

# 1

## Introduction and Assessment of Current Circumstances

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# **Introduction**

## **Authorization and Requirement**

The Assessment of the Joint Operating Environment, Priority Issues and Planning Guidance is a requirement of Minnesota Statute 103B.231 and Minnesota Rule 8410.0045. The legislation and rule requires' a statement of plan scope and the identification of priority problems, issues and concerns of the citizens, state and local review agencies, collaborators, and District staff.

## **Purpose and Intent of This Report**

### **Purpose**

To gain an enhanced understanding of the operating environment and the problems the District will be facing from 2024 to 2034.

### **Intent**

This greater understanding will require:

- the systematic study of analysis of valid and reliable data about the watershed.
- the judgement of synthesizing information involved in management decisions.

Success will allow the Board of Managers, and key staff to

- visualize future water management activities and
- describe the conceptual approach to management,

Both visualizing and describing provide context for the examination of what must be accomplished, when it must be accomplished, and most importantly, why management objectives must be accomplished.

## **Outcomes Being Sought**

1. A description of the current and desired condition of the watershed.
2. A Broad operational approach.
3. An initial estimate of political and financial supportability.
4. A revised Common Mission Statement for Water Management from 2024 to 2034.
5. A statement of management intent.
6. Guidance for developing alternative management schemes.

## **Acknowledgements**

This report has been prepared on behalf of and with the assistance of the citizens of the District. It is being accomplished with the involvement, support, and leadership of:

Anoka County Highway Department

City of Andover

City of Blaine

City of Coon Rapids

City of Fridley

City of Ham Lake  
City of Spring Lake Park  
Coon Creek Watershed District Staff

Also assisting were:

Anoka Conservation District  
Board of Water and Soil Resources  
Department of Natural Resources  
Metropolitan Council of the Twin Cities

# **Evaluation of the 2013 – 2023 Comprehensive Watershed Management Plan**

## **Where We Are At**

In August 2023, the current Comprehensive Watershed Management Plan for the Coon Creek Watershed District will expire. Upon conclusion of the 2013 – 2023 Comprehensive Plan, the District will have clearly arrived in the “Water Quality Era”. While public drainage and enforcement of the Wetlands Conservation Act remain central themes in management, water quality concerns have taken center stage and dominate discussions, and budgeting.

The District contains 11 impaired waters. Seven of those waters are creeks and ditches impaired for aquatic life and recreation. Three are lakes. Two lakes are impaired for aquatic consumption due to high mercury levels in fish. One Lake, Laddie Lake, is impaired for Aquatic life due to excess chlorides. The final impaired water is the Mississippi River which is the District’s western border and a major receiving water. The Mississippi River is impaired for aquatic consumption due to mercury and Polychlorinated Biphenyls (PCBs), aquatic recreation due to fecal contamination, and aquatic life due to excess phosphorus.

The stressors contributing to these impairments include suspended solids, phosphorus, poor habitat, altered hydrology, chloride levels, low dissolved oxygen levels and *E. coli*.

The most significant emerging issue is the lowering of water within the vadose zone. This upper most part of the surficial aquifer provides an estimated 100% to 50% of the water to the lakes, streams, and wetlands within the watershed. It is also showing signs of high chloride level and is discharging that pollutant to streams, contributing to impairment of surface water resources.

Added to these natural conditions, we are faced with aging infrastructure, labor shortages and limited financial resources. The District is already making efforts to further optimize its management processes and practices. A key approach is to increase integration of its planning, programming, budgeting, and implementation efforts, particularly flood risk management and water quality protection and restoration.

## **How We Got Here**

The District was established in 1959 in response to the promises offered by Federal Law PL-566 and the potential increase in the efficiency and effectiveness of agricultural production. The focus was on money for improved drainage. Those funds were never realized, and the District relied on the assessment process provided through the drainage law to repair the system. The period between 1960 and 1987 was characterized by legal and political controversy and challenges surrounding the conduct of the District and the equity of its cost apportionments.

In 1987, the District completed its first Comprehensive Watershed Management Plan under the Metropolitan Surface Water Management Act. At that time, the District was largely rural, and

the landscape was dominated by farms growing shallow rooted crops, and seasonally flood wetlands. The developed areas in the lower portion of the watershed were experiencing flooding. The watershed management focus was on catch up, mitigating and balancing the provision of both established drainage rights up stream and flood control downstream in a financially equitable way.

In 1991, the Wetland Conservation Act placed the District at ground zero of the competition and conflict between drainage, development, and the preservation of wetlands. From 1991 to 2003, (The wetland era), the District was immersed in reviewing, managing and balancing the effects of urban growth in one of the fastest growing areas of the state and nation. The District's response was to:

- Adopt a management strategy based on 'Growth Management' and "Sensitive Lands" land use management.
- Strict adherence to:
  - the law and the principles of established use or right (or first in time)
  - the wetland delineation requirement of Normal Circumstances (not normal conditions) as described and litigated at the Federal Level though Regulatory Guidance Letter 90-07.
  - Recognition that 98% of all wetlands in the District needed to be evaluated as either problem and/or disturbed (new atypical) conditions under the 1987 Federal Delineation manual.
  - A commitment to advocate solving the development, agriculture, natural resource management problems.
  - Reliance on a finding of facts and an acceptance that the result "is what it is".

In 2003, the District developed its second Comprehensive Watershed Management Plan anticipating a future focus on water quality. In 2004, the District was recognized as a special Municipal Separate Storm Sewer System (MS4) under the National Pollution Discharge Elimination System (NPDES), ushering in the "Water Quality Era". The District completed a minor amendment to its rules and standards to address "non-degradation" of the District's receiving waters. In 2006, the District also saw its first water quality impairments (Coon, Sand Pleasure and Springbrook Creeks for Aquatic Life) under the Federal and state program.

The "Water Quality Era" has increased program responsibilities 50%, increased required tasks 83% and a significant increase in staff. The District has evolved from being an organization primarily responsible for ditch maintenance and wetland preservation, to an organization responsible for drainage, water quality, flood risk management systems, and aquatic wildlife habitat management.

Also, in 2006, the recession struck emphasizing a need for certainty in decision making and control of costs by a constituency that prizes thrift, practicality, and minimum government involvement. The tightened operating environment made investing in long term, less tangible,

non-utilitarian benefits, common characteristics of many natural resource concerns, extremely challenging.

At this time, the District began to formally transition toward a ‘natural infrastructure’ asset-based management approach. This approach was, founded on a sensitive lands/geologic sensitivity view of the resource which emphasized ecological function, the value as natural infrastructure and the public out of pocket cost to repair, replace or mitigate the consequences of imbalanced decision making.

This effort remains supported by well- defined legislative requirements and enforcement. The District also began moving to more formal planning, programming, and budgeting approach. In this new management framework, the District focused on the costs and consequences of mismanagement and evolving and connecting the planning, programming, budgeting and implementation systems and activities.

In 2013, the District developed and adopted its third Comprehensive Watershed Management Plan. In 2014, the District began developing an asset management program for all of its activities and continued to adhere to the doctrine adopted in 1991. The asset management approach defined each program and activity the District needed to meet the legislative requirements or through the expectations of citizens.

The approach has provided a clear relationship between the provision of the beneficial uses of the District’s water resources and investments protecting in the people and property from natural catastrophes or expensive unintended consequences. This combination of asset management and sensitive lands management allows the District to make more defensible and compelling investments and provides needed transparency for elected and appointed officials and citizens.

## **How We Have Done**

The 2013 to 2023, the Comprehensive Plan was approved by the Minnesota Board of Water and Soil Resources (BWSR) in August 2013. The District’s Mission was to:

*“To manage groundwater and the surface water drainage system to prevent property damage, maintain hydrologic balance and protect water quality for the safety and enjoyment of citizens, and the preservation and enhancement of wildlife habitat.”*

The District’s goals were distilled from the various legislative mandates as they apply to the watershed. The goals were:

1. To prevent property damage from flooding, erosion, and degraded water quality.
2. To ensure balance between inflow, outflow, and storage of water.
3. To ensure that water is protected from contamination.
4. To provide for a variety of beneficial uses including the safety and enjoyment of the watershed's residents.
5. To preserve and enhance wildlife.

The dominant concerns at the time were:

1. Preventing flooding.
2. Improving water quality in impaired or impacted waters.
3. Maintaining and enhancing water quality in waters that are not impaired.

Emerging issues were:

1. Aquatic Invasive Species (AIS)
2. Changes in Precipitation Intensity, duration, and apparent return frequency
3. The decline in surficial Groundwater and the effect on Groundwater dependent resources

### **Goal 1: Preventing Property Damage**

The District has done an excellent job at protecting property damage.

- Enforced erosion and sediment control rules to prevent the loss of topsoil and sedimentation restricting recreational use and aquatic life of waters within the watershed
- Regulated the low floor and low entry point to structures to prevent flooding from ground water and flooding.
- Avoided adverse impacts associated with the use and modification of floodplains and with the destruction, loss, or degradation of wetlands.
- Prohibited development within the floodway and new construction in wetlands wherever there is a practicable alternative.
- Continue bank stabilization & repair projects.
- Performed regular surveys to evaluate flood hazards and storm damage occurrences and their hazards and to develop treatment programs where needed.
- Respond quickly and effectively to alleviate the effects of natural disasters and reduce the threat to life, public health, and property.
- Assist in preventing, treating, and controlling aquatic invasive species where they have degraded the water quality of natural water bodies restricting recreational use, aquatic life, or enjoyment.
- Identified minor sub-watersheds providing water within the drinking water supply Management Area
- Ensured District participation in State and local early flood warning systems.
- Prepare public service announcements used to caution against strong currents and under tows that may exist in the watershed during times of high water.
- Provided opportunity for early public review of plans or proposals for actions in floodplains.
- Identify critical events and conditions that lead to local flooding and water quality problems.

## **Goal 2: Ensuring Hydrologic Balance**

The District has done a satisfactory job in ensuring hydrologic balance. It has done very well if the increased randomness of precipitation is considered. The following actions and policies support this assessment:

- The update of the hydrologic model using XPSWMM. The model has both the ability to scale, account for reverse flows, and account for varying hydraulic conditions.
- Working with the cities within the District and Department of Natural Resources (DNR) to update the Floodplain management model to be used by FEMA in the old National Flood Insurance Program and New National Resiliency Program.
- Having DNR recognize the model as the Best Available Science and information on local surface water hydrology.
- Strict administration of the District's Drainage Sensitive Use policy which reduces discharge volume from developed land, reduces peak flows and thereby protects established drainage rights.
- Established and evolved a watershed wide precipitation tracking and reporting system and water content information on snowpack that has improved flood predictions and spring flood preparedness.
- Modified regulatory standards to ensure that the rate, volume, and quality of water entering wetlands matches wetland type and need.
- Worked with USGS to establish a real-time, continuous discharge monitoring station at the outlet of Coon Creek.
- Raised a warning flag to the DNR, the Northeast Groundwater Management group, and Minnesota geologic survey that the surficial ground water aquifer is at risk, places the lakes, wetlands and other groundwater dependent surface water resources and needs to be evaluated separately from the routine assessments of "groundwater".

## **Goal 3: Addressing Water Quality**

The District has done an excellent job at addressing the water quality problems, issues, and concerns of the watershed. Examples include:

- Hiring of a Water Quality Coordinator and a specialist competent in Aquatic Invasive Species, Clean Water Act requirements and the continued monitoring, evaluation and response to Total Maximum Daily Load (TMDLs).
- Secured \$3,616,729.58 in state and federal grant funds to further water quality restoration objectives.
- Constructed the first and largest Iron Enhanced Sand Filter (IESF) amended with biochar filter media that treats runoff from nearly a square mile catchment. Also have since constructed three additional IESF and biochar filters. We continue to monitor and report on the treatment success as well as the maintenance needs and costs to operate and maintain this practice. All have significant effect on load reductions and progress towards meeting approved TMDL standards.
- Restored three segments of the creek within the watershed where no upstream or downstream conflicts can occur due to flow modification. Techniques involved



remeandering, reconnection to the floodplain and flow modification and was conducted in close collaboration and with the support of the DNR, Minnesota Pollution Control Agency (MPCA), BWSR, the Anoka Conservation District and the Cities of Andover and Coon Rapids.

- Applied for and was accepted into the MPCA’s pilot small watersheds program that provides guaranteed federal funding in excess of \$1.2 million dollars for water quality restoration projects over 16 years starting in 2022.
- Stabilized 28,326 LF of channel (5.36 Mile) of active erosion, reducing sediment and attached phosphorus loads by 2951 Tons TSS/yr and 2507 Lbs TP/yr, respectively.
- Initiated and was successful in treating and largely eliminating Hybrid Eurasian Watermilfoil from Crooked Lake with the support and assistance of the Crooked Lake Area Association, DNR, and the Cities of Coon Rapids and Andover.
- Initiated semiannual early detection inspections of all lakes and aquatic habitats likely to support colonization of “at risk” AIS.

#### **Goal 4: Providing Beneficial Uses**

The Coon Creek Watershed is a “working” watershed, where a host of beneficial uses are in demand and experience elevated levels of use. The District has done an excellent job, under a performance based multiple use management doctrine to provide opportunities and access to the quantity and quality of water demanded. Actions supporting this assessment include:

- Routine maintenance conducted to accomplish objective while minimizing alterations and facilitating channel equilibrium.
- Monitoring of lake and stream quality.
- Completion of the Watershed Restoration and Protection Strategy (WRAPS) with MPCA.
- Completion of a Nine Key Elements Document for Coon and Sand Creeks with MPCA.
- Updated the Crooked Lake Management Plan.
- Developed the Ham Lake Management Plan.
- Actively worked to address recreation impairments via bacteria source tracking, implementation of pet waste management program, and testing of innovative biochar-amended filtration media.

#### **Goal 5: Preserving And Enhancing Wildlife**

Wildlife is clearly the legal responsibility of the State and the Federal government. The District has done a good to excellent job in implementing its supportive goals, given the history, constraints, and restraints under which it operates. Actions supporting this assessment include:

- Early encouraged or required reconnaissance and preapplication meetings that include review of threatened and endangered species and rare plant communities recorded or potentially on the site.
- Coaching on project alternatives and modifications that can avoid or reduce potential impacts.

- Strong encouragement of applicants to contact DNR immediately and coaching on the nature of both their project and the probable and potential resulting impacts to wildlife resources.
- Strict refusal to issue permits involving threatened, endangered species or rare plant communities until a DNR decision or permit can be shown.
- Successful restoration of fishery habitat in three locations and an analysis of barriers to aquatic organism passage to be addressed.
- The successful planning to avoid and protect threatened and endangered species on approximately 50 developments and subdivisions over the past 10 years.
- Implementation of Aquatic Invasive Species (AIS) prevention and management activities.

### **Goal 6: Aquatic Invasive Species**

The District has done an excellent job in facilitating the education, inspection, intervention and treatment of aquatic invasive species within the watershed. Significant actions in the past 10 years include:

- Assisted in the formation of the Ham Lake Lake Association and continued operation of the Crooked Lake Area Association.
- Updated and developed lake management plans for Crooked and Ham Lakes in collaboration with their respective lake associations and the Cities of Andover and Coon Rapids in the case of Crooked Lake.
- Conducted public information and education program for lake residents and interested parties on AIS and identification of key species.
- Launched and administered a volunteer zebra mussel spotter program for early detection of zebra mussels.
- Facilitated and coordinated the assessment, grant acquisition and treatment of Crooked and Ham Lakes for hybrid Eurasian Watermilfoil and curlyleaf pondweed.
- Established a rapid response fund to address either new minor colorizations or to supplement cost share for major occurrences.
- Developed and implemented a twice annual inspection program of key habitats.
- Annually review, refresh and brief stakeholders on trends and risks of new AIS species.
- Successfully defended against invasive common reed (*Phragmites australis*) through early detection, herbicide treatments, and post-treatment monitoring; reduced infested area by 98%.
- Successfully eradicated pale yellow iris.

### **Goal 7: Addressing Changes In Precipitation Patterns**

The District has done a good job in adjusting to changes in the effects of higher intensity and shorter duration rainfall events. Key District actions in the past 10 years include:

- Adopted Atlas 14 as the best available information for planning and sizing infrastructure.
- Evolved precipitation monitoring network to better assess the length and intensity of storms.

- Evolved stream level monitoring to enable real-time data viewing through telemetry-enabled devices.
- Expanded local information and communication network to include ongoing implications of impending weather conditions and hydrologic implications for current conditions.
- Established a system that has been key in coordinating and documenting storm damage for grants, adapting and updating select standards and providing the foundation for planning and anticipating issues ranging from flooding to aquatic invasive species monitoring.
- Required staff to remain current on evidence-based research, findings and developments, on best practices in their areas of responsibility.
- Collaborated with cities to consider in frequency and occurrence of precipitation in planning and decision-making involving infrastructure construction, replacement, and rehabilitation.

## **Goal 8: The Effect of Declining Regional Surficial Groundwater on Groundwater**

### **Dependent Resources**

Actions taken in the past 10 years to address this goal have included:

- Development of a detailed conceptual model and water budget of the vadose zone within the district
- Presentation to DNR North-east Ground Water Management Area project managers during scoping to address larger Anoka Sand Plain surficial/unconfined aquifer issues
- Collection of continuous lake and wetland level data at long-term monitoring sites

### **Lessons Learned**

The planning and management approach adopted in 2013 needs updating and continual evolution to enable the District and its collaborators to adapt and succeed through and beyond 2034. The following lessons will be incorporated into the fabric of the 2024-34 Comprehensive Watershed Management Plan:

1. **Water Management involves the continual combination, recombination and evolution of physical, social, and political/economic factors and trends.** These factors combine at multiple scales to influence water resource decision making, even when they originate from the resource itself or the actions of non-government groups.
2. **The physical, social and management factors and trends, are ‘open’ systems,** available to constant inputs creating an operating environment characterized by volatility, uncertainty, complexity, and ambiguity (VUCA). The result is often a profound sense of struggle on the part of local managers.
3. **Short- and long-term water management ‘is characterized by a fog and friction created from the risk and uncertainty in the physical, social and management domains.** The risk and uncertainty is the product and a dynamic combination of human perception, and chance.

These two variables tend to distort, cloak, and twist the course of events, regardless of the advances in science, technology, or computing power.

4. **Planning and the planning process is more important than ever.** Not to decide and commit to a rigid schedule of projects and activities, has proven unrealistic and impractical. Its value is in facilitating and communicating common understanding of problems, and identifying available options and their consequences, and to facilitate unified action.
5. **Management actions need to be practical and relevant to those financially affected.** The reliance on a proactive, multiple use utilitarian management approach that focuses on physical consequences, even if when those consequences will occur is uncertain, is more effective than the traditional defensive based conservation, “just say no” strategy that increasingly dominates the natural resource and environmental debates.
6. **Where you are going is more important than where you are at.** The performance, evolution, and potential of physical, social and management systems is more important than their current condition. However, immediate and short-term condition and capacity are important too.

### **Implications**

1. Fulfillment of the responsibilities for drainage, flood prevention, wetland conservation and water quality restoration will be challenging.
2. We cannot predict what types of specific water management problems, issues, or concerns, or for what purposes or priorities other land and water management organizations will be engaged in over the next ten years.
3. We can only speculate about potential and probable problems and issues, how they might occur and the costs they may cause to either prevent, mitigate, or recover from their effects.
4. We can, however, state with certainty, that the fundamental foundation and nature of water management within the Coon Creek Watershed will not change in the sense that the mix of political and economic aims, pressures, and hesitations will continue to condition water management operations.
5. The likely result will be an operating environment characterized by:
  - Volatility, uncertainty, complexity, and ambiguity (VUCA) in the physical, social and political economic environments in which it operates.
  - Increasing pressure to meet water quality targets, anticipate flood risk, and account for the effects of changes in precipitation.
  - A growing obligation and need to manage aging infrastructure within limited budgets and resources.

The 2024 to 2034 Comprehensive Plan provides an opportunity to further adapt and transform the collective water management organization into one that can adapt and sustainably manage storm water quality and drainage in a transparent and cost-effective manner, that justifies funding

requirements and management decisions. It will require the District, and its collaborators to continually evaluate programs to develop and refine its core mission, goals, objectives, levels of service and measures of performance and effectiveness.

## **Review And Consideration of Input Received During Initial Planning Process**

In May 2022, the District published its “Intent to Amend Comprehensive Watershed Management Plan”. The notice was published on the District website and sent directly to the state review plan agencies identified in M.R. 8410 through the contacts identified on the BWSR web site. The agencies and public were provided 60 days to submit written comments.

Respondents were requested to note:

- Their management expectations for the Watershed Management Plan
- Their priority water management issues
- A summary of their relevant water management goals and water resource information
- Official Controls
- Water Management Programs

Five stake holders submitted 37 comments. Comments were reviewed with the Board of Managers at their July 11, 2022, regularly scheduled meeting.

<b>NOI Comment Topics</b>	<b>Public</b>	<b>BWSR</b>	<b>DNR</b>	<b>Met Council</b>	<b>Total</b>
AIS			2		2
Bank stabilization			1		1
Climate Change	2	1		1	4
Channel restoration/ Conservation Drainage			1		1
Chloride		1	2		3
Ditch maintenance			1		1
Fish & Wildlife			1		1
Forested riparian lands			1		1
Ground Water		1	6	1	8
Parks				1	1
Planning & Management process	1	3	1	1	6
Stormwater Management			1		1
T&E Species			3		3
Water quality		1	1	1	3
Water Quality Impairments	1	4	7	2	14
Watershed Assessment tool			1		1
<b>Total</b>	<b>4</b>	<b>11</b>	<b>29</b>	<b>7</b>	<b>51</b>

A summary of the comments organized by Notice of Intent (NOI) category is below:

## **Management expectations for the planning process**

There were five expectations raised in the comments made on the NOI. They were:

1. Climate Change.
2. Principal Based Management: Management will adhere to fundamental management principles for watershed and natural resource management.
3. Integrated Management.
4. Public participation process will consider diversity, equity, and inclusion elements to ensure robust stakeholder engagement.
5. Contain measurable goals.

### **1. Climate change and adaptiveness.**

The issues of climate change, often coupled with the issue of global warming remain an extremely hot and divisive issue among the public and the elected officials who make policy.

What is not at issue is the increase in the intensity and duration of precipitation events, the localized damage they have caused, the extreme variations in temperature and the volatility of the atmosphere.

The District has identified been adapting to these changing conditions since 1997 and has identified the increase in intensity and duration as an issue in its last two Comprehensive Watershed Management Plans.

- The 2003 watershed management Plan began the development and facilitation of a monitoring and communication network to assess precipitation.
- In 2005, the District established its own grid of precipitation monitoring gauges to assess the variation in precipitation over the watershed. While a fundamental watershed management component, the system served its intended purposes.
- In the 2013 Watershed Management Plan, the District implemented efforts for tracking, informing and anticipating the time, intensity and potential hydrologic effects of incoming storms. That system has been key in documenting storm damage for grants, adapting and updating select standards and provided the foundation for planning and anticipating issues ranging from flooding to aquatic invasive species monitoring. In addition, District staff is required to remain current with evidence based developments, and evolution of evidence based best practices in their areas of responsibility. The District also works with its collaborating cities to consider these changes in precipitation patterns in planning and decision-making involving infrastructure construction, replacement, and rehabilitation.

Readers should understand that these decisions involving potentially oversizing infrastructure to accommodate changes in precipitation. The useful life is often between 50 and 100 years, and involves the use of public funds, are rich with uncertainty and political consequences, and are bounded by legal and public accounting constraints and restraints of financial accountability. Also the legal need to show some evidence based rational connection for the disposition and use of those funds, as well as, the priorities and preferences of the local public who pay for local services.

To remain efficient and effective in providing the beneficial uses and services provided by the watershed, the District will need to continue to adapt to this fundamental change and reality in its operating environment.

The issue of climate change is of global scale and in the public arena, remains emotionally debated and is rich with opportunities for misunderstanding, and is often heavily influenced with philosophy, opinion and second guessing. None of these helps focus attention on addressing the specific water management problems at the local level.

## **2. Ground Water Protection and Sustainability**

- While the District is not a water supply utility it does play an influential role in protecting water quality and preventing land use practices that may harm or present serious risk to groundwater and public drinking water supplies. The District also comments on DNR Appropriation and Dewatering Permits when it is known that the cone of depression formed by the dewatering or well could adversely affect water resources for which the watershed district has some responsibility.

## **3. Inclusiveness of Planning Process**

In response to these concerns the District developed a Public Engagement Plan (Appendix B). Implementation of the plan resulted in:

- Contact with over 150 members of the public.
- Fifty-two (52) responses to a District wide survey on water priorities and concerns.
- Eight meetings each with the Citizen and Technical Advisory Committees where various problem, issues and concerns as well as process and procedures were identified and discussed.
- Four meetings were held with specific staff and interests to review community planning and development.
- Members from at least three state review agencies attended meetings on specific topics such as groundwater and wetlands.

## **4. Comprehensive and Integrated Management approach**

Official and unofficial comments favored a dedication to “sustainability” through adaptive planning and management. The sustainable version advocated focuses on and establishes investment and action priorities on the restoration and preservation of natural components and functions and whose use is provided by the residuals or a product of living lightly on the resource. The DNR comments advocated, , a process for accomplishing this.

At present, the District practices multiple-use management through a version of adaptive planning that relies on conservative, evidence based forecasting and readiness.

The Coon Creek Watershed District (CCWD) was officially formed in 1959. The agency’s mission was significantly defined with the passage of the Metropolitan Surface Water Management Act (MWMA). The MWMA recognized the multiple beneficial uses provided by water and related resources and required a statement and plan for local care and continued provision of those beneficial uses.

The term “multiple use” seems self-descriptive. For local water resource management, it means that water resources have many beneficial uses (renewable and non-renewable), such as drinking water, aquatic life and wildlife, recreation, navigation and aesthetics, etc.

This multiple use “mandate” through MWMA and State Water policy (MS 103A) states that the use of water resources within Minnesota should be allowed through a balanced combination that will best meet the needs of the people (current and future needs for current and future generations). This is one articulation of the “provide but protect” paradox inherent in most public land and natural resource management.

Working within this paradox on problems that inherently have physical, social, political and economic elements highlights the operating environment characteristics identified above:

- Increasingly volatile: weather patterns, social tastes and preferences, and political priorities and predilections are all characterized by swings in what appears to be extremes.
- Rife with uncertainty: The volatility described above is a major but not the only contributors to creating immense uncertainty for decision makers faced with allocating, investing resources or positioning their organization for anticipated changes or demands.

A second significant source of uncertainty lies with the courts. The history and volume of past and present litigation has forced the courts, at all levels, to increasingly specify their judgements. The result often has much broader implications for policy and practice. This situation combined with what appears to be increasing attempt to influence agency and statutory priorities through “advocacy” litigation has also contributed to the uncertainty and, at times, hesitancy to take actions that could prevent or preempt water resource problems.

- Inherently complex: Multiple Use Watershed Management is an amalgam of various arts, sciences, and disciplines including law, economics, geology, hydrology, biology, chemistry, physics, and sociology. These are the applied and practiced through a combination of management and political science, engineering and a host of other natural resource-based disciplines including soils, hydrology and forest or range management.

Persistent Ambiguity: One step back from collection of a water sample, identification of a plant species, construction of a best management practice, or inspection of a construction site the most honest and direct answer to the majority of water resource problems, issues and concerns is, “it depends”. The variety and enormity of demands on water resources and the sophistication and complexity of their structure and function requires that response until there is a common understanding of the problem, issue or concern and what is to be done. As water management moves away from the tactical, to the programmatic to the legislative and strategic, the ability to accomplish that within a meaningful time frame decreases, thus increasing ambiguity and forcing local organizations to be more adaptive and agile which, in turn makes their own demands on budgets, equipment and staffing. To effectively operate in



these conditions and adopt an approach which is comprehensive and integrated the District views the resource and its responsibilities by:

1. Considering that “the people” is a collection of widely diverse individuals (and groups) that all have an interest in their water resources. From citizen to developer to environmentalists, everyone has a stake in quantity, quality and continued provision of the benefits provided.
2. Recognizing that there are dozens upon dozens of state and Federal laws that influence water management. From the Drainage Law (1887), the Watershed Act (1953), Federal Clean Water Act (1971), Metropolitan Surface Water Management Act (1982), Wetland Conservation Act (1991), Clean Water Legacy Act (2022) along with the numerous other regulations, court orders and decisions, and Corps of Engineers, BWSR and MPCA policies, and various manuals and handbooks, there is quite an analysis to perfect when determining the best course of action for water resources.

Many of these laws, regulations, and policies are broadly applicable to the District, while others are prescriptive and specific to the problems, issues or concerns of different resources or conditions. The management for multiple uses involves a potentially overwhelming set of resources, uses, and issues. Each with its own set of environmental, social, and economic consequences and a history of conflict.

So how does the CCWD manage this complexity?

In each case, decisions are considered in light of:

1. The condition and capacity of the water resources affected.
2. The specific physical, social and management circumstances of the situation.
3. These specifics are then considered in light of the ability and time involved for water resource to absorb and or recover and continue to provide the full set of beneficial uses being demanded AND the alternatives available to avoid, minimize or mitigate any impacts from the proposed use.

Comprehensive planning is one of the most important tools that the District has, as it comprehensively considers and publicly discloses and ensures that the CCWD manages the water resources of the District consistently and in a way that upholds the principle of multiple use.

In addition, the planning and ten-year execution process, involves continuous opportunity for public involvement through twice monthly public meeting with the Board and full-time staff dedicated to public involvement and information.

The CCWD makes every effort to plan for and implement decisions that will most positively affect the citizens and landowners of the watershed and the state of Minnesota.

##### **5. Measurement of Performance, Effectiveness and Progress**

The issue of measures and benchmarks of performance was raised by two state agencies, at least one local agency and a member of the Citizen’s Advisory Committee. In developing the 2013 Comprehensive Plan the BWSR encouraged the articulation of measurable outcomes

for major goals. No other guidance was provided other than the importance and value in identifying trends, strengths and weaknesses and benchmarks for historical use.

Within the context of natural resource management, the 2013 required suggestion was viewed with confusion due to the lack of context, longitudinal data and the typical long period it can take to see and measure meaningful differences. be able to validly show a cause and effect relationship between current conditions and the initiation of some practice or program.

The District has however, developed and reports a set of performance measures monthly. These monthly measures are typically aggregated and reported annually in various reports. However, performance measures are only useful at recording inputs, levels of effort and the efficiency of doing the right things. Performance measures, however, cannot tell you if you are doing the right things or are being effective.

A fundamental modern multiple-use management is to continuously assess the operational environment and the progress of the programs, projects and activities that comprise operations. The first step toward a successful assessment is deciding what to measure and how to measure it. Managers often find two concepts helpful in assessment:

**Measure of Performance (MoP)** (Which ask the question “Are we doing things right?”) will be defined as the criterion used to assess friendly or supporting actions that are tied to measuring task accomplishment. Behavior, capability, or operational environment that is tied to measuring the attainment of an end state, achievement of an objective, or creation of an effect. MOPs are necessary for correlation to specific Measures of Effectiveness (MoEs) in order to determine the optimal levels of effort for objective achievement. A careful analysis of the relationship between MOPs and MoEs reveals the need to change what and how things are done if the current plan is inefficient or have adverse effects.

**Measures of Effectiveness (MoE)** (Which asks the question “Are we doing the right things?”) will be defined as criterion used to assess changes in system behavior, capability or operational environment that is tied to measuring the attainment of an end state, achievement of an objective, or creation of an effect. They measure the ability of a system to meet its specified needs (or requirements) from a particular viewpoint. This measure may be quantitative or qualitative and it allows comparable systems to be ranked. These effectiveness measures are defined within a specific problem-space. Implicit in the meeting of problem requirements is that threshold values must be exceeded. The criteria used for the development of the Watershed Condition assessment above are one example of effectiveness measures.

Those who understand the difference know that in a complex operating environment, organizations need to “do the right things” (succeed at MoEs) to achieve objectives, not just “do things right” (succeed at MOPs).

This comprehensive plan will initiate an evolution of the outcomes articulated in the 2013 plan and will include measures of performance (MoP) and measures of effectiveness (MoE).

The distinction between MoEs and MoPs can depend on their context within the comprehensive plan.

### **Priority Water Management Issues raised:**

1. AIS
2. Bank stabilization
3. Channel Restoration
4. Chloride
5. Climate Change and Community Adaptiveness and Resiliency
6. Ditch maintenance
7. Fisheries
8. Forested riparian areas
9. Ground water
10. Impact on Parks
11. Threatened and Endangered Species
12. Water Quality

### **Relevant Water management goals**

- No specific water management goals were provided by any of the agencies responding to the NOI. The goals and purposes to be used in the plan will be based on those provided in Minnesota Statutes, Rules and regional Guides. Where or when those goals appear contradictory as applied to a specific circumstances the Board of Managers will balance the public interest conflicts at the watershed level after consideration of the whole body of water law.
- Priorities were identified through survey and focus groups
  - i. Priorities for Beneficial Use of Water
    1. Drinking water
    2. Fish and Wildlife
    3. Aquatic Life
    4. Agriculture
    5. Aesthetic enjoyment
    6. Recreation
    7. Industrial use
    8. Navigation
  - ii. Ground Water Management Priorities
    1. Drinking water
    2. Drinking water sustainability
    3. Source water protection
    4. Water supply
    5. Chloride
    6. Groundwater recharge
    7. Ground water x Surface water interactions and reliance

- iii. Water Quality Management Priorities
  - 1. Water quality impairments
  - 2. Chloride
  - 3. Lake health
  - 4. Water borne pathogens.
  - 5. Contaminants of emerging concern
  - 6. Aquatic life impairment
  - 7. E. coli
  - 8. Fisheries impairment
  - 9. Aquatic invasive species
  - 10. Aquatic recreation impairment
- iv. Water Quantity Management Priorities
  - 1. Flooding
  - 2. Altered hydrology
  - 3. Change in storm type
  - 4. High water table

### **Official Controls**

None provided.

### **Water Management Programs**

Two tools were recommended:

- Principles for Sustainability and Adaptive Planning:

#### **Response:**

Minnesota Statutes clearly state that the purpose and intent of the legislature is the ongoing provision of the “beneficial uses” provided by the water resources of the State (M.S. 103A, 103B & 103D). To “provide” these uses requires protection and enhancement of the productive capacity of the soil and water resources within in an area. This requires an ecological (vs an environmental) approach that embraces the complex dynamic nature of the physical, social and political/economic domains that compose differing operating environments in time and space. The Coon Creek Watershed District has been formally engaged in sustainable multiple use management since its second-generation plan in 2003 and informally since 1991.

- Watershed Condition & Health Evaluation:

#### **Response:**

The DNR suggested use of the State’s Watershed Condition framework. The District has formally assessed the condition of the watershed every two to three years since 2013. The District uses the Watershed Condition Framework developed by the National Forest Service for use on national forests under high demand for the multiple uses provided by those forests (USFS, 2011). The Coon Creek Watershed District has continued to refine the measures used under the basic framework and variables in order to make the model more useful for managing priorities, making decisions and prioritizing research, monitoring, and planning studies. The results of the 2022 assessment are presented in Part 3 of this report.

## **Framing the Problem, Evaluating the Concerns**

Twelve of the issues identified during the initial engagement process will be evaluated for inclusion in the Watershed Management Plan.

Those twelve are:

1. AIS
2. Bank stabilization
3. Channel Restoration
4. Chloride
5. Climate Change & Community adaptiveness & resiliency
6. Ditch maintenance
7. Fisheries
8. Forested Riparian Areas
9. Ground water
10. Impact on Parks
11. Threatened and Endangered Species
12. Water Quality

The remainder have been evaluated and discussed in the previous section. These 12 issues represent a variety of scales and types of problems, issues, and concerns. Water quality, for instance is a domain, where chloride is a specific pollutant and stressor which causes or can contribute to water quality impairments such as aquatic life. Aquatic Invasive Species is another recognized component of the physical, chemical and biological aspects of water quality. Bank stabilization and healthy riparian lands, while aspects of a water resource can also be viewed as best practices for water quality, protecting property and flood prevention.

## **Evaluation of Problems, Issues and Concerns and Preparation for Planning and Operations**

The District will use a three step systematic process of analyzing the problems, issues and concerns of groundwater, public drainage, water quality, water quantity, and wetlands, as well as, civil considerations within the watershed to determine their effect on achievement of legislative goals and future operations. The process is formatted to allow governing Boards, managers and staff to take a comprehensive approach to analyzing the operational environment.

A comprehensive approach must:

- Describe the totality of relevant aspects of the operating environment that may impact collaborator and District efforts.
- Account for all relevant domains that may impact collaborator and District operations.
- Identify windows of opportunity to leverage District and collaborator capabilities against problems, issues, and concerns.
- Allows managers to leverage positions of relative advantage at a time and place most advantageous for achieving legislative goals and local needs with the most accurate information available.

During this evaluation, District staff will create data files for the District and program an operational environment based on existing information and their evaluation of the information and intelligence related to the operational variables (political, storm water management, economic, social, information, infrastructure, physical environment, and time). District staff can also access data maintained by different programs. This programmed-aligned process will be designed to refine, and store information and intelligence on a regular basis, which benefit subwatershed aligned work groups.

Throughout the evaluation, planning and most of all the ongoing operations process, managers and staff should be continually collecting and analyzing information and operational variables to provide increased situational understanding due to possible contingency operations. Situational understanding is the product of applying analysis and judgment to relevant information to determine the relationship between the ever changing and evolving physical, social and political-economic operational environment and the variables involved in making decisions affecting legislative mandates, goals and objectives.

Upon publishing the notice of intent to amend the Watershed Management Plan, the Board, District Administrator and Program Coordinators began to gather information relevant to the resource and operational variables and filter and fit them to the legislative mandates affecting the District.

The primary variables are legislative goals, intent and the specified and implied tasks stated in statute and rule. These were then applied to the watersheds' landscape and hydrology and the problems, issues and concerns that effect and are effected by water management, and act as constraints and restraints to future management actions.

To be effective, the approach taken must:

- Be part of a continuous process with all staff members providing input (We currently do this twice monthly).
- Account for all domains, and the information environment.
- Facilitate mutual understanding between collaborators.
- Define the District's area of operational interest by its geographic boundaries to focus collection and analysis of information.
- Describe how the resource variable, problems, issues and concerns will affect water management programs and activities (operations).
- Include relevant aspects of the operating environment for decisive, shaping, and sustaining programs, projects, and activities.
- Determine how the interactions of collaborators, problems, issues and concerns and the public affect each other to continually create outcomes that positively affect the public.
- Supports the District's and collaborators planning, programming, budgeting, and operational frameworks relative to time, cost and benefit.
- Facilitate Board's, Councils', and managers ability to visualize the desired end state and a broad concept of how to shape current conditions into that end state.

- Support managers in directing research and planning.
- Facilitate understanding the characteristics of problems, issues, and concerns for setting more efficient and effective courses of action.

### **The Evaluation Process**

The evaluation process consists of three steps:

1. Define the Operating Environment.
2. Describe effects of the operating environment on water management programs and activities.
3. Evaluate the problems, issues and concerns that threaten the desired legislative intent and outcomes and identify high value subjects, topics, and targets for management intervention.

### **STEP 1: Define the Operational Environment**

An operational environment is a composite of the conditions, circumstances, and influences that affect an organizations capabilities and bear on the decisions of managers and Board. The operational environment for any specific program, project or activity comprises more than the interacting variables that exist within a specific physical area. It also involves interconnected trends and influences from the Federal, state, and regional perspective (such as politics, economics). Thus, each manager’s operating environment is part of a higher authority’s operating environment. Defining the operating environment results in the identification of:

- Significant characteristics of the operating environment that can affect programs and projects.
- Gaps in what we know and need for decision making.

Step 1 is important because it assists the manager in defining relationships within the operating environment in time and space. This is equally important when considering characteristics of several agencies and or locations. Aspects of these differing agency and site operating environments may occur simultaneously across the watershed but may only factor in supportive as well as detrimental activities at specific times and locations.

During step 1, collaborators and staff must identify those significant characteristics related to the mission and driving the problems, issues and concerns. They must evaluate significant characteristics to identify gaps and initiate information collection. Field staff then justifies the analysis to the management team. Failure to identify or misidentifying the effect these variables may have on programs, projects and/or activities at a given time and place can hinder decision making and result in the collection of meaningless data or information. During step 1, the area of operations (AO), and area of influence must also be identified and established.

Understanding collaborator capabilities and the problems, issues and concerns is not enough; other factors, such as culture, affiliations, and other variables, can be equally important. Identifying the significant characteristics of the operating environment is essential in identifying the additional information needed to commence planning.

Additionally, where a program is assigned and how its operations will synchronize with other associated operations must be considered. For example, regulatory programs should be forming questions regarding where their program fits within the entire regulatory picture and the specific requirements needed to handle the program's contingency plans.

### **STEP 2—Describe Environmental Effects On Operations**

During step 2 staff describes how significant characteristics affect water management. Staff also describes how the landscape, hydrology, civil considerations, and collaborators affect problems, issues and concerns. This evaluation focuses on the general capabilities of each organization until the development of alternative course of action. The entire staff and collaborators determines the effects of combined efforts on the population and water resource.

If the organizations operating environments do not have the information required to form conclusions, it uses assumptions to fill information gaps always careful to ensure the manager understands when assumptions are used in place of facts to form conclusions.

### **STEP 3—Evaluate of the Problems, Issues and Concerns and The Threat They Present**

The purpose of evaluating the threat is to understand how risk can affect collaborative efforts. Although problems, issues and concerns may conform to some of the fundamental principles of watershed or storm water management, these problems, issues and concerns will have obvious, as well as subtle, differences in how they approach situations and problem solving. Understanding these differences is essential to understanding how a problem, issue or concern will play out in a given situation.

Managers and Staff conduct threat evaluations and create threat models. Using the information presented in this report and information collected and analyzed during the implementation phase, staff can refine threat models, as necessary, to support planning and implementation. When analyzing a well-known threat (such as flooding), the staff may be able to rely on previously developed models. When analyzing a new or less well-known threats (such as declining groundwater levels), staff may need to evaluate the threat and develop models during the mission analysis step.

In situations where there is no threat, the analysis conducted and the products relating to landscape and land use, hydrology, and civil considerations may be sufficient to support planning. An example of this type of situation is a natural disaster.