Policy Committee Meeting Agenda
Clean Water Council
March 24, 2023
9:30 a.m. – 12:00 p.m.
WebEx Only

2023 *Policy Committee: John Barten, Rich Biske (Chair), Kelly Gribauval-Hite, Raj Rajan, Victoria Reinhardt (Vice Chair), Peter Schwagerl, Phil Sterner, Jordan Vandal, and Marcie Weinandt*

9:30 Regular Business

- Introductions
- Approve today's agenda
- Approve minutes of previous meeting(s)
- Chair update
- Staff update
    - Legislative Update

9:45 Water Storage

- Rita Weaver, P.E., BWSR Chief Engineer/State Drainage Engineer

10:45 Break

11:00 Topics for the next three months

11:15 Support for Groundwater Legislation?

11:30 Integrating policy into strategic plan

12:00 Adjourn

April Meeting: Drainage with Tom Gile (BWSR) and Jeff Strock (University Extension, Southwest Research and Outreach Center at Lamberton)

Policy Committee Meeting Summary
Clean Water Council (Council)
January 27, 2023, 9:30 a.m. to 12:00 p.m.

Committee Members present: John Barten, Rich Biske (Chair), Kelly Gribauval-Hite, Raj Rajan, Victoria Reinhardt (Vice Chair), Marcie Weinandt, and Phil Sterner.
Members absent: Peter Schwagerl and Jordan Vandal.

To watch the WebEx video recording of this meeting, please go to https://www.pca.state.mn.us/clean-water-council/policy-ad-hoc-committee, or contact Brianna Frisch.

Regular Business

- Introductions
- Motion to approve the January 27 meeting agenda and December 19 meeting minutes, moved by John Barten and seconded by Victoria Reinhardt. Motion approved by vote unanimously.
- Chair update
  - We received comments from the Governor's Office on the importance of the Legacy Amendment and its impact. The comments were appreciated. It was nice to hear the Clean Water Fund does good work.
- Staff update
  - Governor's Budget was released on Tuesday. The Clean Water Funds (CWFs) are embedded in it.
  - Hearings may be in late February or early March.
  - There are many PFAS bills this next week in the House.
  - There is a bill for SWCD capacity funding that would come out of the tax bill as SWCD aid.

Groundwater Follow-up, by Jason Moeckel, Department of Natural Resources (DNR) *(WebEx 00:24:30)*

- Little Rock Creek is going to be presented to provide a case study of the Minnesota Groundwater Management process. Many of the issues they deal with and the approach they use to manage groundwater has been included in this case study.
- Little Rock Creek is in an agricultural area. The city of Rice is nearby, but it is northwest of St. Cloud. The Little Rock Creek is a designated trout steam. It is a cold-water stream, which is unique in this area. The stream flows into Little Rock Lake. The stream is impaired (nitrogen, oxygen, sediment issues with habitat). A Total Daily Maximum Load (TMDL) was done. Barr Engineering completed a groundwater model analysis, trying to determine if the groundwater pumping connected to the impairment. They concluded it was likely and the estimates were large. Therefore, the DNR became involved. They needed to figure out more information, so they developed their own groundwater model. The work they do is supported by the CWFs. Additionally, they needed a better understanding of what was happening, so they added more water monitoring (also supported by CWFs). They brought a group together to talk about potential issues, to help figure out solutions. They started in 2016 and met often.
- As they looked further into this area, they discovered that permitted groundwater use has been increasing. Clearly there was some growth, and there were some concerns with this issue.
- They concluded, under normal to above normal rainfall, groundwater pumping is affecting low flows. For example, four years out of the twelve experienced lower, low flows attributed to groundwater use. Fish habitats are negatively affected by this amount of streamflow depletion. Stream temperatures may be affected to some degree by streamflow depletion. Stream temperatures are clearly affected by the Sartell impoundment by about two degrees Celsius.
- Analyses of potential options to address the issues:
  - Options for managing water levels differently in Sartell WMA (temperature)
  - Opportunities to increase groundwater recharge (low flow)
  - Distribute water differently (low flow)
  - Modify water appropriation permits (flexibility and low flow)
  - Water conservation (low flow)
  - Potential augmenting stream flow (low flow)
- Solutions:

    - There is a potential for a combination of actions. Reduced use and/or replacing wells most effective close to the creeks (within half a mile). More wide-spread adoption of available conservation practices can contribute, but have minimal effect during critical, dry summers. Augmentation could likely achieve base-flow diversions targets at evaluation points, but there are several concerns and remaining questions.
    - The next steps include engineering feasibility and cost estimates and to develop a plan for implementation. The next part would be figuring out funding as well.
    - They will meet with the stakeholders to make some decisions.
- The DNR will have a policy proposal this Legislative session. Whenever there is a groundwater appropriation that will have a negative impact to surface waters, there would be applicable provisions available. The term "negative" is not defined. How the DNR resolves it is also not defined. Therefore, they would like to define it and place some criteria with it too.

Discussion:

- John Barten: How many of the irrigators are working with the University of Minnesota specialists, to maximize the benefit of it? Answer: There was a meeting to talk about that topic to look at what has been found in sites like this and what might be applicable. They have talked about localized studies at Little Rock Creek to help show benefits there. It is still a learning experience for both sides. No specific studies currently.
- John Barten: For the cost side of it, will you be looking at restricting appropriation permits during the dry season? What will the economic cost to the farmers be? Would that be part of the analysis? *Answer*: In discussion with the irrigators, they think it is very important for us to be able to figure out what all the items economically and ecologically make sense. It is a valuable part of this resolution.
- Rich Biske: If you seek this clarity around the definitions, and have set limits, is there anything to prohibit permitters within a defined area of trading water? Like what takes place under western water law. Answer: Under the Minnesota law, the solution needs to account for others who may want to enter the system. It is not who got there first, but how do we share this resource. There is not an explicit way for one irrigator to trade water for another.

Groundwater Governance in the Great Lakes Region: A Descriptive Assessment, by Dr. Carrie Jennings, Freshwater Society *(WebEx 01:31:30)*

- This is a descriptive assessment of the hydrogeology and institutional networks in six Great Lakes states and the Tribes that share that geography. This was to gain a baseline of understanding of groundwater governance across this region, and in a parallel fashion to the Great Lakes compact. The funder was considering investing in a decade of research on the governance system to see if there was a parallel approach to groundwater that could be taken. So, they need to know who was working on groundwater in each region and what were the systems. Therefore, they built a research collaborative which includes other partners from the region.
- You can find the report here: https://freshwater.org/reports/white-papersgroundwater-governance/. They also provide summaries by state available to read.
- The overarching goal was to describe the system of groundwater governance with the Environmental Protection Agency (EPA) Region 5 portion of the Great Lakes Region. Also, to assess its adequacy to support sustainable use, mindful of existing and future challenges (i.e., climate, population, climate migration). In addition, to establish a baseline against which policy diffusion and change in the region can be tracked.
- Methods:
    - Scope: Minnesota, Wisconsin, Michigan, Illinois, Indiana, Ohio; and 35 Sovereign Tribes. They held 65 stakeholder interviews, with 25 from Native Tribes.
    - Legal review: common law, statute, and administrative sources by state and for Tribes.
    - Curation and analysis: datasets from United State Consensus, United States Geological Survey, and prior researchers.
    - Systematic Literature Review: There were 45 policy and science reports and plans reviewed.
    - Relational database: They were able to build this database with 251 organizational actors linked to 280 policy institutions via 1,120 unique relationships.
- Findings and Recommendations: What to do at various scales
    - First, not all bedrock hosts are available to reach the clean water aquifers. Bedrock is buried by glacial sediment, and typically not at the surface. Also, glacial sediment thickness varies across the region and is

unexplored in some areas. Sand and gravel may be at the surface or buried by layers of less sandy sediment. Minnesota has a better understanding than most states of where their glacial aquifers are because they need to for a large part of the state. Michigan has the least understanding at this time, because they have some of the thickest glacial sediment and do not know this distribution of the glacial aquifers in their glacial layers. For Tribes, the groundwater science funding has been in decline in the last decade.

- There is a graphic on funding by state. Illinois has a lot of funding but does not do any permitting. Michigan has very little funding and does not do as much work in this area.
- Across the region, groundwater use by category varies (see graphic). Minnesota is in the middle of the pack for use. The sandier states, like Wisconsin and Michigan, are using more for irrigation. This does not include surface water appropriations, only groundwater.
- They also wanted to understand the groundwater institutions across the regions. Minnesota seems to have the most. A lot of the states have their groundwater authority that is under the EPA area. There is not a separate department that follows up with the federal government. There may be ways to get better connections between these groups. It is how well connected that seems to matter. The Tribes are mostly connected to federal departments. Currently, it is a bit chaotic with who talks to whom within these groups.

- Planning Process:
  - There is a need to have a planning process with in and across cities, counties, state, and sovereign nations. These planning processes should recognize groundwater's contributions to prosperity and wellbeing. They should have meaningful sustainability goals.
  - The sustainability goals, where they exist, should be made more: specific, measurable, actionable, time delimited. Minnesota is a little ahead of the curve. The northern regions are experiences climate change impacts. The average temperature has increased 2.3 degrees Fahrenheit, the number of frost-free days has increased, total precipitation has increase 14 percent, and heavy precipitation events has increase 35% (data from 1951 to 2017). These are all things that should be considered in any sustainability approach. Where droughts occur in the state, can increase the water demand in the upper Midwest.
  - It also needs to be operational at the aquifer scale. It would be important to talk about ecological factors, such as stream flow, habitat requirements, groundwater-surface water exchange. Across the same region, talk about the land use factors such as land cover, population density, and growth projections. Additionally, climate change factors like seasonality and intensity of precipitation, temperature increases and wind.
  - They also recommend that people start looking beyond the groundwater appropriation. Currently, it is the regulatory mechanism used.
    - For reuse, the uses of "fossil water" are not proportionate to its value. Reuse water before it is discharge to the surface water.
    - For recharge, there is a need to consider the flux into aquifers. There is also a need to explore a diverse suite of policies and develop a coherent strategy for clean and safe replenishment.
    - Minnesota has statutory language to guarantee sustainability use. The DNR created a definition of groundwater sustainability that was adopted into statute (103G.287, Subd. 5). However, there is not an operational way of applying this statute. Minnesota may be the furthest along in this area.
    - A current example is the Niagara Water Bottling proposal in Elko New Market, Minnesota. This involves the nearby citizens, City Council and Planning Commission, DNR, and Met Council.
  - Groundwater governance should sustainably support inclusive prosperity and ecological health for all residents of the region.
    - Efficiency: Clearly defined roles of agencies with management, programming, and policymaking, authority for private and public systems. Groundwater is managed at appropriate scale, using integrated watershed approach emphasizing coordination between management at different scales. Also, policy coordinated horizontally and vertically across sectors and jurisdictions, including health, environment, energy, agriculture, and industry. Additionally, do entities have adequate professional capacity and training.
    - Effectiveness: Looking for scientifically robust data about groundwater supply that is timely, relevant, accessible, and suitable to guide policy. Also, for financial sources that are adequate, appropriately

structured, and allocated for groundwater management. Additionally, a sound regulatory framework implemented and enforced.
    - Engagement and evaluation: The management should have systems to maintain integrity and transparency. The stakeholders have been identified and are engaged in interpreting needs and designing solutions at a level appropriate to their authority. There are ways to identify trade-offs and prioritize choices across sectors and non-human and human users. Programs and institutions are regularly evaluated for effectiveness and fairness.
    - Risk of the status quo: If a kludge is an ill-assorted collection of parts assembled to fulfill a particular purpose, then "When you add up enough kludges, you get a very complicated program that has no clear organizing principle, is exceedingly difficult to understand, and is subject to crashes." -Steven M. Teles. This is the system we are working under right now.

Discussion/Questions/Comments:

- Raj Rajan: Thank you for bringing up the subject of fossil water. It is mindboggling that we would use that water. We should use the Native American approach of seven generations when thinking about quantity and quality of water.
- Marcie Weinandt: The Rice Creek Watershed is engaged in a resiliency effort being led by Freshwater. Is the research done here part of that efforts as well? *Answer from Jen Kader*: The process used there was developed by The Nature Conservancy. They are working on a Clean Water Funded climate resilience planning grant from BWSR. The work is not inclusive of the study but could take outcomes of this to make sure there is groundwater sustainability study in the region. The input from the participants can help move these ideas forward.
- Glenn Skuta, Minnesota Pollution Control Agency (MPCA): There is so much water that goes out of the Twin Cities into the Mississippi River that could be used. Cities like to control their own destiny and supplier. Due to that system set up, a few major suppliers could be supplying a lot more water to neighboring cities. It will not happen under the current state of government. Therefore, water that could be used again is going down the river and we are mining water instead. It is not the best process; it is not smart in the long term. It is the governance question on who control it, is the root cause of it. There is no simple solution. It is why we are where we are now.
- Rich Biske: Could the Policy Committee, and ultimately the Council, write a letter of support for these Legislative Statutes the DNR has described? This would be for more of those definitions described: negative impact, sustainability, etc. There is support from the CWFs for programs that use monitoring data into action. Perhaps we can think about how that could be done.

Adjournment *(WebEx 02:19:41)*

Water Storage Primer and Future Opportunities

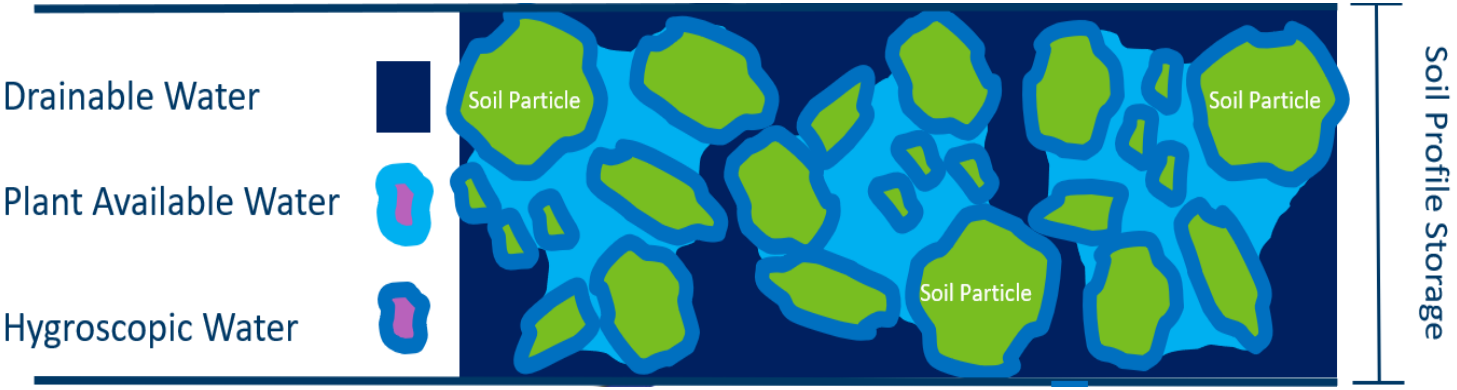
Rita Weaver | BWSR Chief Engineer

BOARD OF WATER AND SOIL RESOURCES

Today's Topics

- Water Storage Primer
- Tracking Water Storage
- Current/Future Initiatives

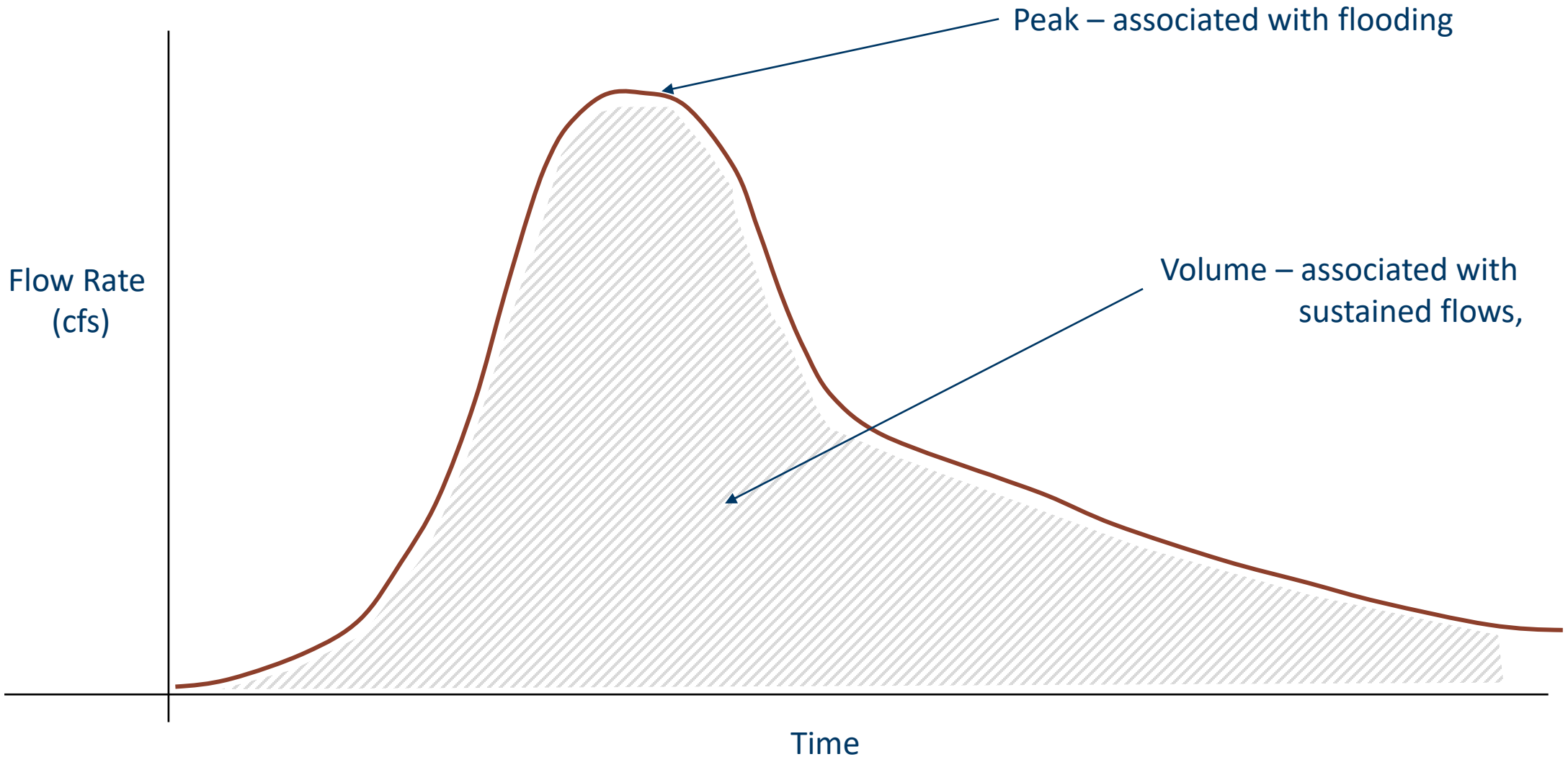
What does Storage Mean to You?



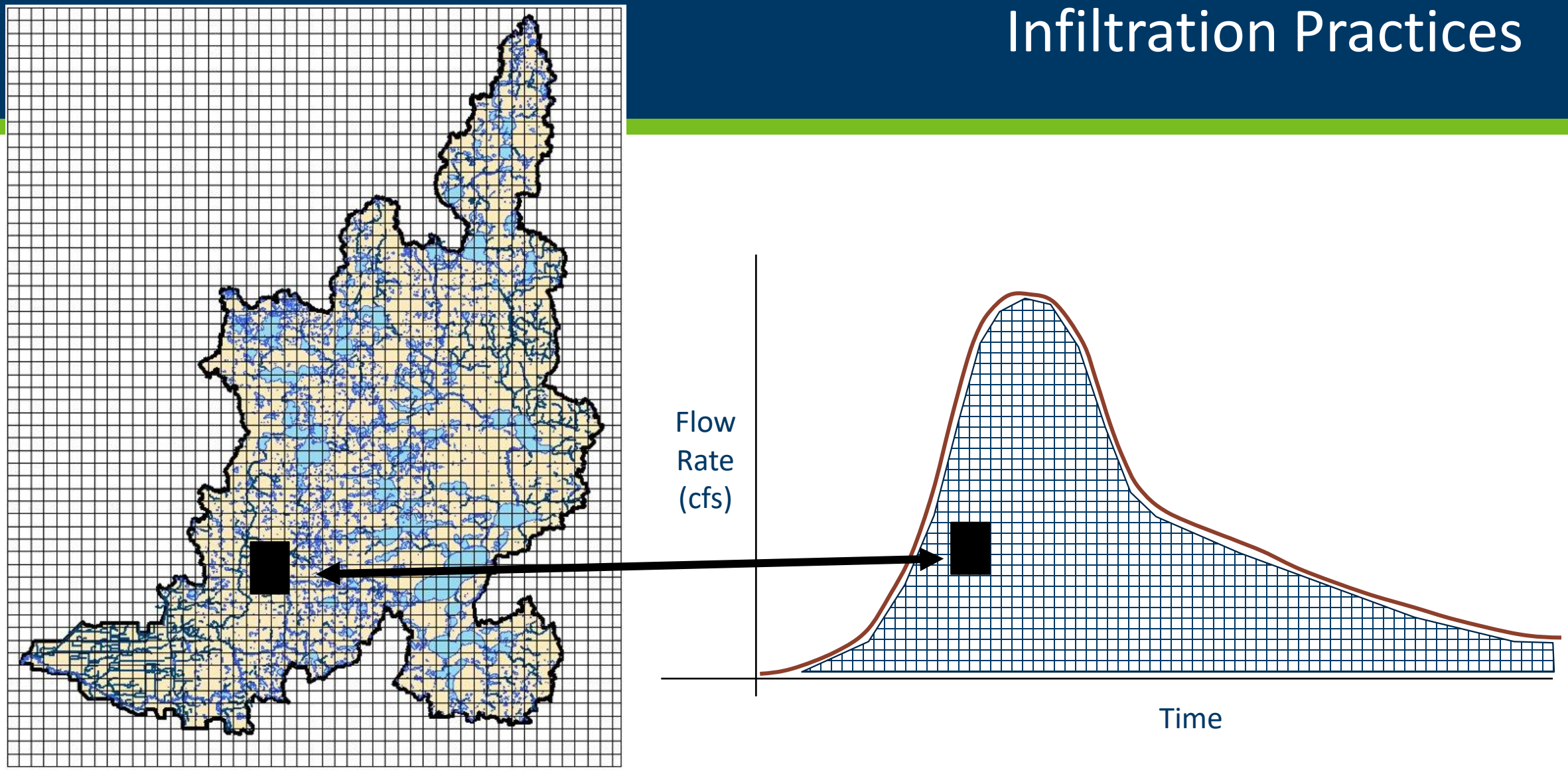
How do we pick what to construct?

- Look at our overall goals and think about what problem we want to solve
  - flooding,
  - water quality,
  - erosion,
  - improve habitat
- Depending on the goal, engineers/hydrologists look at how they can change the runoff hydrograph

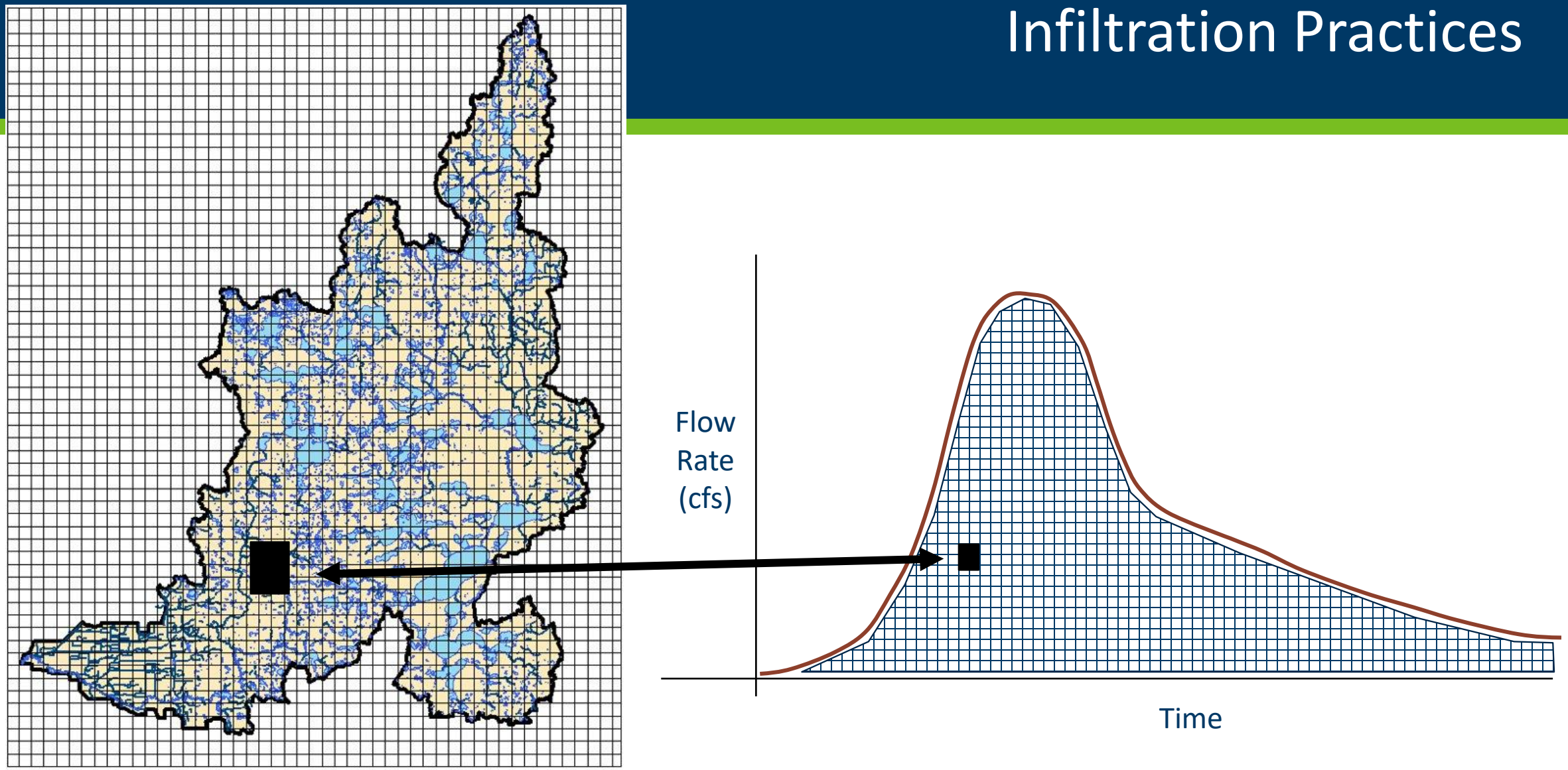
Runoff Hydrograph



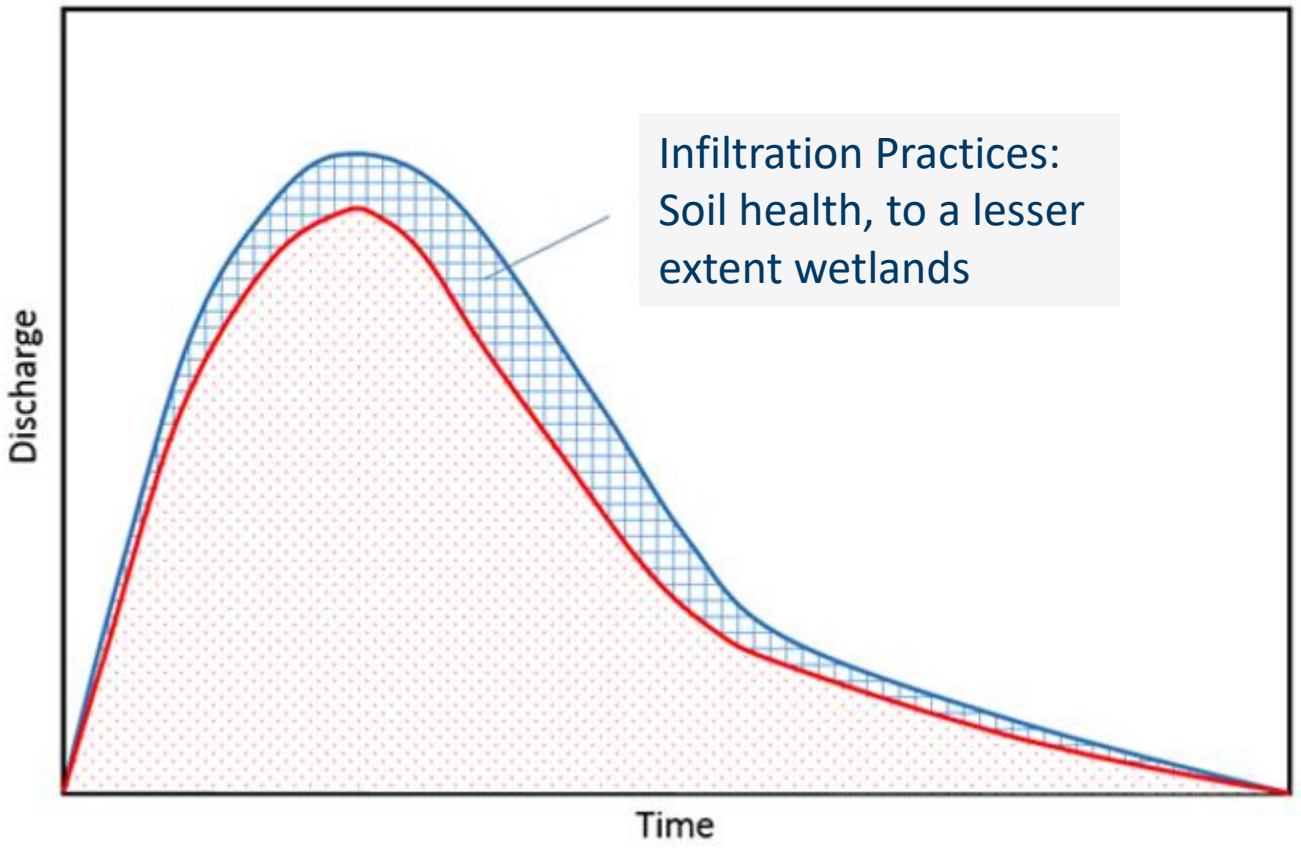
Infiltration Practices



Infiltration Practices



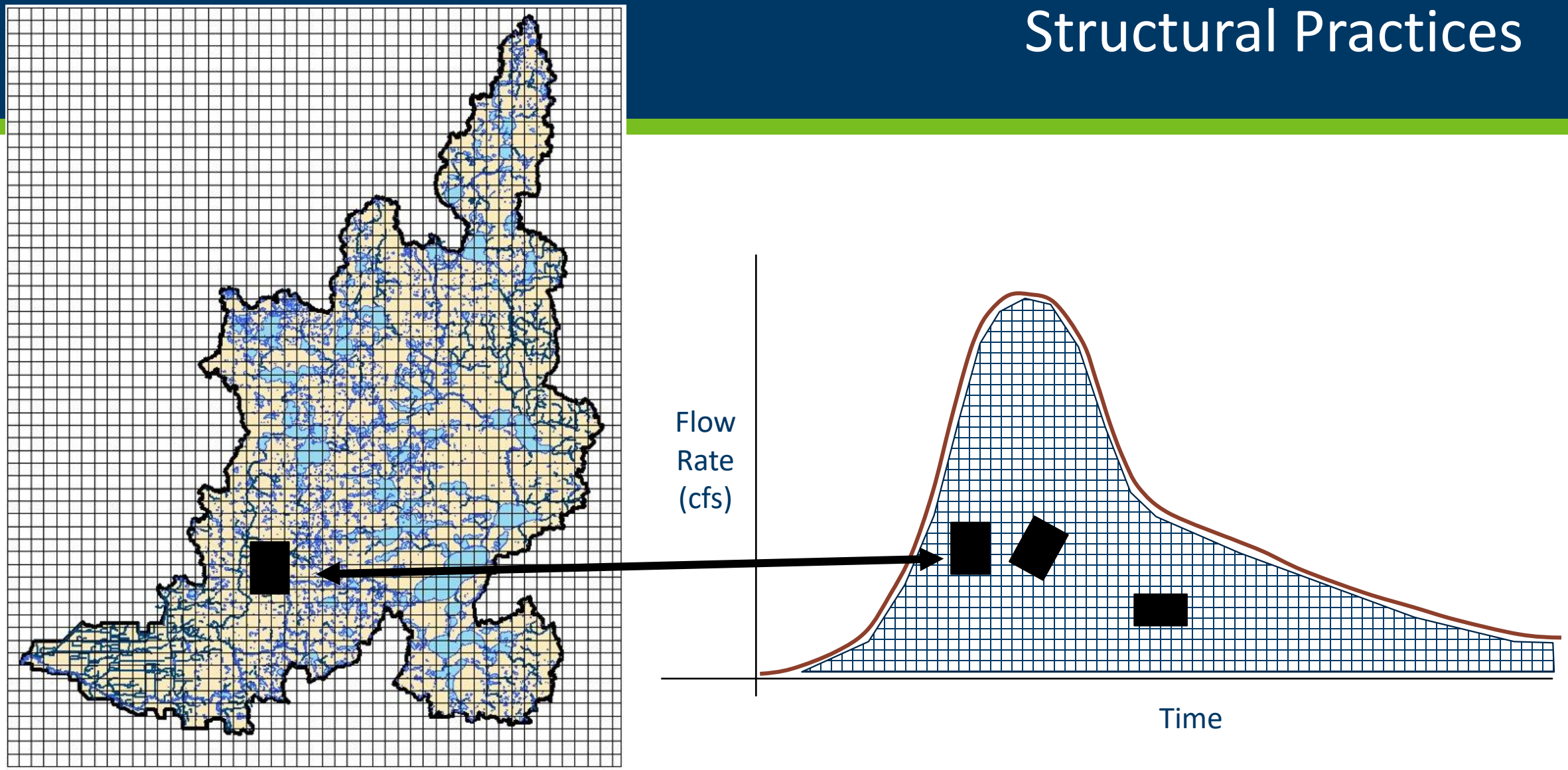
Infiltration Practices



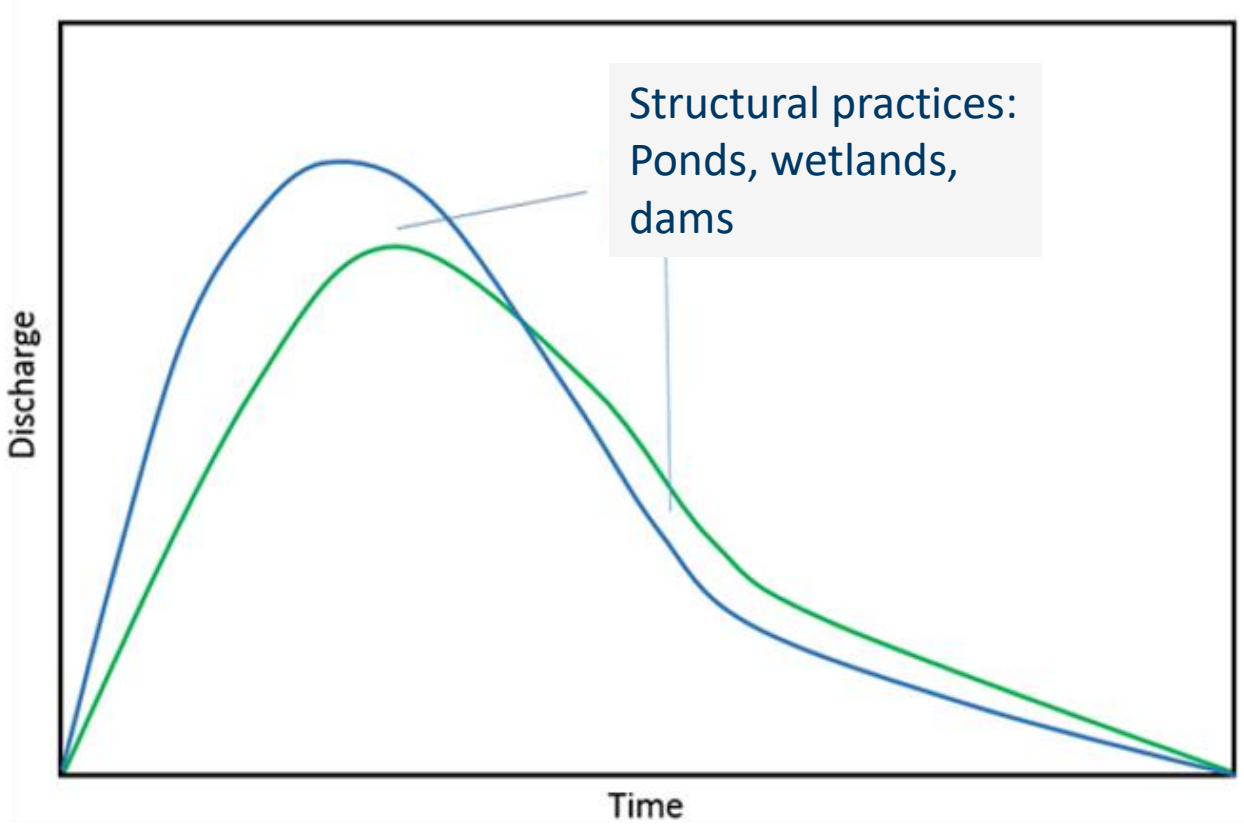
Pros: beneficial wherever they are located in the watershed (planning not as necessary)

Cons: Many, many projects needed to make a difference in the hydrograph

Structural Practices



Structural Practices



Pros: one project can make a big difference

Cons: changes peak only – not volume

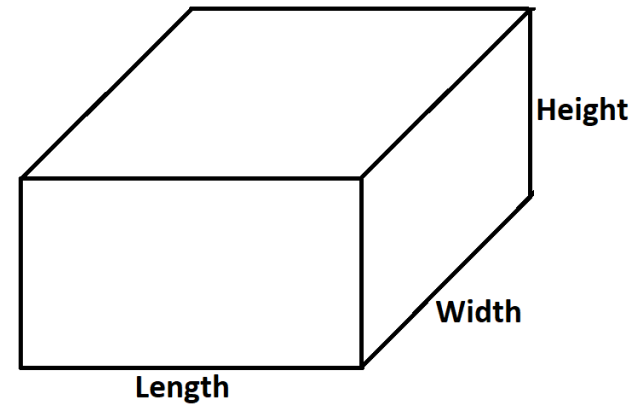
Many other factors in picking a project

- Permitting – dams, wetlands, public waters, etc.
- Public Acceptance – safety, aesthetics, etc.
- Landowner Acceptance – loss of production, maintenance, equipment
- Site Restrictions – soils, topography, site history
- Funding – restrictions on funding sources may dictate type of project

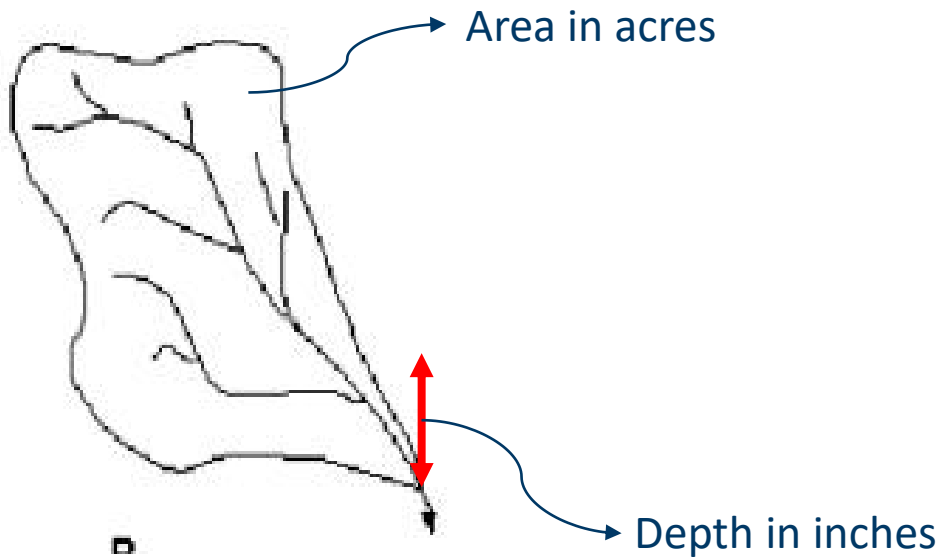
This process is covered in an interagency paper – Water Storage: A Planning and Decision Framework

Water Storage Goals in 1W1P

- Goals are often expressed in runoff volume retained/captured (acre-feet) or depth of runoff retained/captured (inches)



Volume = Length x Width x Height



- Using depth (inches) allows us to better visualize the storage for each storm event

Water Storage Goals in 1W1P

- Example storage goal requirements
  - Buffalo-Red River 10-year goal: 42,750 acre-feet (approx. 0.45 inches runoff volume), Long-term goal: 171,000 Acre-feet (approx. 1.79 inches runoff volume)
  - Shell Rock/Winnebago 10-year goal: 6,247 acre-feet, Long-term goal: reduce peak stream flows by 15% in Shell Rock River Watershed and 20% in the Winnebago River Watershed
- In a few plans the goal is expressed by selecting an average flow rate goal
  - Pine River: Maintain an average discharge of 306,945 acre-feet at the [outlet] of the Pine River Watershed

Tracking Water Storage Benefits

- Structural storage areas (ponds, wetlands, reservoirs, WASCOBs, etc.) are easy to track. The volume held by each storage feature can be expressed as “acre-feet” of storage
- Non-structural storage, or storage in our soil, is more difficult to measure
  - We have average values, but actual water retained is very site specific
  - Depends on the weather that year
  - Depends on consistency of implementation

Current Water Storage Programs

- Soil Health
  - Competitive CWF Soil Health Program
  - Soil Health Cost Share Program
- Water Quality and Storage Pilot Program
  - 1 Million in FY22 and 1 Million in FY23
  - 17 Million in Governor's budget (GF), 15 Million in Senate/House Bonding bills

Water Quality and Storage Pilot Grant Program – FY22

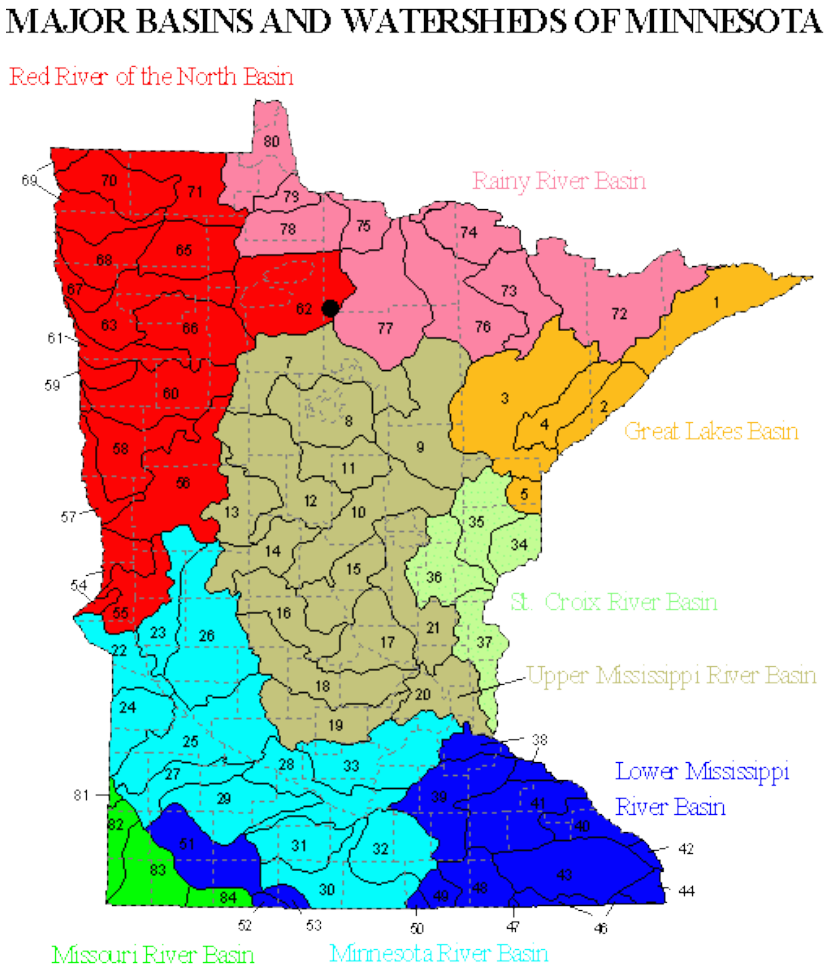
- Seven total applications for $3.8 million dollar ask
- Two applications were ineligible (did not include hydrographs)
- Three projects were chosen to be funded, with a total award of $843,851

MN Statute 103F.05

Subd. 2.**Establishment.**

(a) The board must establish a program to provide financial assistance to local units of government to control water volume and rates to protect infrastructure, improve water quality and related public benefits, and mitigate climate change impacts.

(b) In establishing a water quality and storage program, the board must give priority to the Minnesota River basin and the lower Mississippi River basin in Minnesota.



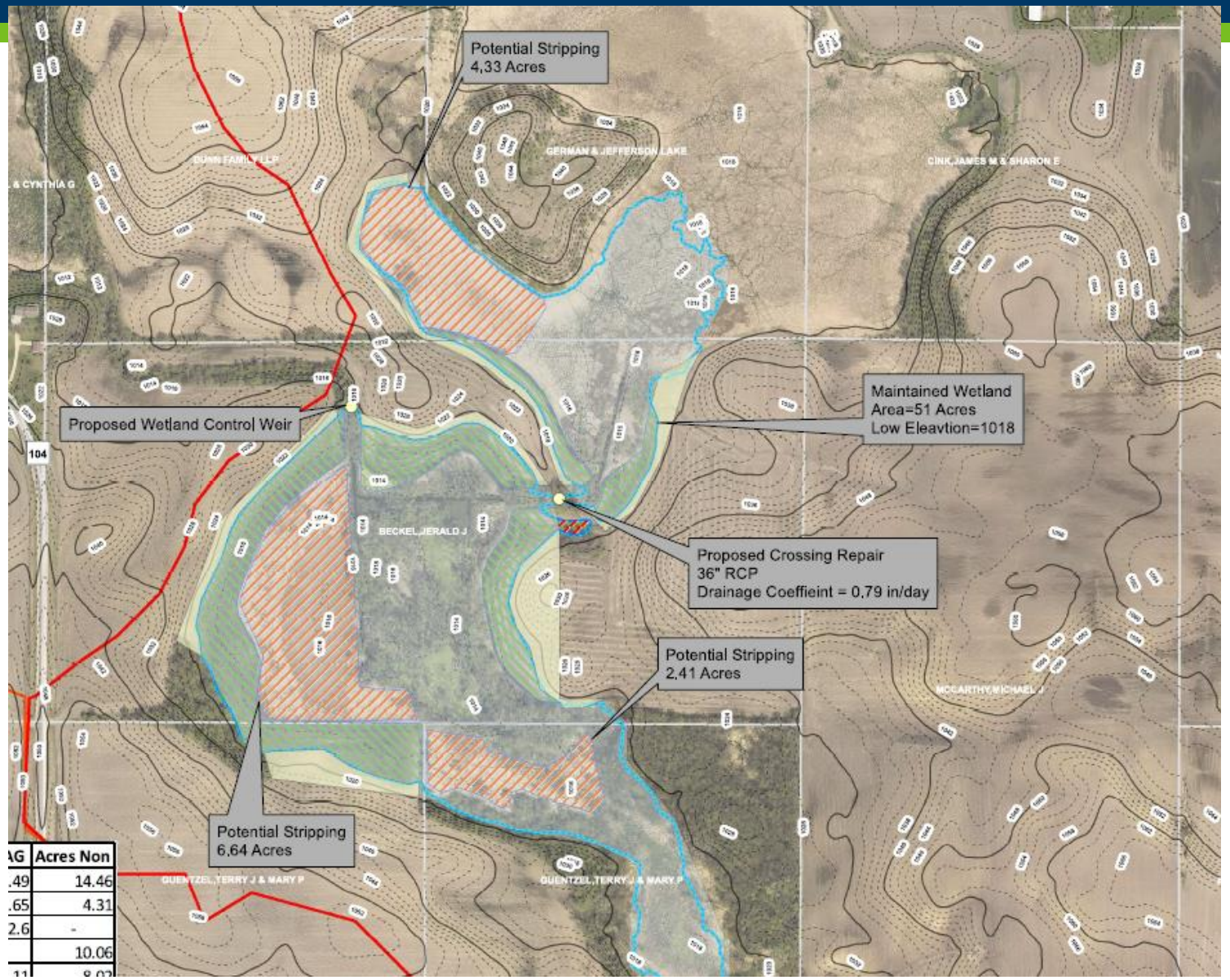
https://www.dnr.state.mn.us/watersheds/map.html

Program Details

- Project or Practice must result in a reduction in peak flow rates and/or volumes
- Applicant must show how project improves flooding concerns, water quality issues, or addresses vulnerabilities to climate change
- Feasibility study required (planning must be done)
- Project lifespan must be 25-years with a plan for maintenance

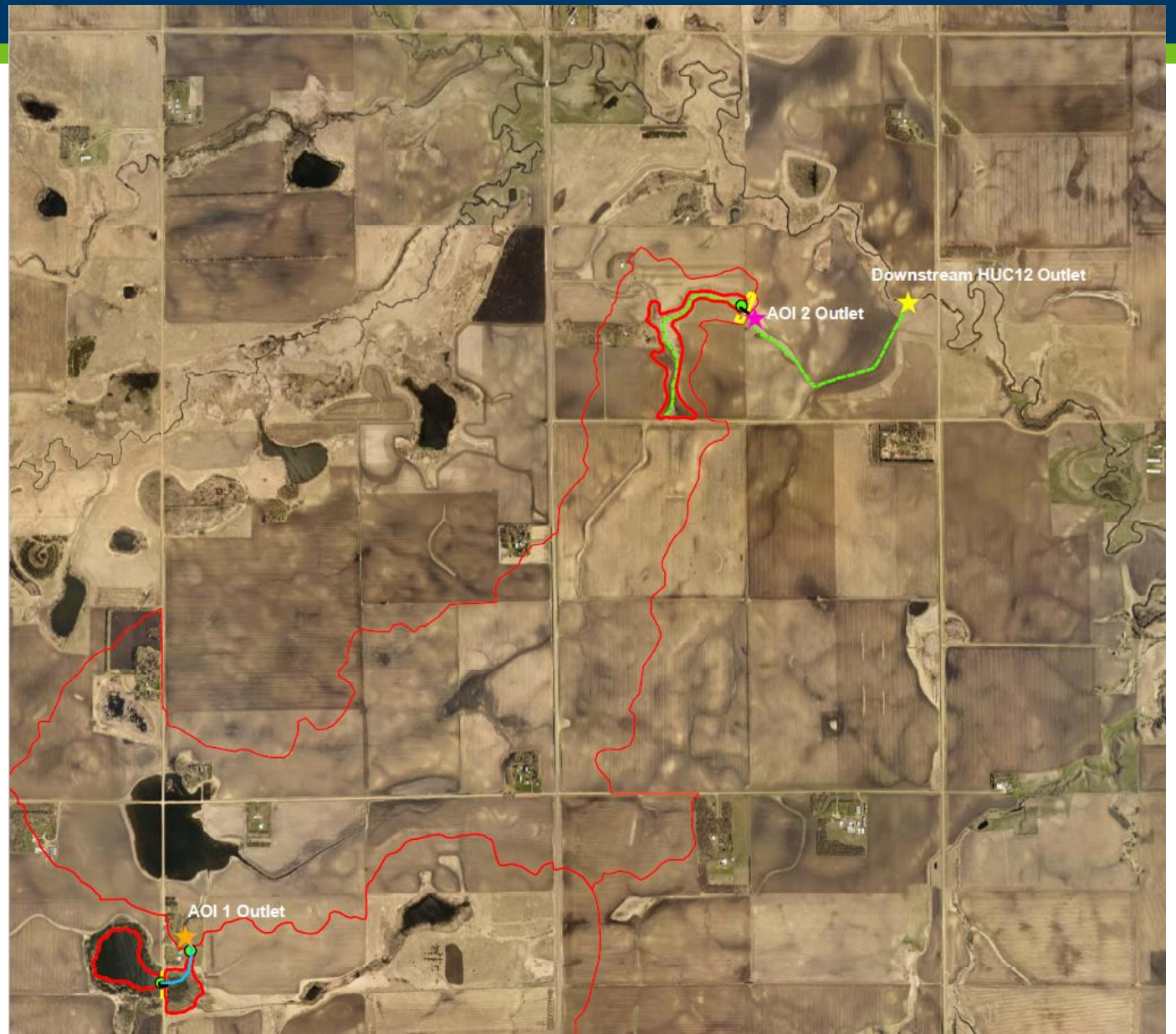
Lake Washington Patterson Watershed (79.75)

- Le Sueur County
- Wetland Modification to add storage capacity
- Main goal is water quality improvement
- Request: $408,187, Match: $102,047
- Four landowners
- Convert degraded wetland/farmland into usable storage area
- 150 acre-feet of storage during 100-year event, minor reduction of flow rates to Lake Washington
- 274 lbs/yr TP, 44.9 tons/yr TSS reduction



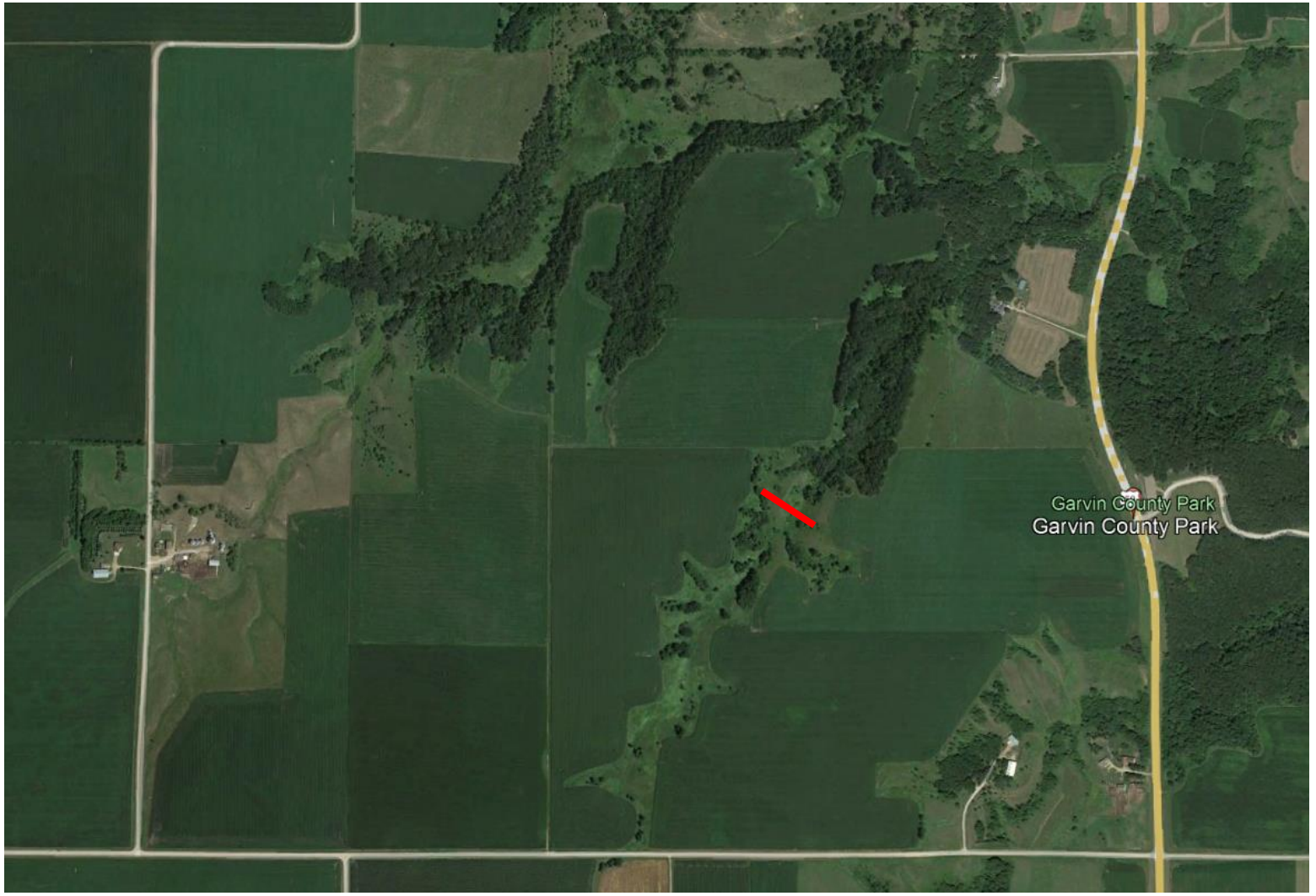
Custer 7 & Sodus 32 Storage Projects (74.75)

- Lyon County
- Wetland Modification and Grade Stabilization structure to add storage
- Main goal is flood reduction for the agricultural land and reduce erosion
- Request: $340,940, Match: $85,235
- Improvement to the system increased flows to much, so the SWCD looked for alternatives
- 47 acre-feet of storage added with reduction of flow rates to the downstream system
- 172 lbs/yr TP, 172 tons/yer TSS reduction



Custer 10 Floodwater Retention (74.25)

- Area II (also Lyon County)
- Grade Stabilization to add storage capacity
- Main goal is peak flow reduction (to reduce ravine erosion)
- Request: $94,723, Match: $23,680
- Steep ravine is subject to downcutting and substantial erosion
- 30 acre-feet of storage will be added during 100-year event, with 45-58% reduction in flows in the downstream ravine



FY24-25+

- Hoping to have an increase in budget for FY24-25, but will wait to see funding amount before looking at program changes
  - We will be looking at how to incorporate storage features that are constructed as part of a drainage project (as defined by 103E.101)
- Water Reuse/Drainage Water Recycling?
  - Coordination with other states that are implementing reuse
  - Coordinating with other agencies interested in reuse
  - Desktop Analysis on what makes a good reuse area
  - Potential exhibition site in Dakota County

BOARD OF WATER AND SOIL RESOURCES

Thank You!

Rita Weaver

rita.weaver@state.mn.us

651-539-2591

DEPARTMENT OF NATURAL RESOURCES

Sustainable Diversion Limits

Related Facts

75% of Minnesotans rely on groundwater for their drinking water

There are more than 1,000 high volume appropriation permits within 1 ½ miles of a trout stream, which are particularly sensitive to groundwater changes.

Summary

Lake, wetland and stream ecosystems are important to Minnesotans' way of life and to our recreational economy. The Minnesota Department of Natural Resources (DNR) works to maintain these ecosystems while also providing reliable and sustainable water supplies to domestic and commercial water users. Many of Minnesota's surface waters are hydraulically connected to groundwater resources and have the potential to be negatively impacted by groundwater use. Current statutory language requires the Minnesota DNR to consider whether groundwater use would cause a negative impact to surface waters, and links to the surface water protection provisions of Minnesota Statute 103G. The current statutory language lacks a clear definition for the terms "ecosystem harm" or "negative impact", which has created challenges for the DNR in applying requirements for surface water protection consistently to both surface and groundwater use. The current surface water provisions in statute are related to the direct appropriation of surface water and do not translate well to the assessment of diffuse and distributed impacts of groundwater use.

Proposal

The intent of this proposed policy is to ensure Minnesota's water resources are protected and available for current and future generations of Minnesotans. Long-term overuse of groundwater can significantly affect our wetlands, lakes and streams. The proposal defines ecosystem harm, negative impact to surface water, and sustainable diversion limits in the context of water use and current Minnesota water laws. The proposed definitions are based on the DNR's Definitions and Thresholds for Negative Impacts to Surface Waters report* to the legislature in 2016. The proposal also clarifies that groundwater appropriation permits may only be issued if they avoid known negative impacts to surface waters and provides the DNR authority to establish sustainable diversion limits to avoid negative surface water impacts. A handful of other states in the eastern half of the US have implemented similar approaches to setting diversion limits to protect surface waters and aquatic ecosystems. The proposal will ensure that state statutes provide a clear and transparent framework that balances reasonable use with long-term sustainability.

*The Definitions and Thresholds for Negative Impacts to Surface Waters report is available on the DNR's website at mndnr.gov/gwmp/gw_thresholds/index.html

For more information contact:
Bob Meier, Assistant Commissioner
Minnesota Department of Natural Resources
500 Lafayette Rd, St. Paul, MN 55155-4047
Phone: 651-259-5024
Email: bob.meier@state.mn.us

DEPARTMENT OF NATURAL RESOURCES

This information can be made available in alternative formats such as large print, braille, or audio tape by emailing info.dnr@state.mn.us or calling 651-259-5016.

State of Minnesota

HOUSE OF REPRESENTATIVES

NINETY-THIRD SESSION

H. F. No. 1680

02/13/2023 Authored by Hansen, R.; Hussein; Bierman and Pinto
The bill was read for the first time and referred to the Committee on Environment and Natural Resources Finance and Policy

A bill for an act

relating to natural resources; providing for sustainable diversion limits on groundwater appropriations; amending Minnesota Statutes 2022, sections 103G.005, by adding subdivisions; 103G.287, subdivision 2.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MINNESOTA:

Section 1. Minnesota Statutes 2022, section 103G.005, is amended by adding a subdivision to read:

Subd. 9c. **Ecosystem harm.** "Ecosystem harm" means to change the biological community and ecology in a manner that results in loss of ecological structure or function.

Sec. 2. Minnesota Statutes 2022, section 103G.005, is amended by adding a subdivision to read:

Subd. 13b. **Negative impact to surface waters.** "Negative impact to surface waters" means a change in hydrology sufficient to cause aquatic ecosystem harm or alter riparian uses long term.

Sec. 3. Minnesota Statutes 2022, section 103G.005, is amended by adding a subdivision to read:

Subd. 15i. **Sustainable diversion limit.** "Sustainable diversion limit" means a maximum amount of water that can be removed directly or indirectly from a surface water body in a defined geographic area on a monthly or annual basis without causing a negative impact to the surface water body.

Sec. 4. Minnesota Statutes 2022, section 103G.287, subdivision 2, is amended to read:

Subd. 2. **Relationship to surface water resources.** Groundwater appropriations ~~that will have negative impacts to surface waters are subject to applicable provisions in section 103G.285~~ may be authorized only if they avoid known negative impacts to surface waters. If the commissioner determines that groundwater appropriations are having a negative impact to surface waters, the commissioner may use a sustainable diversion limit or other relevant method, tools, or information to implement measures so that groundwater appropriations do not negatively impact the surface waters.

Sec. 5. **REVISOR INSTRUCTION.**

The revisor of statutes must renumber the subdivisions of Minnesota Statutes, section 103G.005, listed in column A to the references listed in column B. The revisor must make necessary cross-reference changes in Minnesota Statutes and Minnesota Rules consistent with the renumbering:

Column A	Column B
subdivision 9b	subdivision 9d
subdivision 13a	subdivision 13C
subdivision 15h	subdivision 15j