



**DIVERSION AUTHORITY
Land Management Committee
City Commission Room
Fargo City Hall
Tuesday, November 10, 2015
4:00 p.m.**

1. Agenda review
2. Approve October 7, 2015 minutes
3. Property Acquisitions
4. CCJWRD Land Management Report
5. Final NDSU Ag Risk Study
6. December Meeting Schedule
7. Other Business
8. Next meeting: TBD

**DIVERSION AUTHORITY
Land Management Committee Minutes
City Commission Room
Fargo City Hall
Wednesday, October 7, 2015
4:00 p.m.**

Land Management Committee Members Present: Fargo Mayor Tim Mahoney, Oxbow Mayor Jim Nyhof, Moorhead City Council Representative Heidi Durand, Cass County Commission Representative Darrell Vanyo, Clay County Commission Representative Jenny Mongeau, Cass County Joint Water Resource District Representative Rodger Olson, Buffalo-Red River Watershed District Representative Gerald Van Amburg, Fargo City Commission Representative Dave Piepkorn, Cass County Administrator Keith Berndt, Moorhead City Manager Michael Redlinger, Clay County Administrator Brian Berg, Moorhead City Engineer Bob Zimmerman, Fargo City Engineer April Walker.

Others present: Eric Dodds - AE2S, Tanaya Reitz - AE2S, Mark Brodshaug - Cass County Joint Water Resource District, Bruce Spiller - CH2M Hill, Bruce Grubb - Interim Fargo City Administrator, Pat Roberts and Scott Stenger – ProSource.

Presentation on Requested Details on Oxbow Property Acquisitions and Replacement Homes:

Tim Mahoney announced that the members of the Land Management Committee are meeting in conjunction with the Finance Committee for a presentation on Oxbow Home and Relocation Details.

Pat Roberts and Scott Stenger of ProSource Tehnologies, Inc. gave presentations on the information requested by both committees last month. They reported on the processes used to arrive at purchase agreements and shared data and summaries about Oxbow relocations. The committees discussed details on acquisitions and relocations, the variables and difficulties involved, competitive bidding and unit pricing, the policy of Housing of Last Resort, values for replacement houses, the availability of data on the new assessed value of replacement homes, and the process in which future acquisitions will be presented for approval.

Dave Piepkorn said he is very concerned about the high replacement costs and not having restraints on the spending. From a taxpayer's perspective, this all appears very overpriced, he stated.

Darrell Vanyo said he would like to know that the replacement items, such as trees and accessories, are one-for-one for the relocation of 328 Schnell Drive. If not, he said, he would like to know the reason why and the cost comparisons.

Tim Mahoney said the committees will meet jointly again for presentations in two weeks and if action is taken, the committees will vote separately.

The Finance Committee adjourned at 5:05 p.m.

The Land Management Committee was convened.

Agenda Review

There were no additions or amendments to the agenda.

Approve September 9, 2015 Minutes

Rodger Olson moved the minutes from the September 9, 2015 meeting be approved. Darrell Vanyo seconded the motion. All the members present voted aye and the motion was declared carried.

Property Acquisition and Relocation Details

This was discussed earlier in the joint presentation.

CCJWRD Land Management Report

Mark Brodshaug gave an overview of the Land Management Report and the items that have changed from last month. He said three properties in Oxbow, one agricultural property near Oxbow and two in-town properties have closed. He pointed out that one of the agricultural properties that shows being closed is simply a paperwork catch up item; therefore, only one agricultural property closed this month.

Hardship Property Option Agreement

Eric Dodds said there are currently four outstanding hardship cases. He said the program is geared to help folks with medical hardships impacted by the project who need an early buyout. The Hardship Committee addresses whether applicants fit the program, he said, and if approved, the acquisition process begins. The case that needs to be resolved quickly is in Minnesota, he said, and legal counsel has advised caution, so perhaps rather than an acquisition, an option agreement may be used. The details are being worked out, he said; however, ultimately the agreement could allow the owner to have 80-90% of the property value, giving the property owner money to help get out of the hardship. He said they would be eligible for relocation benefits and the burden of maintenance could be shifted to the Diversion Authority. He said the Finance Committee seemed to agree that this could be the right path. He said there are some details to be worked out with the property owners and then an acquisition summary can be brought back, hopefully in two weeks.

Farmland Management Update

Eric Dodds said the Pifer's Land Management Report includes balance sheets and year to date profit and loss statements for agricultural property managed by The Pifer Group, Inc.

November & December Meeting Schedules

Eric Dodds said he expects the next meeting will be held jointly with the Finance Committee on Wednesday, October 21, 2015, at 4:00 p.m. The November 11th meeting may be changed to November 10th due to Veterans Day, he said, and ND Water Commission meetings are scheduled during the second week in December, so additional meeting dates may be shifted around.

Other Business

Tim Mahoney reminded members that Mayor Nyhof and Mayor Walaker worked on the original MOU, and as a result people have been able to stay in Oxbow, which has benefited the Kindred School District. Work needs to continue on redefining and amending the MOU, he said.

Rodger Olson moved the meeting be adjourned. Jim Nyhof seconded the motion. All the members voted aye and the motion was declared carried.

The meeting adjourned at 5:16 p.m.

The next meeting will be Wednesday, October 21, 2015 at 4:00 p.m.

FM Area Diversion Project Property Acquisition Summary

November 10, 2015

Property:

Owner	Robert L and Judith Anderson
Address	16678 3 rd St S., Moorhead, Clay County, MN
Property Type	Single Family Residential
Identification Number	1802

Property Need

Acquisition of this property is required as part of the future project staging area. See attached map. The property owner has applied for and been granted approval from the hardship committee of a purchase in advance of the project timeline in order to accommodate the owners medical hardship and need to sell the property.

Description of Acquired Property

The buyout property is a 1903 2 story rural residential dwelling with 2,350 SQFT situated on 4.53 acres. The buyout property also includes one 36' x 50' pole barn, and 2 detached 2 car garages.

Compensation & Negotiations Summary:

Compensation amounts proposed are based on an appraisal of the subject property provided by a qualified appraiser following the Yellow Book standards. The appraisal has been reviewed and approved by USACE. The property appraisal identified a market value of \$214,000.00 for the subject property.

The tax assessed value by Clay County, MN for the property is \$164,300.

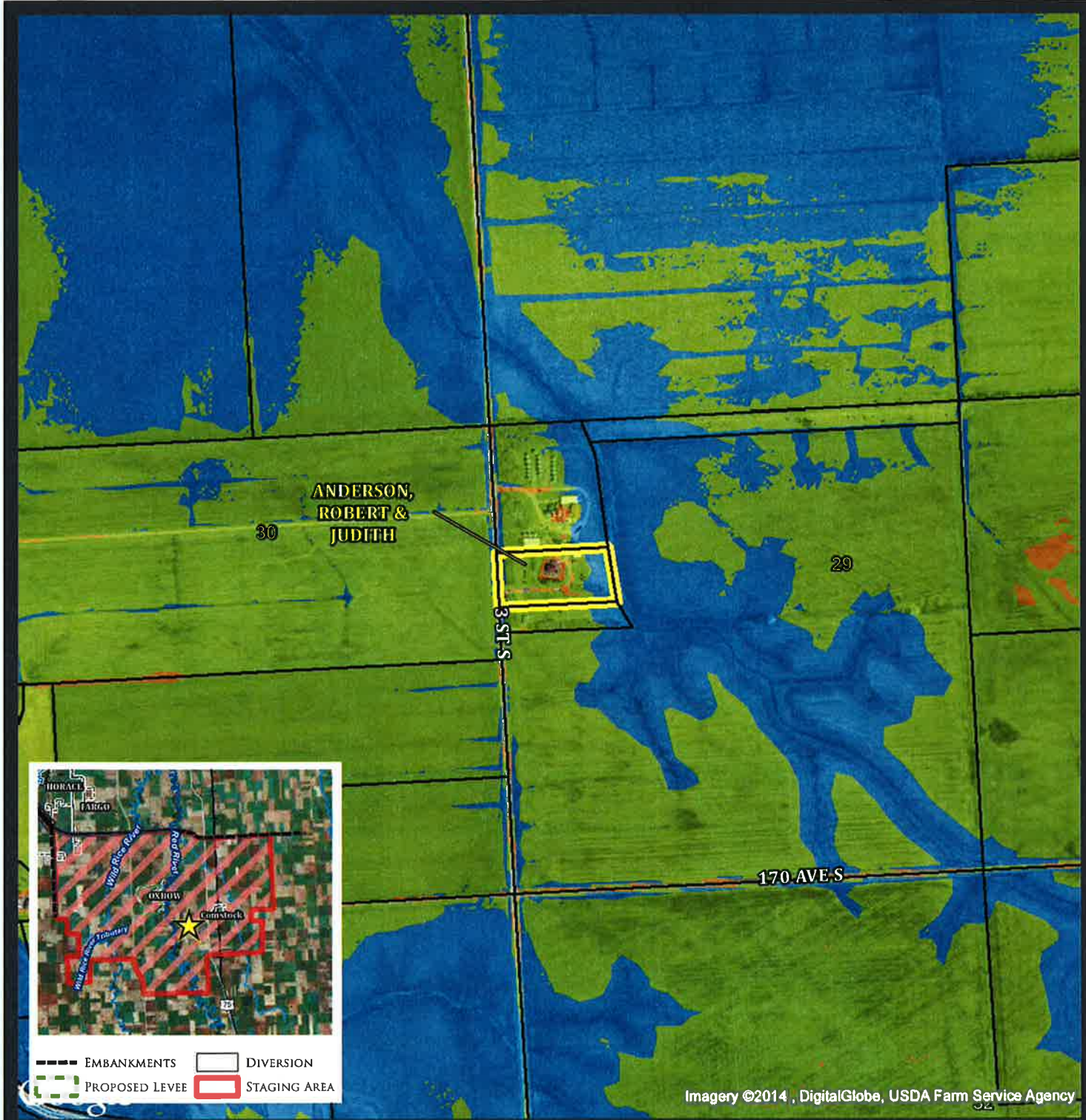
Requested Action/Recommendation

Authorization of a Purchase Agreement with Robert L and Judith Anderson in the amount of \$214,000.00.

In consideration of the medical hardship condition as well as the MnEIS, the Purchase Agreement will not include acquisition of the property until the MnEIS is complete. The Purchase Agreement will provide the Anderson's with funds that will enable them to secure a replacement property in accordance with URA.

Relocation Compensation Summary:

The Replacement Housing Study and Payment for the above listed property is attached. The recommended maximum eligible replacement housing differential payment is \$116,000.00 based on the replacement housing study conducted of comparable properties. There will be other relocation benefits provided to the Anderson's under URA. These may include a move payment, closing costs associated with the replacement property, as well as an interest differential payment.



Imagery ©2014 , DigitalGlobe, USDA Farm Service Agency

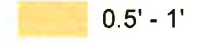
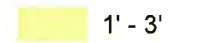

APPLICANT PARCEL
ROBERT & JUDITH ANDERSON
PIN #: 150293001
ADDRESS: 16678 3RD ST. S
MOORHEAD, MN 56560
COUNTY: CLAY

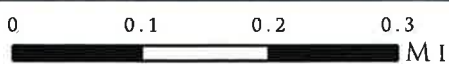
LEGAL DESCRIPTION
 BEG 1610.96' N OF SW COR; N 307.47', E 623.89', S309.49' & W 659.15' TO BEG 29-137-48


 Subject Parcel

PARCEL INFORMATION
 OIN: 1802
 Impacted: Yes
 WP: 38
 Location: Staging

100 YEAR TOTAL DEPTH

	0.5' - 1'
	1' - 3'
	>3'



LAST UPDATED: 10/8/2014 



October 26, 2015

SRF No. 7715.08

Robert and Judith Anderson
16678 3rd Street South
Holy Cross, MN 56560

In reply refer to: FM Area Diversion Project-Medical Hardship
Parcel No. 1802
Address: 16678 3rd Street South, Holy Cross, MN

Dear Robert and Judith:

This is a NOTICE OF RELOCATION ELIGIBILITY. You will be entitled to relocation payments and other assistance in accordance with Federal regulations which implement the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended (Uniform Relocation Act). You are now eligible for relocation assistance.

To assist in covering your costs of moving, you may choose either (1) a payment for your actual reasonable moving and related expenses, limited to a distance of 50 miles, or (2) a fixed payment based on the number of rooms you furnish and occupy.

Also, if you owned and occupied your home for at least 180 days and you buy a decent, safe and sanitary replacement house, you may receive a replacement housing payment to assist in covering the following costs:

1. Differential Amount. If you must pay more to buy a comparable replacement home than you receive for your present home, this amount will cover the difference within certain limits.
2. Incidental Expenses. This amount covers some costs incidental to settlement on your new home, such as recording fees, the title insurance premium, and appraisal fees.
3. Increased Mortgage Interest Costs. This amount will help compensate for some additional interest costs that would be incurred if you have a mortgage on your home and must pay a higher interest rate on a mortgage on your replacement home.

Listed below are properties similar to yours which are currently available for purchase. We have chosen the listed property at 361- 2nd Street NE, Barnesville, MN 56514, to use as your "comparable" home in determining your replacement housing benefits as described above.

www.srfconsulting.com

One Carlson Parkway North, Suite 150 | Minneapolis, MN 55447-4443 | 763.475.0010 Fax: 763.475.2429

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	Address	Asking Price
1.	361- 2 nd Street NE, Barnesville, MN	\$330,000
2.	8- 59 th Avenue NW, Moorhead, MN	\$267,472 (carve out price)
3.	1321 15 th Street South, Moorhead, MN	\$239,780 (carve out price)

The “comparable” home listed above has an asking price of \$330,000. Based on a \$214,000 acquisition price for your present home and the \$330,000 comparable dwelling price, you are eligible for a replacement housing differential payment up to \$116,000. This is the maximum differential payment which you may receive. If your actual replacement home costs less than \$330,000, the differential payment would be based on your actual replacement home purchase price.

We will explain the basis for the selection of this listing and, if necessary. We will not base your payment on any unit that is not a “comparable replacement home.”

You have been provided with a booklet that describes the relocation benefit program. Please read the booklet carefully. It explains your rights and some things you must do to obtain a payment. (For example, to receive a replacement housing payment you must purchase and move to a decent, safe and sanitary home within one year after you move or receive your final acquisition payment, if later.)

We want to make it clear that you are eligible for assistance to help you relocate. In addition to relocation payments and housing referrals, counseling and other services are available to you.

If you have any questions, please call us. We can be reached by calling 763-452-4713. We are sure that we can answer your questions.

This letter is of importance to you and should be carefully filed for safekeeping.

Sincerely,

SRF CONSULTING GROUP, INC.



Tammy Guderian
Right of Way Specialist

PRICE DIFFERENTIAL PAYMENT

ANALYSIS OF COMPARABLE PROPERTIES

Project: FM Area Diversion-Medical Hardship County: Clay

Parcel: 1802

Owner: Robert and Judith Anderson

Address: 16678 3rd Street South

City: Holy Cross

	Subject	Most Comparable		Referral-Comparable Properties			
		No. 1	Map	No. 2	Map	No. 3	Map
Appraised Value	\$214,000						
List Price		\$330,000		\$239,900		\$209,900	
Carve Out				\$267,472		\$239,780	
Address	16678 3 rd Street South	361 2 nd Street NE (23.5 miles)		8- 59 th Avenue NW (26 miles)		1321 15 th Street South (18.87 miles)	
City	Holy Cross	Barnesville		Moorhead		Moorhead	
Date of Inspection	February 12, 2015						
Style	Two Story	Two Story		One Story		One & One Half Story	
Construction	Wood	Wood		Wood		Wood	
Actual Age/Eff. Age	1903	1903				1955	
Condition EGF	Average	Average (as-is)		Average		Average	
No. of Units	Single Family	Single Family		Single Family		Single Family	
No. of Rooms	8	11		9		11	
No. of Bedrooms	5	6		5		7	
Bedrooms Required	5	5		5		5	
No. of Baths	3 Full Bathes	2 Full Bathes 1-3/4 Bath 1-1/2 Bath 1-1/4 Bath		3 Full Bathes 1-1/2 Bath		3 Full Bathes	
Total Area (Sq. Ft.)	2,350 FSF – AG 1,175-BG	4,758 FSF		2,674 FSF		3,218 FSF	
Basement	unfinished	unfinished		unknown		Partially finished	
Bsmt – types of Fin. Rms.	none	unknown		unknown		2 BR, FR	
Heat/Cooling	Propane/CA	Gas/Propane Boiler, GT					
Fireplaces		1		0		0	
Other Finished Space		Bonus Room-3 rd Floor					
Garage	(2) - 2 Car Detached	2 Car Detached		2 Car Detached		2 Car Detached	
Lot Size	4.53 Acres	4.94 acres		.59 acres		.26 acres	
Neighborhood E/B	Rural Residential	Rural Residential		Rural Residential		Rural Residential	
Schools	Available	Available		Available		Available	
Public Transportation	Available	Available		Available		Available	
Church	Available	Available		Available		Available	
Place of Employment	Available	Available		Available		Available	
Water 1. Type 2. Adequate		City					
Sewer 1. Type 2. Adequate		City					
Other Comments	Porch, Deck, 36 x 50 Pole Barn	Porch, Security System		Shed, Underground Fence			

Comparable Comments & Conclusions:

The Cass County Joint Water Resource District has determined that the #1 Comparable listed above meets the definition of a comparable replacement property as defined in 49CFR Section 24.2(6). In order for this property owner to purchase a comparable property as defined in 49CFR, the maximum Replacement Housing Differential Payment (RHDP) would be \$ 116,000.

\$ 330,000
List Price of Prime Comparable

\$330,000 minus \$214,000 = \$116,000
Comparable Acquisition Cost Maximum RHDP

Approval (CCJWRD)

Date

FM Area Diversion Project

Property Acquisition Summary

November 10, 2015

Property:

Owner	Arthur Mathison Trust
Address	C/O David Camrud, Trustee Wells Fargo Bank, N.A. Manager-Real Estate PO Box 340 Moorhead, MN 56561-0340
Property Type	Agricultural Land
Identification Numbers	1975 & 1985

Property Need

Acquisition of this property is required to accommodate construction of the OHB Ring Levee project and associated internal drainage features (Work Package WP-43B). See attached map.

Description of Acquired Property

The property required for the OHB Ring Levee project is a 74.66 acre tract of farmland and 6.22 acres of permanent and temporary easement.

Compensation & Negotiations Summary:

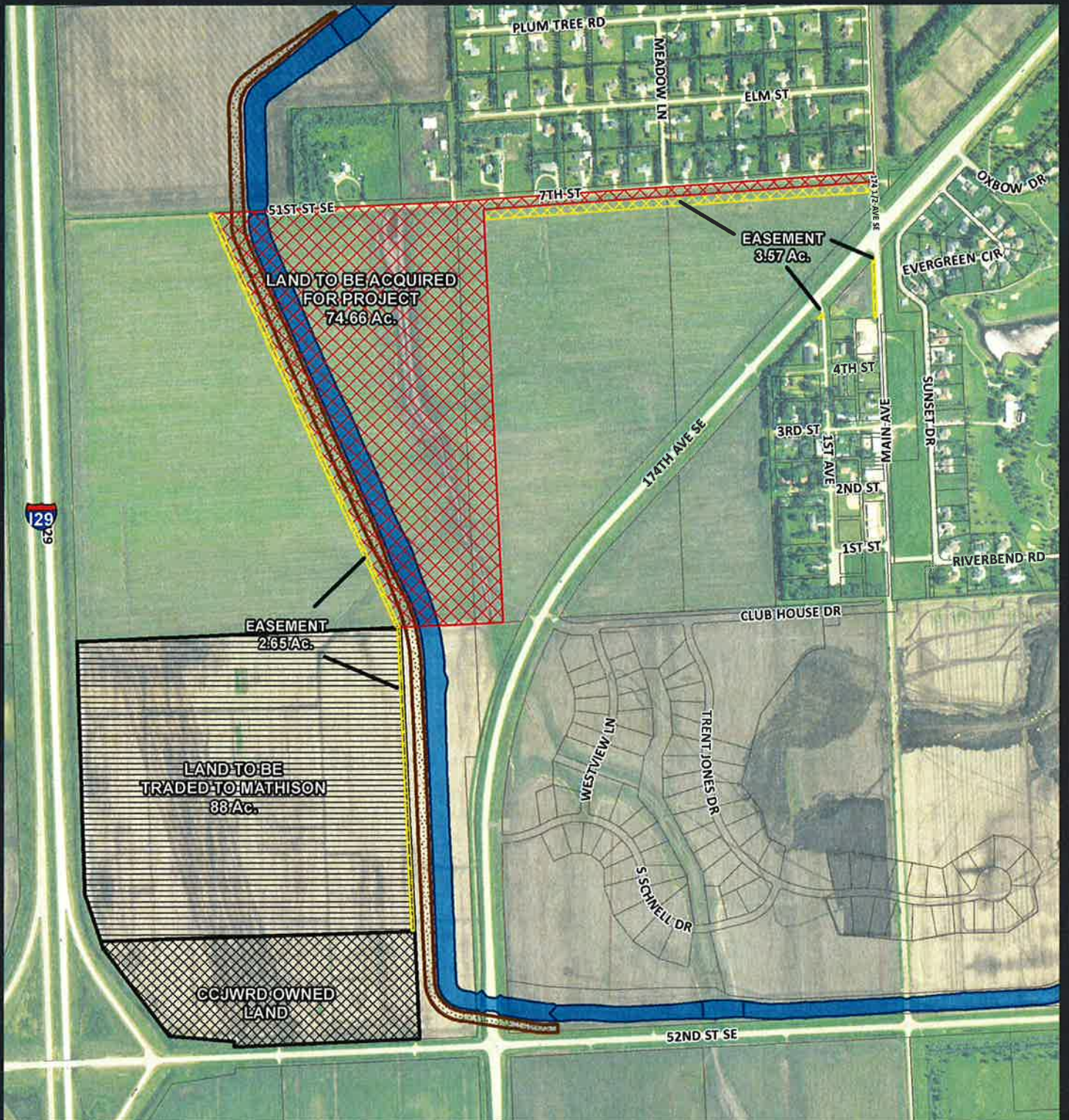
The recommended agreement includes acquisition of 74.66 acres of Mathison land for the ring levee and pond, acquisition of 6.22 acres of permanent and temporary easement for construction of utilities, agreement not to protest annexation into Oxbow of the portion of the property where the OHB Ring Levee will be constructed and that portion of the property inside of OHB Ring levee if and when it is proposed, in exchange for 88 acres of farmland to the Mathison family, and providing three access points (location tbd) to the farmland tract. There will no monetary compensation for this exchange.

Negotiations began in April of 2014 and have continued on in a sporadic manner since. Ongoing and recent discussions between David Camrud (Trustee of the Arthur Mathison Trust), Mark Brodshaug (CCJWRD board chair), and Stefan Olafson (negotiating agent), at the request of the Mathison Trust, have focused on land exchange options rather than cash acquisition.

These discussions stemmed from the CCJWRD purchasing the entire adjacent property to the south of the Mathison property from the Heitmann family. It became evident that a land exchange in which the CCJWRD would trade acreage from the Heitman tract for acreage for the ring levee and pond from the Mathison family.

Requested Action/Recommendation

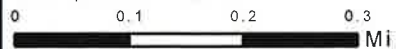
1. Recommend to CCJWRD, execution of an Exchange Agreement as just compensation for real property (land for land, no monetary compensation).



SUBJECT PROPERTIES

- CCJWRD Owned Land
- OHB Levee
- Construction Easement
- Land to be Traded to Mathison
- Fee Title
- Ditch

Last Updated: 11/6/2015



Acres amounts source:
Certificate of Survey and Easement Exhibits by HMG.
Parcels by Cass County, ND. Heilman traded land acreage breakdown is approximate and has not been taken from any surveys as of map date.

FM Area Diversion Project

Property Acquisition Summary

November 10, 2015

Property:

Owner	Juan and Annele Mondragon
Address	1313 Elm St, Fargo, ND
Property Type	Single Family Residential
Identification Number	9126

Property Need

Acquisition of this property is required as part of the in town levee system, specifically the El Zagal levee project. See attached map.

Description of Acquired Property

The buyout home is a single family one story home with 2,366 SQFT, 2 bedrooms and 2.5 baths. Note this home does not have a basement. This home has an attached two stall garage and a detached 380 square foot one stall garage. The home is located directly adjacent to Trefoil Park.

Compensation & Negotiations Summary:

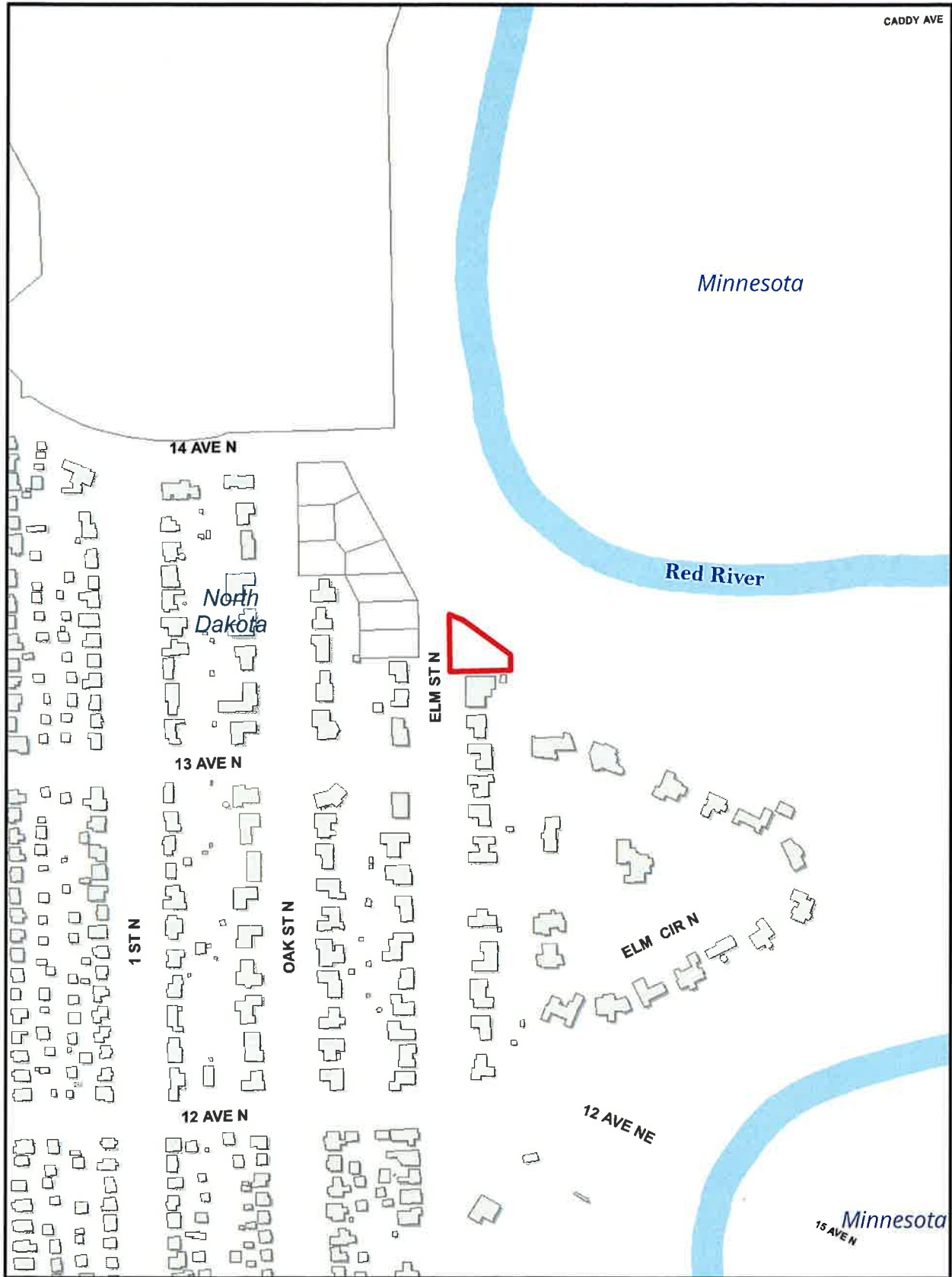
Compensation amounts proposed are based on an appraisal of the subject property provided by a qualified appraiser following the Yellow Book standards. The appraisal has been reviewed and approved by USACE. The Owners requisitioned their own appraisal dated 9-23-2015, which valued the home at \$365,000. This appraisal was completed by Mark Thelen who is a licensed appraiser. There will be no Replacement Housing Differential Payment since the recommended purchase price exceeds the amount in the original study completed by SRF and the original appraised amount.

The original property appraisal identified a market value of \$299,000.00 for the subject property. The owners rejected this offer and requisitioned their own appraisal which identified a market value of \$365,000.00. After reviewing the new appraisal and adjusting for the relocation comps, an offer of \$340,000.00 was made to the Mondragon's. They countered at \$350,000.00.

The tax assessed value by the City of Fargo, ND for the property is \$320,900.

Requested Action/Recommendation

Recommend that CCJWRD execute a Purchase Agreement with Mondragon's in the amount of \$350,000.00. Please note that this amount is under 110% of assessed value.



CURRENT COST SHARE REQUEST

OIN# 9126
OWNER: JUAN M MONDRAGON

PROPERTY ADD: 1313 ELM ST N, FARGO CITY
TOWNSHIP: REED TOWNSHIP

PARCEL ACREAGE: 0.33 AC.



Diversion Channel



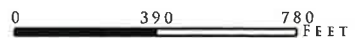
OHB Levee



In Town Levee

LAST UPDATED: 8/12/2015
REF PAGE NUMBER: 9126

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Maps are for graphical purposes only. They do not represent a legal survey. While every effort has been made to ensure that these data are accurate and reliable, the Flood Diversion Authority does not guarantee the accuracy of the information and waives any warranty or guarantee of any kind, express or implied. The data involved in the project is continuously refined and revised; you should not rely on this information for technical purposes or liability.

FM Area Diversion Project

Property Acquisition Summary

November 10, 2015

Property:

Owner	Wayne Haug
Address	24 North Terrace N, Fargo, ND 58102
Property Type	Single Family Residential
Identification Number	9195

Property Need

Acquisition of this property is required as part of the in town levee system, specifically the Mickelson levee extension. See attached map.

Description of Acquired Property

The buyout home is a single family two story home with 1,984 SQFT. This home has three bedrooms and 2 baths. This home has a detached two stall garage. Special features include newer windows and steel siding.

Compensation & Negotiations Summary:

Compensation amounts proposed are based on an appraisal of the subject property provided by a qualified appraiser following the Yellow Book standards. The appraisal has been reviewed and approved by USACE. The property appraisal identified a market value of \$184,000.00 for the subject property.

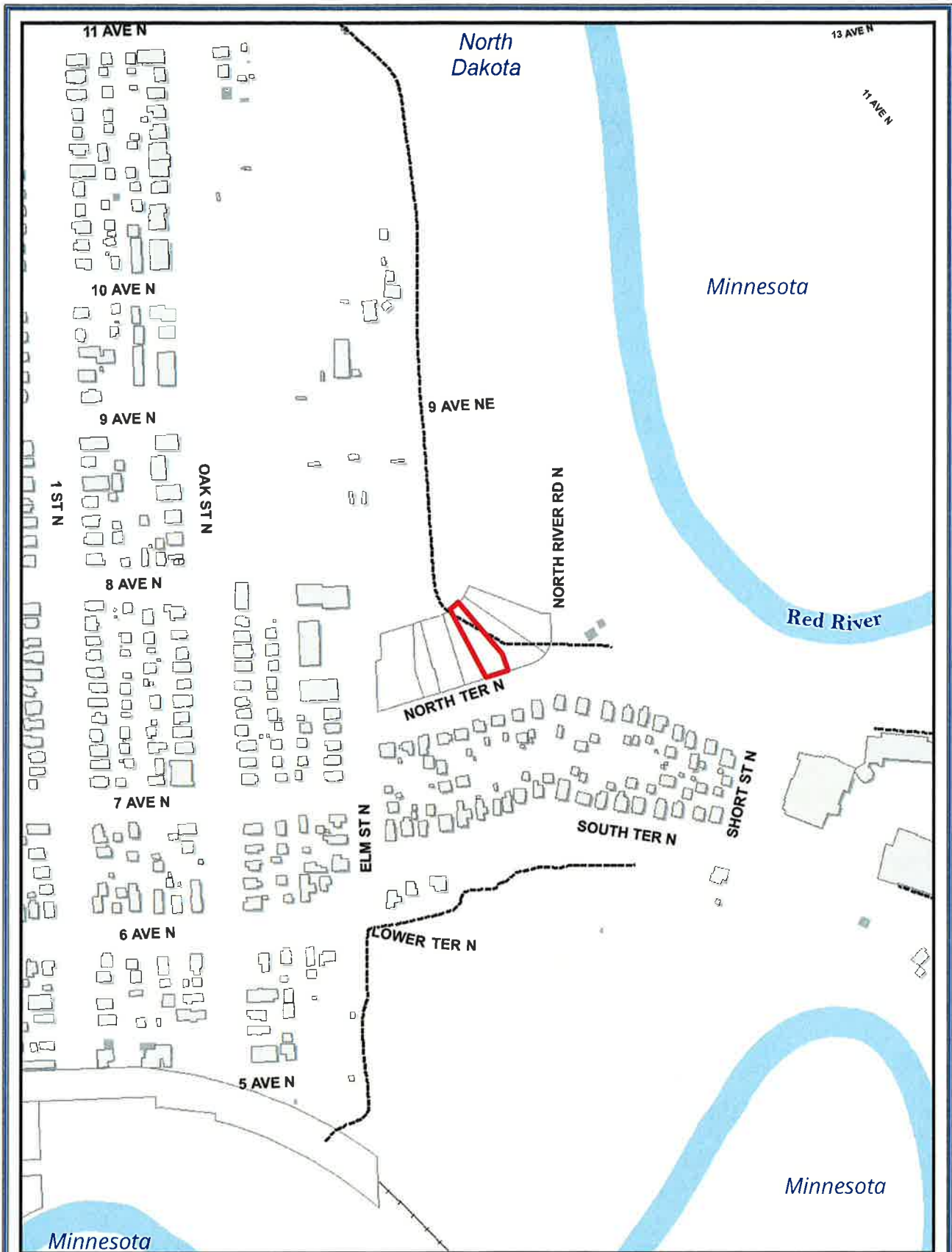
The 2014 tax assessed value by the City of Fargo, ND for the property is \$133,500.

Requested Action/Recommendation

Recommend that CCJWRD execute a Purchase Agreement with Wayne Haug in the amount of \$184,000.00.

Relocation Compensation Summary:

A summary of the Replacement Housing Study and Payment for the above listed property is attached. The recommended maximum eligible replacement housing differential payment is \$22,500.00 based on the replacement housing study conducted of comparable properties. This number was previously approved by the CCJWRD. There will be other relocation benefits provided to the Mr. Haug under URA.



CURRENT COST SHARE REQUEST

OIN# 9195
OWNER: WAYNE HAUG

PROPERTY ADDR: 24 NORTH TERRACE N, FARGO CITY
TOWNSHIP: BARNES TOWNSHIP

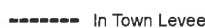
PARCEL ACREAGE: 0.23 AC.



Diversion Channel



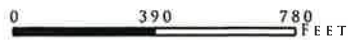
OHB Levee



In Town Levee

LAST UPDATED: 8/12/2015
REF PAGE NUMBER: 9195

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ENGINEERS
PLANNERS
DESIGNERS

July 2, 2015

SRF No. 7715.08

Wayne Haug
24 North Terrace North
Fargo, ND 58102

In reply refer to: FM Area Diversion Project-Mickelson Levee Extension (WP-421)
Parcel No. 9195
Address: 24 North Terrace North, Fargo, North Dakota

Dear Wayne:

This is a NOTICE OF RELOCATION ELIGIBILITY. You will be entitled to relocation payments and other assistance in accordance with Federal regulations which implement the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended (Uniform Relocation Act). You are now eligible for relocation assistance.

To assist in covering your costs of moving, you may choose either (1) a payment for your actual reasonable moving and related expenses, limited to a distance of 50 miles, or (2) a fixed payment based on the number of rooms you furnish and occupy.

Also, if you owned and occupied your home for at least 180 days and you buy a decent, safe and sanitary replacement house, you may receive a replacement housing payment to assist in covering the following costs:

1. Differential Amount. If you must pay more to buy a comparable replacement home than you receive for your present home, this amount will cover the difference within certain limits.
2. Incidental Expenses. This amount covers some costs incidental to settlement on your new home, such as recording fees, the title insurance premium, and appraisal fees.
3. Increased Mortgage Interest Costs. This amount will help compensate for some additional interest costs that would be incurred if you have a mortgage on your home and must pay a higher interest rate on a mortgage on your replacement home.

Listed below are properties similar to yours which are currently available for purchase. We have chosen the listed property at 2602 Pacific Drive South, Fargo, ND 58103, to use as your "comparable" home in determining your replacement housing benefits as described above.

www.srfconsulting.com

One Carlson Parkway North, Suite 150 | Minneapolis, MN 55447-4443 | 763.475.0010 Fax: 763.475.2429

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	Address	Asking Price
1.	2602 Pacific Drive South, Fargo	\$206,500
2.	222 29 th Avenue North, Fargo	\$195,000
3.	1250 3 rd Street North, Fargo	\$190,000

The “comparable” home listed above has an asking price of \$206,500. Based on a \$184,000 acquisition price for your present home and the \$206,500 comparable dwelling price, you are eligible for a replacement housing differential payment up to \$22,500. This is the maximum differential payment which you may receive. If your actual replacement home costs less than \$206,500, the differential payment would be based on your actual replacement home purchase price.

We will explain the basis for the selection of this listing and, if necessary. We will not base your payment on any unit that is not a “comparable replacement home.”

You have been provided with a booklet that describes the relocation benefit program. Please read the booklet carefully. It explains your rights and some things you must do to obtain a payment. (For example, to receive a replacement housing payment you must purchase and move to a decent, safe and sanitary home within one year after you move or receive your final acquisition payment, if later.)

We want to make it clear that you are eligible for assistance to help you relocate. In addition to relocation payments and housing referrals, counseling and other services are available to you.

If you have any questions, please call us. We can be reached by calling 763-452-4713. We are sure that we can answer your questions.

This letter is of importance to you and should be carefully filed for safekeeping.

Sincerely,

SRF CONSULTING GROUP, INC.



Tammy Guderian
Right of Way Specialist

PRICE DIFFERENTIAL PAYMENT

ANALYSIS OF COMPARABLE PROPERTIES

Project: Fargo–Moorhead In-Town Levee Project County: Cass

Parcel: 9195

Owner: Wayne Haug

Address: 24 North Terrace North

City: Fargo

	Subject	Most Comparable		Referral-Comparable Properties			
		No. 1	Map	No. 2	Map	No. 3	Map
Appraised Value	\$184,000						
List Price		\$206,500		\$195,000		\$190,000	
Address	24 North Terrace North	2602 Pacific Drive S (4.63 miles)		222 29 th Avenue N. (2.6 miles)		1250 3 rd Street N (.88 miles)	
City	Fargo	Fargo		Fargo		Fargo	
Date of Inspection	April 7, 2015						
Style	One & a Half Story	One Story		One Story		One & a Half Story	
Construction	Wood	Wood		Wood		Wood	
Actual Age/Eff. Age	1919	1977		1970		1927	
Condition EGF	Average	Good		Good		Good	
No. of Units	Single Family	Single Family		Single Family		Single Family	
No. of Rooms	8	9		8		9	
No. of Bedrooms	3	4		4		5	
Bedrooms Required	3	3		3		3	
No. of Baths	2 Full Bathes	1 Full Bath 1-3/4 Bath		2 Full Bathes		1 Full Bath 1-3/4 Bath	
Total Area (Sq. Ft.)	1,256 TSF	1,464 TSF		1,104 –TSF		1,593-TSF	
Basement	516 SF-BG	Finished				Partially Finished	
Bsmt – types of Fin. Rms.	FR, Laundry	FR, BR, Utility		FR, BR, Laundry		BR, Utility, Laundry, Craft Room	
Heat/Cooling	GHW, radiator & electric baseboard	GFA/CA		GFA/CA		GFA/CA	
Fireplaces	0	2		0		1	
Other Finished Space							
Garage	2 Car Detached	2 Car Attached		2 Car Attached		2 Car Detached	
Lot Size	0.25 Acres	0.27 Acres		0.18 Acres		0.16 Acres	
Neighborhood E/B	Urban	Urban		Urban		Urban	
Schools	Available	Available		Available		Available	
Public Transportation	Available	Available		Available		Available	
Church	Available	Available		Available		Available	
Place of Employment	Available	Available		Available		Available	
Water 1. Type 2. Adequate	City	Yes	City		City		City
Sewer 1. Type 2. Adequate	City	Yes	City		City		City
Other Comments	Fenced Yard,	Parking Pad, Fenced Yard, Heated Garage, Shed, Updates		Parking Pad, Updated Bathroom		Parking Pad	

Comparable Comments & Conclusions:

The Cass County Joint Water Resource District has determined that the #1 Comparable listed above meets the definition of a comparable replacement property as defined in 49CFR Section 24.2(6). In order for this property owner to purchase a comparable property as defined in 49CFR, the maximum Replacement Housing Differential Payment (RHDP) would be \$ 22,500 .

\$ 206,500
List Price of Prime Comparable

\$ 206,500 minus \$184,000 = \$ 22,500

Comparable Acquisition Cost Maximum RHDP

Approval (CCJWRD) _____ Date _____

Agribusiness & Applied Economics Report 745

Initial Assessment of the Agricultural Risk of Temporary Water Storage for FM Diversion

Department of Agribusiness and Applied Economics
North Dakota State University
Fargo, ND 58108

October, 2015

NDSU NORTH DAKOTA
STATE UNIVERSITY

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Executive Summary

The proposed Fargo/Moorhead Area Diversion (FM Diversion) is intended to reduce the flood risk for Fargo, Moorhead, and other communities in Cass County, North Dakota and Clay County, Minnesota. The FM Diversion is comprised of a water storage embankment and tie-back levees upstream of Fargo, flood protection dikes in the Fargo/Moorhead communities, and a Diversion channel to route water around the Fargo/Moorhead/West Fargo metro area. The embankment, tie back levees, and natural rise in the Red River basin will create a staging area in which water will be temporarily collected during times of high flow during spring flood events.

The implications of temporary water storage raise a number of questions, such as the effects of inundation on public infrastructure (e.g., roads, bridges), cultural landmarks (e.g., cemeteries), residential and commercial structures, delivery of public services (e.g., fire and rescue), and agricultural lands. This study is a preliminary evaluation of how temporary water storage during spring flood events may influence agricultural production within the staging area.

Current design of the FM Diversion is that temporary water storage will occur during spring flood events when the predicted flow of the Red and Wild Rice Rivers is expected to exceed 17,000 cfs in Fargo. Ten flood events since 1969, all occurring in the spring, would have triggered use of the FM Diversion using that criterion. The flow of the Red River at Fargo has not exceeded 17,000 cfs more than once within a year's time.

Study Approach

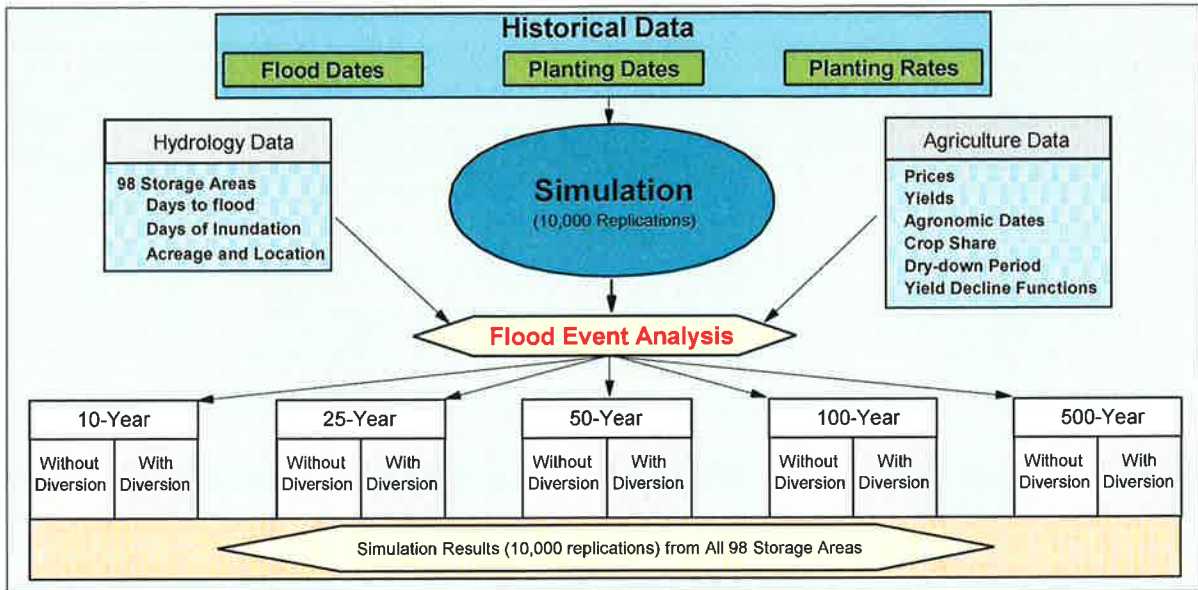
In an attempt to provide a broad assessment of the potential agricultural effects, **the study included the following factors:**

- **Gross revenues:** Revenues from crop production in the staging area during flood years Without the Diversion and With the Diversion.
- **Flood event start dates:** Range of likely dates when the staging area would be activated based on historical observations of when the Red River has reached 17,000 cfs in Fargo.
- **Regional planting start dates:** Dates when spring planting begins.
- **Planting rates:** Time required to plant crops based on overall spring planting conditions.
- **Agronomic considerations:** Crop rotations, periods when planting delays result in yield losses, dates when crops may be switched, and dates when crops would qualify for prevented planting.
- **Crop yields:** The anticipated yields that agricultural producers strive to obtain and adjust the level of inputs and farm practices to achieve. Crops modeled were wheat, corn, sugarbeets, and soybeans. The percentage of each crop was based on county-level planting data.
- **Yield reduction functions:** Amount of target yield lost due to delays in planting.

- **Crop prices:** A 7-year Olympic average of marketing year prices.
- **Dry-down period:** A 10-day period was used to represent the time necessary for the land to dry-down and complete any required clean up after being inundated, With or Without the Diversion.
- **Hydrology Data:** FM Diversion Authority provided detailed hydrology data for 98 storage areas comprising 44,285 acres.
 - **Flood Size** – 10-year, 25-year, 50-year, 100-year, 500-year, and 1997-like flood events
 - **Acreage Flooded**—acreage of land inundated based on general field elevation and size of flood event.
 - **Duration of Flooding**— days storage areas were flooded and when flood waters leave the storage areas.
 - **Without Diversion and With Diversion**—both hydrology conditions were modeled.
 - **Flood Effects vary by Storage Area and Flood Size**
 - Hydrology Group 1 - Areas that do not flood With or Without the Diversion
 - Hydrology Group 2 - Areas that already flood but flood duration is unchanged With Diversion
 - Hydrology Group 3 - Areas that already flood but flood duration is longer With the Diversion
 - Hydrology Group 4 - Areas that already flood but flood duration is shorter With the Diversion
 - Hydrology Group 5 - Would not normally flood but will now flood With Diversion

Excluding the 10-year flood event, the majority of acreage evaluated in this study will either flood longer (Group 3) With the Diversion or will now flood (Group 5) With the Diversion.
- **Key Assumptions and Omissions:**
 - **Crop Insurance** – the implications of Federal crop insurance coverage for lands affected by operation of the Diversion staging area were not addressed. Loss of Federal crop insurance mitigation of spring flooding would increase the per-acre losses on some lands and increase overall losses in the staging area during a flood event.
 - **Affected Acreage** – if any portion of a storage area was inundated all acreage of the storage area was assumed to be affected. This assumption could increase the overall acreage affected by spring flooding but would not affect the per-acre losses.

A Monte Carlo simulation, using historical data, was used to generate 10,000 most-likely combinations of flood starts, planting rates, and planting start dates. Hydrology data, combined with a dry-down period, were used with the Monte Carlo simulation to estimate the conditions, frequency, and magnitude of planting delays.



Results

The study focused on **1)** the additional time the Diversion adds to the number of days for the effects of flooding to be gone, and **2)** how often those additional days are likely to result in planting delays. A storage area would have delayed planting if the combination of inundation and dry-down periods extended past the date when regional planting starts. Conversely, if the combined time of inundation and dry-down occurred prior to when regional planting started, there would be no planting delays and the storage area would be planted at the same time as other land in the region. These criteria were applied to both existing conditions (Without Diversion) and With Diversion.

- Combining a **dry-down period** with the **hydrology data** revealed:
 - A majority of acres will require a total of 16 to 25 days for effects of flooding to be gone after activation of the staging area.
 - A majority of acres in the study area will flood Without the Diversion for most large flood events, and the Diversion will add 1 to 7 days of additional time for the effects of flooding to be gone.
 - Between 10,000 to 13,000 acres (depending upon flood event size) will flood due to the diversion that would not otherwise flood, and the time for the effects of flooding to be gone on those lands varies from 16 to 25 days after activation of the staging area.

- Examining **regional planting start dates** and likely **flood event start dates** revealed:
 - Annual probability ranges from 40 to 60 percent that the majority of acreage in the staging area, either with existing conditions or With the Diversion, would experience some planting delay for corn, sugarbeets, and wheat in a flood year (i.e., flood year of sufficient size to activate the staging area).
 - Annual probability is less than 15 percent that the majority of acreage in the staging area would experience some planting delays for soybeans in a flood year.

The study focused on those storage areas that flood longer (Group 3) and those storage areas that floods with use of the Diversion but would not otherwise experience spring flooding (Group 5).

Annual Chance of Revenue Loss due to Delayed Planting from Operation of the Diversion						
	Size of Flood Event					
	10-Year	25-Year	50-Year	100-Year	500-Year	1997-like
Storage Areas that Flood Longer With the Diversion (Group 3)						
Any Revenue Loss	33%	64%	67%	75%	75%	91%
\$1 to \$25 per acre	33%	64%	67%	75%	75%	91%
More than \$25 per acre	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%	<0.1%
Storage Areas that Floods With the Diversion but would not Flood under Existing Conditions (Group 5)						
Any Revenue Loss	29%	50%	56%	60%	60%	78%
\$1 to \$25 per acre	28.5%	45%	48%	48%	46%	52%
More than \$25 per acre	0.5%	5%	8%	12%	14%	26%

Note: *Per-acre revenue losses represent a composite of corn, wheat, soybeans and sugarbeets, based on their respective share of county crop acreage. Therefore, losses per acre for any hydrology group represent an average of the storage areas within that group and an average of revenues from all crops, even if some crops did not experience a planting delay or revenue loss.*

Despite the high probability of a planting delay during a 25-year or larger flood, the overall average per-acre losses within the storage areas was relatively small. Average losses were modest as a result of averaging all replications (years) with no losses (e.g., early flood with late regional planting start) and averaging all revenues from soybeans, which have little revenue loss and represent the largest share of acreage among the four crops (e.g., over 50 percent in Cass County).

Estimated revenue losses, averaged for all acres within the hydrology groups, are unlikely to equal event-level revenue losses for individual producers. For example, for those producers planning on raising soybeans, the probability and magnitude of revenue losses are quite low. However, for a producer raising corn in the same storage area, the planting delays due to the Diversion may result in revenue losses substantially larger than the average reported for the overall storage area or hydrology group.

Range of Per-Acre Crop Losses Observed in the Study, Storage Areas the Flood Longer						
	10-Year	25-Year	50-Year	100-Year	500-Year	1997-Like
----- Corn -----						
Least (5%)	\$0	\$0	\$0	\$0	\$0	\$0
Average	-\$0.75	-\$5.46	-\$6.16	-\$9.16	-\$5.54	-\$12.61
Max (5%)	-\$5.08	-\$21.65	-\$22.66	-\$28.68	-\$18.23	-\$29.64
----- Wheat -----						
Least (5%)	\$0	\$0	\$0	\$0	\$0	-\$0.01
Average	-\$1.35	-\$8.72	-\$9.63	-\$13.21	-\$8.60	-\$16.63
Max (5%)	-\$6.66	-\$23.47	-\$24.13	-\$30.06	-\$20.06	-\$29.34
----- Sugarbeets -----						
Least (5%)	\$0	\$0	\$0	\$0	\$0	-\$0.02
Average	-\$0.44	-\$18.25	-\$20.61	-\$28.65	-\$18.95	-\$36.68
Max (5%)	-\$2.61	-\$51.81	-\$53.84	-\$68.22	-\$44.73	-\$64.73
----- Soybeans -----						
Least (5%)	\$0	\$0	\$0	\$0	\$0	\$0
Average	\$0	-\$0.01	-\$0.02	-\$0.07	-\$0.03	\$0.56
Max (5%)	\$0	-\$0.30	-\$0.45	-\$1.33	-\$0.63	-\$7.04
Note: Five percent average of minimum and maximum observations controls for low probability events. Average values were estimated from all 10,000 observations in the analysis.						

Range of Per-Acre Crop Losses Observed in the Study, Storage Areas that Now Flood (new flooding)						
	10-year	25-year	50-year	100-year	500-year	1997-Like
----- Corn -----						
Least (5%)	\$0	\$0	\$0	\$0	\$0	\$0
Average	-\$2.99	-\$6.94	-\$6.84	-\$8.96	-\$9.81	-\$18.03
Max (5%)	-\$29.98	-\$49.60	-\$48.73	-\$57.66	-\$61.10	-\$79.77
----- Wheat -----						
Least (5%)	\$0	\$0	\$0	\$0	\$0	\$0
Average	-\$5.89	-\$12.76	-\$12.06	-\$15.76	-\$17.22	-\$27.63
Max (5%)	-\$51.07	-\$76.23	-\$73.12	-\$84.10	-\$88.28	-\$102.45
----- Sugarbeets -----						
Least (5%)	\$0	\$0	\$0	\$0	\$0	\$0
Average	-\$1.81	-\$27.25	-\$25.60	-\$33.67	-\$36.75	-\$58.81
Max (5%)	-\$16.77	-\$163.08	-\$156.50	-\$179.97	-\$188.08	-\$219.31
----- Soybeans -----						
Least (5%)	\$0	\$0	\$0	\$0	\$0	\$0
Average	\$0	\$0	\$0	-\$0.01	-\$0.01	\$0.09
Max (5%)	\$0	-\$0.05	-\$0.07	-\$0.14	-\$0.16	-\$1.73

Only losses due to the operation of the Diversion were estimated. Excluding the 10-year flood event, average losses per acre for corn ranged from \$7.50/acre in the 25-year event to \$10.25 per acre in the 500-year event. Per-acre losses for soybeans averaged less than \$0.10 for all flood event sizes. Excluding the 10-year flood event, average losses per acre for wheat ranged from \$12.50/acre in the 25-year event to \$16.25 per acre in the 500-year event. Sugarbeets had the largest per acre losses, ranging from \$26 per acre in the 25-year event to over \$34 per acre in the 500-year event. The per-acre losses reflect averaging of all storage areas in Groups 3 and 5, and included years when the operation of the Diversion did not result in revenue losses.

The collective revenue losses, for any single flood-event size examined in this study, when examined over all 10,000 replications for all 98 storage areas, ranged from \$0 in the best-case situations to near \$2 million in the worst-case situations. Those estimates did not include any Federal crop insurance indemnities associated with delayed planting.

Conclusions

Overall, the economic impact of Diversion Operations on crop production in the 98 storage areas was modest. In evaluating the historical data and expected differences in flooding created by the Diversion, several reasons underpin this conclusion.

There are no recorded flows on the Red River due to rain that would trigger the use of the Diversion; the Diversion would only be used to protect against springtime rain and snow melt. The Diversion is not expected to create losses after spring planting season.

Spring snow melt and runoff, in most cases, occur early relative to the regional planting season. During much of the flood-event, no planting occurs due to snow melt and overall wet conditions. The historical data suggest there was limited overlap between the spring runoff and planting.

The engineering data indicate that the combined capacity of the Red River and the Diversion channel, once the community is protected with dikes, will move extensive amounts of water around the community. The exact amount and timing will not be known until the Diversion Operating Manual is finalized by the Corps, but the preliminary indications are that the Red River will handle 17,000 cfs through the community and the Diversion channel will handle an additional 22,000 cfs around the community. However, despite the stated capacities, the timing and flow of flood waters also will be based on the characteristics of the flood-event, and all floods are unique (e.g., compare the 1997 flood event to the 2009 flood event). The combined flow capacity of 39,000 cfs clearly exceeds the largest observed flow in Fargo of 29,800 cfs observed in 2009. Both the stated design capacity of the Diversion and the current hydrology data suggest that water will not be retained in the staging area for extensive periods, and it is highly likely that those lands will be planted in a flood year.

In the more modest flood events (e.g., 25-year and 50-year events), many storage areas are not adversely affected by the Diversion. A substantial portion of the 98 storage areas, most lying in relatively low elevations, would experience flooding Without the Diversion. Current hydrology modeling suggests that the majority of lands that would flood Without the Diversion will experience 1 to 7 days of additional time for the effects of flooding to be gone (Group 3). For those lands, the Diversion may contribute to a delayed planting but is not responsible for all of the delayed planting. Most lands that will experience new flooding With the Diversion (Group 5) would require up to 25 days from the date when the staging area is activated until the effects of flooding are gone. However, not all of those days translate directly into planting delays. For much of that period, general weather conditions, such as temperature and normal dry-down from snow melt, prevent spring planting.

The impacts of planting delays from Diversion operations on corn, wheat, and sugarbeets are likely to be substantially different than soybeans. Soybeans had the lowest frequency and magnitude of revenue loss of the four crops. Soybeans also have the lowest relative yield decline of the four crops when planted beyond the optimal period. Over the planting periods evaluated in this study, planting delays have less relative impact on soybeans than corn, wheat, or sugarbeets. Soybeans also are planted later in the spring, reducing the likelihood of planting delays due to the use of the staging area. This combination of factors is why soybeans have the

lowest per-acre revenue losses. Soybeans also comprise the largest share of crops grown in the staging area, which further reduces the average revenue losses when all crop losses are combined within an entire storage area.

Operation of the Diversion creates a high likelihood of modest planting delays and subsequent revenue loss. About 30,000 to 38,000 acres (depending upon flood size) have a 50 percent to 65 percent chance of a revenue loss in a flood year (excluding 10-year events or smaller).

While the probability of a revenue loss is high, the magnitude of losses is generally modest (less \$25/acre average for a storage area). The probability of revenue loss of \$25 to \$75/acre average within a storage area is about 10 percent for flood events larger than a 10-year event.

Due to the complexity of the hydrology, which varies by storage area for the flood events evaluated, generalized statements about how producers will be individually affected are difficult. Revenue losses across all acres and crops within a storage area and by hydrology group measures the potential cumulative losses in the staging area and identifies general risk. However, care should be exercised that generalities and averages mask substantial differences for individual crops and storage areas. The economic impacts on some agricultural producers are likely to be considerably different from the average values within the hydrology groups.

Per-acre losses and cumulative losses would be larger if Federal crop insurance indemnities were included. Several uncertainties exist with how Federal crop insurance would be administered in the cases where the Diversion adds to existing flooding but the land would have flooded in the absence of the Diversion. Also in cases where the Diversion is modeled to have no adverse effect, questions remain if the use of the Diversion affects the eligibility of Federal crop insurance to assist in mitigating planting delays on those lands. To what degree Federal crop insurance coverage will be impacted as a result of Diversion operations is unknown. This study only estimated the revenue losses associated with delayed planting that was due to operation of the Diversion. Including the potential value of lost insurance on all lands experiencing a planting delay (regardless if the planting delays was due to the Diversion) would increase the losses to producers and perhaps substantially increase losses Calculated in this study.

Total losses in this study were based on the assumption that if any portion of a storage area was inundated, all land within that storage area was equally affected. Given the lack of available data to refine that assumption, developing estimates using all acreage was the best approach. However, overall losses due to the use of the Diversion would be sensitive to that assumption. Also if the acreage modeled was expanded to include 'cross-section' areas excluded from this study or additional lands beyond the 98 storage areas, overall losses would likely increase. Finally, including the value of lost insurance indemnities would increase total losses.

This study represents the first attempt to address potential effects of temporary water storage on agricultural production resulting from the use of the Diversion. As a result of this effort, insights were gained on how the flooding effects vary by location and elevation of land, and how the effects also are influenced by the size of flood event. Examining when the effects of flooding may be gone and when regional planting typically begins, suggests a high likelihood of relatively short planting delays. These conclusions are extremely helpful in advancing the discussion of how agricultural production might be affected, but a number of additional issues

remain unquantified. While this project was not able to address all production-related issues, this study, along with its methodology, lays a strong foundation from which additional production questions can be addressed.

Recommendations

-) **All lands affected by temporary water storage due to the operations of the Diversion need to be assessed.**

The 98 storage areas evaluated in this study exceeds the general scope of the staging area as previously defined by the U.S. Army Corps of Engineers. Despite the expanded geography of lands that may be potentially impacted, potential effects for substantial acreage within the study region were not included in this study. All lands impacted by temporary water storage associated With the Diversion should be assessed. Those areas may include lands with hydrology impacts less than the Federal threshold for mitigation. Some of those lands are currently classified as ‘cross-section’ areas in the hydrology modeling. Producers operating in those areas will have no less desire to understand the hydrology effects and potential economic risk than producers operating in the storage areas identified in this study.

-) **Insurance Implications**

Evaluate the potential loss of insurance indemnities during flood years and potential effects of reduced yields in flood years on adjustments to a producer’s annual production history. Implications associated with effects on federal crop insurance could be substantial.

-) **Improve upon Key Assumptions**

Study results are sensitive to dry-down assumptions. The days required for dry-down and clean-up was a static assumption, but should be re-examined to evaluate if dry-down periods can be statistically linked to planting rates or related to weather differences generally observed between the months of April and May.

Refinement in general data may require cooperation from producers operating within the staging area or cooperation from government agencies (e.g., Risk Management Service). County- or state-level information for crop yields, planting periods, planting rates and other agricultural factors were used in this assessment. More refined data, specific to the general staging area, would provide more precise estimates of the economic effects.

-) **Variability of Effects at Producer Level Highlight Need for a Fair, Flexible, and Comprehensive Compensation Policy**

This study demonstrates the complexity of framing and measuring the impacts of temporary water storage on agricultural producers. The FM Diversion Authority should continue to evaluate alternative compensation adjustments and mitigation strategies. Potential elements could include relieving risk to tenant producers, not just landowners. A compensation plan addressing full damages and including all affected parties would help alleviate the risk and financial concerns associated with temporary water storage.