

**City of Fargo**  
**Oakcreek, Copperfield**  
**Court, and Coulee's**  
**Crossing Area Flood Risk**  
**Management Project**

**Public Information Meeting**

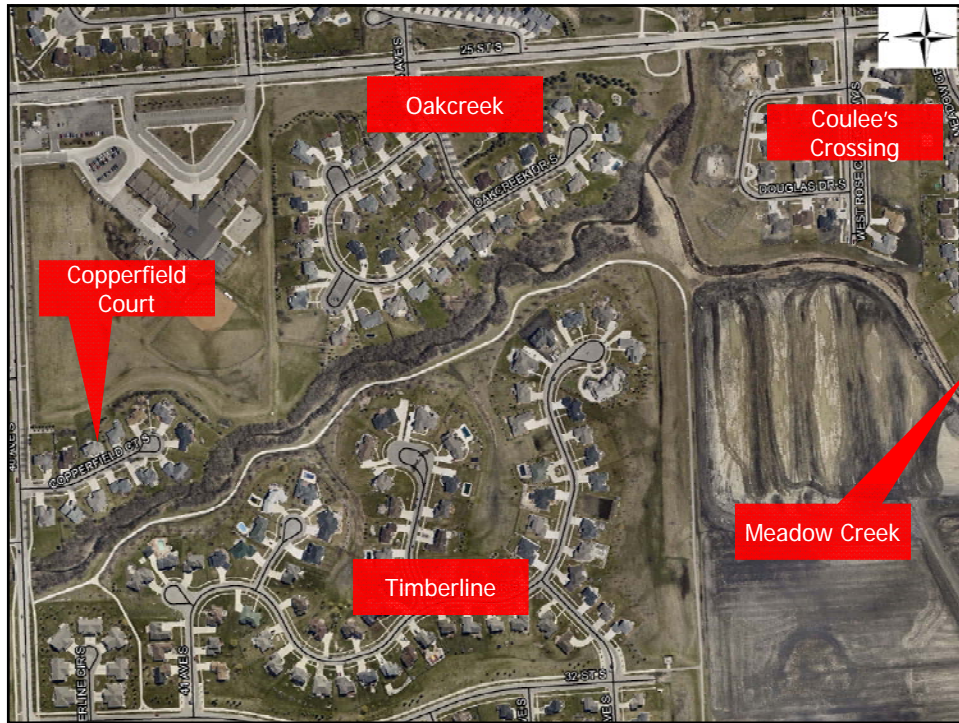
February 16, 2012



**AGENDA**

- Status at Last Meeting
- Landowner Involvement and Comments
- Recommended Plan
- Other Alternatives Considered / Summary
- Path Forward
- Questions

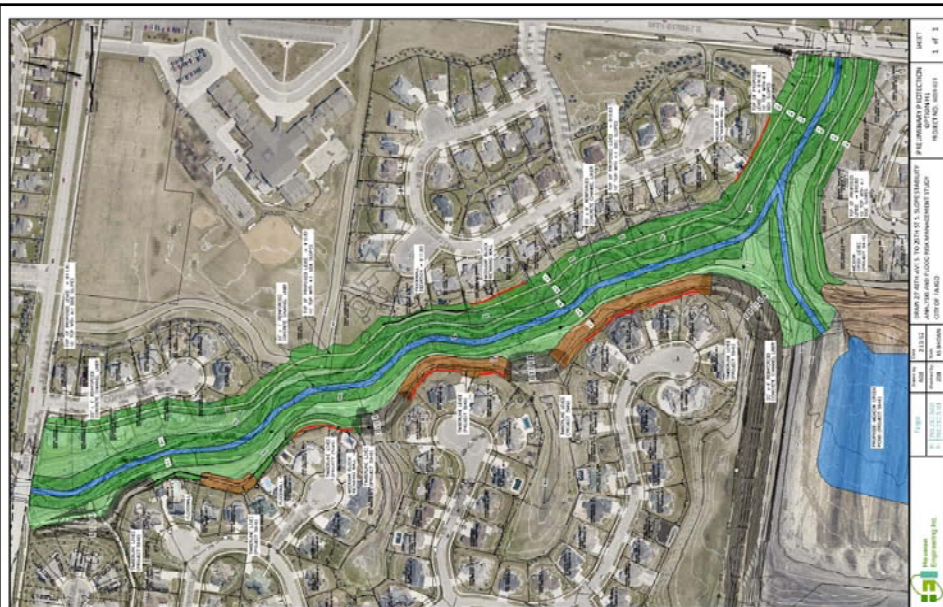




## Status at Last Meeting

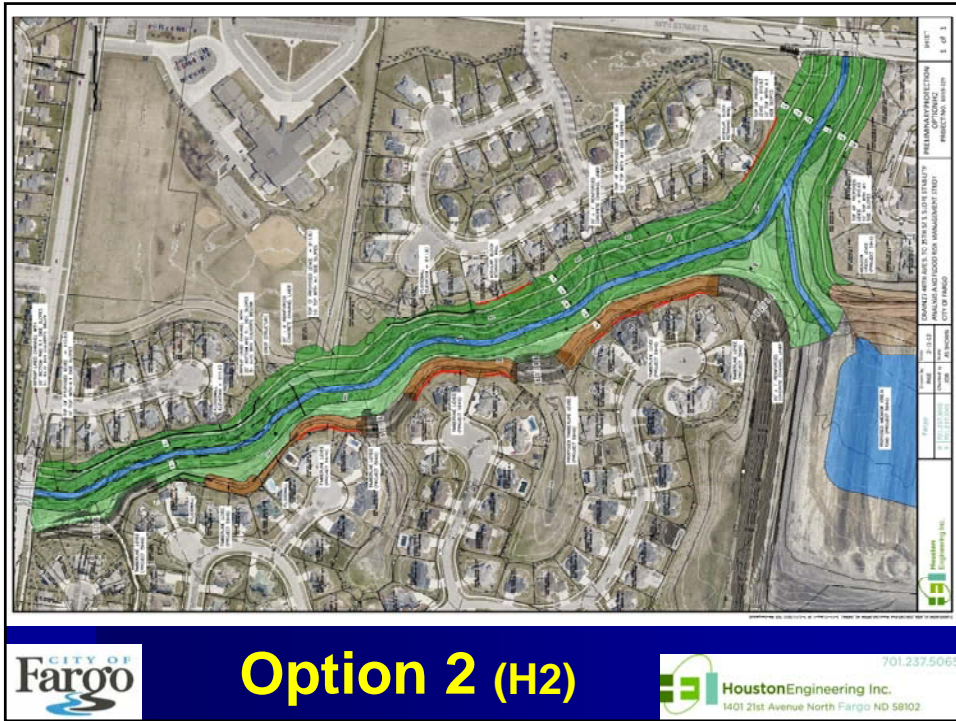
1. Option 1 – Channel Relocation with Buyouts  
– Approximately \$12.75M± (including Land)
2. Option 2 – Channel Relocation, Buried Culverts, Floodwalls and Minimized Buyouts.  
– Approximately \$15.1M± (including Land)

Goal – Minimized Home Acquisitions



## Option 1 (H1)





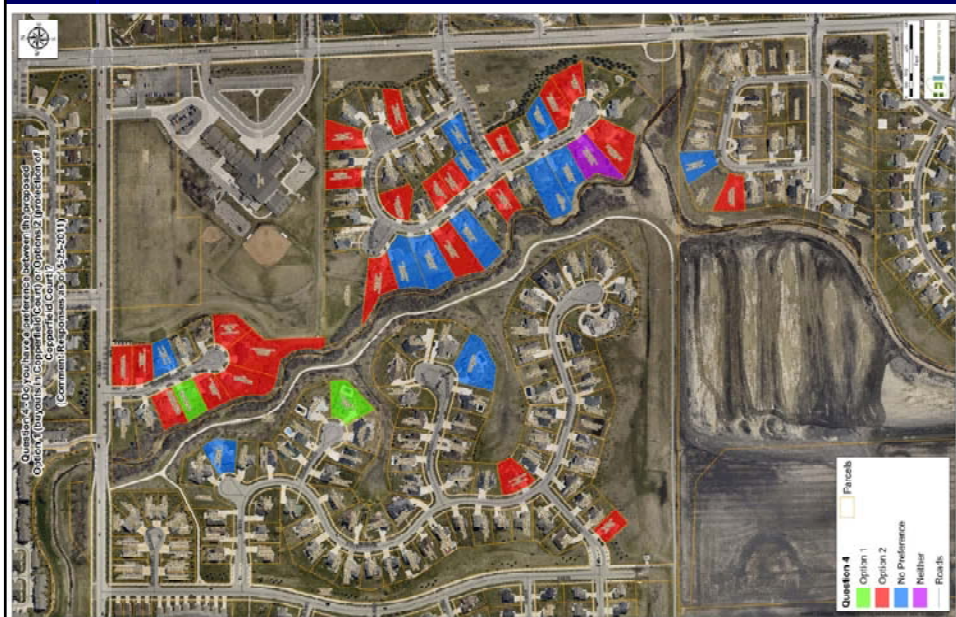
**2. Do you support the proposed plan to extend permanent protection along the Coulee's Crossing neighborhood (Coulee's Crossing Extension)?**



**3. Do you support the proposed options to extend permanent protection along the Copperfield Court and Oakcreek neighborhoods?**



**4. Do you have a preference between the proposed Option 1 (buyouts in Copperfield Court) or Option 2 (protection of Copperfield Court).**



# Landowner Involvement and Comments

1. July 2011 – Field Staking and Landowner Meetings
2. Follow-up Comments Forms



**Do you support the presented plan (Option 2) to complete permanent protection along the Oakcreek, Copperfield Court, and Coulee's Crossing neighborhoods?**



## Recommended Plan

1. Review of Public/Landowner Input
2. Development of 13 Options and Cost Estimates  
\$6-22M / Partial to Complete / Trees
3. Consideration of Environmental Impacts, Permitting, Future Operation and Maintenance, and Neighborhood Impacts

*Recommended Plan From Technical Committee*

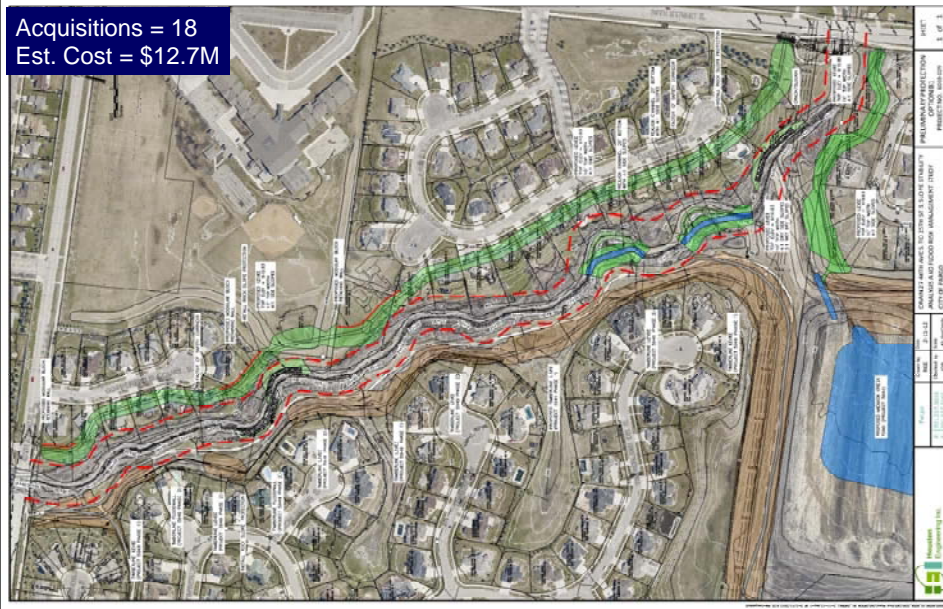
### **OPTION B1**



## Recommended Plan – Option B1

**- Mid Level Buyout - Minor Channel Stability Repairs Only**

Acquisitions = 18  
Est. Cost = \$12.7M

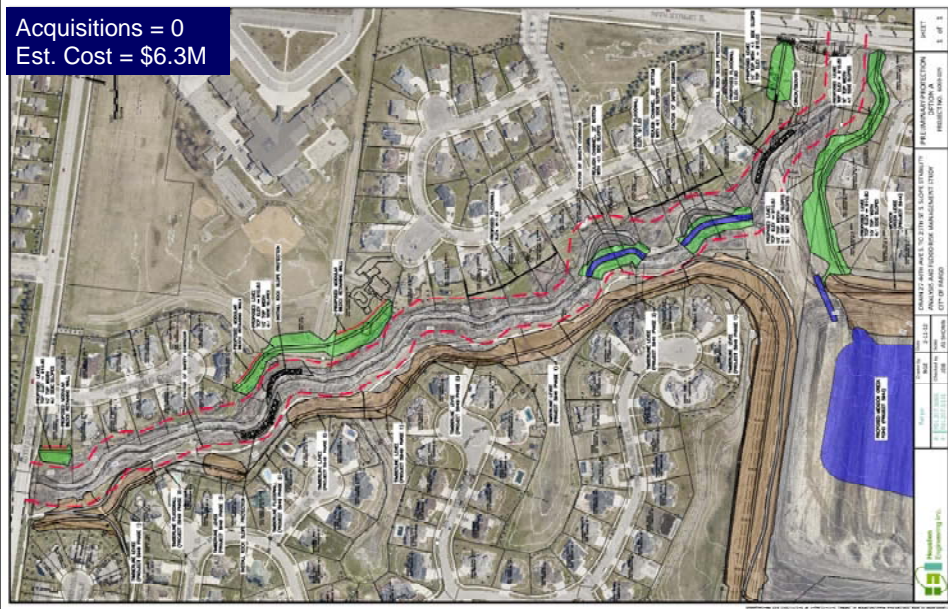


## Other Alternatives Considered



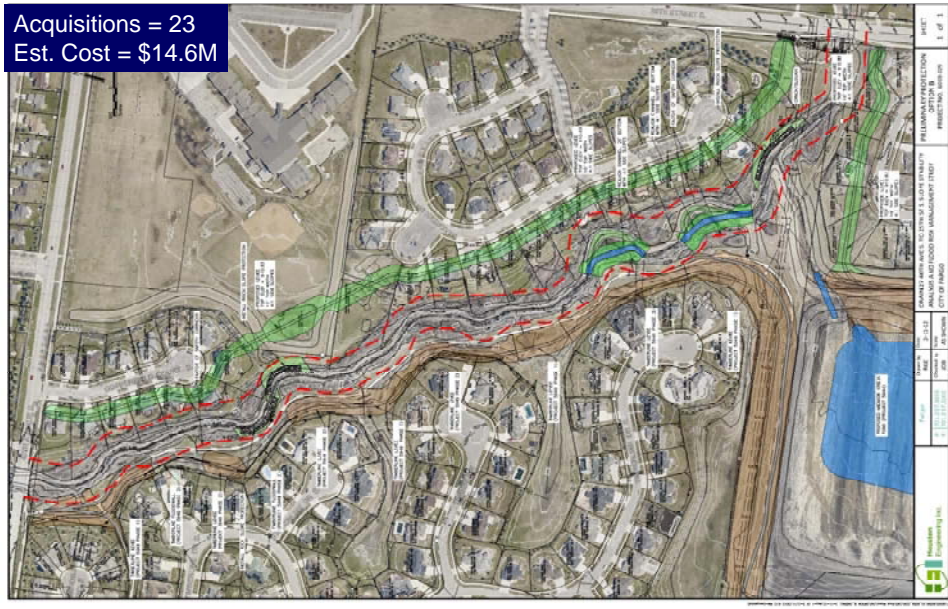
## Option A - Partial Protection - Minor Channel Stability Repairs Only

Acquisitions = 0  
Est. Cost = \$6.3M



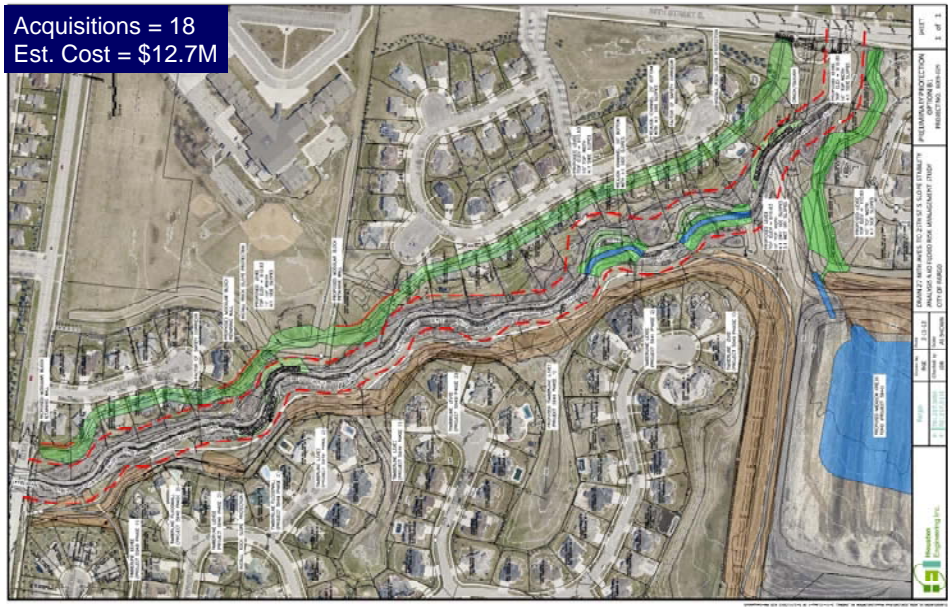
## Option B - Full Buyout - Minor Channel Stability Repairs Only

Acquisitions = 23  
Est. Cost = \$14.6M



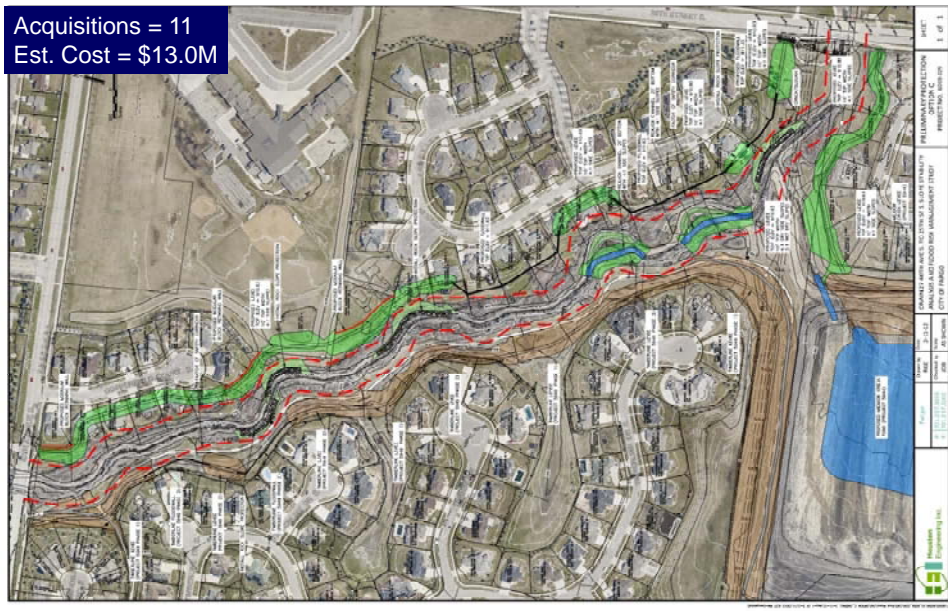
## Option B1 - Mid Level Buyout - Minor Channel Stability Repairs Only

Acquisitions = 18  
Est. Cost = \$12.7M



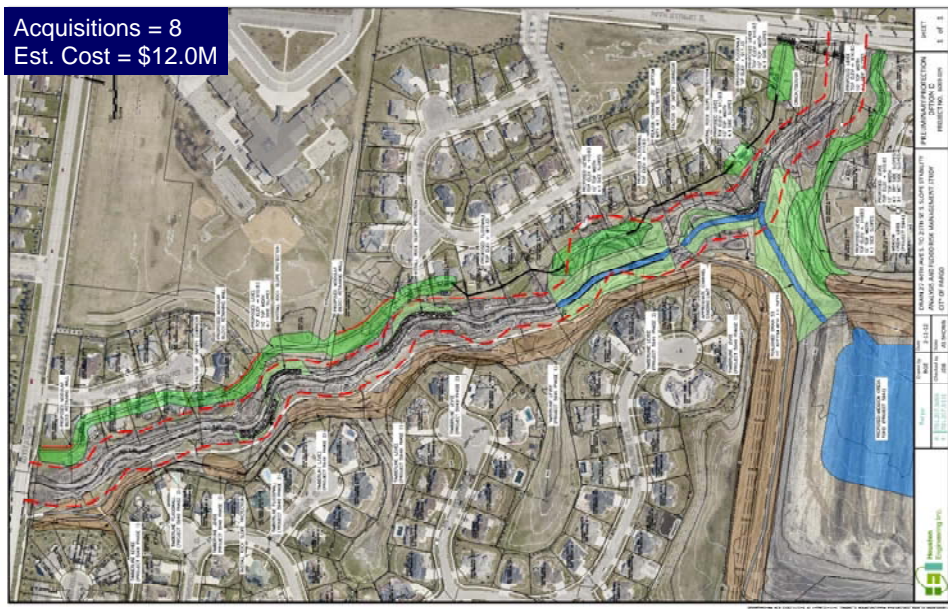
## Option C - Minimized Buyout - Minor Channel Stability Repairs Only

Acquisitions = 11  
Est. Cost = \$13.0M



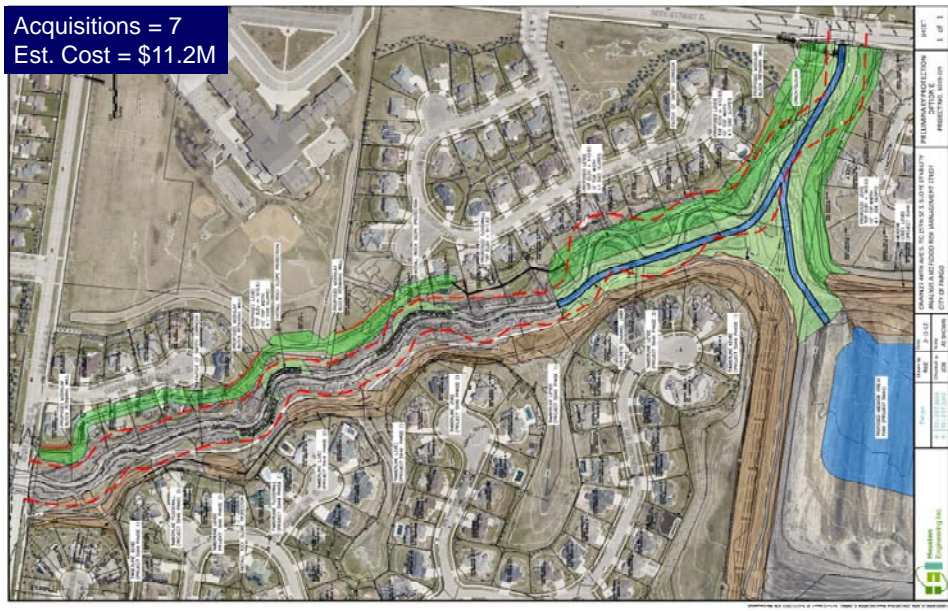
## Option D- Same as C - Except Channel Improvements Oakcreek Center Area

Acquisitions = 8  
Est. Cost = \$12.0M



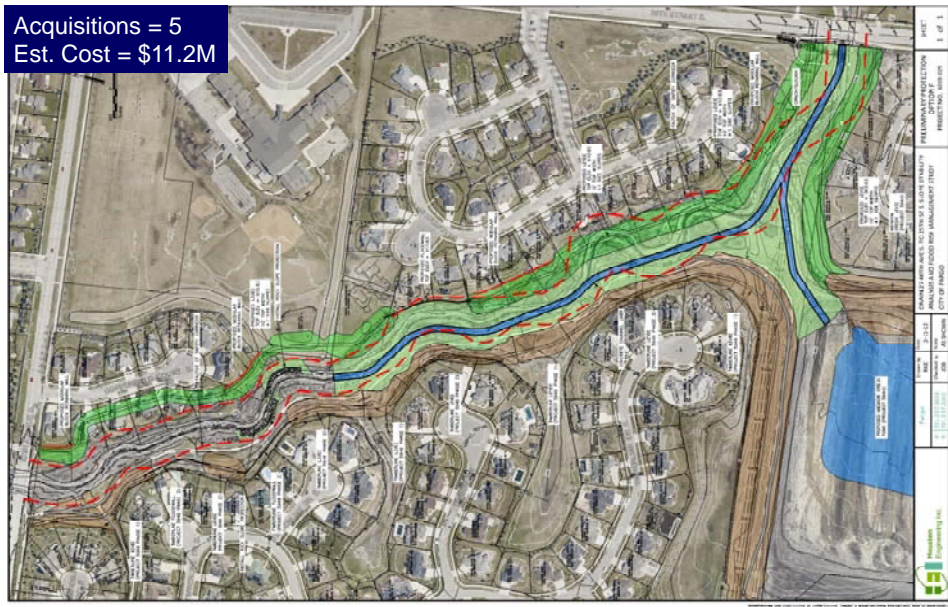
## Option E - Same as D - Except Increased Channel Improvements in Southern Area

Acquisitions = 7  
Est. Cost = \$11.2M



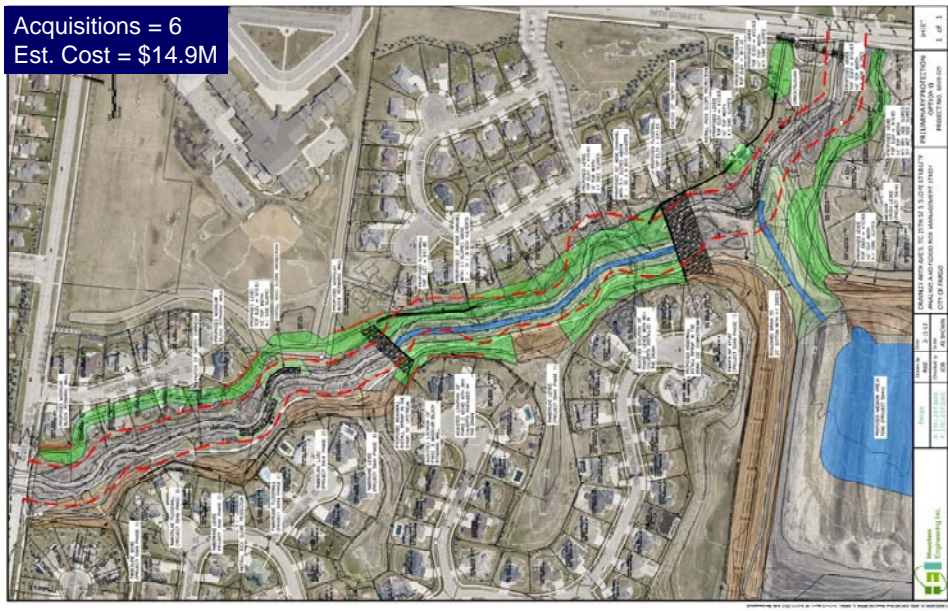
## Option F - Same as E - Except Increased Channel Improvements in Northern Oakcreek Area

Acquisitions = 5  
Est. Cost = \$11.2M



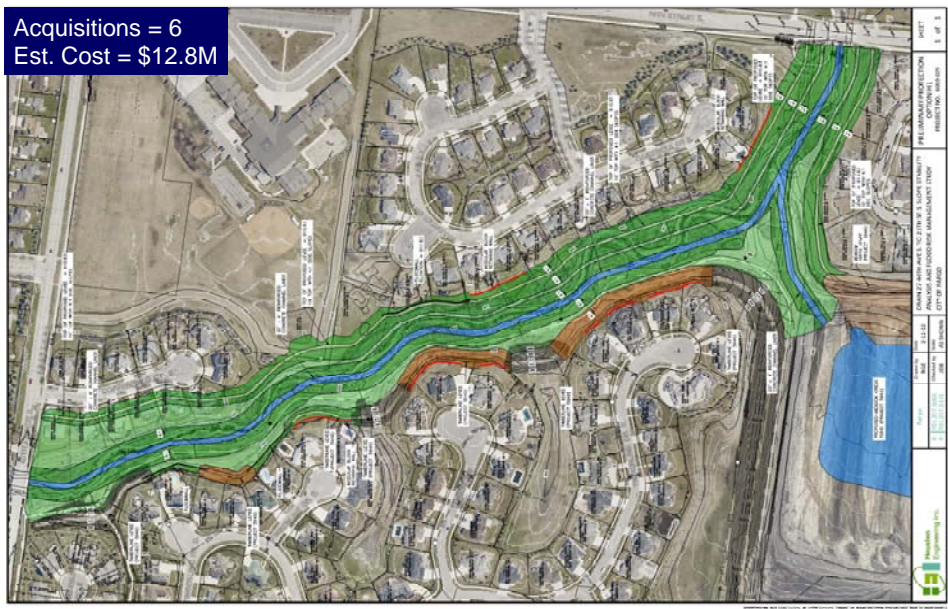
## Option G - Box Culvert Option - North Oakcreek - Narrowed Corridor - Reduced Coulees Crossing Impacts

Acquisitions = 6  
Est. Cost = \$14.9M



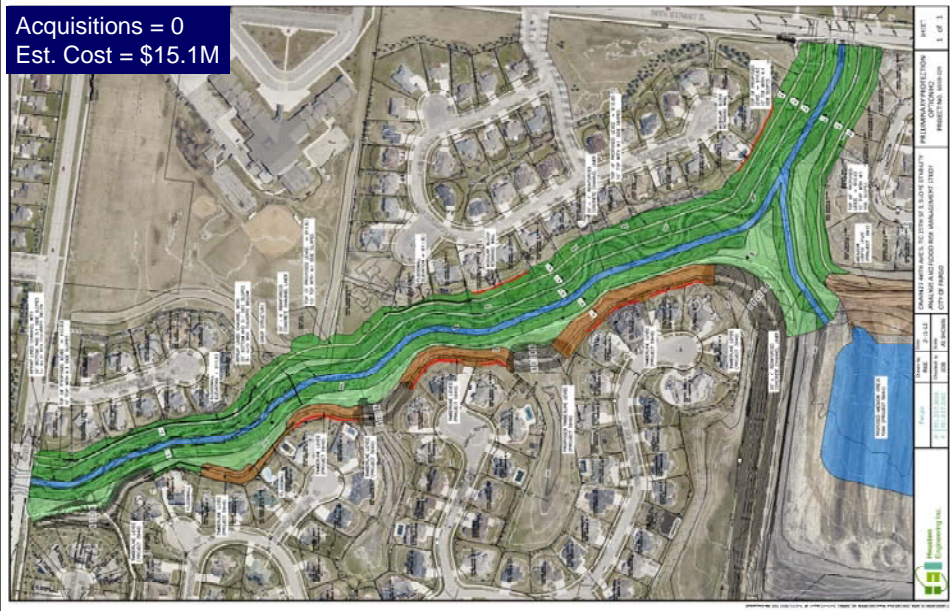
## Option H1 - Full Liner Option - Reconstructed Channel

Acquisitions = 6  
Est. Cost = \$12.8M



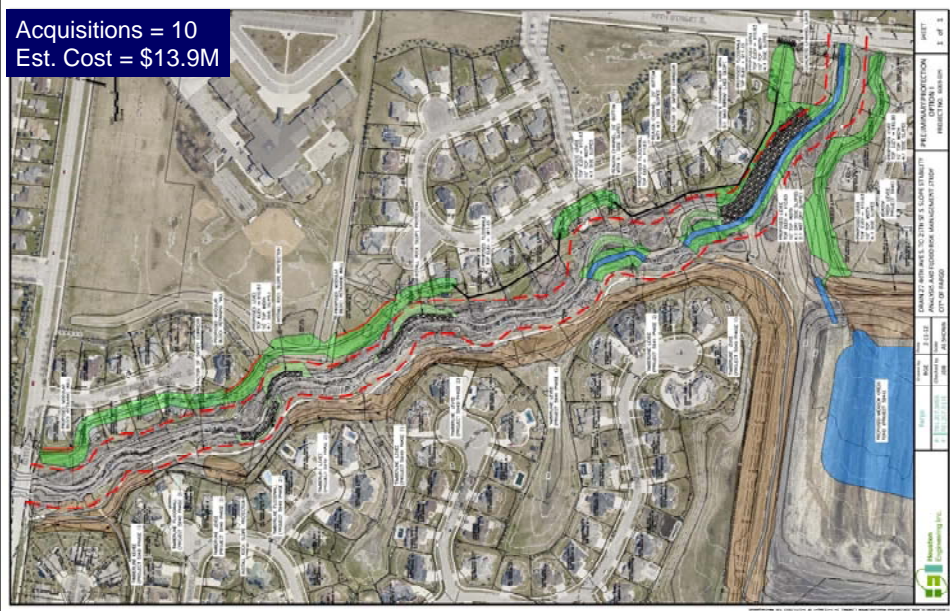
## Option H2 - Complete Protection - Complete Channel Modification - Box Culverts in Copperfield Only

Acquisitions = 0  
Est. Cost = \$15.1M



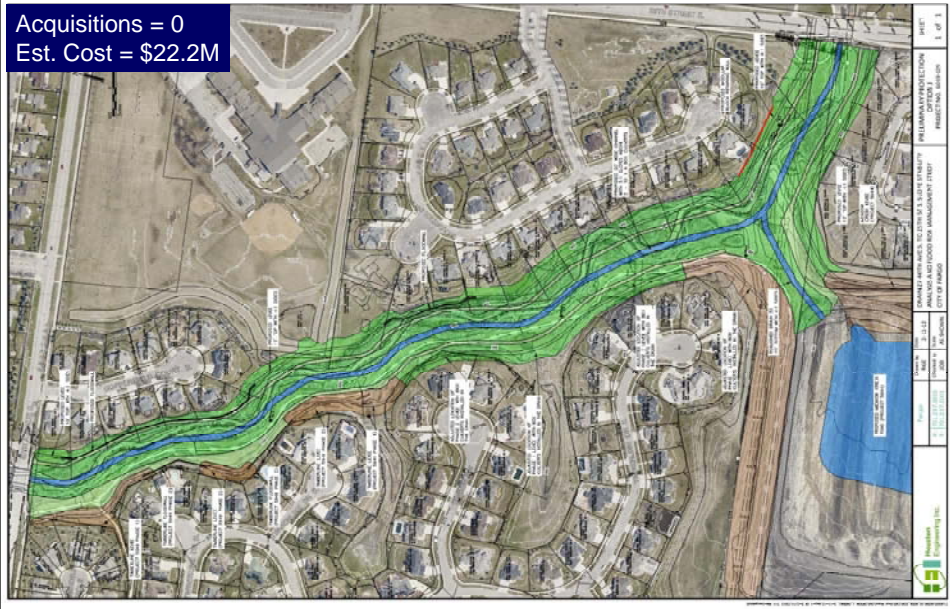
## Option I - Complete Protection - Minimized Channel Stability Repairs

Acquisitions = 10  
Est. Cost = \$13.9M



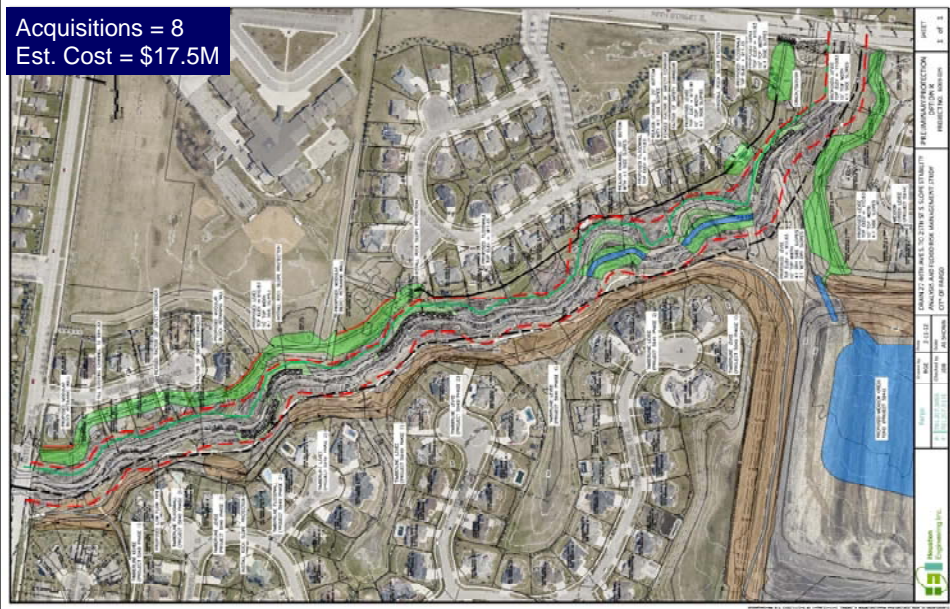
## Option J - Complete Protection - Complete Channel Modification - Box Culverts throughout - Hydraulic Impacts

Acquisitions = 0  
Est. Cost = \$22.2M



## Option K - Complete Protection - Low Flow Pipe - Minimized Channel Stability Repairs

Acquisitions = 8  
Est. Cost = \$17.5M



## Other Alternatives Considered

Option	Option Description	Total Acquisitions	Levee Protection (LF)	Floodwall Protection (LF)	Tree Loss (ac)	Permitting Concerns (0 = Low - 10 = High)	Future Operation and Maintenance	Total Est Cost
A	Partial Protection - Minor Channel Stability Repairs Only	0	1,938	1,075				\$6,283,000
B	Full Buyout - Minor Channel Stability Repairs Only	23	3,897	0				\$14,621,000
B1	Mid Level Buyout - Minor Channel Stability Repairs Only	18	4,107	0				\$12,761,000
C	Minimized Buyout - Minor Channel Stability Repairs Only	11	3,263	1,221				\$12,958,000
D	Same as C - Except Channel Improvements in Oakcreek Center Area	8	3,359	1,143				\$11,970,000
E	Same as D - Except Increased Channel Improvements in Southern Area	7	3,868	448				\$11,216,000
F	Same as E - Except Increased Channel Improvements in Northern Oakcreek	5	3,945	322				\$11,241,000
G	Box Culvert Option - North Oakcreek - Narrowed Corridor - Reduced Coulees Crossing Impacts	6	3,748	968				\$14,852,000
H1	Full Liner Option - Reconstructed Channel	6	4,100	320				\$12,758,000
H2	Complete Protection - Complete Channel Modification - Box Culverts in Copperfield Only	0	3,479	1,093				\$15,093,000
I	Complete Protection - Minimized Channel Stability Repairs	10	3,101	1,345				\$13,858,000
J	Complete Protection - Complete Channel Modification - Box Culverts throughout - Hydraulic Impacts	0	3,508	1,119				\$22,169,000
K	Complete Protection - Low Flow Pipe - Minimized Channel Stability Repairs	8	2,834	1,529				\$17,523,000



## Other Alternatives Considered

### Tree Loss Issues

- Aesthetic Impacts to Surrounding Property
- Required Replacement/Mitigation Costs
- Acceptance of Adjacent Owners



## Other Alternatives Considered

Option	Option Description	Total Acquisitions	Levee Protection (LF)	Floodwall Protection (LF)	Tree Loss (ac)	Permitting Concerns (0 = Low - 10 = High)	Future Operation and Maintenance	Total Est Cost
A	Partial Protection - Minor Channel Stability Repairs Only	0	1,938	1,075	1.8			\$6,283,000
B	Full Buyout - Minor Channel Stability Repairs Only	23	3,897	0	2.2			\$14,621,000
B1	Mid Level Buyout - Minor Channel Stability Repairs Only	18	4,107	0	2.6			\$12,761,000
C	Minimized Buyout - Minor Channel Stability Repairs Only	11	3,263	1,221	3.1			\$12,958,000
D	Same as C - Except Channel Improvements in Oakcreek Center Area	8	3,359	1,143	4.6			\$11,970,000
E	Same as D - Except Increased Channel Improvements in Southern Area	7	3,868	448	6.5			\$11,216,000
F	Same as E - Except Increased Channel Improvements in Northern Oakcreek	5	3,945	322	8.4			\$11,241,000
G	Box Culvert Option - North Oakcreek - Narrowed Corridor - Reduced Coulees Crossing Impacts	6	3,748	968	6.3			\$14,852,000
H1	Full Liner Option - Reconstructed Channel	6	4,100	320	10.9			\$12,758,000
H2	Complete Protection - Complete Channel Modification - Box Culverts in Copperfield Only	0	3,479	1,093	10.9			\$15,093,000
I	Complete Protection - Minimized Channel Stability Repairs	10	3,101	1,345	3.8			\$13,858,000
J	Complete Protection - Complete Channel Modification - Box Culverts throughout - Hydraulic Impacts	0	3,508	1,119	10.9			\$22,169,000
K	Complete Protection - Low Flow Pipe - Minimized Channel Stability Repairs	8	2,834	1,529	4.5			\$17,523,000



## Other Alternatives Considered

### Permitting Concerns

- USACE – Permit Required
  - Channel Impacts
  - Wetland Impacts
  - Secondary Impacts (Trees,...)
- Low Concern (0-3)
  - Limited Mitigation Required
- Medium Concern (4-7)
  - Significant Impact (channel reconstruction, trees,...)
  - Significant Mitigation Required
- High Concern (8-10)
  - Complete Channel Reconstruction
  - Ability to Obtain Permit Questionable
  - Substantial Mitigation Required



## Other Alternatives Considered

Option	Option Description	Total Acquisitions	Levee Protection (LF)	Floodwall Protection (LF)	Tree Loss (ac)	Permitting Concerns (0 = Low - 10 = High)	Future Operation and Maintenance	Total Est Cost
A	Partial Protection - Minor Channel Stability Repairs Only	0	1,938	1,075	1.8	0		\$6,283,000
B	Full Buyout - Minor Channel Stability Repairs Only	23	3,897	0	2.2	1		\$14,621,000
B1	Mid Level Buyout - Minor Channel Stability Repairs Only	18	4,107	0	2.6	2		\$12,761,000
C	Minimized Buyout - Minor Channel Stability Repairs Only	11	3,263	1,221	3.1	2		\$12,958,000
D	Same as C - Except Channel Improvements in Oakcreek Center Area	8	3,359	1,143	4.6	4		\$11,970,000
E	Same as D - Except Increased Channel Improvements in Southern Area	7	3,868	448	6.5	5		\$11,216,000
F	Same as E - Except Increased Channel Improvements in Northern Oakcreek	5	3,945	322	8.4	8		\$11,241,000
G	Box Culvert Option - North Oakcreek - Narrowed Corridor - Reduced Coulees Crossing Impacts	6	3,748	968	6.3	6		\$14,852,000
H1	Full Liner Option - Reconstructed Channel	6	4,100	320	10.9	9		\$12,758,000
H2	Complete Protection - Complete Channel Modification - Box Culverts in Copperfield Only	0	3,479	1,093	10.9	9		\$15,093,000
I	Complete Protection - Minimized Channel Stability Repairs	10	3,101	1,345	3.8	3		\$13,858,000
J	Complete Protection - Complete Channel Modification - Box Culverts throughout - Hydraulic Impacts	0	3,508	1,119	10.9	10		\$22,169,000
K	Complete Protection - Low Flow Pipe - Minimized Channel Stability Repairs	8	2,834	1,529	4.5	3		\$17,523,000



## Other Alternatives Considered

### Future Operation and Maintenance

- Low
  - Levees Only - Mowing/Spraying
  - Limited Inspection (5-10yr top survey, trees,...)
- Medium
  - Addition of Floodwalls
  - More Frequent Wall Inspections (joints, drains, concrete...)
  - Annual Minor Wall Repairs Maintenance
- High
  - Levees, Floodwalls, Channel Liner/Box Culverts
  - Culvert Plugging Potential
  - Frequent Inspections of Wall and Channel



## Other Alternatives Considered

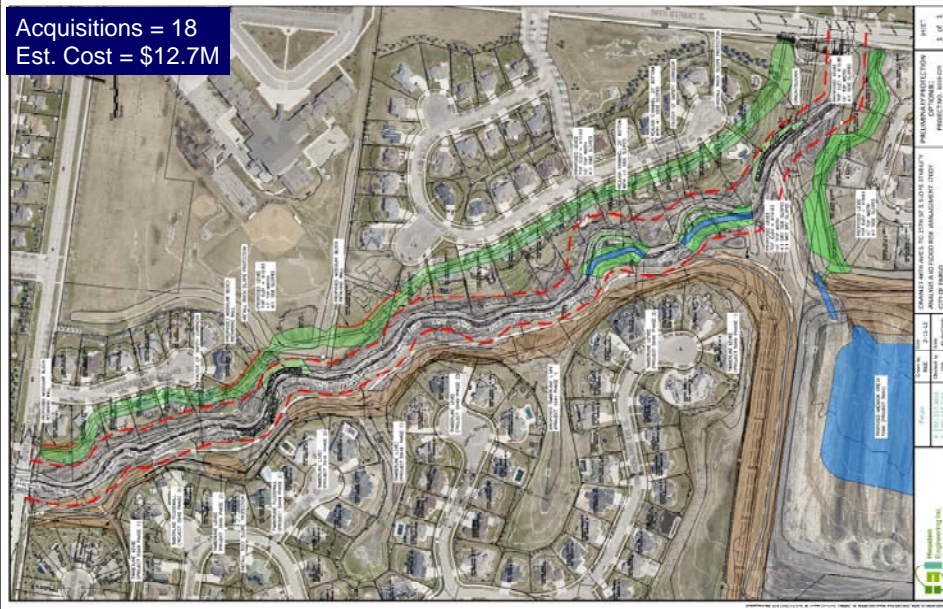
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A	Partial Protection - Minor Channel Stability Repairs Only	0	1,938	1,075	1.8	0	Medium	\$6,283,000
B	Full Buyout - Minor Channel Stability Repairs Only	23	3,897	0	2.2	1	Low	\$14,621,000
<b>B1</b>	<b>Mid Level Buyout - Minor Channel Stability Repairs Only</b>	18	4,107	0	2.6	2	Low	\$12,761,000
C	Minimized Buyout - Minor Channel Stability Repairs Only	11	3,263	1,221	3.1	2	Medium	\$12,958,000
D	Same as C - Except Channel Improvements in Oakcreek Center Area	8	3,359	1,143	4.6	4	Medium	\$11,970,000
E	Same as D - Except Increased Channel Improvements in Southern Area	7	3,868	448	6.5	5	Medium	\$11,216,000
F	Same as E - Except Increased Channel Improvements in Northern Oakcreek	5	3,945	322	8.4	8	Medium	\$11,241,000
G	Box Culvert Option - North Oakcreek - Narrowed Corridor - Reduced Coulees Crossing Impacts	6	3,748	968	6.3	6	High	\$14,852,000
H1	Full Liner Option - Reconstructed Channel	6	4,100	320	10.9	9	Medium	\$12,758,000
H2	Complete Protection - Complete Channel Modification - Box Culverts in Copperfield Only	0	3,479	1,093	10.9	9	High	\$15,093,000
I	Complete Protection - Minimized Channel Stability Repairs	10	3,101	1,345	3.8	3	Medium	\$13,858,000
J	Complete Protection - Complete Channel Modification - Box Culverts throughout - Hydraulic Impacts	0	3,508	1,119	10.9	10	High	\$22,169,000
K	Complete Protection - Low Flow Pipe - Minimized Channel Stability Repairs	8	2,834	1,529	4.5	3	High	\$17,523,000



## Recommended Plan – Option B1

- Mid Level Buyout - Minor Channel Stability Repairs Only

Acquisitions = 18  
Est. Cost = \$12.7M



# Path Forward?

- **Public Meeting (Tonight)**
- **Recommendation to Commission**
  - February/March
- **Develop Financing Plan**
  - TBD?
- **Commission Approval**
  - TBD?
- **Permitting**
  - TBD?
- **Construction/Implementation**
  - TBD?



701.237.5065

HoustonEngineering Inc.  
1401 21st Avenue North Fargo ND 58102

**Oakcreek, Copperfield Court, and Coulee's Crossing Neighborhoods**  
February 15<sup>th</sup> and 16<sup>th</sup> Landowner and Public Informational Meetings

General Project Response:


☐ Yes   ☐ No   1. Do you support the recommended plan from the Technical Committee to provide permanent protection for the area (Option B1)?

Additional Comments:

Please return to:  
Jerry D. Bents  
Houston Engineering, Inc.  
1401 21st Avenue North  
Fargo, ND 58102  
Phone: (701) 237-5065  
Fax: (701) 237-5101  
[jbents@houstoneng.com](mailto:jbents@houstoneng.com)

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
Date: \_\_\_\_\_

**NOTE: Please return this form before February 24th.**



701.237.5065

HoustonEngineering Inc.  
1401 21st Avenue North Fargo ND 58102

# Comment Form

# **Oakcreek, Copperfield Court, and Coulee's Crossing Area Flood Risk Management Project**

Questions / Discussion

[www.cityoffargo.com/Engineering](http://www.cityoffargo.com/Engineering)

