

Watershed Wide Goals

Red = No/Not Eligible for Watershed Based Implementation Funds

Green = Yes

Purple = Needs prioritization

Surface Water Quality Goals – Watershed Wide

Identify and address ground and surface water quality problems stemming from inadequate wastewater treatment by supporting the enforcement of SSTS ordinances and inventory and upgrade X% of non-compliant systems in priority areas.

- Education and Outreach campaign to SSTS landowners in targeted areas.
- SSTS evaluation of County records to assess potential risks
- Support enforcement follow-up for non-low-income systems
- Support of County Staff to enforce SSTS ordinances.
- Provide additional cost share for low-income system replacements
- Cost share x high priority septic systems for low-income residents. (St. Louis County typically do 10 systems a year)
- Support training of new SSTS professionals
- Potential for WLSSD to manage SSTS within their service area
- Assistance to small communities to navigate public facilities authority funding
- Infrared surveys of septic system runoff into waterways in key areas
- **Have you thought about whether 1W1P should develop a comprehensive WQ and biological long-term monitoring plan(s) that coordinates with measurable goals.**
- Develop funding to assist homeowners implement BMPs on private land, including upgrading or replacing septic systems
- Seek state assistance to fund county inventories of private septic systems - do we have adequate inventories?
- Close coordination with RSPT and DUWAC
- Conduct County wide survey on septic system concerns
- Work with St. Louis County to address the list of imminent public health threats
- Implement additional setbacks from sensitive areas (e.g., lakeshore).
- Support increased compliance inspections
- re-SSTS = ISTS= Septics=Onsites: I don't think there is a publicly available GIS data site (such as County) for identifying where known systems are located, what their sizes are, and what is their condition. This would have many uses that would include planning, hotspot ID, etc.

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

- Develop and implement an Education and Outreach campaign to livestock owners in priority areas.
- Continue the enforcement of Open lot runoff management to meet 7020 rules
- Explore water storage from converted forested lands
- Host workshops for livestock owners

- Part of education - encourage use of runoff risk advisory tool for timing of nutrient/manure application
- To the extent possible, cost share or incentivize soil health practices
- Promote ag water quality certification program
- Partner with extension and others on connecting water quality and soil health
- Partner with farmers who are willing to serve as educators to fellow farmers

X% of municipalities with identified bacteria impairments are implementing plans to reduce bacteria in surface waters.

- Work with other municipalities, townships, and organizations (with or without impairments) to educate and implement Bacteria reduction strategies.
- Outreach for the MPCA Green Steps program
- continue work to identify primary sources (leaking sewer, waterfowl, pets...?)

Manage chlorides reaching surface and ground water from road salts and water softener salts by ensuring X% of municipalities have Smart Salt Certified Staff, X% Communities achieved Level 2 Certified & education & outreach to X% of priority landowners.

- Evaluate County's salt training with Smart Salt training and identify gaps.
- Provide cost share for staff smart salt training
- Educate large property owners on salt use and promote smart salt training
- Expand smart salt training to include large institutions - schools, hospitals, nursing homes, post offices, etc.
- Outreach at "winter" type festivals
- Education for realistic expectations and "costs" of winter street maintenance (and appropriate winter attire??)
- Pilot test salt alternatives
- **Water softener salt tracking - how can we do that?**
- Tracking salt use in municipalities- what are the trends? - 1998 study could survey as the baseline
- **Cost share Equipment for brining**
- Include township road authorities in chloride information
- Coordinate chloride management strategies/resources among road authorities
- Need education/outreach about water softener salts
- All road authorities, Cities, counties, MnDOT, should be included in smart salt training.
- Property owners that apply salt for apartment buildings, commercial lots,... should be smart salt training
- **address liability-related constraints. there is related proposed state legislation being considered again this session, though it does not address costs of slips that result in workers comp claims**
- annual salt use data and staff training
- Make road salt alternatives (sand, grit) readily available to homeowners, especially low income or limited income.
- Work with Kwik trips on salt application training

Drinking Water Protection Goals – Watershed Wide

Protect groundwater quality by sealing X unused, unsealed wells watershed wide.

- Develop educational campaign for groundwater protection
- Develop groundwater monitoring program to better understand groundwater quality trends
- Target 1 mile buffer area around DWSMAs for well sealing campaign
- Could this include a need for new signs at wellhead protection areas?
- Emergency preparedness plan for spill prevention for cities who get water from surface water.
- Explore how stormwater effects the public water suppliers
- Forest management in source water protection areas
- Pursue funding for private wells water treatment where needed
- Identify communities (that get drinking water from surface water) that could benefit from a Source Water Assessment-MDH
- Continue to monitor source water quality
- Partner with others doing PFAS outreach related to wells - there's a tool called Be Well Informed
- groundwater screening for common pollutants-N & NaCl-
- Do municipalities need funding to help publish information about drinking water quality?
- Poll rural landowners to find unused wells to seal.
- Explore how green infrastructure/BMPS/LID benefits drinking water quality
- Work with organizations with outreach arms (MN Sea Grant; DNR Coastal) to provide education on use of GI implementation for source water protection
- Develop funding to assist homeowners implement BMPs on private land, including upgrading or replacing septic systems
- Educate seasonal property owners on policies and importance of properly opening and closing wells

Land Use Goals – Watershed Wide

Promote the implementation of low impact development techniques to reduce stormwater runoff, volume and rate control in x% of communities

- Develop education/outreach campaign to municipalities
- Work with the State of MN to ensure NPDES permits and guidelines are followed for construction and industrial sources of stormwater.
- Develop an education and outreach campaign to urban landowners on stormwater BMPs
- homeowner program for help with design and implementation of BMPS's such as rain gardens; incl siting, design assistance, plant selection.

- Use Carlton SWCD's effort to build rain gardens using Lawns to Legumes funding as an example for other areas
- Do a site tour in multiple areas to showcase existing green infrastructure and have users share their experiences. Could be a virtual tour too.
- Promote the NEMO program nonpoint education for municipal officials
- Community discussions on visioning impacts to resources based on current development
- Specific focus on properties along the LS coastline, or within XX feet of surface water sources
- Support for urban forestry and green infrastructure
- Include better planning for snow storage to keep roads AND sidewalks cleared, minimize need to truck snow away and protect stormwater BMPs
- Look for opportunities to reduce flood risk and associated infrastructure damage at same time and related funding sources
- Develop and implement new guidance on ditch (public and private) maintenance activities that will minimize un-vegetated channels and associated erosion.
- Assess the state of existing roadside ditches and identify priority locations for ditch management (e.g., re-vegetation, armoring)
- Education and outreach with homeowners on managing their stormwater within their property (disconnecting impervious surfaces, redirecting runoff, detention and retention, such as through rain barrels and rain gardens)
- Institutionalize operation and maintenance procedures for road ditches.

Altered Hydrology Goals – Watershed Wide

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

- Incorporate check dams in road ditches to help slow the flow
- Ensure barrier removal does not spread AIS.
- Where possible, track before/after restoration success with some monitoring (habitat, fish, etc.)
- Use road authorities 5–10-year plans to coordinate with crossing upgrades
- Develop Watershed-Level Resiliency Reports starting at where, green infrastructure would most effectively address water quality issues/flooding concerns.
- Offer road authorities funding to help cover cost to reconstruct culverts at high priority crossings in exchange for road authority providing design, permitting, bid and build. This has worked well for SLC and So SWCD.
- partner w/whomever else to establish project outcome rating protocols that can be used regionwide.

Restore stream reaches that have been altered by human activity, including impounded, straightened, and incised stream reaches on X Linear Feet of high priority streams and tributaries.

- Consider some priority altered streams for mitigation projects.
- Keep in mind Army Corps is implementing a stream mitigation credit banking program so there are private and public entities willing to take on qualified resto projects at own cost in hopes of creating sellable credits

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.

- Evaluate the beneficial use of beaver for watershed storage
- Inventory small hand dug ditches in priority areas to identify potential wetland banking opportunities or wetland restoration projects.
- Promote storage on ag lands - edge of field storage.
- Look into County Tax forfeit lands as potential restoration areas especially in areas of high development/impervious surfaces
- Ensure priority/headwater wetlands are considered for mitigation opportunities.
- Sea Grant funded some interesting beaver work and the benefits of beaver to hydrology
- Use wetland credits to restore wetlands
- Work with St. Louis County to understand impacts of ditch cleaning
- Inventory of ditches of St. Louis County
- Look at Carbon storage credits for ditch abandonment

Habitat Goals – Watershed Wide

Protect & manage X acres of private owned forests in areas that protect surface water, drinking/groundwater water quality and riparian habitat.

- Conduct 10 workshops for woodland landowners
- Develop and implement an outreach campaign to forest landowners
- Provide technical assistance to implement forest management plans.
- Protect peatlands (climate change resiliency)
- EAB? ID Black ash forestlands and plan for reforestation
- Look at 2c designations for longevity
- Assist when possible, Forest Health practices such as Spruce Budworm removal and early forest habitat
- ID places with good BMPs in place, and use as outreach examples (private landowners, maybe also Cloquet Forestry Center?)
- Plant native pollinator trees when possible.
- Plan for climate resilient plant species when promoting forest health
- Assist with the implementation of the firewise program to decrease fire hazard and runoff post fire

- Collaborate with foresters (county, state, SWCD etc) on a regular basis for better collaboration.
- Promote open lands (fallow ag fields) to forest cover for climate resilience and decrease runoff
- Promote the neighbor-to-neighbor program (DNR?)
- Organize prescribed fire or selected grazing on private land to reduce fire hazard
- **Develop programs to assist private forest owners with invasive species control (esp. buckthorn & honeysuckle)**
- Support actions to counteract forest impacts from invasive species and climate change
- Expand forestry programs to include management at small scales (e.g., properties under 20 acres).
- Develop public/private partnerships to promote forest stewardship.
- Work with Carbon Credit program to plant more trees

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

- **Support, develop, and continue efforts to prevent, control or extirpate invasive species and weeds**
- **Implement the St. Louis County Aquatic Invasive Species Prevention Aid program.**
- **Education and Outreach on Aquatic Invasive Species prevention**
- **Inventory public water access points for AIS signage, etc**
- **Terrestrial invasive species inventory, treatment, disposal in coordination with private landowners**
- **Utilize St. Louis County AIS Risk Assessment Tool from NRRI for management efforts.**
- **eDNA surveys for common AIS in several waterways**
- **Develop programs to assist private landowners with invasive species control (esp. buckthorn & honeysuckle)**
- **Develop program to certify soil, sand, and gravel sources as inspected for invasive species control, so landowners and public agencies can find and use (relatively) invasive-free soil, sand, and gravel**

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.

- **Implement tax incentive program to incentivize natural shorelines**
- **Enforce shoreland setbacks/buffers in all parts of the watershed**
- **Develop a BMP education and outreach campaign to shoreline landowners in targeted areas.**
- **Implement a visual preference study with landowners**
- **landowner education/outreach on riparian land protection/native plants**
- **Provide technical assistance to landowners to restore their shorelines**
- **Lake Steward Program**
- **Manage riparian areas for wood turtle populations using the DNR Conservation Plan**
- **Evaluate zoning controls and building setbacks**

Shoreline ordinances are updated, developed, and enforced for X % of municipalities with priority resource shoreline areas.

- Survey municipalities that are not covered under County zoning to determine the status of their shoreline ordinances
- Provide financial assistance to municipalities to develop and enforce shoreland ordinances
- Support communities to enforce shoreline ordinances.
- Education and outreach campaign to lakeshore owners on targeted lakes shoreline/buffers/BMPs
- Minnesota Power is preparing to sell off leased riparian land along the reservoirs. Targeted outreach should be directed to the new "landowners"

Miscellaneous Actions

- Please mention other important areas especially in Duluth Urban Area to help leverage other funds
- Promote Lake association formation
- Strong support for funding or seeking funding for a full time position for UM or agency or ???) to act as the lead for RSPT and DUWAC (and working in as a part of the 1W1P team
- Promote volunteer water monitoring
- Assist with sturgeon stocking and population tracking efforts; If necessary, investigate feasibility of implementing LKS spawning habitat improvement at specific locations, such as below Island Lake dam. Develop spawning habitat suitability indices for spawning Lake Sturgeon at specific sites identified by FdL Nat Resources
- Watershed based implementation plan coordinator
- Dedicated staff and equipment for monitoring the St. Louis River
- Support repeat of multiagency bioassessment of the SLR in 2025 (continue long-term WQ, habitat and biological condition monitoring
- Reestablish financial support for Duluth Urban Watershed Advisory Committee for assisting with impairment and other necessary community processes (MS4). We state that they will assist, but they no longer have funding.
- Use RIM program to protect indicator species habitat
- Have you considered having a conversation with regional formal and nonformal educators to create or aim to create local learning modules that are specific to St Louis River, Lake Superior wtrshd, and neighborhood streams (the framework for this already exists on the LSS/DS website) (Cindy Hagley and Nate Meyer at UMN-Ext are contacts)
- Promote actions that help connect neighborhoods to local parks via citizen science monitoring and links to local schools
- Develop a pilot "smart watershed" for continuous flow monitoring much like that developed at: <http://open-storm.org/>

- I think this Smart Watershed concept is a great idea- It might build on the Sentinel Watershed concept from ~ 10 years ago or so, Joe Magner at MPCA (now UM). Amity was good choice from up here.
- Possible support for website- Lake Superior Streams- does it fit in?
- Grants for low income people with car leaks
- Promote Cora Balls to remove microplastics from laundry/ education on microplastics in laundry and waste water
- Where restoration and protection is occurring, tie in protection for small tributaries that otherwise get no attention
- Fund a small team of specialists to inspect and treat invasive plants at gravel pits
- Also fund a team of invasive plant specialists to inspect and treat invasive plants at soil and sand sources used for landscaping and new septic systems
- Dedicated staff to coordinate plan implementation
- Develop program to certify soil, sand, and gravel sources as inspected for invasive species control, so landowners and public agencies can find and use (relatively) invasive-free soil, sand, and gravel
- Provide funding for firewise program and low income properties

South St. Louis Goals

Surface Water Quality Goals– South St. Louis

Identify and address ground and surface water quality problems stemming from inadequate wastewater treatment by supporting the enforcement of SSTS ordinances and inventory and upgrade X% of non-compliant systems in priority areas.

- Septic system records review of impaired waters
- Potential for sewerage SSTS within municipal boundaries

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

- Outreach to 4 Priority animal operations
- Review riparian corridor survey for livestock exclusion and implement 2 projects to increase livestock exclusion
- Develop plans for 4 priority farms
- Work with 2 producers to develop and implement rotational grazing plans
- Implement at least 4 feedlot practices that store manure in ways that prevent runoff

Manage chlorides reaching surface and ground water from road salts and water softener salts by ensuring X% of municipalities have Smart Salt Certified Staff, X% Communities achieved Level 2 Certified & education & outreach to X% of priority landowners.

- Identify high priority private landowners and target outreach
- Work with MPCA to provide Level 2 Certification to 2 municipalities

- Look at all technology for smart salt/application tools, equipment and programs

Drinking Water Protection Goals– South St. Louis

Protect groundwater quality by sealing X unused, unsealed wells watershed wide.

- Seal 25 unused wells
- Provide cost share to seal unused wells
- Assist with well sealing near City of Carlton where new municipal water line is being installed

Land Use Goals – South St. Louis

Promote the implementation of low impact development techniques to reduce stormwater runoff, volume and rate control in x% of communities

- Install 10 rain garden / catch basins in priority areas
- Implement the City of Carlton Stormwater Plan
- Review MS4 plans and look for green infrastructure opportunities
- offer local training for engineers and planners - what is LID and how has/can it be used in this watershed? what options are most cost effective?
- Target raingarden installation near trout urban trout streams
- Include implementation of retrofit runoff BMPs for existing roads

Altered Hydrology Goals – South St. Louis

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

- Cost share the replacement of 6 private driveway culverts over high priority trout streams and tributaries
- Complete fish friendly culvert designs for 14 high priority trout streams and tributaries
- Provide cost share to replace high priority township culverts for structures under 10 feet
- Work with county transportation staff to seek funding for 3 county owned high priority structures.

Restore stream reaches that have been altered by human activity, including impounded, straightened, and incised stream reaches on X Linear Feet of high priority streams and tributaries.

- Evaluate feasibility of the identified 13 targeted stream restoration sites in the Midway subwatershed
- Develop designs for 3 restorations in the Midway Subwatershed
- Implement 3 stream restoration projects in the Midway Subwatershed

- Restore 1000 feet of Slaughterhouse Creek adjacent to Hwy 45 in Carlton on County owned parcel
- Complete preliminary design for Slaughterhouse Creek Restoration

Habitat Goals – South St. Louis

Protect & manage X acres of private owned forests in areas that protect surface water, drinking/groundwater water quality and riparian habitat.

- Develop Forest Management Plans for 3282 acres in the Midway Subwatershed (~11 plans per year)
- Enroll 3282 acres of forest in SFIA, 2C or Easements in the Midway subwatershed
- Evaluate potential to protect groundwater recharge areas in the Midway subwatershed
- Develop Forest Management Plans for 3853 acres in the Thomson Subwatershed (~12 plans per year)
- Enroll 3853 acres of forest in SFIA, 2C or Easements in the Thomson subwatershed

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.

- Use South St. Louis & MPCA Midway Watershed study to target riparian restoration outreach
- Develop riparian restoration plans for 5 high priority sites
- Complete 5 Riparian Plantings in the Midway watershed
- Use Carlton SWCD Riparian Restoration Plan to restore Midway River Riparian areas

St. Louis North Goals

Surface Water Quality Goals – St. Louis North

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

- Develop plans for 9 priority farms
- Implement at least 9 feedlot practices that store manure in ways that prevent runoff
- Develop Comprehensive nutrient management plans
- Genetic study to identify source of E. coli

X% of municipalities with identified bacteria impairments are implementing plans to reduce bacteria in surface waters.

- Develop and implement a pet waste education program
- Outreach to 9 municipalities
- Implement x projects to reduce bacteria to surface waters
- Complete bacteria reduction plans for 5 municipalities

- Assist with planning for 2 municipalities in Swan River and 3 municipalities in Upper Sand River watershed

Manage chlorides reaching surface and ground water from road salts and water softener salts by ensuring X% of municipalities have Smart Salt Certified Staff, X% Communities achieved Level 2 Certified & outreach to X% of priority landowners.

- Outreach to 9 municipalities
- Work with MPCA to provide Level 2 Certification to 5 municipalities
- Identify high priority private landowners and target outreach

Drinking Water Goals – St. Louis North

Protect groundwater quality by sealing X unused, unsealed wells watershed wide.

- Seal 20 unused wells
- Provide cost share to seal unused wells
- Surface water source protection for municipalities (Virginia, Eveleth, Hoyt Lakes, Biwabik, Aurora & Chisholm)

Land Use Goals – St. Louis North

Promote the implementation of low impact development techniques to reduce stormwater runoff, volume and rate control in x% of communities

- Complete stormwater plans for 5 municipalities
- Education/Outreach to municipalities including GreenStep program
- Support for urban forestry and green infrastructure

Altered Hydrology Goals– St. Louis North

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

- Complete fish friendly culvert design for 2 culvers on Dempsey Creek
- Outreach to road authorities on Dempsey Creek
- Complete culvert inventory in Upper Sand watershed
- Complete feasibility study and preliminary design of dam removal on Ely Creek

Restore stream reaches that have been altered by human activity, including impounded, straightened, and incised stream reaches on X Linear Feet of high priority streams and tributaries.

- Inventory priority reaches to prioritize restoration sites
- Restore 2000 linear feet of stream
- re prioritizing, including, if possible, info on which restorations would also help reduce costs associated with major flooding

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.

- Coordinate x meetings with ditch authorities to discuss possible options for ditch decommissioning/stream restoration
- Assess 2ndary benefits of hydrology restoration such as carbon credits

Habitat Goals – St. Louis North

Protect & manage X acres of private owned forests in areas that protect surface water, drinking/groundwater water quality and riparian habitat.

- Develop forest management plans for 4126 acres of privately owned forest (~47 plans)
- Outreach to 47 priority landowners
- Enroll 4126 acres of privately owned forest in SFIA, 2C or easements
- incorporate surface water drinking water protections into prioritized easement/sfia acres

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.

- Outreach to targeted areas
- Design
- Implement 1500 linear feet of shoreland restoration
- Tour of Shorelines flotilla type workshop on Lakes in the Fayal area
- Surface water - source drinking water protection

Fond du Lac Goals

Surface Water Quality Goals – Fond du Lac

Identify and address ground and surface water quality problems stemming from inadequate wastewater treatment by supporting the enforcement of SSTs ordinances and inventory and upgrade X% of non-compliant systems in priority areas.

- Outreach to Big Lake residents - Septic system maintenance

Manage chlorides reaching surface and ground water from road salts and water softener salts by ensuring X% of municipalities have Smart Salt Certified Staff, X% Communities achieved Level 2 Certified & education & outreach to X% of priority landowners.

- Provide Smart Salt training to 4 FDL staff

Altered Hydrology Goals – Fond du Lac

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

- Remove barriers at Martin Branch (Stevens Road)
- Fund culvert design at Martin Branch (Stevens Road)

Restore stream reaches that have been altered by human activity, including impounded, straightened, and incised stream reaches on X Linear Feet of high priority streams and tributaries.

- Fund designs for stream restoration at Martin Branch (Stevens Road)
- Restore 1000 feet of stream channel @ Martin Branch (Stevens Road)
- Deploy drone to gather footage of beaver dam extent at Simian Creek downstream of Cedar Lake (Kari)

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.

- Restore 2 wetlands on the top of Fond du Lac's wetland restoration priority list
- Using the Stoney Brook hydrology model, restore two obsolete ditch laterals to original stream channel

Habitat Goals – Fond du Lac

Protect & manage X acres of private owned forests in areas that protect surface water, drinking/groundwater water quality and riparian habitat.

- Restore 11 acres of cedar swamp at Martin Branch (Stevens Road)
- Protect/Restore x% of high priority wild rice stands/populations (water levels, disturbance, shoreland development).
- Dredge 62 feet of ditch downstream of Deadfish Lake to reduce wild rice loss due to backwater
- Feasibility study of historic beaver dam removal and 3500 feet of channel restoration downstream of Cedar Lake at the lake outlet
- Use drone imagery to determine impacts to wild rice waters

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

- Conduct 5-acre black ash understory planting in wild rice headwaters

- Conduct 2 rounds of Chinese Mystery Snail removal at West Twin Lake
- Conduct 2 rounds of Chinese Mystery Snail removal at Simian Lake
- Conduct buckthorn and Honeysuckle removal on 5 acres near Simian Lake
- Conduct intensive Chinese Mystery Snail surveys on 2000 feet of Stoney Brook near Hwy 2
- Manage Chinese Mystery Snail on 2000 feet of Stoney Brook near Highway 2
- Complete 2 mailings to Lakeshore landowners about Chinese Mystery Snail @ Simian and West Twin Lake
- Manage 1000 feet of Simian Creek to remove Chinese Mystery Snail

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.

- Conduct 2 training events at Big Lake to teach landowners about natural shorelines

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

- Dredge 62 feet of ditch downstream of Deadfish Lake to reduce wild rice loss due to backwater
- Feasibility study of historic beaver dam removal and 3500 feet of channel restoration downstream of Cedar Lake at the lake outlet
- Use drone imagery to determine impacts to wild rice waters
- Restore X acres of wild rice at Cedar Lake after restoration activities completed to lower lake level

Cloquet Goals

Surface Water Quality Goals – Cloquet

Identify and address ground and surface water quality problems stemming from inadequate wastewater treatment by supporting the enforcement of SSTS ordinances and inventory and upgrade X% of non-compliant systems in priority areas.

- Meet with stakeholders to discuss adding Grand Lake residents to WLSSD
- Septic system study of Grand Lake
- Study to see feasibility of developing community systems for Grand Lake

Manage chlorides reaching surface and ground water from road salts and water softener salts by ensuring X% of municipalities have Smart Salt Certified Staff, X% Communities achieved Level 2 Certified & education & outreach to X% of priority landowners.

- Smart Salt training for township and county road authorities

Land Use Goals – Cloquet

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

Mitigate the water quality impacts of recreational use at X% of impacted water resources at high use and high priority areas.

- Collaborate with recreational land managers
- Inventory high priority recreational sites
- Collaborate with Superior National Forest Service to review dams and potential restoration projects
- Coordinate with state and federal land managers to address issues in this area
- Collaborate with recreational user groups to see what issues/concerns they have and areas of erosion, etc
- Inventory Terrestrial invasive plant populations
- Lakeshore/riparian landowner workshops
- Inventory Boat landings and water access points for AIS signage, erosion, etc
- Work with land managers to collaborate on plans to accommodate AND regulate user groups
- Sponsor a land stewardship day with local recreational users
- Identify forest roads or minimum maintenance roads that might be decommissioned.
- Showcase this topics in the Duluth News tribune - ask a Conservation officer column
- Show photos of good water crossings and damaged water crossing for OHVs
- Map roads/trails against sensitive and biological diversity areas

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

- aggregate mining impact evaluation is to provide a tool for local residents and governments to assess the impact of proposed gravel pits
- Expand local capacity to support education and enforcement of gravel mining ordinances.
- Study to evaluate gravel mining potential in areas near 2 impaired trout streams and Uskabwanka River
- Evaluate the need for a clear set of BMPs, with setbacks etc., for gravel pits near coldwater trout streams.
- **Invasive species management at active and inactive gravel mine sites**
- Install groundwater temp loggers near a gravel mine to try to track impacts to groundwater
- Include groundwater well water levels to coincide with studies.
- Evaluate sand and gravel mining resources, including existing operations, to determine if additional protections (setbacks, ordinances, operational controls/restrictions) are needed to
- protect baseflow conditions for nearby streams

Altered Hydrology Goals – Cloquet

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

- Fund designs of 3 high priority culverts
- Lower Cloquet - replace 2 of 3 priority crossings. 2 on Beartrap 1 on Hellwig will result in 35 miles open
- Assess dams on Murphy Lake, Wilson Lake, and Little Stone Lake to determine if they are altering natural hydrology and impeding fish and aquatic organism movement and affecting stream temperature.
- Assess culvert inventory data and road crossings

Restore stream reaches that have been altered by human activity, including impounded, straightened, and incised stream reaches on X Linear Feet of high priority streams and tributaries.

- Feasibility study of avulsion site on Cloquet River
- Complete restoration studies on 2 reaches (Chalberg & Hellwig)
- Restore 2 stream reaches (3000 linear feet)

Habitat Goals – Cloquet

Protect & manage X acres of private owned forests in areas that protect surface water, drinking/groundwater water quality and riparian habitat.

- Enroll 4250 acres of forest into SFIA, 2C or Easement in the Lower Cloquet Watershed
- Protect forests with SFIA, easements or acquisitions where they are protecting groundwater recharge areas for trout streams and are at risk for gravel pit development

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.

- Work with 3 livestock producers to exclude livestock from Beartrap Creek
- Restore 1000 feet of shoreline in Beartrap Creek impacted by livestock
- Outreach to 3 livestock producers in Beartrap Creek

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

- Collaborate with forest service to protect wild rice
- Work with private landowners to protect shoreline areas

Duluth Urban Area Goals

Surface Water Quality Goals – Duluth Urban Area

X% of municipalities with identified bacteria impairments are implementing plans to reduce bacteria in surface waters.

- Replace/upgrade 14 of the identified 21 sewer lines in Keene Creek subwatershed
- Address sanitary sewer stream crossings within the City of Hermantown and City of Duluth.
- Coordinated public education on dog waste reduction via RSPT
- Work together with City of Duluth to design and build GI projects they are currently identifying. These projects are intended to address the E.coli impairment.
- Coordinated implementation of bacteria reduction strategies among communities (DUWAC role?)
- Follow recommendations outlined in WRAPS to address Duluth Beaches TMDLs
- encourage the MS4 members to uphold their permit requirements
- **Develop a 319 plan for Keene**
- Update SSTS in upper watersheds in Duluth area
- **Look at wildlife, dog parks/walkers and human sources with stream area. Human sources not from Sanitary sewer systems.**
- Focused projects in correlation to the Burns and McDonnell Source Assessment study
- Help municipalities secure resources to increase their street sweeping programs
- encourage education opportunities by utilizing the DUWAC group

Manage chlorides reaching surface and ground water from road salts and water softener salts by ensuring X% of municipalities have Smart Salt Certified Staff, X% Communities achieved Level 2 Certified & education & outreach to X% of priority landowners.

- Targeted outreach to property owners with three acres or more of impervious surface
- Review Chloride TMDL for Keene Creek for potential implementation projects
- Provide cost share for staff smart salt training
- Promote purchase of salt reducing equipment, like brine application
- Evaluate County's salt training with Smart Salt training and identify gaps.
- **Assist road maintenance authorities in the production of comprehensive Chloride Reduction Plans**
- salt application training to commercial landowner employees
- utilize the DUWAC group as a place to share knowledge and promote education opportunities
- ..and evaluate Duluth/Hermantown salt training with smart salt training...

Land Use Goals – Duluth Urban Areas

Promote the implementation of low impact development techniques to reduce stormwater runoff, volume and rate control in x% of communities

- Review ordinances and remove barriers to low impact development.
- Develop stormwater management plans for high priority areas
- Continue to participate in both the DUWAC and RSPT
- Cost share vacuum street sweeper equipment
- Develop and implement an educational and outreach campaign for the effects of stormwater on Keene Creek that includes TV and radio commercials and post signage in public spaces. Share the results of the TMDL and new impairments.
- Utilize the DUWAC (Duluth urban watershed advisory committee) and RSPT (Regional Stormwater Protection Team) to coordinate the actions of MS4 agencies in the Keene Creek watershed.
- Develop a Stormwater Management Plan for Keene Creek Watershed. Keene Creek may have a different stormwater watershed than surface water watershed. This needs to be considered.
- Incorporate stormwater implementation into planned road construction projects
- Monitor effectiveness of BMP implementation
- Promote and educate public on project success, such as the restoration of the coastal wetland
- ...remove barriers AND add incentives to LID...
- note that RSPT plans to focus public education on green infrastructure promotion starting in 2022
- Continuing support for DUWAC will require identification/ reinvigoration of funding into the future. Especially if we would like them to assist with MS4 related activities.
- City of Duluth has a first draft of a planning report for stormwater management and green infrastructure in lower Keene Creek. That needs to be integrated with stream restoration, connectivity and trail redevelopment objectives.
- Integrate with USEPA VELMA modeling for Keene Creek.
- Code Audit of land use and zoning rules.
- Help build capacity for Green Inf. projects to be implemented, especially when eligible for outside grant funding

Altered Hydrology Goals – Duluth Urban Area

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

- Outreach to local groups for Dog Park Pond project
- Complete designs for 2 priority connectivity projects in Keene Creek
- Construct two connectivity projects in Keene Creek

- Design and implement 4 high priority fish friendly crossings in the Sucker Watershed
- Construct 4 fish friendly culverts in the Sucker River subwatershed
- Consult WRAPS document for six Duluth area streams to identify specific objectives
- Priority crossings in Keene: 1) Okerstrom Road in the park, 2) South central Ave, 3) dog park's lowhead dam
- Priority Crossings in Sucker (2 mainstem and 2 tributary crossings) - crossings are prioritized now.
- **Broaden connection between Perch Lake and St. Louis R, support restoration efforts**

Restore stream reaches that have been altered by human activity, including impounded, straightened, and incised stream reaches on X Linear Feet of high priority streams and tributaries.

- Complete designs for 4 priority stream restoration projects in Keene Creek
- Construct 4 stream restoration projects in Keene Creek
- **Complete feasibility studies on 4 prioritized stream projects in Sucker River**
- Coordinate with the City of Duluth to lower/address the concrete utility encasement below Grand Avenue
- Complete designs for 3 prioritized projects in Sucker River
- Construct 3 stream projects in Sucker River
- Coordinate with MN Power/Allete to develop a long-term plan to protect the stream and riparian area on their property in Keene Creek
- Coordinate with CN to remove the failing railroad crossing below Grand Avenue
- Work with the city of Duluth to address the utility crossing causing laminar flow and a barrier below Grand Avenue.
- Coordinate with MNDOT to remove the low-head dam within the City of Duluth Park in conjunction with stream restoration work in that area.
- Integrate stream restoration projects with City of Duluth stormwater projects and trail projects.
- Re-meander channelized portion of Keene Creek, which is related to the stream restoration projects already identified.

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.

- Modeling study to determine the amount of storage needed to protect resources in Keene Creek
- Protect non-developed land for watershed storage.
- Integrate with USEPA VELMA modeling project in Keene Creek for development of information to inform sediment transport and water storage.
- ...and identify opportunities to meet this storage needs through variety of practices
- Coordinate the Keene Creek Implementation table with the city
- Keene Creek - 2,500 square feet based on connecting the stream to the floodplain in the priority reaches (4 of them)
- Sucker River = 11 acres based on connecting the stream channel to the floodplain in the priority reaches

- Add structural detention facilities for storm outfalls or mid storm system.
- Look at policies around wetland replacement; work with ___ ?? DNR/ACE?? to ID opportunities to require wetland replacement within SAME watershed
- Secure tax-forfeited lands along the corridor for preservation and future projects

Habitat Goals – Duluth Urban Area

Protect & manage X acres of private owned forests in areas that protect surface water, drinking/groundwater water quality and riparian habitat.

- Develop woodland stewardship plans for 10 parcels
- Protect 2050 acres of private forests with SFIA, 2C or Easements
- This number is for Sucker River and is based on parcels with an RAQ of 10
- Assistance needed for <= 20 acre landowners - traditional programs do not work well for them
- Huge acreages in Sucker R wshed will be deforested by EAB and spruce budworm. Need reforestation. Landowners can't afford on their own. Collaborate with USDA?

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

- Restore 5-10 acres of wild rice at the mouth of Keene Creek
- Develop programs to control Canada geese populations - they eat sprouted wild rice and prevent flowering/fruitleting of rice plants

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

- Work with 10 landowners on invasive species management in forests
- Work together with CISMA and CAD to identify priority locations to implement invasive species control projects.
- Sucker River - 70% or 10 of the 15 parcels with RAQ scores of 10 in the forestry goal

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

- Complete 4 shoreline stabilization projects in conjunction with stream restoration projects.in Keene Creek
- Complete 3 stream stabilization projects in conjunction with stream restorations in Sucker River