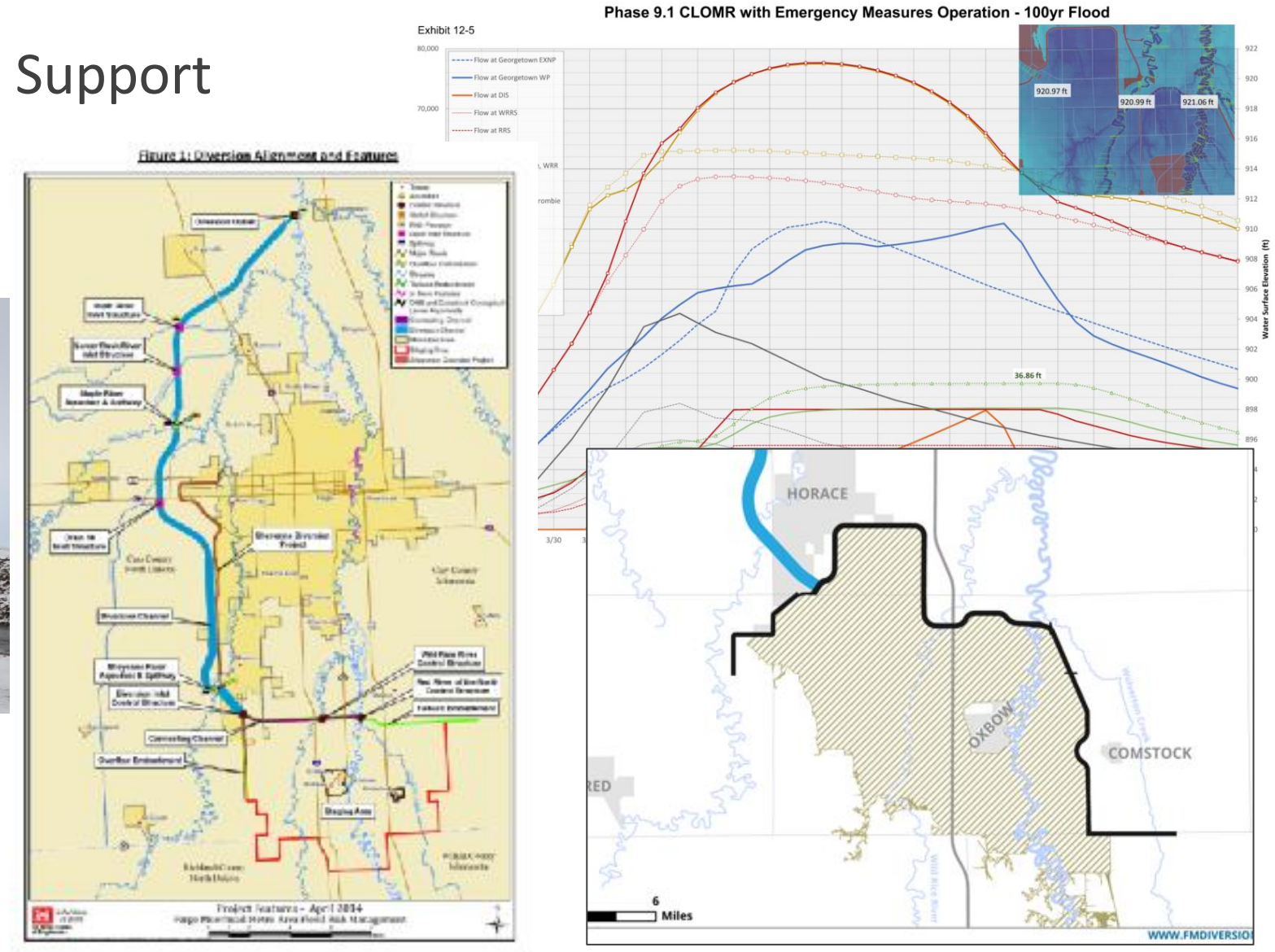
Figure 17

Inundation Map for the Model Existing Conditions and With Project for 1-percent Chance Event in the Red River of the North - South of Diversion Works - LPP




# 2018 Plan B / 2019 CLOMR

## Hydraulic Modeling & Design Support



# 2020 to Present



 US Army Corps of Engineers®

**VOLUME INDEX**  
VOL 1 - SE-2B DAM EMBANKMENT  
VOL 2 - 45TH ST S AND COUNTY ROAD 16 SE-2B CROSSING

FMM SOUTHERN EMBANKMENT REACH SE-2B  
RED RIVER OF THE NORTH RIVER BASIN  
FARGO-MOORHEAD FLOOD RISK MANAGEMENT  
FARGO, ND

PROJECT NO.	16000000
PROJECT NAME	FMM SOUTHERN EMBANKMENT REACH SE-2B
PROJECT LOCATION	RED RIVER OF THE NORTH RIVER BASIN
PROJECT TYPE	CONSTRUCTION
PROJECT STATUS	IN PROGRESS
PROJECT START DATE	2020
PROJECT END DATE	2024
PROJECT OWNER	US ARMY CORPS OF ENGINEERS
PROJECT MANAGER	JOHN J. HARRIS
PROJECT SUPERVISOR	DAVID L. HARRIS
PROJECT ENGINEER	DAVID L. HARRIS
PROJECT DESIGNER	DAVID L. HARRIS
PROJECT CHECKER	DAVID L. HARRIS
PROJECT APPROVER	DAVID L. HARRIS
PROJECT REVIEWER	DAVID L. HARRIS
PROJECT REVISIONS	
REVISION NO.	1
REVISION DESCRIPTION	
REVISION DATE	
REVISION BY	
REVISION CHECKED BY	
REVISION APPROVED BY	
REVISION DATE	

APPROVAL RECOMMENDED BY:

DESIGNER	DATE	STATUS
CHECKER	DATE	STATUS
APPROVER	DATE	STATUS
DESIGNER	DATE	STATUS
CHECKER	DATE	STATUS
APPROVER	DATE	STATUS

APPROVAL RECOMMENDED BY:

DESIGNER	DATE	STATUS
CHECKER	DATE	STATUS
APPROVER	DATE	STATUS

THIS PROJECT WAS DESIGNED BY THE FLOOD DIVISION OF THE US ARMY CORPS OF ENGINEERS. THE PROJECT WAS DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE DESIGN AND CONSTRUCTION STANDARDS OF THE US ARMY CORPS OF ENGINEERS. THE PROJECT WAS DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE DESIGN AND CONSTRUCTION STANDARDS OF THE US ARMY CORPS OF ENGINEERS. THE PROJECT WAS DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE DESIGN AND CONSTRUCTION STANDARDS OF THE US ARMY CORPS OF ENGINEERS.

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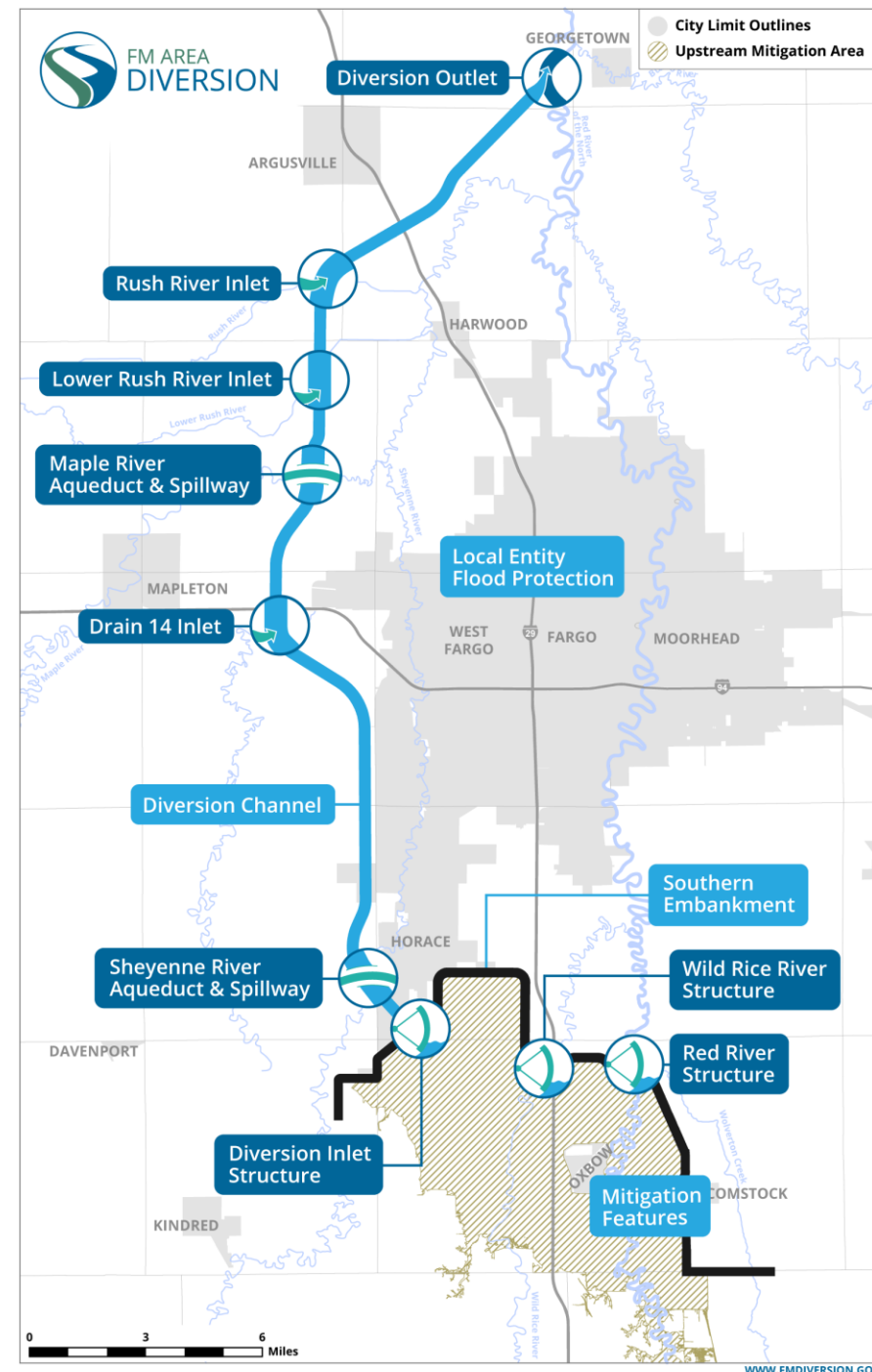
COVER SHEET

SHEET: G-001

100% REVIEW

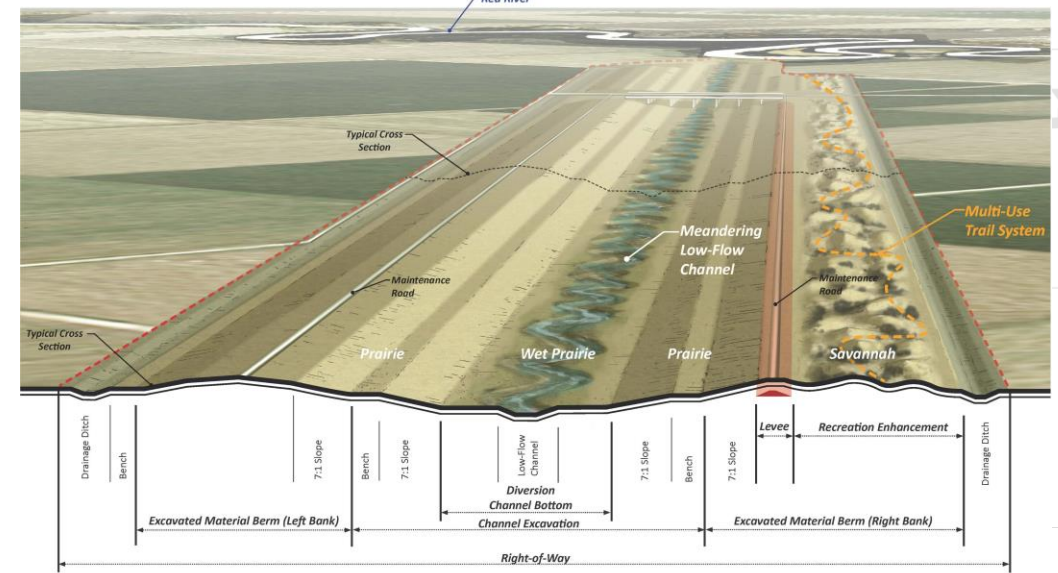
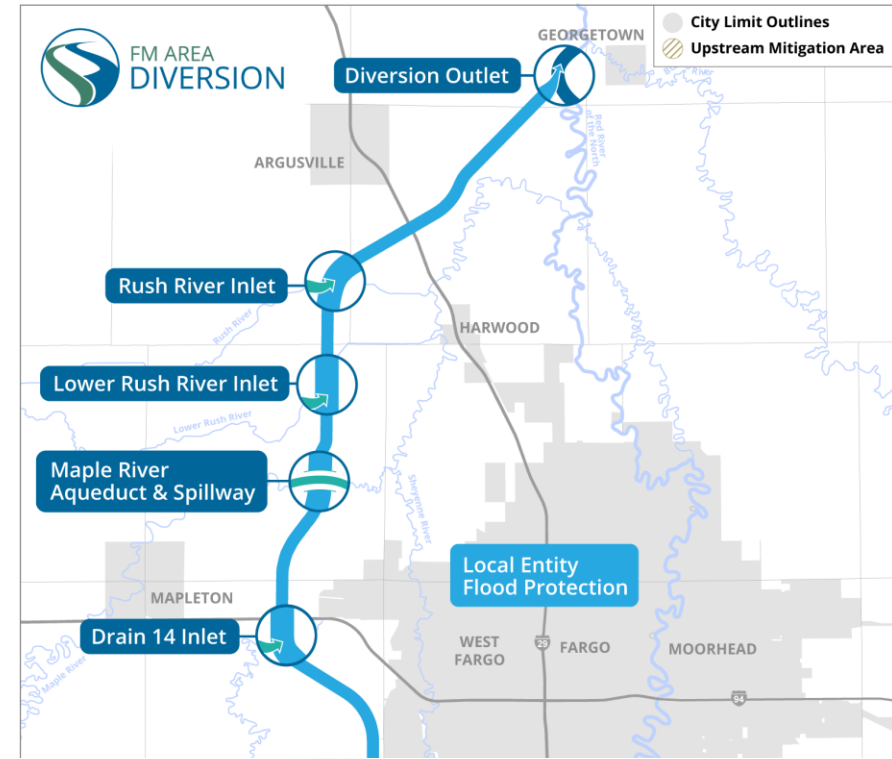
# Project Components

- ❑ Stormwater Diversion Channel
- ❑ Southern Embankment
- ❑ Local Entity Flood Protection
- ❑ Mitigation Features



# Stormwater Diversion Channel

- Technical Requirements Development
- Technical Proposal Reviews
- Review of P3 Developer's Design Plans
  - Channel, hydraulic structures, roads/bridges, etc.
- Buildable Unit review and comment (typical 30%, 60%, 90%, etc.)
  - Houston, Moore, Braun, HDR, SRF
- Hydraulic Model Reviews
- Construction Support

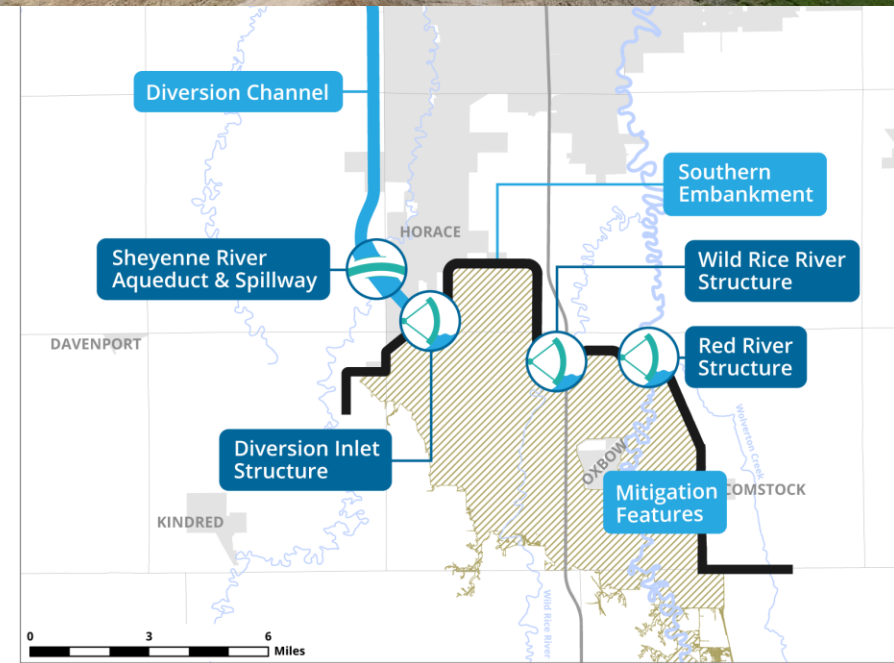


Reach 1 Artist Rendering

1 Miles

# Southern Embankment

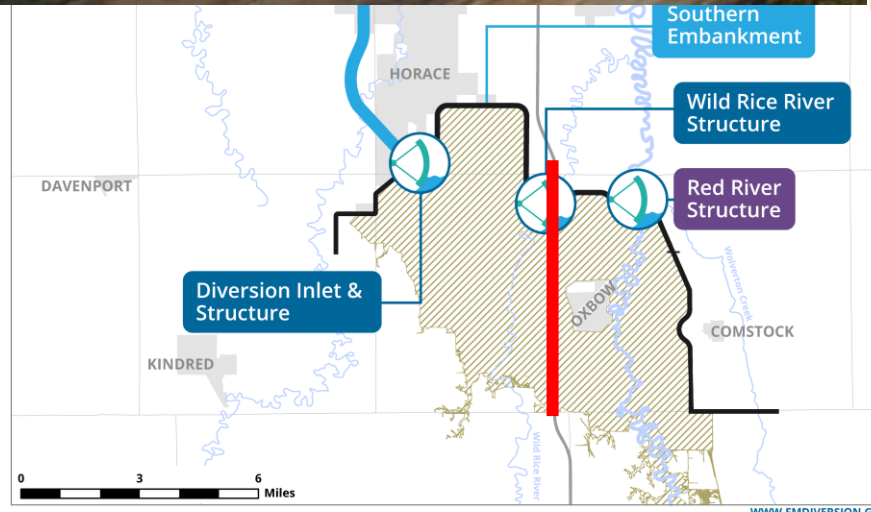
- Comprehensive Hydraulic Modeling Support
- Project Design Team w/USACE
- Local Drainage
- I-29 Grade Raise
- Utility Relocation



# Southern Embankment



I-29 Grade Raise



# Local Entity Flood Protection

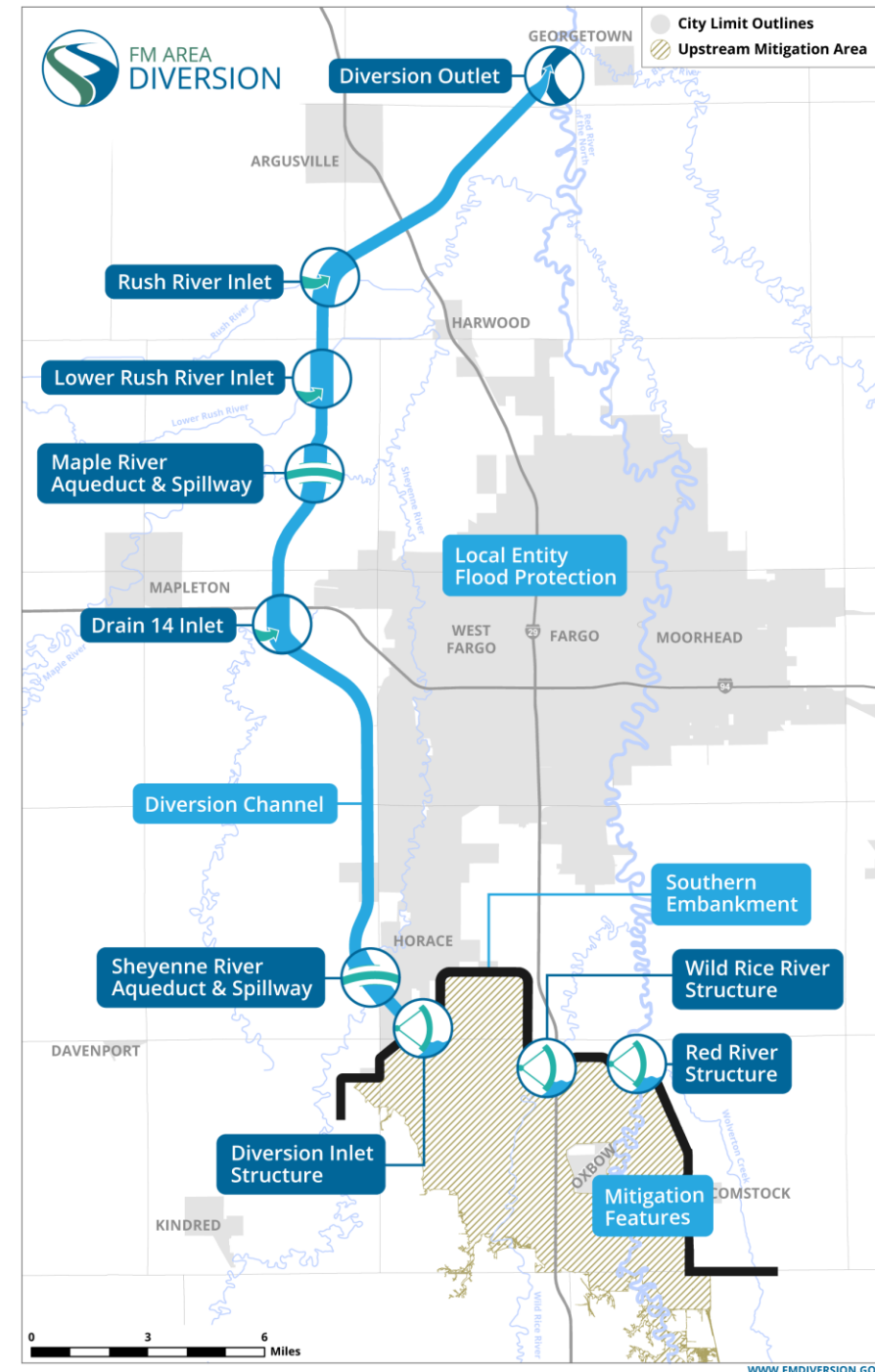
- Fargo & Moorhead Levees





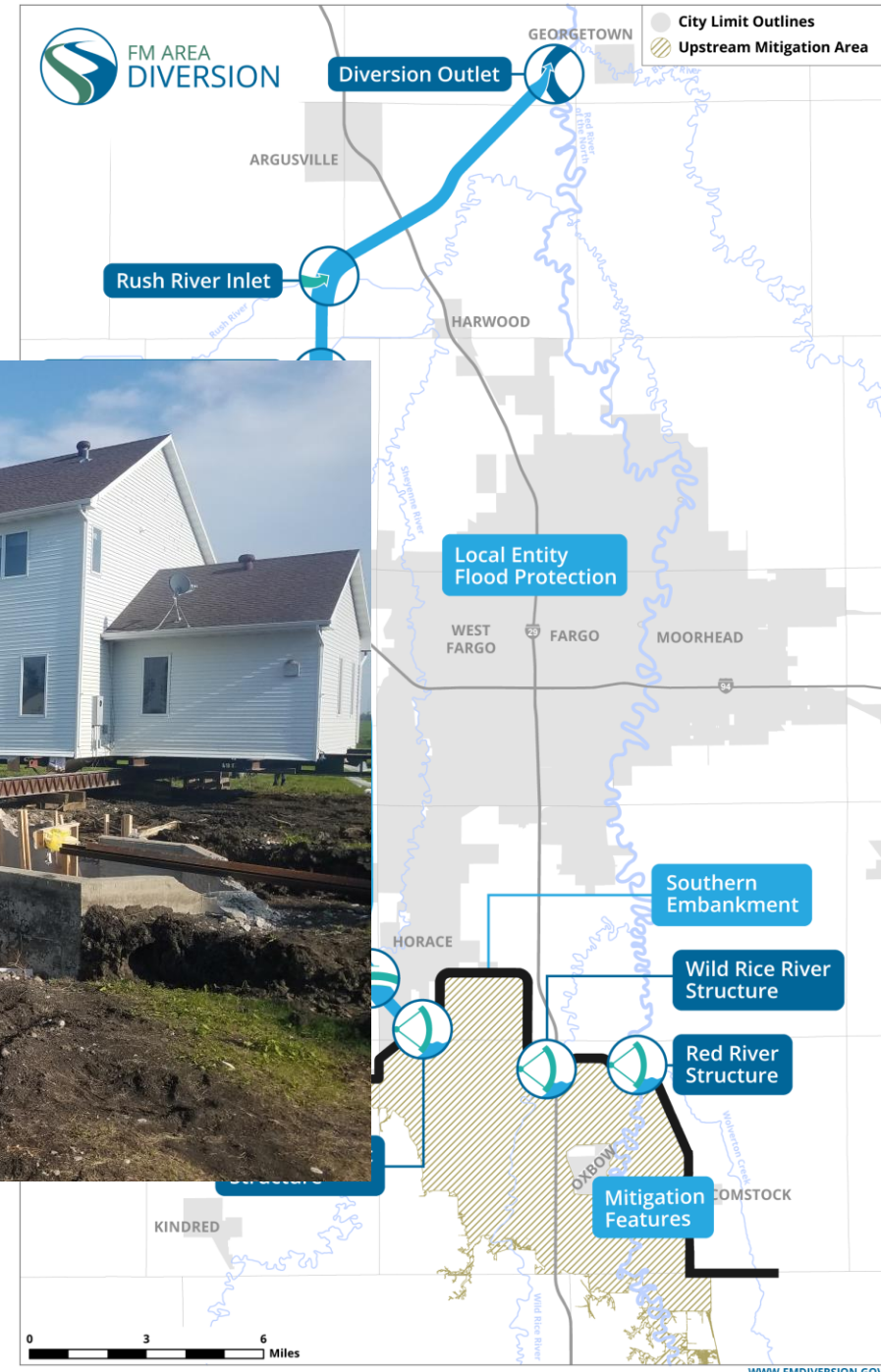
# Mitigation Features

- Structure Removal/Relocation
- Flowage Easements in the UMA
- Community Levees
  - Oxbow/Hickson/Bakke (OHB)
  - City of Christine
  - City of Wolverton
  - City of Georgetown
- Environmental Mitigation
  - Drain 27 Wetland Mitigation
  - Drayton Dam
  - Lower Otter Tail River Restoration Project
  - Sheyenne River Channel Restoration
  - OHB Wetland Mitigation

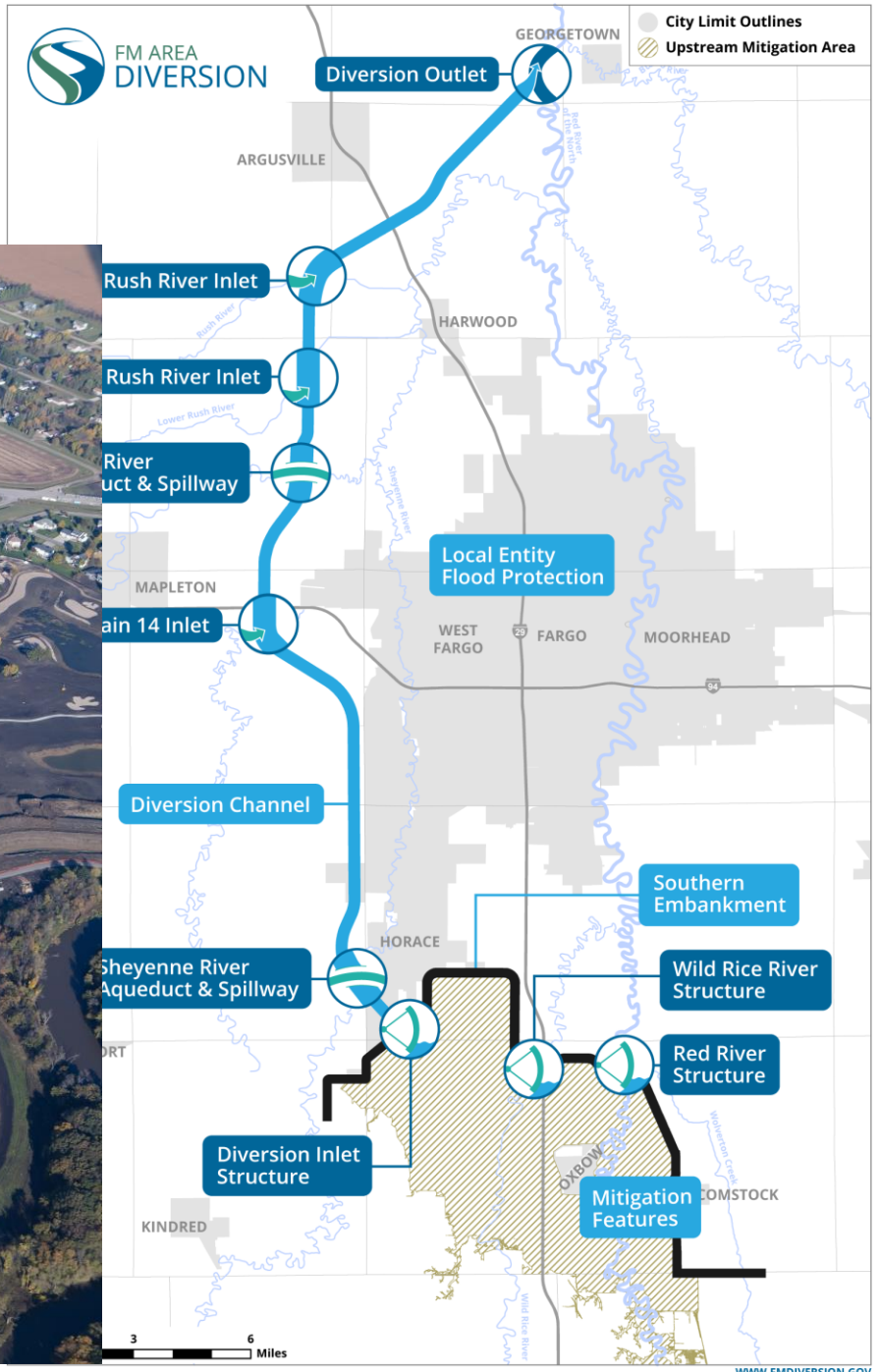


# Mitigation Features

- Structure Removal/Relocation

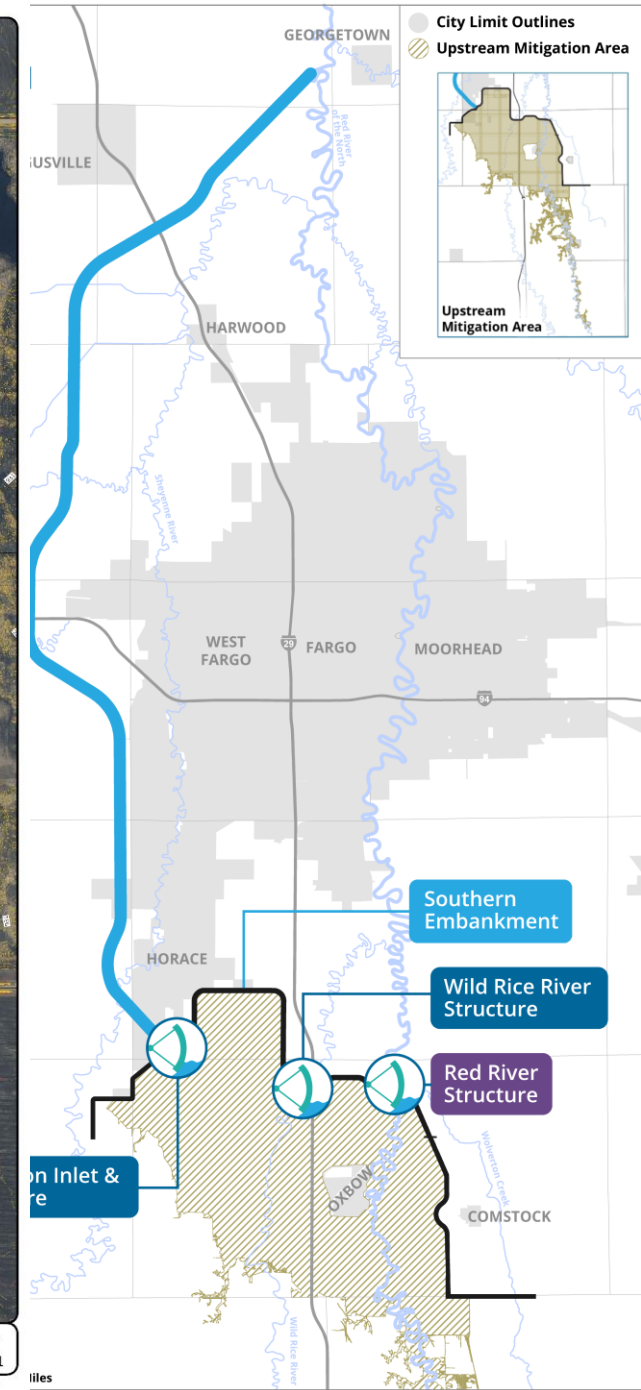


# Mitigation Features

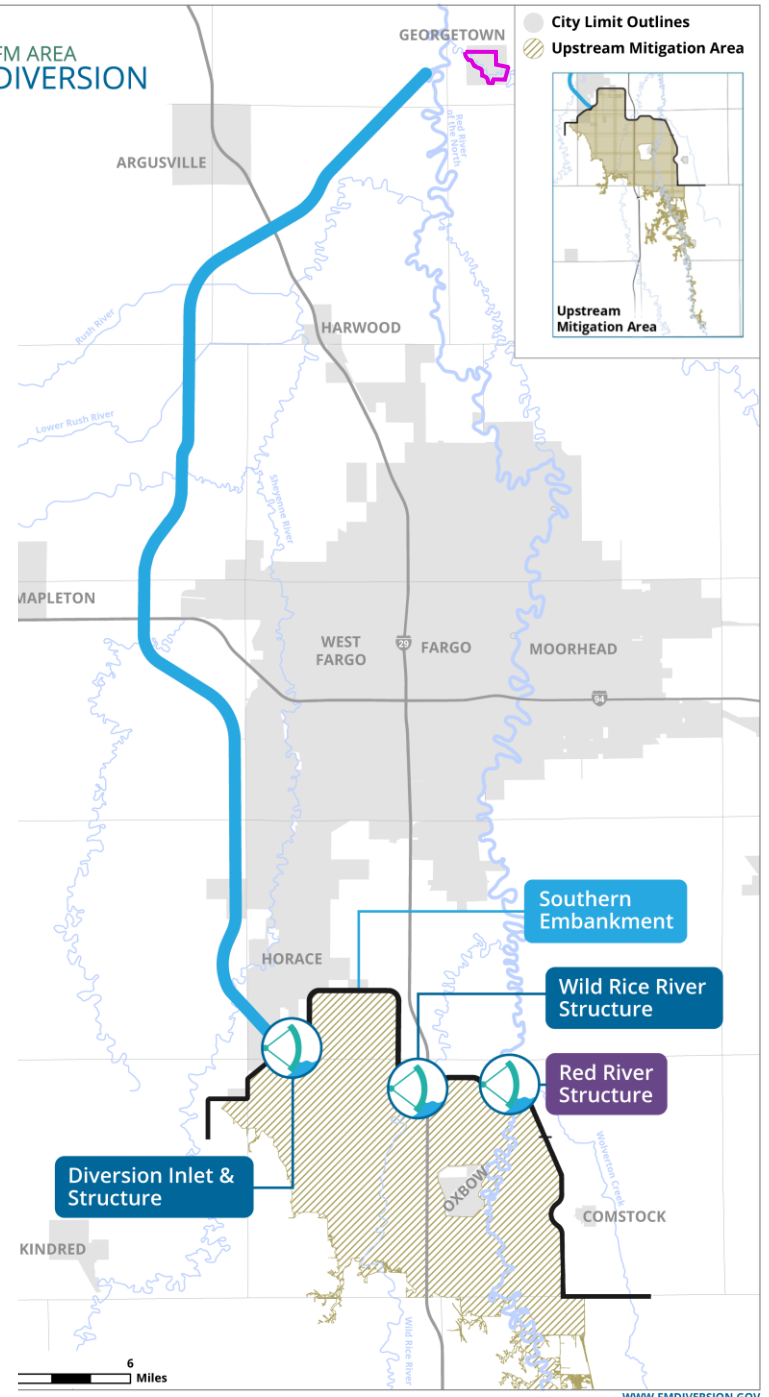


# Mitigation Features

## Wolverton Levee



# Mitigation Features



H:\M\100\1001\101\_1015\_1037\_P&S\Drawings\Project\Drawings\Drawings\5-6-2021\201-202 (M\Network)

No.	Revision	Date	By

**HOUSTON**  
engineering, inc.

Drawn by: TRK  
Checked by: RGE

Date: 5-6-2021  
Scale: AS SHOWN

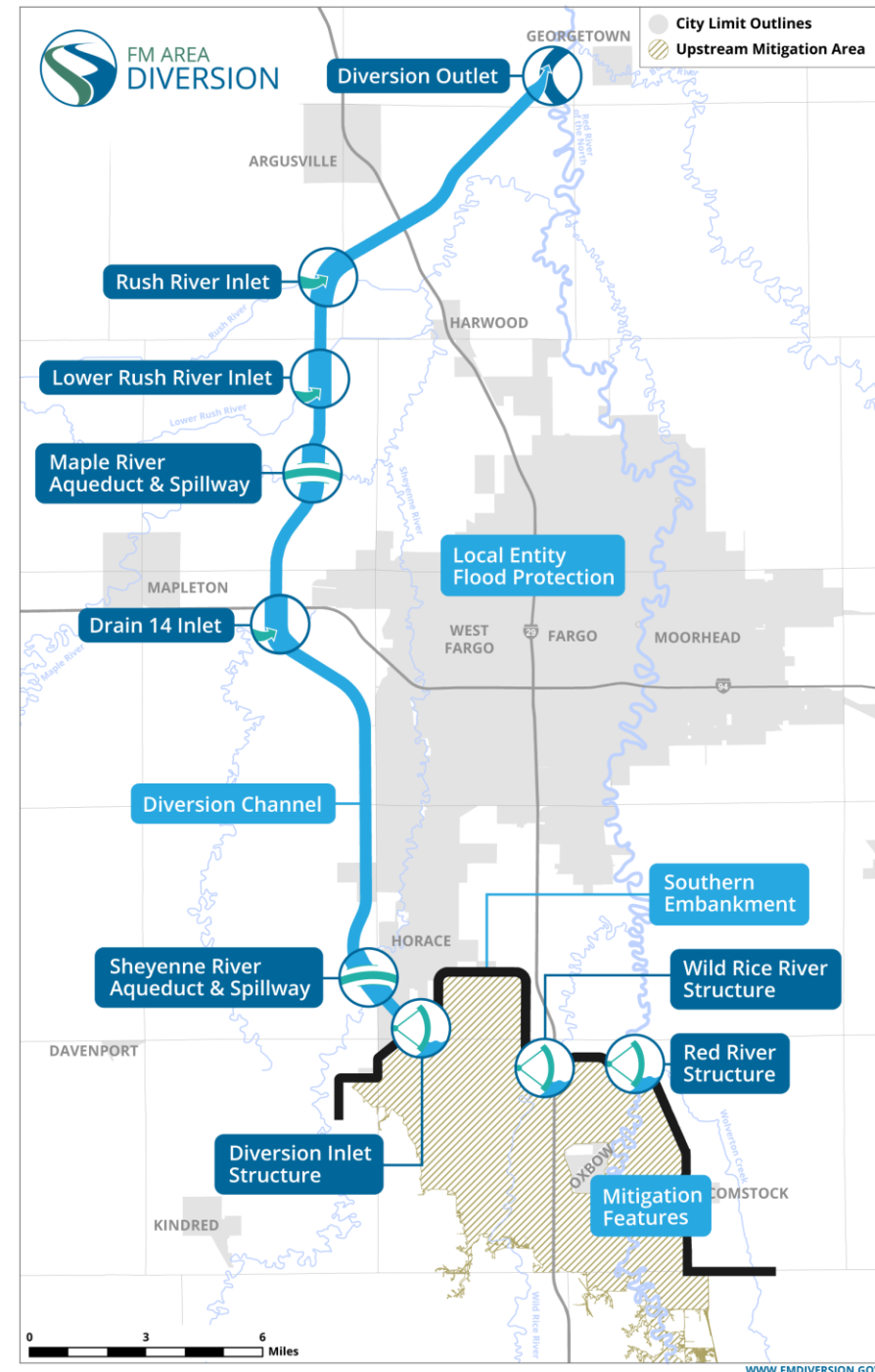
GEORGETOWN LEEVE ANALYSIS  
BUFFALO-RED RIVER WATERSHED DISTRICT  
CLAY COUNTY MINNESOTA

GENERAL SITE PLAN  
PROJECT NO. XXXX-XXXX

SHEET  
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# Mitigation Features

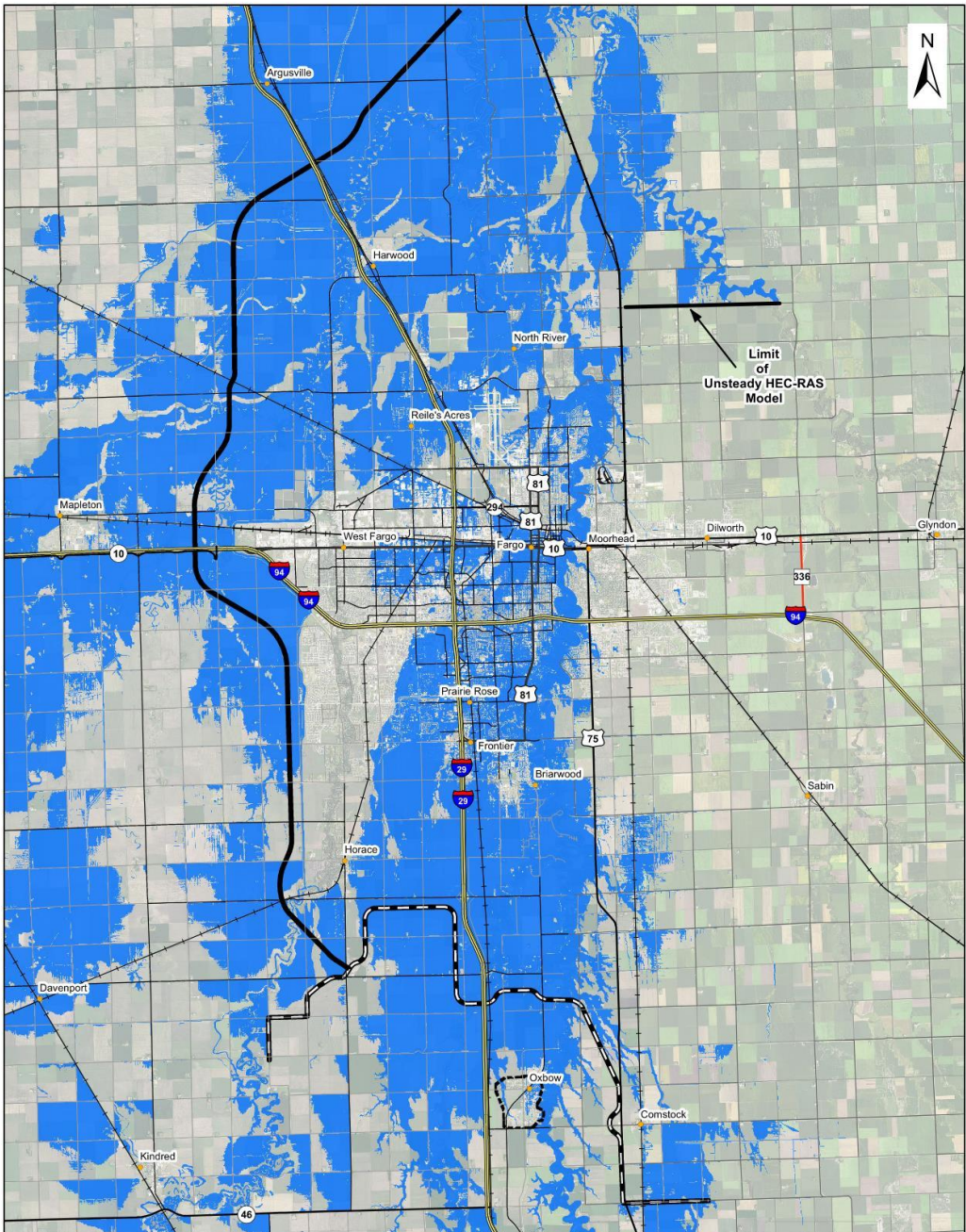
- Environmental Mitigation



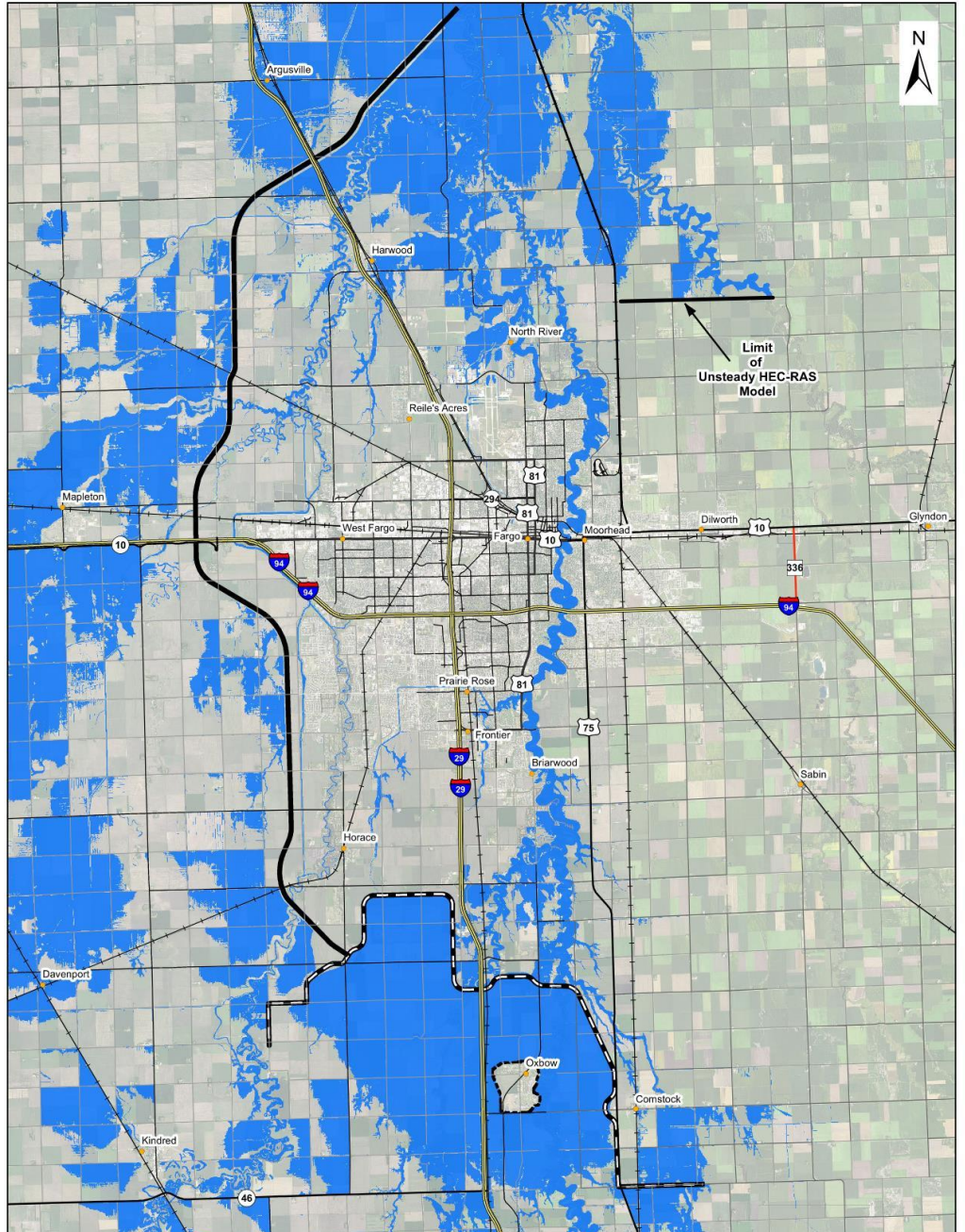
# 100-Year Floodplain

## Project Goals

- 100-year flood protection
- 500-year fightable protection



**Existing Conditions**



**With FM Area Diversion Project**

**Questions?**