1. Introduction

The Nemadji Watershed is located just south of Carlton, MN. The waters flow from the headwaters located in Northern Pine County and Central Carlton County, MN to Lake Superior in Superior, WI. The watershed covers 473 square miles with 276 square miles in Minnesota, with 353 miles of stream and 35 lakes on the Minnesota side.

The **Nemadji One Watershed One Plan** (1W1P) is a planning partnership between Carlton SWCD, Carlton County, Pine SWCD, and Pine County, with a goal of **prioritizing** opportunities to protect the watershed's valuable resources along with **targeting** projects to help solve water quality problems. The result will be a **measurable** improvement in water quality and protection of this important resource for future generations.

The general 1W1P process is outlined in Figure 1. For the first step, which is to gather and prioritize opportunities/issues in the watershed, four topic meetings brought together watershed and topic experts. The meeting topics included 1) forestry, 2) wetlands & lakes, 3) streams and 4) agriculture. After the issues were gathered and prioritized, measurable goals were developed to address these issues. This report summarizes the goals meeting held on February 19th, 2020.

Figure 1. The 1W1P process is displayed above. The topical meetings are the first steps within the process (circled in gray).

The 1W1P process is driven by local units of government, guided by an Advisory Committee made up of local stakeholders and state agencies. The decision-making body for the plan is a Policy Committee made up of elected officials from each County and SWCD. The Advisory Committee recommends the prioritiy issues list to the Policy Committee for approval.
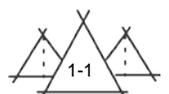
2. Goals

To help make progress in watershed protection and restoration, measurable goals are needed to help quantify change in the resource condition once the actions of the plan are implemented. Long-term goals are needed to define a desired future condition, while short-term goals help make forward progress in the next 10-years.

Based on the prioritized issue list assembled by the Advisory Committee and approved by the Policy Committee, a list of 7 goals was created. Each goal addresses multiple issues, resulting in fewer goals than priority issues. During the Nemadji 1W1P Kickoff meeting, participants were asked to envision what the watershed would to look like in 50 years. From these responses, we assembled a desired future condition for each goal.

Data analysis and modeling are used to determine numbers for each goal. A future report will include the numbers to quantify them. This report covers the draft concepts for the goals discussed at the February 19th Goals Meeting.
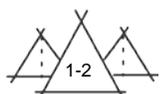
Goal 1: Increase forest management by X % in priority areas / X% of private forest lands have management.

Desired Future Condition:	Watershed forest cover is maintained for healthy wildlife habitat, drinking water protection, economics, water quality and watershed storage. Forest landowners have well-implemented forest management plans and are connected to technical and financial resources.
Issues addressed:	Forest management coordination, forest health, improved habitat, lack of public understanding, reduced sediment and phosphorous, reduce peak flows and increase watershed storage
Analyses:	Risk of conversion to ag, watershed percentages of managed versus unmanaged forests (publicly owned land and private forests with forest management plans).
Where (Target):	Risk of conversion areas, forest margins, trout streams, wetland margins, lake margins, drinking water sensitivity areas
Actions:	✦ More acres of forests in Forest Management Plans ✦ Manage for diversity and forest health. ✦ Outreach, technical and financial assistance (outreach to sign up and follow-up to manage). ✦ Increased coordination and collaboration.
Metric:	acres of forest managed
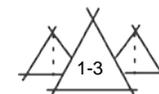
Goal 2: Increase storage by X acre-feet through wetland restoration

Desired Future Condition:	Wetlands and riparian areas are restored to provide increased watershed storage and reduced peak flows, resulting in protection of infrastructure, improved habitat and more stable streams. Resource managers have an increased understand of wetland health and function.
Issues addressed:	High peak flows, wetland function, wetland protection and restoration, reduced sediment and phosphorous
Analyses:	Historic and future (climate change) precipitation trends will be used to determine the storage goal, potentially restorable wetlands data, HEI non-contributing analysis (identifies where depressions areas are on the landscape), incised streams
Where (Target):	Potentially restorable wetlands with high storage and peak flow reduction values (St. Mary's Nemadji tool), wetlands with reduced connectivity (NWI data layer), wetlands upstream of vulnerable infrastructure, incised streams
Actions:	• Wetland restoration for habitat, ducks, wild rice, not just storage, protecting infrastructure from flooding • Reconnecting floodplains • Reconnecting wetlands (split by roads) • Data gap for functional wetlands
Metric:	acre-feet (side benefits of sediment and phosphorus – data gap action item)
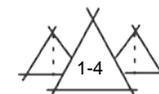
Goal 3: Reduce phosphorus on impaired and declining lakes by X%.

Desired Future Condition:	Healthy lakes with no declining trends or impairments, providing benefits of fishing, swimming and boating along with habitat for a diversity of species including wild rice.
Issues addressed:	Alteration of lakeshore/vegetation and cabin conversion, lack of public understanding
Analyses:	Net Lake use TMDL, other lakes use DNR LPSS
Where (Target):	Net Lake, Chub Lake, Hay Lake, Venoah
Actions:	• Pine County may do a septic survey for Net Lake • Shoreline restoration • Rain gardens • Protect healthy lakes too • Ordinance tools • Improve stormwater management
Metric:	Pounds of phosphorus reduced
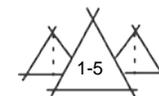
Goal 4: Reconnect X miles of stream to benefit aquatic life and improve the road/stream interface.

Desired Future Condition:	Fully connected and stable streams that provide valuable habitat to aquatic life and minimize impacts to Lake Superior.
Issues addressed:	High peak flows, road/stream interface, aquatic habitat, sediment/phosphorous
Analyses:	mapping analysis of priority culverts and red clay dams, how many miles of stream would be reconnected by each project, priority road erosion areas identified by road departments
Where (Target):	Barriers to fish passage, undersized & perched culverts, red clay dams, high priority roads with erosion
Actions:	• Proper replacement of culverts • Stream restoration • Effective and appropriate ditch maintenance • Increased fishing recreation opportunities
Metric:	miles of connected stream (also include side benefits of sediment reduction from individual projects)
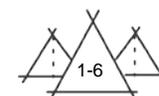
Goal 5: Increase agricultural best management practices by X acres in priority areas.

Desired Future Condition:	Farms are productive and are both economically and ecologically sustainable. They are protective of water quality and support the local economy.
Issues addressed:	Nutrient runoff, livestock access to streams, E. coli impairments, lack of public understanding, increased storage (soil health)
Analyses:	GIS looking at where ag land is in each HUC12 and where it is close to streams, possible feedlots near streams
Where (Target):	feedlots, ag land within certain distance of streams
Actions:	• Soil health practices (non-structural land management practices) • Pasture management • Fence cattle away from streams and provide alternative water sources • Ag Water Quality Certifications (x/year) • Whole farm planning • Soil health monitoring program
Metric:	acres managed, number of feedlots, number of fencing/watering projects, number of certified farms
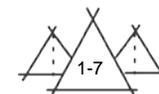
Goal 6: Protect drinking water in areas of high pollution sensitivity.

Desired Future Condition:	Drinking water is safe and clean
Issues addressed:	Drinking water vulnerability, lack of public understanding
Analyses:	Pollution sensitivity map, Department of Health data
Where (Target):	Contaminated church and campground (known issues) and high sensitivity areas (sandy soils)
Actions:	- Well sealing - STSS maintenance - Protect forests (SFIA, easements) - Investigate 2 known issues - Individual well head protection program - Data gap: well inventory - Consider Point of Sale inspections - Well testing
Metric:	# well sealed, acres of permanent forest protection, fix 2 known issues
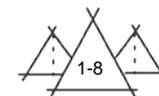
Goal 7: Increase protection by X% in sensitive areas in order to maintain stream stability and protect sensitive habitat

Desired Future Condition:	Permanent protection from land use changes of the most sensitive areas.
Issues addressed:	Forest heath, alteration of lakeshore/vegetation, reduced peak flows, watershed storage, drinking water vulnerability, improved habitat
Analyses:	Mapping of sensitive areas, identify habitat priorities (MPCA IBI scores, hemlock, white cedar, wood turtles, trout), wetland, forest and riparian area protection for reduced peak flow and increased storage (St. Mary's Tool), DNR temperature data, MPCA Stream Protection analysis
Where (Target):	Areas that are most sensitive and at highest risk in forests, lakes, drinking water, wetlands, high priority streams
Actions:	• SFIA/Easements • Conservation overlay districts • Create measuring tools • Certifications for farming and forests • Acquisitions
Metric:	Acres of the watershed protected