



**DIVERSION AUTHORITY
Land Management Committee
City Commission Room
Fargo City Hall
Wednesday, December 14, 2016
3:00 p.m.**

1. Agenda Review
2. Approve November 9, 2016 Minutes (*item A*) action
3. Project & Impact Summary Documents (*items B, C, D, E, and F*) information
4. Flowage Easement Valuation Update information
5. CCJWRD Update (*item G*) information
 - a. Diversion Channel Phase 1
 - b. Monitoring Sites
 - c. Drayton Dam Mitigation Project
6. Other business
7. Next meeting January 11, 2017

These minutes are subject to approval of the Land Management Committee.

**DIVERSION AUTHORITY
Land Management Committee
City Commission Room
Fargo City Hall
Wednesday, November 9, 2016
3:00 p.m.**

Present: Cass County Commission Representative Mary Scherling; Moorhead Mayor Del Rae Williams; Clay County Commission Representative Kevin Campbell; Moorhead City Engineer Bob Zimmerman; Fargo Assistant City Administrator Michael Redlinger (alternate for Fargo City Administrator Bruce Grubb); Fargo Division Engineer Nathan Boerboom; Cass County Commission Representative Chad Peterson.

Others present: Eric Dodds – AE2S; Mark Brodshaug – Cass County Joint Water Resource District (CCJWRD).

Absent: Moorhead City Council Representative Heidi Durand; Clay County Commission Representative Jenny Mongeau; Oxbow Mayor Jim Nyhof; Fargo City Commission Representative John Strand; Cass County Joint Water Resource District Representative Rodger Olson.

The meeting was called to order by Mary Scherling.

Agenda Review

There were no additions or amendments to the agenda. Ms. Scherling moved the Order of Agenda be approved. All the members present voted aye and the motion was declared carried.

Approve August 10, 2016 Minutes

Kevin Campbell moved the minutes from the August 10, 2016 meeting be approved. Chad Peterson seconded the motion. All the members present voted aye and the motion was declared carried.

Mitigation Plan Summary

Eric Dodds gave a summary of the FM Area Diversion Project (FMADP) Mitigation Plan which was written in September 2016. The plan outlines mitigation requirements that will be followed by the FMADP to address mitigation needs identified during studies by the U.S. Army Corps of Engineers and the Minnesota Department of Natural Resources (MNDNR). Mr. Dodds said the plan also identifies the steps the Diversion Authority will take to ensure the fair treatment of people, property and the environment. He said the Diversion Authority is following all federal and state laws related to acquisition of property rights and has established additional protections above and beyond the requirements.

In response to a question from Mr. Campbell about the number of residential structures impacted in the project area, Mr. Dodds said there are about 100 total residential structures in the project area and 75 residential structures in the upstream mitigation area, with about 25 homes on the Minnesota side and the rest on the North Dakota side. Mr. Dodds said there are about 1,500 parcels that will need to be acquired or they will need

some sort of property rights to, about 840 parcels are flowage easements and about 660 parcels will have some sort of title acquisition, including 375 in Minnesota and 1,125 in North Dakota. He said the MN DNR wanted a stand-alone plan and the full book has a lot of good information in it.

Ms. Scherling said the Diversion Authority should look at other cities that have built diversion projects, such as Winnipeg. She said the way Winnipeg approached mitigation is interesting and it would be important to consult Winnipeg because they have had great successes, especially with farming mitigation.

Mr. Dodds said the Diversion Authority has contacted Winnipeg. He went on to say there are property owners who want to sell who have approached the Diversion Authority. He said the Diversion Authority has decided to buy full parcels rather than buy the minimum of what may be needed to implement the project. Mr. Dodds said the Diversion Authority does not want to get bogged down in what to buy and how much to buy and may acquire excess property, which will be sold via a public sale. He said at the same time there could be budget issues and people will more than likely accuse the Diversion Authority of a land grab. Mr. Dodds said other key elements in the summary include clean-up plans. He said anytime the project does operate, a private clean-up plan is proposed, patterned much like Clean-Up Week. For the staging area, he said, there will be a similar approach where if a property owner has debris from a flood, then a contractor would clean up the debris. He said the Diversion Authority will not do clean-up because many property owners have voiced they did not want another government entity on their property where they might damage the property which could cause planting delays. The clean-up plan for public lands, he said, will be patterned after FEMA disaster assistance. He said for post-disaster damage assessment and reimbursement, property owners will get quotes and do the repair work, then submit paperwork to the Diversion Authority for reimbursement. Mr. Dodds said there is still some confusion about flowage easements and about the rights of the Diversion Authority to temporarily store water on property. The value of each flowage easement will be determined through an appraisal, he said, which will take into consideration how long it will flood, the duration of the flood, frequency, loss of development rights and other factors. He said the appraisers will value the land today and after the project to form the foundation of flowage easements. He said the Diversion Authority has a couple of sample easements going on now and will be looking for those results before the end of the year. Mr. Dodds said as far as supplemental farm revenue, the Diversion Authority would buy an insurance product and pay the premiums so all farmers would get insurance for summer losses. The project has a very low chance of summer operation, he said, with most floods occurring in the spring before planting. He said a summer flood would be devastating. but a low risk to the Diversion Authority; however, it would be a high risk to producers therefore the Diversion Authority feels a crop insurance product is the right approach.

In response to a question from Mr. Campbell as to whether the summer of 1975 flood would be the type that would use the project in the summer, Mr. Dodds said never in history has there been a summer flood that would have required use of the project. He said in the last 100 years, the project would have operated 11 times for a total of 69 days. He said the retention area would only be used when a flood event exceeds 35 feet. According to a study done by the North Dakota State University Agribusiness and Applied Economics Department, he said, there is an 85 percent chance every year that no water

will be stored upstream. Of the 39,000 acres impacted when the project hits the 100-year level, about half of those acres would flood without the project. Mr. Dodds said the NDSU study indicated the key is to determine when farmers can begin planting and if planting is delayed due to the project, and what, if any, planting delays cost the producer in lost revenue. The conclusion from the study indicated that there is a high probability of incurring planting delays associated with man-made water storage. Large delays are possible, he said; however, those situations are not as likely as shorter delays. He said the study considered numerous factors and concluded that the revenue losses to ag producers would not be substantial. Mr. Dodds said there will be an ongoing payment to producers for crop loss caused by summer operation of the project. Summer operation is extremely unlikely, he said; however, summer operation could cause devastating damage to growing crops. He said the Diversion Authority will either purchase an insurance product or self-fund the program and provide coverage free of charge to producers. Providing farmers with a crop insurance product is the right approach, he said. Mr. Dodds said there are 11 cemeteries upstream that may be impacted by varying levels of additional water during major floods. He said there are 19 other cemeteries that currently would flood within the protected area that will now have permanent flood protection due to construction of the project. He said recommended mitigation steps for cemeteries include protective berms, access changes, fencing and ring levees. He said the plan also gives a summary of the independent mitigation projects including in-town levees, the Oxbow-Hickson-Bakke ring levee, the Comstock ring levee and improvements at the Drayton Dam. Mr. Dodds said areas of the upstream retention are an essential component to safely control flood waters upstream and downstream of the metro area and is the most effective and efficient storage.

In response to a question from Del Rae Williams about farming and flowage easements that will cover the risks of delayed planting, Mr. Dodds said there are planting dates established by federal crop insurance that indicate when a farmer must plant a certain crop by a certain date to be eligible for crop insurance. He said similarly, there are practical dates set for late planting, for example June 10th for soybeans. He said the NDSU study found that if a flood happens, there is a high likelihood there will be late planting, but only a few days and it is highly likely delays would be minor. He said the appraisers will bring all of that information into consideration when determining flowage easements.

Mr. Brodshaug said a flowage easement is a one-time payment for all springtime losses. Losses in the summer, he said, would be considered on a per case basis and unlike crop insurance, farmers will not pay the premium, the Diversion Authority would pay. He said there is a very low chance the project would operate in the summer because most floods occur in the spring before planting. He said if it did happen after planting, that is when the crop insurance policy would come into play.

Ms. Scherling said a map in the handouts shows flowage during a 10-year flood event and when she looks at Comstock on that map, it is a long way from water in a 10-year flood event, as is Oxbow. She said what she has been hearing is every 10 years in this area it will be wet, but in reality the areas around Comstock and Oxbow will not get wet every 10 years, maybe every 25 years for Oxbow and 50 years for Comstock. She said this information has a huge impact on cemeteries in that area.

Mr. Dodds said with some of the properties that flood today, farmers are accustomed to that but they are not getting compensation for that flood. He said with the project there will be flooding but farmers will get compensation. Mr. Dodds referred to two maps in the summary depicting upstream impacts with and without the project. He said the maps will be made available online. Mr. Dodds said the project is for a 100-year flood, and not every flood is a 100-year event and the project will not operate during a 10-year event.

Chad Peterson said in reference to the maps, a picture is worth a thousand words and he is appreciative of the summary, which is incredibly valuable and provides a lot of talking points. He said what he hears is every time it rains, the Diversion Authority will release Armageddon south of Fargo. These graphics in the handouts really simplify things. He said he will be glad to be able to hand this summary to someone and have them look it over because he cannot explain a \$2 billion project to someone in 10 minutes.

Mr. Dodds said the MNDNR did an analysis of organic farm land and there are four in the region that total 4,300 acres. He said the Diversion Authority has purchased two parcels south and east of Comstock. He said the Mitigation Plan is unique with organic farm land and if it floods, those farmers cannot market their products as organic and they could lose their organic certification. He said the Diversion Authority has developed a plan to buy these types of lands early, then structure the agreement like a 1031, where the land owner can buy more land after the Diversion Authority purchases their land, then their land is rented back to the owner for a period of time while they establish organic farm land outside of the region, which can take three to five years.

CCJWRD Property Acquisition Update

Mr. Brodshaug said appraisal reports for Diversion Channel Phase 1 properties have started. He said one of the most significant purchases was the Mid America Steel property. He said other opportunistic acquisitions are underway and requests are being received on a steady basis. With Diversion Channel Phases 2 and 3 at the southern end near Horace, it was discovered the maps still showed a wider footprint than was needed. He said it is now slightly narrower, so the Diversion Authority will need a little less land and may be able to avoid a structure or two because of the narrower width. He said the lands team is processing a USACE request for long-term access on 38 monitoring sites involving nearly 400 parcels in fulfillment of the federal environmental permit. He said eight more Oxbow properties have recently closed and the final review of purchase agreements for the Case Plaza and the former Shakey's Pizza properties are ongoing. He said he heard one comment from one of the appraisers that the Diversion Authority are pioneers on this type of flowage easement because this is more of a probability issue.

In response to a question from Ms. Scherling regarding weeds and maintenance of homes in the Oxbow area, Mr. Brodshaug said there are homes now that are being winterized and they are getting them ready to get rid of nuisances, but some areas of the levees have been left because of injunctions and some sensitivity. There are other places where there are many entities that want to do mowing, he said; however, the golf course has standards and the city has standards. It is getting better, he said, and they are finding ways to do it.

The meeting adjourned at 3:48 p.m.



FM AREA DIVERSION PROJECT PROJECT IMPROVEMENTS

The Federal Project has been optimized to **reduce impacts** to land, people and the environment.

ALIGNMENT WAS SHIFTED FROM MN TO ND (2009)

- ▶ MN diversion had downstream impacts extending to Canada
- ▶ Approximately 4,500 structures impacted downstream. Unmitigatable.
- ▶ MN Diversion footprint impacted 6,500 acres in MN
- ▶ Minnesota officials supported moving diversion channel to ND
- ▶ A diversion channel on the North Dakota side of the river provides protection from tributaries (Sheyenne, Maple, Rush and Lower Rush rivers)

DOWNSTREAM IMPACTS WERE MITIGATED WITH UPSTREAM STAGING (2010)

- ▶ Downstream impacts in excess of 2 feet and extended to Canada
- ▶ Upstream staging was added
- ▶ Downstream impacts were virtually eliminated
- ▶ Impacts confined to a defined, mitigatable area

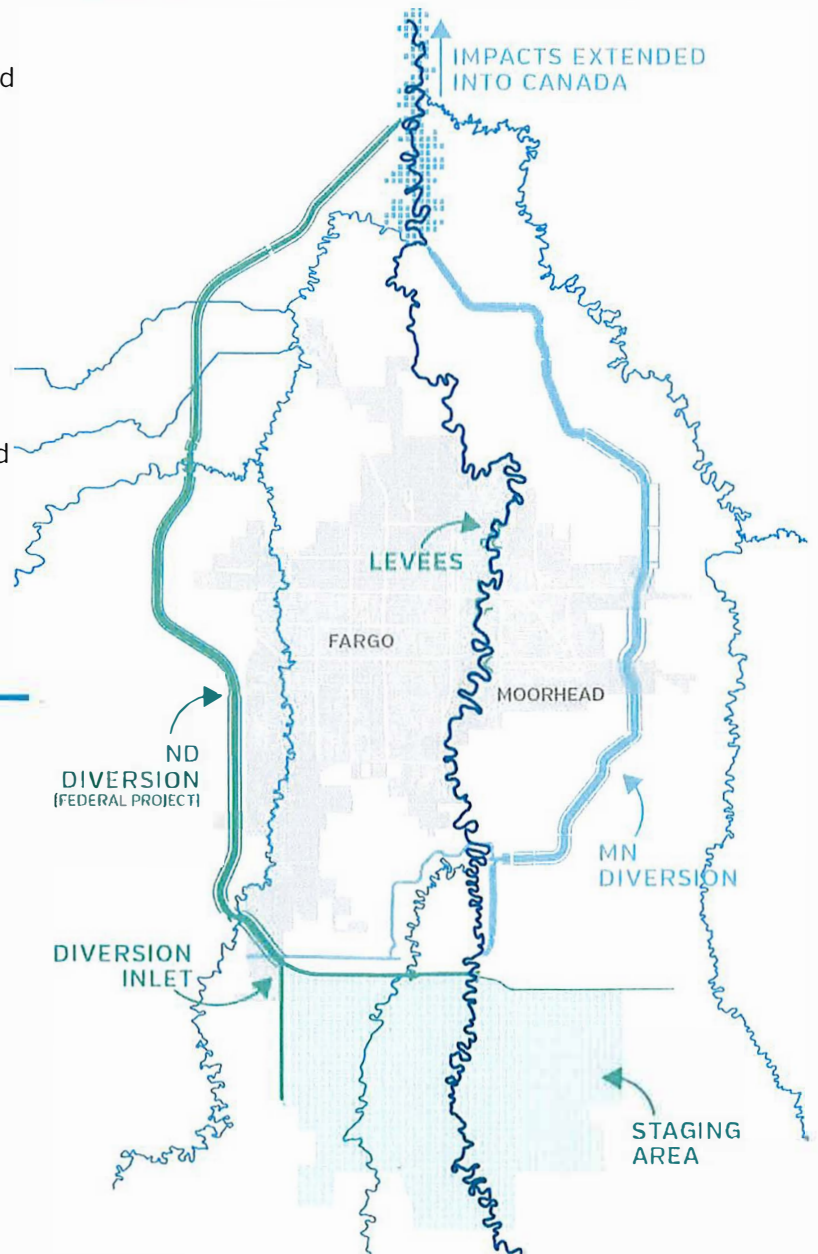
MINIMIZED UPSTREAM IMPACTS (2013)

- ▶ Moved alignment north, added gates to the Inlet Structure and built in-town levees and floodwalls to allow more flow through town
- ▶ Reduced the frequency (from 3.5 years to 10 years) and duration of project operation
- ▶ Significantly reduced probability of summer operation
- ▶ Reduced environmental impacts of project
- ▶ Reduced impacts to structures from 4,500 to approximately 800 (126 residential)

AT A GLANCE

- ▶ project will **SAFEGUARD** **230K** persons
a population of
- ▶ project will **PROTECT** **\$19bil** in property value

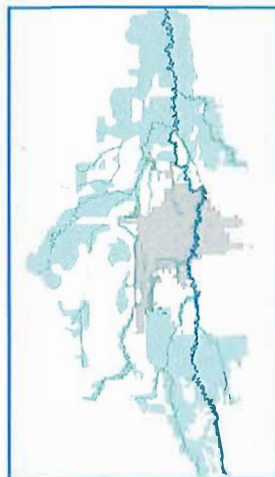
This is the optimized federal project that provides 100-year certifiable flood risk management



100-YEAR FLOOD WITHOUT PROJECT



100-YEAR FLOOD WITH PROJECT





FM AREA
DIVERSION
PROJECT

November 2016

Informational Sheet

Item C

Farm Impacts & Mitigation

UPSTREAM RETENTION AREA

The FM Area Diversion Project includes upstream retention of flood waters during times of extreme flooding. This is an essential component to safely control the flood waters upstream and downstream of the metro area and is the most effective and efficient storage. In the past 100 years, the Project would have operated 11 times for a total of 69 days.

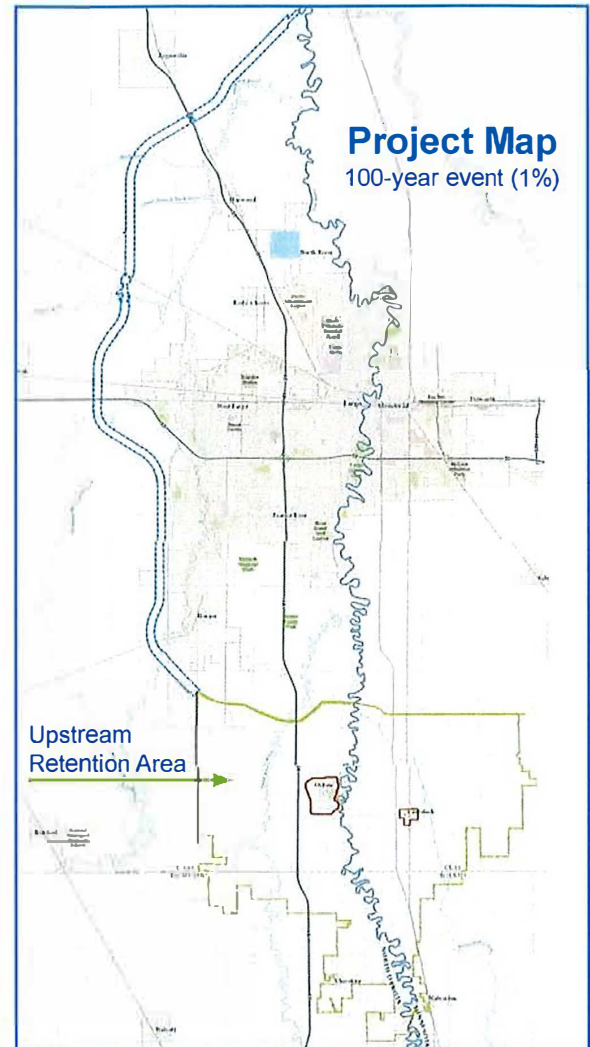
During operation of the Project, the upstream retention area will temporarily store various amounts of flood waters, depending on the magnitude of the flood event. The retention area will not be used every year and will not be used until a flood event exceeds 35-foot flood stage through Fargo-Moorhead. An NDSU study concluded there is an 85% chance every year that no water will be stored upstream. Under an extreme flood event, such as the 100-year flood, the upstream retention area will impact about 39,000 acres, and approximately half of those acres would be impacted today under the same flood event without the project.

AGRICULTURAL RISK STUDY OF IMPACTS

NDSU Agribusiness and Applied Economics department studied the risks and impacts of the Project on farm revenue in the upstream retention area. The study identified the following:

- The study indicated that “the key is to determine when producers can begin planting and if planting is delayed due to the diversion what, if any, planting delays cost the producer in lost revenue.”
- Accordingly, the NDSU research team studied two particular dates:
 - When flood water leaves the land, and
 - When spring planting begins in the retention area.
- Historical data indicates that spring planting starts most frequently about the same time as the effects of man-made flooding are over.
- Between 10,800 and 18,500 acres (depending on flood event size) will flood due to diversion that would not flood otherwise.
- Cumulative revenue losses across the entire study area ranged from \$0 in the best-case (no flood) situations to slightly over \$3 million per event over the entire area of 39,000 acres in the worst-case (extreme flood) situations.
- Conclusions from the study indicated that “there is a high-probability of incurring planting delays associated with man-made water storage. But, planting delays created by the proposed FM Diversion, at this time, do not appear to be extensive – at least not several weeks in length. Large delays are possible, but those situations are not as likely as shorter delays.”

“The study considered numerous factors and concluded that the revenue losses to agricultural producers would not be substantial.”

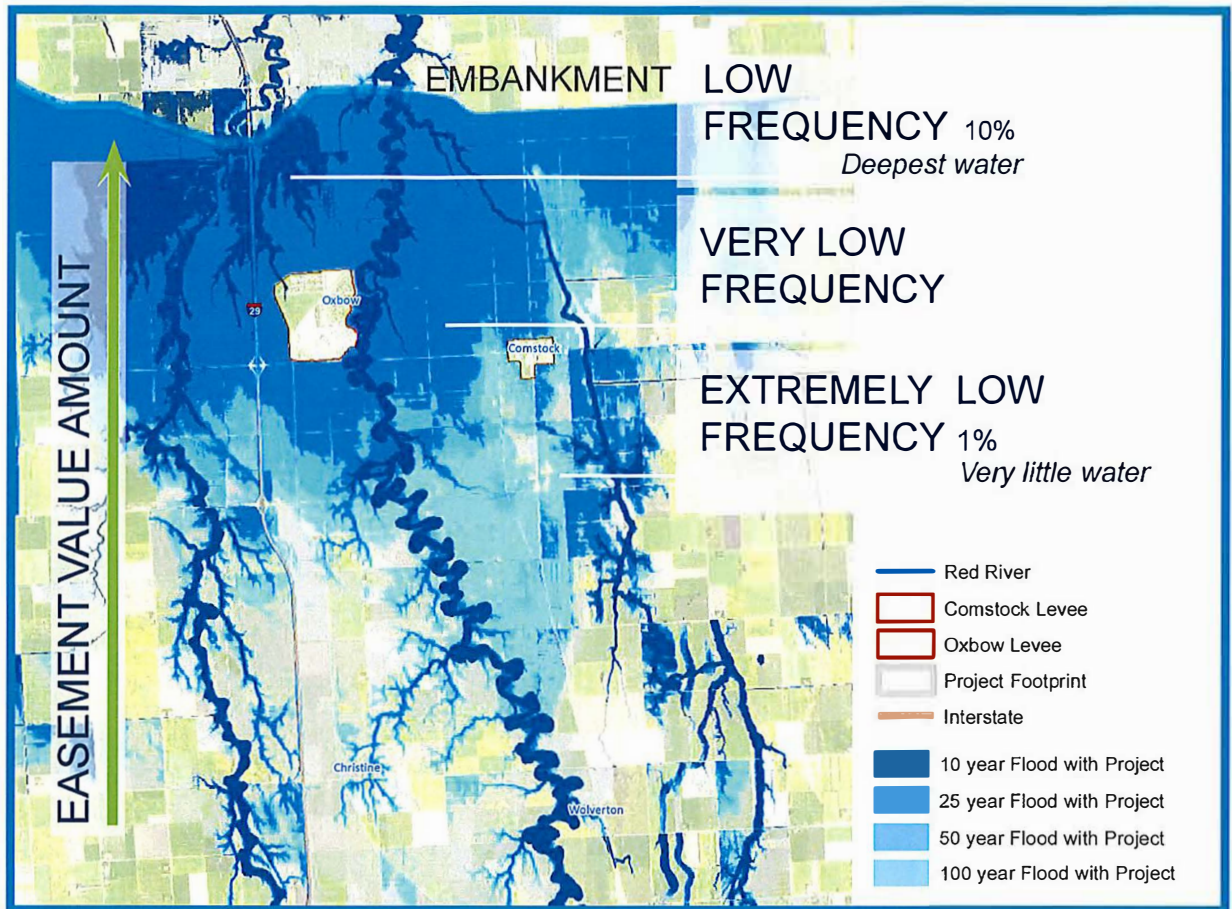


AT A GLANCE

- The retention area will not be used every year. The area will only be used when a flood event exceeds 35-feet.
- There is an 85% chance every year that no water will be stored upstream.
- Smaller storage areas distributed upstream do not provide the level of protection necessary and would have greater impacts.
- Upstream retention in planned location is most effective and efficient because it's close to the area being protected.

MITIGATION: FLOWAGE EASEMENTS

- Upfront payment to property owners impacted by the retention of flood waters.
- Easement provides legal ability to temporarily and occasionally retain flood waters.
- Easement will allow farming to continue, however, development may be regulated depending on extent of impacts.



- Easement value is determined by a market-based appraisal, considering depth, duration, and frequency of flooding, highest and best use of the property, and property impacts.
- Easement values will vary by parcel with the general trend of higher easement values closer to the embankment and lower easement values farther from the embankment.

- Easements are required by Federal law for the Project.
- The purchase of flowage easements is included in the Project cost estimate and financial plan.

MITIGATION: SUMMER FLOOD CROP INSURANCE

- On-going payment to producers for the crop loss caused by summer operation of the Project.
- Summer operation of the Project is extremely unlikely, but summer operation could cause devastating damage to growing crops.
- Diversion Authority has committed to provide greater mitigation than required by Federal or State laws, and greater than what has historically been provided.
- Diversion Authority will either purchase an insurance product or self-fund the program, and provide coverage free of charge to producers.
- Ongoing O&M costs incurred after initial Project construction will be paid by sales taxes or a maintenance assessment to the properties benefited by the Project.



November 2016

Organic Farmland Mitigation

ORGANIC FARMLAND OVERVIEW

The Diversion Authority will offer the owners of organic farms in the upstream retention area the option of an early buyout to allow them to continue their organic farming operation. This option will allow the organic farmers the opportunity to establish organic certification of new lands well in advance of Project operation, while maintaining continuous organic production.

It is understood that there are four organic farming operations within the vicinity of the upstream retention area of the Project. According to the MDNR EIS, the farmer-reported total organic acreage is approximately 4,370 total parcel acres. Approximately 320 of those acres have been purchased to date by the Diversion Authority under this mitigation program.

MITIGATION PLAN

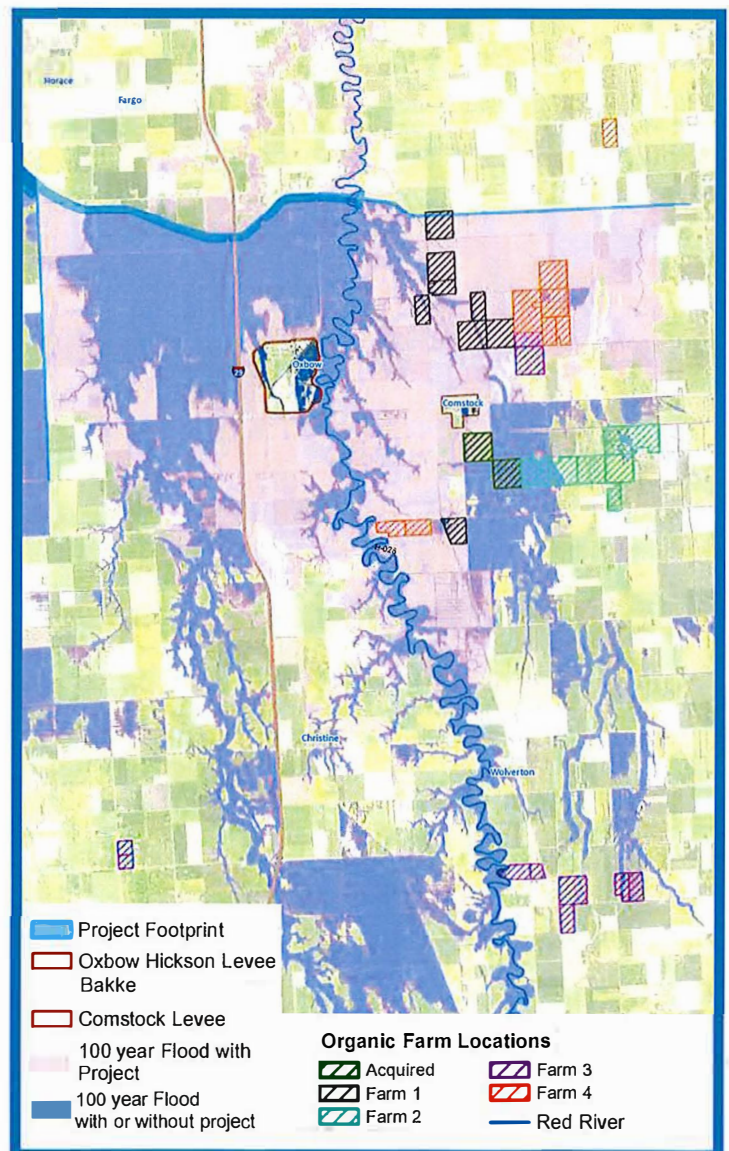
Upon acquisition of existing organic farmland, the Diversion Authority will enter into a rental agreement with the current organic farm operator to rent the existing organic farmland during the time frame in which the organic certification is being established on new lands, which is typically three to five years.

The Diversion Authority will pay to conduct an appraisal of the organic farmland. Representatives from the Diversion Authority will present the appraisal and initial purchase offer to the property owner for consideration and to begin negotiations.

The purchase agreement will be structured to allow a 1031 type tax exchange transaction.

AT A GLANCE

- There are four organic farming operations in the upstream retention area.
- Early acquisition will be offered for organic farmlands.
- The Diversion Authority will allow sufficient time for the organic producer to establish new organic certified farmland outside the staging area.
- The Diversion Authority will enter into a rental agreement with the operator so they can continue using their currently organically-certified property while the operator is establishing organic certification on new lands. This typically takes three to five years.





The number of benefited landowners far outweighs the number of impacted landowners. Impacted landowners will be compensated according to applicable law.

Benefits Exceed Impacts: STRUCTURES

	TOTAL STRUCTURES BENEFITED ¹	TOTAL STRUCTURES IMPACTED IN UPSTREAM INUNDATION AREA ²	RESIDENTIAL STRUCTURES IMPACTED IN UPSTREAM INUNDATION AREA ²
MN	663	317	28
ND	15,902	511	98 ³
TOTAL	16,565	828	126

¹ MN DNR FEIS, table 3.78 based on HAZUS data

² MN DNR FEIS, table 3.82 based on GIS count

³ Number now lower due to structure removals

- ▶ Benefited structures outnumber impacted structures by 20:1. In MN alone, the ratio is more than 2:1.
- ▶ The majority of impacted structures are non-residential.

Benefits Exceed Impacts: LAND

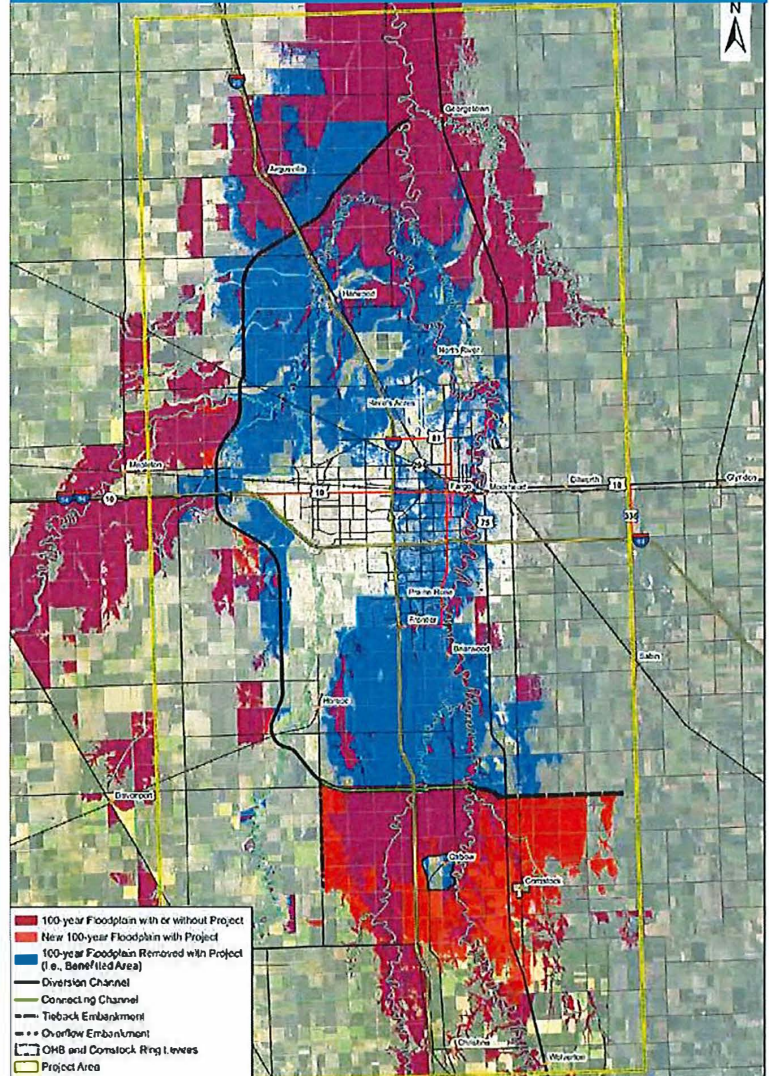
	ACRES BENEFITED (blue)	ACRES NEWLY IMPACTED (red)	NET BENEFITED ACRES
MN	10,229	12,317	-2,088
ND	62,694	8,145	54,549
TOTAL	72,923	20,462	52,461

MN DNR FEIS, page ES-61

- ▶ Benefited acres include concentrated urban areas which result in significant economic and social damages when flooded.
- ▶ Flooded ag lands become farmable within days after waters recede; land with homes that flood take much longer to make livable.
- ▶ Newly-impacted acres are primarily agricultural and would infrequently be impacted by flooding from project operation.
- ▶ The Project will operate once in 10 years, on average, for a few weeks in March-April. In the past 100 years, the Project would have operated 11 times for a total of 69 days.
- ▶ A majority of the upstream land is currently in the 100-year floodplain and in agricultural use (see maroon area on map).
 - ▷ Agricultural use will continue once the project is in place. There is no evidence that land values would decrease.

100-YEAR FLOOD INUNDATION

BLUE ▶ BENEFITED AREAS | RED ▶ NEWLY IMPACTED AREAS
MAROON ▶ FLOODED WITH OR WITHOUT PROJECT



AT A GLANCE

- ▶ Overall, the project's benefits outweigh its impacts measured in terms of both land and structures.
- ▶ Project would **benefit more than 600 structures** (mainly homes) in Minnesota and **impact fewer than 30 homes** in the Minnesota portion of the upstream inundation area.
- ▶ The Project includes mitigation for land and structures that are impacted.
- ▶ **There is no alternative that reduces impacts to the Fargo-Moorhead area and has no impacts on others.**



FM AREA DIVERSION PROJECT MN SPECIFIC BENEFITS

November 2016

Source: MN DNR Final EIS dated May 2016 (unless otherwise noted)

- ▶ **"Flooding poses a significant risk of damage** to urban and rural infrastructure and **disrupts transportation** throughout the metropolitan area. The F-M urban area is a **regional center** for **healthcare, education, government, and commerce**. **Infrastructure at risk** in the F-M urban area includes several **regional medical centers, three college campuses, and city and county government offices.**" [pg. ES-8]
- ▶ Flood stage has been exceeded 52 of the past 114 years. [pg. ES-8]
- ▶ In 2009, Minnesota National Guard supported flood fight operations with 382 personnel and 166 vehicles in Clay County, MN and 300 personnel in North Dakota. [Minnesota National Guard Fact Sheet, 15 April 2009]

SOCIOECONOMICS

- ▶ "Some of the factors potentially influencing socioeconomics as a result of the Project would include economic growth, health and safety, impacts to communities from relocation of its residents, and economic costs, including lost income or reduced property values." [pg. 3-217]
 - ▷ FM Diversion protects 605 structures in Moorhead and an additional 58 in Clay County in a 100-year event and 1,094 structures protected during a 500-year event [pg. 3-237]
 - 16,565 structures in total protected from the FM Diversion in a 100-year event [pg. 3-237]

3,180 primary structures in Moorhead would be impacted by a breach of emergency floodfighting measures, 100-year event. [City Engineer, Moorhead, MN]

- ▶ **Moorhead, MN was the fastest growing city in the metropolitan area** between 2000-2010. 18.3% [pg. 3-220]
- ▶ Total **Minnesota State and Local Taxes Lost** Due to Loss of Building Function in FM Metropolitan Area Due to Flooding = **\$4 Million / Year** [pg. 3-245]
- ▶ Total Minnesota Jobs Lost Due to Loss of Building Function in FM Metropolitan Area Due to Flooding = **380 Jobs / Year** [pg. 3-245]
- ▶ Total **Minnesota Business Output Lost** Due to Loss of Building Function Due to Flooding = **\$43 Million / Year** [pg. 3-267]

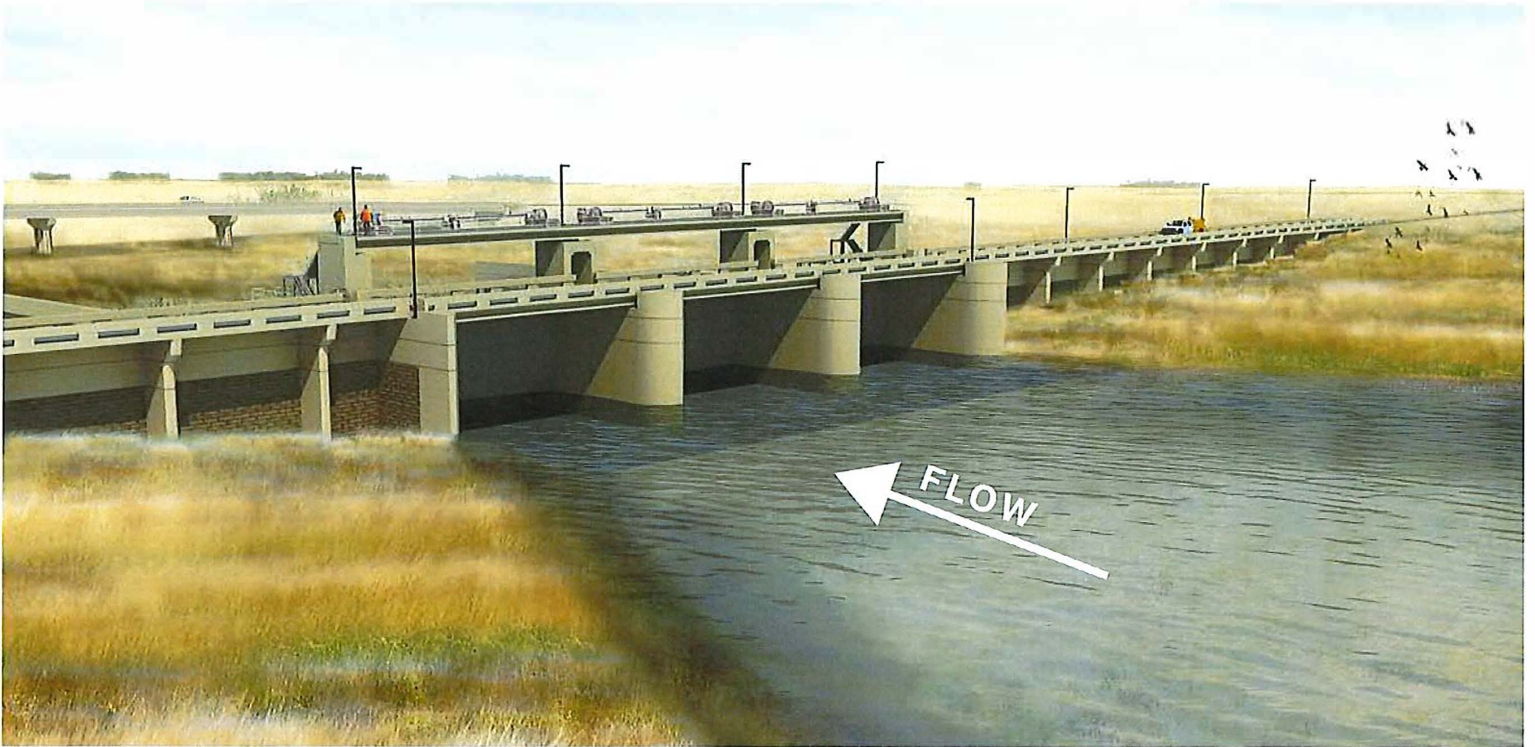
FARGO AND MOORHEAD WILL BENEFIT TOGETHER

- ▶ "Project construction and operation would **reduce** the **stress** experienced by communities and individual property owners/renters in the Benefitted Areas by reducing the threat of flooding and flood fighting efforts." [pg. 3-258]
- ▶ "Although constructing **emergency levees** have been successful in the past, they are at **high risk of catastrophic failure.**" [pg. 3-258]
- ▶ "The two cities do share an economic vitality. If Moorhead were to be protected from a large-scale flood event such as a 100-year flood, and **Fargo was not protected**, it is likely that **Minnesota** would still be **affected both socially and economically.**" [pg. 3-259]

13,377 residents in Clay County area employed in Cass County. [Greater Fargo-Moorhead Economic Development Corporation]



FM AREA DIVERSION PROJECT DIVERSION INLET STRUCTURE



View of Inlet Structure (Looking Downstream from the Embankment Area) - GATES DOWN

Diversion Inlet Structure is a gated control structure that will control the amount of water that enters the diversion channel from the upstream staging area. Features include three 50-foot wide tainter gates, a vehicle service bridge across the structure, mechanical platform and control building.

- ▶ A gated structure allows greater control in keeping downstream impacts negligible
- ▶ 100-year flood = 20,000 cubic feet per second (cfs)
- ▶ Each gate will weigh 87,000 pounds [Equal to a fully-loaded semi rig]
- ▶ Located in NE corner of County Roads 17 and 16, south of Horace, ND

SCHEDULE

- | | |
|---|--------------------|
| ▶ Issued solicitation | ▶ 11 July 2016 |
| ▶ Opened proposals | ▶ 1 Sept 2016 |
| ▶ Award contract | ▶ Dec 2016 |
| ▶ Notice to proceed (14 days) | ▶ Dec 2016 |
| ▶ Contractor submittals and review | ▶ Jan - March 2017 |
| ▶ Contractor mobilizes and begins preload construction to stabilize soils | ▶ April 2017 |
| ▶ End of 275 day preload of site/ start construction of structure | ▶ Feb 2018 |
| ▶ Complete construction of Inlet | ▶ 2020 |

