CASS COUNTY
GOVERNMENT

Cass County Detention Development Flood Risk Reduction Meeting

Governor's Inn, Casselton, ND
9:00 a.m.

Cass County Joint Water Resource District
June 23rd, 2014

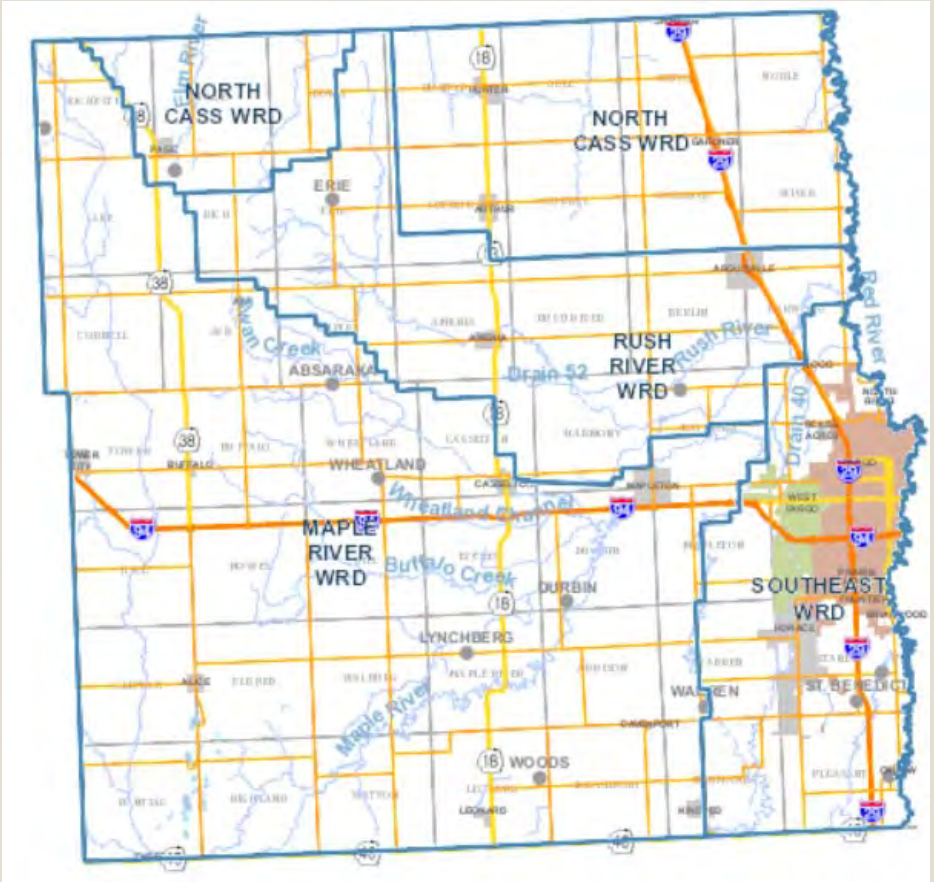
Introduction

WELCOME AGAIN

- Second Meeting
- Please sign the record of attendance
- Introduction of board members & staff
- Introduction of presenters

Introduction

- **Water Resource District Organization**
  - Cass County Joint WRD
  - Maple River
  - Rush River
  - North Cass
  - Southeast Cass



Introduction

- **Cass County Joint Water Resource District**
  - Mark Brodshaug, Chair (Southeast Cass)
  - Rodger Olson, Vice Chair (Maple River)
  - Raymond Wolfer (Rush River)
  - Michael Buringrud (North Cass)
  - Dan Jacobson (Southeast Cass)

  - Appointed by individual WRD boards
  - Constructed the Maple River Dam
  - Develops detention projects within Cass County

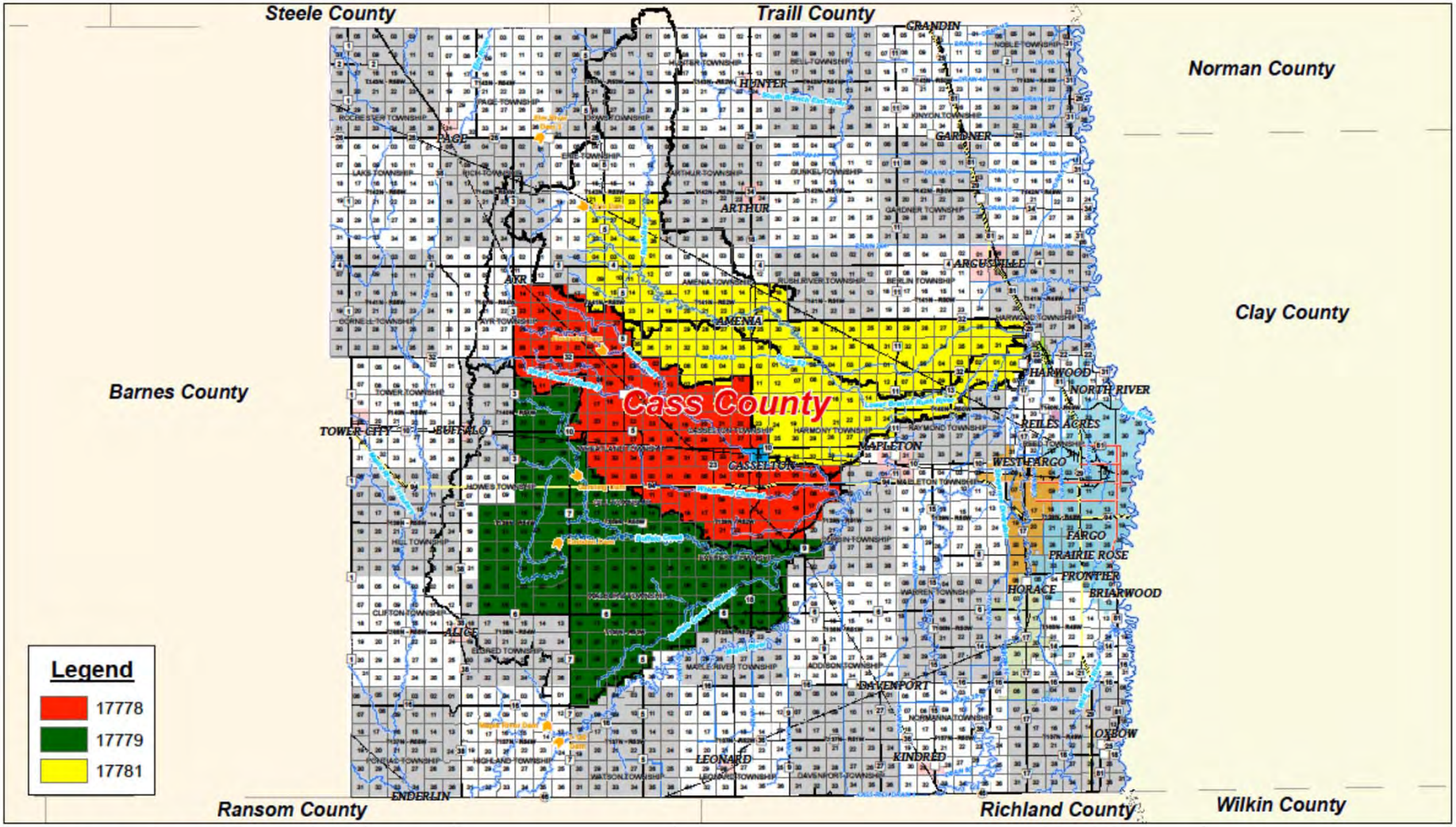
Introduction

- **Presenters**
  - Pat Downs – Red River Retention Authority
  - Chad Engels – Moore Engineering

Pat Downs

Red River Retention Authority

Meeting Invitation Area



MAILING LIST AREAS
CASS COUNTY, NORTH DAKOTA

0 12,750 25,500 51,000 Feet
1 in = 25,500 feet

moore engineering, inc.

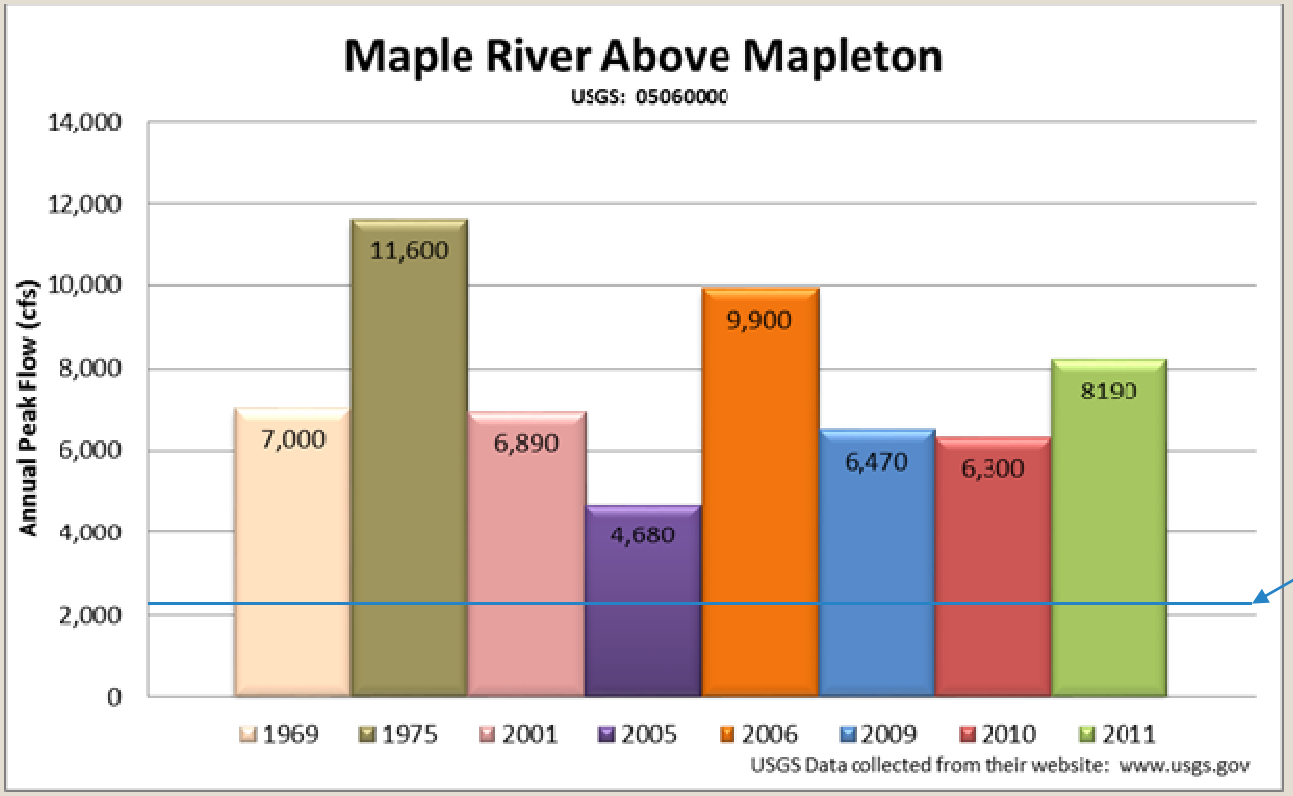
Presentation Outline

- Why are we having this meeting?
- Why now?
- Who will benefit? Local purpose
- How will we pay for this?
- Project Examples, Criteria & Goals
- First meeting outcomes – comments & questions
- How would land acquisition work?
- Project development timeline
- Moving forward, what's next?

WHY?

Why…

- **Why are we having this meeting?**
  - Repetitive flooding - 6 historic floods in past 14 years
  - Record floods occur in the summer too
  - June 15, 2005 & July 2, 1975



<u>Top 8 Floods</u>
1959 – 1976
1977 – 2000 No Data
2001 – Current
(32 year gage record)

Minor Flood Stage - 2,200 cfs (breakout begins)

Why…

Maple River Breakout

Why…

Maple River Breakout

Why…

Overland Flooding

Why…

Overland Flooding

Why…

Overland Flooding

Why…

Existing storage fully utilized

Why…

Existing storage fully utilized

Why…

Existing storage fully utilized

Why…

Existing storage fully utilized

Why…

Countless Road Washouts

Why…

Countless Road Washouts

Why…

Bridge Washouts (Piping)

Why…

Transportation Disruptions

Why…

Transportation Disruptions

Why…

Emergency Flood Protection

Why…

Stranded Homeowners

Why…

Field Erosion

Why…

Field Erosion

Why…….

Stream Bank Erosion

Why…

Delayed Planting

Why…

Summer Floods = Crop Losses

Why…

The Cost of Flooding

Cass County Highway Department

- 2009 County Road & Bridge Total $4.3 Million
- 2010 County Road & Bridge Total $2.4 Million
- 2011 County Road & Bridge Total $3.4 Million

Agriculture – 2013 Storm Event Examples

- June 20, 2013 summer storm, east 1/3 Cass County, 27,000 acres damaged, **$5.0 million** loss (per FSA)
- June 25, 2013 Summer storm, southeast ¼ Cass County, 22,500 acres destroyed and another 22,500 acres damaged, **$14.0 million** loss (per FSA)

WHY NOW?

Why Now…

- **Frequent flooding…spring & summer**
  - Damages and costs
- **Affordability…new funding sources!**
  - New ND State Water Commission cost share policy
  - New Federal Farm Bill funding
  - Increased Red River Joint WRD cost share (recent)
  - Cass County sales tax (recent)
- **Technology & Studies**
  - Recent completion of LiDAR and G.I.S. based watershed models and studies

WHO WILL BENEFIT?

Who will benefit...

Guiding Principles

- Any future flood risk reduction project should be built for the purpose of reducing flooding in the local watershed.
- Projects should be constructed for the primary purpose of benefitting local agriculture and the local rural community within the local watershed. Projects should also benefit population centers like Casselton, Amenia, etc.
- Projects should not be constructed for the primary purpose of benefitting Red River communities, although these areas would benefit secondarily.
- Local benefits must outweigh local costs!

HOW WILL WE PAY FOR THIS?

Funding……

- **Cost Share Partners**
  - North Dakota State Water Commission
  - Red River Joint Water Resource District
  - Cass County Sales Tax
  - Federal Farm Bill

Funding……

- **North Dakota State Water Commission**
  - 60% cost share (no federal participation)
  - 50% (with federal participation)
  - Land purchases (easements) cost share eligible

Funding……

- **Red River Joint Water Resource District**
  - Collects 2 mills from each member county annually
  - 65% cost share (non-state, non-federal)
  - Easements and lands are cost share eligible

Funding……

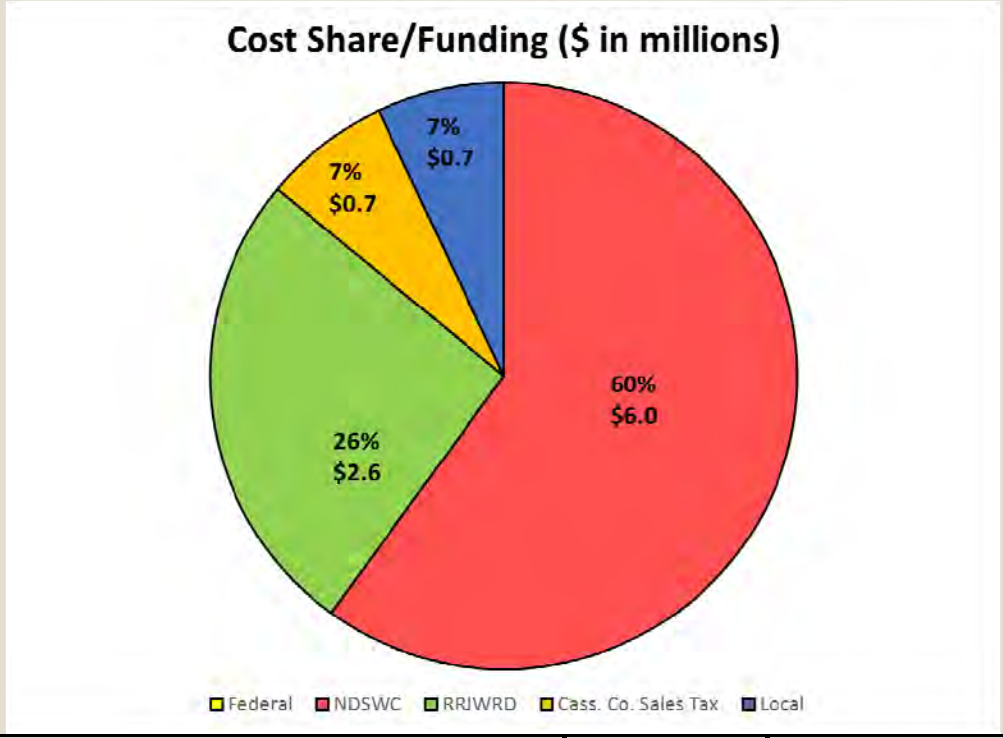
- **Cass County Sales Tax**
  - Flood Control Measure Sales Tax (1/2 cent)
  - 20 years: April 1, 2011 – March 31, 2031
  - 50% Cost Share (non-federal, non-state, non-RRJWRD)

Funding……

- **Federal Farm Bill**
  - RCPP – Regional Conservation Partnership Program
  - "PL-566 Like" (Small Watershed Protection Program)
  - Absaraka, Embden, and Garsteig Dams were PL-566 projects
  - $5 Million cap per project likely (existing rule)
    - Update – unlikely that any one project will reach cap due to eligible activity & funding limits
  - 4,000 AC-FT project cap likely (existing rule)

Funding……

Example $10.0 Million Project (Without Federal Funding)



	Cost Share (%)	Total Funding ($ in millions)
Federal	0	0
NDSWC (60% non-federal)	60	6
RRJWRD (65% non-federal, non-state)	26	2.6
Cass Co. Sales Tax	7	700 k
Local*	7	700 k
Total	**100**	**10**

Funding……

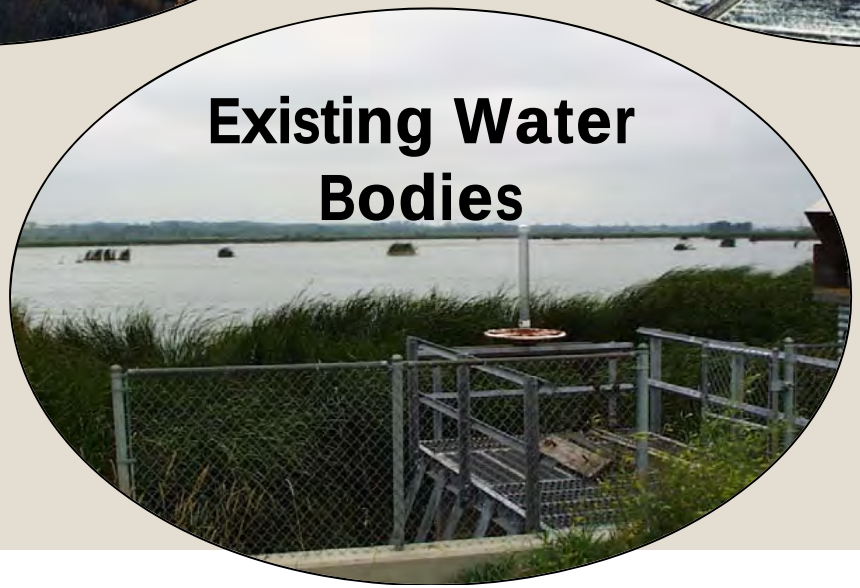
- **Funding Summary**
  - Local cost relatively small for Detention Projects
  - Without federal funding, local cost can be less than 10% of the total project cost
  - With federal funding, local cost can be further reduced

Chad Engels, PE

Moore Engineering, Inc.

Project Examples, Criteria & Goals

Project Examples



Off-River (Off-Channel) Example
North Ottawa Impoundment Project

- Bois de Sioux Watershed (MN)
- Red River Valley Project
- Located Southeast of Wahpeton, ND

North Ottawa Impoundment Project

- Why build the project?
  - Summer Floods

Before Project Condition

North Ottawa Impoundment Project

- **Why build the project?**
  - **Spring Floods**

North Ottawa Impoundment Project

SOLUTION

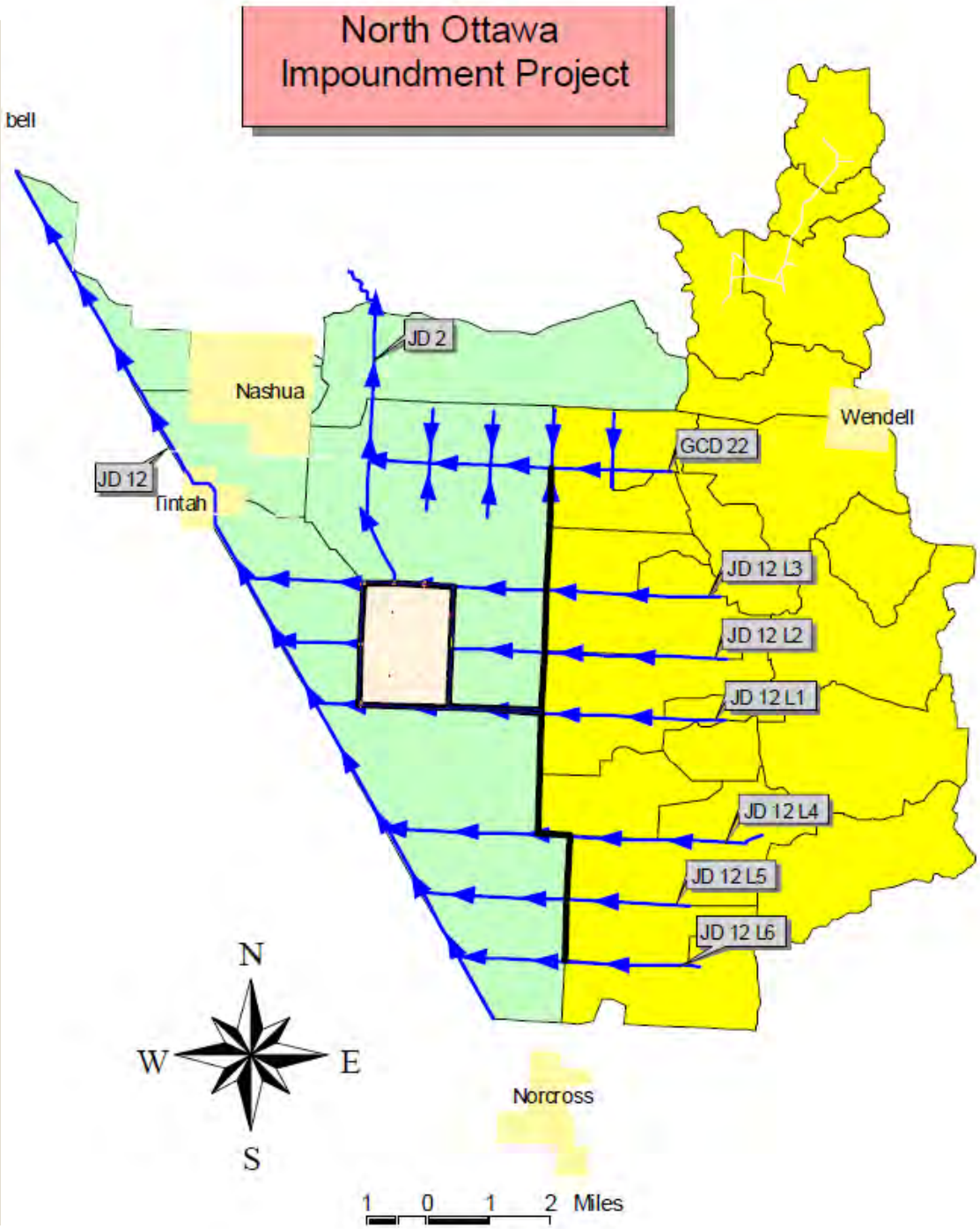
- Build an impoundment on 3 square miles.
- Capture water from 74 square miles
- 16,000 Ac-FT (4 inches) of gated storage
- Store until it will not add to downstream flooding.

North Ottawa Impoundment Project

2009 Spring Flood

North Ottawa Impoundment Project

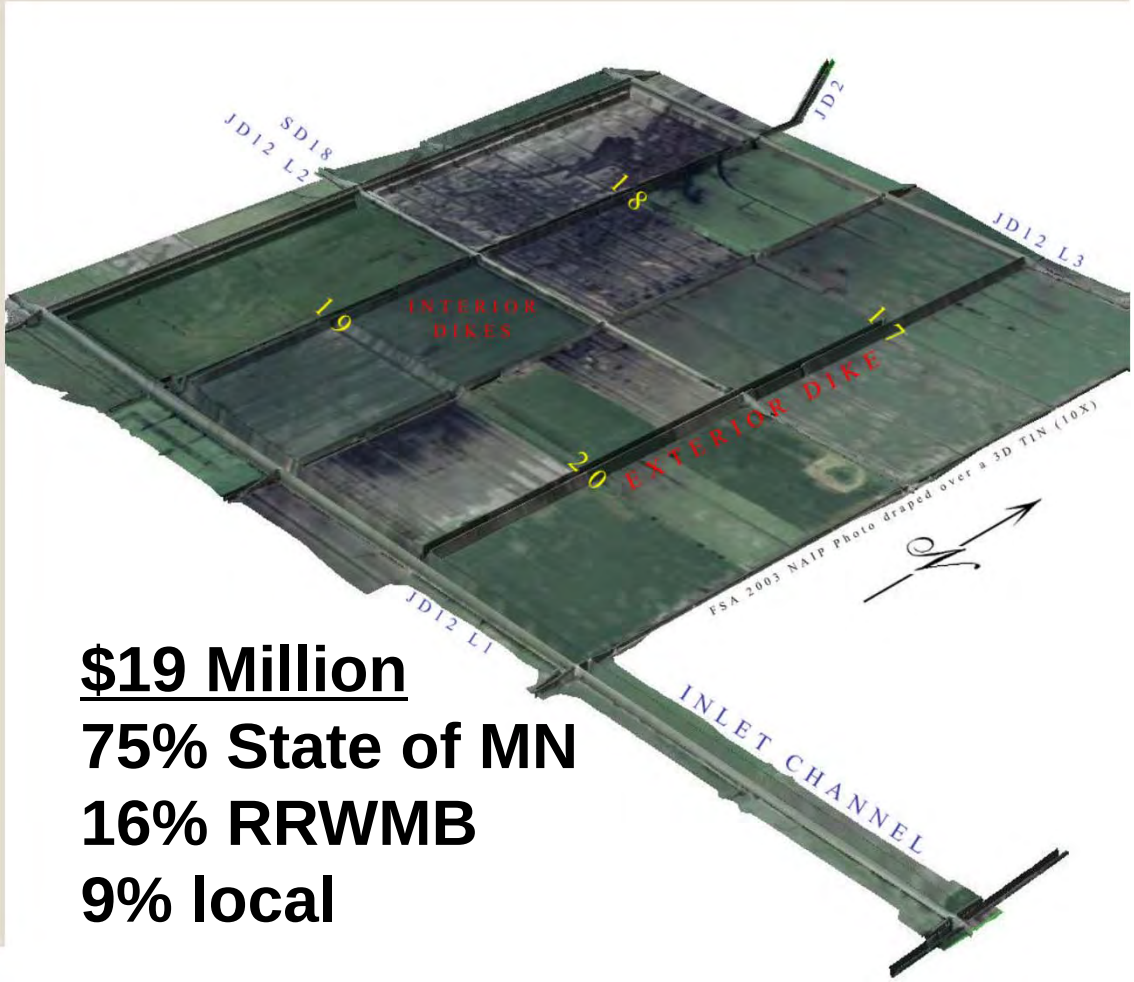
- Manifold's multiple drains together
- Improves drainage by diverting water
- Improved ditch system is part of the project



Improved ditches

North Ottawa Impoundment Project

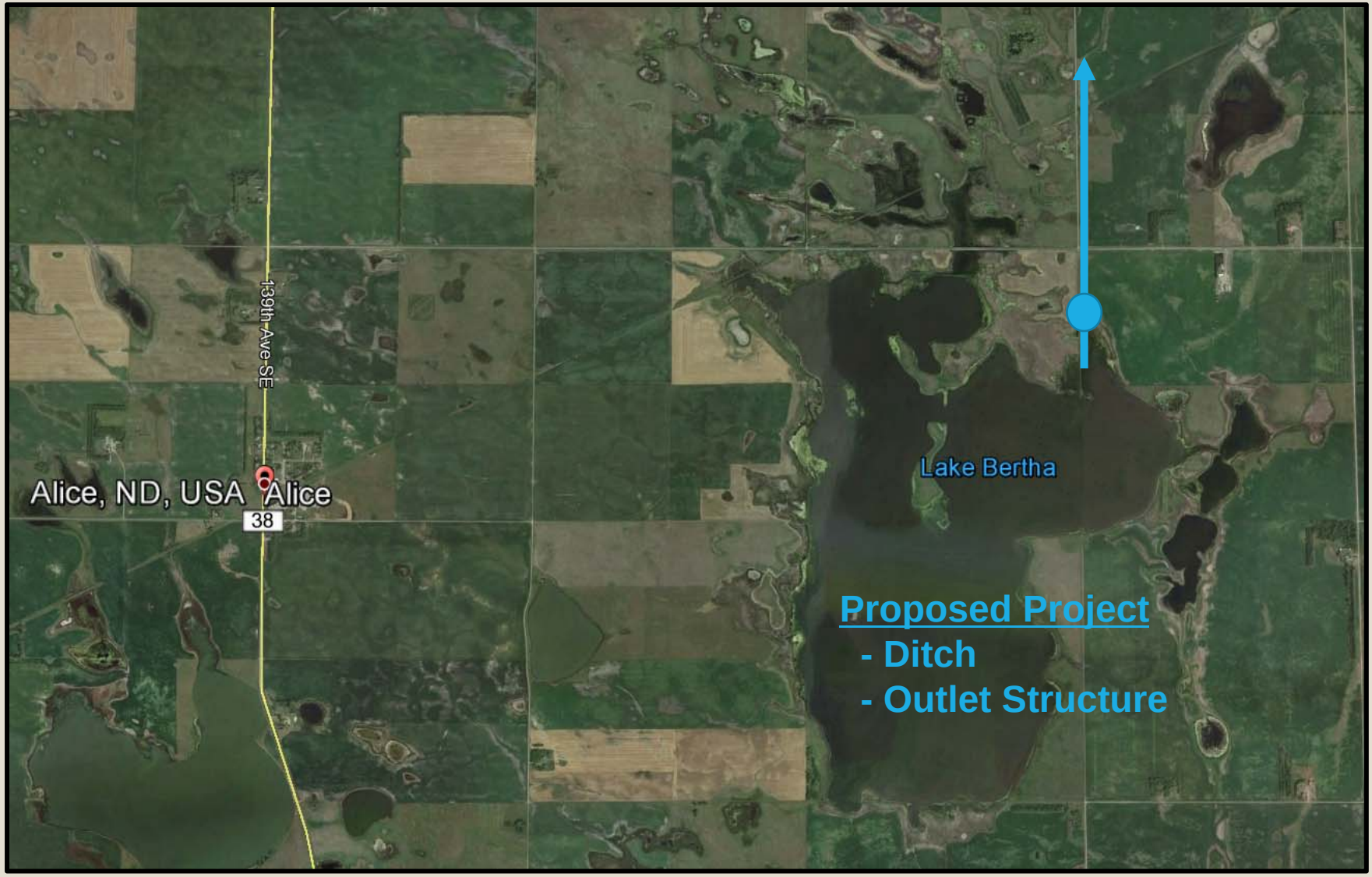
- Segmented Storage to allow for summer flood benefits
- CCJWRD Goal = Continue to farm majority of the land
- CCJWRD Goal = Include pattern tile and interior ditches for maximum drainage



<u>$19 Million</u>
75% State of MN
16% RRWMB
9% local

Existing Water Bodies

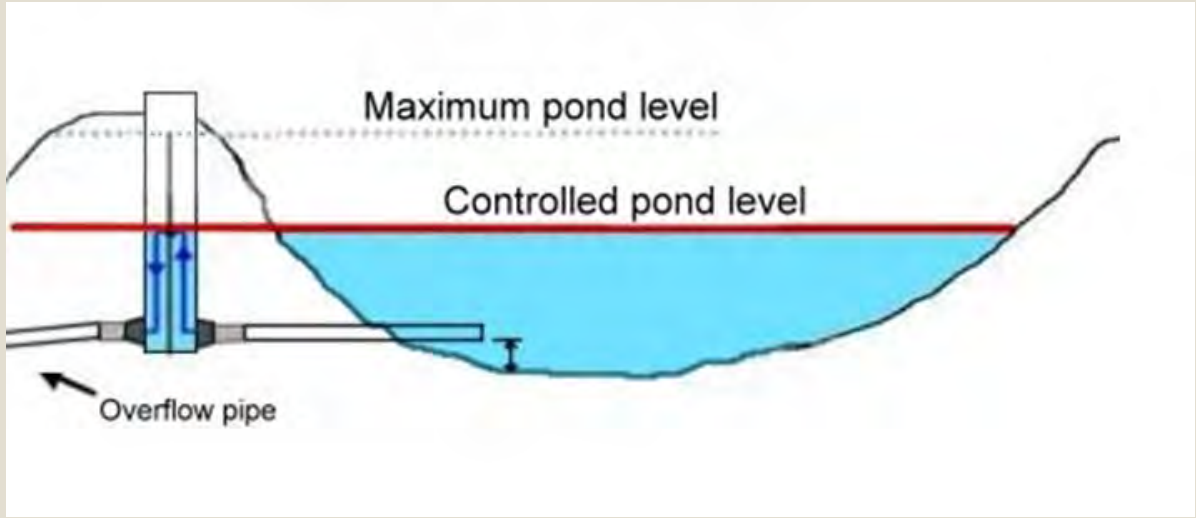
Lake Bertha Outlet/Storage Project



Lake Bertha Outlet/Storage Project

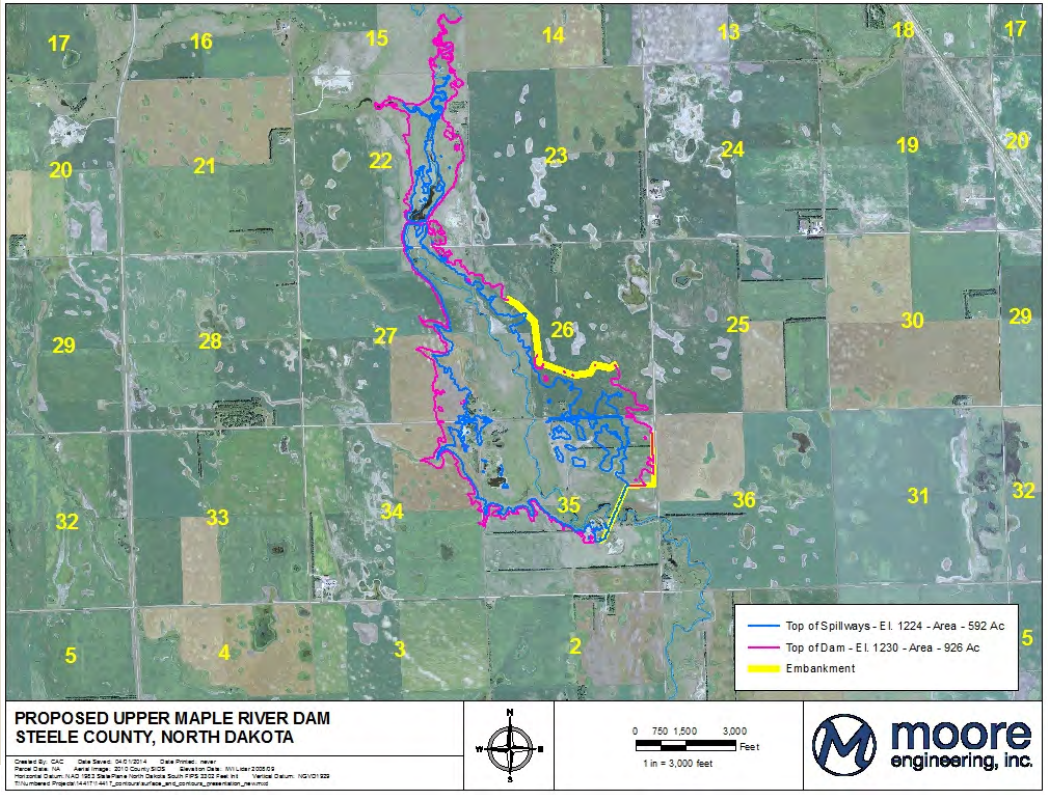
CONCEPT

- Lower the "normal" lake elevation
- Provide spring runoff floodwater storage w/gate
- Release excess water when there is no downstream flooding
- Prevent natural outlet overtopping



River Channel (Mainstem) Example
Upper Maple River Dam

- **Dry Dam**
  - **Principle Spillway pipe (no gate)**
  - **Concrete Secondary Spillway**
- **Embankment**
  - **5,000 feet long**
  - **35 ft high**
  - **20 ft wide @ top**
- **100-yr Snowmelt**
  - **7,235 ac-ft (2.3”)**
  - **770 acre pool**
  - **60% peak reduction**



Upper Maple River Dam

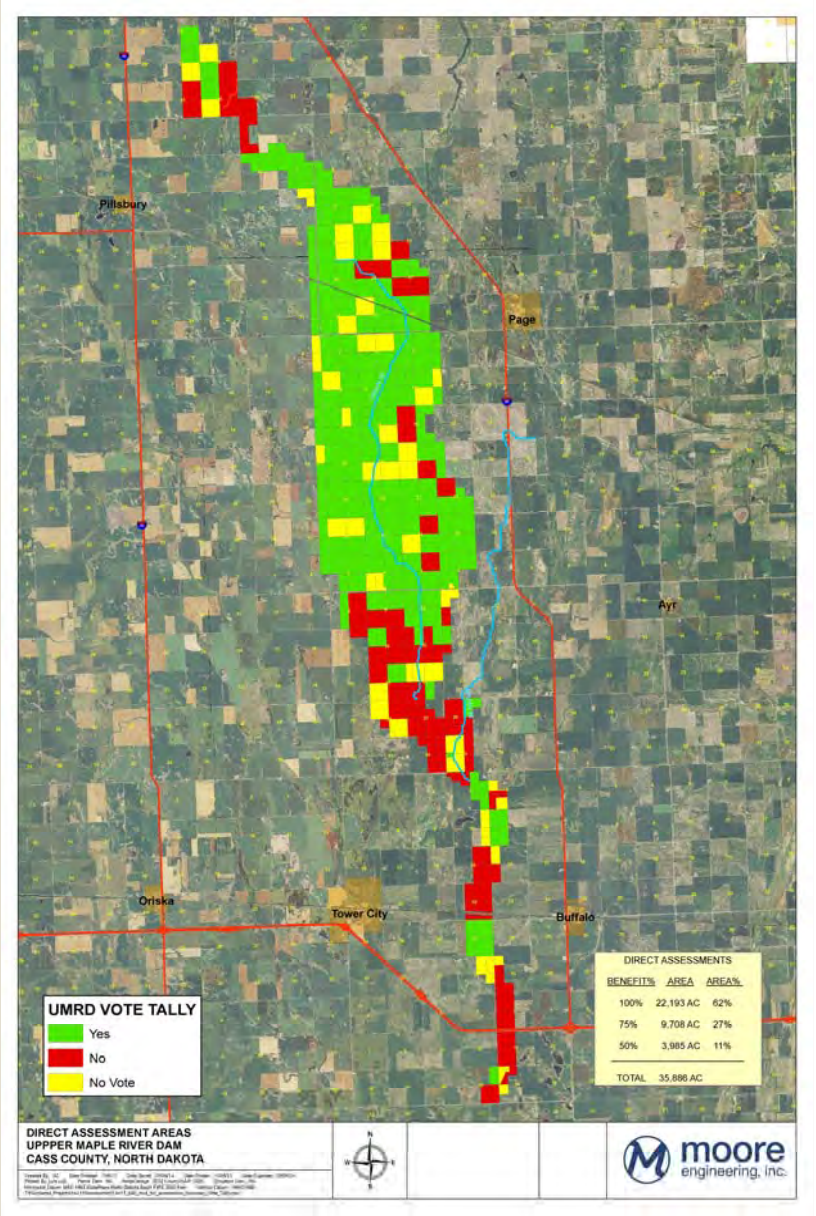
Public Outreach

- June 12, 2007- Initial meeting with impacted landowners
- April 10, 2008- Second meeting with impacted landowners
- March 4, 2010- Third meeting with impacted landowners
- April 7, 2010- Public meeting; impacted & benefitted landowners
- May 4, 2010- Project presented to Steele County Commission
- May 10, 2010- Project presented to Barnes County WRD
- May 21, 2012- Public notice from Corps of Engineers
- July 25, 2012- Meeting with impacted & benefitted landowners
- August 22, 2012- Meeting with Steele County road authorities
- December 5, 2012- Tribal consultation
- July 24, 2013- Meeting with impacted landowners
- April 2, 2014 – Public Hearing
- June 25, 2014 – Public Assessment Hearing

Upper Maple River Dam

- **Vote Results – Passed**
  - Of total possible votes
    - In Favor – 58 %
    - Against – 25 %
  - Of total votes received
    - In Favor – 70 %
    - Against – 30 %

- **Right-of-Way**
  - Total # parcels – 13
  - Total Votes Returned – 10
    - In Favor – 5 (50% of returned)
    - Against – 5 (50% of returned)



Upper Maple River Dam

- Total Project Cost $8,000,000
- NDSWC $3,825,000
- RRJWRD $2,625,000
- Cass County $700,000
- Local (10.6%) $850,000

- 15-yr Annual Assessment
  - $1.50/ac/year for 100% Benefit Area
  - $0.75/ac/year for 50% Benefit Area
  - Assumes 4% Interest & Equal Annual Payments

Future Project Criteria & Goals

Project Criteria

- **Site Identification Criteria**
  - Control minimum of 20 square miles (if possible)
  - Store a minimum of 3 inches of runoff (if possible)
  - Avoid impact to residential structures / infrastructure
  - Avoid mainstem locations where permitting will be overly burdensome if possible
  - Primarily select sites with less environmental impacts where practical
  - Minimize impacts to farmland & protect against crop loss
  - Reasonable levee heights & inundation impacts
  - Sites can be gated or ungated depending on circumstances
  - Dry storage concept for majority of storage area

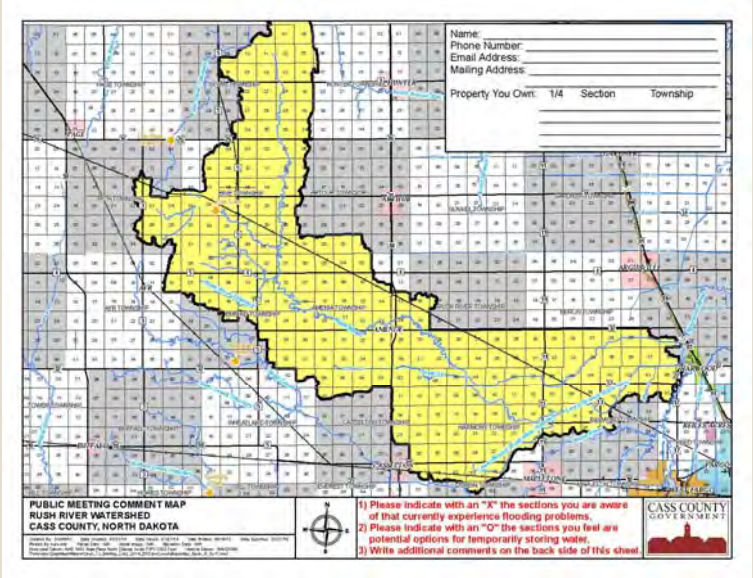
Project Goals

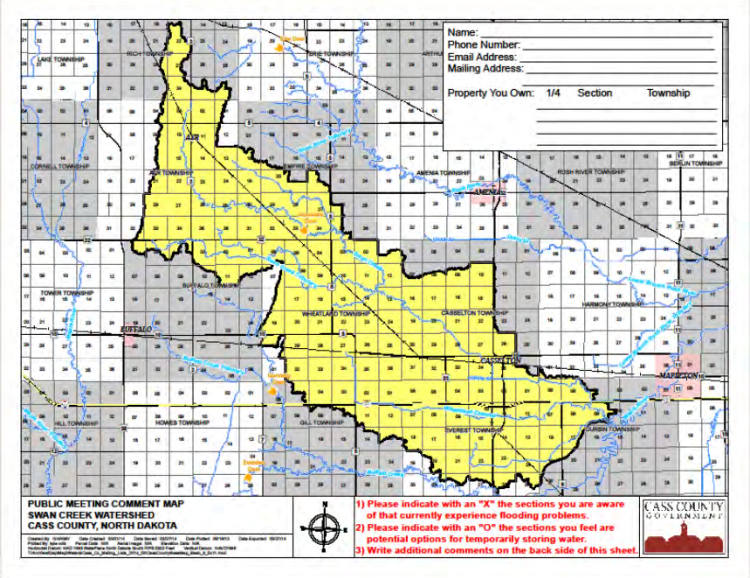
- **Project Goals**
  - **Fairly compensate landowners**
  - **Continue to farm majority of project interior!**
  - **Tile interior of project (off-channel sites)**
  - **Utilize entire project for spring runoff**
  - **Utilize a portion of the project for frequent summer flood reduction benefits**
  - **Determine fair compensation method if project is needed for extreme summer flooding**
  - **Incorporate water quality benefits within a portion of the project.**

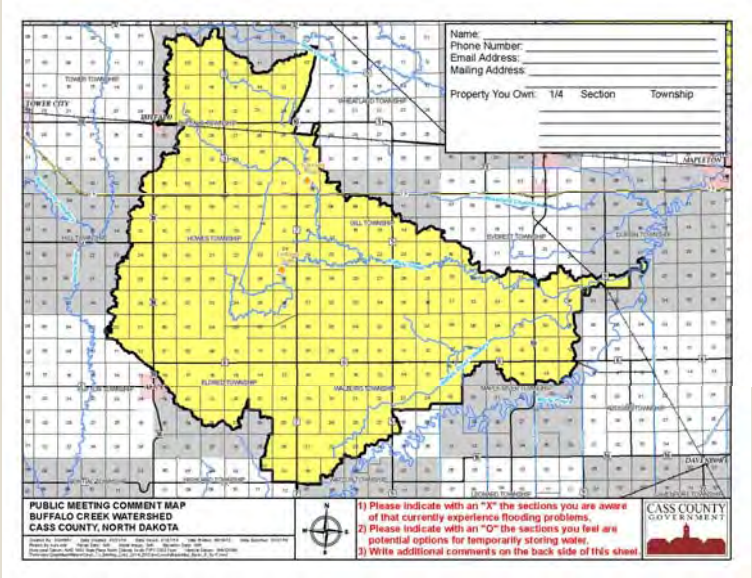
First Meeting Outcomes Comments & Questions

(First Meeting Held April 8, 2014)

Landowner Comments







Landowner Comments

Swan Creek Watershed

Total Mailings – 393
Total Responses – 19
# of Owner Nominated Locations – 2

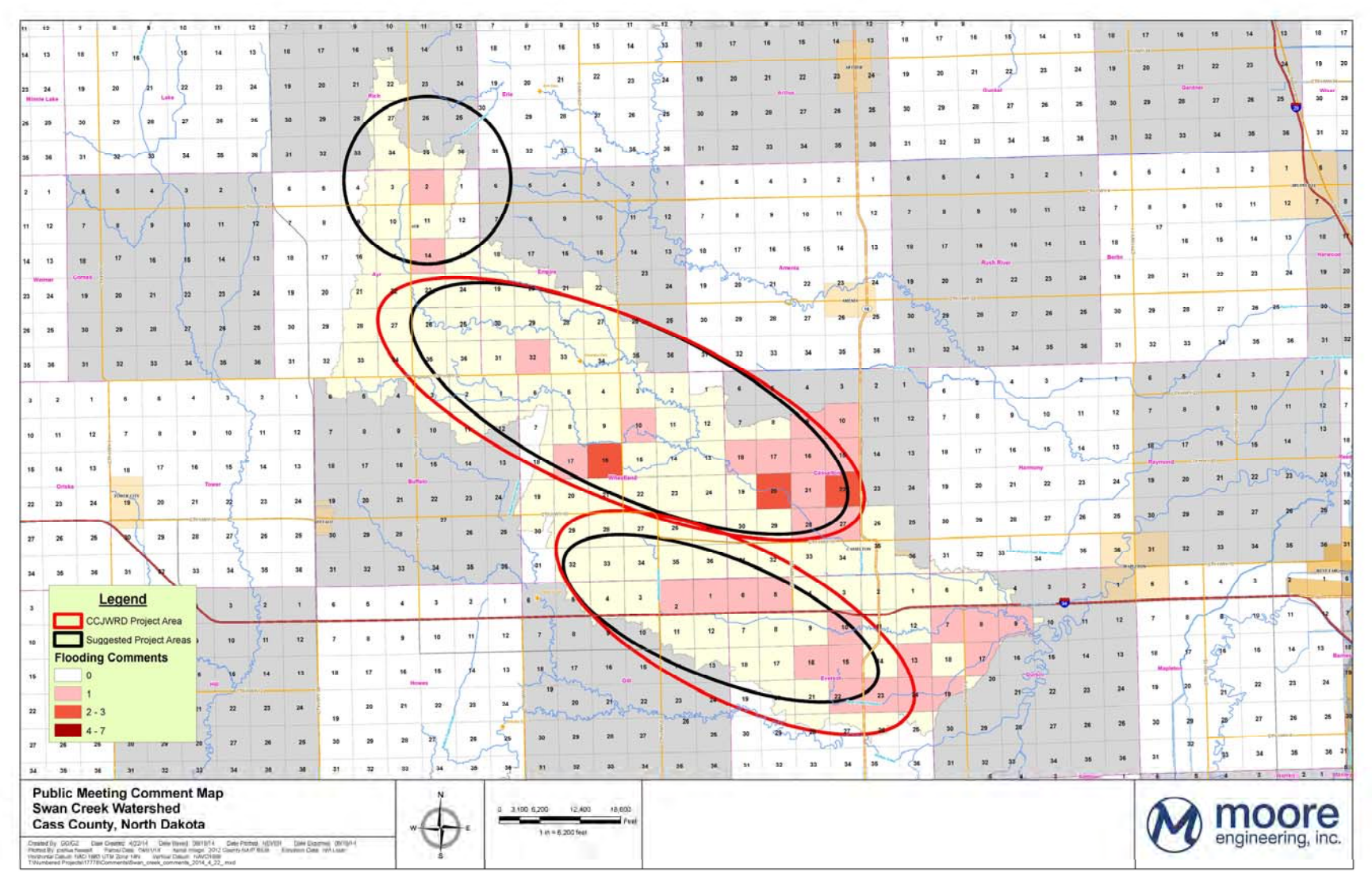
Rush River Watershed

Total Mailings – 485
Total Responses – 30
# of Owner Nominated Locations – 3

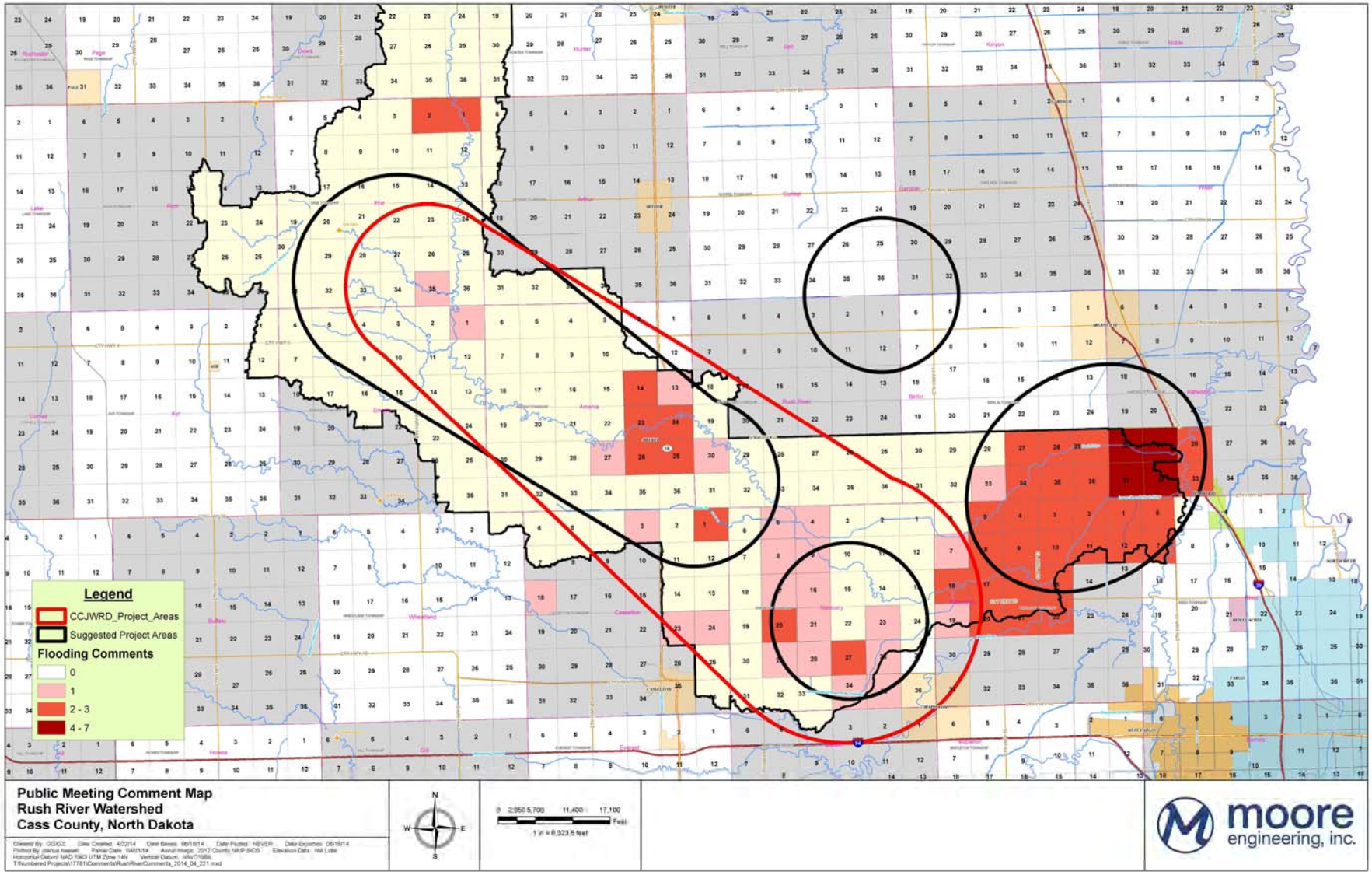
Buffalo Creek Watershed

Total Mailings – 462
Total Responses – 22
# of Owner Nominated Locations – 4

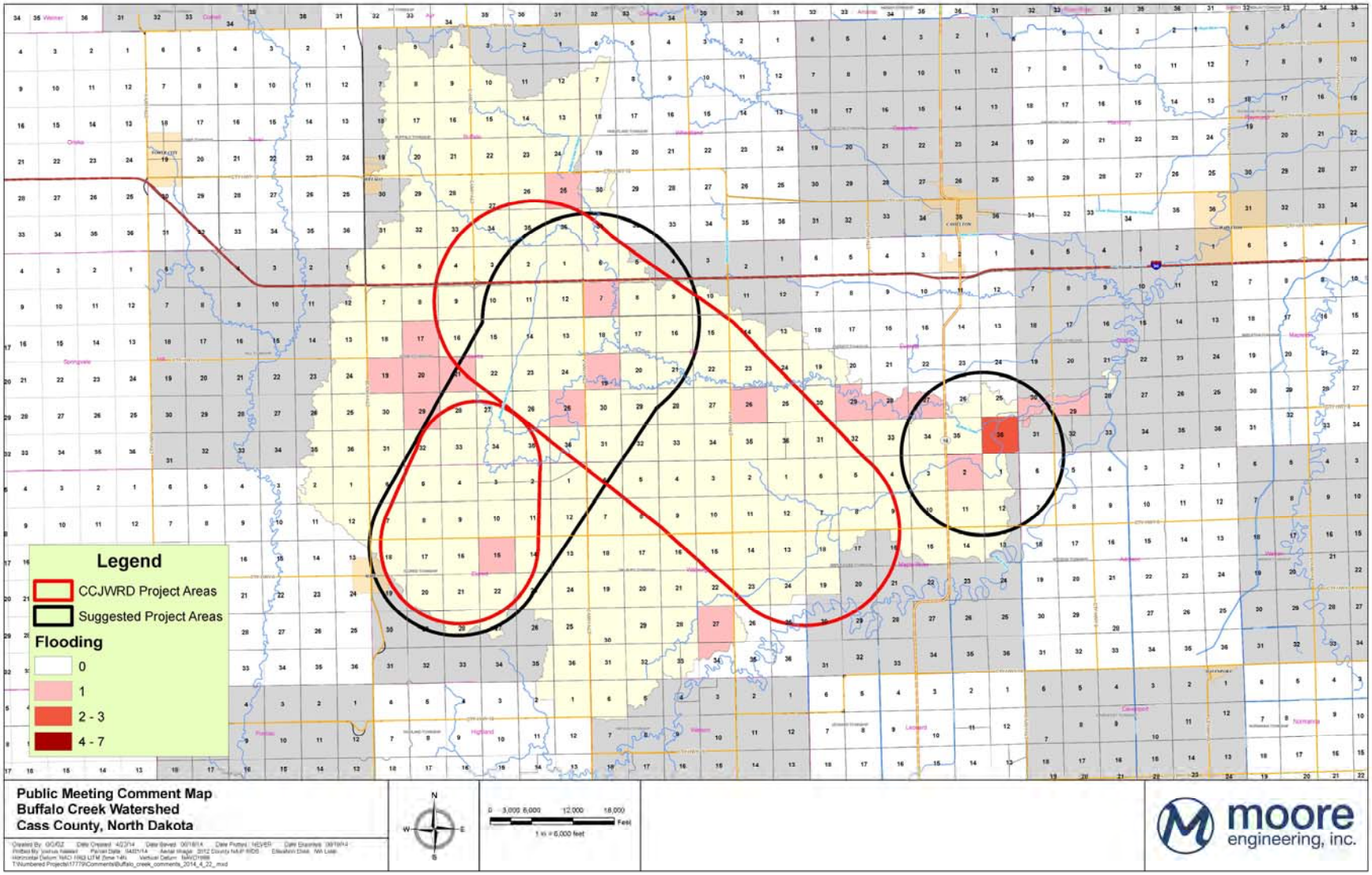
Swan Creek Landowner Comments



Rush River Landowner Comments



Buffalo Creek Landowner Comments



Landowner Questions

1. **Why don’t you rent flood storage?**
   i.e. pay landowners each time they store water

2. **What ever happened with the Buffalo Creek improvement project?**

HOW WOULD LAND ACQUISITION WORK?

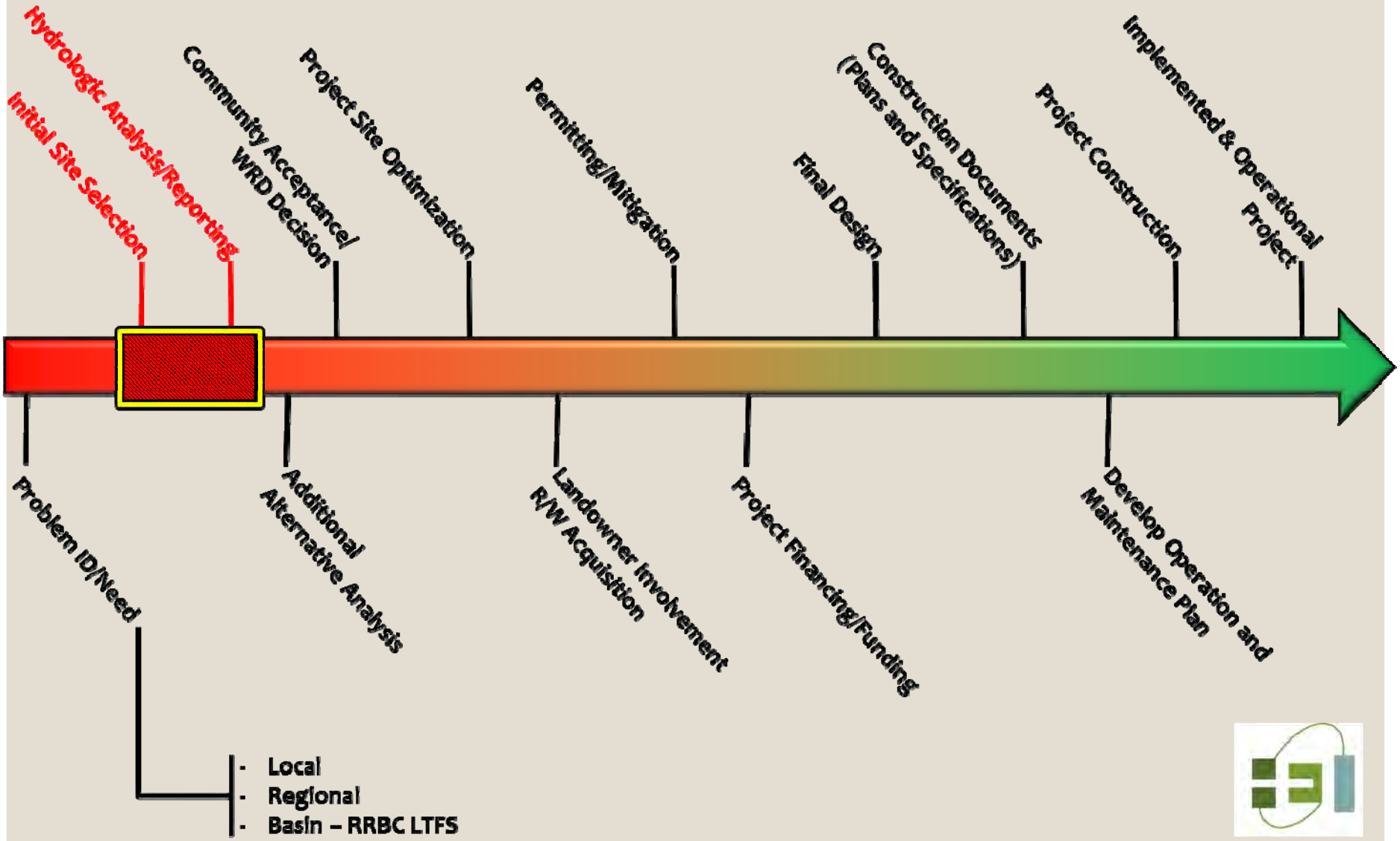
Land Acquisition

1. Fee Simple Purchase by CCJWRD
    1. Land at the project site
    2. Land near the project site (trade)
    3. CCJWRD would lease the land for farming
    4. Can happen years before the project is built

2. Permanent Easements
    1. Flood easement
    2. One time lump sum payment
    3. Based on an appraisal for the easement
    4. Transaction takes place immediately before construction (after permitting, vote, and funding)

Project Development Timeline

Project Development Timeline



Moving Forward
What’s Next

Moving Forward

1. Identify at least one project in each watershed

1. Communicate with impacted landowners
2. Assess project acceptability

2. Study projects

1. Alternatives analysis (necessary for permitting)
2. Geotechnical soils investigation
3. Preliminary design and cost estimate
4. Benefit determination (flood reduction benefit)

3. Acquire property within or near project area

1. Property that can be used for the project (fee simple)
2. Property that can be used for land trading (fee simple)

Note: Easements are purchased at the end of a project

QUESTIONS?