memo

Project Name |	Cannon River One Watershed, One Plan	**Date** |	03/20/2018
To / Contact info |	Planning Work Group		
Cc / Contact info |	BWSR Advisory Staff		
From / Contact info |	Camilla Correll, PE and Meghan Funke PhD		
Regarding |	Advisory Work Group March 2018 Water Conversations Summary		

Introduction

In March of 2018, the planning partners and consultant hosted two "Water Conversations" to gather input from stakeholders. This was the final set of Water Conversations in a series of three that have taken place as part of the Cannon River 1W1P development process. The goals of this third set of Water Conversations included:

- To share the progress made on the development of issues, goals and implementation activities with the Advisory Group.
- To demonstrate how information collected at previous Water Conversations made its way into the planning process.
- To get feedback on issue statements, measurable goals and ideas for implementation activities that would work to address the issues in their communities.
- To connect stakeholders with one another, and work together to become better stewards of the watershed.

The meetings began with an Open-House where anyone from the Planning Area could come to learn about One Watershed, One Plans, the plan development process, what has been accomplished to date, and how to participate in the planning process. Following the Open-House, staff gave a brief introduction and EOR gave a presentation on accomplishments to date, what was covered at the previous Water Conversations, how issues, goals and implementation activities have been developed and instructions for the small group discussions.

Following the presentation, meeting participants were asked to congregate around one of the three issue categories: Resource Concerns, Landscape Alterations and Socioeconomic Factors. For the remainder of the meeting, these smaller groups reviewed worksheets for each issue within that category that identified how concerns expressed during the planning process became an issue statement, goals and potential implementation activities. Comments and ideas expressed during the small group discussions were recorded on the worksheets and later transcribed into an electronic version of the worksheet using track changes. The two sets of worksheets, with comments from the Water Conversations, are attached to this memorandum.

Meeting Participants

The March 6th meeting in Northfield included 22 participants, and 5 staff from the Planning Work Group and Consultant Team. The 22 participants represented an assortment of local and state government entities (BWSR, SWCDs, Counties, and Lake Associations), environmental advocacy groups (Trust for Public Land), non-profits (Cannon River Watershed Partnership) and producers and citizens. At least five different communities (cities or townships) were represented by staff and

citizens including Castle Rock, Faribault, Northfield, Bridgewater Township, and Greenvale Township.

The March 15th meeting in Owatonna included 16 participants, and 7 staff from the Planning Work Group and Consultant Team. The 16 participants represented an assortment of local and state government entities (MPCA, MDH, SWCDs, and Counties), farmer/rural producer organizations (Corn Growers Association, Farm Bureau) and producers and citizens. At least four different communities (cities or townships) were represented by staff and citizens including Madison Lake, Owatonna, Waterville, and Waseca.

RESOURCE CONCERN: LAKES, STREAMS AND RIVERS

A. Protection Lakes

Concerns Expressed during Planning Process

Lakes with high recreational value. Lakes vulnerable to nutrient addition. Protection of high quality waters. Nonpoint pollution. High intensity use of lakes. Preserve the quality of resources. Good quality lakes with native vegetation and high recreational value. High fish quality.

Issue Statement

There are five high quality lakes in need of protection: Beaver, Dudley, Fish, Kelly, and Roemhildts. These lakes are all groundwater dependent (except Roemhildts) with a very small surface contributing drainage area, which has kept phosphorus loading to these lakes low and preserved their high water quality. While these lakes currently support recreation, they could become degraded in the future if phosphorus loads increase or there are changes to the groundwater contribution to these lakes.

Measurable Goals

GOAL 1

Maintain or improve water quality in the 5 high quality lakes by achieving all of the phosphorus reduction goals (lb/yr) identified in the 2016 Cannon River WRAPS.

GOAL 2

Maintain the quality and quantity of groundwater and protect springs to groundwater-dependent protection lakes (see goal under Groundwater Dependent Natural Resources –

Comment [MF1]: Connect Goal 2 to GW modeling and testing goals.
How do we measure progress towards achieving Goal 2 if we don't know the quantity or quality of GW?

Implementation Activities

1. Complete lake management plans to identify phosphorus sources ($5,000 per lake)
2. Implement a 50-foot buffer on 10% of the lake shoreline ($2,358) – permanent easements to prevent development
3. Convert 10% of vulnerable cropland to perennial vegetation via easements ($58,254) – focus on hunting/recreation habitat areas
4. Promote soil health through cover crops, tillage on 20% of cultivated cropland ($2,044) – someone suggested that a good example of how to describe soil health/organic matter is soils with and without earthworms. A crop rotation using turnips has really helped soil health – Rice County has the contact. They are a big producer in Northfield who uses terracing.
5. Promote shoreline septic improvements and maintenance (0.25 staff hours per year) – report # of homes per lake
6. Record lake levels
7. Include in LMP: preventing AIS in protection lakes. Include coordination with DNR as activity
8. Look at existing developed shoreline. Create ordinance for regulating shoreline development (high natural lakes), setback requirements, consider easemants that allow development.

RESOURCE CONCERN: LAKES, STREAMS AND RIVERS

B. Impaired Lakes

Concerns Expressed during Planning Process

Lakes with high recreational value. Lakes vulnerable to nutrient addition. Proximity to water quality standards. Eutrophication (algae blooms). Nonpoint pollution. High intensity use of lakes. Impaired waters.

Issue Statement

In 2016, there were 36 lakes that did not support aquatic recreation use due to elevated nutrients that cause unsightly algae blooms and can make swimming undesirable or unsafe. Some lakes are impaired because they receive excess phosphorus from watershed runoff, while other lakes are impaired due to legacy phosphorus (i.e. internal loading). Dissolved oxygen dynamics, fish communities and aquatic plants can all be a part of internal nutrient cycling.

Measurable Goals

GOAL 1

Achieve phosphorous load reduction goals identified for Cedar, Fox and Hunt based in the lake management plans.

Implementation Activities

1. Complete lake management plans to identify phosphorus sources. Cedar, Fox and Hunt lakes are all part of a Science Museum of Minnesota project designed to improve the accuracy and predictive power of lake phosphorus budgets in the upper Cannon watershed. Project field work will directly measure whole-lake sediment P-burial and combine this flux with modeled estimates of watershed P loading and P losses in lake outflow from the lake TMDLs. Together these results will allow for estimates of the degree to which external P inputs exceed losses (outflow + burial). The difference (inputs – losses) will then provide a direct estimate of load reductions needed to begin the recovery process and will help confirm modeled load reductions derived from the TMDL study. ($0) – will this study look at lake level fluctuations and unstable shorelines?
2. Implement a 50-foot buffer on 10% of the lake shoreline ($4,773)
3. Convert 10% of vulnerable cropland to perennial vegetation via easements ($405,286)
4. Promote soil health through cover crops, tillage on 20% of cultivated cropland ($27,869)
5. Promote shoreline septic improvements and maintenance (0.25 staff hours per year) – heat flyover for septics
6. Do they record lake levels?
7. Education on the science of lake WQ
8. Coordination with DNR on determining OHW
9. What are normal lake levels for this area?

RESOURCE CONCERN: LAKES, STREAMS AND RIVERS

C. Pollutant Impaired Streams

Concerns Expressed during Planning Process

Impaired waters. Impacts to cold water fisheries. Stream stressors. Bank erosion. Outstanding recreational value. Proximity to water quality standards. Low flow phosphorus issues. Sediment and nitrate.

Issue Statement

There are 45 impaired streams in the Cannon River Planning Area. Excessive bacteria that may make activities in or on the water unsafe were found in rivers and streams across the watershed, including the Straight River, Cannon River, and many smaller streams for a total of 41 impairments. Bacteria issues are widespread not only in the CRW, but much of the Lower Mississippi River Basin. Fish and macroinvertebrate communities across the watershed are showing a loss of sensitive species due to habitat loss and excess sediment and nitrate. All of the designated trout waters in the Lower Cannon Watershed lobe meet the criteria for the southeast Minnesota coldwater Fish Index of Biotic Integrity, however these streams are also impaired for nitrates, TSS, and/or Macroinvertebrate Index of Biotic Integrity. Changes in land use have the potential to adversely impact cold water fisheries (trout streams) due to increasing nitrate concentrations in groundwater, excess pollutant loads and increased water temperatures from stormwater runoff, and bank destabilization. For example, Rice Creek condition monitoring shows signs of stress from unstable banks and high nitrates, which may be contributing to degraded macroinvertebrate communities.

Measurable Goals

GOAL 1

10% reduction in the number of TSS samples exceeding the water quality standard (10 mg/L for coldwater, 65 mg/L for warmwater streams) during rainfall events and no nitrate samples exceeding the water quality standard (10 mg/L) in the Tier One impaired streams.

Implementation Activities

1. One streambank stabilization project completed every two years on Tier One impaired streams with known problems. ($500,000). – Trout Brook project has recently been completed. Discussed funding options to offset high capital costs for these projects: Trout Unlimited, Dakota County Habitat Coalition, TPL?, TNC, FMR?, Great River Greening, expert volunteer time, leverage local University, St. Olaf, Carleton, U of M students/faculty, local connections with local big businesses (Post/Malt-o-Meal; Hormal in Cedar River is an example).
2. X number of feedlot management plans/year in Belle, Little Cannon, Prairie and Rush drainage areas (0.25 FTE)
3. X number of septic system upgrades/year in Belle, Little Cannon, Prairie and Rush drainage areas (0.25 FTE)
4. Convert 10% of vulnerable cropland to perennial vegetation via easements in Tier One stream drainage areas ($2,925,630) – See Agriculture Runoff Implementation Activities
5. Promote soil health through cover crops, tillage on 20% of cultivated cropland in Tier One stream drainage areas ($441,441) – See Agriculture Runoff Implementation Activities
6. Check on status of assessment of stream corridor. Coordinate with DNR. Identify areas of future problems.

~~5.~~7. Promote tree cover for riparian shading – look into U of M studies

RESOURCE CONCERN: WETLANDS

A. Wetland Restoration

Concerns Expressed during Planning Process

Wetland restoration needed.

Issue Statement

The stormwater storage function is the highest valued wetland service because wetlands provide mitigation for property-damaging floods caused by high volumes of stormwater runoff exacerbated by land use alterations and extreme precipitation events.

Group discussed issue of wetland mitigation bank outside of watershed

Measurable Goals

GOAL 1

Net gain of X% or X ac-ft of wetlands restored in the priority areas.

Trees store water too, not just wetlands.

Implementation Activities

1. Develop inventory of wetlands and identify areas storage-focused restoration projects.
2. Promote and market 20 acres of wetland preservation and restoration programs such as CRP, WRP, RIM by holding 1 annual public meeting and by including discussion in the annual Farmer's Forum agenda.
3. Identify areas with low crop yields – that lose money anyway (use Iowa tools)
4. Outdoor Heritage Funds – DU, NGO conservation
5. Education that this is available and has benefits
6. Lease wetlands for hunting opportunities

~~2.~~7.

RESOURCE CONCERN: WETLANDS

B. Wetland Protection and Enhancement

Concerns Expressed during Planning Process

Protect high quality resources.

Issue Statement

Existing wetlands deserve protection because they provide a host of services (functions) that are highly valued by society. Added benefit of enhanced spawning areas.

Measurable Goals

GOAL 1

Protect the current acreage of existing wetlands in the watershed and enhance the capacity for these wetlands to provide a full suite of services focusing on services that are most highly valued.

Implementation Activities

1. Conduct a watershed-based functional assessment to determine current level of services wetlands provided.
2. Adopt standards that protect wetlands from stressors that negatively affect highly valued services.
3. Implement wetland restoration and enhancement projects that provide functional lift.
4. Outdoor Heritage Funds (DU NGO conservation)
5. Lease for hunting opportunities

~~3.~~6. Complete an economic analysis: what will it cost? If you protect 100 acres of wetland how much does that protect their own cropland and local flooding issues. Cost of wetland restoration versus benefit of less flood losses.

RESOURCE CONCERN: GROUNDWATER

A. Drinking Water Protection

Concerns Expressed during Planning Process

Increased groundwater appropriations. Drinking water. Cleaner water for personal use. Pollution and excess nutrient flow into rivers and aquifers.

Issue Statement

Groundwater is the source of all drinking water in the Cannon 1W1P area. Public water suppliers provide 70% of the population's drinking water from over 200 different wells. 87 of these wells are located in highly vulnerable settings. Of these public water suppliers, 20 are larger municipal communities serving a large portion of the population. These systems are tested for over 100 contaminants, are responsible to provide treatment, and must implement an approved WHPP.

30% of the residents rely on a private well for the water they drink. However, because no public entity is responsible for water testing or management of a private well after drilling is completed, these well owners have the sole responsibility for the health and safety of their drinking water.

Contaminants of concern for all drinking water can be human sourced or naturally occurring. Of greatest concern is nitrate, which affects large regions. Other contaminants of concern include pathogens, arsenic, radium, and synthetic/organic chemicals in isolated areas. Aquifer vulnerability determines the level of management required to protect a drinking water supply and provides an opportunity to target implementation practices in accordance with the level of risk different land uses pose.

Measurable Goals

GOAL 1

In partnership with public water suppliers, provide annual education/outreach opportunities to all communities with MDH approved WHPPs, and BMP technical assistance for all moderate and high vulnerable public water suppliers.

GOAL 2

In areas of moderate or high pollution sensitivity, provide all private well owners access to well testing programs and education about water quality specific to drinking water.

Implementation Activities

1. Promote well sealing programs within WHP areas
2. Seek funding or utilize state cost-share funds to seal three unused wells within WHP areas in one town each year.
3. Education and Outreach: hosting well testing or screening clinics, providing water testing kits, promoting household hazardous waste collection, providing best practices information to private well owners.
4. BMPs should be implemented in groundwater recharge areas, specifically the surficial sands and gravels and outwash areas where the chance of groundwater contamination is highest.
5. SSTS: Township versus County enforcement: how to enforce? Local capacity as limiting resource.

RESOURCE CONCERN: GROUNDWATER

B. Groundwater Dependent Natural Resources – Protection Lakes

Concerns Expressed during Planning Process

Groundwater appropriations. Need to protect groundwater quality.

Issue Statement

Land-altering activities have the potential to impact groundwater resources as well as groundwater dependent natural resources. Without proper land-use and water resource management, the following impacts may occur: reduced groundwater recharge, reduced groundwater quality, and alterations to the functions and values of groundwater dependent natural resources. This is of particular concern to the protection lakes, many of which have been identified as being groundwater dependent.

Measurable Goals

GOAL 1

Maintain the quality and quantity of groundwater to groundwater-dependent protection lakes.

Implementation Activities

1. Maintain and restore perennial cover and wetlands to encourage recharge and reduce pollutant loads to groundwater dependent natural resources.
2. Better understand surface water – groundwater connections: continue to monitor MNDNR Observation Wells and MPCA Wells – takes time, complications, etc., should be a lower goal.
3. Identify Groundwatershed to the protection lakes.

LANDSCAPE ALTERATION CONCERN: AGRICULTURE

Identify how much of the Planning Area is agricultural in the broader description of the issue.

A. Agricultural Runoff

Concerns Expressed during Planning Process

Agricultural runoff. Feedlot runoff. Overgrazing. Tile drainage. Livestock & waste. Buffers on agricultural land. Nitrogen management. Irrigation. Sediment control. Crop production practices. Fertilizer, chemical use, and nutrient management from livestock. Cropping practices.

Issue Statement

Improper application of manure and fertilizer (rate, location, source and timing) are polluting surface water and groundwater in the Cannon River 1W1P Planning Area. The Cannon River HSPF model predicted that nutrient loss from cultivated lands accounts for 87% of the total nitrogen load and 89% of the total phosphorus load to surface water resources, highlighting the need for agricultural conservation and best management practices to reduce phosphorus and nitrogen pollution. Moreover, the Nitrogen Study and Nutrient Reduction Strategy state that cropland nitrogen losses through agricultural tile drainage and agricultural groundwater (leaching loss from cropland to local groundwater) make up the majority of nitrogen sources in Minnesota (what percentage is from Minnesota). What is the date of these references? Include this information in the issue statement. Mention that other state initiatives have started recently and articulate how these will impact the goals of the 1W1P.

Measurable Goals

GOAL 1

Achieve Nutrient Reduction Strategy goals of 12 percent reduction in phosphorus and 20 percent reduction in nitrogen pollution from cropland in the HSPF top 25% TP and TN yield subwatersheds in the next 10 years (by 2029).

GOAL 2

Create a stable funding source to increase local capacity and implement agricultural BMPs.

Implementation Activities

1. Establishment of and compliance with Nutrient Management Plans on 10% of cropland in Tier One stream drainage areas (0.5 FTE).
2. Establishment of and compliance with Manure Management Plans on 10% of cropland in in Tier One stream drainage areas (0.5 FTE)
3. Convert 10% of vulnerable cropland to perennial vegetation via easements in Tier One stream drainage areas ($2,925,630) – See Pollutant Impaired Stream Implementation Activities
4. Promote soil health through cover crops, tillage on 20% of cultivated cropland in Tier One stream drainage areas ($441,441) – See Pollutant Impaired Stream Implementation Activities.
5. Increase funding for incentive programs.
6. Monitor BMPs to demonstrate economic benefits (to farmers) of implementing conservation practices.
7. Regulate agricultural practices in highly erodible soils. These are good locations for perennial vegetation which can be implemented via working land easements, incentive programs (CRP), regulations. Can this be achieved through existing regulations (e.g. county soil loss regulations)?

LANDSCAPE ALTERATION CONCERN: AGRICULTURE

B. Soil Health

Concerns Expressed during Planning Process

Poor soil health. Practices contributing to soil loss.

Issue Statement

Soil health can be degraded due to poor agricultural practices which limits the role it plays in clean water and groundwater recharge. Soil health is typically measured by the amount of organic matter in the soil. Soil organic matter is necessary for storing water, increasing water infiltration, preventing compaction, and breaking down pesticides, heavy metals (note that heavy metals will not be broken down; rather they are being tied up or bound to the soils), and other pollutants (USDA 2016). Increased soil organic matter will improve the quality of surface water and groundwater, in addition to sustaining long-term crop yields from the land. Mention in that this is a new or emerging field.

Measurable Goals

GOAL 1

Improve soil health by increasing organic matter by 1% in 20% of cultivated cropland (how many acres does this equate to?) in Tier One stream drainage areas. Identify the baseline. Consider all lakes, streams and rivers in the Tier 1 category.

Implementation Activities

1. Promote soil health through cover crops and/or reduced tillage on 20% of cultivated cropland in Tier One stream drainage areas ($441,441) – See Pollutant Impaired Streams Implementation Activities
2. Provide education and outreach on soil health to producers since this is an emerging science and new information is being published all the time.
3. Articulate the economic benefits to the farmers t and to the public to the extent that we can.
4. Adding livestock in a sustainable way to promote increase in organic matter (grazing management, types of livestock, rotational grazing).
5. Promote more sustainable agricultural practices (going back to doing things the way our grandparents did things).
6. Pay farmers to plant over crops (some counties in Minnesota are already doing this)

MEASURABILITY

- Proxy for soil health should be organic matter. Measure the organic matter of soil to establish baseline and to ensure a minimum 1% increase. Nutrient management plans include testing soil organic matter.

LANDSCAPE ALTERATION CONCERN: DEVELOPMENT

A. Flooding of Communities

Concerns Expressed during Planning Process

Building and maintaining infrastructure. Development in the floodplain is an issue. Flooding of infrastructure. Need for upland storage. Control the flow of rivers and streams to ease disasters from flooding. Bottlenecks in system contribute to flooding.

Issue Statement

The hydrology of the watershed has been altered due to actions such as straightening stream channels, ditching, tiling, draining wetlands or depressional areas, and adding impervious surfaces. These land use changes have a number of impacts including a net increase in flows moving through the watershed and more extensive flooding events. These land use alterations, as well as changes in precipitation patterns and more extreme events, are increasing the frequency and magnitude of flooding experienced by communities in the Cannon River Planning Area.

Measurable Goals

GOAL 1

Decrease the rate and volume of water that contributes to flooding of downstream communities to limit property damage and protect public safety. This goal needs work.

Implementation Activities

1. Conduct a Long-Term Flood Solution Study (LTFSS) to provide planning partners with the tools needed to mitigate the effects of flooding in the Cannon River Planning Area and make the communities more resilient. This is a priority. Do this sooner rather than later understanding that this effort will take time but will provide critical information.
2. Install and implement additional flood reduction practices within the Watershed. Recommendations of the preceding implementation activity.-
3. Adopt stormwater management requirements that address rate, volume, water quality, and wetland bounce and duration.
4. Future maintenance that includes storage for the ditch systems to reduce flooding and managing tile system for storage.
5. Consider implementation activity for dam management. Resident between King Mill and Woolen Mill expressed concern over who is responsible for operating and maintaining the dams as well as who is responsible for notifying adjacent landowners of potential flooding conditions (staff gauges installed but no reporting of flooding conditions made available to the public.
6. Make monitoring data more accessible to the public. Where do people go to find stream flow and lake level information?
7. Soil health and storage of water in the soil profile helps with flooding. Make the connections transparent.

LANDSCAPE ALTERATION CONCERN: DEVELOPMENT

B. Shoreland Management

Concerns Expressed during Planning Process

People mowing to the shoreline. Need for shoreland protection requirements. Shoreland restoration is needed.

Issue Statement

Shorelands typically contain important habitat and erodible soils. As a result, many of these areas are highly sensitive to development. Conversion of seasonal to year-round dwellings, developments and resorts has the potential to adversely impact shoreland and the adjacent waterbody. What is the priority area? DNR waterways addressed through the buffer law.

Measurable Goals

GOAL 1

Achieve no net loss of existing natural shoreline. What does "natural shoreline" mean – has this been defined? How does the buffer law affect this goal?

GOAL 2

Achieve a natural shoreline gain through shoreline restorations compared to 2018.

Implementation Activities

1. Conduct inventory of existing natural shoreline quantity and quality.
2. Conduct buffer evaluation. Review shoreland areas to determine whether storm water runoff is discharging through a buffer system or artificial wetland.
3. Review local shoreland ordinance looking for ways to improve the protection of shoreland and revise County ordinances if necessary.
4. Educate homeowners on how to better manage lake property.
5. Education and outreach for local government officials (e.g. Board of Adjusters) to reduce the number of variances granted to shoreland ordinance.

(1-5 are an evaluation of existing resources)

6. Identify the # of restoration projects or increase the linear feet of natural shoreline restoration by X amount.
7. Identify where active development pressure is in order to target where implementation should occur (priority areas).
8. Priority habitat.
9. Management of terrestrial invasive species and carp (AIS)

LANDSCAPE ALTERATION CONCERN: DEVELOPMENT

C. Ordinance Development

Concerns Expressed during Planning Process

Land use decisions, planning processes, sprawl and excessive development. Increased amount of impervious surfaces. Need to integrate various practices in land use development (e.g. raingardens, septic system compliance, ESC, green/sustainable lawns, etc.). Need for peak flow reduction on agricultural and urban lands. Runoff from cities flows directly into lakes.

Issue Statement

Polluted stormwater runoff is often transported to municipal separate storm sewer systems (MS4) and ultimately discharged to local rivers, streams and lakes without treatment. EPA's Stormwater Phase II Rule establishes an MS4 stormwater management program that is intended to improve the Nation's waterways by reducing the quantity of pollutants that stormwater picks up and carries into storm sewer systems during storm events. Lack of stormwater management, regulations, and construction inspections in non-MS4 communities is having an adverse impact on surface water resources in the Planning Area. Of the 21 cities in the Cannon River Planning Area, only a handful are MS4 communities (Faribault, Northfield, Owatonna, and Waseca). The remaining 16 cities and 63 townships need to adopt stormwater management requirements to protect the surface water and groundwater resources in the Cannon River Planning Area. These smaller communities lack the staffing, funds or the resources to develop or implement ordinances and a permitting program. Increasing precipitation exacerbates the issue. Can we add HSPF pollutant loads from developed areas to this issue statement (as was provided for agricultural runoff) – would help to put the issue into perspective.

Measurable Goals

GOAL 1

Utilize the MIDS Community Assistance Package to develop ordinances that include the Minimal Impact Design Standards (MIDS) performance goals for all of the communities in the Planning Area by 2021.

GOAL 2

Work closely with local staff of non-MS4 communities to develop a program for administration, plan review, inspections and enforcement.

Implementation Activities

1. Review each community's current ordinance package looking for opportunities to improve and update to meet current standards and protect water quality and natural resources.
2. Develop a draft ordinance for each community to address stormwater management and erosion and sediment control.
3. Provide a series of workshops with elected and appointed officials and city staff to introduce the concepts and importance of stormwater management for new development and redevelopment.
4. Working closely with local staff to develop a program for administration, plan review, inspections and enforcement or explore the option of creating a Joint Powers Agreement between the SWCD's, WMO, WD and communities to perform these services on behalf of the non-MS4 communities.
5. Evaluate the need to have different design standards for stormwater management requirements/ordinances to address more extreme events.

LANDSCAPE ALTERATION CONCERN: DEVELOPMENT

D. Subsurface Sewage Treatment Systems (SSTS)

Group ran out of time and did not cover this issue.

Concerns Expressed during Planning Process

Septic system compliance.

Issue Statement

Non-compliant or failing septic systems pose a threat to public health and natural resources. The 2016 SSTS Annual Report, produced by the MPCA, indicates that statewide 80% of subsurface sewage treatment systems are in compliance while 15 percent are Failing to Protect Groundwater (FTPGW) and five percent are posing an Imminent Threat to Public Health and Safety (ITPHS). Replacement of a failing septic system can be costly and an unexpected expense for residents.

Measurable Goals

GOAL 1

Identify and address water quality problems stemming from inadequate wastewater treatment systems in the Cannon River Planning Area.

GOAL 2

Create more uniformity within existing SSTS programs across the Cannon River Planning Area to ensure consistency in implementation and enforcement.

Implementation Activities

1. Conduct SSTS Inventory in Priority Areas
2. Conduct Risk Assessment to facilitate prioritization and assist county staff and local officials with future planning
3. Inventory existing programs
4. Identify programmatic gaps and develop solutions to fill the gaps

LANDSCAPE ALTERATION CONCERN: PUBLIC AND PRIVATE DRAINAGE SYSTEMS

A. Drainage System Management

Concerns Expressed during Planning Process

Drainage tile and irrigation identified as potential impacts related to agriculture. Need for peak flow reduction on agricultural and urban lands. Drain tile systems move water off the landscape more quickly than under pre-settlement conditions. This compounds flooding issues.

Issue Statement

While public and private drainage systems were installed to remove excess water and lower the water table for agricultural production and/or development, there were unintended consequences to the hydrologic system including changes in peak flow, water quantity, water quality and groundwater recharge.

Measurable Goals

GOAL 1

Create an inventory of public and private drainage systems within 10 years. How exhaustive should this inventory be? Backbone of the system versus entire system which is a big effort and not all of the information will be available. Can we identify priority areas for this work?

GOAL 2

Incorporate projects into public drainage systems that provide hydrologic benefits to the watershed and reduce localized flooding in all areas where known by conducting X projects in X area per year

GOAL 3

Incorporate projects into the public drainage system that provide water quality benefits and promote groundwater recharge.

Implementation Activities

1. Modernization of drainage records (convert profiles to known elevation datum, update benefitted parcels mapping, etc.) Satellite imagery may provide a good footprint of the drainage system.
2. Promote the development of Comprehensive Drainage Management Plans on all public and private drainage systems and identifying funding and articulating the value of doing this.
3. Construct X BMPs in the watershed that provide water quality benefits such as tile inlet protection, and saturated buffers.
4. Conservation drainage on individual fields – doing things at the source.
5. Recognize that this takes coordination – coordinated management effort – look at all of the benefitting parties.
6. Identify funding sources to help landowners make drainage system improvements.

LANDSCAPE ALTERATION CONCERN: PUBLIC AND PRIVATE DRAINAGE SYSTEMS

B. Aging/Under-Sized Drainage Systems

Concerns Expressed during Planning Process

Drainage tile and irrigation identified as potential impacts related to agriculture. Need for peak flow reduction on agricultural and urban lands.

Issue Statement

Existing drainage systems and/or aging infrastructure may not be sized to handle volume and rate changes that cause localized flooding issues.

Measurable Goals

GOAL 1

Understand the capacity and condition of the current drainage system and implement projects that enhance the function of the existing system without causing environmental or property damage caused by too much or too little water.

Implementation Activities

1. Conduct an assessment of the drainage in areas with known flooding issues.
2. Implement X projects that enhance the function of the system without causing environmental and property damage.

LANDSCAPE ALTERATION CONCERN: PUBLIC AND PRIVATE DRAINAGE SYSTEMS

C. Drainage Education

Concerns Expressed during Planning Process

Promote multi-benefit drainage management projects.

Issue Statement

There is a lack of understanding of and/or funding for retrofitting existing drainage systems for multi-purpose and multi-benefit drainage management

Measurable Goals

GOAL 1

Develop a program that educates and incentivizes multi-benefit drainage management projects through cost-share and education program.

Implementation Activities

1. Host 2 co-op workshops per year per County regarding multi-purpose and multi-benefit drainage management
2. Build at least two demonstration projects in the watershed that can also be used for research and educational tours.
3. Explore options for getting some people to voluntarily undertake these improvements.

LANDSCAPE ALTERATION CONCERN: CLIMATE CHANGE

A. Community Resilience to Climate Change

Concerns Expressed during Planning Process

Climate change is an important impact. There have been a number of significant rainfall events in the last two years that have resulted in flooding. What has changed? More extreme precipitation, how it is delivered over the course of the year, and pinch-points in the system is resulting in more flooding.

Issue Statement

Rising global temperatures have been accompanied by changes in weather and climate. As a result, many areas are seeing changes in precipitation patterns including more floods, droughts and/or intense precipitation events. A trend analysis of local climate data indicates that the Cannon River Planning Area is experiencing changes in precipitation and temperature which presents challenges to watershed management decision-making. There is a connection to flooding of downstream communities and ordinance development.

Measurable Goals

GOAL 1

Develop a better understanding of climate change, its impacts to the Planning Area's land and water resources, and adaptive strategies to address this emerging issue.

GOAL 2

Increase the resiliency of the Planning Area by adapting to climate change, including adopting the recent update of NOAA Atlas 14 and other climatic data to ensure that design standards are kept current with the most recent climate data.

Implementation Activities

1. Conduct a vulnerability assessment in each of the communities experiencing flooding due to extreme precipitation events to identify infrastructure needs and develop adaptation strategies to make communities more resilient to the effects of a changing climate.
2. Utilize Green Infrastructure to build resiliency into the stormwater management system.
3. Don't allow development in flood-prone areas.
4. Support increased infiltration, stormwater reuse and water conservation.
5. Coordinate with other communities developing climate action plans including Red Wing and Northfield. Identify what they are doing to address water resource impacts.
6. Make people aware of climate mitigation/adaptation resources available nationwide to look to for guidance.

SOCIOECONOMIC FACTORS: EDUCATION AND OUTREACH

A. Educating Local Land Use Decision Makers

Concerns Expressed during Planning Process

Lack of diversity of elected officials. Adoption of government operations which promote/ehnace watershed management (e.g. street sweeping, reducing impact of politics, updating zoning practices, and snow and ice control or removal). There is a need to educate municipal officials and residents of the watershed about agricultural practices. There is a misconception that agriculture is bad for the environment.

Issue Statement

Decision makers (government officials) need to improve their understanding of watershed management to better understand how land-use decisions impact the watershed and its resources.

Measurable Goals

GOAL 1

Educate local elected + appointed decision-makers w/ role in addressing relationship between land use and natural resource protection on watershed management/ stormwater management.

GOAL 2

Provide local elected + appointed decision-makers education + information materials on rural + agricultural land use issues including federal/state laws regulating agricultural activity, performance of BMPs, and local implementation success stories.

Comment [AG2]:
Potential Measures:
- Policies implemented
- Pre & Post quiz
- Percent of officials attended training

Implementation Activities

1. Annually lead one community conversation on stormwater management BMPs.
2. Meeting with the County Boards, County Departments (Administration, Attorneys, Planning and Zoning, etc.) and City Councils to express the importance and potential benefits of Plan implementation and providing an annual update on Plan progress.
3. Encourage local government unit staff and local agency staff to attend trainings on newly developed technology and tools relevant to water resource management.
4. Snow management?
5. Require LGUs to report on activities and incorporate into a report (either annually or at check points during the 10 year plan).
6. Incorporate water quality updates into city progress updates such as a "State of the City Address".

Comment [AG3]:
Content of Education:
- Local & action based
- More brainstorming, less lecturing

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SOCIOECONOMIC FACTORS: EDUCATION AND OUTREACH

B. Citizen Engagement

Concerns Expressed during Planning Process

Negative impacts a result of poor or ineffective behavioral choices (e.g. car washing, invasive species transport, excessive groundwater extraction, and mowing to the lakeshore).

Issue Statement

Citizens in the Planning Area need to improve their water literacy and gain a basic understanding of watershed management to be better stewards of the watershed and its resources.

Measurable Goals

GOAL 1

Support progress towards achieving goals of 1W1P by encouraging behavioral changes from all sectors of the public through meaningful education and outreach experiences.

GOAL 2

Increase adoption of BMPs by increasing engagement/communication with residents, local landowners and agricultural producers to better understand implementation issues, fiscal and operational barriers and communicate the benefits of implementation.

Comment [AG4]:
Potential Measures:
- Surveys
- Participation numbers

Comment [AG5]:
Goal 2 could be 'Increase awareness' instead of 'adoption', but participants also recognize this may make the goal less measureable. If it stays as 'adoption' number of projects could be counted.

Implementation Activities

1. Support public education and outreach initiatives that teach citizens to take action or alter traditional behaviors and practices. This could include the implementation of education and outreach programs to raise awareness on: impacts of runoff on our natural environment and water resources, identify BMPs and support of programs that help citizens to implement practices (in rural and urban areas) to reduce runoff volumes, reduce erosion and sedimentation, stabilize stream banks and shorelines, and reduce pollutant loads discharging to water resources; and properly manage and dispose of wastes.
2. Develop ~~one~~ urban storm water BMP demonstration sites in population centers to display the water quality benefits of practices that reduce runoff and treat storm water
3. Provide education to watershed residents by partnering with other entities and/or seeking funding to educate and engage agricultural producers, agricultural groups, and other residents about water resources, water conservation, and BMPs, including new and innovative practices, septic system maintenance, nutrient management, lakeshore and shoreline restoration, and buffers; through avenues such as field days, watershed councils, township officers' meetings, township newsletters, etc.

~~3.~~4. Snow management?

Comment [AG6]:
Content of Education:
- Include all issues and scale of impact
- Still tailor to group
- Cut out jargon and heavy science language
- Keep solution based
- How to communicate with government officials
- Break into lobes or some other regional basis

SOCIOECONOMIC FACTORS: EDUCATION AND OUTREACH

B. Citizen Engagement

Implementation Activities (Continued)

~~6.~~7. Partner with County schools to hold annual ~~Protect Our Waters Day.~~ K-12 education.
8. Partner with science teachers to incorporate water quality into their curriculum.
9. Utilize multiple formats for education beyond meetings including articles in newspapers, social media, or a Cannon River Newsletter.
10. Identify community leaders and partner with those individuals on projects and programs.
11. Signage on lakes and rivers with waterbody names.
12. Signage on BMPs such as raingardens that explain the function and purpose of the project.
13. Create or enhance existing awards and recognition programs for those that have contributed to water quality improvements.
14. Create graphics based information to include in city water bills.
~~7.~~15. Create a directory of water related organizations.

SOCIOECONOMIC FACTORS: COORDINATION AND PARTNERSHIPS

A. Watershed Partnerships

Concerns Expressed during Planning Process

Need for a river cleanup. Soild groups/people have a role to play in stewardship. Help divergent views work collaboratively to improve water quality.

Issue Statement

Opportunities for existing partnerships need to be enhanced and utilized in the Cannon River Planning Area.

Measurable Goals

GOAL 1

Increase collaboration with the Cannon River Watershed Partnership to leverage activities currently being performed by each other.

GOAL 2

Cultivate partnerships with agencies and organizations (including Lake Improvement Districts and Lake Associations) that have similar goals including collaborating on programs and co-sponsoring grant applications.

GOAL 3

Expand partnerships with North Cannon River Watershed Management Organization + Belle Creek Watershed District to support progress towards achieving 1W1P goals

GOAL 4

Increase collaboration amongst stakeholders and leveraging strategic partnerships for coordinated project, program and strategy implementation.

GOAL 5

Increase the use of volunteers to implement projects and programs.

GOAL 6

Continue to coordinate with cities and townships to achieve the goals of the 1W1P.

GOAL 7

Cultivate partnerships with universities and research institutes: collaborate on projects, and co-sponsoring grant applications

Comment [AG7]:
When using the word 'increase' in a goal what is our baseline? Are we increasing over the 10 year plan?

Goal 2 or 3 include other statutory groups such as a Lake Improvement District or Drainage Districts. Thought is to make goal more broad incase any new organizations are created during 10 year timeframe. However, Goal 2 is probably broad enough.

Comment [AG8]:
Potential Measures:
- Number of cooperative programs
- Dollars distributed

Implementation Activities

1. Assist watershed residents and landowners in the development of Watershed Advocacy groups with a focus on developing these groups within Tier One Priority Areas.
2. Partner with and provide technical assistance to lake associations/groups on projects to reduce water pollution and improve water quality.
3. In partnerships with the CRWP, create a brand for the Cannon River Planning Area that can be used on interpretive signage throughout the area.
4. In partnership with CRWP, give awards for outstanding work that supports the goals of the 1W1P (i.e. Outstanding Conservation Farmer, Outstanding Wildlife Conservationist, and Outstanding Windbreak). Goal is to not eliminate existing awards and not to duplicate efforts; possibly create new award categories.

SOCIOECONOMIC FACTORS: COORDINATION AND PARTNERSHIPS

B. Internal Capacity

Concerns Expressed during Planning Process

Importance of awareness campaigns and watershed-scale planning. Funding.

Issue Statement

Improve internal capacity and planning coordination of new organizational structure of Planning Work Group.

Measurable Goals

GOAL 1

Ensure a transparent organization that offers opportunity for public participation and feedback.

GOAL 2

Provide leadership, education, and resources to assist contractors, landowners, LGUs, etc., in developing and implementing sound BMPs.

GOAL 3

Increase municipal staff awareness of the Cannon River 1W1P, strengthen technical capacity and provide education on the regulatory framework.

Comment [AG9]:
Goal 3 would read better as 'Increase partnerships with municipal staff within the Cannon River 1W1P…'

Implementation Activities

1. Survey for what needs currently exist regarding capacity for specific groups including SWCDs, Counties, Cities and Townships.
2. Share demonstration sites and top projects throughout the watershed.
3. Create a directory of skills staff within the Planning Area possess and desire.
4. Host annual meeting/retreat to allow for networking and sharing of resources.

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SOCIOECONOMIC FACTORS: RECREATION AND LIVABILITY

A. Recreational Value

Concerns Expressed during Planning Process

Use and impacts of riparian commercial uses (resorts, outfitters, etc.). Need for a river cleanup. Outdoor recreation and engagement. Aestheticss: spirituality, honoring plant and animal life. Fisherman noted lack of fish in the Cannon River: oily sheen and turbidity increasing. Balance the need for storage with recreation. Invasive species.

Issue Statement

Maintain existing and create new high-quality opportunities for recreation.

Measurable Goals

GOAL 1

Improve public access to natural environments.

GOAL 2

Enhance public recreation opportunities by promoting clean water, connecting habitat, and preventing invasive species.

Comment [AG10]:
Potential Measures:
- Miles between launches
- Standards for launches
- Miles navigable or miles connected

Comment [AG11]:
Goal 2 – add 'Increase and enhance public recreation…' Changing 'preventing' to 'limit' might be more achievable.

Implementation Activities

Comment [AG12]: Many of these activities should utilize Lessard-Sams or LCCMR dollars.

1. Increase the number of access points.
2. Address barriers in the river to recreation.
3. Promote recreational rental businesses.
4. Promote waterfront parks/community spaces.
5. Complete the Mill Towns Trail.
6. Improve awareness thru the use of signage and maps. Develop ways to 'uncode public land'.
7. Encourage for-profit businesses that connect people to the natural resources.
8. Increase portages around dams or remove dams.
9. Reduce septic impact on lakes to reduce frequency of algae blooms.
10. Expand the Scenic designation of the Cannon River to more river miles.
11. Partner with River Ramblers or similar organizations to host paddling events.

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RESOURCE CONCERN: LAKES, STREAMS AND RIVERS

A. Protection Lakes

Concerns Expressed during Planning Process

Lakes with high recreational value. Lakes vulnerable to nutrient addition. Protection of high quality waters. Nonpoint pollution. High intensity use of lakes. Preserve the quality of resources. Good quality lakes with native vegetation and high recreational value. High fish quality.

Issue Statement

There are five high quality lakes in need of protection: Beaver, Dudley, Fish, Kelly, and Roemhildts. These lakes are all groundwater dependent (except Roemhildts) with a very small surface contributing drainage area, which has kept phosphorus loading to these lakes low and preserved their high water quality. While these lakes currently support recreation, they could become degraded in the future if phosphorus loads increase or there are changes to the groundwater contribution to these lakes.

Measurable Goals

GOAL 1

Maintain or improve water quality in the 5 high quality lakes by achieving all of the phosphorus reduction goals (lb/yr) identified in the 2016 Cannon River WRAPS.

GOAL 2

Maintain the quality and quantity of groundwater to groundwater-dependent protection lakes (see goal under Groundwater Dependent Natural Resources – Protection Lakes).

Implementation Activities

1. Complete lake management plans to identify phosphorus sources ($5,000 per lake)
2. Implement a 50-foot buffer on 100% of the lake shoreline ($2,358)
3. Convert 10% of vulnerable cropland to perennial vegetation via easements ($58,254)
4. Promote soil health through cover crops, tillage on 20% of cultivated cropland ($2,044)
5. Promote shoreline septic improvements and maintenance (0.25 staff hours per year)
6. Assign stringent wetland protection standards within the protection lake contributory drainage areas.
7. ~~5.~~ Enforce existing or establish stringent shoreline protection standards

RESOURCE CONCERN: LAKES, STREAMS AND RIVERS

B. Impaired Lakes

Concerns Expressed during Planning Process

Lakes with high recreational value. Lakes vulnerable to nutrient addition. Proximity to water quality standards. Eutrophication (algae blooms). Nonpoint pollution. High intensity use of lakes. Impaired waters.

Issue Statement

In 2016, there were 36 lakes that did not support aquatic recreation use due to elevated nutrients that cause unsightly algae blooms and can make swimming undesirable or unsafe. Some lakes are impaired because they receive excess phosphorus from watershed runoff, while other lakes are impaired due to legacy phosphorus (i.e. internal loading). Dissolved oxygen dynamics, fish communities and aquatic plants can all be a part of internal nutrient cycling.

Measurable Goals

GOAL 1

Achieve phosphorous load reduction goals identified the lake management plans.

Implementati

1. Complete lake management plans to identify phosphorus sources. Cedar, Fox and Hunt lakes are all part of a Science Museum of Minnesota project designed to improve the accuracy and predictive power of lake phosphorus budgets in the upper Cannon watershed. Project field work will directly measure whole-lake sediment P-burial and combine this flux with modeled estimates of watershed P loading and P losses in lake outflow from the lake TMDLs. Together these results will allow for estimates of the degree to which external P inputs exceed losses (outflow + burial). The difference (inputs – losses) will then provide a direct estimate of load reductions needed to begin the recovery process and will help confirm modeled load reductions derived from the TMDL study. ($0)
2. Implement a 50-foot buffer on 100% of the lake shoreline ($4,773)
3. Convert 10% of vulnerable cropland to perennial vegetation via easements ($405,286)
4. Promote soil health through cover crops, tillage on 20% of cultivated cropland ($27,869)
5. Promote shoreline septic improvements and maintenance (0.25 staff hours per year)
6. Support formation of Lake Improvement Districts and demonstrate examples of successful LIDs such as Circe Lake.
7. Focus shoreline restoration projects on publically owned lands (Roberts Lake roadway issue needs work)
8. Implement fishery management projects
9. Implement AIS planning, management, inspection and education projects
10. Construct wetland restoration projects in the contributing drainage areas
11. Conduct projects that support and reestablish native aquatic vegetation.

RESOURCE CONCERN: LAKES, STREAMS AND RIVERS

C. Pollutant Impaired Streams

Concerns Expressed during Planning Process

Impaired waters. Impacts to cold water fisheries. Stream stressors. Bank erosion. Outstanding recreational value. Proximity to water quality standards. Low flow phosphorus issues. Sediment and nitrate.

Issue Statement

There are 45 impaired streams in the Cannon River Planning Area. Excessive bacteria that may make activities in or on the water unsafe were found in rivers and streams across the watershed, including the Straight River, Cannon River, and many smaller streams for a total of 41 impairments. Bacteria issues are widespread not only in the CRW, but much of the Lower Mississippi River Basin. Fish and macroinvertebrate communities across the watershed are showing a loss of sensitive species due to habitat loss and excess sediment and nitrate. All of the designated trout waters in the Lower Cannon Watershed lobe meet the criteria for the southeast Minnesota coldwater Fish Index of Biotic Integrity, however these streams are also impaired for nitrates, TSS, and/or Macroinvertebrate Index of Biotic Integrity. Changes in land use have the potential to adversely impact cold water fisheries (trout streams) due to increasing nitrate concentrations in groundwater, excess pollutant loads and increased water temperatures from stormwater runoff, and bank destabilization. For example, Rice Creek condition monitoring shows signs of stress from unstable banks and high nitrates, which may be contributing to degraded macroinvertebrate communities.

Measurable Goals

GOAL 1

10% reduction in the number of TSS samples exceeding the water quality standard (10 mg/L for coldwater, 65 mg/L for warmwater streams) and no nitrate samples exceeding the water quality standard (10 mg/L) in the Tier One impaired streams.

Implementation Activities

1. One streambank stabilization project completed every ~~two years~~year on Tier One impaired streams with known problems. ($500,000).
2. X number of feedlot management plans/year in Belle, Little Cannon, Prairie and Rush drainage areas (0.25 FTE)
3. X number of septic system upgrades/year in Belle, Little Cannon, Prairie and Rush drainage areas (0.25 FTE)
4. Convert 10% of vulnerable cropland to perennial vegetation via easements or other land conservation practices in Tier One stream drainage areas ($2,925,630) – See Agriculture Runoff Implementation Activities
5. Promote soil health through cover crops, tillage on 20% of cultivated cropland in Tier One stream drainage areas ($441,441) – See Agriculture Runoff Implementation Activities
6. Conduct a dam evaluation project to determine if there are structures that should be removed to restore stream/river health (remove Pine Creek dam).
7. Conduct wetland restoration projects in the contributory drainage areas
8. Evaluate e-coli delivery mechanisms causing bacteria impairments

~~5.~~9. Conduct one stream restoration project every two years to restore width/depth ration and increase in-stream habitat.

RESOURCE CONCERN: WETLANDS

A. Wetland Restoration

Concerns Expressed during Planning Process

Wetland restoration needed.

Issue Statement

The stormwater storage function is the highest valued wetland service because wetlands provide mitigation for property-damaging floods caused by high volumes of stormwater runoff exacerbated by land use alterations and extreme precipitation events.

Measurable Goals

GOAL 1

Net gain of X% or X ac-ft of wetlands restored in the priority areas.

Implementation Activities

1. Develop inventory of wetlands and identify areas storage-focused restoration projects.
2. Promote and market 200 acres of wetland preservation and restoration programs such as CRP, WRP, RIM by holding 1 annual public meeting and by including discussion in the annual Farmer's Forum agenda.
3. Facilitate conversations regarding taxing inequities for non cropped lands
4. Construct wetland restoration projects in protection lake watersheds.

RESOURCE CONCERN: WETLANDS

B. Wetland Protection and Enhancement

Concerns Expressed during Planning Process

Protect high quality resources.

Issue Statement

Existing wetlands deserve protection because they provide a host of services (functions) that are highly valued by society.

Measurable Goals

GOAL 1

Protect the current acreage of existing wetlands in the watershed and enhance the capacity for these wetlands to provide a full suite of services focusing on services that are most highly valued.

Implementation Activities

1. Conduct a watershed-based functional assessment to determine current level of services wetlands provided.
2. Adopt standards that protect wetlands from stressors that negatively affect highly valued services.
3. Implement wetland restoration and enhancement projects that provide functional lift by removing invasive species and encroachment by woody species that degrade function. ~~.~~
4. Create detention and retention projects in the priority lake watersheds.
5. Conduct an evaluation of tiling effects on wetland resources

~~3.~~

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RESOURCE CONCERN: GROUNDWATER

A. Drinking Water Protection

Concerns Expressed during Planning Process

Increased groundwater appropriations. Drinking water. Cleaner water for personal use. Pollution and excess nutrient flow into rivers and aquifers.

Issue Statement

Groundwater is the source of all drinking water in the Cannon 1W1P area. Public water suppliers provide 70% of the population's drinking water from over 200 different wells. 87 of these wells are located in highly vulnerable settings. Of these public water suppliers, 20 are larger municipal communities serving a large portion of the population. These systems are tested for over 100 contaminants, are responsible to provide treatment, and must implement an approved WHPP.

30% of the residents rely on a private well for the water they drink. However, because no public entity is responsible for water testing or management of a private well after drilling is completed, these well owners have the sole responsibility for the health and safety of their drinking water.

Contaminants of concern for all drinking water can be human sourced or naturally occurring. Of greatest concern is nitrate, which affects large regions. Other contaminants of concern include pathogens, arsenic, radium, and synthetic/organic chemicals in isolated areas. Aquifer vulnerability determines the level of management required to protect a drinking water supply and provides an opportunity to target implementation practices in accordance with the level of risk different land uses pose.

Measurable Goals

GOAL 1

In partnership with public water suppliers, provide annual education/outreach opportunities to all communities with MDH approved WHPPs, and BMP technical assistance for all moderate and high vulnerable public water suppliers.

GOAL 2

In areas of moderate or high pollution sensitivity, provide all private well owners access to well testing programs and education about water quality specific to drinking water.

Implementation Activities

1. Promote well sealing programs within WHP areas
2. Seek funding or utilize state cost-share funds to seal three unused wells within WHP areas in one town each year.
3. Education and Outreach: hosting well testing or screening clinics, providing water testing kits, promoting household hazardous waste collection, providing best practices information to private well owners.
4. BMPs should be implemented in groundwater recharge areas, specifically the surficial sands and gravels and outwash areas where the chance of groundwater contamination is highest.
5. Support the 4 R's rule for fertilizer application
6. Promote programs that encourage or require point of property transfer well testing
7. ~~4.~~ Support educational programs that inform residential land owners on proper pesticide use

RESOURCE CONCERN: GROUNDWATER

B. Groundwater Dependent Natural Resources – Protection Lakes

Concerns Expressed during Planning Process

Groundwater appropriations. Need to protect groundwater quality.

Issue Statement

Land-altering activities have the potential to impact groundwater resources as well as groundwater dependent natural resources. Without proper land-use and water resource management, the following impacts may occur: reduced groundwater recharge, reduced groundwater quality, and alterations to the functions and values of groundwater dependent natural resources. This is of particular concern to the protection lakes, many of which have been identified as being groundwater dependent.

Measurable Goals

GOAL 1

Maintain the quality and quantity of groundwater to groundwater-dependent protection lakes.

Implementation Activities

1. Maintain and restore perennial cover to encourage recharge and reduce pollutant loads to groundwater dependent natural resources.
2. Better understand surface water – groundwater connections: continue to monitor MNDNR Observation Wells
3. Identify Groundwatershed to the protection lakes.
~~3.~~4. Encourage MNDNR to install more ground water observation wells.

LANDSCAPE ALTERATION CONCERN: AGRICULTURE

A. Agricultural Runoff

Concerns Expressed during Planning Process

Agricultural runoff. Feedlot runoff. Overgrazing. Tile drainage. Livestock & waste. Buffers on agricultural land. Nitrogen management. Irrigation. Sediment control. Crop production practices. Fertilizer, chemical use, and nutrient management from livestock. Cropping practices.

Issue Statement

Improper application of manure and fertilizer (rate, location, source and timing) are polluting surface water and groundwater in the Cannon River 1W1P Planning Area. The Cannon River HSPF model predicted that nutrient loss from cultivated lands accounts for 87% of the total nitrogen load and 89% of the total phosphorus load to surface water resources, highlighting the need for agricultural conservation and best management practices to reduce phosphorus and nitrogen pollution. Moreover, the Nitrogen Study and Nutrient Reduction Strategy state that cropland nitrogen losses through agricultural tile drainage and agricultural groundwater (leaching loss from cropland to local groundwater) make up the majority of nitrogen sources in Minnesota. Trout streams require cold water temperature regimes due to their high connectivity to groundwater.

Measurable Goals

GOAL 1

Achieve Nutrient Reduction Strategy goals of 12 percent reduction in phosphorus and 20 percent reduction in nitrogen pollution from cropland in the HSPF top 25% TP and TN yield subwatersheds.

GOAL 2

Create a stable funding source to increase local capacity and implement agricultural BMPs.

Implementation Activities

1. Establishment of and compliance with Nutrient Management Plans on 10% of cropland in Tier One stream drainage areas (0.5 FTE).
2. Establishment of and compliance with Manure Management Plans on 10% of cropland in in Tier One stream drainage areas (0.5 FTE)
3. Convert 10% of vulnerable cropland to perennial vegetation via easements in Tier One stream drainage areas ($2,925,630) – See Pollutant Impaired Stream Implementation Activities
4. Promote soil health through cover crops, tillage on 20% of cultivated cropland in Tier One stream drainage areas ($441,441) – See Pollutant Impaired Stream Implementation Activities.
5. Buffer law may not impact water quality because spoils adjacent to the ditch don't allow the water to travel through the buffer; rather runoff infiltrates into the draintile and gets into the ditch (untreated).
6. Application of nitrogen is controversial. Farmers do the best they can. They are sensitive to the cost, understand the water quality impacts of over-application and are dependent up the weather.
7. Be smarter about monitoring water quality by testing at different points in the system. This will help identify where pollutants are entering the system. By looking at different parameters (e.g. fluoride) can pinpoint sources as rural or urban.

LANDSCAPE ALTERATION CONCERN: AGRICULTURE

B. Soil Health

Concerns Expressed during Planning Process

Poor soil health. Practices contributing to soil loss.

Issue Statement

Soil health can be degraded due to poor agricultural practices which limits the role it plays in clean water and groundwater recharge. Soil health is typically measured by the amount of organic matter in the soil. Soil organic matter is necessary for storing water, increasing water infiltration, preventing compaction, and breaking down pesticides, heavy metals, and other pollutants (USDA 2016). Increased soil organic matter will improve the quality of surface water and groundwater, in addition to sustaining long-term crop yields from the land. Technical assistance is available but the cost of implementation is high.

Measurable Goals

GOAL 1

Improve soil health by increasing organic matter by 1% in 20% of cultivated cropland in Tier One stream drainage areas. Group likes how this goal is written.

Implementation Activities

1. Promote soil health through cover crops and/or reduced tillage on 20% of cultivated cropland in Tier One stream drainage areas ($441,441) – See Pollutant Impaired Streams Implementation Activities
2. Provide education and outreach on soil health to producers since this is an emerging science and new information is being published all the time.
3. Expensive to implement conservation practices. Young farmers want to make changes but it's expensive and requires serious investments which are difficult to justify relative to other costs. Recommend facilitating connections/networks. Farmers helping other farmers by sharing local knowledge, lessons learned, equipment, practices, etc. SWCDs could identify critical masses of innovators to help people network and help each other out.

LANDSCAPE ALTERATION CONCERN: DEVELOPMENT

A. Flooding of Communities

Concerns Expressed during Planning Process

Building and maintaining infrastructure. Development in the floodplain is an issue. Flooding of infrastructure. Need for upland storage. Control the flow of rivers and streams to ease disasters from flooding. Bottlenecks in system contribute to flooding.

Issue Statement

The hydrology of the watershed has been altered due to actions such as straightening stream channels, ditching, tiling, draining wetlands or depressional areas, and adding impervious surfaces. These land use changes have a number of impacts including a net increase in flows moving through the watershed and more extensive flooding events. These land use alterations, as well as changes in precipitation patterns and more extreme events, are increasing the frequency and magnitude of flooding experienced by communities in the Cannon River Planning Area. Need to address loss of storage due to filling of wetlands/swamps. Locally there has been an increase in flooding on Hoffman Drive. Intense precipitation overloads sewage systems and wastewater treatment facilities introducing untreated sewage into surface waterbodies (e.g. Clear Lake).

Measurable Goals

GOAL 1

Decrease the rate and volume of water that contributes to flooding of downstream communities to limit property damage and protect public safety

Implementation Activities

1. Conduct a Long-Term Flood Solution Study (LTFSS) to provide planning partners with the tools needed to mitigate the effects of flooding in the Cannon River Planning Area and make the communities more resilient.
2. Adopt stormwater management requirements that address rate, volume, water quality, and wetland bounce and duration.
3. Install and implement additional flood reduction practices within the Watershed.
4. Future maintenance that includes storage for the ditch systems to reduce flooding.
5. Need for additional storage and slow release of runoff is a watershed-wide concern. Consider the installation of more dams in the system.

LANDSCAPE ALTERATION CONCERN: DEVELOPMENT

B. Shoreland Management

Concerns Expressed during Planning Process

People mowing to the shoreline. Need for shoreland protection requirements. Shoreland restoration is needed.

Issue Statement

Shorelands typically contain important habitat and erodible soils. As a result, many of these areas are highly sensitive to development. Conversion of seasonal to year-round dwellings, developments and resorts has the potential to adversely impact shoreland and the adjacent waterbody.

Measurable Goals

GOAL 1

Achieve no net loss of existing natural shoreline

GOAL 2

Achieve a natural shoreline gain through shoreline restorations

Implementation Activities

1. Conduct inventory of existing natural shoreline quantity and quality.
2. Conduct buffer evaluation. Review shoreland areas to determine whether storm water runoff is discharging through a buffer system or artificial wetland.
3. Review local shoreland ordinance looking for ways to improve the protection of shoreland and revise County ordinances if necessary.
4. Educate homeowners on how to better manage lake property.
5. Education and outreach for local government officials (e.g. Board of Adjusters) to reduce the number of variances granted to shoreland ordinance.

LANDSCAPE ALTERATION CONCERN: DEVELOPMENT

C. Ordinance Development

Concerns Expressed during Planning Process

Land use decisions, planning processes, sprawl and excessive development. Increased amount of impervious surfaces. Need to integrate various practices in land use development (e.g. raingardens, septic system compliance, ESC, green/sustainable lawns, etc.). Need for peak flow reduction on agricultural and urban lands. Runoff from cities flows directly into lakes.

Issue Statement

Polluted stormwater runoff is often transported to municipal separate storm sewer systems (MS4) and ultimately discharged to local rivers, streams and lakes without treatment. EPA's Stormwater Phase II Rule establishes an MS4 stormwater management program that is intended to improve the Nation's waterways by reducing the quantity of pollutants that stormwater picks up and carries into storm sewer systems during storm events. Lack of stormwater management, regulations, and construction inspections in non-MS4 communities is having an adverse impact on surface water resources in the Planning Area. Of the 21 cities in the Cannon River Planning Area, only a handful are MS4 communities (Faribault, Northfield, Owatonna, and Waseca). The remaining 16 cities and 63 townships need to adopt stormwater management requirements to protect the surface water and groundwater resources in the Cannon River Planning Area. These smaller communities lack the staffing, funds or the resources to develop or implement ordinances and a permitting program

Measurable Goals

GOAL 1

Utilize the MIDS Community Assistance Package to develop ordinances that include the Minimal Impact Design Standards (MIDS) performance goals for all of the communities in the Planning Area by 2021.

GOAL 2

Work closely with local staff of non-MS4 communities to develop a program for administration, plan review, inspections and enforcement.

Implementation Activities

1. Review each community's current ordinance package looking for opportunities to improve and update to meet current standards and protect water quality and natural resources.
2. Develop a draft ordinance for each community to address stormwater management and erosion and sediment control.
3. Provide a series of workshops with elected and appointed officials and city staff to introduce the concepts and importance of stormwater management for new development and redevelopment.
4. Working closely with local staff to develop a program for administration, plan review, inspections and enforcement or explore the option of creating a Joint Powers Agreement between the SWCD's, WMO, WD and communities to perform these services on behalf of the non-MS4 communities.
5. Make sure water quality standard apply to homeowners to ensure proper management of fertilizer application in an urban setting.

LANDSCAPE ALTERATION CONCERN: DEVELOPMENT

D. Subsurface Sewage Treatment Systems (SSTS)

Concerns Expressed during Planning Process

Septic system compliance.

Issue Statement

Non-compliant or failing septic systems pose a threat to public health and natural resources. The 2016 SSTS Annual Report, produced by the MPCA, indicates that statewide 80% of subsurface sewage treatment systems are in compliance while 15 percent are Failing to Protect Groundwater (FTPGW) and five percent are posing an Imminent Threat to Public Health and Safety (ITPHS). Replacement of a failing septic system can be costly and an unexpected expense for residents.

Measurable Goals

GOAL 1

Identify and address water quality problems stemming from inadequate wastewater treatment systems in the Cannon River Planning Area.

GOAL 2

Create more uniformity within existing SSTS programs across the Cannon River Planning Area to ensure consistency in implementation and enforcement.

Implementation Activities

1. Conduct SSTS Inventory in Priority Areas
2. Conduct Risk Assessment to facilitate prioritization and assist county staff and local officials with future planning
3. Inventory existing programs
4. Identify programmatic gaps and develop solutions to fill the gaps

LANDSCAPE ALTERATION CONCERN: PUBLIC AND PRIVATE DRAINAGE SYSTEMS

A. Drainage System Management

Concerns Expressed during Planning Process

Drainage tile and irrigation identified as potential impacts related to agriculture. Need for peak flow reduction on agricultural and urban lands. Drain tile systems move water off the landscape more quickly than under pre-settlement conditions. This compounds flooding issues.

Issue Statement

While public and private drainage systems were installed to remove excess water and lower the water table for agricultural production and/or development, there were unintended consequences to the hydrologic system including changes in peak flow, water quantity, water quality and groundwater recharge. Group concerned about private drainage connections to the public system. Drainage east of Owatonna contributing to flooding.

Measurable Goals

GOAL 1

Create an inventory of public and private drainage systems within 10 years.

GOAL 2

Incorporate projects into public drainage systems that provide hydrologic benefits to the watershed and reduce localized flooding in all areas where known by conducting X projects in X area per

GOAL 3

Incorporate projects into the public drainage system that provide water quality benefits and promote groundwater recharge.

Implementation Activities

1. Modernization of drainage records (convert profiles to known elevation datum, update benefitted parcels mapping, etc.)
2. Promote the development of Comprehensive Drainage Management Plans on all public and private drainage systems
3. Construct X BMPs in the watershed that provide water quality benefits such as tile inlet protection, and saturated buffers.
4. Olmstead County installed dikes in the drainage system to hold water.
5. Belle Creek WD installed structures that have prevented flooding since their installation.
6. Consider more dams and controlled systems.
7. Counties and cities need to work together.

LANDSCAPE ALTERATION CONCERN: PUBLIC AND PRIVATE DRAINAGE SYSTEMS

B. Aging/Under-Sized Drainage Systems

Concerns Expressed during Planning Process

Drainage tile and irrigation identified as potential impacts related to agriculture. Need for peak flow reduction on agricultural and urban lands.

Issue Statement

Existing drainage systems and/or aging infrastructure may not be sized to handle volume and rate changes that cause localized flooding issues.

Measurable Goals

GOAL 1

Understand the capacity and condition of the current drainage system and implement projects that enhance the function of the existing system without causing environmental or property damage caused by too much or too little water.

Implementation Activities

1. Conduct an assessment of the drainage in areas with known flooding issues.
2. Implement X projects that enhance the function of the system without causing environmental and property damage.

LANDSCAPE ALTERATION CONCERN: PUBLIC AND PRIVATE DRAINAGE SYSTEMS

C. Drainage Education

Concerns Expressed during Planning Process

Promote multi-benefit drainage management projects.

Issue Statement

There is a lack of understanding of and/or funding for retrofitting existing drainage systems for multi-purpose and multi-benefit drainage management

Measurable Goals

GOAL 1

Develop a program that educates and incentivizes multi-benefit drainage management projects through a County cost-share and education program.

Implementation Activities

1. Host 2 co-op workshops per year per County regarding multi-purpose and multi-benefit drainage management
2. Build at least two demonstration projects in the watershed that can also be used for research and educational tours.

LANDSCAPE ALTERATION CONCERN: CLIMATE CHANGE

A. Community Resilience to Climate Change

Concerns Expressed during Planning Process

Climate change is an important impact. There have been a number of significant rainfall events in the last two years that have resulted in flooding. What has changed? More extreme precipitation, how it is delivered over the course of the year, and pinch-points in the system is resulting in more flooding.

Issue Statement

Rising global temperatures have been accompanied by changes in weather and climate. As a result, many areas are seeing changes in precipitation patterns including more floods, droughts and/or intense precipitation events. A trend analysis of local climate data indicates that the Cannon River Planning Area is experiencing changes in precipitation and temperature which presents challenges to watershed management decision-making. Timing has changed as evidenced by the Waseca precipitation events that took place in September of 2016. Not the right time of year for such an extreme event.

Measurable Goals

GOAL 1

Develop a better understanding of climate change, its impacts to the Planning Area's land and water resources, and adaptive strategies to address this emerging issue.

GOAL 2

Increase the resiliency of the Planning Area by adapting to climate change, including adopting the recent update of NOAA Atlas 14 and other climatic data to ensure that design standards are kept current with the most recent climate data.

Implementation Activities

1. Conduct a vulnerability assessment in each of the communities experiencing flooding due to extreme precipitation events to identify infrastructure needs and develop adaptation strategies to make communities more resilient to the effects of a changing climate.
2. Utilize Green Infrastructure to build resiliency into the stormwater management system.
3. Don't allow development in flood-prone areas or future flood prone areas.
4. Support increased infiltration, stormwater reused and water conservation.
5. Farming practices like soil health is a good way to increase resiliency in the system.

SOCIOECONOMIC FACTORS: EDUCATION AND OUTREACH

A. Educating Local Land Use Decision Makers

Concerns Expressed during Planning Process

Lack of diversity of elected officials. Adoption of government operations which promote/ehnace watershed management (e.g. street sweeping, reducing impact of politics, updating zoning practices, and snow and ice control or removal). There is a need to educate municipal officials and residents of the watershed about agricultural practices. There is a misconception that agriculture is bad for the environment.

Issue Statement

Decision makers (government officials) need to improve their understanding of watershed management to better understand how land-use decisions impact the watershed and its resources.

Measurable Goals

GOAL 1

Educate local elected + appointed decision-makers w/ role in addressing relationship between land use and natural resource protection on watershed management/ stormwater management.

GOAL 2

Provide local elected + appointed decision-makers education + information materials on rural + agricultural land use issues including federal/state laws regulating agricultural activity, performance of BMPs, and local implementation success stories.

Comment [CC1]:
Potential Measures:
- Number of trainings
- Knowledge of officials – Perceptions – Surveys
- Number of ordinances passed

Implementation Activities

1. Annually lead one community conversation on stormwater management BMPs.
2. Meeting with the County Boards, County Departments (Administration, Attorneys, Planning and Zoning, etc.) and City Councils to express the importance and potential benefits of Plan implementation and providing an annual update on Plan progress.
3. ~~Encourage local government unit staff and local agency staff to attend trainings on newly developed technology and tools relevant to water resource management.~~
4. Education on Best Management Practices
5. Host annual field day or tour for policy makers
6. Develop factsheets on projects completed within the Planning Area

Comment [CC2]:
Content of Education:
- Broader picture – Include all issues
- Understand audience
- Talk about economics

SOCIOECONOMIC FACTORS: EDUCATION AND OUTREACH

B. Citizen Engagement

Concerns Expressed during Planning Process

Negative impacts a result of poor or ineffective behavioral choices (e.g. car washing, invasive species transport, excessive groundwater extraction, and mowing to the lakeshore).

Issue Statement

Citizens in the Planning Area need to improve their water literacy and gain a basic understanding of watershed management to be better stewards of the watershed and its resources.

Comment [CC3]: "Citizens" is very broad

Measurable Goals

GOAL 1

Support progress towards achieving goals of 1W1P by encouraging behavioral changes from all sectors of the public through meaningful education and outreach experiences.

GOAL 2

Increase adoption of BMPs by increasing engagement/communication with residents, local landowners and agricultural producers to better understand implementation issues, fiscal and operational barriers and communicate the benefits of implementation.

Comment [CC4]:
Potential Measures:
- Determine effectiveness – Follow-up with past students
- Teacher surveys – Keep simple

Implementation Activities

1. Support public education and outreach initiatives that teach citizens to take action or alter traditional behaviors and practices. This could include the implementation of education and outreach programs to raise awareness on: impacts of runoff on our natural environment and water resources, identify BMPs and support of programs that help citizens to implement practices (in rural and urban areas) to reduce runoff volumes, reduce erosion and sedimentation, stabilize stream banks and shorelines, and reduce pollutant loads discharging to water resources; and properly manage and dispose of wastes.
2. Develop one urban storm water BMP demonstration site to display the water quality benefits of practices that reduce runoff and treat storm water
3. Provide education to watershed residents by partnering with other entities and/or seeking funding to educate and engage agricultural producers, agricultural groups, and other residents about water resources, water conservation, and BMPs, including new and innovative practices, septic system maintenance, nutrient management, lakeshore and shoreline restoration, and buffers; through avenues such as field days, watershed councils, township officers' meetings, township newsletters, etc.
4. Partner with County schools to hold annual Protect Our Waters Day.
5. Partner with Community Education for a family event (with childcare).

Comment [CC5]:
Content of Education:
- Define stakeholder sub-groups and create content for them
- Match k-12 education with core curriculum
- Include agriculture topics
- Develop an emotional connection
- Content for students to bring home
- Stormwater stencils (ex from Faribault Co where students even presented to council)

SOCIOECONOMIC FACTORS: COORDINATION AND PARTNERSHIPS

A. Watershed Partnerships

Concerns Expressed during Planning Process

Need for a river cleanup. Soild groups/people have a role to play in stewardship. Help divergent views work collaboratively to improve water quality.

Issue Statement

Opportunities for existing partnerships need to be enhanced and utilized in the Cannon River Planning Area.

Measurable Goals

GOAL 1

Increase collaboration with the Cannon River Watershed Partnership to leverage activities currently being performed by each other.

GOAL 2

Cultivate partnerships with agencies and organizations (including Lake Improvement Districts and Lake Associations) that have similar goals including collaborating on programs and co-sponsoring grant applications.

GOAL 3

Expand partnerships with North Cannon River Watershed Management Organization + Belle Creek Watershed District to support progress towards achieving 1W1P goals

GOAL 4

Increase collaboration amongst stakeholders and leveraging strategic partnerships for coordinated project, program and strategy implementation.

GOAL 5

Increase the use of volunteers to implement projects and programs.

GOAL 6

Continue to coordinate with cities and townships to achieve the goals of the 1W1P.

GOAL 7

Cultivate partnerships with universities and research institutes: collaborate on projects, and co-sponsoring grant applications

Comment [CC6]:
General Comments on Goals:
- Lots of them and they will require a lot of time and money
- Trust not established between all groups listed

Goal 4:
- This could be priority
- Divide stakeholders into smaller groups
- Connect with 'trusted' individuals, those that others listen too

Goal 5:
- Utilize existing groups/networks, such as CRWP
- Compensate volunteers either nominally or by making sure they receive personal satisfaction
- Volunteer appreciation dinners/events/awards

Implementation Activities

1. ~~Assist watershed residents and landowners in the development of Watershed Advocacy groups with a focus on developing these groups within Tier One Priority Areas.~~
2. Partner with and provide technical assistance to lake associations/groups on projects to reduce water pollution and improve water quality.
3. In partnerships with the CRWP, create a brand for the Cannon River Planning Area that can be used on interpretive signage throughout the area (on watershed break and stream crossings).
4. In partnership with CRWP, give awards for outstanding work that supports the goals of the 1W1P (i.e. Outstanding Conservation Farmer, Outstanding Wildlife Conservationist, and Outstanding Windbreak). Goal is to not eliminate existing awards and not to duplicate efforts; possibly create new award categories.

Comment [CC7]:
- Concern that there are already enough advocacy groups
- Concern that signage is expensive and dollars are better spent on projects

SOCIOECONOMIC FACTORS: EDUCATION AND OUTREACH

B. Internal Capacity

Concerns Expressed during Planning Process

Importance of awareness campaigns and watershed-scale planning. Funding.

Issue Statement

Improve capacity and planning coordination of new organizational structure of Planning Work Group.

Comment [CC8]: Capacity comes down to fostering relationships within group, but more important is this groups connections with other groups

Measurable Goals

GOAL 1

Ensure a transparent organization that offers opportunity for public participation and feedback.

GOAL 2

Provide leadership, education, and resources to assist contractors, landowners, LGUs, etc., in developing and implementing sound BMPs.

GOAL 3

Increase municipal staff awareness of the Cannon River 1W1P, strengthen technical capacity and provide education on the regulatory framework.

Comment [CC9]: Not a lot of measurability in all of the goals, but okay to count activities, trainings, etc to show progress

Goal 2:
- Need clarification on type of contractors – septic install training? Dirt work? Related to NPDES?

Implementation Activities

1. Website with required postings as well as ability to receive public input via comments or survey
2. Welcome packets for new homeowners on who to contact for water resource related questions
3. Host an annual contractor meeting and provide incentives for attending
4. Training for staff on how to build relationships with those outside of the Planning Work Group

SOCIOECONOMIC FACTORS: RECREATION AND LIVABILITY

A. Recreational Value

Concerns Expressed during Planning Process

Use and impacts of riparian commercial uses (resorts, outfitters, etc.). Need for a river cleanup. Outdoor recreation and engagement. Aestheticss: spirituality, honoring plant and animal life. Fisherman noted lack of fish in the Cannon River: oily sheen and turbidity increasing. Balance the need for storage with recreation. Invasive species.

Issue Statement

Maintain existing and create new high-quality opportunities for recreation.

Comment [CC10]:
- Concern that there is already too much boat traffic and shouldn't create new opportunities – response that water is publicly owned
- Add 'Improving environmental stewardship' to ensure users are caring for resources they are recreating in

Measurable Goals

GOAL 1

Improve public's access to natural environments.

GOAL 2

Enhance public recreation opportunities by promoting clean water, connecting habitat, and preventing invasive species.

Comment [CC11]:
Goal 1:
- Concern that improving access will lead to degradation of natural environments
- Foster environmental stewardship
- Goal written to connect people to resource so they develop values to care for them

Goal 2:
- Invasive species – aquatic and terrestrial?
- What is meant by connecting habitat? If corridors, could prioritize connections in existing programs such as RIM

Implementation Activities

1. Increase the number of access points.
2. Address barriers in the river to recreation.
3. Promote recreational rental businesses.
4. Promote waterfront parks/community spaces.
5. Inventory condition of existing access points
6. Install webcams to allow viewing of nature
7. Aquatic invasive species education through inspections, education materials and signage
8. Define areas for recreation through use of maps or online resources