Minnesota Wetland Conservation Act Rulemaking
MN Rules Chapter 8420

Wetlands Advisory Committee

September 27, 2022

BOARD OF WATER AND SOIL RESOURCES

www.bwsr.state.mn.us/wetlands

Meeting Protocol

- ✓Keep your microphone muted except when you are speaking.
- ✓Please keep your camera off during the meeting to save bandwidth.
- ✓We'd like the meetings to be relatively informal and conducive to discussion. Just "raise your hand" if you have a question.
- ✓Ken, Dave, and I will remain available after the meeting ends in case any of you have questions/comments that you would prefer to discuss "offline." We also will be available to meet with you individually to bring you up to speed on any given topic.
- ✓Be respectful - all perspectives are legitimate. In the end, the WCA policy goal is to consider all perspectives in improving outcomes for the public as a whole.
- ❖We will go into a fair level of detail for some of these topics – if you want to think about them a bit more before commenting, you are welcome to contact us at a later time with your comments or questions.

1) Attendance & brief recap of first meeting.
2) Presettlement Areas for Wetland Replacement and Bank Service Areas
3) Siting of Wetland Replacement when using the Wetland Bank
4) Wetland Typing – for Impacts and Replacement
5) Replacement Wetland Buffers – Requirements and Crediting
6) Wetland Bank Plan Approval Process
7) Wrap-up and Upcoming Topics

BWSR Wetlands Advisory Committee

Organizations & Participants

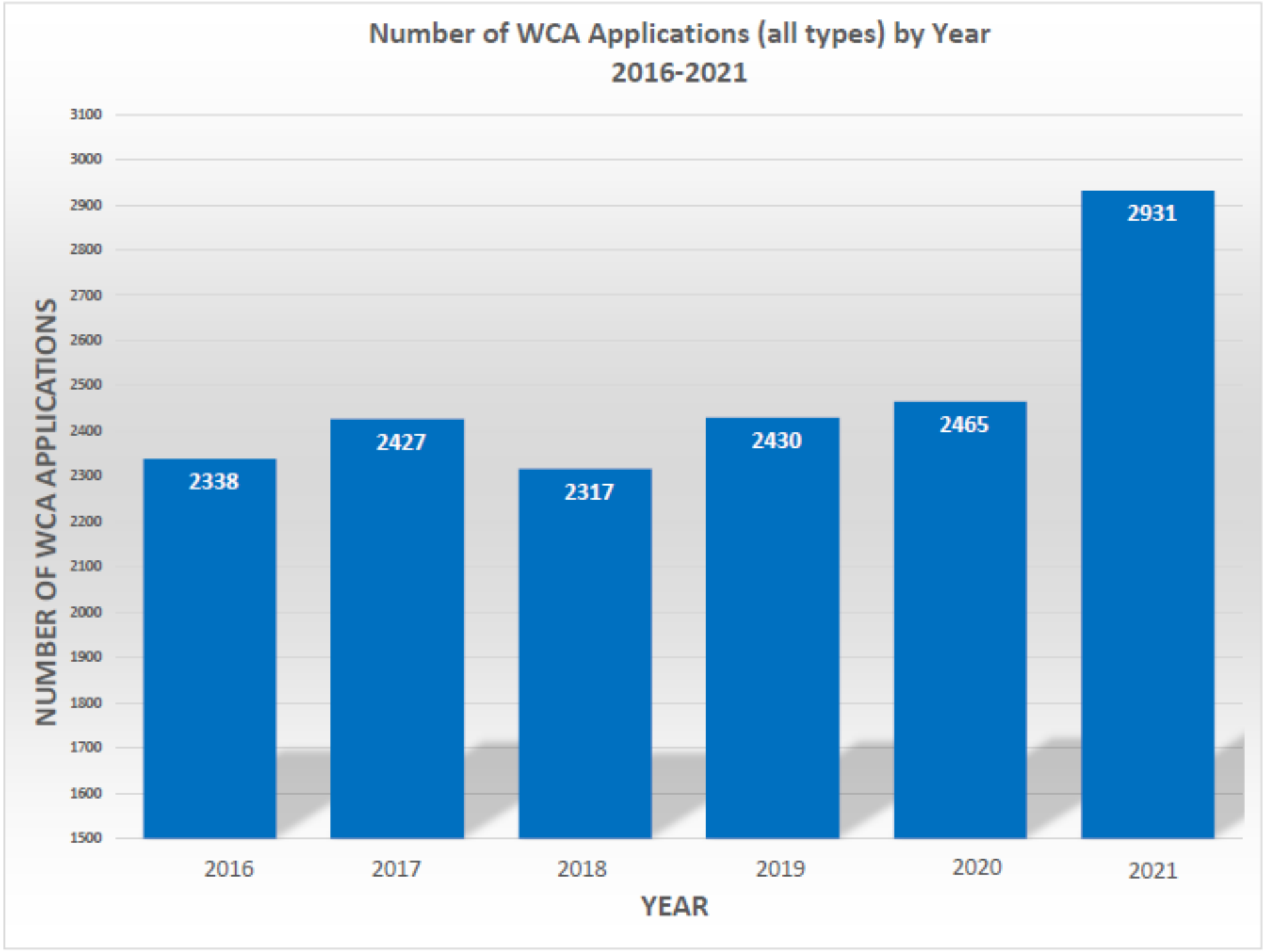
Amber Hanson Glaeser	MN Farm Bureau
Beth Brown	MN Department of Transportation
Brian Martinson	Association of MN Counties
Brian Watson	SWCD Staff (Dakota SWCD)
Craig Johnson	League of MN Cities
Dan Larson	MN Rural Counties Caucus
Julie Lucas	Mining MN
Grace Keliher	Builders Association of MN
Jim Foldesi	MN County Engineers Association
John Cunningham	Aggregate Ready-Mix Association of MN
John Linc Stine	Freshwater
Josh Stromlund	County Staff (Lake of the Woods)
Kathryn Hoffman	MN Center for Environmental Advocacy
Kristen Vake	Iron Mining Association of MN
Margaret Levin	Sierra Club
Matt Massman	MN Intercounty Association
Ray Bohn	MN Association of Watershed Districts
Rob Sip	Red River Watershed Management Board
Rebecca Beduhn	MN Wetland Professionals Association
Sheila Vanney	MN Association of SWCDs
Steve Morse	MN Environmental Partnership
Stu Lourey	MN Farmers Union
Tony Kwilas	MN Chamber of Commerce
Warren Formo	MN Agricultural Water Resource Center

Note: Representatives of the organizations at each meeting may vary as alternates can be used depending on member availability.

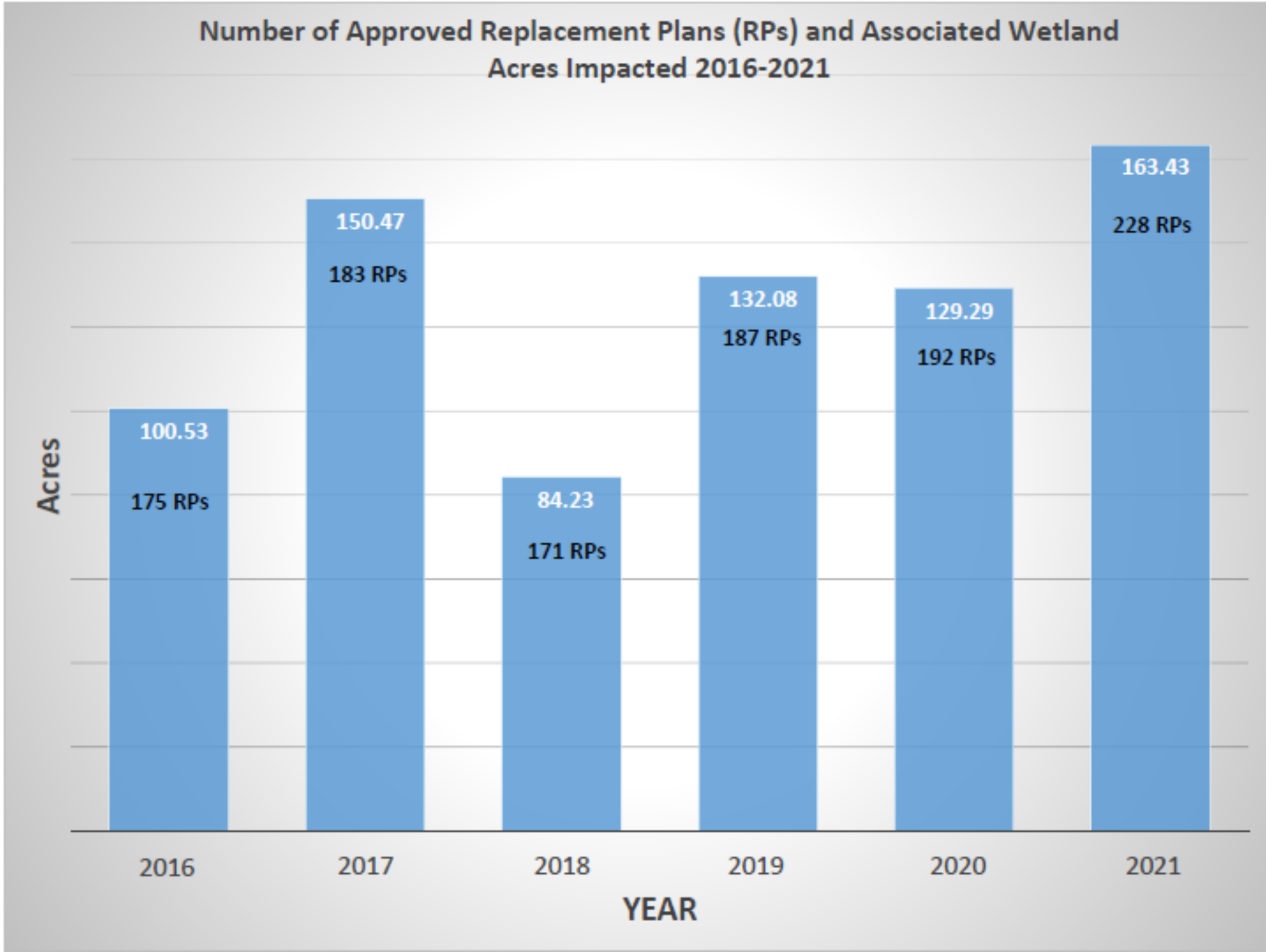
August 18, 2022 Meeting

- ✓We covered the rulemaking process, roles, and responsibilities, along with some WCA rulemaking background & history.
- ✓We reviewed the 2011-2017 statute changes.
- ✓We provided brief overviews/introductions potential rulemaking topics.
  - Wetland Bank Service Areas
  - Wetland Classification System and Credit Types
  - Wetland Buffers & Crediting
  - Wetland Bank Plan Decision Process
  - Stream Restoration and Wetland Credits
  - Functional Assessment Initiative
  - In-Lieu Fee and Compensation Planning Frameworks

A Little Context for Today's Topics



More Context



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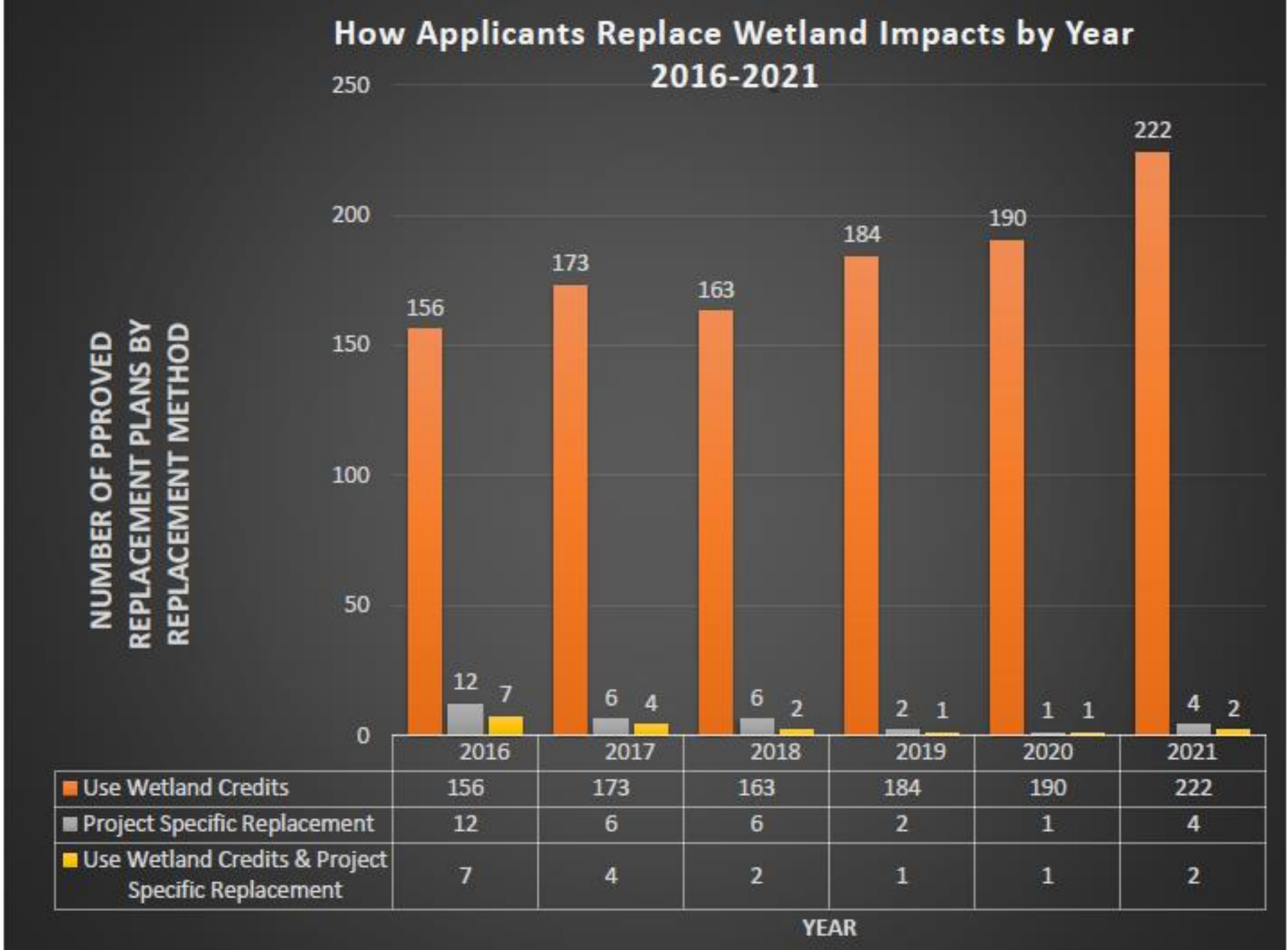


Presettlement Areas for Wetland Replacement and Bank Service Areas (BSAs)

- ✓ Presettlement Areas were incorporated into WCA early to address substantial differences in the amount of existing and drained wetlands in the northeast vs the south & west. Replacement ratios and other statute/rule provisions differ between areas.
- ✓ Bank Service Areas (BSAs) were added later as both the State and Federal Government moved towards more of a watershed-based system.
- ✓ The Presettlement Area and BSA boundaries did not align, creating some conflicts.
- ✓ Statute was amended in 2017 to align presettlement areas on BSA boundaries for purposes of wetland replacement.
- ✓ Adjusting BSAs will create more consistency with past presettlement area boundaries and help solve related conflicts.

2017 Statute Changes

Definition: Greater than 80 percent area.

"Greater than 80 percent area" means a county or, watershed, or, for purposes of wetland replacement, bank service area where 80 percent or more of the presettlement wetland acreage is intact and:

(1) ten percent or more of the current total land area is wetland; or

(2) 50 percent or more of the current total land area is state or federal land.

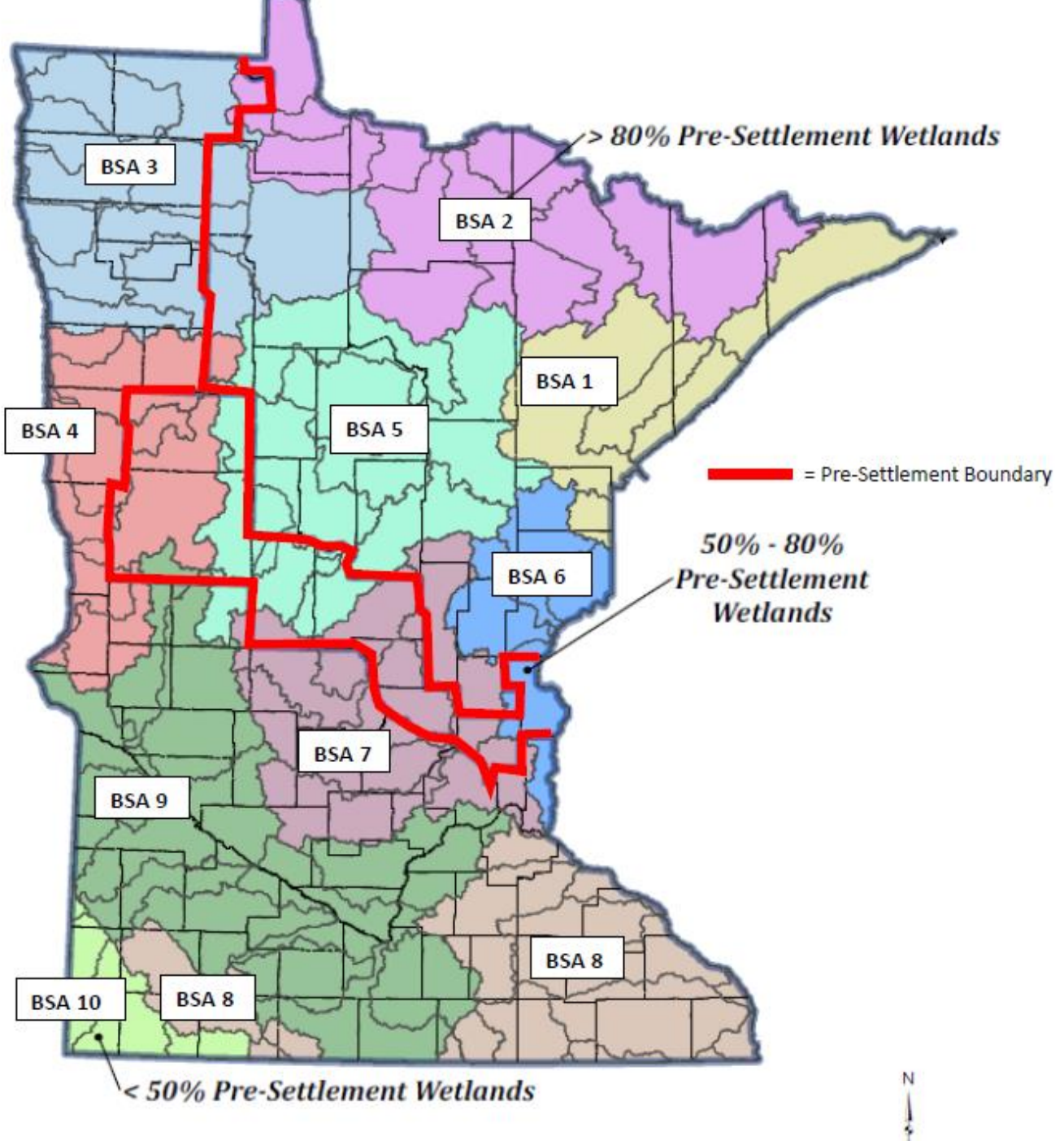
Definition: Less than 50 percent area.

"Less than 50 percent area" means a county or, watershed, or, for purposes of wetland replacement, bank service area with less than 50 percent of the presettlement wetland acreage intact or any county or, watershed, or bank service area not defined as a "greater than 80 percent area" or "50 to 80 percent area."

Wetland replacement siting.

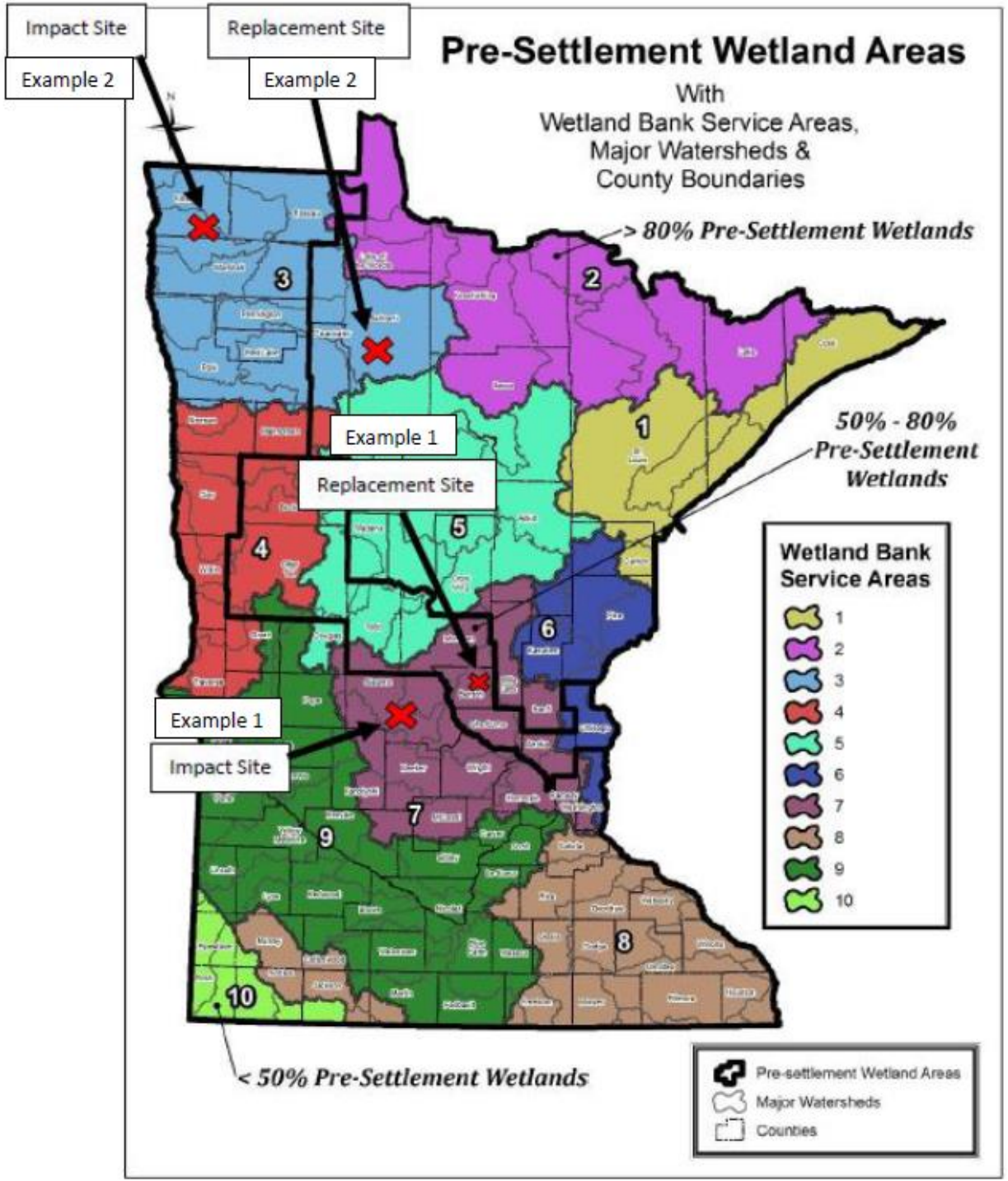
(a) ~~Impacted wetlands in a 50 to~~ Impacted wetlands outside of a greater than 80 percent area must not be replaced in a ~~50 to~~ greater than 80 percent area. ~~or in a less than 50 percent area. Impacted wetlands in a less than 50 percent area must be replaced in a less than 50 percent area~~

Current map of Presettlement Areas and Bank Service Areas.



Examples where BSA and Presettlement Area Boundaries Conflict

- Impacts in parts of some BSAs cannot be replaced within the same BSA.
- Replacement ratios are different within same BSA.



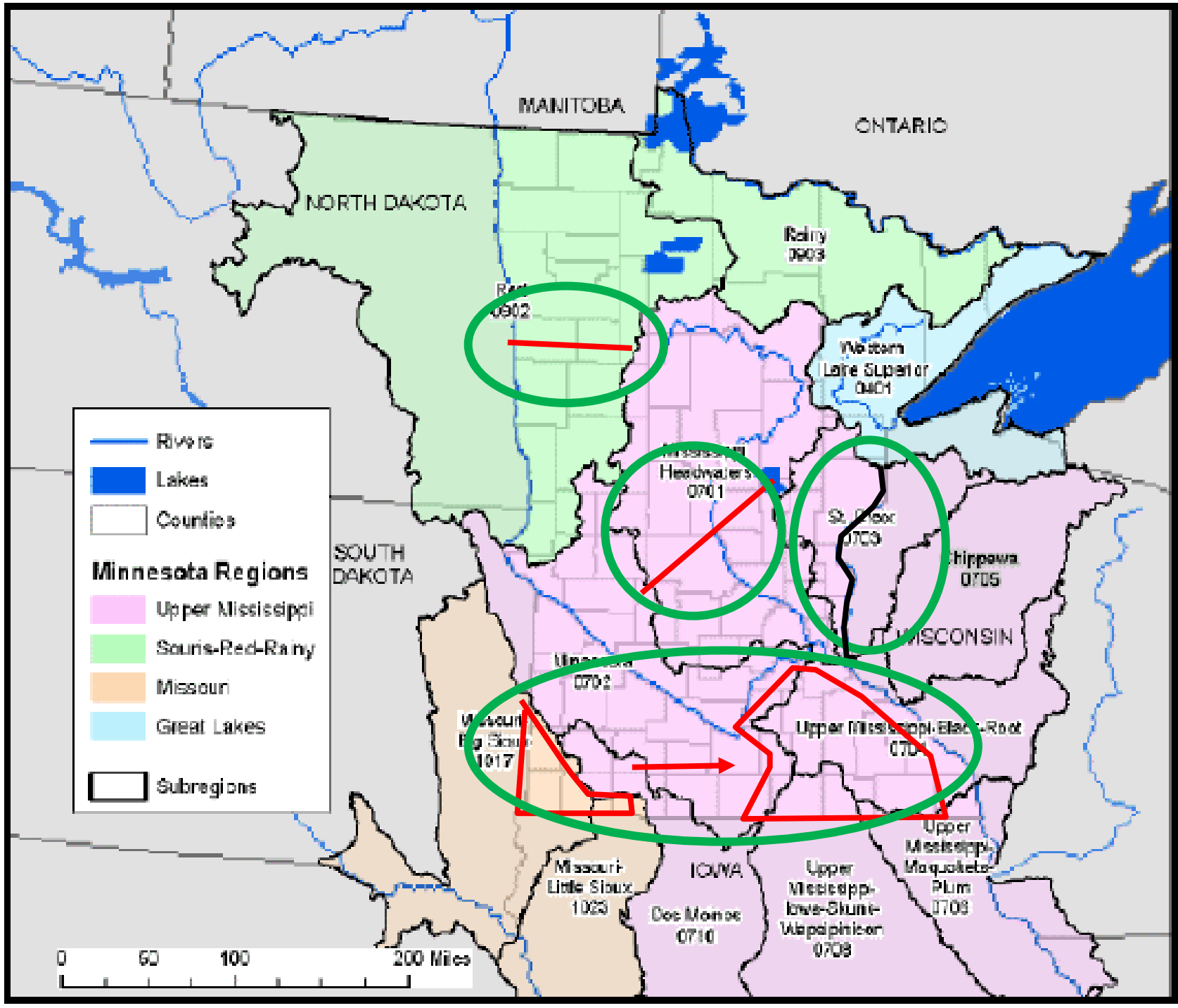
Setting BSA Boundaries

Goal: Develop BSA boundaries that are based on sound science and ecological principles, while minimizing changes to replacement ratios that result from establishing the >80% presettlement area along BSA boundaries.

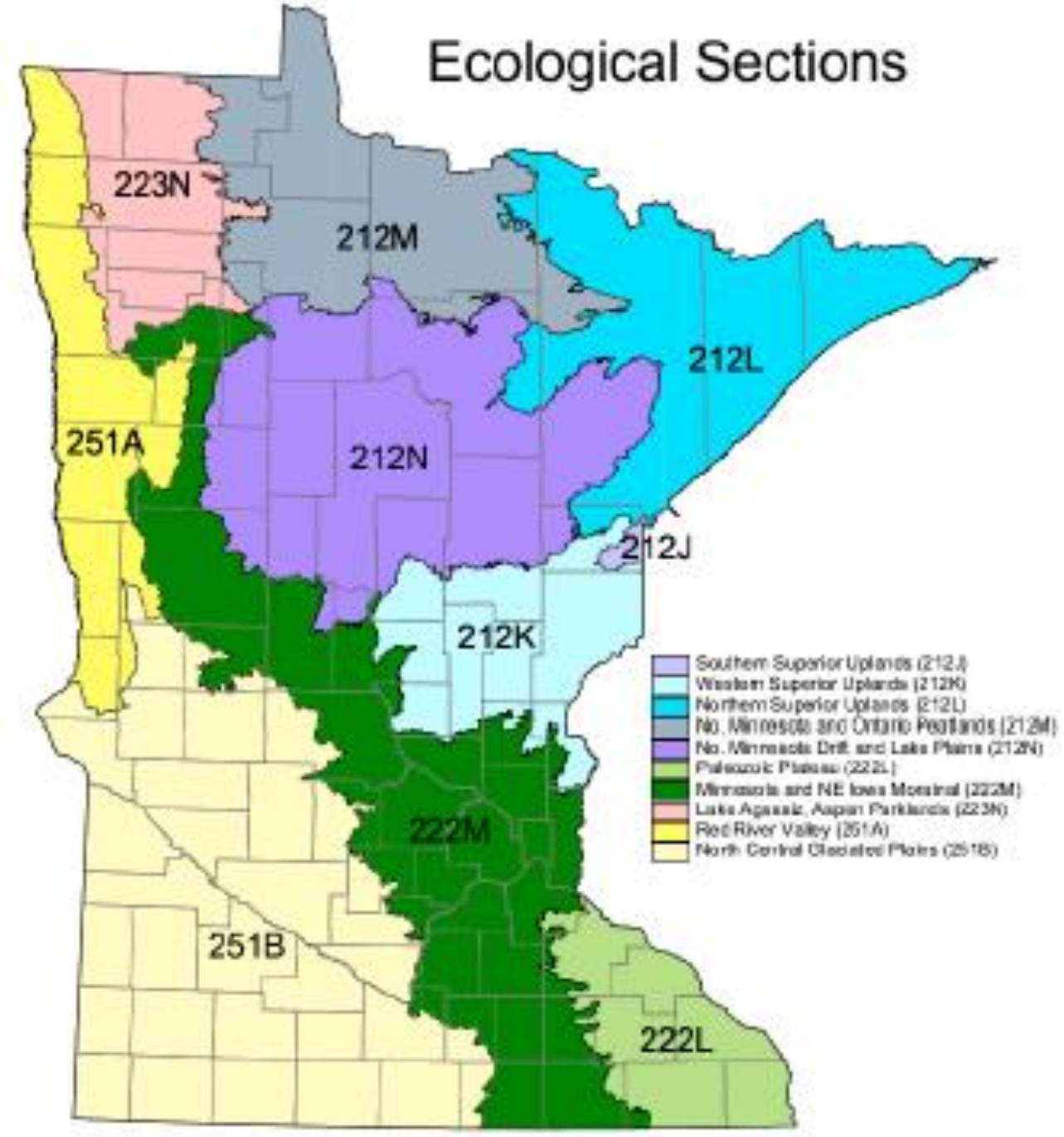
Multiple factors can be considered in setting BSA boundaries:

- Watershed boundaries
- Ecological Section boundaries
- Land Use (historic and current)
- Historic wetland loss
- Current wetland abundance and quality
- Restoration opportunities
- Geographic size
- Economic viability of private wetland banks and markets for mitigation

- BSAs are not entirely watershed based.
- Several “splits and lumps” were made when originally developed.

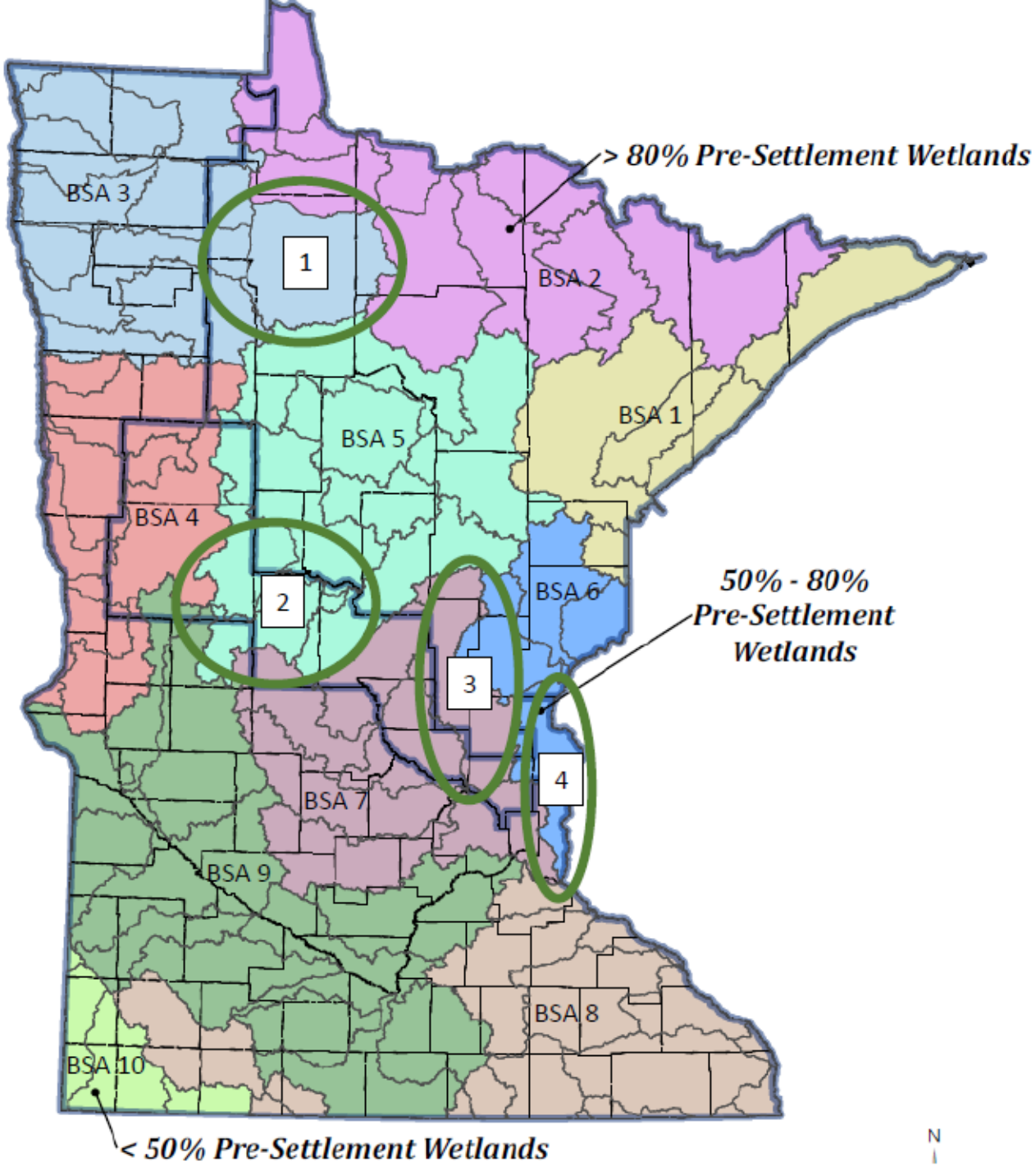


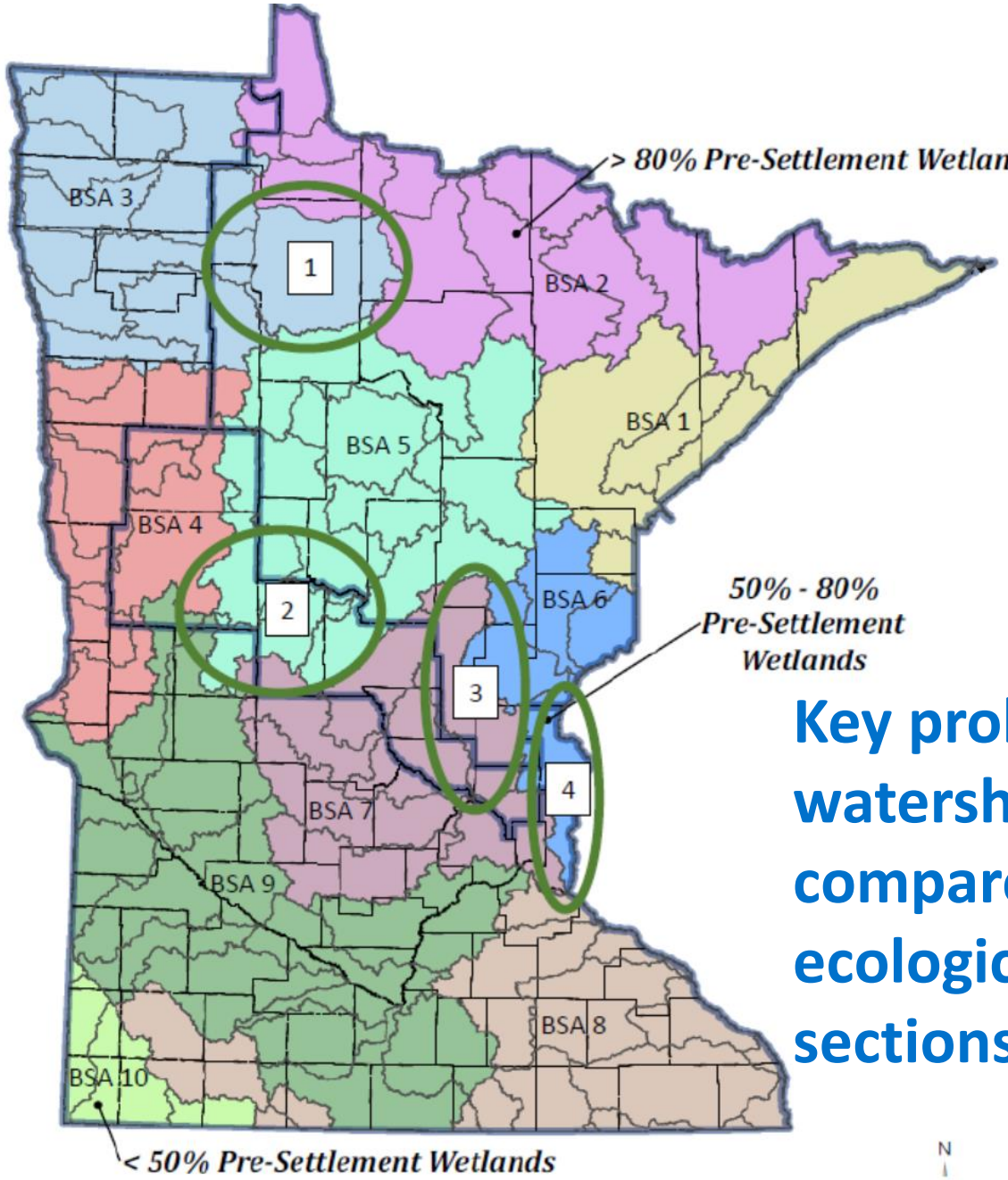
- Other aspects, including ecology, can be relevant factors to consider when setting BSA boundaries.



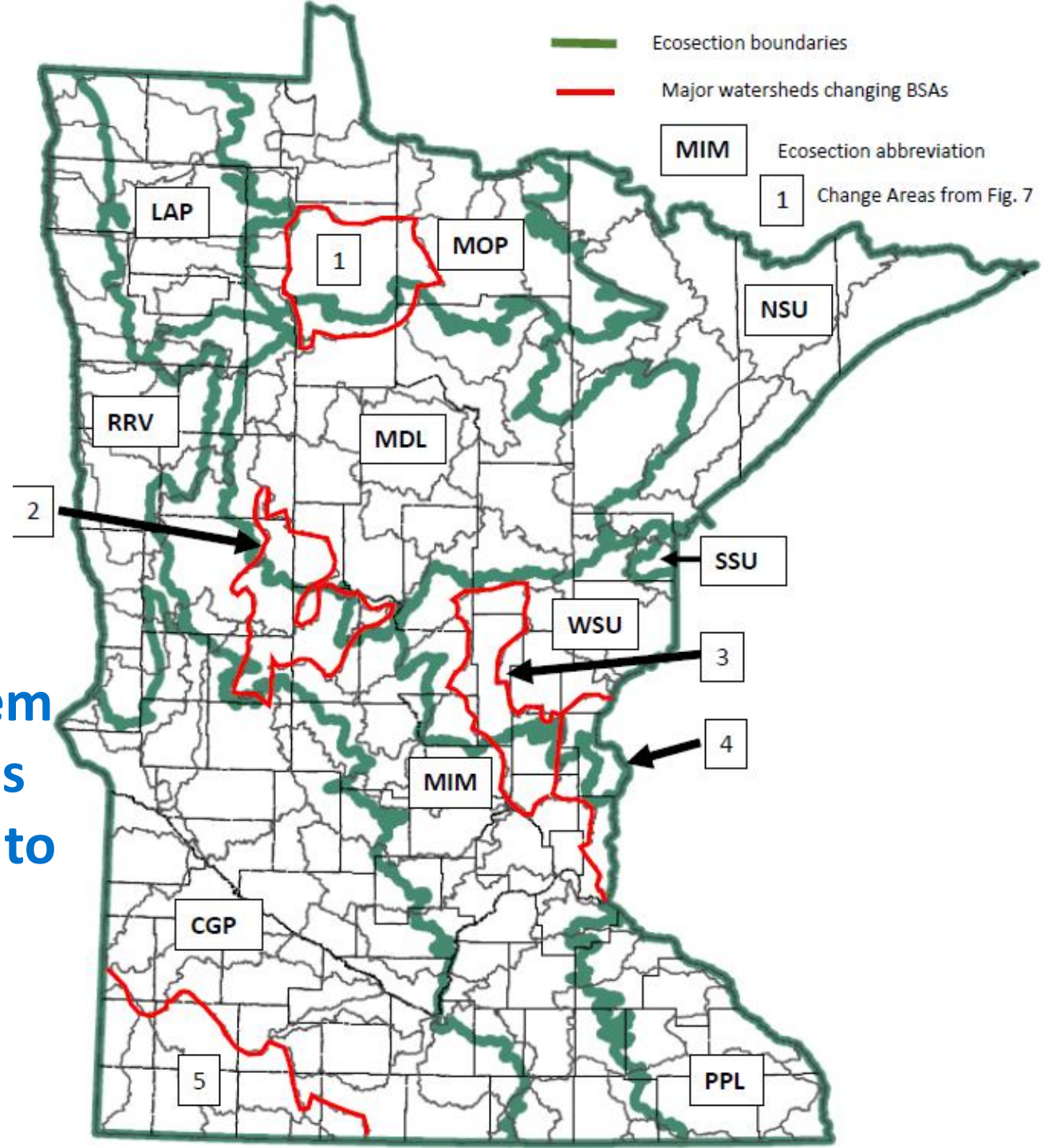
Key Problem Watersheds

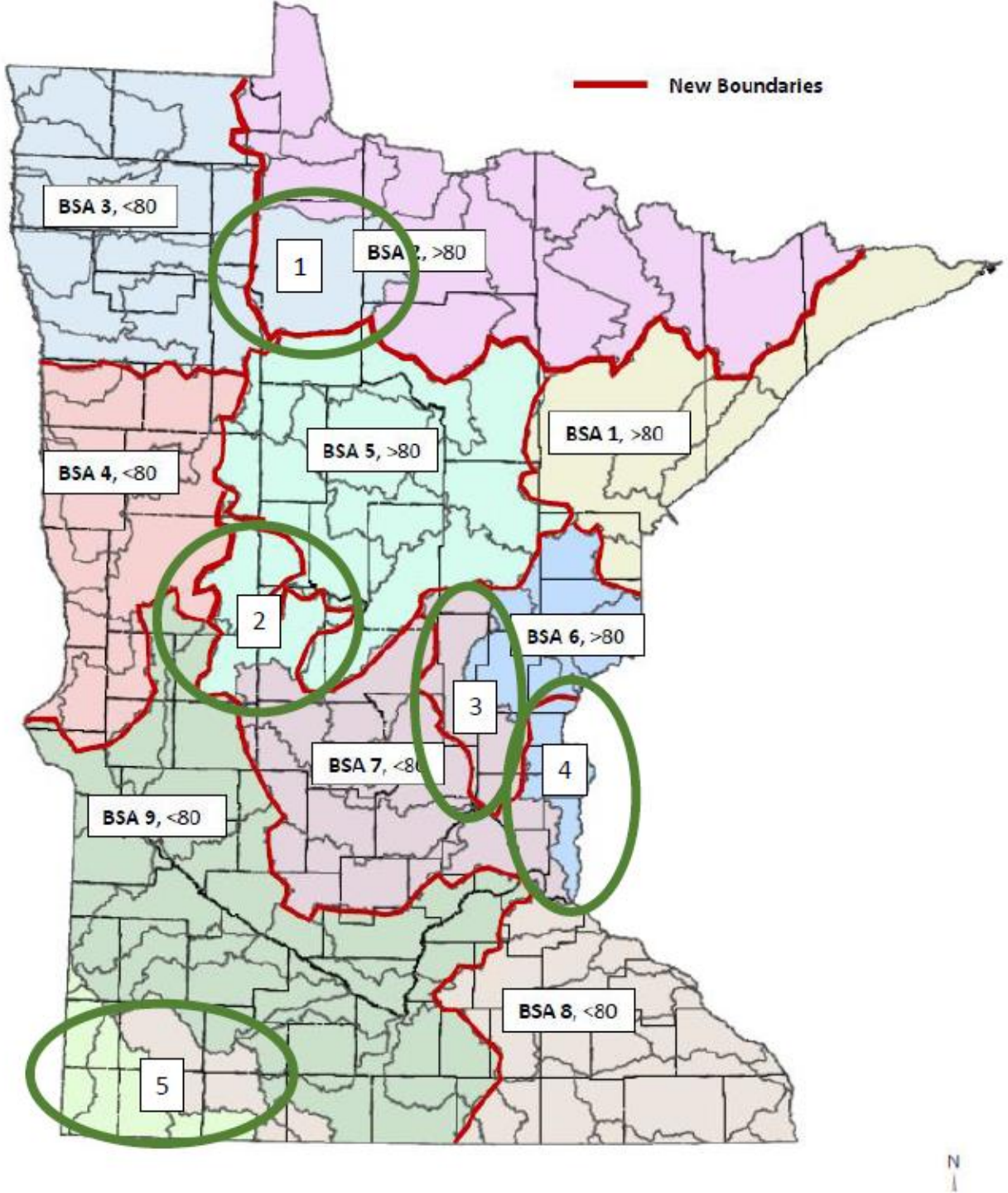
- Areas where BSAs are split by presettlement area boundaries.

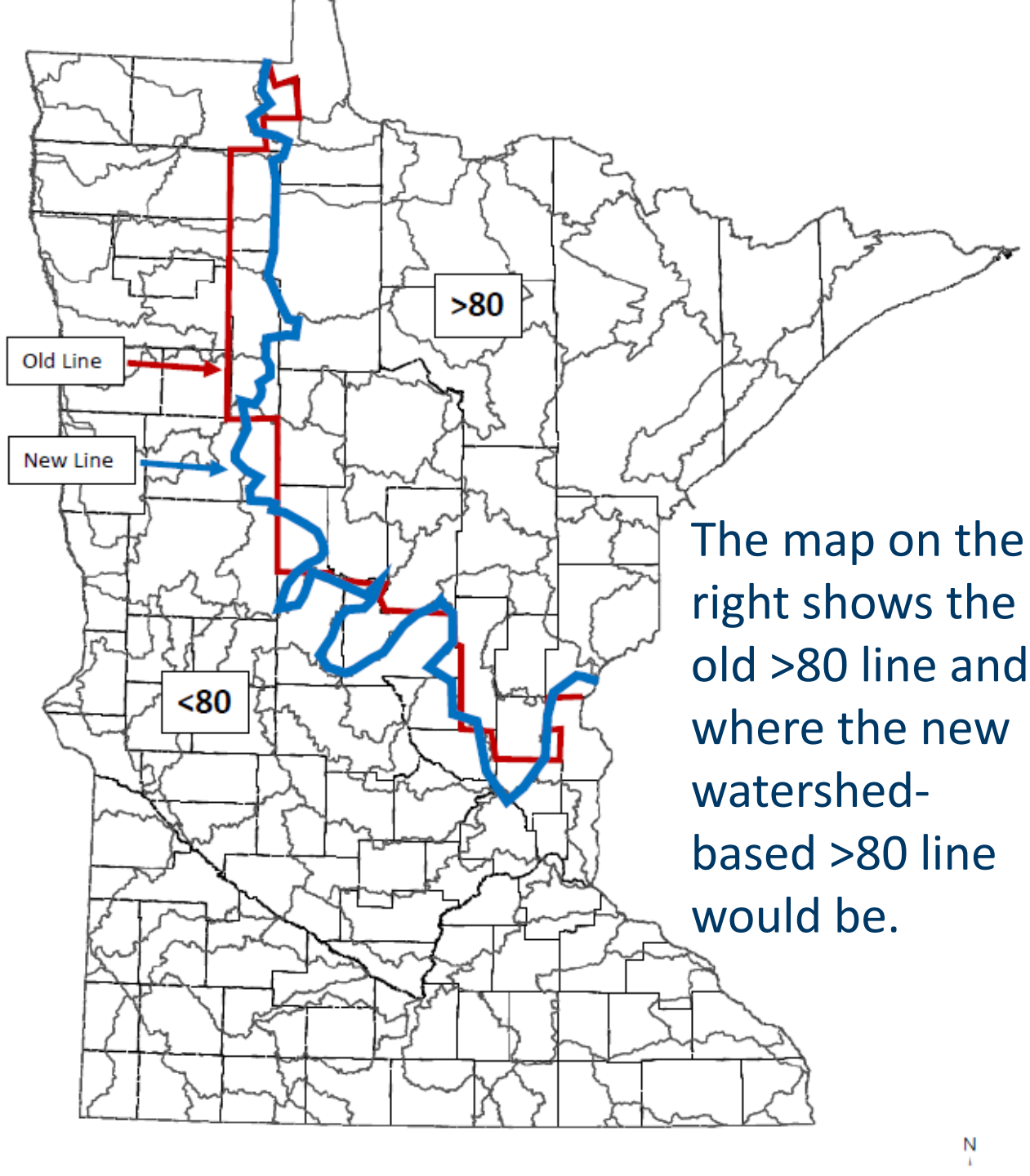




Key problem watersheds compared to ecological sections

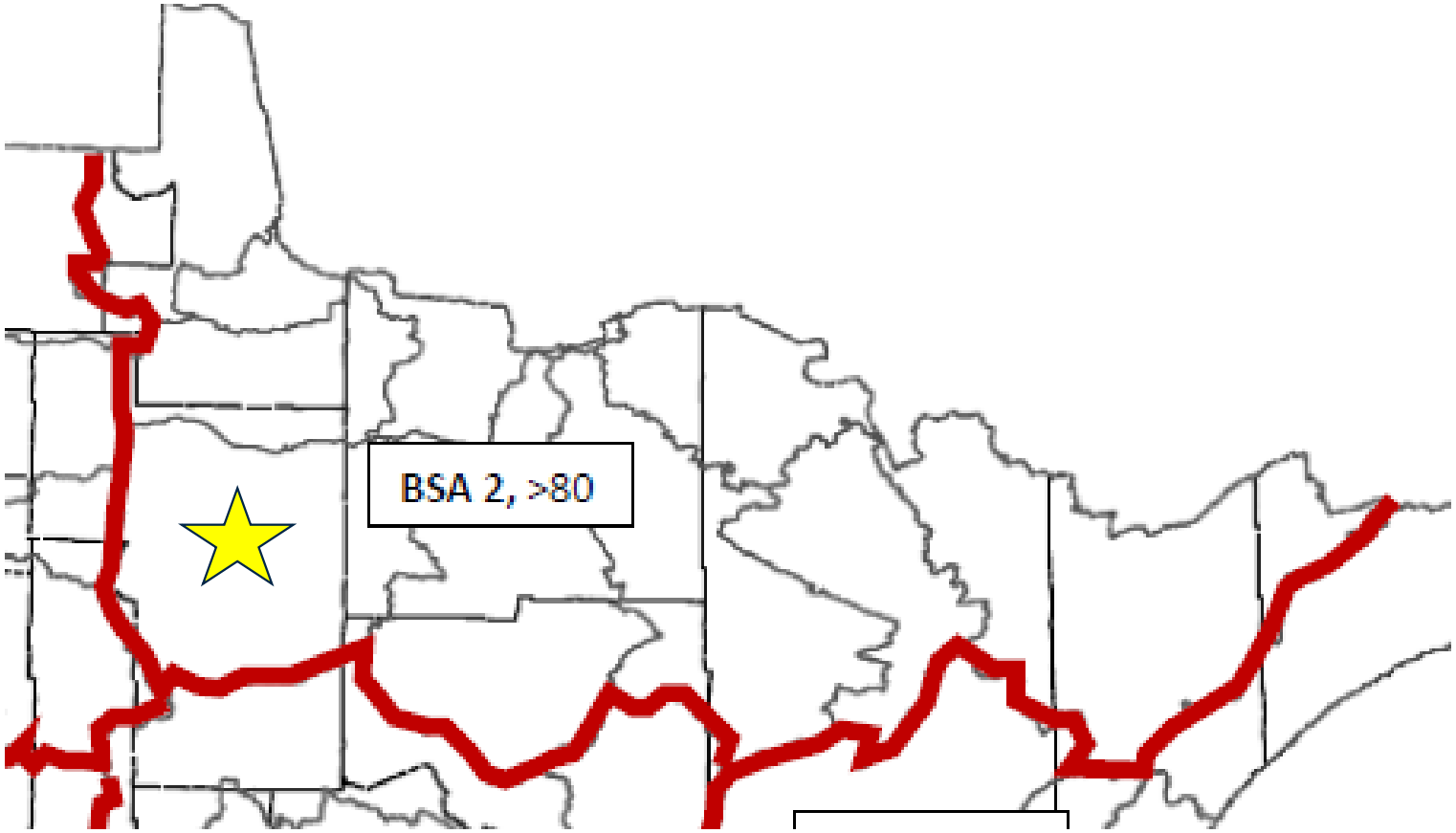




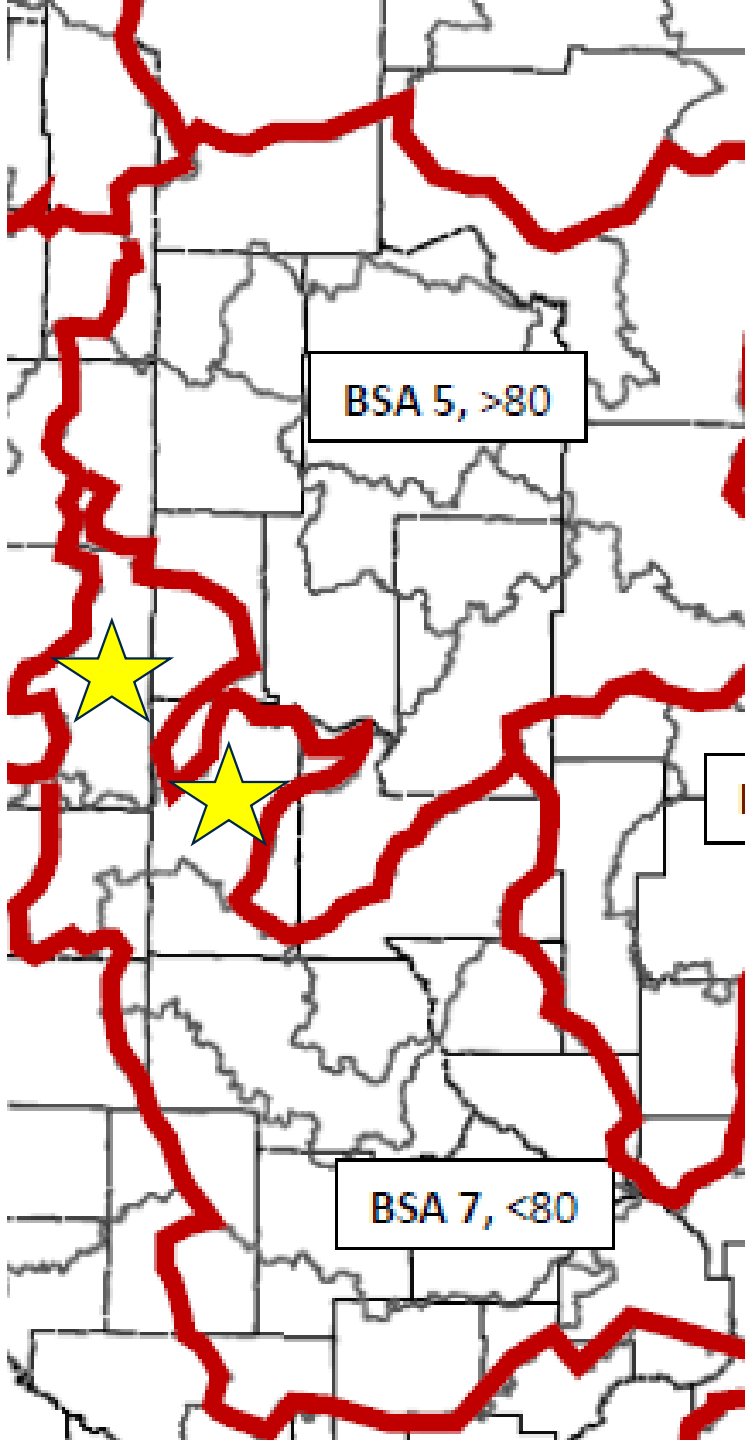


The map on the right shows the old >80 line and where the new watershed-based >80 line would be.

Potential New BSA 2 Boundary

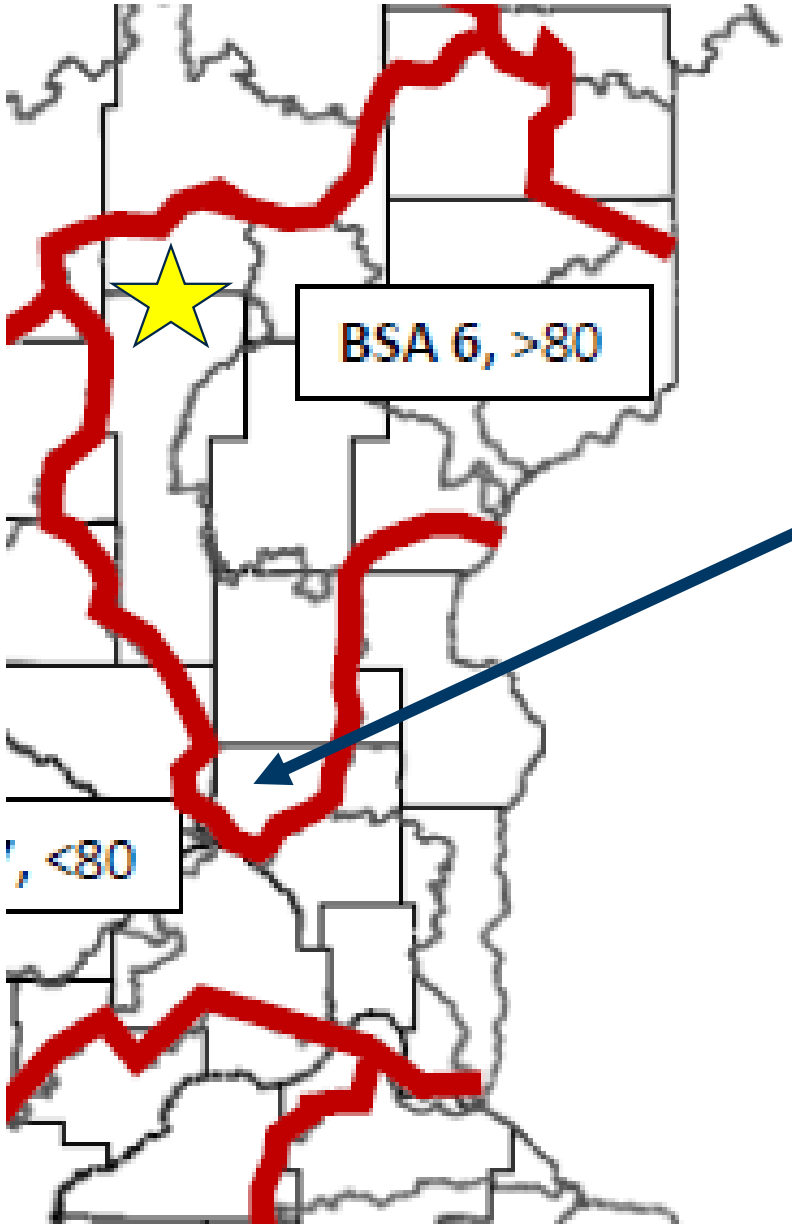


- Upper/Lower Red watershed same ecosection as rest of BSA 2.
- Land use much the same as rest of BSA 2.
- The watersheds have a surficial connection along the north side of the Red watershed.



Potential New BSA 5 & 7 Boundary

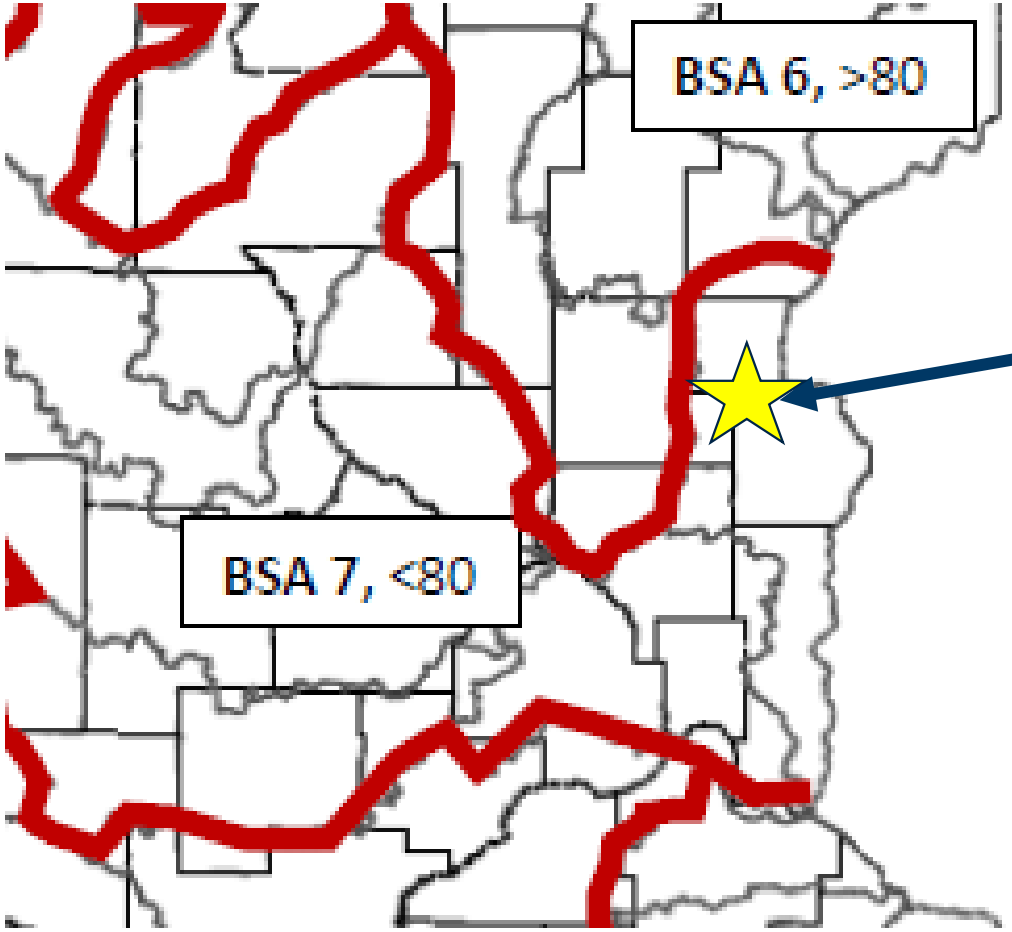
- Redeye & Long Prairie watersheds still within the Mississippi River Headwaters subregion watershed.
- Land use more reflective of BSA 7 (ag) than 5.
- Predominately in the same ecosection as the rest of BSA 7.



Potential New BSA 6 Boundary

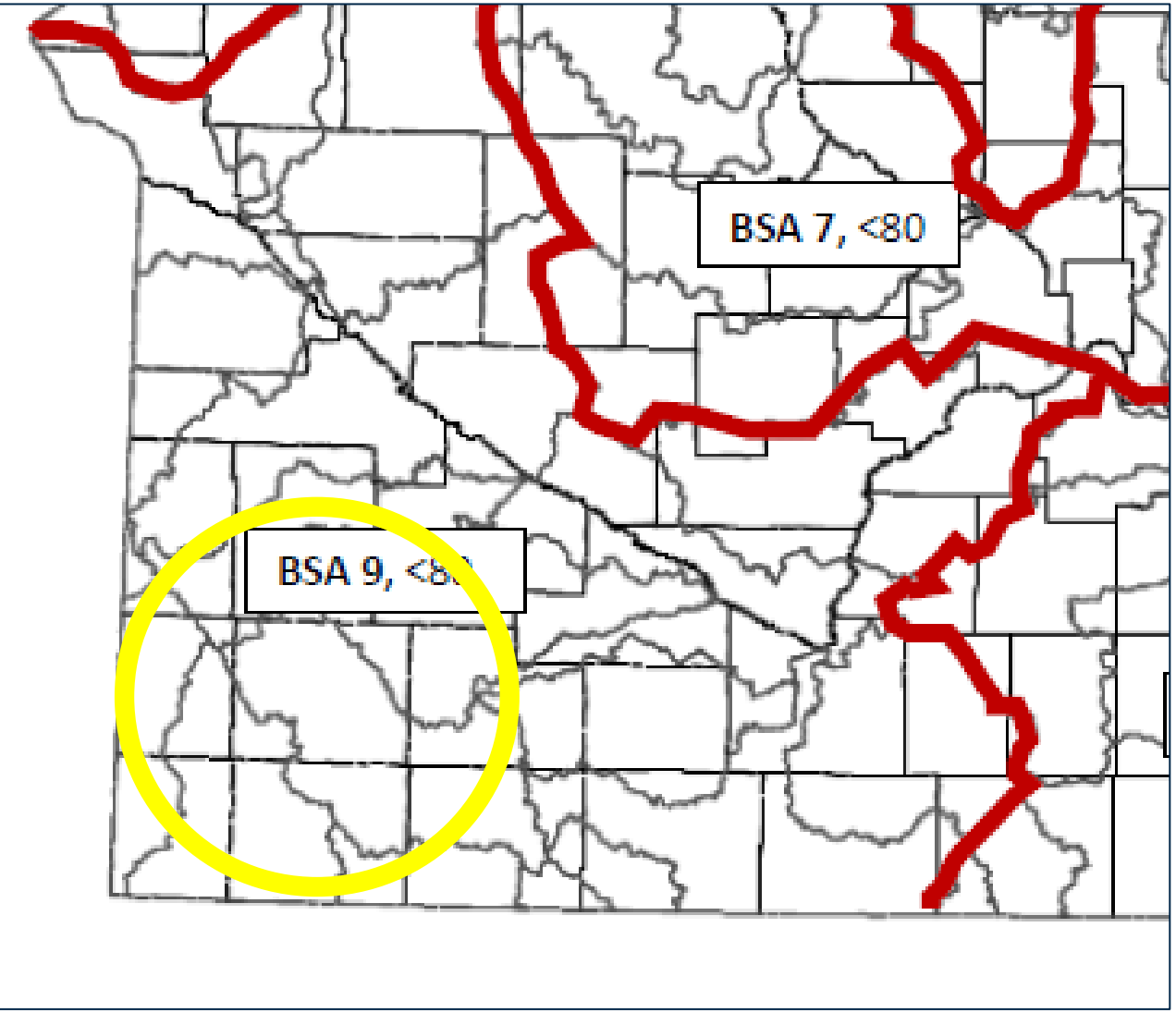
- Rum River watershed remains >80% except for small portion of Anoka County.
- Mostly in same ecosection as the rest of BSA 6.
- Land use similar to the rest of BSA 6.
- Provides more restoration opportunities for BSA 6

Potential Boundary for Eastern Portion of BSA 7



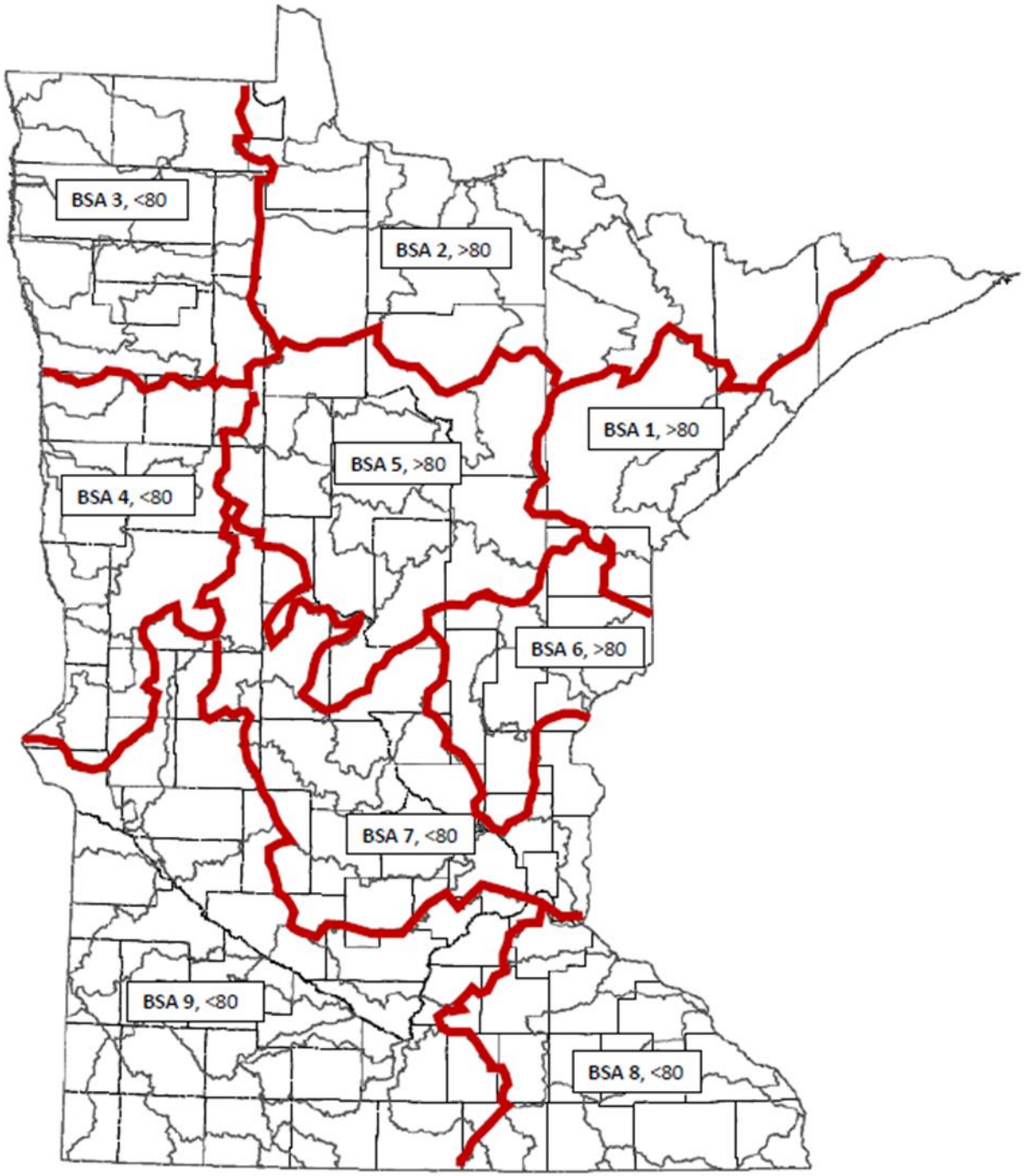
- Lower St Croix River watershed land use more similar to BSA 7 than BSA 6.
- Mostly in same ecosection as the rest of BSA 7.
- Allows Chisago and Washington counties to remain <80.

Potential BSA 9



- Lower Big Sioux River, Rock River, Des Moines River Headwaters, Lower Des Moines River and East Fork Des Moines River watersheds (from BSA 10 and part of BSA 8) are all within the same ecosection as the rest of BSA 9.

- Eliminates small and disjointed BSAs.



Potential New BSA Map

- Comments or suggestions regarding the boundaries?
- Do they resolve the presettlement area/BSA conflict in a reasonable way and in proper consideration of relevant factors?

Policy Considerations

- What about existing banks located within a watershed that changes BSAs?
  - The owners of those banks invested in the bank based on a set of market conditions that will now change.

- Solution?
  - “Grandfather” existing banks located within a watershed that changes BSAs so they can sell their remaining credits in both the previous and new BSA.
  - Other options?

Thoughts/Comments?

Questions to consider:

- Do the new BSAs do a reasonable job of being resource-based while minimizing changes to replacement ratios?
- Are there other options to address statute that might be better?
- Is “grandfathering” existing banks located within a watershed that changes BSAs a fair solution for affected bank owners?

Siting of Wetland Replacement when using the Wetland Bank

Siting criteria:

- Primarily location-based.
- Can move down the criteria (farther away) when certain factors are met.
- Involves some judgment and discretion.
- Developed when "project-specific" was the primary mechanism for replacement.

- ✓ Wetland Banks now account for >95% of all replacement/mitigation.
- ✓ Wetland banks developed to a higher standard, generally more sustainable (all bank credits meet the criteria to move down the criteria (farther away).
- ✓ Competition and access to wetland banks vital to the operation and goals of WCA.
- ✓ Future move towards function/value-based siting (high priority areas) using incentives to a greater extent (requiring less judgment).

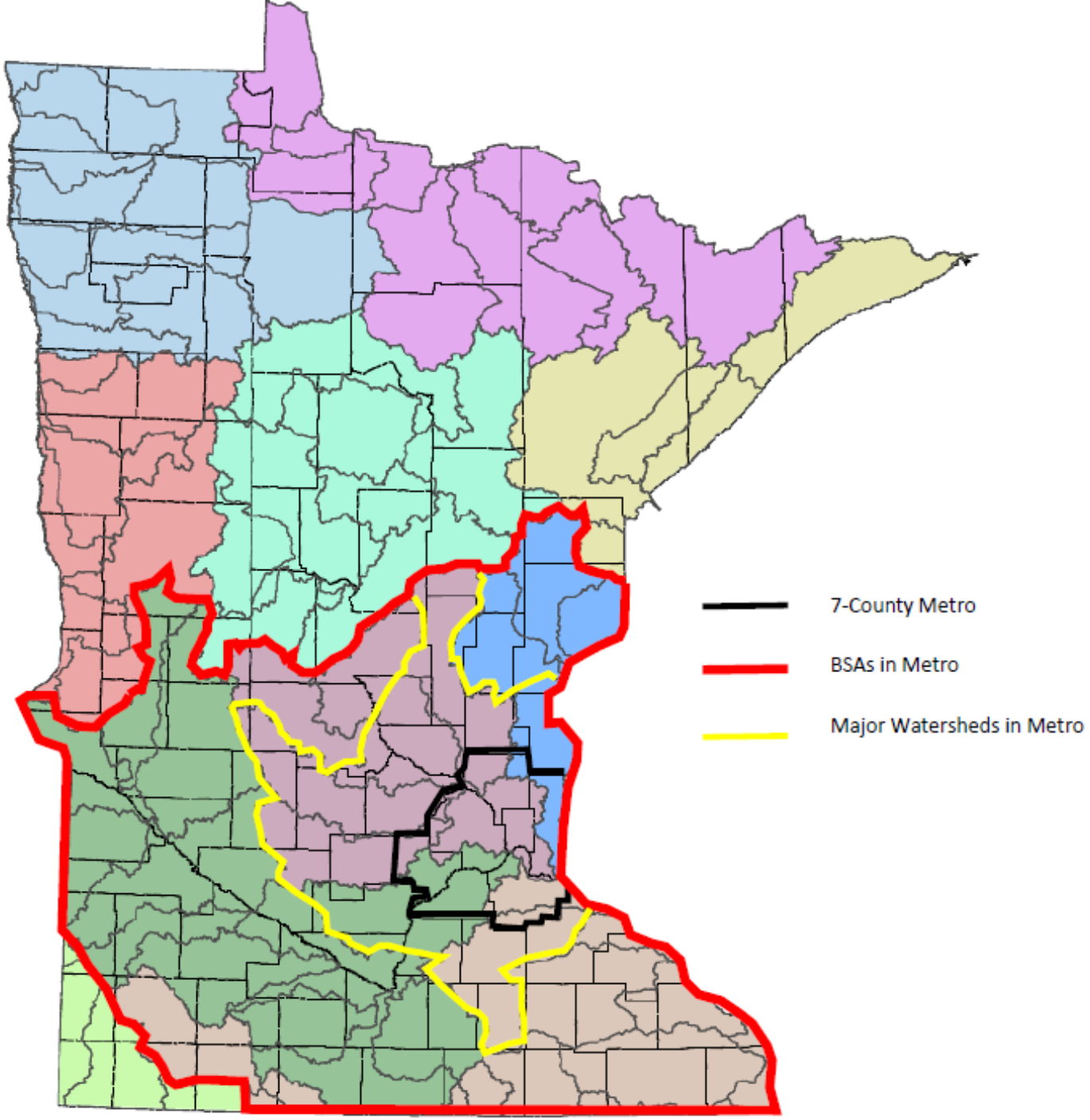
2015 Statute Change

103G.2242, Subd. 3. Wetland replacement siting.

(a) Impacted wetlands outside of a greater than 80 percent area must not be replaced in a greater than 80 percent area. All wetland replacement must follow this priority order:

(1) in the same minor watershed as the impacted wetland;
(2) in the same watershed as the impacted wetland;
(3) in the same wetland bank service area as the impacted wetland; and
(4) in another wetland bank service area.

(c) Notwithstanding paragraph (a), clauses (1) and (2), the priority order for replacement by wetland banking begins at paragraph (a), clause (3), according to rules adopted under section 103G.2242, subdivision1.



Twin-Cities Metropolitan Area

Potential Problem Area?

- 7 counties
- 4 BSAs
- 10 major watersheds
- Multiple other factors somewhat unique to wetland banking in the metro area.

Twin Cities Metropolitan Area

Little incentive to replace in metro due in part to:

- High land values = high replacement costs.
- Lack of replacement opportunities due to the extent of development.
- High cost of dealing with stressors (water fluctuations, invasive species, poor water quality runoff, etc.) to achieve replacement standards.
- More people = more encroachments; difficult to achieve long-term sustainability.
- Higher standards for banks since 2008/2009 = fewer opportunities for high quality, sustainable bank sites.

Potential Issue?

Potential issue:

- If the siting criteria starts at the BSA level, mitigation will likely be exported out of the metro area.
- What about existing metro area banks? Currently 28 banks & about 107 credits.

Potential mitigating factors:

- Metropolitan Surface Water Management Act.
- Stormwater requirements (MS4s, NPDES/SDS, local requirements).
- CWPMPs and local ordinances.
- The metro area is at the downstream end of its' watersheds.
- Delay implementation to address existing banks?

Metropolitan Surface Water Management Act
Minn. Stat. 103B.201 - 103B.255; MN Rules Chapter 8410

- Each metro watershed is managed by a WD/WMO. Each watershed mgmt. plan must contain goals and implementation actions to address resource issues including:
    - water quantity
    - water quality
    - wetlands
- All metro WDs/WMOs address wetlands to some degree, many have specific wetland regulations that are more restrictive than WCA.
- Many WDs/WMOs and/or member municipalities also implement local regs that replace/preserve similar functions (stormwater, parks/open space, tree ordinances, floodplain mitigation, etc.).

Stormwater Requirements

- MN Rule 7090 - Emulates the national laws to address the requirements of federal stormwater regulations. Permits required for:
  - Municipally owned/operated industrial facilities,
  - Publicly owned/operated Municipal Separate Storm Sewer Systems (MS4s) located in urbanized areas and,
  - Construction activities that disturb one acre or more of soil or are part of a common plan of development that disturbing one acre or more.

- Many WDs/WMOs have additional requirements for water treatment, infiltration, and volume reduction that exceed the state and federal standards.

CWPMPs and Local Ordinances

- **Minn. Stat. 103G.2243 and MN Rule 8420.0830 - Local Comprehensive Wetland Protection and Management Plans.**
  - "…to maintain and improve the quality, quantity, and biological diversity of wetland resources within watersheds through the prioritization of existing wetlands and the strategic selection of replacement sites. The purpose of developing a plan is to provide a watershed and ecosystem-based framework to make wetland impact and replacement decisions that meet state standards and locally identified goals and support the sustainability or improvement of wetland resources in watersheds…"

- **MN Rule 8420.0233 – Other Local Government Unit Wetland Rules and Ordinances.**
  - "This chapter and the act provide minimum standards. Local government units may require more procedures and more wetland protection, but not less."

❖ Many metro area local governments (WDs/WMOs and cities) have CWPMPs and/or local ordinances or rules that address wetlands.

WCA and Local Requirements

- WCA is a statewide program with broad statewide goals, but the statutes & rules allow local governments to address local needs through CWPMPs and/or more restrictive requirements.

Watershed Location

- The metro area is at the downstream end of its' watersheds.
- Addressing water quality and quantity within the metro area through stormwater and local requirements while improving water quality and quantity upstream through mitigation could theoretically provide a net increase in those functions compared to the metro alone.

Metro Option #1

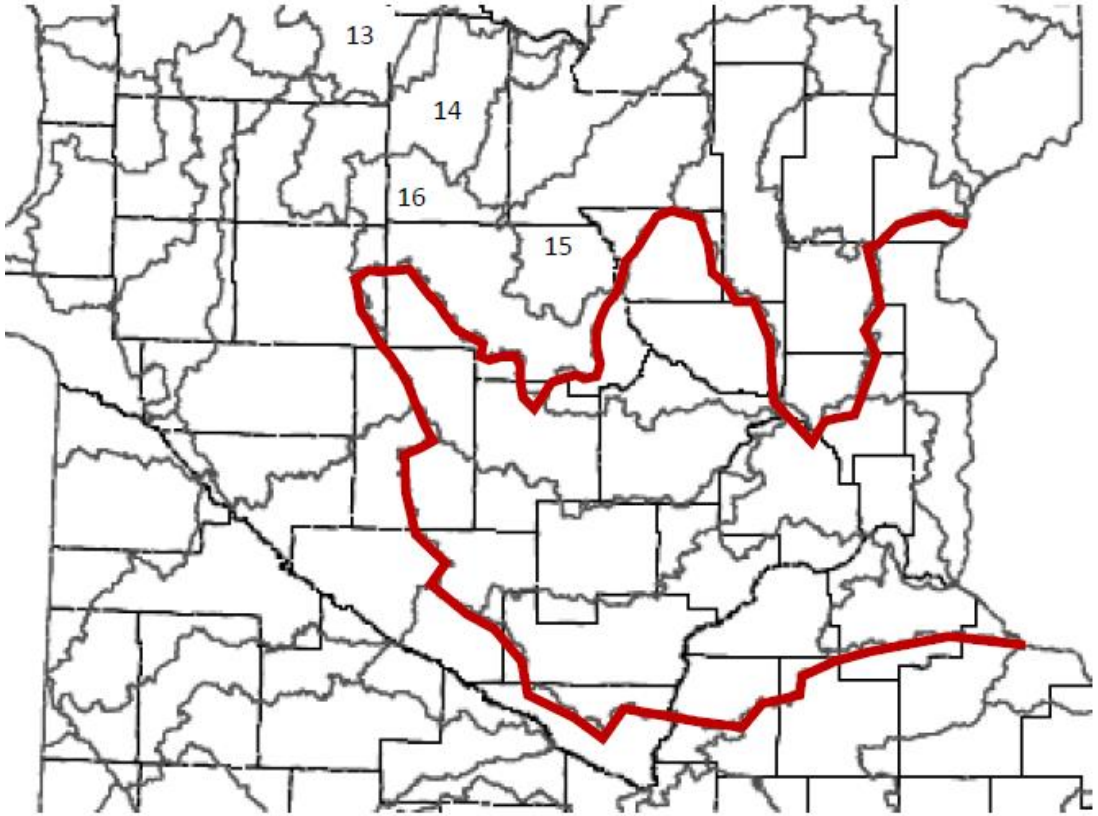
- No special provisions for the metro area. Unintended consequences mitigated by the factors just discussed.
  - Metropolitan Surface Water Management Act.
  - Stormwater requirements (MS4s, NPDES/SDS, local requirements).
  - CWPMPs and local ordinances.
  - The metro area is at the downstream end of its' watersheds.

- Address existing banks by delaying implementation for several years?
  - Give existing banks time to sell credits.
  - Recognize the future shift to a priority-based siting criteria (existing banks could be "grandfathered" in as high priority).

Metro Option #2

Special Metro Bank Service Area

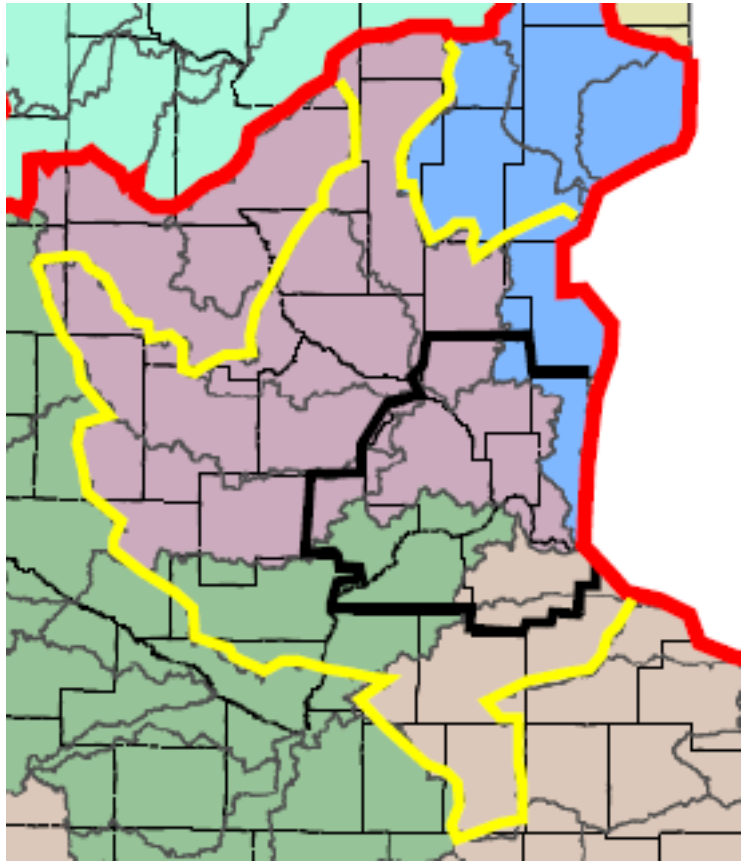
- If watershed-based, it still would not solve the problem, but it would get replacement a little closer.



Metro Option #3

Primary and Secondary Bank Service Areas

- Primary service area for metro within the larger BSAs. Replacement ratio incentive to use the primary BSA.



Metro Option #4

Urban Wetland Bank

- Special, more lenient standards for metro area.
- Standard for types of wetland impacts that can use the bank.
- More complicated (2-tier system).
- Replacement vs stormwater treatment systems?
- Justification? Compliance with WCA standards and Federal Mitigation Rule?

Future Considerations

- Replace siting criteria with function/value-based mitigation incentives consistent with the identification of High Priority Areas as identified in Compensation Planning Frameworks?

❖Will cover work being done on High Priority Areas/Compensation Planning Frameworks at a future meeting.

Thoughts/Comments?

Questions to consider:

- Is Option 1 (no special siting requirements in rule for metro area but delay effective date and convert to priority-based siting in the future) reasonable?
- Should we take a closer look at any of the other options?
- Are there options we haven't thought about that are consistent with the intent of statute?

Wetland Typing for Impacts and Replacement

- No statute change directly related to wetland typing.
- 2012 Executive Order Report, 2016 WCA Legislative Report, and many associated statute changes over the last several years were intended to improve mitigation outcomes.
- Wetland type as it relates to wetland impacts and replacement credits influences the replacement of wetland functions and the resulting public value.
- The science as it relates to function and type has evolved.

Wetland Typing for Impacts and Replacement

- ✓ Statute directs the Technical Evaluation Panel to use Circular 39 and Cowardin systems.
- ✓ Plan Communities added to rule in 2009 for consistency with the Corps.
- ✓ Complications associated with all of these systems, and the science has advanced.
- ✓ Circular 39 outdated and not even available anymore.
- ✓ Minnesota National Wetland Inventory update includes HGM descriptors.
- ✓ HGM-based system simpler more consistent with wetland function (focus more on hydrology and landscape than plants); the new functional assessment method will consider HGM type.
- ✓ Moving towards an HGM-based system for mitigation credits will simplify banking procedures and provide a better correlation to function.

What is HGM?

The “Hydrogeomorphic” approach is a method to assess the functional condition of a specific wetland referenced to data collected from wetlands across a range of physical conditions. It utilizes a wetland classification system based on geomorphic (landscape) position and hydrologic characteristics to group wetlands into seven different wetland classes as defined by Brinson (1993). The seven classes as defined by Brinson are:

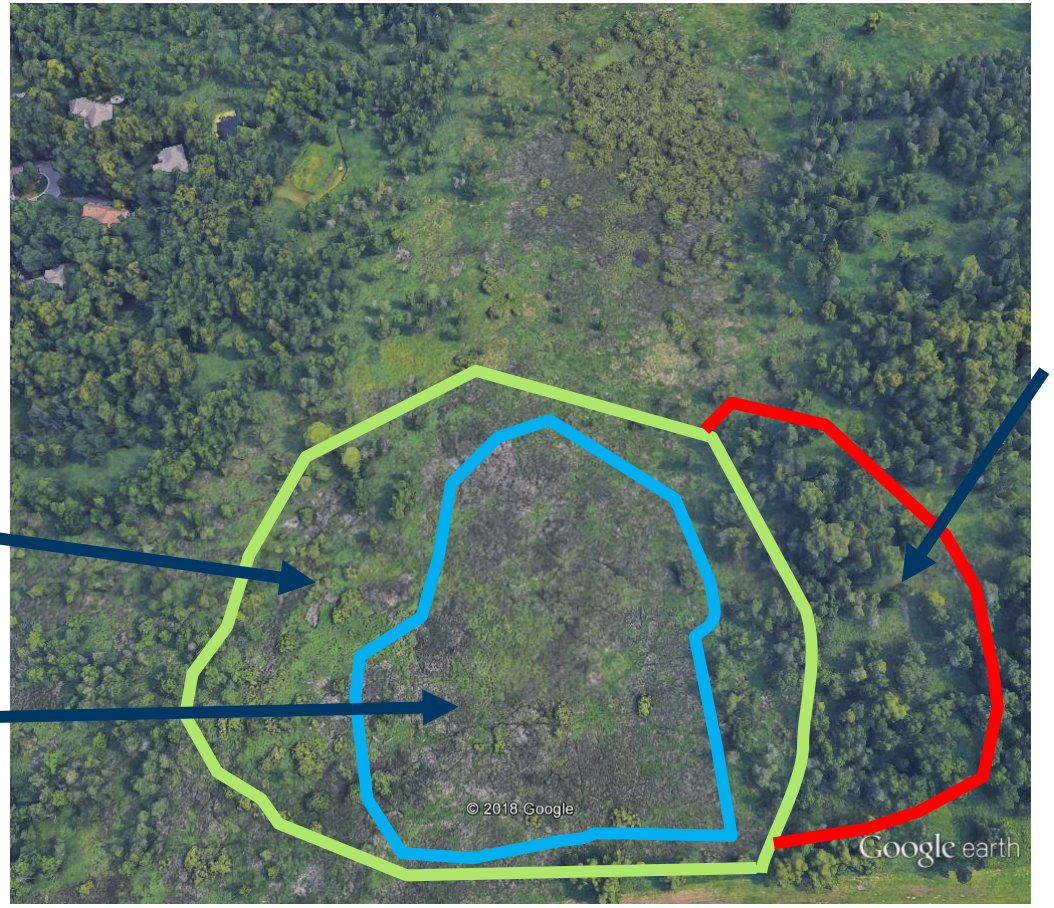
- Depressional
- Riverine
- Mineral Flats
- Organic Flats
- Tidal Fringe
- Lacustrine Fringe
- Slopes

Need for Change

- In-kind requirement in WCA rule includes 2 systems (plant community & HGM).
- More sound wetland functional surrogates than plant communities.
- Plant communities are current conditions, not historical conditions/functions.
- Complexity and inconsistency
  - Difficult to predict plant communities for restored wetlands
  - Imprecise mapping
  - Bank ledger complexities

Current System

- 12 plant community types
- Multiple plant community types on any one wetland



Current System

Imprecise mapping.

Complicated Crediting Outcomes

- Requires sponsors to delineate, and agency staff to evaluate, wetland plant community types at a very fine scale.

Legend

- Buffer (10.996 ac)
- Wet Meadow (10.957 ac)
- Sloped Wet Meadow (4.734 ac)
- Shallow Marsh (10.231 ac)
- Deep Marsh (7.662 ac)
- Shallow Open Water (0.901 ac)
- Easement Boundary
- Vegetative Monitoring Transect
- Well Location

Complicated Crediting Outcomes

- When this level of detail is required each plant community type must have a set of performance standards, a release schedule, and a monitoring plan to assess performance.

Area ID	Type of Compensation (Wetland Area)	Total Projected Acreage	Type of Wetland Credit (Credit Action)	Credit Ratio	Final Projected Credits	Initial Release (15%)	Hydrology Performance Standards (release of additional 20% of total projected credits, excluding buffer)	Interim 1 Vegetation Performance Standards (release of additional 20% of total projected credits for wetland, 30% for buffer)	Interim 2 Vegetation Performance Standards (release of additional 20% of total projected credit for wetland, 30% buffer credit)	Final Vegetation Performance Standards & Approval of Final Wetland Delineation Report[4] (final release)
Wet Meadow	Wet Meadow	9.712	Reestablishment (Subp. 3)	100%	9.7	1.4568	1.9424	1.9424	1.9424	2.4280
Sloped Wet Meadow	Wet Meadow	4.19	Reestablishment (Subp. 3)	100%	4.2	0.6285	0.8380	0.8380	0.8380	1.0475
Ex. Wet Meadow	Wet Meadow	0.353	Rehabilitaion (Subp. 4)	50%	0.2	0.0265	0.0353	0.0353	0.0353	0.0441
Shallow Marsh	Shallow Marsh	10.077	Reestablishment (Subp. 3)	100%	10.1	1.5116	2.0154	2.0154	2.0154	2.5193
Ex. Shallow Marsh	Shallow Marsh	0.64	Rehabilitaion (Subp. 4)	50%	0.3	0.048	0.0640	0.0640	0.0640	0.0800
Deep Marsh	Deep Marsh	7.164	Reestablishment (Subp. 3)	100%	7.2	1.0746	1.4328	1.4328	1.4328	1.7910
Ex. Deep Marsh	Deep Marsh	0.327	Rehabilitaion (Subp. 4)	50%	0.2	0.0245	0.0327	0.0327	0.0327	0.0409
Shallow Open Water	Shallow Open Water	0.415	Reestablishment (Subp. 3)	100%	0.4	0.0623	0.0830	0.0830	0.0830	0.1038
Ex. Shallow Open Water	Ex. Shallow Open Water	0.476	Rehabilitaion (Subp. 4)	50%	0.2	0.0357	0.0476	0.0476	0.0476	0.0595

Complicated Credit Outcomes

- All of the specificity that goes along with plant community types has a cost to the public (bank plan developers, regulated parties) and regulatory agencies (with no improvements to outcomes).
- Agency costs include staff time for direct oversight but also for bank program administration. Costs to the public include more complicated and longer application development and review times, which increases cost.
- With this level of detail, buffer apportionment and ledger adjustments prior to or at the time of final credit releases are complicated and time consuming.
- It is also difficult to maintain consistency between the state and federal programs, particularly when reviews are not conducted simultaneously.

Project Planning Complexity and Uncertainty

- Developing mitigation plans using plant communities requires a level of precision that does not currently exist.
- Despite significant experience, better science, and detailed engineering, there is still considerable uncertainty about what plant community types will ultimately return to a restored wetland.
- Plant community types are determined, to a large extent, by hydrology and most sites are designed to restore hydrology, not plants.

Other USACE District Approaches

- Credit classification systems based on fine level plant community identification are not common regionally or nationally.
- Regional: ND, SD, IL, and IA use HGM and Cowardin or a derivation of these with a focus on broader credit classes.

General Information

McCorkle Wetland Mitigation Bank

Chair(s):	USACE
USACE District:	Rock Island
FWS Field Office:	Rock Island
NOAA Fisheries Region:	Southeast
State:	Iowa
Permit No:	2016-00023
Year Established:	2017
Total Acres:	58.33
Status:	Approved
Approved Date:	21-MAR-17
Type:	Private Commercial
Website:	
Comments:	

Credit Ledger Summary

Last Transaction: May 23, 2017

The credit totals shown on the ledger do NOT reflect any credit reservations or pending transactions. It is the responsibility of potential purchasers to contact the Sponsor and obtain written confirmation of credit availability.

Name	Available Credits	Withdrawn Credits	Released Credits	Potential Credits
Wetland				
Emergent Wetlands	4.68	0	4.68	31.22

General Information

ND-NDDOT Trego Bank Site

Chair(s):	USACE
USACE District:	Omaha
FWS Field Office:	North Dakota
NOAA Fisheries Region:	West Coast
State:	North Dakota
Permit No:	NWO-2010-1893
Year Established:	2013
Total Acres:	5.49
Status:	Approved
Approved Date:	24-JUN-13
Type:	Single-Client
Website:	
Comments:	pre-2008 Rule 'reserve' now associated with the ND DOT Umbrella Agreement. GSA- Souris River Basin (ND State Guidance)

Credit Ledger Summary

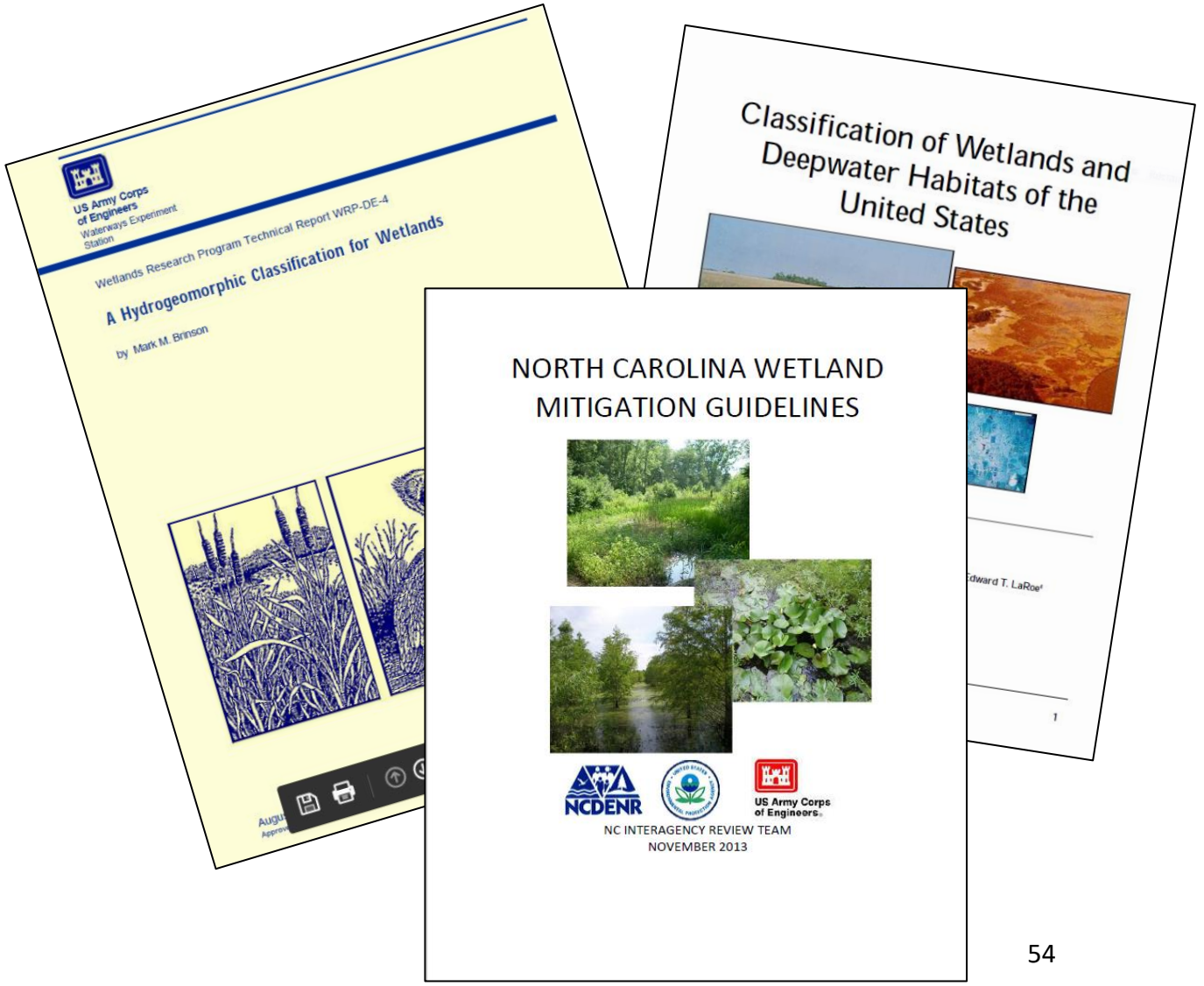
Last Transaction: Nov 21, 2016

The credit totals shown on the ledger do NOT reflect any credit reservations or pending transactions. It is the responsibility of potential purchasers to contact the Sponsor and obtain written confirmation of credit availability.

Name	Available Credits	Withdrawn Credits	Released Credits	Potential Credits
Wetland				
Pothole	3.61	2.36	5.97	5.97

Other USACE District Approaches

- National: Cowardin is common along with some District specific variations.
- HGM is less common but used.
- Of the 9 Districts reviewed by BWSR, 3 used Cowardin, 1 used HGM, 2 used both, and 3 used a District specific or hybrid system (based on broad classes).



The Science on Functional Surrogates

- Vegetation is a poor indicator of wetland function.
- The HGM approach classifies a wetland based on its setting in the landscape (landscape position), its source of water, and its hydrodynamics (inflow, outflow, flow-through, etc.).
- Wetlands in one HGM class versus another HGM class have been found to have a fundamentally different set of functional attributes, more so than other classifications that are based on inherently variable outward characteristics such as plant species composition/abundance.

Main Source

National Academy of Sciences. 2001. Compensating for Wetland Losses under the Clean Water Act. The scientific underpinnings for the 2008 Federal Mitigation Rule.

- *"while vegetation may be easily measured, it is a poor indicator of function"* (page 113). Additionally, the report (page 125) emphasizes the need to "*promote naturally variable hydrology, … representative of other comparable wetlands in the same landscape setting*. *In situations where direct (in-kind) replacement is desired, candidate mitigation sites should have the same basic hydrological attributes as the impacted site*."

Logic

A wet meadow in this floodplain functions differently than a wet meadow in this prairie pothole.

Other Supporting Info

- The Cowardin classification system is the national standard for separating wetlands into groups for inventory and management purposes. However, the system lacked a way to incorporate some abiotic properties that are important for evaluating wetland functions. In 2014 the USFWS incorporated additional descriptors based on the HGM classification method.

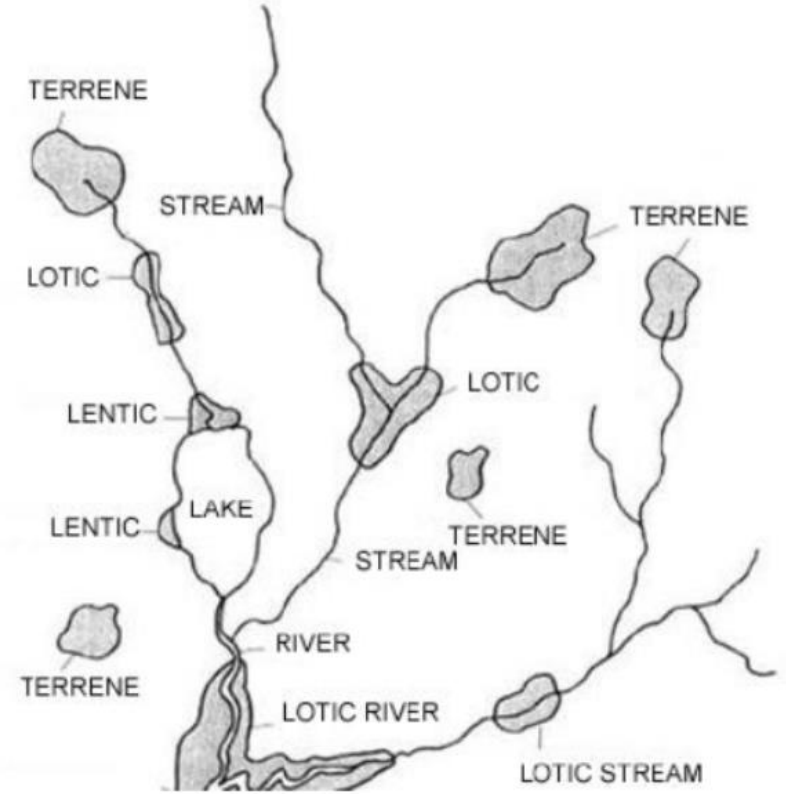
Potential Solution

Using an HGM-based classification system for matching and tracking wetland impacts and mitigation has some distinct advantages in working toward functional mitigation equivalency in the absence of a watershed-based plan that utilizes a watershed approach. Those advantages include the following:

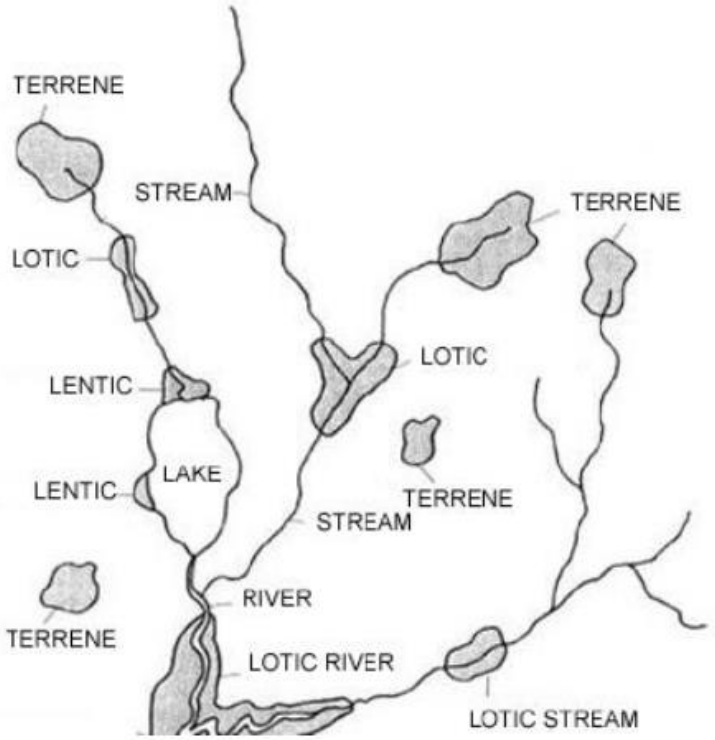
- HGM-based abiotic factors (landscape position, landform and hydrodynamics) correlate well to wetland functions.
- HGM-based descriptors for wetlands and other aquatic resources have been developed nationally for NWI data using the Cowardin system and regionally for Minnesota.
- Keys and decision trees have been developed that provide a relatively simple way classify wetlands by landscape position, landform and hydrodynamics.
- HGM factors generally do not change over time.
- HGM classes are suited to be applied to a wetland as a single class rather than multiple classes for each wetland (in general).

New DNR National Wetland Inventory Mapping

The regional HGM-based descriptors developed for Minnesota is a starting point for developing a system for wetland regulatory application.



Minnesota HGM System



There are seven different landforms associated with one or more of the three landscape positions as follows:

- Slope – wetland occurs on a slope generally greater than 2% AND is associated with groundwater discharge.
- Island – wetland is surrounded by water (deepwater habitat, river, stream).
- Fringe – wetland lies along the shores of a deepwater habitat; is vegetated and permanently or semipermanently saturated/inundated within the banks of a river or stream; OR is a nonvegetated bank or shore of a deepwater habitat, river or stream that is temporarily flooded or wetter.
- Basin – wetland occurs in a distinct depression; is not within an active alluvial floodplain along a river or stream; is not along the shores of a deepwater habitat; AND is not within or along the banks of a river or stream.
- Floodplain – wetland occurs on the active alluvial floodplain along a river or stream; is not within the banks of a river or stream; AND is not a nonvegetated bank or shore of a deepwater habitat, river or stream that is temporarily flooded or wetter.
- Flat – wetland occurs on a nearly level landform; does not occur on an active alluvial floodplain along a river or stream; is surrounded by water; is not along the shores of a deepwater habitat; AND is not within or along the banks of a river or stream.

Landscape Position/Landform Type	HGM Class per Brinson et al
Lentic Basin	Lacustrine
Lentic Flat	Lacustrine
Lentic Fringe	Lacustrine
Lentic Island	Lacustrine
Lotic Basin	Riverine
Lotic Flat	Riverine
Lotic Floodplain	Riverine
Lotic Fringe	Riverine
Lotic Island	Riverine
Terrene Basin	Depression
Terrene Flat	Mineral Flat
Terrene Fringe	Depression
Terrene Island	Depression
Terrene Peatland	Organic Flat
Terrene Slope	Slope
Non-wetland	N/A

Minnesota Data

HGM Class	Number of Polygons	% of all polygons	Acres	% of all acres
Lacustrine	35,296	4%	256,329	4%
Riverine	138,425	14%	591,651	10%
Depression	245,635	25%	499,974	8%
Mineral Flat	371,766	38%	1,584,000	26%
Organic Flat	70,079	7%	1,312,438	22%
Slope	93,947	10%	199,764	3%
Unclassified/Error	90	<1%	1,107	<1%
Non-wetland Types				
River or Stream	4,212	<1%	202,875	3%
Deepwater habitat	9,534	<1%	1,407,690	23%
TOTAL	981,452		6,095,902	

HGM Classification System for MN

Classification Name	Definition
Lacustrine	Wetland occurs within a topographic depression that has a closed elevation contour that allows the accumulation of surface water and is restricted to the margin of a depressional lake basin.
Riverine	Wetland occurs on a nearly level landform and lies along and is influenced by flooding from a stream, river or flow-through ditch.
Slope	Wetland occurs on a slope (generally >2%) with groundwater discharge as its primary source of hydrology.
Mineral Flat	Wetland occurs on a nearly level landform, is not significantly influenced by flooding from a stream, river or flow-through ditch and has predominately mineral soils.
Organic Flat	Wetland occurs on a nearly level landform, is not significantly influenced by flooding from a stream, river or flow-through ditch and has predominately organic soils.
Depression	Wetland occurs within a topographic depression that has a closed elevation contour that allows the accumulation of surface water and is not associated with the margin of a depressional lake basin.

Dichotomous HGM Classification System Key

1. Wetland does not occur on a nearly level landform 2

1. Wetland occurs on a nearly level landform 3

3. Wetland lies along and its hydrology is significantly influenced by flooding from a stream/river channel or a flow-through ditch ..... **Riverine**

3. Wetland does not lie along and/or is not significantly influenced by a stream/river channel or a flow-through ditch 4

4. Wetland has predominately organic soils ..... **Organic Flat**

4. Wetland has predominately mineral soils ..... **Mineral Flat**

2. Wetland occurs on a slope (generally >2%) with groundwater discharge as its primary source of hydrology ..... **Slope**

2. Wetland occurs within a topographic depression that has a closed elevation contour that allows the accumulation of surface water 5

5. Wetland is not restricted to the margin of a depressional lake basin ..... **Depression**

5. Wetland is restricted to the margin of a depressional lake basin ..... **Lacustrine**

Convert NWI Descriptors to Minnesota HGM System

Landscape Position/Landform Type from MN NWI	Class
Lentic Basin	Lacustrine
Lentic Flat	Lacustrine
Lentic Fringe	Lacustrine
Lentic Island	Lacustrine
Lotic Basin	Riverine
Lotic Flat	Riverine
Lotic Floodplain	Riverine
Lotic Fringe	Riverine
Lotic Island	Riverine
Terrene Basin	Depression
Terrene Flat	Mineral Flat
Terrene Fringe	Depression
Terrene Island	Depression
Terrene Peatland	Organic Flat
Terrene Slope	Slope

Potential Rule-Related Actions

- Clarify use of HGM system for credit and impact tracking in WCA rule.
- Include HGM system definition and categories in rule along with others.
- In the future: Convert entire rule to HGM-based system?
  - Would require statute changes and restructuring the De minimis Exemption.

Thoughts/Comments?

Questions to consider:

- Does switching to an HGM-based typing system for mitigation make sense?
- Would it make the process simpler?
- Is it better correlated to wetland function?
- Are there any drawbacks to such a system?

10 Minute Break

Replacement Wetland Buffers
Requirements and Crediting

BOARD OF WATER AND SOIL RESOURCES

Replacement Wetland Buffers
Requirements and Crediting

- No statute change directly related to buffers.
- 2012 Executive Order Report, 2016 WCA Legislative Report, and many associated statute changes were intended to improve mitigation outcomes.
- Buffers have a huge influence on wetland functions and mitigation outcomes.
- The science as it relates to buffers has evolved.
- We think some tweaks/modifications could provide incentives to provide more buffer when necessary to improve function and sustainability.

Replacement Wetland Buffers
Requirements and Crediting

When a wetland is restored or created to generate mitigation credits (i.e. to replace other wetlands lost to approved impacts), a vegetated buffer is required around the replacement wetland (where feasible) to improve the function and sustainability of the wetland.

Current WCA Rule:

- ✓ For replacement wetlands less than 2 acres – 25 ft minimum average width.
- ✓ All other replacement wetlands - 25 ft minimum width and 50 ft average.
- ✓ 10% credit for nonnative vegetation.
- ✓ 25% credit for native, noninvasive vegetation.
- ✓ The buffer area receiving credit must not exceed the replacement wetland area.

Replacement Wetland Buffers
Requirements and Crediting

Current WCA Rule (Cont'd):

- Establishing upland buffer around existing high value wetlands adjacent to the replacement wetland is eligible for credit when the minimum widths are maintained and the maximum buffer area is not exceeded.

- For buffer areas of native, noninvasive vegetation, the LGU may increase the amount of credit up to 50% if the TEP finds that additional buffer will improve replacement wetland sustainability and provide significant functional benefits based on specific criteria established in rule.

Crux of the Problem

- Buffers are often treated as separate resources rather than integrated components of a functioning wetland ecosystem.
- The purpose of replacement is to sustainably replace lost wetland **function**. To the extent that buffers improve wetland function and sustainability, they are appropriate as replacement for impacted wetlands.

Buffer Requirements for Replacement Wetlands

- WCA: <2 acres – min. avg. width of 25 ft.

  >2 acres – min. width of 25 ft. and avg. of 50 ft.

- St Paul District USACE: Avg. width of 50 ft. in non-municipal areas, 25 ft. in municipal areas.

- Federal Mitigation Rule: Districts "*may*" require buffers.

Need for Change/Improvement

- Big Picture – improve wetland mitigation outcomes.
- Upland, wetland and/or riparian area – Federal Mitigation Rule vs. just upland (WCA, Corps policy).
- Differences in allowable credit between Corps and WCA.
- Buffer requirements and crediting do not consider site characteristics other than native vs non-native vegetation.

Need for Change/Improvement

- Not enough buffer in high land value areas.
- Too much buffer in low land value areas.
- Limitations on the amount of buffer and credit amount discourages restoration of small prairie pothole complexes.

Crediting

- WCA: 10% for nonnative, 25% for native. Up to 50% when "significant functional benefits." Buffer cannot be larger than the replacement wetland.
- St Paul District: 10% for nonnative, 25% for native. Total credits from buffer limited to 25% of total credits for the wetland.
- Federal Mitigation Rule: If required, then must allocate credit for them.

Other Areas of the Country

A wide variety (examples):

- 50 – 100 feet required.
- Up to 300 feet.
- 50 meters are allowed for credit.
- Minimum 25 feet. Credit for buffer beyond 25 feet based on the proportion of wetland that is buffered.

Considerations

- Valuable functions that wetlands provide do not end at the jurisdictional wetland boundary. Assessment and replacement of lost wetland functions should consider the wetland in a landscape context including surrounding resources and habitats.
- Purpose of buffers is first and foremost to protect wetland functions from disturbances associated with adjacent land uses as well as enhancing those same functions. Secondly, buffers can provide habitat and ecological corridors for the ecological functioning of the replacement site.

Considerations

- 50 foot minimum - literature.
- Factors (*National Mitigation Action Plan*)
  - **Nature and severity of adjacent land use**
  - **Resiliency of wetland being buffered** – sensitivity to disturbance
  - **Size and shape of wetland being buffered** – small versus large wetlands. In general, small wetlands require proportionally larger buffers than large wetlands all things being equal.
  - **Buffer soil conditions** – texture, porosity, etc. related to intercepting flow and sediment.
  - **Buffer slope** – steep vs gentle
  - **Buffer vegetation** – dense vs sparse

Regulatory Concepts for Buffers

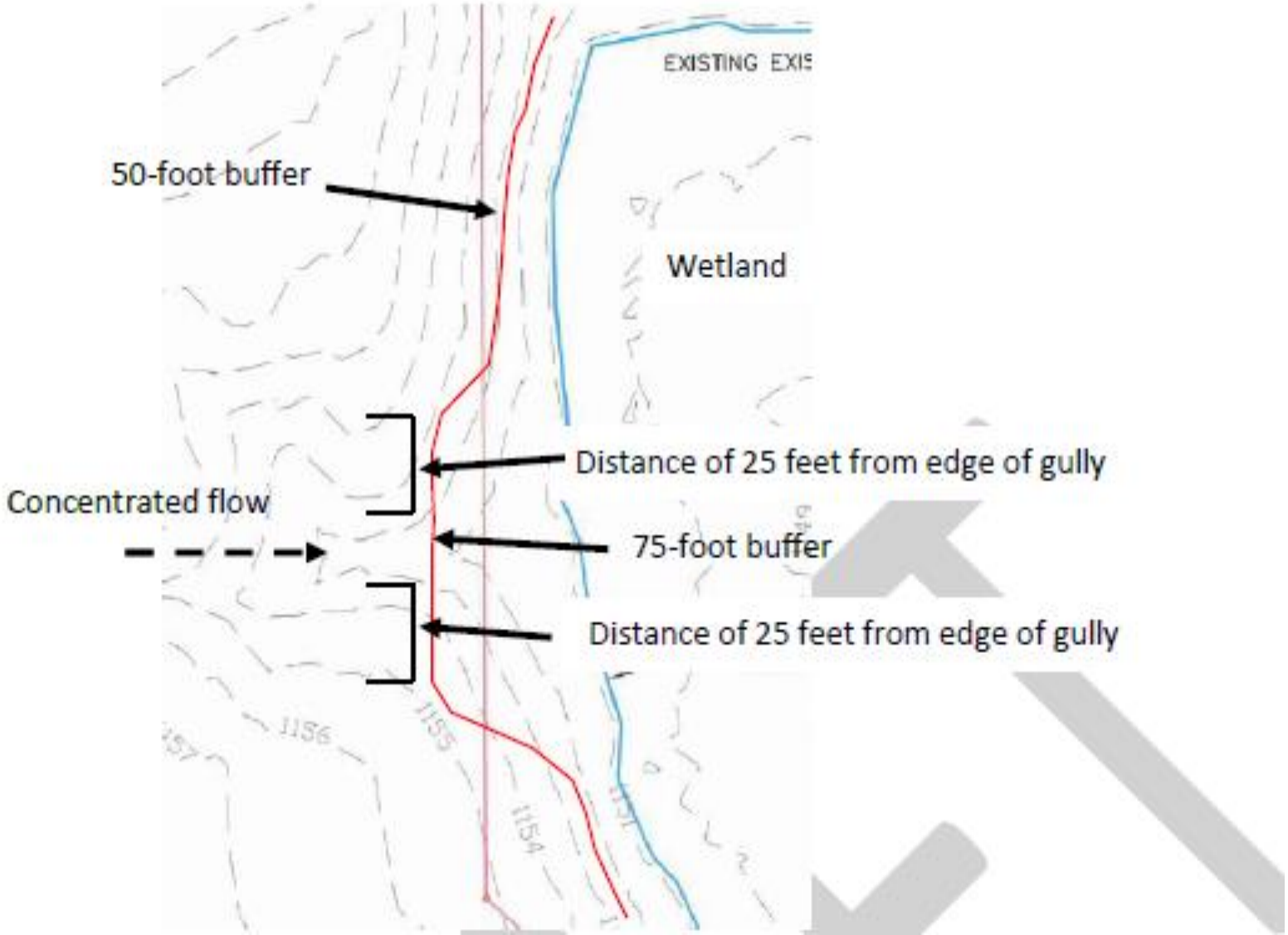
- Minimum Buffer Requirement
- Maximum Buffer Limit
- Buffer Credit Amount
- Credit for Ecological Connections Among Wetland

Minimum Width

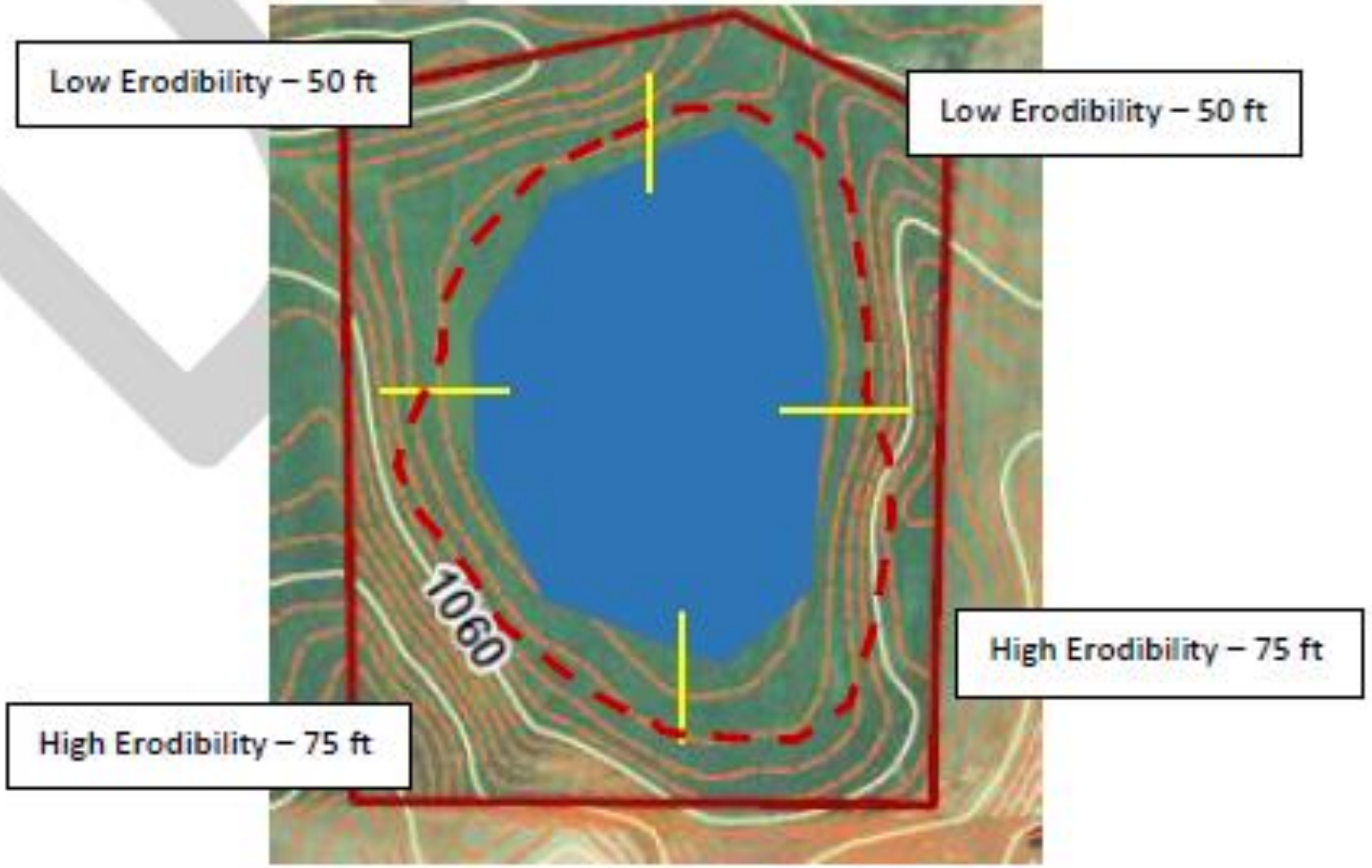
Options:

- 50 feet for all wetlands – simple, but does not address issue of inadequate buffers. What about averaging? Problems with averaging (see below).
- 50 feet but require more based on specific characteristics – more complicated. Which factors dictate? Would the increased requirement apply to the whole wetland or just part? If land use is considered, what if it changes? What rules would govern variable widths?

Minimum Width



Minimum Width



Minimum Width

Incentive-Based Option:

Standard width (50, 75, 100 feet), then provide incentive to buffer the entire wetland.

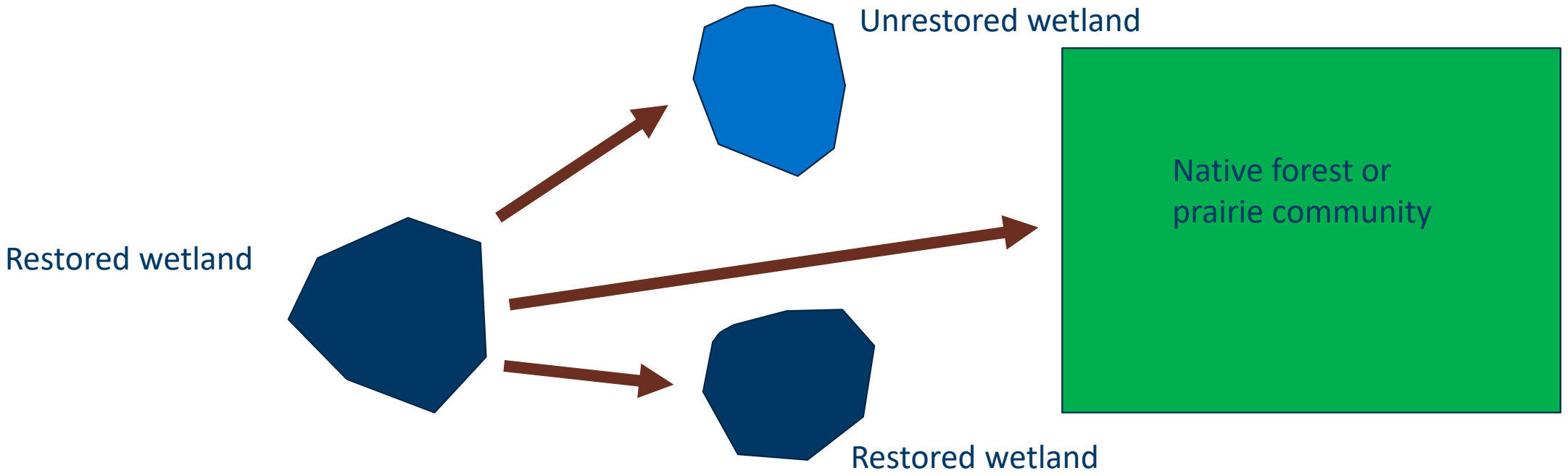
% of wetland edge buffered per minimum requirement	Buffer Credit Factor	Credits generated by wetland (assuming full buffer)	Credits from wetland based on buffer factor (credits x buffer factor)
75-100%	1.0	10	10
50-75%	0.9	10	9
25-50%	0.8	10	8
<25%	0	10	0

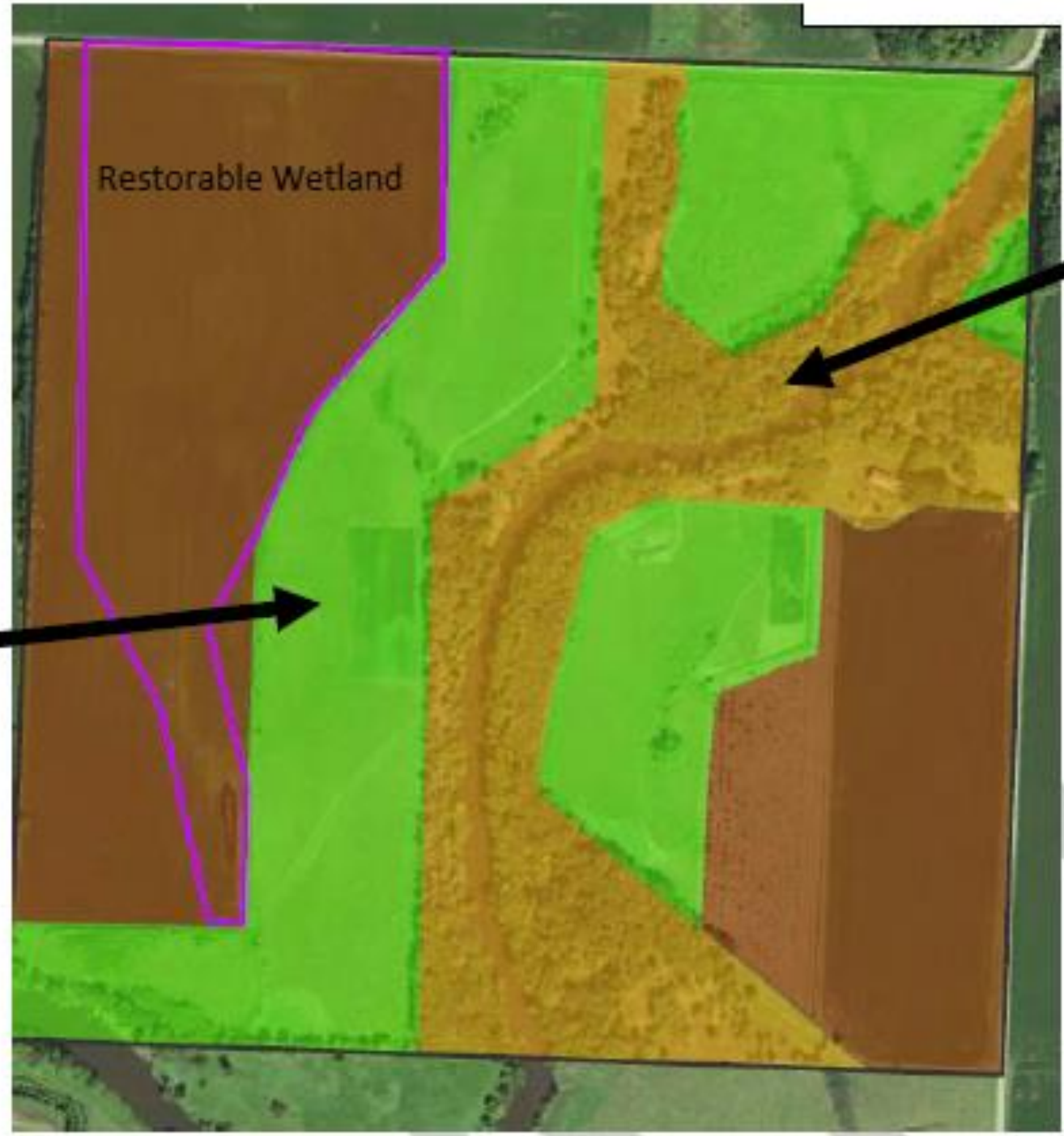
Corridor Connections

- Emphasizes the importance of connecting habitats.
- Many species that utilize wetlands depend on surrounding terrestrial habitats.
- Considered separately from buffer.

Corridor Connections

- Corridor connections could be between restored wetlands , between restored wetlands and other wetlands, and between restored wetlands and other native habitats subject to conditions as applicable.




Restorable Wetland
Forested
river corridor
Possible Corridor
Connection

How Define What a Corridor can Connect to?

- Lands in public ownership for conservation/preservation purposes (i.e. wildlife management area, refuge, protected greenspace, etc.) or in private ownership with protective covenants/easement that reasonably maintain the area in permanent vegetative cover.
- Case by case taking into consideration the level of protection, the type of protection, the size of the protected area, the value of the protected area in relation to the replacement project and the condition of the natural resources on the protected land.

How define what the Corridor Connection must be?

- Existing natural community endemic of the area or must be restored to such a community.
- Cannot be greater than 1,000 linear feet between restored wetlands that are part of the same project. Distances can be extended beyond 1,000 linear feet for prairie pothole complexes if wetland basin density of at least one wetland for every 10 acres within a 2,000-acre area surrounding the center of the project and/or a wetland density of 1 acre of wetland for every 8 acres within a 2,000-acre area surrounding the center of the project.
- At least 50 feet wide.
- The total area of CC's receiving credit cannot exceed the total area of restored wetland on a project or the total area of preserved wetland on a preservation-only project.

Corridor Connections

Information from the HGM Prairie Pothole Guidebook

- 180 reference wetlands
- Landscape variables
  - Wetlands Proximity
  - Wetland Density
  - Number of Basins in the Landscape Assessment Area
  - Landscape Habitat Fragmentation

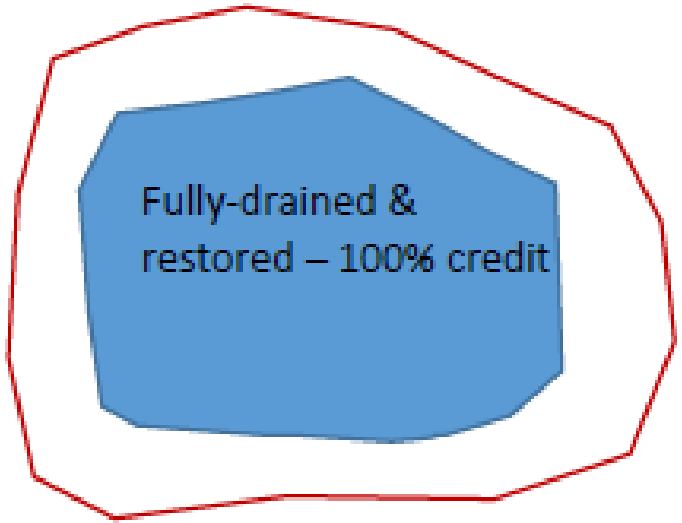
Corridor Connections

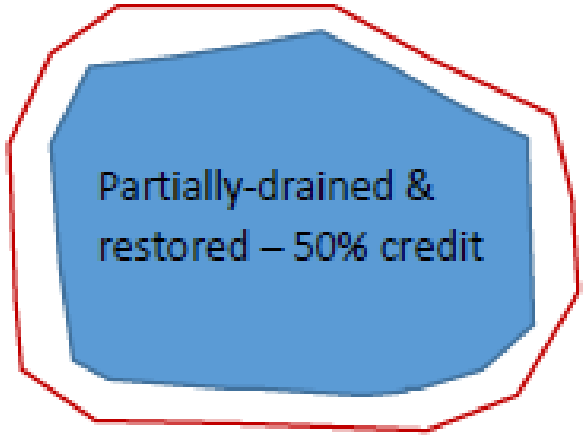
Landscape Variable	Reference Standard Condition per HGM Guidebook	Average of Reference Wetlands
Wetlands Proximity (distance between wetlands)	250	700
Wetlands Area Density	1 acre wetland for every 5 acres	1 acre wetland for every 8 acres
Wetlands Basin Density (number per acre)	1 wetland for every 10 acres	1 wetland for every 17 acres

Wetland Buffer

Corridor Connection

Limits on Buffer if tied to credits





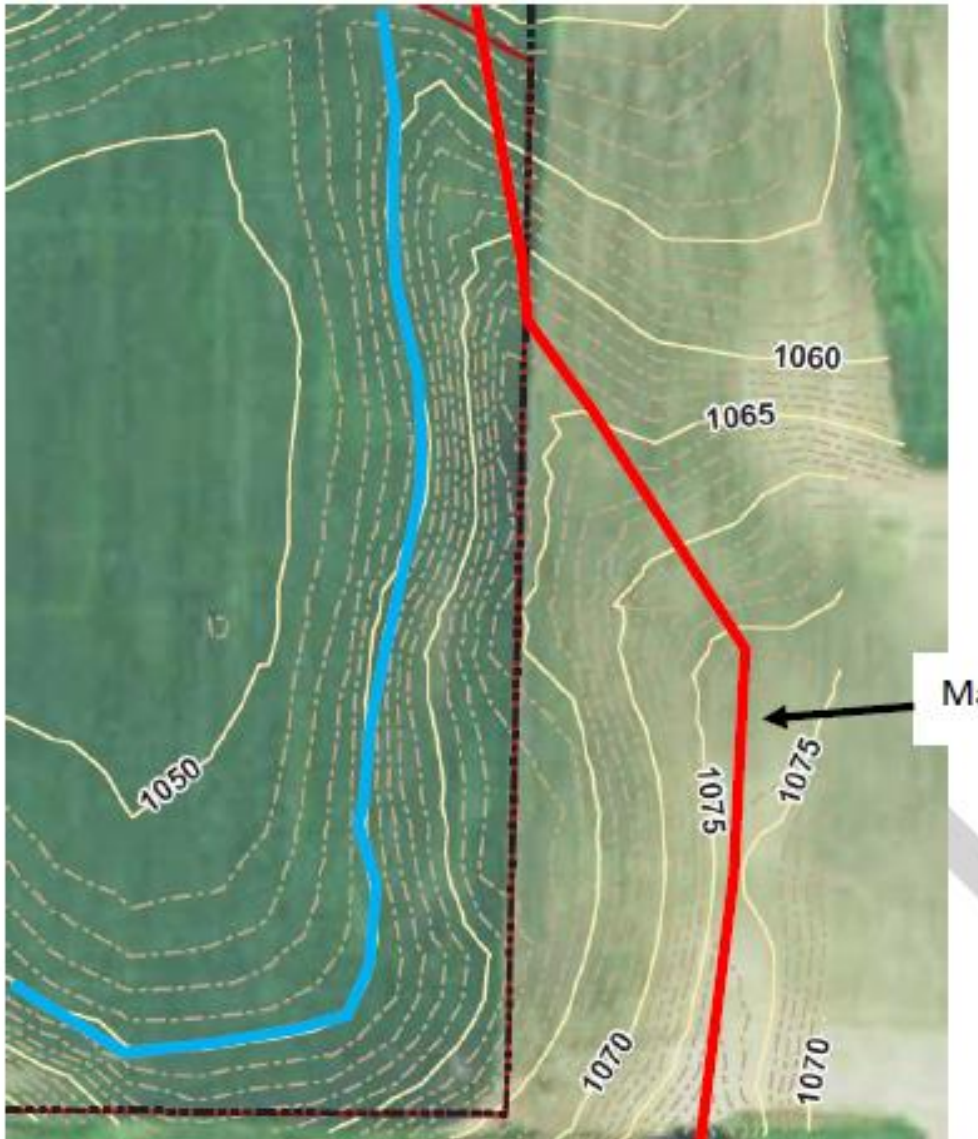
Maximum Buffer

Options:

- Buffer area cannot exceed the wetland area it is buffering (current WCA requirement). This option is easy to implement and a solid basis on which to place a limit. The buffer limit would apply to each wetland on the project and interim credit releases would be based on the buffer/wetland combination.

- Stipulate that the buffer cannot extend beyond the top of the adjacent slope. This would make sense in areas with significant topographic relief, but could lead to excessive buffer widths in areas that are relatively flat. A limit of 100 feet could be stipulated unless otherwise restricted by the top of slope requirement. This type of width-based limitation could lead to varying buffer to wetland area ratios.

Maximum Width



Max buffer follows top of slope

Wetland Boundary

Maximum Buffer

Option:

- Stipulate that the buffer cannot exceed 100 feet from the edge of the wetland. This relatively simple approach is used in other areas of the country.

Maximum Buffer

Option:

- Tiered maximum buffer allowance based on relative contribution of buffer to wetland protection and function.

Tier	Buffer Limit	Description
1	= Wetland Area	Provides standard level of protection and functional lift typical of wetlands in the area. Moderate to gentle slopes, low impact land uses, minimal erosive potential, etc……
2	1.5 times Wetland Area	Buffer provides increased protection and functional lift beyond what is typical for wetlands in the area. Moderate to steep slopes, adjacent moderate stressors, moderate to high erosive potential, etc…
3	2 times Wetland Area	Provides high level of protection and functional lift compared to typical. Steep slopes, high impact stressors, high erosive potential, etc.

Thoughts/Comments?

Questions to Consider:

- What should be the minimum buffer required around replacement wetlands?
- What should be the maximum buffer allowed around replacement wetlands?
- How should we encourage ecological connections and what requirements/limitations should we impose?
- Are the ideas we discussed reasonable?

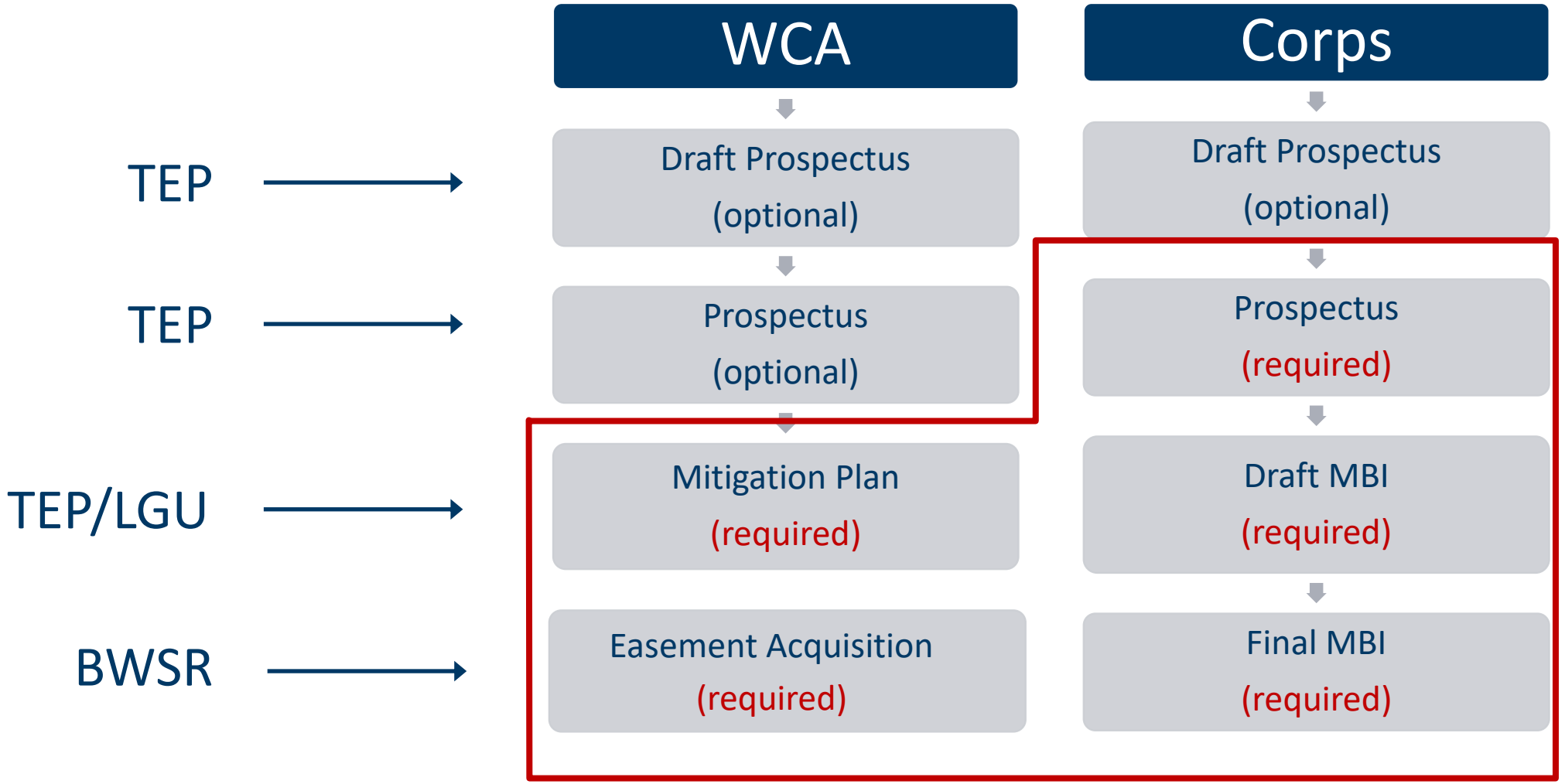
Wetland Banking/Mitigation Decisions

BOARD OF WATER AND SOIL RESOURCES

Wetland Bank Plan Approval Process

- Under WCA, decisions are made by the Local Government Unit (LGU) based on a recommendation from the Technical Evaluation Panel, including decisions on wetland bank plans.
- "Wetland bank plan" refers to the establishment of a wetland bank, not the use of existing bank credits associated with a project that impacts wetlands (that is a "replacement plan").
- Wetland bank plans are often very complicated, involving wetland restoration science & methods, hydrology calculations/predictions, native seed mixes & planting techniques, engineering, real estate issues, legal issues, construction oversight, monitoring, crediting, and detailed procedures. They are also very labor intensive and time consuming.

Bank Plan Review Process/Phases



Wetland Bank Plan Approval Process

- Statewide, roughly 15 to 40 bank projects are initiated each year, with 40 to 80 bank plan documents received each year. However, in most LGUs, bank plan applications are initiated infrequently and/or inconsistently. This leads to:
  - Difficulties maintaining banking expertise.
  - Wide swings in workload.
- BWSR plays a greater role in the review and approval of bank plans as BWSR has to accept the conservation easement.
  - BWSR may reject or modify an application for deposit if, during its review, any part of the bank application or plan is missing, incorrect, or inconsistent with this chapter.
- Some local governments have expressed frustration with the amount of

2015 Statute Changes

103G.2242, Subd. 2. Evaluation. *(a) …The panel shall provide the wetland determination and recommendations on other technical matters to the local government unit that must approve a replacement plan, ~~wetland banking plan~~ sequencing, exemption determination, no-loss determination, or wetland boundary or type determination and may recommend approval or denial of the plan. The authority must consider and include the decision of the Technical Evaluation Panel in their approval or denial of a plan or determination.*

103G.2242, Subd. 4. Decision. *Upon receiving and considering all required data, the local government unit reviewing replacement plan applications, ~~banking plan~~ sequencing applications, and exemption or no-loss determination requests must act on all replacement plan applications,*

Agency Experience

- Capacity of LGU staff to review sometimes highly engineered and complex projects varies considerably.
- LGU staff can and do provide valuable insight on local site conditions and are important resources for local plans and ordinances that may conflict or otherwise affect the project.
- BWSR and Corps review roles are critical and influential in the design of projects. Coordination between 3 entities is challenging when addressing highly technical issues.
- Workload for LGU staff on projects can be high, exceeding capacity.

Goals

- How do we address LGU workload and capacity issues and BWSR's authority for wetland banks while maintaining the important role and influence of local government staff?
- Goals:
  - Consistency across the state.
  - Minimize redundancy.
  - Reduce/stabilize LGU workload.
  - Utilize local expertise & knowledge, maintain at least some degree of local authority.
  - Continually look to streamline the process and improve interagency coordination.

Options

1) LGU Final Approval (status quo)
   - LGU makes all decisions and recommendations at each phase of the bank plan except easement acquisition (BWSR).

2) Dual Approval
   - LGU makes decision on prospectus, BWSR makes decision on final bank plan along with easement.

3) Site Certification
   - LGU certifies site suitability and consistency with local plans/ordinances, BWSR makes decision on final plan.

Options

4) Veto Authority
   - LGU authority to deny or “veto” based on site suitability and/or inconsistencies with local plans/ordinances, BWSR makes decision on final plan.

5) TEP Only, BWSR Final Approval
   - LGU serves as TEP member with appeal rights, BWSR makes all decisions.

6) LGU Choice
   - Each LGU chooses whether to accept bank plan application decision-making authority (or not).

Table 1. Potential Range of Options for LGU Involvement in the Wetland Mitigation Approval Process

Alternative	LGU Role	BWSR Role	Pros	Cons
1) LGU Final Approval (Status Quo)	Makes all decisions & recommendations at each phase of the bank plan.	Member of TEP, provides recommendations, and can reject easement and/or credit deposit if plan is inconsistent with WCA.	• No change from current process.	• Coordination with Corps difficult. • Statewide inconsistency can lead to unfair private bank market. • Variable local technical expertise. • Easement acquisition, & sometimes engineering review, is separated from decision. • High LGU workload on unpredictable, variable schedule. • Would prevent 404 assumption.
2) Dual Approval	Makes decision on bank plan at prospectus phase.	Makes final decision on full bank plan.	• Maintains LGU authority over land-use. • Maintain strong LGU role while helping with statewide consistency. • Some improvements to coordination with Corps. • May be acceptable for 404 assumption.	• Requires dual programmatic approval for same project, creating potential legal complications. • Minn. Stat. § 15.99 would now apply to the prospectus/concept plan. • Would need to create new approval standards for prospectus/concept.
3) Site Certification	"Certifies" site suitability and/or consistency with local plans & ordinances (at draft prospectus or prospectus phase).	Makes final decision on full bank plan.	• Maintains LGU authority over land-use. • Improves statewide consistency. • Ensures early coordination with LGU. • More efficient coordination with Corps. • Reduced LGU workload. • Likely acceptable for 404 assumption.	• Requires action by LGU. • Creates a quasi-dual approval process. • Likely that Minn. Stat. § 15.99 would apply.
4) Veto Authority	Authority to deny or "veto" a site based on site suitability and/or inconsistencies with local plans/ordinances (at draft prospectus or prospectus phase).	Makes final decision on full bank plan.	• Maintains LGU authority over land-use. • Improves statewide consistency. • Encourages early coordination with LGU. • More efficient coordination with Corps. • Only requires LGU action when they disagree. • Likely acceptable for 404 assumption.	• Could delay reviews (applicants waiting to see if LGU vetos). • Unknown if/how Minn. Stat. § 15.99 would apply. • Potential for LGU staff disengagement? • Potential for greater inconsistencies among LGUs?
5) TEP Only	Serve as TEP member with appeal rights.	Makes all decisions & recommendations at each phase of the bank plan.	• Only a single decision required. • Potentially the greatest statewide consistency. • Least amount of LGU workload required. • Clearly acceptable for 404 assumption.	• Least amount of LGU authority. • Local TEP members would be majority but would still need to appeal mitigation decisions they disagree with. • Potential to erode LGU staff interest, technical expertise, & local/state relationships over time?

Comments/Suggestions?

Questions to consider:

- Of the options presented, which deserve consideration?
- Which should not be considered?
- Are there any important goals or concepts that must be adhered to?
- Are there other options?

Topics for Future Meetings

- In-Lieu Fee wetland mitigation program (ILF).
- ILF Compensation Planning Frameworks and High Priority Areas, including their relationship to wetland replacement siting & ratios (future rulemaking).
- Actions eligible for credit (incl. Stream Quantification Tool & plans for future rulemaking).
- Special Considerations, Rare Natural Communities, etc.
- Multiple rule language changes necessary to match statute.
- Misc. topics and fairly simple changes/clarifications.

BOARD OF WATER AND SOIL RESOURCES

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