

# Goals

7/20/2021 Advisory Committee Meeting

### Where are we now, and where are we going?



Priority		
Issue	Priority Issue Statement	Priority Area
Category		
Surface Water Quality	<u>Failing septic systems</u> can contaminate groundwater, surface waters and localized drinking water, leading to imminent threats to public health.	Midway, Thomson, Cloquet River, Simian Creek
	<u><b>Pollutants</b></u> (e.g., nutrients, bacteria, sediment, chloride, mercury, etc.) are a source of degradation leading to the impairment of aquatic life, aquatic consumption, and aquatic recreation uses.	Swan River, Upper Sand River, Midway, Thomson, Cloquet River, Keene, Sucker, Stoney Brook, Simian Creek
Drinking water Protection	<u><b>Drinking water</b></u> quality and quantity from surface water and groundwater sources is threatened by land use activities and water appropriations.	Swan River, Upper Sand River, Midway, Thomson
Land Use	Urbanization, development, and road expansion can impact watershed health and increase nutrient and other pollutant loadings when <u>stormwater</u> is not effectively managed.	Swan River, Upper Sand River, Midway, Thomson, Keene
	Water- and land-based <u>recreational activities</u> can impact the quality of lakes and streams, stress wildlife, degrade habitats, and lead to conflict between different uses.	Cloquet Headwaters
	<u>Aggregate mining</u> (gravel mining) can alter natural hydrology, impacting baseflows for nearby streams and local and regional aquifers.	Cloquet River

Altered Hydrology	Channel instability, excess sedimentation, and disruption of natural sediment         transport and flow       are present throughout the Planning Area.         (Causes include: channelization, improperly installed culverts, drainage activities, and land use changes)	Swan River, Upper Sand River, Midway, Thomson, Cloquet River, Cloquet Headwaters, Keene, Sucker, Stoney Brook
	Loss of water storage, altered flows, and changes in watershed boundaries are the result of land development, drainage, and legacy mining that <u>alter natural</u> <u>hydrologic processes</u> .	Swan River, Upper Sand River, Keene, Sucker, Stoney Brook
	Obsolete and nonfunctioning dams alter natural hydrology, impede fish passage and aquatic organism movement, and affect stream temperature.	Cloquet Headwaters, Keene
	Forest fragmentation and loss can affect ecological community processes, community resilience and adaptive capacity, habitat connectivity and quality, species migration capacity, and surface water and groundwater quality.	Midway, Thomson, Cloquet River, Cloquet Headwaters, Sucker, Stoney Brook
Habitat	Aquatic, riparian, and shoreland habitats are impacted by land use changes, pollution, climate change and altered flows which can lead to degraded resources, incisement and floodplain disconnection, impeded fish passage, and fragmentation.	Midway, Thomson, Cloquet River, Keene, Sucker, Stoney Brook, Simian Creek
	Aquatic and terrestrial invasive species pose a threat to individual habitats and overall biodiversity.	Sucker, Stoney Brook

## Priority Areas

- Areas indicated in green will be the priority for Watershed Based Implementation Funding for the plan
- These areas can be revisited during the 5-year plan update if needed





### Questions?

# Goal – an aimed or desired result

- Reflects the Big Picture
- Ambitious, yet attainable in principle
- Achievement of the goal represents significant progress in the whole watershed
- Measurable



### Measure Versus Counting

- Measure is the size, distance, amount compared to a designated standard
- **Count** is the act of or tallying a quantity



### Counting vs Measuring Example

- Replace 5 Culverts
- Improve stream connectivity by 5%
- Increase connectivity by 5 miles

# Actions are the steps we take to meet our goals

- Specific
- Reasonable with respect to scope, timeline and workloads
- Shows the timeline or deadline for completion of the activity
- Shows the specific person with overall responsibility for ensuring that the activity occurs as planned
- Show estimated resources required for achievement, along with potential sources of support



### Example

#### **Issue Statement:**

**Failing septic systems** can contaminate groundwater, surface waters and localized drinking water, leading to imminent threats to public health.

#### **Desired Future Condition:**

All septic systems are maintained and compliant with local ordinances



### Example

#### Goal:

Identify and address ground and surface water quality problems stemming from inadequate wastewater treatment by implementing and enforcing SSTS Ordinances, and inventory and upgrade X % of non-compliant systems in subwatersheds with *E. coli* impairments or sensitivity to near-surface pollution.



### Example

#### Actions:

- Education and Outreach campaign to SSTS landowners in targeted areas.
- SSTS Inventory using County records to identify potential risks
- Cost share x high priority septic systems for low-income residents.
- Support of County Staff to enforce SSTS ordinances.





### Questions?

### Surface Water Quality Issue Category

#### **Priority Issue Statements**

- Failing septic systems can contaminate groundwater, surface waters and localized drinking water, leading to imminent threats to public health.
- <u>Pollutants</u> (e.g., nutrients, bacteria, sediment, chloride, mercury, etc.) are a source of degradation leading to the impairment of aquatic life, aquatic consumption, and aquatic recreation uses.



# Septic Systems

Identify and address ground and surface water quality problems stemming from inadequate wastewater treatment by implementing and enforcing SSTS Ordinances, and inventory and upgrade X% of non-compliant systems priority areas.

Desired Future Condition:	All septic systems are maintained and compliant.
Issues addressed:	Pollutants, Drinking Water
Who is impacted (including partners):	
Tools/Analyses:	Inventories, Bacteria & Nutrient Impaired Waters List, Sensitivity to Near-Surface Pollution
Where (Target):	Bacteria & Nutrient Impaired Waters, Sensitive Groundwater
Implementation:	<ul> <li>Education and Outreach campaign to SSTS landowners in targeted areas.</li> <li>SSTS Inventory using County records to identify potential risks</li> <li>Cost share x high priority septic systems for low-income residents.</li> <li>Support of County Staff to enforce SSTS ordinances.</li> </ul>
Metric:	Septic systems upgraded

Complete farm projects on X % of properties identified as needing enhancements (e.g., livestock exclusion, manure storage, pasture management) where there are bacteria impairments.

Desired Future Condition:	Waters are fishable, swimmable & drinkable
Issues addressed:	Shoreland habitat
Who is impacted (including	
partners):	
Tools/Analyses:	Animal Operation inventory, impaired waters
Where (Target):	Animal operations near impaired waters
Implementation:	<ul> <li>Inventory animal operations</li> <li>Education and outreach campaign</li> <li>Install BMPs</li> </ul>
Metric:	Farm BMPs installed

Metric:

X% of municipalities with identified bacteria impairments are implementing plans to

#### reduce bacteria in surface waters.

Desired Future Condition:	Waters are fishable, swimmable & drinkable
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Issues addressed:	Stormwater
Who is impacted	
(including partners):	
Tools/Analyses:	Inventory of municipalities
Where (Target):	Municipalities with Impaired waters
Implementation:	<ul> <li>Inventory municipalities</li> <li>Develop mitigation plans</li> <li>Implement BMPs</li> </ul>

Implementation Plans developed and implemented

Manage chlorides reaching surface and ground water from road salts and water softener salts by ensuring X% of municipalities have Smart Salt Certified Staff & education & outreach to X% of priority landowners.

Desired Future Condition:	Waters are fishable, swimmable & drinkable
Issues addressed:	Stormwater
Who is impacted	
(including partners):	
Tools/Analyses:	Inventory of municipalities, road density, well log density, Big Lake
Where (Target):	Municipalities with shoreline areas
Implementation:	<ul> <li>Inventory municipalities</li> <li>Train Staff</li> <li>Smart Salt practices implementation</li> <li>Education &amp; outreach</li> </ul>
Metric:	Number of Smart Salt Certified staff

X % (or feet) of shoreline of prioritized lakes and streams have natural buffers and near shore areas are protected and restored to reduce erosion using bank stabilization, bioengineering, etc. techniques.

Desired Future Condition:	Waters are fishable, swimmable & drinkable
Issues addressed:	Shoreline habitat, Stormwater
Who is impacted	
(including partners):	
Tools/Analyses:	
Where (Target):	TSS Impaired Waters, Nutrient Impaired Waters
Implementation:	<ul> <li>Shoreland BMPs Installed</li> </ul>
Metric:	# of BMPs Installed

### Drinking Water Protection Issue Category

#### **Priority Issue Statement**

• **Drinking water** quality and quantity from surface water and groundwater sources is threatened by land use activities and water appropriations.



# Drinking Water

#### Protect X % of forests in areas where drinking water is susceptible to contamination.

Desired Future Condition:	Drinking water is protected and safe
Issues addressed:	Forests
Who is impacted	
(including partners):	
Tools/Analyses:	Sensitivity to Near-Surface Pollution, Privately owned forests, Protected forests (SFIA,
	Easements, wetlands)
Where (Target):	Sensitive Groundwater Areas
Implementation:	<ul> <li>Education and Outreach campaign to forest land owners</li> </ul>
	<ul> <li>Forest management planning &amp; Implementation</li> </ul>
	<ul> <li>SFIA and Easement enrollment</li> </ul>
Metric:	Acres of forests protected & managed

# **Drinking Water**

#### Protect groundwater quality by sealing X unused, unsealed wells watershed wide. **Desired Future Condition:** Drinking water is protected and safe Issues addressed: Who is impacted (including partners): Current well sealing numbers, Geological Atlas (coming soon for St. Louis & Lake Tools/Analyses: Counties) Watershed Wide Where (Target): Education & outreach Implementation: Inventory wells Cost Share to seal unused wells # of wells sealed Metric:

### Land Use Issue Category

#### **Priority Issue Statement**

- Urbanization, development, and road expansion can impact watershed health and increase nutrient and other pollutant loadings when <u>stormwater</u> is not effectively managed.
- Water- and land-based <u>recreational</u> <u>activities</u> can impact the quality of lakes and streams, stress wildlife, degrade habitats, and lead to conflict between different uses.
- <u>Aggregate mining</u> (gravel mining) can alter natural hydrology, impacting baseflows for nearby streams and local and regional aquifers.



## X % of communities with Shoreland areas are promoting the Minimal Impact Design standards to create a more resilient landscape.

**Desired Future Condition:** Impacts from stormwater are mitigated for a more resilient landscape

Issues addressed:	Shoreline habitat, Pollutants
Who is impacted (including partners):	
Tools/Analyses:	Inventory of shoreland communities
Where (Target):	Shoreland Communities
Implementation:	<ul> <li>Adoption of MIDS</li> <li>Shoreland BMPs Installed</li> <li>Climate change considered in design &amp; Evaluation of MIDS / Education of climate change impacts to stormwater</li> </ul>
Metric:	# of BMPs Installed, Communities adopting MIDS

Educate and increase stewardship of recreational land users on their impact to natural resources in X % of high-use & high priority recreational areas.

Desired Future Condition:	All Recreational land users are practicing stewardship to protect water quality
Issues addressed:	Shoreline habitat, Pollutants
Who is impacted (including partners):	
Tools/Analyses:	Identify & Inventory of high-use & High priority recreational areas
Where (Target):	Cloquet Headwaters
Implementation:	<ul> <li>Education &amp; Outreach</li> <li>Signage</li> </ul>
Metric:	Outreach Strategy Developed, Signs installed

Mitigate the impacts of ATV/Recreation Vehicle use at X% of impacted water resources.

Desired Future Condition:	All Recreational land users are practicing stewardship to protect water quality
Issues addressed:	Shoreline habitat, Pollutants
Who is impacted (including partners):	
Tools/Analyses:	Identify & Inventory of high-use & High priority recreational areas, potential new Lidar, DNR Parks & Trails info on use
Where (Target):	Cloquet Headwaters
Implementation:	<ul> <li>BMPs installed</li> </ul>
Metric:	# of BMPs Installed

Evaluate impacts of aggregate mining at X % of high priority sites that have the potential to impact sensitive surface and ground water resources.

Desired Future Condition:	Ground and surface water impacts to gravel mining are mitigated
Issues addressed:	Drinking Water
Who is impacted (including partners):	
Tools/Analyses:	Gravel deposits near surface waters and near surface groundwater, County Gravel Mining dataset
Where (Target):	
Implementation:	<ul> <li>Manage inactive pits for invasive species/plant trees</li> <li>Conduct research on impacts of mining on groundwater and surface water</li> <li>Develop a tool to help determine risk and proper siting of future gravel pits and to improve rehabilitation of existing pits</li> </ul>
Metric:	# of Groundwater/gravel mining studies

### Altered Hydrology Issue Category

**Priority Issue Statement** 

- <u>Channel instability, excess sedimentation,</u> <u>and disruption of natural sediment transport</u> <u>and flow</u> are present throughout the Planning Area.
- Loss of water storage, altered flows, and changes in watershed boundaries are the result of land development, drainage, and legacy mining that <u>alter natural</u> <u>hydrologic processes</u>.
- Obsolete and nonfunctioning dams alter natural hydrology, impede fish passage and aquatic organism movement, and affect stream temperature.



Reconnect X miles of priority streams and tributaries to benefit aquatic life and improve water quality

Desired Future Condition:	Streams are free of barriers to aquatic life.
Issues addressed:	Pollutants, Habitat
Who is impacted (including partners):	
Tools/Analyses:	Culvert Inventories, Fish WERKS
Where (Target):	Coldwater tributaries and streams
Implementation:	<ul> <li>Barriers removed (culverts &amp; dams)</li> <li>Culvert inventories completed</li> <li>Dam studies</li> </ul>
Metric:	# of barriers removed

Restore a stable cross-sectional area, slope, and meandering pattern to stream reaches that have been altered by human activity, including impounded, straightened, and incised stream reaches on X miles (Linear Feet) of high priority streams and tributaries.

Desired Future Condition:	Streams are stable and are providing full ecosystem functions.
Issues addressed:	Pollutants, Habitat
Who is impacted (including partners):	
Tools/Analyses:	Geomorphology studies, hydrologic modeling -BANCS
Where (Target):	Coldwater tributaries and streams
Implementation:	<ul> <li>Stream restorations</li> <li>Geomorphic studies</li> </ul>
Metric:	Linear Feet Restored

#### Restore floodplains in incised channels to increase x acre/feet of storage.

Desired Future Condition:	All floodplains are restored and are providing watershed storage to mitigate the impacts of high rainfall events.
Issues addressed:	Pollutants, Habitat, Watershed storage
Who is impacted (including partners):	
Tools/Analyses:	Geomorphology studies, hydrologic modeling -BANCS
Where (Target):	Coldwater tributaries and streams
Implementation:	<ul> <li>Stream restorations</li> <li>Geomorphic studies</li> </ul>
Metric:	Acre/feet storage

Increase X acre/feet of watershed storage by restoring wetlands in identified priority areas	
where they have been lost and/or altered due to ditching or development activities.	
Desired Future Condition:	Wetland function is increased to mitigate the impacts of high rainfall events.
Issues addressed:	Pollutants, Habitat, Watershed storage
Who is impacted	
(including partners):	
Tools/Analyses:	Altered water courses
Where (Target):	Ditched areas of the watershed
Implementation:	<ul> <li>Wetland Restorations</li> </ul>
Metric:	Acre/feet storage

### Habitat Issue Category

#### **Priority Issue Statement**

- Forest fragmentation and loss can affect ecological community processes, community resilience and adaptive capacity, habitat connectivity and quality, species migration capacity, and surface water and groundwater quality.
- <u>Aquatic, riparian, and shoreland habitats</u> are impacted by land use changes, pollution, climate change and altered flows which can lead to degraded resources, incisement and floodplain disconnection, impeded fish passage, and fragmentation.
- Aquatic and terrestrial invasive species pose a threat to individual habitats and overall biodiversity.



## Protect & manage X acres of private owned forests in areas that protect surface water quality, riparian habitat

Desired Future Condition:	All privately owned forests are managed to protect surface water quality and forest cover is maintained on the landscape.
Issues addressed:	Pollution,
Who is impacted (including partners):	
Tools/Analyses:	Landscape Stewardship Plan
Where (Target):	Privately owned forests near priority water resources
Implementation:	<ul> <li>Forest management plans developed</li> <li>Forest management plans implemented</li> <li>Acres of forests enrolled in SFIA or easements</li> <li>Forest management plans include protection of water resources (wetlands/tributary streams)</li> </ul>
Metric:	Acres

#### Protect & manage forests to protect x acre/feet of watershed storage

Desired Future Condition:	All privately owned forests are managed to protect watershed storage
Issues addressed:	Pollution, Storage
Who is impacted	
(including partners):	
Tools/Analyses:	?
Where (Target):	Privately owned forests in high peak flow areas
Implementation:	<ul> <li>Forest management plans developed</li> <li>Forest management plans implemented</li> <li>Acres of forests enrolled in SFIA or easements</li> </ul>
Metric:	Acre/feet stored

Shoreline ordinances are updated, developed, and enforced for X % of municipalities in	
the subwatershed priority resource shoreline areas.	
Desired Future Condition:	All municipalities have shoreland ordinances developed
Issues addressed:	Pollution
Who is impacted	
(including partners):	
Tools/Analyses:	Surveys of Municipalities
Where (Target):	Municipalities with public waters shorelines
Implementation:	Assist municipalities to develop shoreland ordinances
Metric:	Ordinances

X % (or feet) of shoreline in prioritized lakes and streams have natural buffers and near shore areas are protected and restored to reduce erosion using bank stabilization, bioengineering, etc. Techniques.

Desired Future Condition:	All shorelines are protected from excess erosion using approaches that protect ecosystem function
Issues addressed:	Pollution
Who is impacted (including partners):	
Tools/Analyses:	Geomorphology studies, Lakes of phosphorous sensitivity
Where (Target):	Cold water resources, high priority lakes
Implementation:	<ul> <li>Install buffers, bank stabilization, other BMPs</li> </ul>
Metric:	Linear Feet

Protect/Restore x% of high priority wild rice lakes (water levels, disturbance, shoreland development)

Desired Future Condition:	Wild rice is protected and restored for sustainable harvest
Issues addressed:	Pollution
Who is impacted	
(including partners):	
Tools/Analyses:	Wild rice studies
Where (Target):	1854 Treaty Wild Rice Waters
Implementation:	<ul> <li>Control water level fluctuations</li> <li>Shoreline restoration installed</li> <li>Education &amp; outreach</li> </ul>
Metric:	# of lakes protected & restored

Identify and manage X % of high priority sites/resources for invasive species.

Desired Future Condition:	Impacts to invasive species are mitigated to protect ecosystem functions
Issues addressed:	
Who is impacted	
(including partners):	
Tools/Analyses:	
Where (Target):	
Implementation:	
Metric:	# of resources managed for invasive species