

# *Fargo-Moorhead Metropolitan Flood Risk Management Project*

*Oxbow, Hickson & Bakke Levee Concept  
Public Meeting*

*January 8, 2013*



US Army Corps of Engineers  
**BUILDING STRONG®**





## ***Presentation Outline***

- ✓ How Did We Get to This Point
- ✓ Ring Levee Concept
- ✓ List of Considerations
- ✓ Conceptual Golf Course Design
- ✓ Other Levee Systems
- ✓ Residual Risk
- ✓ Levee Safety Program
- ✓ Path Forward



## ***Project Status***

- ✓ The Record of Decision signed by the Assistant Secretary of the Army April 3, 2012
- ✓ Now Congress decides whether to authorize and fund construction of the project
- ✓ The Corps and Local Sponsors are moving forward with the design phase
- ✓ Currently designing from the Outlet (near Georgetown, MN) to Maple River, downstream to upstream

## ***How did we get to this point?***

- ✓ Feasibility phase looked at complete buyout or protection for the communities based on public input
- ✓ The FEIS proposed buyouts for the Oxbow, Hickson and Bakke communities
- ✓ September 2012 – During Public Comment period, we were asked to consider levee system
- ✓ Today's Meeting – to discuss ring levee alternative as mitigation option



## ***Upstream Storage***

- ✓ Information on local storage efforts
  - ✓ Lance Yohe and Chad Engels are here and available to further discuss storage
  - ✓ Red River Basin-wide Study is developing tools that can be used locally to implement basin-wide retention.
  - ✓ Diversion Authority has committed \$25 million to support storage initiatives

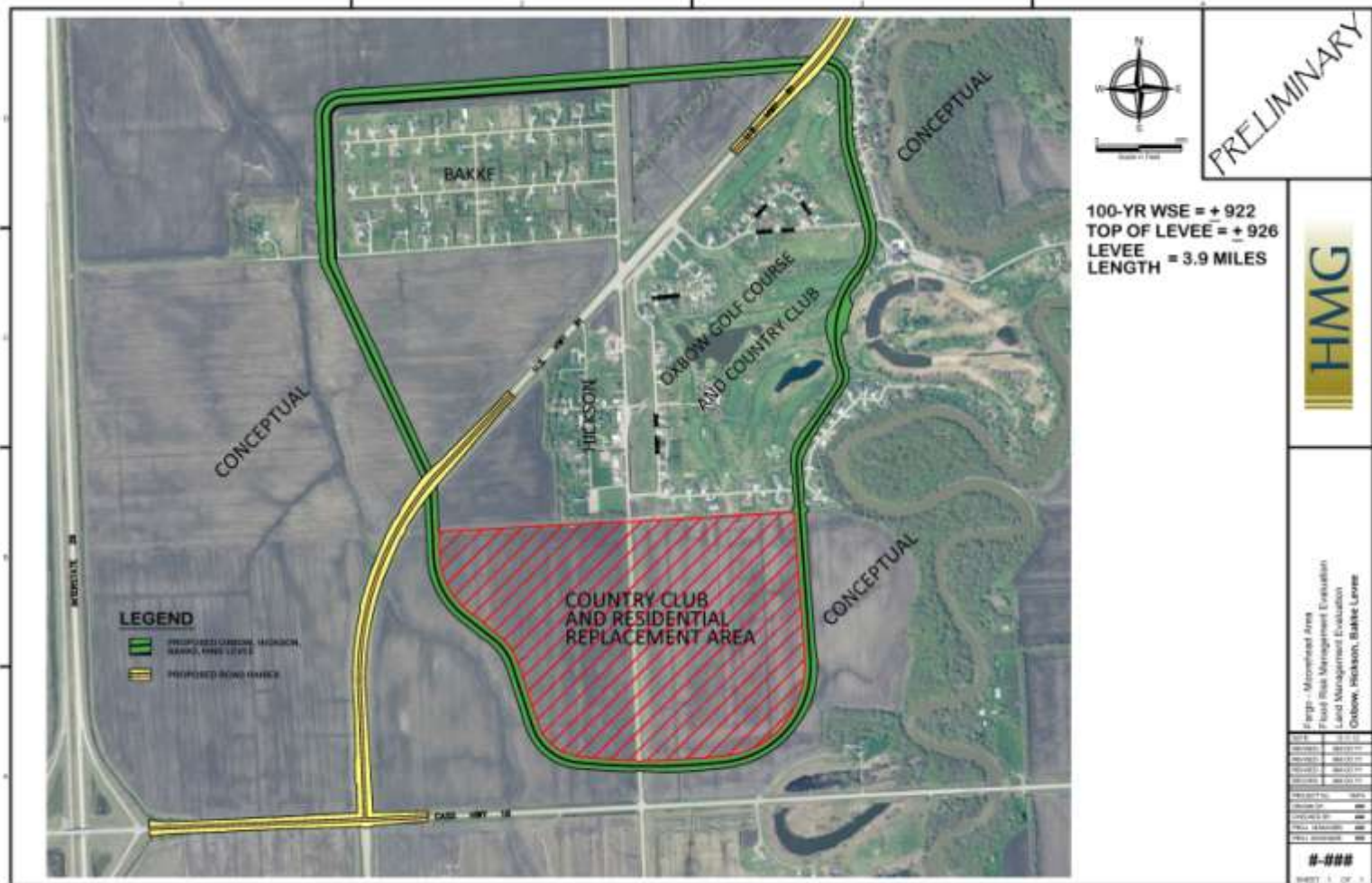
## ***Ring Levee Alternative – Oxbow, Hickson and Bakke***

- ✓ Explore the option with the communities of Oxbow, Hickson and Bakke
- ✓ Must be technically feasible
- ✓ Would allow some buyouts vs. buyout of all homes
- ✓ Corps-led effort
- ✓ Team assembled
  - ✓ Corps
  - ✓ City of Oxbow
  - ✓ Pleasant Township
  - ✓ Cass County
  - ✓ Diversion Authority (DA)
- ✓ Team kick-off meeting held November 6<sup>th</sup>
- ✓ List of requests from Oxbow have been addressed by the Corps and DA



# Ring Levee – Oxbow, Hickson and Bakke

DRAFT CONCEPT



## ***Additional Ring Levee Information***

- ✓ Design requirements
  - ✓ Will be designed to Corps standards
  - ✓ Will be designed to meet FEMA regulations
  
- ✓ Access will remain the same as the communities have today
  - ✓ County Roads 81 and 18 will be raised to reach I-29
  - ✓ Designed with similar slopes to existing highways
  - ✓ Schnell Drive and Riverbend Road would be impacted
  - ✓ County Road 25 would be affected by southern replacement area





# Water Depths and Frequency

Return Frequency	Existing Conditions		With proposed Project VE13-A + Inlet Gates + In-Town Levees	
	Water Level at Hwy 81 north of Oxbow	Duration of WSEL above 914'	Water Level at Hwy 81 north of Oxbow	Duration of Staging (WSEL above 914')
10-year	909.44	0 days	909.52	0 days
50-year (approx 2009)	914.90	4 days	921.46	9 days
100-year	915.72	5.5 days	922.06	10.5 days
500-year	917.29	8.5 days	922.09	9.5 days

Note: 914' is the average natural ground elevation at the reporting location

## ***Additional Ring Levee Information***

- ✓ Evacuation
  - ✓ Plan would be developed
  
- ✓ Drainage
  - ✓ Would be designed so that communities wouldn't experience flooding from rain event
  - ✓ Pump station would pump interior drainage to river during high water events
  - ✓ Sewer and water would continue at present level of service
  
- ✓ Aesthetics
  - ✓ Potential for community trails or recreation features
  - ✓ Levee would be earthen berm
  - ✓ Any trees or landscaping must be located at least 15' from levee



## ***Oxbow Community Requests***

- ✓ List of 12 requests by the City of Oxbow presented to Corps and DA members in late November 2012
- ✓ City of Oxbow, Pleasant Township, Cass County representatives, Corps staff and DA met to discuss requests
- ✓ Corps and DA developed responses to the requests

## ***Requests Proposed by Oxbow - Summarized***

1. Support relocating CapX2020 power line within protected area
  - ✓ No jurisdiction, but will communicate Oxbow, Hickson and Bakke may remain vs. total buyout
  
2. Identify impacts on FEMA flood insurance program
  - ✓ Ring levee will be constructed to federal standards
  - ✓ Area to be mapped out of 100-year floodplain
  
3. Relocated golf course holes to be designed by Robert Trent Jones Jr.
  - ✓ DA currently contracted with Robert Trent Jones Jr.
  - ✓ DA is committed to fund actions to maintain pre-levee community conditions

## ***Requests Proposed by Oxbow - Summarized***

4. Build necessary infrastructure to replace residential lots displaced by levee
  - ✓ DA will replace lots on a one-to-one basis, currently it is estimated 40 lots
  
5. Offer buyouts to all residents who do not want to live within the levee
  - ✓ DA is willing to consider early construction, even prior to Federal authorization

## ***Requests Proposed by Oxbow - Summarized***

### **6. Exempt residents from future assessments**

- ✓ Will be considered by the DA
- ✓ Assessment plan to be developed by June 2013

### **7. DA assumes responsibility for Operations and Maintenance**

- ✓ Agreed

### **8. DA pays off remaining balance on outstanding bonds**

- ✓ Will be addressed in development of a memorandum of understanding between Oxbow and the DA



## ***Requests Proposed by Oxbow - Summarized***

9. Ensure Federal appraisal process used and Bank of ND makes financing available

- ✓ Corps and DA to follow Public Law 91-646
- ✓ DA will work to educate Bank of ND and local banks

10-12. Prepare Feasibility Study on:

10. Acreage needed for retention for a 3-foot levee
11. Acreage needed for retention if dam eliminated
12. Impacts of the 2009 flood in Oxbow

- ✓ Information based on current available data will be provided, but no new feasibility studies are scheduled



# *Conceptual Golf Course*



## ***Other Corps Ring Levee Projects***

- ✓ Federally Authorized and Locally Operated in Red River Basin
  - ✓ Emerson-Noyes, Canada and Minnesota
  - ✓ Pembina, North Dakota
  - ✓ Argyle, Minnesota
  - ✓ Oslo, Minnesota
  - ✓ Alvarado, Minnesota
  - ✓ Halstad, Minnesota
  - ✓ Argusville, North Dakota

## Oslo, Minnesota



- ✓ 3.2 mile-long levee
- ✓ Height of 10 ft.
- ✓ Constructed in mid 1970s
- ✓ Damages prevented through 2011 ~ \$72 million



North of 6<sup>th</sup> Ave. and River St.  
Height: 10 ft Side Slopes 1:3

## *Levee Projects Along the Red River*



Near 3<sup>rd</sup> St. S. in Fargo, ND  
Height: 15 ft, Side Slopes 1:3



Near Buffalo Ave. & 3<sup>rd</sup> St. S. in  
Breckenridge, MN  
Height: 4-5 ft, Side Slopes 1:3



Near 6<sup>th</sup> Ave. S. & 3<sup>rd</sup> St. S. in Fargo, ND  
Height: 15 ft, Side Slopes 1:3



## ***Residual Risk***

- ✓ Corps & DA support levee concept
  - ✓ Risk remains whether you live behind a levee or in flood prone area
  - ✓ No levee failures to date from other Corps levee projects in Red River Basin
  
- ✓ Additional Information: *So you Live Behind a Levee*
  - ✓ Developed by American Society of Civil Engineers
  - ✓ <http://content.asce.org/ASCELeveeGuide.html>



## ***Levee Safety Program***

- ✓ Created in 2006 to assess integrity and viability of levees
  - ✓ Informed assessments
  - ✓ Justify levee safety decisions
  - ✓ Make recommendations for improvements
- ✓ Over 14,000 miles of levees included in program
- ✓ Many communities have their own levee systems but are part of the Corps Levee Safety Program





## ***Real Estate Acquisition Process***

- ✓ Land acquisition to be completed by DA
  
- ✓ Buyout of Oxbow, Hickson and Bakke is not required until just before project goes into operation
  - ✓ Will follow Federal acquisition process
  - ✓ DA is willing to fund the levee construction as early as 2014
  - ✓ DA is willing to fund mitigation measures early to provide early protection and reduce uncertainty to the communities



## ***Real Estate Acquisition Process***

- ✓ Multiple step process:
  - ✓ Final right of way determined and landowners identified
  - ✓ Complete land survey and get appraisals
    - ✓ Just compensation as required by the 5<sup>th</sup> amendment
    - ✓ Public law 91-646
  - ✓ Written offer
  - ✓ Negotiations
  
- ✓ Prefer to work with willing sellers



## ***Individual Meetings – Affected Landowners***

- ✓ Sign up for an appointment Jan 8<sup>th</sup>, 9<sup>th</sup>, or 10<sup>th</sup>
- ✓ Q and A with local sponsor and Corps staff
- ✓ 30-minute time slots
- ✓ Review maps of individual parcels
- ✓ Discuss impacts to property
- ✓ Anonymous survey
- ✓ Real Estate staff available



## ***NEPA - Path Forward***

- ✓ Supplemental Environmental Assessment (EA)
- ✓ November 2012: Corps began National Environmental Policy Act (NEPA) process
- ✓ February 2013: Community input for EA document
- ✓ May 2013: Public Meeting and comment period
- ✓ July 2013: NEPA process complete and decision is finalized

## ***Communities - Path Forward***

- ✓ Oxbow – Mayor Jim Nyhof
  - ✓ 2 Jan 2013 – Oxbow City Council passed motion to authorize USACE to include ring levee option in Environmental Assessment
  - ✓ 9 Jan 2013 – Golf Course and community will host meeting with Robert Trent Jones to outline golf course in greater detail
  - ✓ 13 Jan 2013 – Community “wrap-up” meeting to address unanswered questions from previous meetings
  - ✓ Oxbow City Council needs to approve adoption of MOU between City of Oxbow, Oxbow Country Club, Diversion Authority and local development company
  - ✓ Contract to be drafted to spell out roles and responsibilities for all entities involved in MOU
  - ✓ Community will vote on details of the contract
    - ✓ Vote will guide Oxbow City Council on how to move forward prior to the public comment period
    - ✓ Will be 10-day notice for community vote
    - ✓ May 2013 – Public Meeting (tentative)
- ✓ Cass County – Commissioner Darrell Vanyo and Administrator Keith Berndt





**Fargo Moorhead** Diversion

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## About the Project

This description of the diversion plan focuses on the recommended Federal plan (also known as the Locally Preferred Plan). For full details, read the [Final Feasibility Report and Environmental Impact Statement, July 2011](#).

### THE DIVERSION IN DEPTH

Flooding in the Red River Valley has become increasingly severe and frequent. It threatens our viability and quality of life for the entire region. In fact, during times of severe flooding, the potential damages alone to the Fargo-Moorhead area are estimated at more than \$194 million a year without a flood diversion that includes upstream staging and storage.

A three-year study led by the Corps of Engineers, and also involving local engineering firms, looked at many options; including levees, floodwalls, retention, etc.; and found the current diversion plan is the only concept that would significantly reduce flood risk in the Fargo-Moorhead area from flood events larger than the flood of 2009.

The alignment of the 20,000 cfs diversion channel with upstream staging and storage would start approximately four miles south of the confluence of the Red and Wild Rice Rivers and extend west and north around the cities of Horace, Fargo, West Fargo and Harwood. It ultimately would re-enter the Red River north of the confluence of the Red and Sheyenne Rivers near the city of Georgetown, MN. Along the 36 mile path it would cross the Wild Rice, Sheyenne, Maple, Lower Rush and Rush rivers and incorporate the existing Horace to West Fargo Sheyenne River diversion channel.

The basic North Dakota alignment remained the same as in the earlier screening phase, except where it was adjusted northwest of Harwood, ND to avoid Drain 13. Some significant design changes were made for the recommended Federal plan, including the addition of staging and storage, along with optimization of the channel cross section. The plan includes 19 highway bridges and 4 railroad bridges that cross the diversion channel.

The channel capacity was modified from previous phases to account for the storage and staging areas that were included. The inclusion of these areas allowed for the capacity of the diversion channel to be reduced to approximately 20,000 cfs. The diversion channel was designed to keep the 1-percent chance event flood flows below existing ground in the diversion channel as much as possible to limit impacts to drainage outside the channel.



### The Need for the Project

Learn why the Fargo Moorhead Diversion is critically needed. [Click Here](#)

### Project History

Learn about how this project came about. [Click Here](#)

### Project Timeline

View a timeline for the project. [Click Here](#)

### Mitigation

Learn about Project Mitigation. [Click Here](#)



### Frequently Asked Questions

Find answers to commonly asked questions and learn about common misconceptions about the project. [Click Here](#)



Comments

<http://www.FMDiversion.com>