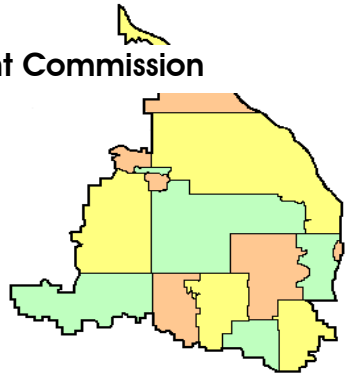
Shingle Creek Watershed Management Commission
West Mississippi Watershed Management Commission

3235 Fernbrook Lane N • Plymouth, MN 55447
Tel: 763.553.1144 • Fax: 763.553.9326
Email: judie@jass.biz • Website: www.shinglecreek.org



February 3, 2022

Members
Technical Advisory Committee
Shingle Creek and West Mississippi
Watershed Management Commissions
Hennepin County, Minnesota

The agendas and meeting packets for both the TAC and regular meetings are available to all interested parties on the Commission's web site at http://www.shinglecreek.org/tac-meetings.html **and** http://www.shinglecreek.org/minutes--meeting-packets.html

Dear Commissioners and Members:

Regular meetings of the Shingle Creek and West Mississippi Watershed Management Commissions will be held **Thursday, February 10, 2022, at 12:45 p.m.**

The Joint SCWM Technical Advisory Committee will meet at 11:00 a.m., prior to the regular meetings.

**To join a meeting:** https://us02web.zoom.us/j/834887565?pwd=N3MvZThacmNRVDFrOWM3cU1KRU5qQT09, which takes you directly to the meeting.

**OR,** go to www.zoom.us **and click Join A Meeting. Please use the regular meeting ID and passcode for both meetings.** The meeting ID is **834-887-565.** The passcode for this meeting is **water.**

If your computer is not equipped with audio capability, you need to dial into one of these numbers:

| | | |
|---|---|---|
| +1 929 205 6099 US (New York) | +1 312 626 6799 US (Chicago) | +1 669 900 6833 US (San Jose) |
| +1 346 248 7799 US (Houston) | +1 253 215 8782 US | +1 301 715 8592 US |

Meetings remain open to the public via the instructions above**.**

Please email me at judie@jass.biz to confirm your attendance at the TAC meeting. Thank you.

Regards,

Judie A. Anderson
Administrator

| | | | | |
|---|---|---|---|---|
| cc: | Alternate Commissioners | Member Cites | Troy Gilchrist | TAC Members |
| | Stantec | BWSR | MPCA | Met Council |

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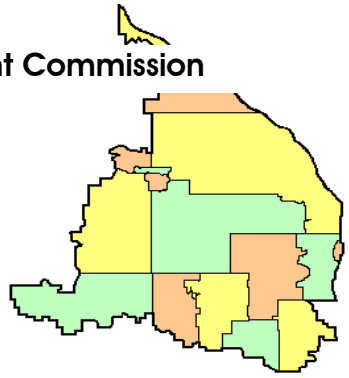

A meeting of the joint Technical Advisory Committee (TAC) of the Shingle Creek and West Mississippi Watershed Management Commissions is scheduled for **11:00 a.m., Thursday, February 10, 2022.** **This is a virtual meeting.**

**To join the meeting, click** https://zoom.us/j/834887565 **or go to** www.zoom.us **and click Join A Meeting. The meeting ID is 834-887-565. The password is water. If your computer is not equipped with audio capability, you need to dial into one of these numbers:**

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+1 346 248 7799 US (Houston) +1 253 215 8782 US +1 301 715 8592 US
Meeting ID: 990 970 201. Passcode: 579973

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**February 10, 2022**

**A G E N D A**

1. Call to Order.
   a. Roll Call.
   b. Approve Agenda.*
   c. Approve Minutes of Last Meeting.*
2. Fourth Generation Plan.*
   a. Revised Maintenance Policy.*
   b. Rules Update.*
   c. Monitoring Program Framework.*
   d. Website Interactive Map.
3. Other Projects.
   a. Bass Lake CLP Grant Application.*
   b. 2022 WBIF Convene Process.*
4. Other Business.
5. Next TAC meeting is scheduled for March 10, 2022.
6. Adjournment.

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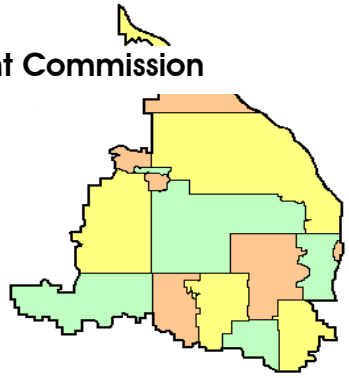


**MINUTES**
January 13, 2022

A virtual meeting of the Technical Advisory Committee (TAC) of the Shingle Creek and West Mississippi Watershed Management Commissions was called to order by Chair Richard McCoy at 11:05 a.m., Thursday, January 13, 2022.

Present: Andrew Hogg, Brooklyn Center; Mitchell Robinson, Brooklyn Park; Heather Nelson, Champlin; Mark Ray, Crystal; Derek Asche, Maple Grove; Katie Kowalczyk, Minneapolis; Nick Macklem, New Hope; Amy Riegel, Plymouth; Richard McCoy, Robbinsdale; Ed Matthiesen, Diane Spector, Katie Kemmitt, and Todd Shoemaker, Stantec; and Amy Juntunen and Judie Anderson, JASS.

Not represented: Osseo.

Also present: Burt Orred, Jr., Crystal.

**I.** Motion by Riegel, second by Ray to **approve the agenda.*** *Motion carried unanimously.*

**II.** Motion by Ray, second by Hogg to **approve the minutes*** of the December 9, 2021, meeting. *Motion carried unanimously.*

**III. Fourth Generation Watershed Management Plan.**

**A.** Staff provided an overview of the progress on the Fourth Generation Plan. Since the December meeting, Staff have updates on the following initiatives:

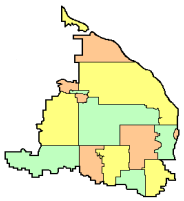
**1.** Potential Maintenance and Resiliency Funding to address ongoing maintenance-type work.

**2.** Rules and Standards Update to align the watersheds' project standards with the 2020 MS4 General Permit, the Minnesota Stormwater Manual, and the City and surrounding watershed requirements.

**3.** Online story map to visualize watershed data, projects, and history.

**B. Maintenance and Resilience Funding.*** Staff drafted a Maintenance and Resiliency Funding policy* for TAC and Commission review. The policy addresses the types of work that may be eligible for funding, including any work resulting from capital projects that doesn't fall neatly into either operations or brick and mortar projects.

After considerable discussion, members agreed that activities identified in Section 2, Actions to maintain lake internal load reductions, would be the Commissions' responsibility; actions in Sections 1 and 3, Maintenance, repair or replacement of CIP projects and Actions to maintain watershed resiliency would be the city's responsibility; and actions in Section 4, Other actions not falling within sections 1-2-3, would be evaluated on a case-by-case basis by the TAC. They also agreed that the proposed $50,000 annual allocation for this funding would not be sufficient for the types of projects identified. Based on the discussion, Staff will return to the February meeting with revised guidelines.



**C. Public Input and Review.** Staff will contact the member cities to determine which of their active commissions would best serve as a Citizen Advisory Committee to provide review and input during the draft Fourth Generation Plan development process. Staff will also inquire as to the commissions' schedules for the next six months in order to coordinate this planning effort.

*[Nelson arrived 11:20 a.m.]*

**IV. HUC8 Study.*** Shoemaker's January 6, 2022 memo provided an update on this project:

The Minnesota DNR initiated the process to update FEMA flood risk maps in 2017. One component of that process is to update the hydrologic and hydraulic computer model for each participating Twin Cities Hydrologic Unit Code (HUC) 8 watersheds (i.e., Shingle Creek, Coon Creek, Minnehaha Creek).

Stantec completed the Shingle Creek HUC8 model update and submitted it to the DNR for review in March 2021. The DNR subsequently held a "Flood Risk Review" (FRR) meeting on April 1, 2021, to discuss model results and implications to property owners and local floodplain administrators. There were two key outcomes from the FRR:

1. The effective (current) floodplain map and profile differ by up to ten feet. This is a mapping error in either the effective map or profile not a calculation error; regardless, it may create a perceived increase and discrepancy compared to the updated model. The DNR is aware and must be prepared to educate data users.

2. There is an increase in flood elevation upstream of Noble Avenue in Brooklyn Center that causes encroachment to properties along Unity Avenue. Structures here appear to have been permitted by elevating above the effective flood elevation and receiving approval through FEMA's Letter of Map Change process.

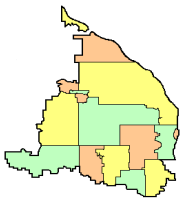
The DNR paused the flood risk map update in mid-2021 due to staffing shortages, but we were informed on December 21, 2021, that the process is now resuming. Stantec has confirmed the DNR has the most current Shingle Creek model submitted as a result of the 2021 Ryan Lake Subwatershed Assessment. At this time, final review of the Shingle Creek model and updated flood risk maps are scheduled to be completed by September 1, 2022.

**V. Crystal Lake Management Plan.***

Carp removals on Crystal Lake in 2021 were extremely successful, with over 3,900 carp removed (an estimated ~33% of the lake's population), moving the lake closer to improved water quality. Because of the success of the carp removals, Staff recommend another field season of carp removal efforts in 2022 to bring the lake's carp population below harmful levels. The grant's carp removal task budget has been expended. In addition, one of two alum doses was successfully applied to the lake in September 2021. The alum treatment came in under budget at $52,776.69. The second alum treatment will be applied in 2022 and is expected to cost a similar amount.

Staff suggest moving some of the projected excess funds from the alum treatment task to the carp removal task to fund 2022 carp removals in the project grant work plan. The suggested change will have no impact on the scope and total cost of the project but will allow additional efforts of carp removal on the lake.

Motion by Asche, second by Riegel to recommend to the Shingle Creek Commission approval of a change order to this project to adjust funding in order to pay for additional carp removal in 2022. *Motion carried unanimously.*



**VI. Bass Lake Vegetation Improvements.***

The Shingle Creek Commission has successfully improved water quality and clarity on Bass Lake in Plymouth through the Bass and Pomerleau Lakes Alum Project. Water quality is the best it has been in decades; however, the native aquatic plant community appears to be limited. Curly-leaf pondweed (CLP) is still present in the lake in significant areas, and overall native species diversity is low.

In January, Staff met with the DNR and the Bass Lake Improvement Association (BLIA) to discuss lake vegetation management options moving forward. The DNR was supportive of continued herbicide spot-treatments of CLP and recommended native plant introductions from a donor lake to increase plant diversity in the lake. The BLIA would like to prioritize CLP management and was supportive of increasing native plant diversity through plant introductions of plants that won't impede recreation. The DNR provided a list of recommended plants to introduce and will be providing Staff with the permitting requirements associated with plant translocation.

Staff discussed pursuing a DNR Conservations Partners Legacy Grant (CPL) in February 2022 for available funds in May 2022 to fund native plant introductions and monitoring efficacy. The DNR CPL grant would fund up to two plant harvest and translocation events and the related pre- and post- monitoring to evaluate efficacy. The BLIA expressed support for pursuing the grant and would be willing to provide volunteer time and designate undisturbed areas of the lake for plant introductions. The DNR would also provide staff support during the translocation events but would not be available to provide all the staff work, which would need to be supplemented by volunteer and Commission staff time.

This would be a relatively low-cost project (<$25,000) based on the DNR's estimate of the overall level of effort for the plant collection and translocation and follow-up monitoring. The CPL grants require a 10% match. Time spent by volunteers is eligible to serve as a portion of that match as in-kind services. There should be sufficient funds left over in the aquatic vegetation management reserve to provide any additional cash match. If approved, Staff will prepare a draft grant application for review at the February 10 meeting. The grants are due by February 21.

Motion by Asche, second by Hogg to recommend to the Shingle Creek Commission approval of a motion to direct Staff to prepare the grant application. *Motion carried unanimously.*

**VII. Other Business.**

Macklem presented preliminary plans for a storm sewer improvement project in his city proposed for the Liberty Park area. He was inquiring as to whether this is a project the members would consider as a cost-share project. He was advised to bring more details and a request for funding to the February meeting.

**VIII.** The next meeting is scheduled for 11:00, February 10, 2022, prior to the regular Commission meetings.

There being no further business, the meeting was adjourned at 12:14 p.m.

Respectfully submitted,

Judie A. Anderson, Recording Secretary
JAA:tim

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Stantec

# Memo

**To:** Shingle Creek/West Mississippi WMO TAC

**From:** Diane Spector
Katie Kemmitt
Erik Megow, P.E.

**Date:** February 4, 2022

**Subject:** Fourth Generation Plan Update

| | |
|---|---|
| **Recommended TAC Action** | Discuss and make a recommendation regarding the maintenance policy. Discuss and provide direction on rules revision. Provide input into monitoring program review. |

Attached are three items for discussion:

1. Revised Maintenance Policy that reflects the discussion held in January. The revised policy now is clear that it applies only to maintenance activities that are not already taken on by the member cities, either as part of a cooperative agreement with the Commission or as part of their NPDES requirements.
    a. Any further questions, discussion, revisions?
    b. Does this need to be further reviewed by city staff or elected officials or are you comfortable recommending its approval?
    c. Is this something you're interested in pursuing as a levy as soon as this fall?

2. Rules revisions. Attached is an updated memo summarizing the need for and proposed language bringing the rules into conformance with the latest NPDES permit.
    a. Revising the rules to replace the current Water Quality requirement of providing 60% TP and 85% TSS removal or infiltrating 1.3 inches, to the new standard of 1.1 inches of volume management through infiltration or abstraction, or a combination of abstraction and filtration.
    b. Adopting the new requirements for linear projects, potentially establishing an upper dollar limit per pound of TP removal to define "cost effective."
    c. A marked-up version of the rules that addresses some other housekeeping revisions that w won't discuss in detail unless you have a specific question. Please review and suggest any additional revisions for consideration.

3. Monitoring program framework. We will begin discussing the existing monitoring program to see if it still meets the Commissions' and cities' needs. For example, is there value to continuing monitoring outflow in West Mississippi? Can we adjust the frequency of monitoring in lakes? Should we test for new parameters, do targeted monitoring on outfalls into the creek?

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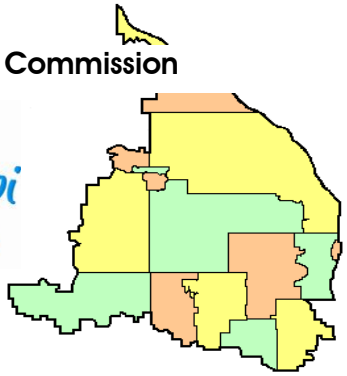


**Shingle Creek**
**Watershed Management Commissions**
**Maintenance Funding Guidelines**

The Shingle Creek and West Mississippi Watershed Management Commissions undertake projects that aim to improve water resources in the watersheds. Projects are taken on by the Commissions directly or by member cities, with cost-share provided through the Capital Improvements Program (CIP) or the small BMP Cost-Share Program. Maintenance, repair, or replacement of Commission-led projects is often ongoing and necessary to continue providing water quality benefits in the watershed. The Commissions will allocate up to $50,000 per year to complete maintenance activities not already taken on by member cities that fall under the classifications described below.

Projects that will be considered for Commission funding under the Maintenance Funding policy fall into two categories as follows:

1. Actions to maintain water quality benefits following Commission-led projects such as but not limited to:
    - Annual rough fish maintenance management
    - Rough fish barrier cleaning, repair, and maintenance
    - Whole-lake invasive aquatic vegetation management treatments performed for water quality, excluding those for recreation, aesthetics, or navigation and with DNR concurrence
    - Alum treatment touch-up
    - In-lake vegetation transplanting efforts
    - Research BMP maintenance (e.g., biochar and iron-enhanced sand filters constructed under Watershed projects)
2. Other actions that do not fall within the above category, evaluated on a case-by-case basis by the TAC and recommended to the Commissions.

Actions that will not be considered include any city actions for meeting National Pollutant Discharge Elimination System (NPDES) permit requirements; other activities that are clearly city responsibilities including pond dredging, street sweeping, and removing terrestrial invasive vegetation; and project-related operations and maintenance to which the city previously agreed such as debris removal and bank stabilizations related to stream restoration projects.

All candidate actions will be reviewed by the TAC and recommended to the Commissions for approval. Unallocated funds will carry over from year to year and be maintained in a designated fund account.

DRAFT February 2022
Adopted:

Stantec

# Memo

**To:** Shingle Creek/West Mississippi WMO TAC

**From:** Todd Shoemaker, P.E.
Erik Megow, P.E.
Diane Spector
Ed Matthiesen, P.E.

**Date:** February 3, 2022

**Subject:** Fourth Generation Plan: Rules and Standards Update

| **Recommended Commission Action** | For discussion and staff direction |
|---|---|

## Background

As part of the 4th Generation Plan, the Rules and Standards for the Shingle Creek and West Mississippi Watershed Management Commissions we will be reviewing the Rules and Standards and revising them as necessary to:

- Align with the 2020 MS4 general permit,
- Align with the latest guidance in the Minnesota Stormwater Manual, and
- Add clarity to how the Commissions will review certain project elements to align with City and surrounding Watershed requirements.

This memo provides a follow-up to the December TAC Meeting and Rules discussion. The agreed-upon aspects from that update have been incorporated into the marked-up 2013 Rules in the attached Appendix A. Appendix A also contains some minor language updates and clarification and some placeholders that will be updated per discussion on the following rule topics. We will be walking through the following rule topics and the updates proposed in Appendix A at the February 10, 2022 TAC meeting.

From the December 2021 TAC Discussion, two Rules updates needed further clarification and discussion. These three updates are:

1. Simplification of the Water Quality requirements and alignment with surrounding Watersheds.
2. Navigation and enforcement of the MS4 Linear project stormwater treatment requirements.
3. Minor Rule Clarifications

## Discussion

1. <u>Simplification of Water Quality requirements and alignment with surrounding Watersheds.</u>

   - **2013 Requirements:** Currently, the Commission has the following Water Quality (WQ) requirements:
     - Stormwater must be treated prior to discharge to:
       - Remove 60% of phosphorus and 85% of TSS, or
       - Both the WQ and Volume control requirements can be met if infiltration is provided from a 1.3-inch rain.

   - **Proposed Update**: To align with surrounding watersheds, be consistent with MS4 requirements and MIDs, the following water quality requirements are proposed to simplify stormwater treatment and performance goals and tie them to the volume control requirements:

- The water quality requirement is met, if the project meets the volume control requirement of providing abstraction of 1.1" from the impervious surface.
- If 1.1" of volume control (abstraction) cannot be provided for the entire site's impervious surface, the applicant needs to provide a combination of BMPs to achieve no net increase in pollutant loads (TP and TSS) from the existing conditions..

The aim of this update is to simplify the design for the applicant, eliminate water quality modeling needs (when the volume control criteria is met), and have the requirement be consistent with Basset Creek, Elm Creek, Minnehaha Creek, and Capital Region Watersheds that have similar water quality and volume control requirements. Additional details for the Water Quality update can be found in Section 3(h) of Rule D – Stormwater Management, in Appendix A.

2. Navigation and enforcement of the MS4 Linear project stormwater treatment requirements.

- **2013 Requirements**: Linear projects that create one acre or more of new impervious surface must meet all Commission requirements for the net new impervious surface.

- **MS4 Requirements**: The new MS4 requirements state that the larger of 1.0" times the new impervious surface or 0.5" times the sum of the new and fully reconstructed impervious surface needs to be treated, greatly increasing the scope of impervious surface needed treatment. Following is the full language for MS4 Linear Requirements:
  - *For linear projects, the water quality volume must be calculated as the larger of one (1) inch times the new impervious surface or one-half (0.5) inch times the sum of the new and the fully reconstructed impervious surface. Where the entire water quality volume cannot be treated within the existing right-of-way, a **reasonable attempt** to obtain additional right-of-way, easement, or other permission to treat the stormwater during the project planning process must be made. Volume reduction practices must be considered first, as described in item 20.8. Volume reduction practices are not required if the practices cannot be provided **cost effectively.** If additional right-of-way, easements, or other permission cannot be obtained, owners of construction activity must **maximize the treatment of the water quality volume** prior to discharge from the MS4. [Minn. R. 7090]*

- **Proposed Updates***:* The terms in **bold** above are MS4 requirement language that we believe should be further defined and clarified for the applicant. In our initial conversation with the TAC in December of 2021, we realized we needed a tiered approach to review Linear projects that are unable to meet the strict water quality requirements. Following is how we proposed these linear projects should be evaluated:

  - For Linear projects that are *able* to meet the 1.0- or 0.5-inch water quality requirement, the applicant does not need to provide any further volume control or water quality analysis.
  - For Linear projects that are *unable* to meet the 1.0- or 0.5-inch water quality requirement, the applicant needs to provide the following:

    1. *Show that a reasonable attempt was made to meet the water quality requirement by:*
       a. *If space and right-of-way is limiting the feasibility of constructing BMPs, discuss any additional easements that could be acquired*
       b. *Provide at least two feasible solutions that meet the requirements, regardless of cost.*
    2. *For the two feasible stormwater solutions, provide a determination if there are any options that are cost-effective.*

a. *A cost-effective solution would be <$75,000-$150,000/acre of impervious surface treated.*
    i. *This analysis and recommendation align would align the Commission with the Capitol Region Watershed District's Cost Cap analysis (Appendix B).*
    ii. *This cost cap/feasibility determination is for construction cost but would include the cost of easement acquisition.*
    iii. *The $75,000/acre of impervious surface equates to an average of 0.56" of treatment for the impervious surface. If we were to require 1.1" off of treatment for the impervious surface, this cost cap would be approximately $150,000/acre of impervious surface.*
    iv. *The $75,000-$150,000/acre values were estimated in 2018. If the Commission would like to follow this cost-cap method, these values would be updated to 2022 costs and language would be included that this cost cap would be updated every five years.*

3. *What can you do to maximize the treatment of the water quality volume?*
    a. *At a minimum, the project needs to provide BMPs that provide rate control and limit TSS/TP Loads to existing conditions*

3. Minor Rule Clarifications.
    a. Attached, as Appendix A, are updates to the rules that include language from above, along with some additional minor rule clarifications and revisions. Please review the proposed edits and let us know if there are any additional edits that you would like to see incorporated.
    b. Two edits we would like to highlight and get clarification on are:
        i. Table 2.1 and 2.2 note 'Site Area and Disturbed Area' thresholds. These were updated to clarify what projects qualify for Commission review. These clarifications are consistent with how the Commission has been classifying and interpreting what projects require Commission reviews in the past.
        ii. Freeboard. Currently the rules specify that "*All new structures shall be constructed with the low floor at the elevation required in the municipality's ordinance.*"
            1. Should the rules be updated to provide 2ft of freeboard between the adjacent waterbody's HWL and the low floor elevation?

# APPENDIX A

## PROPOSED RULE REVISIONS

# Shingle Creek
# And
# West Mississippi

# Watershed Management Commissions

## Rules and Standards

~~April 2013~~

**Revisions Effective April 11, 2013**
**Amended July 11, 2013**
**Revised xxxxxxx, 2022**

**SHINGLE CREEK/WEST MISSISSIPPI**
**WATERSHED MANAGEMENT COMMISSIONS**
**RULES AND STANDARDS**

## POLICY STATEMENT

The Shingle Creek and West Mississippi Watershed Management Commissions are Joint Powers Associations of the State under the Minnesota Watershed Act, and watershed management organizations as defined in the Metropolitan Surface Water Management Act. These acts provide the Commissions with power to accomplish their statutory purpose: the conservation, protection, and management of water resources in the boundaries of the watersheds through sound scientific principles.

The Commissions have adopted a water resources management plan pursuant to the Acts. These Rules implement the plan's principles and objectives.

Land alteration and utilization can affect the rate and volume and degrade the quality of surface water runoff within the watersheds. Sedimentation from ongoing erosion and construction activities will reduce hydraulic capacity of waterbodies and degrade water quality. Water quality problems already exist in many waterbodies in the watershed. Several of the waterbodies have been designated by the State of Minnesota as Impaired Waters, and do not meet state water quality standards.

Activities that increase the rate or volume of stormwater runoff will aggravate existing flooding problems and contribute to new ones. Activities that degrade runoff quality will cause quality problems in receiving water. Activities that fill floodplain or wetland areas will reduce flood storage and hydraulic capacity of waterbodies, and will degrade water quality by eliminating the filtering capacity of such areas.

These Rules and Standards protect the public health, welfare, and natural resources of the watershed by regulating the improvement or alteration of land and waters in the watershed to 1) reduce the severity and frequency of high water, 2) preserve floodplain and wetland storage capacity, 3) improve the chemical and physical quality of surface waters, 4) reduce sedimentation, 5) preserve the hydraulic and navigational capacities of waterbodies, 6) promote and preserve natural infiltration areas, and 7) preserve natural shoreline features. In addition to protecting natural resources, these Rules and Standards are intended to minimize future public expenditures on problems caused by the improvement or land and water alterations.

## RELATIONSHIP WITH MUNICIPALITIES AND COUNTY

The Commissions recognize that the control and determination of appropriate land use is the responsibility of the municipalities and the county. The Commissions will review projects involving land-disturbing activities as requested by the local municipalities. The Commissions intend to be active in the regulatory process to ensure that water resources are managed in accordance with its goals and policies. The Commissions will require a project review for developments and improvements in the watershed that meet the thresholds specified in the Rules.

The Commissions desire to provide technical advice to the municipalities in the preparation of local stormwater management plans and the review of projects that may affect water resources prior to investment of significant public or private funds.

**RULE A - DEFINITIONS**

For the purposes of these Rules, unless the context otherwise requires, the following words and terms shall have the meanings set forth below. References in these Rules to specific sections of the Minnesota Statutes or Rules include amendments, revisions or recodifications of such sections. The words "shall" and "must" are mandatory; the word "may" is permissive.

**Abstraction**. Removal of stormwater from runoff, by such methods as infiltration, evaporation, transpiration by vegetation, and capture and reuse, such as capturing runoff for use as irrigation water.

**Agricultural Activity.** The use of land for the production of agronomic, horticultural or silvicultural crops, including nursery stock, sod, fruits, vegetables, flowers, cover crops, grains, Christmas trees, and grazing.

**Alteration or Alter.** When used in connection with public waters or wetlands, any activity that will change or diminish the course, current, or cross-section of public waters or wetlands.

**Applicant.** Any person or political subdivision that submits an application to the Commissions for a project review under these Rules.

**Best Management Practices (BMPs).** Techniques proven to be effective in controlling runoff, erosion and sedimentation including those documented in the Minnesota Construction Site Erosion and Sediment Control Planning Handbook (BWSR 1988), Protecting Water Quality in Urban Areas (MPCA 2000), and the Minnesota Stormwater Manual (MPCA 2005) as revised.

**Biofiltration**. Using living material to capture and/or biologically degrade or process pollutants prior to discharging stormwater, such as directing runoff through a vegetated buffer or to a rain garden or vegetated basin with an underdrain.

**Bioretention.** A terrestrial-based (upland, as opposed to wetland) water quality and water quantity control process. Bioretention employs a simplistic, site-integrated design that provides opportunity for runoff infiltration, filtration, storage and water uptake by vegetation.

**Buffer Strip.** An area of natural, unmaintained, vegetated ground cover abutting or surrounding a watercourse or wetland.

**BWSR.** The Minnesota Board of Water and Soil Resources.

**Commission**. The Shingle Creek or West Mississippi Watershed Management Commission, as applicable.

**Commissioners.** The Board of Commissioners of the Shingle Creek or West Mississippi Watershed Management Commissions.

**Compensatory Storage.** Excavated volume of material below the floodplain elevation required to offset floodplain fill.

**County.** Hennepin County, Minnesota.

**Dead Storage.** The permanent pool volume of a water basin or the volume below the runout elevation of a water basin.

**Detention Basin.** Any natural or manmade depression for the temporary storage of runoff.

**Development.** The construction of any structure on or the subdivision of land.

**Drain or Drainage.** Any method for removing or diverting water from waterbodies, including excavation of an open ditch, installation of subsurface drainage tile, filling, diking, or pumping.

**Erosion.** The wearing away of the ground surface as a result of wind, flowing water, ice movement, or land disturbing activities.

**Erosion and Sediment Control Plan.** A plan of best management practices (BMPs) or equivalent measures designed to control runoff and erosion and to retain or control sediment on land during the period of land disturbing activities in accordance with the standards set forth in these Rules.

**Excavation.** The artificial removal of soil or other earth material.

**Fill.** The deposit of soil or other material by artificial means.

**Filtration.** A process by which stormwater runoff is captured, temporarily stored, and routed through a filter bed to improve water quality and slow down stormwater runoff.

**Floodplain.** The area adjacent to a waterbody that is inundated during a 100-year flood.

Fully Reconstructed Impervious. Areas where impervious surfaces have been removed down to the underlying soils. Activities such as structure renovation, mill and overlay projects, and other pavement rehabilitation projects that do not expose underlying soils beneath the structure, pavement, or activity are not considered fully reconstructed. Maintenance activities such as catch basin repair/replacement, utility repair/replacement, pipe repair/replacement, lighting, and pedestrian ramp improvements are not considered fully reconstructed.

~~**HCD.** The Hennepin Conservation District.~~

**Impaired Water.** A waterbody that does not meet state water quality standards and that has been included on the MPCA Section 303(d) list of Impaired Waters of the state.

**Impervious Surface.** A surface compacted or covered with material so as to be highly resistant to infiltration by runoff. Impervious surface shall include roads, driveways and parking areas, whether or not paved, sidewalks greater than 3 feet wide, patios, tennis and basketball courts, swimming pools, covered decks and other structures. Open decks with joints at least ¼ inch wide, areas beneath overhangs less than 2 feet wide, and sidewalks 3 feet or less wide shall not constitute impervious surfaces under these Rules.

**Infiltration.** The passage of water into the ground through the soil.

**Infiltration Area.** Natural or constructed depression located in permeable soils that capture, store and infiltrate the volume of stormwater runoff associated with a particular design event.

**Interested Party**. A person or political subdivision with an interest in the pending subject matter.

**Land Disturbing Activity**~~. Any change of the land surface to include removing vegetative cover, excavation, fill, grading, and the construction of any structure that may cause or contribute to erosion or the movement of sediment into waterbodies.~~**Any activity on property that results in a change or alteration in the existing ground cover (both vegetative and non-vegetative) an/or the existing soil topography. Land disturbing activities include, but are not limited to: development, redevelopment, demolition, construction, reconstruction, clearing, grading, filling, stockpiling, excavation, and borrow pits.** The use of land for agricultural activities shall not constitute a land disturbing activity under these Rules. **Routine vegetation management, and pavement milling/overlay activities that do not disturb the material beneath the pavement base will not be considered land disturbance or fully reconstructed impervious surface.** ~~The use of land for agricultural activities shall not constitute a land disturbing activity under these Rules.~~

**Landlocked Basin.** A basin that is 1 acre or more in size and does not have a natural outlet at or below the 100-year flood elevation as determined by the 100-year, 10-day runoff event.

**Low Floor.** The finished surface of the lowest floor of a structure.

**Member City.** Any city wholly or partly within the Commission's boundary that has executed the Joint Powers Agreement.

**MnDOT.** The Minnesota Department of Transportation.

**MPCA.** The Minnesota Pollution Control Agency.

**Municipality.** Any city wholly or partly within the Commission's boundary.

**NPDES**. National Pollutant Discharge Elimination System.

**NRCS.** The Natural Resource Conservation Service.

**NURP.** The Nationwide Urban Runoff Program developed by the Environmental Protection Agency to study stormwater runoff from urban development.

**Ordinary High Water Level (OHW).** The elevation delineating the highest water level which has been maintained for a sufficient period of time to leave evidence upon the landscape. The ordinary high-water level is commonly the point where the natural vegetation changes from predominantly aquatic to predominantly terrestrial. For watercourses, the OHW level is the elevation of the top of the bank of the channel. For reservoirs and flowages, the OHW level is the operating elevation for the normal summer pool. For Public Waters and Public Waters Wetlands, the Minnesota Department of Natural Resources (DNR) determines the OHW.~~The boundary of waterbodies and shall be an elevation delineating the highest water level which has been maintained for a sufficient period of time to leave evidence upon the landscape, commonly that point where the natural vegetation changes from predominantly aquatic to predominantly terrestrial. For watercourses, the OHW level is the elevation of the top of the bank of the channel. For reservoirs and flowages, the OHW level is the operating elevation of the normal summer pool.~~

**Owner.** The owner of a parcel of land or the purchaser under a contract for deed.
**Parcel.** A parcel of land designated by plat, metes, and bounds, registered land survey, auditor's subdivision, or other accepted means and separated from other parcels or portions by its designation.

**Person.** Any individual, trustee, partnership, unincorporated association, limited liability company or corporation.

**Political Subdivision.** A municipality, county or other political division, agency or subdivision of the state.

**Project.** A space, parcel, or parcels of real property owned by one or more than one person which is being or is capable of being developed or redeveloped as a single project.

**Public Health and General Welfare.** Defined in Minnesota Statutes, Section 103D.011, Subdivisions 23 and 24.

**Public Waters.** Any waters as defined in Minnesota Statutes, Section 103G.005, Subdivision 15.

**Public Waters Wetland.** Any wetland as defined in Minnesota Statutes, Section 103G.005, Subdivision 15a.

**Redevelopment.** Land-disturbing activity that creates or replaces impervious surface on a parcel that is fully or partially occupied by buildings and/or impervious surface with the exception of

Linear Transportation Projects. ~~The rebuilding, repair, or alteration of a structure, land surface, or facility for which over 50% of the parcel involved is disturbed by a land-disturbing activity.~~

**Runoff.** Rainfall, snowmelt or irrigation water flowing over the ground surface.

**Sediment.** Soil or other surficial material transported by surface water as a product of erosion.

**Sedimentation.** The process or action of depositing sediment.

**Shoreland Protection Zone.** Land located within a floodplain or within 1,000 feet of the OHW of a public water or public waters wetland.

**Site.** A space, parcel, or parcels of real property owned by one or more than one person which is being or is capable of being developed or redeveloped as a single project.

**Standard.** A required level of quantity, quality, or value.

**Stormwater Management Plan.** A plan for the permanent management and control of runoff prepared and implemented in accordance with the standards set forth in these Rules.

**Structure.** Anything manufactured, constructed or erected which is normally attached to or positioned on land, including portable structures, earthen structures, roads, water and storage systems, drainage facilities and parking lots.

**Subdivision or Subdivide.** The separation of a parcel of land into two or more parcels.

**TMDL.** The Total Maximum Daily Load is the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards. "TMDL" can also refer to a study that calculates that load, or to the allocation of that allowable load to its various sources. An Implementation Plan may be part of the TMDL study or it may be a separate document that sets forth the steps that will be taken to achieve the TMDL.

**Volume Management.** The retention and abstraction of a certain volume of stormwater runoff onsite through techniques such as infiltration, evapotranspiration, and capture and reuse.

**Water Basin.** An enclosed natural depression with definable banks capable of containing water that may be partly filled with public waters.

**Waterbody.** All water basins, watercourses and wetlands as defined in these Rules.

**Watercourse.** Any natural or improved stream, river, creek, ditch, channel, culvert, drain, gully, swale, or wash in which waters flow continuously or intermittently in a definite direction.

**Water Resources Management Plan.** The watershed management plan for the Commission adopted and implemented in accordance with Minnesota Statutes, Section 103B.231.

**Watershed.** Region draining to a specific watercourse or water basin.

**Wetland.** Land transitional between terrestrial and aquatic systems as defined in Minnesota Statutes, Section 103G.005, Subdivision 19.

**Wetland Conservation Act (WCA).** Minnesota Wetland Conservation Act of 1991 as amended.

**RULE B - PROCEDURAL REQUIREMENTS**

1. **APPLICATION REQUIRED**. Any person, or political subdivision, undertaking an activity for which a project review is required by these Rules shall first submit to the applicable Commission a project review application, design data, plans, specifications, fees, and such other information and exhibits as may be required by these Rules. Project review applications shall be signed by the owner, or the owner's authorized agent, except for activities of a political subdivision which may be signed by either the owner or the general contractor. All project review applications must be authorized by the municipality where the proposed project is located.

2. **FORMS**. Project review applications shall be submitted on forms provided by the Commission. Forms are available at the Commission office or ~~Internet~~ Web site.

3. **ACTION BY COMMISSION**. The Commission shall act within 60 days after receipt of a complete application, including all required information, exhibits and fees. If a state or federal law or court order requires a process to occur before the Commission acts on an application, or if an application requires prior approval of a state or federal agency, the deadline for the Commission to act is extended to 60 days after completion of the required process or the required prior approval is granted. The Commission may extend the initial 60-day period by providing written notice of the extension to the applicant. The extension may not exceed 60 days unless approved by the applicant.

4. **SUBMITTAL**. A complete project review application with all required information and exhibits shall be filed with the Commission at least 14 calendar days prior to the scheduled meeting date of the Commission. Late or incomplete submittals will be scheduled to a subsequent meeting date.

5. **NOTIFICATION**. The Commission shall mail notice of the project review application to the owners of land located adjacent to the described activity, adjacent defined as located within the radius for which notice is required by the member city for review by its Planning Commission of site plan submittals, to a maximum of 300 feet (or 300 feet if the municipality does not require mailed notice of plan reviews), and to the member city or county with jurisdiction over the activity, at least 7 days prior to the scheduled meeting date of the Commission at which the application will be considered. The names and addresses of the owners to be notified shall be obtained by the applicant from the

Hennepin County Office of Taxpayer Services and furnished to the Commission on mailing labels or electronic file with the project review application. The project review application will not be processed until the list of owners has been submitted. Notice may be waived by the member city if such a notification has been made as a part of the Planning Commission review process. Neither the failure to give mailed notice to any owner nor any defect in the notice shall invalidate an action by the Commission on a project review application.

6. **CONDITIONS**. A project review may be approved subject to reasonable conditions to assure compliance with these Rules. The conditions may include a requirement that the applicant and owner enter into an agreement with the member city in a form acceptable to the Commission to a) specify responsibility for the construction and future maintenance of approved structures or facilities, b) document other continuing obligations of the applicant or owner, c) grant reasonable access to the proper authorities for inspection, monitoring and enforcement purposes, d) affirm that the Commission or other political subdivisions can require or perform necessary repairs or reconstruction of such structures or facilities, e) require indemnification of the Commission for claims arising from issuance of the approved project review or construction and use of the approved structures or facilities, and f) reimburse the reasonable costs incurred to enforce the agreement. Project reviews and agreements may be filed for record to provide notice of the conditions and continuing obligations.

7. **ISSUANCE OF PROJECT REVIEWS**. The Commission will issue a project review approval only after the applicant has satisfied all requirements of these Rules and paid all required fees.

~~7.~~8. PROJECT REVIEW APPROVAL RENEWALS AND TRANSFERS. Approval for a reviewed project is valid for one year from the date the applicant is advised in writing that the Commission has approved the project. To renew or transfer project review approval, the applicant must notify the Commission in writing, prior to the project approval expiration date, of the reason for the renewal or transfer request. The Commission may impose different or additional conditions on a renewal or deny the renewal in the event of a material change in circumstances.

~~8.~~9. **VALIDITY**. Issuance of a project review approval based on plans, specifications, or other data shall not prevent the Commission from thereafter requiring the correction of errors in the approved plans, specifications and data, or from preventing any activity being carried on thereunder in violation of these Rules.

~~9.~~10. **MODIFICATIONS**. The applicant shall not modify the approved activity or plans and specifications on file with the Commission without the prior approval of the Commission.

~~10.~~11. **INSPECTION AND MONITORING**. After issuance of a project review approval, the Commission may perform such field inspections and monitoring of the approved activity as the Commission deems necessary to determine compliance with the conditions of the project review and these Rules. Any portion of the activity not in compliance shall be

promptly corrected. In applying for a project review, the applicant consents to entry upon the land for field inspections and monitoring, or for performing any work necessary to bring the activity into compliance.

~~11.~~12. **SUSPENSION OR REVOCATION**. The Commission may suspend or revoke an approved project review issued under these Rules whenever the project review approval is issued in error or on the basis of incorrect information supplied, or in violation of any provision of these Rules, or if the preliminary and final project approvals received from the municipality or county are not consistent with the conditions of the approved project review.

~~12.~~13. **REGULAR MEETINGS**. Regular meetings of the Commission are held on the second Thursday of each month at 12:45 p.m., unless notice of a different date or time is given.

~~13.~~14. **SEVERABILITY**. If any provision of these Rules is adjudged unconstitutional or invalid by a court of competent jurisdiction, the remainder of these Rules shall not be affected thereby.

**RULE C - GENERAL STANDARDS**

1. **POLICY**. It is the policy of the Commission to protect the water resources of the watershed by requiring that all activities within the watershed comply with minimum standards for the protection of water quality and the environment.

2. **REGULATION.**

(a) All land disturbing activities, whether requiring a project review under these Rules or otherwise, shall be undertaken in conformance with BMPs and in compliance with the standards and criteria in these Rules.

(b) Project reviews are required of any land disturbing activity meeting the review thresholds set forth in Rule D Section 2.

(c) In areas that drain to Impaired Waters, TMDL Implementation Plans may include site-specific requirements for any land-disturbing activities that are in addition to these rules and standards.

(d) No person shall conduct land-disturbing activities without protecting adjacent property and waterbodies from erosion, sedimentation, flooding, or other damage.

(e) Development shall be planned and conducted to minimize the extent of disturbed area, runoff velocities, and erosion potential, and to reduce and delay runoff volumes. Disturbed areas shall be stabilized and protected as soon as possible and facilities or methods used to retain sediment on-site.

(f) When possible, existing natural watercourses and vegetated soil surfaces shall be used to convey, store, filter, and retain runoff before discharge into public waters or a stormwater conveyance system.

(g) When possible, runoff from roof gutter systems shall discharge onto lawns or other pervious surfaces to promote infiltration.

(h) Use of fertilizers, deicers and pesticides in the shoreland protection zone shall be so done as to minimize runoff into public waters by the use of earth material, vegetation, or both. No phosphorus fertilizer shall be used unless a soil nutrient analysis shows a need for phosphorus or in the establishment of new turf.

(i) When development density, topographic features, and soil and vegetation conditions are not sufficient to adequately handle runoff using natural features and vegetation, various types of constructed facilities such as diversions, settling basins, skimming devices, dikes, waterways, and ponds may be used. The Commission encourages designs using surface drainage, vegetation and infiltration rather than buried pipes and man-made materials and facilities.

(j) Whenever the Commission determines that any land disturbing activity has become a hazard to any person or endangers the property of another, adversely affects water quality or any waterbody, increases flooding, or otherwise violates these Rules, the Commission shall notify the member city where the problem occurs and the member city shall require the owner of the land upon which the land disturbing activity is located, or other person or agent in control of such land, to repair or eliminate such condition within the time period specified therein. The owner of the land upon which a land disturbing activity is located shall be responsible for the cleanup and any damages from sediment that has eroded from such land. The Commission may require the owner to submit a project review application under these Rules before undertaking any repairs or restoration.

**RULE D - STORMWATER MANAGEMENT**

**1.** **POLICY**. It is the policy of the Commission to control excessive rates and volumes of runoff, and protect water quality and biotic integrity by:

(a) Requiring that peak runoff rates not exceed existing conditions where stormwater discharges across the downgradient site boundary and does not exceed ~~or~~ the capacity of downstream conveyance facilities or contribute to flooding.

(b) Managing subwatershed discharge rates and flood storage volumes to be consistent with the goals of the Commission's water resources management plan and the local water resources management plans.

(c) Controlling runoff rates by the use of regional or on-site detention or infiltration facilities where feasible.

(d) Reviewing stormwater management structures based on the 100-year critical storm event for the drainage area.

(e) Routing runoff to water treatment ponds or other acceptable facilities before discharging into waterbodies.

(f) Promoting the use of natural resources for storing runoff and improving water quality and other amenities where appropriate.

(g) Promoting natural infiltration of runoff.

**2. REGULATION**. No person or political subdivision shall commence a land disturbing activity or the development or redevelopment of land for the following types of projects without first submitting to and obtaining approval of a project review from the Commission or the city in which the project is located that incorporates a stormwater management plan for the activity, development or redevelopment:

(a) Plans of any land development or site development as set forth in Tables 2.1 and 2.2 below:

**Table 2.1 Project review site size and disturbance area~~size~~ thresholds for all land uses except detached single-family residential.**

<table>
<tr><th colspan="4">All Land Uses Except Detached Single-Family Residential</th></tr>
<tr><th colspan="3">City Project Review (site size)</th><th>Commission Project Review (site size)</th></tr>
<tr><th>0.5 acres to < 1 acre</th><th colspan="2">≥ 1 acre to < 5 acres</th><th>≥5 acres</th></tr>
<tr><td>Development projects</td><td colspan="2">Development projects</td><td>Development projects</td></tr>
<tr><td>Abstract 1.1” runoff from all impervious surface</td><td colspan="2">Meet Commission rate, volume, and water quality~~, and volume~~ requirements for the entire site</td><td>Meet Commission rate, volume, and water quality~~, and volume~~ requirements for the entire site</td></tr>
<tr><td colspan="3">City Project Review (disturbance area)</td><td>Commission Project Review (disturbance area)</td></tr>
<tr><td>0.5 acres to < 1 acre</td><td colspan="2">0.5 acres to < 1 acre</td><td>≥5 acres</td></tr>
<tr><td>Redevelopment projects</td><td colspan="2">Redevelopment projects</td><td>Redevelopment projects</td></tr>
<tr><td rowspan="2">Incorporate permanent water quality BMPs</td><td><50% disturbed</td><td>Meet Commission rate, volume, and water quality, and ~~volume~~ requirements for the disturbed area</td><td rowspan="2">Meet Commission rate, volume, and water quality, ~~and volume~~ requirements for the entire site</td></tr>
<tr><td>≥50% disturbed</td><td>Meet Commission rate, volume, and water quality ~~quality, and volume~~ requirements for the entire site</td></tr>
</table>

**Table 2.2 Project review site size and disturbance area thresholds for detached single-family residential developments.**

| Detached Single-Family Residential Land Uses | | |
|---|---|---|
| **City Project Review (site size)** | | **Commission Project Review (site size)** |
| **≥ 1 acre to < 15 acres** | | **≥15 acres** |
| *Development projects* | | *Development* |
| Meet Commission rate, volume, and water quality~~, and volume~~ requirements for the entire site | | Meet Commission rate, volume, and water quality~~, and volume~~ requirements for the entire site |
| **City Project Review (disturbance size)** | | **Commission Project Review (disturbance area)** |
| **≥ 1 acre to < 15 acres** | | **≥15 acres** |
| *Redevelopment projects* | | *Redevelopment projects* |
| <50% disturbed | Meet Commission rate, volume and water quality~~, and volume~~ requirements for the disturbed area | Meet Commission rate, volume, and water quality~~, and volume~~ requirements for the entire site |
| ≥50% disturbed | Meet Commission rate, volume and water quality~~, and volume~~ requirements for the entire site | |

(b) *For linear projects, the water quality volume must be calculated as the larger of one (1) inch times the new impervious surface or one-half (0.5) inch times the sum of the new and the fully reconstructed impervious surface.* ~~Linear projects that create one acre or more of new impervious surface must meet all Commission requirements for the net new impervious surface. Such projects will be reviewed by the commission or commissions in which the project is located.~~

**Commented [ME1]:** Additional guidance will be included based on input from the TAC.

(c) Plans of any land development or individual site development adjacent to or within a lake, wetland, or a natural or altered watercourse as listed in the final inventory of Protected Waters and Wetlands for Hennepin County, as prepared by the DNR. Projects impacting wetlands where the Commission acts as LGU for Wetland Conservation Act administration must be reviewed by the respective Commission regardless of size.

(d) Plans for any land development or site development within the 100-year floodplain as defined by the Flood Insurance Study for the member city.

(e) Plans of any land development or site development regardless of size, if such review is requested by a member city.

(f) Single family developments of more than 15 acres that drain to more than one watershed, for that portion of the site draining into the Shingle Creek or West Mississippi Watershed.

**3. CRITERIA**. Stormwater management plans shall comply with the following criteria regarding runoff **rate control** restrictions, landlocked basin requirements, detention pond design criteria, ~~**water quality**~~**volume control** requirements, and ~~volume~~ **water quality** control requirements:

(a) A hydrograph method based on sound hydrologic theory will be used to analyze runoff for the design or analysis of flows and water levels.

(b) **Rate Control**: Runoff rates for the proposed activity shall not exceed existing runoff rates for the 2-year, 10-year, and 100-year, 24-hour, and 100-year, 10-day critical storm events ~~for the project location as set forth in NOAA Atlas 14 Volume 8, published June 2013, or its successor, using the online NOAA Precipitation Frequency Data Server or a similar data source~~using Atlas 14 precipitation depths and MSE-3 storm distributions. Applicant must document the location and event depths used. If an approved local water management plan requires more restrictive rate control, then the more restrictive rate shall govern. Runoff rates may be restricted to less than the existing rates when necessary for the public health and general welfare of the watershed. Member cities and project review applicants shall not exceed discharge rates at City boundaries as determined in the Commission's hydrologic model.

(c) Regional detention basins shall be utilized to manage peak flow rates and meet water quality objectives when feasible.

(d) Analysis of flood levels, storage volumes and flow rates for waterbodies and detention basins shall be based on the range of rainfall and snow melt duration producing the critical flood levels and discharges.

(e) Landlocked water basins may be provided with outlets that:

(1) Retain a hydrologic regime complying with floodplain and wetland alterations.
(2) Provide sufficient storage below the outlet run-out elevation to retain back-to-back 100-year, 24-hour rainfalls and runoff above the highest anticipated groundwater elevation and ~~prevent damage~~provide 2 feet of freeboard for ~~to~~ properties~~y~~ adjacent to the basin.
(3) Do not create adverse downstream flooding or water quality conditions.

(f) If detention basins are used to control rate of runoff they shall be designed to provide:
(1) An outlet structure to control the 2-year, 10-year, and 100-year critical storm events to predevelopment runoff rates. Said outlet structure will be required to control critical storm events to less than predevelopment runoff rates if downstream facilities have insufficient capacity to handle the increased flow.

(2) Alternative to (1), runoff may be directed to a downstream facility within the same hydrologic subwatershed that has sufficient capacity to provide the required rate control. This means that no rate control may be required for an individual development provided there is a regional facility designed and constructed to accommodate the flow from this property.

(3) An identified overflow spillway sufficiently stabilized to convey a 100-year critical storm event.

(4) A normal water elevation above the OHW of adjacent waterbodies.

(5) Access for future maintenance.

(6) An outlet skimmer to prevent migration of floatables and oils for at least the two year storm event. Baffled weirs and wooden skimmers are not allowed.

(7) The member city's ordinance prescribing a minimum low floor elevation above the pond's high water level shall govern.

(g) **Volume Control:** Volume control BMPs must be incorporated into the site design to minimize the creation of new impervious surface and reduce existing impervious surfaces, minimize the amount of directly connected impervious surface, preserve the infiltration capacity of the soil, and limit increases in runoff volume exiting the site to the extent feasible considering site-specific conditions.

~~(1) Examples of BMPs that preserve pervious areas and reduce runoff volume can be found in "Protecting Water Quality in Urban Areas" (MPCA, 2000, as amended); the "Minnesota Urban Small Sites BMP Manual" (Metropolitan Council 2001, as amended); the "Minnesota Stormwater Manual" (MPCA, 2005, as amended) and other BMP guidance manuals.~~ Design and placement of volume control BMPs shall be done in accordance with the Minnesota Stormwater Manual guidance and requirements.

~~(2)~~(1) Stormwater runoff volume abstraction via infiltration shall be provided onsite in the amount equivalent to ~~one~~ 1.1 inch times the impervious surface required to be treated ~~of runoff generated from impervious surface~~ in accordance with Tables 2.1 and 2.2. The required stormwater runoff volume shall be calculated as follows:

**Required Volume ($ft^3$) = Impervious surfaces ($ft^2$) x 1.1(in) x 1/12 (ft/in)**

(i) If infiltration is prohibited or not feasible for the project, filtration BMPs can be used to meet the volume and water quality requirements.

(a) If filtration of the water quality volume is deemed necessary through alternative compliance sequencing, the required stormwater runoff volume shall be multiplied by 1.82 (i.e. 55% filtration credit) and the filtration BMP shall provide this storage volume below the invert of the low overflow outlet of the BMP (perforated drain pipes for filtration will not be considered the low overflow outlet).

(b) If iron-enhanced sand is used as a filtration media, the required stormwater runoff volume shall be multiplied by 1.25 (i.e. 80% filtration credit), and the filtration BMP shall provide this storage volume below the invert of the low overflow outlet of the BMP pipes for filtration will not be considered the low overflow outlet).

(c) Iron-enhanced media shall include a minimum of 5% of iron filings by weight and shall be uniformly blended with filtration media.

(d) Other enhanced filtration media, including mechanical treatment devices (MTDs), may be considered and credited per guidance within the Minnesota Stormwater Manual.

~~(i)~~(ii) ~~When using infiltration for volume reduction~~For volume control BMPs, runoff must be infiltrated or filtrated within 48 hours using accepted BMPs for infiltration, such as infiltration trenches, rainwater gardens, or infiltration basins. Infiltration volumes and facility sizes shall be calculated based on the measured infiltration rate determined by a double-ring infiltrometer test(s) conducted to the requirements of ASTM Standard D3385 at the proposed bottom elevation of the infiltration area. Other testing methods may be used with the approval of the Commission's Engineer. The measured infiltration rate shall be divided by the appropriate correction factor selected from the Minnesota Stormwater Manual. This site investigation must be conducted by a licensed soil scientist or engineer.

~~(ii)~~(iii) A post-construction percolation test must be performed on each infiltration practice and must demonstrate that the constructed infiltration rate meets or exceeds the design infiltration rate prior to project acceptance by the city.

(iii) Infiltration areas will be limited to the horizontal areas subject to prolonged wetting.

(iv) Areas of permanent pools tend to lose infiltration capacity over time and will not be accepted as an infiltration practice.

(v) Stormwater runoff must be pretreated to remove solids before discharging to volume control BMPs to maintain the long-term viability and effectiveness of the BMP. Additional information on sizing and approaches can be found within the Minnesota Stormwater Manual. ~~infiltration areas to maintain the long term viability of the infiltration areas. Examples of pretreatment BMPs can be found in "Protecting Water Quality in Urban Areas" (MPCA, 2000, as amended); the "Minnesota Urban Small Sites BMP Manual" (Metropolitan Council 2001, as amended); the "Minnesota Stormwater Manual" (MPCA, 2005, as amended) and other BMP guidance manuals.~~

(vi) Design and placement of infiltration BMPs shall be done in accordance with the Minnesota Stormwater Manual and latest guidance from the Minnesota Department of Health. ~~guidance "Evaluating Proposed Stormwater Infiltration Projects in Vulnerable Wellhead Protection Areas," as amended.~~

~~(vii)~~ Constructed bioretention and infiltration practices such as rain gardens, infiltration trenches, and infiltration benches shall be designed in accordance with the Minnesota Stormwater Manual.~~not be used in:~~

~~(vii) Fueling and vehicle maintenance areas;~~

~~(vii) Areas with less than 3 feet separation from the bottom of the infiltration system to the elevation of seasonal high groundwater;~~

~~(vii) Areas with runoff from industrial, commercial and institutional parking lots and roads and residential arterial roads with less than 5 feet separation distance from the bottom of the infiltration system to the elevation of seasonal high groundwater;~~

~~(vii) Areas within 400 feet of a community water well, within 100 feet of a private well, or within a delineated 1-year time of travel zone in a wellhead protection area;~~

(vii) ~~Sites containing contaminated soils or groundwater.~~

(viii) Where infiltration is not advisable or infeasible due to site conditions, biofiltration must be provided for that part of the abstraction volume that is not abstracted by other BMPs. Where biofiltration is infeasible, at a minimum filtration through a medium that incorporates organic material, iron ~~fillings~~filings, or other material to reduce soluble phosphorus must be provided.

(ix) Alternative to (2), runoff may be directed to a downstream facility within the same hydrologic subwatershed that has sufficient capacity to provide the required volume management. This means that no volume management may be required for an individual development provided there is a regional facility designed and constructed to accommodate the volume from this property

(x) Credit towards compliance with the abstraction requirement in (2) may be achieved by meeting post construction soil quality and amendment depth requirements. Areas that will be subjected to clearing, grading, or compaction that will not be covered by impervious surface, incorporated into a drainage facility, or engineered as structural fill or slope may be included in the credit calculation if they meet post construction soil quality and amendment depth requirements. The applicant may compute a credit of 0.5 inches over the soil amendment area and apply that toward the abstraction volume requirement.

(a) A minimum 8-inch depth of compost amended soil or imported topsoil shall be placed in all areas of the project site being considered for the abstraction credit. Before the soil is placed, the subsoil must be scarified (loosened) at least 4 inches deep, with some incorporation of the amended soil into the existing subsoil to avoid stratified layers.

(b) Soil amendment may be achieved by either mixing 2 inches of approved compost into the 8 inches of soil depth, or by mixing a custom-calculated amount of compost to achieve 8 inches of compacted soil depth with a minimum organic content of five percent.

(c) The amended areas must pass a 12-inch probe test during the site final inspection. Once amended, soil areas must be protected from recompaction.~~,~~

(h) Water Quality Control: The water quality requirement is met, if the project meets the volume control requirement outlines in 3(g).

(1) Where infiltration is not advisable or infeasible due to site conditions, biofiltration must be provided for that part of the abstraction volume that is not abstracted by other BMPs. Where biofiltration is infeasible, at a minimum filtration through a medium that incorporates organic material, iron fillings, or other material to reduce soluble phosphorus must be provided.

(2) There shall be no net increase in total phosphorus (TP) or total suspended solids (TSS) from pre-development land cover to post-development land cove. Pre-development land cover is defined as the predominant land cover over the previous 10 years.

(i) Full abstraction of 1.1 inches of runoff from all impervious surface will satisfy (h).

(ii) If it is not feasible to achieve the full 1.1 inch abstraction requirement, a combination of BMPs may be used to achieve the no-net-increase requirement.

(a) Acceptable water quality calculation methods as outlined in the Minnesota Stormwater Manual.

(iii) If permanent sedimentation and water quality ponds are used they shall be designed to the standards set forth in the Minnesota Stormwater Manual.

(iv) Runoff may be directed to a downstream facility within the same hydrologic subwatershed that has sufficient capacity to provide the required treatment. This means that no treatment may be required for an individual development provided there is a regional facility designed and constructed to accommodate the flow from this property.

~~(h) Stormwater must be treated prior to discharge to remove 60 percent of phosphorus and 85 percent of total suspended solids. Treatment may be provided by one or more permanent sedimentation and water quality ponds or a combination of BMPs that together will meet removal requirements.~~

~~(i)~~

~~(j) If permanent sedimentation and water quality ponds are used they shall be designed to the Wet Pond Design Standards set forth on Appendix A to these Rules and provide:~~

~~(k)~~

~~(l) Water quality features consistent with NURP criteria and best management practices.~~

~~(m) A permanent wet pool with dead storage of at least the runoff from a 2.5-inch storm event.~~

~~(n)~~

~~(o) Alternative to (1), runoff may be directed to a downstream facility within the same hydrologic subwatershed that has sufficient capacity to provide the required treatment. This means that no treatment may be required for an individual development provided~~

~~there is a regional facility designed and constructed to accommodate the flow from this property.~~

~~(p)~~

~~(q) Alternative to (1) or (2), applicant may meet both the treatment requirement and the volume requirement set forth in D.3 (h) below by infiltrating all site runoff from a 1.3 inch rain event using the same criteria set forth in D.3 (h).~~

**4. WAIVERS**.

(a) The Commission may waive the on-site runoff rate, volume and water quality control design criteria as noted above, if a municipality has an off-site stormwater facility that provides equivalent control and treatment of runoff that conforms to Commission standards.

(b) The design criteria for infiltration may be waived for sites with total impervious surface of less than one acre if infiltration BMPs have been incorporated to the maximum extent possible.

**5. EXHIBITS.** The following exhibits shall accompany the project review application ~~(one set full size, one set reduced to a maximum size of 11" x 17", and one electronic set~~ in electronic .pdf format~~)~~:

(a) Property lines and delineation of lands under ownership of the applicant.

(b) Delineation of the subwatershed contributing runoff from off-site, proposed and existing subwatersheds on-site, emergency overflows and watercourses.

(c) Proposed and existing stormwater facilities location, alignment and elevation.

(d) Delineation of existing on-site wetland, marsh, shoreland and floodplain areas.

(e) For applications proposing infiltration or filtration as a stormwater management practice, identification, description, results of double-ring infiltrometer tests, and permeability and approximate delineation of site soils in both existing and proposed as-developed condition.

(f) Existing and proposed ordinary high and 100-year water elevations on-site.

(g) Existing and proposed site contour elevations at 2-foot intervals, referenced to NA~~G~~VD (1988~~29~~ datum).

(h) Construction plans and specifications of all proposed stormwater management facilities, including design details for outlet controls.

(i) Runoff volume and rate analysis for the 2-year, 10-year, and 100-year critical storm events, existing and proposed.

(j) All hydrologic, water quality and hydraulic computations made in designing the proposed stormwater management facilities.

(k) Narrative addressing incorporation of volume management BMPs.

(l) Applications requesting an abstraction credit must include a Soil Management Plan (SMP) that shall include a~~n 11" x 17" or larger~~ site map indicating areas where soils will be amended, and calculations for soil volumes to be stockpiled and amounts and specifications of amendment or topsoil to be imported to achieve specified minimum organic matter content.

(m) Delineation of any ponding, flowage or drainage easements, or other property interests, to be dedicated for stormwater management purposes.

6. **MAINTENANCE**. All stormwater management structures and facilities shall be maintained in perpetuity to assure that the structures and facilities function as originally designed. The owner of any water quality treatment device if not a governmental unit shall provide to the member city, in a form acceptable to the Commission, a recordable agreement detailing an operations and maintenance plan that assures that the structure(s) will be operated and maintained as designed.

7. **EASEMENTS**. The member city shall obtain from the applicant, in form acceptable to the Commission, recordable temporary and perpetual easements for ponding, flowage and drainage purposes over hydrologic features such as waterbodies and stormwater basins. The easements shall include the right of reasonable access for inspection, monitoring, maintenance and enforcement purposes.

8. **COVENANTS**. The Commission may require as a condition of project review approval that the member city shall require that the land be subjected to restrictive covenants or a conservation easement, in form acceptable to the Commission, to prevent the future expansion of impervious surface and the loss of infiltration capacity.

**RULE E - EROSION AND SEDIMENT CONTROL**

1. **POLICY**. It is the policy of the Commission to control runoff and erosion and to retain or control sediment on land during land disturbing activities by requiring the preparation and implementation of erosion and sediment control plans.

2. **REGULATION**. No person or political subdivision shall commence a land disturbing activity or the development or redevelopment of land for which a project review is required under Rule D without first submitting to and obtaining approval of a project review from the Commission that incorporates an erosion and sediment control plan for the activity, development or redevelopment.

3. **CRITERIA**. Erosion and sediment control plans shall comply with the following criteria:

(a) Erosion and sediment control measures shall be consistent with best management practices as demonstrated in the most current version of the MPCA manual "Protecting Water Quality in Urban Areas," and shall be sufficient to retain sediment on-site.

(b) Erosion and sediment controls shall meet the standards for the General Permit Authorization to Discharge Storm Water Associated with Construction Activity Under the current National Pollutant Discharge Elimination System/State Disposal System Permit Program Permit ~~MN R100001~~ (NPDES General Construction Permit) issued by the Minnesota Pollution Control Agency, except where more specific requirements are required.

(c) All erosion and sediment controls shall be installed before commencing the land disturbing activity, and shall not be removed until completion.

(d) The activity shall be phased when possible to minimize disturbed areas subject to erosion at any one time.

**4.** **EXHIBITS**. The following exhibits shall accompany the project review application ~~(one set full size, one set reduced to a maximum size of 11" x 17", and one electronic set~~ in electronic .pdf format~~)~~:

(a) An existing and proposed topographic map showing contours on and adjacent to the land, property lines, all hydrologic features, the proposed land disturbing activities, and the locations of all runoff, erosion and sediment controls and soil stabilization measures.

(b) Plans and specifications for all proposed runoff, erosion and sediment controls, and temporary and permanent soil stabilization measures.

(c) Detailed schedules for implementation of the land disturbing activity, the erosion and sediment controls, and soil stabilization measures.

(d) Detailed description of the methods to be employed for monitoring, maintaining and removing the erosion and sediment controls, and soil stabilization measures.

(e) Soil borings if requested by the Commission.

**5.** **MAINTENANCE**. The project review applicant shall be responsible for proper operation and maintenance of all erosion and sediment controls and soil stabilization measures, in conformance with best management practices and the NPDES permit. The project review applicant shall, at a minimum, inspect and maintain all erosion and sediment controls and soil stabilization measures daily during construction, weekly thereafter, and ~~after every rainfall event exceeding 0.5 inches, until vegetative cover is established~~as required from the Minnesota Construction Permit.

**RULE F - FLOODPLAIN ALTERATION**

**1.** **POLICY**. It is the policy of the Commission to prevent and control flooding damage by:

(a) Preserving existing water storage capacity below the 100-year critical flood elevation on all waterbodies in the watershed to minimize the frequency and severity of high water.

(b) Minimizing development in the floodplain that will unduly restrict flood flows or aggravate known high water problems.

(c) Requiring compensatory storage for floodplain fill.

**2. REGULATION**. No person or political subdivision shall alter or fill land below the 100-year critical flood elevation of any public waters, public waters wetland or other wetland without first obtaining an approved project review from the Commission.

**3. CRITERIA**.

(a) Floodplain alteration or filling shall not cause a net decrease in flood storage capacity below the projected 100-year critical flood elevation unless it is shown that the proposed alteration or filling, together with the alteration or filling of all other land on the affected reach of the waterbody to the same degree of encroachment as proposed by the applicant, will not cause high water or aggravate flooding on other land and will not unduly restrict flood flows.

(b) All new structures shall be constructed with the low floor at the elevation required in the municipality's ordinance.

**4. EXHIBITS**. The following exhibits shall accompany the project review` application ~~(one set full size, one set reduced to a maximum size of 11" x 17", and one electronic set~~ in electronic .pdf format~~)~~:

(a) Site plan showing boundary lines, delineation and existing elevation contours of the work area, ordinary high water level, and 100-year critical flood elevation. All elevations shall be referenced to NA~~G~~VD (19~~2889~~ datum).

(b) Grading plan showing any proposed elevation changes.

(c) Preliminary plat of any proposed subdivision.

(d) Determination by a registered professional engineer of the 100-year critical flood elevation before and after the proposed activity.

(e) Computation of the change in flood storage capacity as a result of the proposed alteration or fill.

(f) Erosion control and sediment plan which complies with these Rules.

(g) Soil boring logs and report if available.

**5. EXCEPTIONS**. If a municipality or county has adopted a floodplain ordinance that prescribes an allowable degree of floodplain encroachment, the applicable ordinance shall govern the

allowable degree of encroachment and no project review will be required under this Floodplain Alteration Rule.

**RULE G - WETLAND ALTERATION**

**1.** **POLICY**. It is the policy of the Commission to preserve and protect wetlands for their water quality, stormwater storage, habitat, aesthetic, and other attributes by:

(a) Achieving no net loss in the quantity, quality and biological diversity of wetlands in the watershed.

(b) Increasing the quantity, quality and biological diversity of wetlands in the watershed by restoring or enhancing diminished or drained wetlands.

(c) Avoiding direct or indirect impacts from activities that destroy or diminish the quantity, quality and biological diversity of watershed wetlands.

(d) Replacing affected wetlands where avoidance is not feasible and prudent.

**2.** **REGULATION**. No person or political subdivision shall drain, fill, excavate or otherwise alter a wetland without first obtaining the approval of a wetland replacement plan from the local government unit with jurisdiction over the activity. Mitigation of wetland impacts will be considered in the following sequence: 1) mitigated by enhancing the impacted wetland; 2) mitigated within the subcatchment of the impacted wetland; 3) mitigated in the drainage area of the impacted wetland; 4) mitigated in the watershed of the impacted wetland; 5) mitigated through purchase of wetland bank credits.

**3.** **CRITERIA**.

(a) Any drainage, filling, excavation or other alteration of a wetland shall be conducted in compliance with Minnesota Statutes, section 103G.245, the ~~wetland~~ Wetland ~~c~~Conservation ~~a~~Act, and regulations adopted thereunder.

(b) A wetland may be used for stormwater storage and treatment only if the use will not adversely affect the function and public value of the wetland as determined by the local government unit.

(c) Other activities which would change the character of a wetland shall not diminish the quantity, quality or biological diversity of the wetland.

**4.** **LOCAL GOVERNMENT UNIT**. The Commission intends to serve as the local government unit for administration of the Wetland Conservation Act for those cities that have designated the Commission to serve in that capacity, as noted in the Commission's annual report.

**RULE H - BRIDGE AND CULVERT CROSSINGS**

1. **POLICY**. It is the policy of the Commission to maintain channel profile stability and conveyance capacity by regulating crossings of watercourses for driveways, roads and utilities.

2. **REGULATION**. No person or political subdivision shall construct or improve a road or utility crossing across Shingle Creek or any watercourse with a tributary area in excess of 100 acres without first submitting to the Commission and receiving approval of a project review.

Commented [ME2]: Where does 100 acres come from?

3. **CRITERIA**. Crossings shall:

   (a) Retain adequate hydraulic capacity, which for any crossing over Shingle Creek shall be based on the hydraulic model for the creek.

Commented [ME3]: should we specify a modeled rise? less than 0.1'? or 0.01'? or 0.0044'?

   (b) Not adversely affect water quality.

   (c) Represent the "minimal impact" solution to a specific need with respect to all reasonable alternatives.

   (d) Allow for future erosion, scour, and sedimentation maintenance considerations.

4. **EXHIBITS**. The following exhibits shall accompany the project review application ~~(one set full size, one set reduced to a maximum size of 11" x 17", and one electronic set~~ in electronic .pdf format~~)~~:

   (a) Construction plans and specifications.

   (b) Analysis prepared by a registered professional engineer showing the effect of the project on hydraulic capacity and water quality.

   (c) An erosion and sediment control plan that complies with these Rules.

5. **MAINTENANCE**.

   (a) The maintenance, reconstruction and stabilization of any public crossing shall be the responsibility of the political subdivision with jurisdiction over the crossing.

   (b) The maintenance, reconstruction and stabilization of any private crossing shall be the responsibility of the owner of the crossing.

   (c) If a crossing over the Shingle Creek is determined by the Commission to be causing significant erosion, the Commission may notify the member city where said crossing is located and the member city may order the owner of the crossing to make necessary repairs or modifications to the crossing and outlet channel.

**RULE I - BUFFER STRIPS**

1. **POLICY**. It is the policy of the Commission to maintain the water quality and ecological functions provided by watercourses and wetlands by requiring the development of

vegetated buffers around watercourses and wetlands where development and redevelopment occurs, and to encourage the installation of vegetated buffers around all watercourses and wetlands. Vegetative buffers reduce the impact of surrounding development and land use on watercourse and wetland functions by stabilizing soil to prevent erosion, filtering sediment from runoff, and moderating water level fluctuations during storms. Buffers provide essential habitat for wildlife. Requiring buffers recognizes that watercourse and wetland quality and function are related to the surrounding upland.

**2.** **REGULATION**. No person or political subdivision shall commence a land disturbing activity or the development or redevelopment of land for: any single family detached housing project 15 acres or larger in size; projects in any other land use such as commercial/ industrial/institutional 5 acres or larger in size; or any land disturbing activity requested by a member city to be reviewed regardless of project size; on land that contains or is adjacent to a watercourse, lake or wetland without first submitting to and obtaining approval of a project review from the Commission that incorporates a vegetated buffer strip between the development or redevelopment and the watercourse or wetland.

**3.** **GENERAL PROVISIONS**.

(a) This Rule shall apply to all lands containing or abutting watercourses or wetlands and lands within the buffer strips required by this Rule that are subject to a project review under these Rules. Watercourses and wetlands shall be subject to the requirements established herein, and other applicable federal, state and local ordinances and regulations. If a municipality has a buffer strip requirement that has been reviewed and approved by the Commission, the municipal regulation shall have precedence over the Commission's Rules.

(b) An applicant shall determine whether any watercourse or wetland exists on land or within the applicable buffer strip on adjacent land, and shall delineate the boundary for any wetland on the land. An applicant shall not be required to delineate wetlands on adjacent property, but must review available information to estimate the wetland boundary.

(c) Documentation identifying the presence of any watercourse or wetland on the applicant's land, including wetland delineation and buffer strip vegetation evaluation, must be provided to the Commission with a project review application.

(d) Wetland and buffer strip identifications and delineations shall be prepared in accordance with state and federal regulations.

**4.** **CRITERIA**. The following standards apply to all lands that contain or abut a watercourse or wetland:

(a) BMPs shall be followed to avoid erosion and sedimentation during land disturbing activities.

(b) When a buffer strip is required the applicant shall, as a condition to issuance of an approved project review:

(1) Submit to the member city, in a form acceptable to the Commission, a recordable conservation easement for protection of approved buffer strips. The easement shall describe the boundaries of the watercourse or wetland and buffer strips, identify the monuments and monument locations, and prohibit any of the alterations set forth in Paragraph 6(e) below and the removal of the buffer strip monuments within the buffer strip or the watercourse or wetland.

(2) Install the wetland monumentation required by Paragraph 8 below.

(c) All open areas within the buffer strip shall be seeded or planted in accordance with Paragraph 8 below. All seeding or planting shall be completed prior to removal of any erosion and sediment control measures. If construction is completed after the end of the growing season, erosion and sediment control measures shall be left in place and all disturbed areas shall be mulched for protection over the winter season.

**5. BUFFER STRIPS.**

(a) For any project review submitted after January 1, 2003, a buffer strip shall be maintained around the perimeter of all watercourses or wetlands. The buffer strip provisions of this Rule shall not apply to any parcel of record as of the date of this Rule until such parcel is developed or redeveloped. The Commission does, however, strongly encourage the installation of buffer strips on all parcels in the watershed.

(b) Buffer strips shall be a minimum of 20 feet wide with an average width of 30 feet, measured from the ordinary high water level of the watercourse or wetland.

(c) Buffer strips shall apply whether or not the watercourse or wetland is on the same parcel as a proposed development.

(d) Buffer strip vegetation shall be established and maintained in accordance with Paragraph 9 below. Buffer strips shall be identified within each parcel by permanent monumentation in accordance with Paragraph 8 below.

(e) Subject to Paragraph 5(f) below, alterations including building, storage, paving, mowing, plowing, introduction of noxious vegetation, cutting, dredging, filling, mining, dumping, grazing livestock, agricultural production, yard waste disposal or fertilizer application, are prohibited within any buffer strip. Noxious vegetation may be removed as long as the buffer strip is maintained to the standards required by the Commission. Alterations would not include plantings that enhance the natural vegetation or selective clearing or pruning of trees or vegetation that are dead, diseased or pose similar hazards.

(f) The following activities shall be permitted within any buffer strip, and shall not constitute prohibited alterations under Paragraph 5(e) above:

(1) Use and maintenance of an unimproved access strip through the buffer, not more than 20 feet in width, for recreational access to the watercourse or wetland and the exercise of riparian rights.

(2) Placement, maintenance, repair or replacement of utility and drainage systems that exist on creation of the buffer strip or are required to comply with any subdivision approval or building permit obtained from the municipality or county, so long as any adverse impacts of utility or drainage systems on the function of the buffer strip have been avoided or minimized to the extent possible.

(3) Construction, maintenance, repair, reconstruction, or replacement of existing and future public roads crossing the buffer strip, so long as any adverse impacts of the road on the function of the buffer strip have been avoided or minimized to the extent possible.

**6. ALTERNATE BUFFER STRIPS.**

(a) Because of unique physical characteristics of a specific parcel, narrower buffer strips may be necessary to allow a reasonable use of the parcel, based on an assessment of:

(1) The size of the parcel.

(2) Existing roads and utilities on the parcel.

(3) The percentage of the parcel covered by watercourses or wetlands.

(4) The configuration of the watercourses or wetlands on the parcel.

(5) The quality of the affected watercourses and wetlands.

(6) Any undue hardship that would arise from not allowing the alternative buffer strip.

(b) The use of alternative buffer strips will be evaluated as part of the review of a stormwater management plan under these Rules. Where alternative buffer strip standards are approved, the width of the buffer strips shall be established by the Commission based on a minimum width of 10 feet. Alternative buffer strips must be in keeping with the spirit and intent of this Rule.

**7. MONUMENTATION**. A monument shall be required at each parcel line where it crosses a buffer strip and shall have a maximum spacing of 200 feet along the edge of the buffer strip. Additional monuments shall be placed as necessary to accurately define the edge of the buffer strip. A monument shall consist of a post and a buffer strip sign. The signs shall include warnings about disturbing or developing the buffer strip.

**8. VEGETATION**.

(a) Where acceptable natural vegetation exists in buffer strip areas, the retention of such vegetation in an undisturbed state is required unless an applicant receives approval to replace such vegetation. A buffer strip has acceptable natural vegetation if it:

(1) Has a continuous, dense layer of perennial grasses that has been uncultivated or unbroken for at least 5 consecutive years; or

(2) Has an overstory of trees and/or shrubs that has been uncultivated or unbroken for at least 5 consecutive years; or

(3) Contains a mixture of the plant communities described in Subparagraphs 8(a)(1) and (2) above that has been uncultivated or unbroken for at least 5 years.

(b) Notwithstanding the performance standards set forth in Paragraph 8(a), the Commission may determine existing buffer strip vegetation to be unacceptable if:

(1) It is composed of undesirable plant species including but not limited to common buckthorn, reed canary grass, or species on the Minnesota State Noxious Weeds List; or

(2) It has topography that tends to channelize the flow of runoff; or

(3) For some other reason it is unlikely to retain nutrients and sediment.

(4) Where buffer strips are not vegetated or have been cultivated or otherwise disturbed within 5 years of the project review application, such areas shall be replanted and maintained with native vegetation. The buffer strip plantings must be identified on the project review application. Acceptable buffer strip design and planting methods are detailed in the reference documents "Restoring and & Managing Native Wetland and Upland Vegetation" (Jacobson 2006, prepared for BWSR and MnDOT).

(c) Buffer strip vegetation shall be established and maintained in accordance with the requirements found in this Paragraph. During the first two full growing seasons, the owner must replant any buffer strip vegetation that does not survive. The owner shall be responsible for reseeding and/or replanting if the buffer strip changes at any time through human intervention or activities. At a minimum the buffer strip must be maintained as a "no mow" area.

**9. ENCROACHMENT**.

(a) Buffer strips must be kept free of all materials, equipment and structures, including fences and play equipment. Buffer strips must not be grazed, cropped, logged or mown except as approved by the Commission. The topography of the buffer strips shall not be altered by any means, including paving, plowing, cutting, dredging, filling, mining, or dumping.

(b) Variances.

(1) Only variances meeting the standards and criteria set forth in Rule K shall be granted.

(2) Variances shall not be granted that would circumvent the intent and purposes of this Rule.

**RULE J - FEES**

1. **POLICY**. The Commission finds that it is in the public interest to require applicants to pay the cost of administering and reviewing project review applications, and inspecting approved activities to assure compliance with these Rules, rather than using the Commission's annual administrative levy for such purposes. The Commission shall by resolution establish a schedule of fees that may be amended from time to time to reflect the cost of providing each service.

2. **APPLICATION**. Each application for the issuance, transfer or renewal of a project review recommendation under these Rules shall be accompanied by an application fee to defray the cost of processing the application.

3. **REVIEW**. A project review applicant under these Rules shall pay a fee for the cost of the review and analysis of the proposed activity, including services of engineering, legal, and other consultants. The review fee shall be payable upon the submission of the project review application.

4. **VARIANCE**. A project review applicant requesting a variance from these rules shall pay a deposit for the cost of analyzing the request, including services of engineering, legal, and other consultants. The variance deposit shall be payable upon the submission of the project review application. Should the cost of said variance review exceed the amount on deposit, the application shall deposit such additional sums as are needed to pay such costs. Failure to pay such costs is grounds to deny the application or suspend review. Funds not used shall be returned to the applicant.

5. **WETLAND MITIGATION PLAN**. A project review applicant under these rules shall pay a deposit for the cost of the review and analysis of a proposed activity involving a wetland mitigation plan in a municipality where the Commission is the LGU. The deposit is to cover the costs of engineering, legal, and other consultants. The wetland mitigation deposit shall be payable upon the submission of the project review application. Should the cost of said wetland mitigation plan review exceed the amount on deposit, the application shall deposit such additional sums as are needed to pay such costs. Failure to pay such costs is grounds to deny the application or suspend review. Funds not used shall be returned to the applicant.

6. **WETLAND MITIGATION PLAN MONITORING**. A project review applicant under these rules in a municipality where the Commission is the LGU shall deposit an escrow to cover the cost of Commission monitoring and annual monitoring plan review for the five-year period. The applicant may apply to the Commission to provide the field monitoring services and to supply to the Commission the annual monitoring report. In the event the applicant does

not do the field monitoring the Commission will undertake the data collection. If the escrow amount is insufficient to cover the costs the Commission may require additional funds from the applicant.

7. **WETLAND MITIGATION SECURITY DEPOSIT**. A project review applicant under these rules in a municipality where the Commission is the LGU shall provide a security to assure that the replacement plan is followed. The amount of the security shall be calculated on a case-by-case basis based on the estimated cost of construction, follow up and contingency. The security may also include an amount determined by the Commission to be sufficient to protect the public in the event the replacement plan does not succeed.

8. **DEPOSITS**. The Commission will maintain an accounting for all deposits made under this Rule. No interest will be paid to applicants for funds held in deposit.

**RULE K - VARIANCES**

1. **WHEN AUTHORIZED**. The Commission may grant variances from the literal provisions of these Rules. A variance shall only be granted when in harmony with the general purpose and intent of the Rules in cases where strict enforcement of the Rules will cause practical difficulties or particular hardship, and when the terms of the variance are consistent with the Commission's water resources management plan and Minnesota Statutes, chapter 103D.

2. **HARDSHIP**. "Hardship" as used in connection with the granting of a variance means the land in question cannot be put to a reasonable use if used under the conditions allowed by these Rules; the plight of the applicant is due to circumstances unique to the land and not created by the applicant; and the variance, if granted, will not adversely affect the essential character of the locality and other adjacent land. Economic considerations alone shall not constitute a hardship if a reasonable use for the land exists under the terms of these Rules. Conditions may be imposed in the granting of a variance to insure compliance and to protect adjacent land and the public health and general welfare of the Commission.

3. **PROCEDURE**. An application for a variance shall describe the practical difficulty or particular hardship claimed as the basis for the variance. The application shall be accompanied with such surveys, plans, data and other information as may be required by the Commission to consider the application.

4. **VIOLATION**. A violation of any condition imposed in the granting of a variance shall be a violation of these Rules and shall automatically terminate the variance.

**RULE L - ENFORCEMENT**

1. **ADMINISTRATION**. These Rules shall be administered by the Commission. The Commission shall consider applications required under these Rules and determine whether such applications should be approved, approved with conditions, or denied. Such determination shall be communicated to the member city in which the project lies and to the applicant.

2. **IMPLEMENTATION BY MEMBER CITIES**. It shall be the duty of each city to enforce and implement such determinations by the Commission under the various permitting processes and regulations of the city. Each city shall make such amendments to its official controls, regulations, and permitting processes as are necessary to provide it with the authority to enforce and implement the determinations of the Commission.

3. **FAILURE BY CITY TO IMPLEMENT**. Upon a determination by the Commission that a city has not enforced or implemented a decision of the Commission in the administration of these Rules, the Commission shall notify the city of such determination and direct that appropriate action be taken by the city. If the city does not take such action, the Commission may take such legal steps as are available to it to effect such enforcement or implementation.

**RULE M – AMENDMENT OF THESE RULES**

1. **AMENDMENT.** These rules may be amended from time to time by the Commission. Proposed amendments shall be reviewed by the member cities prior to adoption unless the Commission determines that said amendment is of a minor or technical nature. Minor or technical amendments include recodifying or streamlining the rules, clarifying policies, or other actions that do not adversely affect a member city or impact the Commission's or member cities' ability to meet their water management plan goals.

2. **PROCEDURE.** Proposed major amendments to these rules shall be first considered by the Commission and then forwarded to the member cities for a 45-day comment period. Following that comment period, the Commission shall consider the proposed amendment and the comments received for approval. All amendments shall be made by resolution.

**SHINGLE CREEK/WEST MISSISSIPPI**
**WATERSHED MANAGEMENT COMMISSIONS**

**RULES**
**APPENDIX A**
**WET POND DESIGN STANDARDS**

| | |
|---|---|
| Permanent Pool Depth | 4 to 10 feet |
| Permanent Pond Surface Area | Greater of 2% of watershed's impervious area and 1% of the watershed |
| Permanent Pool Length to Width Ratio | 3:1 or greater with an irregularly shaped shoreline |
| Side Slopes | 10:1 for 10 foot bench centered on the normal water elevation and between 3:1 and 20:1 elsewhere |
| Side Slope Stabilization | Native seed with mix 33-261 (MnDOT 310), 34-271 (BWSR W2) or equivalent between NWL and HWL, provide 10' buffer where possible with mix 35-221 (MnDOT 330 (dry)) or mix 35-241 (MnDOT 350 (mesic)) |
| Floatable Removal | Skimming device discharging at no greater than 0.5 fps during the 1-year event or a submerged outlet with a minimum 0.5 feet from the normal water level to the crown of the outlet pipe |
| Sediment Accumulation Area | Provide maintenance pads to remove sediment deltas at inlets |
| Permanent Pool Volume | A 4-foot mean depth and equal to 2.5-inch rain over the watershed |
| Source | Protecting Water Quality in Urban Areas (MPCA 2000) |

**Shingle Creek/West Mississippi Watershed Management Commissions**
**Management Rules and Standards***

| | Standard | Purpose | Applicability |
|---|---|---|---|
| **Project Reviews Required** | A Stormwater Management Plan consistent with all applicable management rules and standards* must be reviewed and approved prior to commencement of land disturbing activities. Generally, the Commission reviews single family projects larger than 15 acres and all other land uses larger than 5 acres; linear projects; and projects with wetland impacts where the Commission is LGU for WCA. Cities generally review all other projects. | To control excessive rates and volumes of runoff; manage subwatershed discharge rates and flood storage volumes; improve water quality; protect water resources; and promote natural infiltration of runoff. | All development or redevelopment projects of the following types:<br>• Single family detached housing project 1 acre or larger in size<br>• Projects in any other land use 0.5 acres or larger in size<br>• Projects within the 100-year floodplain<br>• Projects adjacent to or within a lake, wetland, or watercourse<br>• Any land disturbing activity requested by a member city to be reviewed regardless of project size<br>• Linear projects creating more than one acre of new impervious surface |
| **Rate Control** | Peak runoff rates may not exceed existing rates for the 2-year, 10-year, and 100-year critical storm event; or the capacity of downstream conveyance facilities; or contribute to flooding | To control excessive rates and volumes of runoff; manage subwatershed discharge rates and flood storage volumes | All projects on more than one acre requiring a project review. Redevelopment projects disturbing less than 50 percent of the site must meet the requirement only for the disturbed area. |
| **Volume Manage-ment** | One inch of impervious surface runoff must be abstracted on site for at least 48 hours | To control excessive rates and volumes of runoff; manage subwatershed discharge rates and flood storage volumes; and promote natural infiltration of runoff. | All projects on more than one acre requiring a project review. Redevelopment projects disturbing less than 50 percent of the site must meet the requirement only for the disturbed area. |
| **Erosion and Sediment Control** | Erosion control plan using Best Management Practices (BMPs) and consistent with the NPDES General Construction Permit is required | To control erosion and sediment so as to protect conveyance systems and water quality | All projects requiring a project review |
| **Floodplain Alteration** | Compensating storage is required to mitigate floodplain fill | To prevent and control flooding damage | All development or redevelopment projects within the 100-year floodplain regardless of project size |
| **Water Quality** | Removal of 60% of TP and 85% of TSS, using either permanent sedimentation and water quality ponds consistent with NURP design standards, providing a permanent wet pool with dead storage of at least the runoff from a 2.5 inch event, or a combination of BMPs providing those removals | To protect water quality | All projects on more than one acre requiring a project review. Redevelopment projects disturbing less than 50 percent of the site must meet the requirement only for the disturbed area. |
| **Buffer Strips** | Vegetated buffer strips of a minimum 20 foot, average 30 foot width are required adjacent to wetlands and watercourses | To protect water quality; reduce erosion and sedimentation; reduce pollutants from runoff and debris; and provide habitat | All projects requiring a project review that contain or abut a wetland or watercourse |
| **Wetland** | Wetlands may not be drained, filled, excavated, or otherwise altered without an approved wetland replacement plan from the local government unit (LGU) with jurisdiction | To preserve and protect wetlands for their water quality, stormwater storage, habitat, aesthetic, and other attributes | All land disturbing activity impacting a wetland as defined by the Wetland Conservation Act (WCA) |

*Important Note: Approved TMDL Implementation Plans may have additional site-specific requirements.

**Commented [ME4]:** Update per acceptance of proposed language changes

The Shingle Creek and West Mississippi Commissions approved two regional treatment systems that are incorporated into these Rules and Standards.

SC2010-04 Gravel Mining Area (GMA) Arbor Lakes Infiltration Credit: Maple Grove

The Gravel Mining Area (GMA) at Arbor Lakes in Maple Grove is developing in accordance with a Stormwater Master Plan reviewed and approved by the Shingle Creek Commission. This Master Plan was developed in accordance with the Commission's runoff rate and water quality rules and standards, but before an infiltration requirement was added. There is a large area of the GMA yet to be developed where regional ponds have already been built according to the pre-infiltration requirement. In 2010 the Commission reviewed and approved a plan by the City of Maple Grove to obtain infiltration credits for this new development by constructing biofiltration basins adjacent to four existing regional stormwater ponds. Stormwater from areas that developed prior to the infiltration rule is directed to these new basins. The Commission agreed that these new infiltration basins are adequate to provide regional infiltration for the 553 acres of undeveloped area shown on the attached infiltration credit map. New development in that area will not be required to meet the infiltration standard on site.

WM2007-02 Brooklyn Center Regional Treatment

In 2007 the City of Brooklyn Center constructed a regional treatment system for a large part of the area that is drained by the 65th Avenue trunk storm sewer that outlets to the Mississippi River. This drainage area has little or no treatment. The area is expected to redevelop in the future, and the regional underground treatment system was proposed to provide regional TSS treatment. The treatment device was sized to provide treatment for the equivalent of the runoff from 360 acres. The West Mississippi Commission agreed that future development within that area would not need to provide on-site TSS treatment, and that the TP requirement could be met by infiltrating 0.75 inches of runoff from impervious area. Within the ten year time-of-travel area infiltration is not required, but filtration of the equivalent volume is required if allowed by the Wellhead Protection Plan. Projects will still need to meet rate control, erosion control, and other Commission requirements.

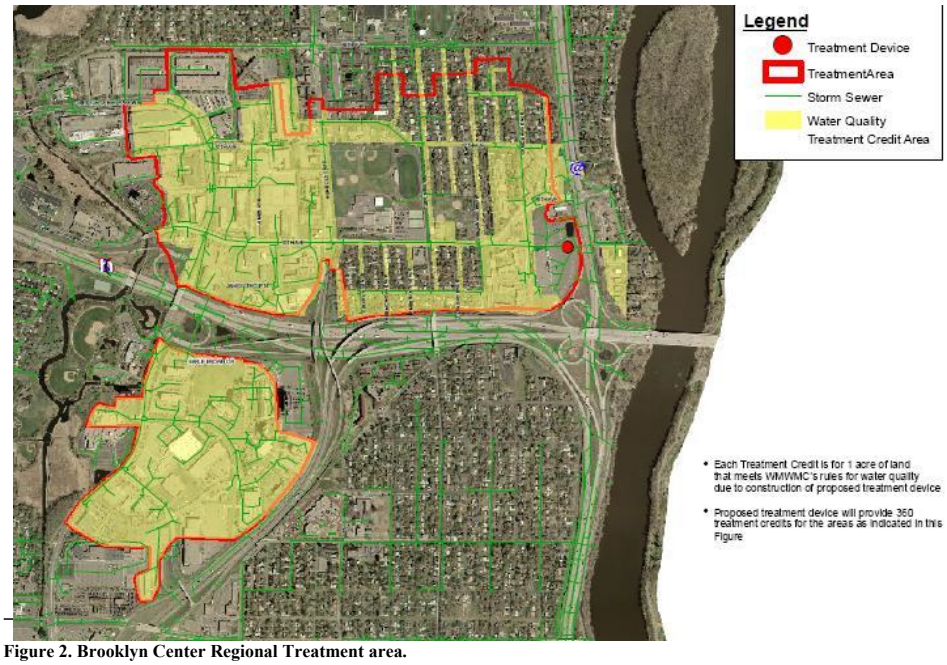
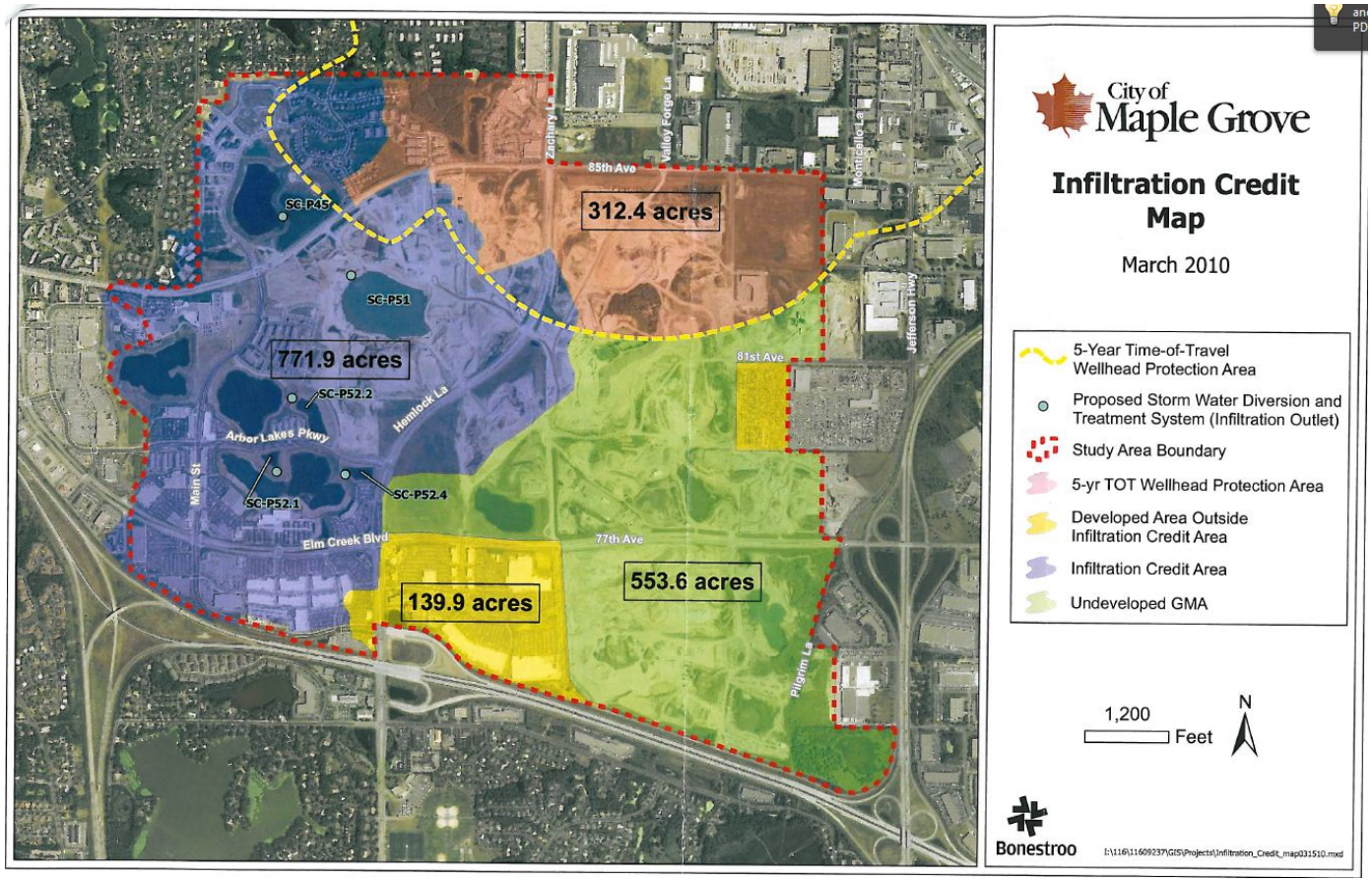



**Figure 2. Brooklyn Center Regional Treatment area.**


City of Maple Grove
Infiltration Credit Map
March 2010
312.4 acres
771.9 acres
139.9 acres
553.6 acres
SC-P45
SC-P51
SC-P52.2
SC-P52.1
SC-P52.4
85th Ave
81st Ave
77th Ave
Zachary La
Valley Forge La
Monticello La
Jefferson Hwy
Hemlock La
Arbor Lakes Pkwy
Main St
Elm Creek Blvd
Pilgrim La
5-Year Time-of-Travel Wellhead Protection Area
Proposed Storm Water Diversion and Treatment System (Infiltration Outlet)
Study Area Boundary
5-yr TOT Wellhead Protection Area
Developed Area Outside Infiltration Credit Area
Infiltration Credit Area
Undeveloped GMA
1,200
Feet
N
Bonestroo

# APPENDIX B

## COST CAP ANALYSIS

# Technical Memo

WENCK
Responsive partner.
Exceptional outcomes.

**To:** Mr. Forrest Kelley, Capitol Region Watershed District

**From:** Todd Shoemaker, PE, CFM
Eric Osterdyk, EIT

**Date:** September 27, 2018

**Subject:** Research for Potential 2018 Permit Cost Cap Changes

Capitol Region Watershed District (CRWD) and Ramsey Washington Metro Watershed District staff met on December 18, 2017 to discuss potential changes to their permit program rules. Staff tasked Wenck with researching and providing information regarding cost cap adjustment. Our research and recommendations are presented below.

## Determine if Cost Cap Adjustment is Necessary and, if so, by How Much.

1. Issue
    a. Cost cap has not been adjusted since March 2008.
    b. Should the cap amount be adjusted?

2. Considerations
    a. National Numbers:
        1. Chesapeake Bay = $150k/imp acre
        2. San Francisco = $600k+/imp acre
        3. Pittsburgh = $150k – 200k/imp acre
            a. (http://apps.pittsburghpa.gov/pwsa/7._Cost_Estimates_Development.pdf)
        4. New York = $129k/imp acre
            a. Water Environment Federation (WEF) http://stormwater.wef.org/2015/12/real-cost-green-infrastructure/
    b. Filtered list such that only linear projects that hit the cost cap were included in analysis.
        1. Of the projects considered, two were constructed when the cost cap was $20,000 per acre. Resolution increasing the cost cap to $30,000 per acre was adopted on March 5, 2008 (Resolution #08-03-07). Permits 07-011 and 07-013 were approved in 2007.
        2. The oldest project with the $30,000 cost cap is 10-003 (CCLRT).
        3. Four projects were excluded: one because it resulted in extremely high $175/cf and three that provided bank credits, which resulted in 195%, 325%, and 1,925% of required volume.
        4. Volumes used in charts/calculations below reflect “equivalent” volumes. Equivalent Volume = Volume Retained + Volume Filtered / 1.82

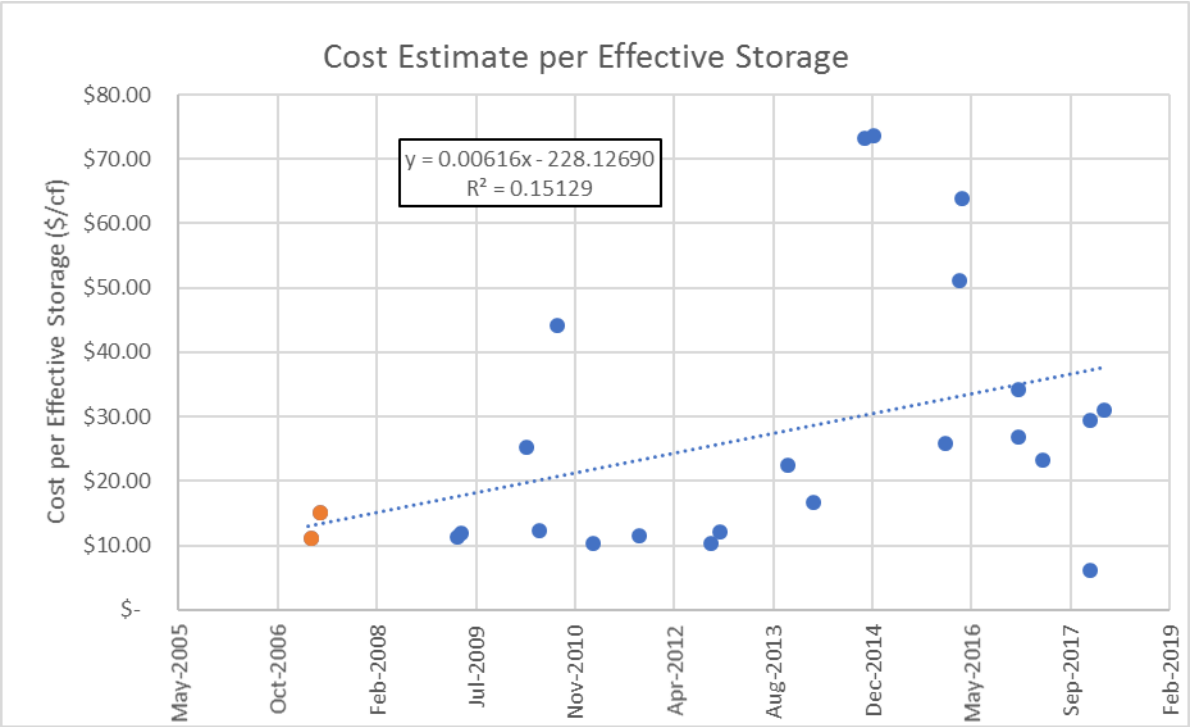



*Figure 1. Cost estimate per effective storage.*

Based on Figure 1:

5. Increasing trend but poor correlation ($R^2$ value is 0.15).
6. In 2008, one cf of storage cost approximately $15.
7. In 2018, one cf of storage costs approximately $37.
8. The increase from $15 to $37 over ten years corresponds to an average increase in cost of 9.7%/yr. Average US inflation rate over the same period was about 2.7%/yr.

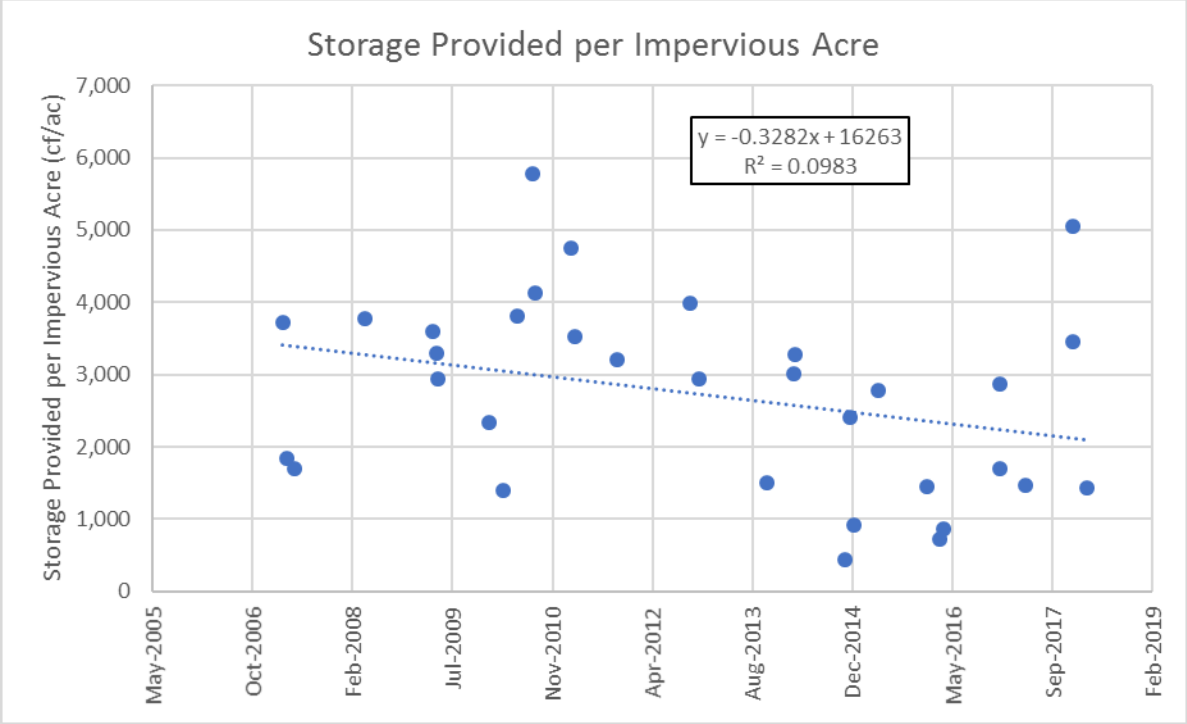



*Figure 2. Storage provided per impervious acre.*

Based on Figure 2:

9. Decreasing trend but poor correlation ($R^2$ value is 0.10).
10. In 2008, approximately 3,316 cf of storage was provided per impervious acre.
11. In 2018, approximately 2,117 cf of storage will be provided per impervious acre.

3. Options
   a. Option 1: Set cost cap to $75,000/impervious acre.
      1. This was determined by taking the 2008 cost cap ($30,000/imp acre) plus the average increase of stormwater management cost (9.7%) over the past 10 years.
      2. $75,000 in 2018 achieves approximately 2,017 cf of storage or 0.56" runoff depth off impervious.
      3. For reference, 0.56" is approximately the abstraction depth (0.55") recommended by MIDS for linear projects.

   b. Option 2: Set cost cap to $150,000/impervious acre.
      1. This was determined by taking the 2018 cost/cubic ft trendline from Figure 1.
      2. $150,000 in 2018 achieves approximately 3,993 cf of storage or 1.1" runoff depth off impervious.

c. Option 3: Set cost cap to $112,000/impervious acre (halfway between options 1 and 2 above)
    1. $112,000 in 2018 achieves approximately 3,005 cf of storage or 0.83" runoff depth off impervious.

d. Option 4: No cost cap, applicant will be required to meet full 1.1" of runoff regardless of cost.

Stantec

# Memo

**To:** Shingle Creek/West Mississippi WMO TAC/Commissioners

**From:** Ed Matthiesen, P.E.
Diane Spector
Katie Kemmitt

**Date:** February 10th, 2022

**Subject:** 4th Generation Plan Monitoring Program

| **Recommended TAC & Commission Action** | Discuss. |
|---|---|

Over the past few months, the Commissions have continued work on the watersheds' 4th Generation Plan, which includes an update to the WMOs' Monitoring Program. Staff are initiating a review of the 3rd Generation Plan Monitoring Program and discussion of the 4th Generation Monitoring Program.

The 3rd Generation Plan Monitoring Program is organized around two principles:

1. Continue routine flow and water quality monitoring in Shingle Creek and volunteer monitoring of lake water quality; and
2. Rotating special monitoring to evaluate progress towards meeting TMDL goals.

Monitoring objectives described in the 3rd Generation plan are:

- To quantify the current status of streams and lakes throughout the watersheds in comparison to state water quality standards.
- To quantify changes over time, or trends, in stream and lake water quality in the watersheds.
- To quantify the effectiveness of implemented BMPs throughout the watersheds for the protection of water quality.
- To evaluate progress toward meeting TMDL load reduction and other goals.

Monitoring to achieve the objectives above has consisted of streamflow and water quality monitoring on Shingle Creek and West Mississippi streams and outfalls, CAMP volunteer lake monitoring, intensive lake monitoring of lakes following the schedule developed for the 3rd Generation Plan (Table 1), and biological monitoring through Hennepin County programs and Commission funding.

For discussion at the February 10th, 2022 meeting staff would like the TAC and Commission to consider the following regarding changes to the Monitoring Program for the 4th Generation Plan:

- How can monitoring efforts be best coordinated between cities and the WMO?
- Consider changes to the West Mississippi outfall monitoring schedule and frequency to best address current data needs.
- Equipment replacement and technology upgrade costs. The WMO has invested significant money in equipment, which requires occasional replacement and upgrades.

- Hennepin County has reduced their biological monitoring efforts in recent years due to COVID-19 restrictions. Hennepin County programs may not be a consistent source of data moving forward.

Table 1. Shingle Creek Lake Monitoring Schedule from the 3rd Generation Plan.

| | Water Quality Monitoring | | | | | | | | | | | Aquatic Vegetation Survey | | | | | | | | | | | Sediment Core Assessment | | | | | Chloride Baseline | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lake | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| Bass | | x | C | x | | x | | C | | x | | | | X | | | | | X | | | | | | | | | | | O | | | |
| Eagle | | x | | C | | x | | x | C | x | | | | | X | | | | | X | | | | | | O | | | | O | | | |
| Pike | | x | | C | | x | | x | C | x | | | | | X | | | | | X | | | | | | | | O | | | | | |
| Twin Middle | C | | x | | x | C | x | | x | | x | X | | | | | X | | | | | | | O | | | | | O | | | | |
| Ryan | x | C | x | | x | | C | | x | | x | | X | | | | | X | | | | | | X | | | | | | | | | |
| Schmidt | | x | C | x | | x | | C | | x | | | | X | | | | | X | | | | | | | | | | | | | | O |
| Twin Lower | C | | x | | x | C | x | | x | | x | X | | | | | X | | | | | X | | X | | | | | O | | | | |
| Cedar Island | x | | | C | | | x | | C | x | | | | | X | | | | | X | | | | | | | | | | | | | O |
| Crystal | | C | x | | x | | C | | x | | x | | X | | | | | X | | | | | | | | | | | | | O | | |
| Pomerleau | | C | | | | | | C | | | | | X | | | | | | X | | | | | | X | | | | | | | | |
| Twin Upper | C | | x | | x | C | x | | x | | C | X | | | | | X | | | | | X | | | | | | | | | | | |
| Magda | x | | | x | | | x | | | x | C | | | | | | | | | | | X | | | X | | | | | O | | | |
| Meadow | | | x | | C | x | | | x | C | | | | | | X | | | | | X | | | | | | | | | | | | |
| Success | | | x | | C | x | | | x | C | | | | | | X | | | | | X | | | | | | | | | | | | |

x Volunteer monitored (CAMP)
C Commission monitored

X Commission monitored

X Commission monitored
O Optional

Stantec

# Memo

**To:** Shingle Creek/West Mississippi WMO TAC/Commissioners

**From:** Ed Matthiesen, P.E.
Diane Spector
Katie Kemmitt

**Date:** February 4th, 2022

**Subject:** Bass Lake Vegetation Improvements Conservation Partners Legacy Grant Application

| | |
|---|---|
| **Recommended TAC Action** | For review and discussion. |



At the January 2022 Commission meeting staff was directed to move forward with a DNR Conservation Partners Legacy Grant application to fund aquatic vegetation transplants to Bass Lake. Conservation Partners Legacy Grants fund conservation projects that restore, enhance, or protect forests, wetlands, prairies, and habitat for fish, game, and wildlife in Minnesota. Staff have begun writing the Bass Lake grant application with a focus on the habitat improvements that will be made in the lake. Attached is the evaluation criteria table used to score applications and the current state of the grant application text as of February 4th, 2022. Staff is in the process of obtaining Letters of Support from the City of Plymouth and the Bass Lake Improvement Association to accompany the grant application.

A budget estimate is still underway, but the project will likely cost $25-28,000, with a grant request of about $25,000. A 10% match will be required and will be provided by a combination of Bass Lake Improvement Association in-kind labor and cash match from the reserve funds left over from the Bass and Pomerleau Lakes alum treatment project. A final budget will be available at the February 10th meeting.

Conservation Partners Legacy Grant Program

**Evaluation Criteria Table**

Applications are scored based on the 6 criteria listed below, using only the information provided within the application. Applicants should be sure their applications contain enough information for reviewers to consider all 6 criteria. Information may be provided on the Project Summary page of the application, or specifically requested on the Project Information page.

| | | |
|---|---|---|
| **1** | **Overall Project Value** | |
| | Critical habitat corridor; habitat quality/quantity | Amount, quality, and/or connectivity of habitat restored, protected and/or enhanced |
| | Consistent with current conservation science | Project use of currently accepted science and methods, increased efficiency and life expectancy of work completed |
| | Sustainability | Overall life expectancy of project |
| | Use of native plants | Use of local ecotype, native vegetation in form of seed, seedlings, root stock, etc. |
| **2** | **Applicant Performance** | |
| | Encouragement of local conservation culture | Applicant's past activities with local community in regards to conservation |
| | Collaboration and local support | Applicant's current interaction with other groups or agencies; current application support by multiple entities |
| | Capacity to successfully complete work | Applicant's history of receiving and successfully completing conservation work and grants |
| **3** | **Project Benefits** | |
| | Multiple benefits | Multiple or diverse species benefits; project directly improves intended species, indirect benefit to others |
| | Habitat benefits | Multiple or diverse habitat benefits; project directly improves intended habitat, indirect benefit to others |
| **4** | **Public Benefits** | |
| | Adjacent to protected lands | Project site(s) proximity to current protected land (public or private) |
| | Public access | Project site(s) availability for hunting, fishing, and other wildlife-based recreation |
| **5** | **Financial Assessment** | |
| | Full funding of project | All costs are identified and accounted for; all partners have submitted letters committing funds |
| | Supplements existing funding | Project would not be completed without CPL funding; CPL does not replace traditional sources of funding |
| | Budget and cost effectiveness | Project is succinct- no unnecessary costs or work has been added; costs are relative to location of project |
| **6** | **Urgency** | |
| | Urgency | Funding importance at this time: species or opportunity potentially lost |

**Provide a clear, concise summary of what your proposal is about. This summary will be used to describe your project to reviewers and other parties.**

A healthy, diverse submersed native vegetation community will be restored in Bass Lake in Plymouth, Minnesota. The lake is a public water in the Shingle Creek Watershed and is actively managed by the Watershed, the City, and the Bass Lake Improvement Association (BLIA). The Watershed, in partnership with the DNR and the BLIA, will use DNR techniques for transplanting and monitoring local, native aquatic vegetation to restore the lake's vegetation community. The restored vegetation community will support a healthy shallow lake that provides key habitat, food sources, and cover for both aquatic organisms, waterfowl and other birds, and other animals.

**Describe the specific need or problem that is being addressed, why it is important, how it was identified, and what is affected by it. Include any facts or statistics that support it, and a pre-project description of the site(s).**

Shallow lakes exist in alternative stable states where the clear water, biologically diverse state is dominated by emergent and submersed aquatic vegetation and the turbid, low diversity state is dominated by algae. A healthy aquatic vegetation community provides cover and nesting material for birds; seeds and tubers to feed waterfowl; cover and habitat for invertebrates and other animals; structure for emerging insects; and more. Robust, diverse aquatic vegetation is key to establishing a balanced shallow lake ecosystem that can support healthy fish and other wildlife communities and benefit humans alike.

Bass Lake is 175-acre, shallow lake in Plymouth, Minnesota. The aquatic habitat of the lake has been significantly affected by development of the watershed. Excessive nutrient loading caused summertime algae blooms that decreased water quality, reduced light availability to submersed aquatic vegetation, and created low oxygen conditions in the lake. The lake was listed on the State's 303(d) list in 2002 as an impaired water for excess nutrients. In 2018, active management to improve the lake ecosystem began. Aluminum sulfate treatments were applied to the lake in 2019 and 2020 and the City has implemented BMPs to reduce watershed nutrient loads. These actions have resulted in restored water quality in the lake. Total phosphorus, chlorophyll-a, and Secchi depth measurements are now meeting water quality standards. Water quality metrics in 2021 were the best on-record. Despite improvements in water quality, the aquatic vegetation community of Bass Lake is limited in its extent and diversity. The aquatic invasive species (AIS) curly leaf pondweed (CLP) covers a large area of the lake in spring, with as high as 61% frequency of occurrence at sampled points, outcompeting native vegetation. In late summer, the vegetation community is dominated by coontail, and in 2021 only 62% points sampled within the littoral area had vegetation growth. In recent years aquatic species diversity in the lake has been as low as 7 species.

**Explain the expected results and benefits of the project. List specific, measurable results that you expect to accomplish. Specifically provide information on any and all habitat benefits of the project, and how the budget is cost effective. Indicate if site is adjacent to protected land and if there are multiple benefits resulting from the project.**

The proposed project will benefit fish and wildlife habitat of Bass Lake, increasing the number of native aquatic species in the lake and supporting the clear water state. After vegetation transplanting on Bass

Lake, littoral plan frequency is expected to increase to near 100%, a desirable goal for a healthy, shallow lake. Floristic Quality Index (FQI), a community metric used to score the health of the vegetation community, will consistently meet the suggested DNR standard of 17.8. Aquatic species diversity will consistently exceed historic data and meet the suggested DNR standard of 11 species.

Restoring the native vegetation community has multiple benefits, including providing valuable habitat for suburban wildlife. Restored vegetation community will have indirect benefits of supporting good water quality in the lake for wildlife and lake users, and will provide needed shoreline protection, reducing shoreline erosion from wind and boat use.

Bass Lake is adjacent to over 56 acres of City of Plymouth park. The park has a large, popular fishing pier and the park is available to the community for hiking, birdwatching, fishing, swimming, and more. The lake is less than a half mile from Eagle Lake Regional Park and Eagle and Pike Lakes, which both have shoreline areas designated as Ecologically Significant Areas. Increasing good habitat near these Significant Areas is key to creating habitat corridors in developed areas.

**Describe in detail the activities that will take place in order to achieve the desired results and WHY you have chosen them. Include methods, materials, and who will do the work.**

The Watershed has already been working closely with the DNR, the Bass Lake Improvement Association, and the City to organize management activities. Completion of this project will rely on grant dollars and this partnership.

Summer 2022: Native, desirable vegetation species will be introduced to Bass Lake from a to-be-determined donor lake on two occasions in 2022. The purpose of native plant introduction is to increase the diversity and robustness of the plant community in Bass Lake. Vegetation harvesting from the donor lake will occur in mid and late summer and will involve Watershed staff, the BLIA, and the DNR Invasive Species Program specialists. The Watershed will follow the DNR's In-Lake Aquatic Plant Restoration Guidance (2022) for harvesting and transplanting techniques. Desirable vegetation species will be fixed to biodegradable material (coconut fiber, burlap, etc.) and fixed to the lake bottom in fence enclosures. Fence enclosures will prevent herbivory by turtles, muskrats, and other animals and allow for accurate monitoring of vegetation survival. Between the first and second transplant event, the Watershed will complete biweekly monitoring of stem counts. Following the second event, Watershed staff will continue biweekly monitoring until not feasible.

Spring/Early Summer 2023: As soon as ice-out, Watershed staff will return to the lake to assess the overwintering of enclosures. Necessary repairs will be made.

Late Summer 2023: Watershed staff will complete a point-intercept aquatic vegetation survey, including biovolume estimates collected with sonar data, according to established DNR methods to document any changes to the lake's vegetation community and spread.

**Describe your organization's ability to successfully complete this work, including experience in the area of interest and ability to successfully implement the proposed project. Include descriptions of your most recent grant experience and if the expected outcomes were achieved.**

The Shingle Creek Watershed District has been actively managing Bass Lake for improved water quality for the last 4 years and has been monitoring the lake for over X AMOUNT OF TIME. The Watershed has worked with the City of Plymouth to implement watershed BMPs to support better water quality in the lake. The Watershed has performed 7 aquatic vegetation surveys on Bass Lake, delineated for CLP many times, and coordinated herbicide applications for control of CLP. They have worked closely with the residents of the lake to cooperatively manage lake vegetation. Alum treatments on Bass Lake were funded by a BWSR Clean Water Fund grant. Reduced internal loading through alum applications was successfully achieved under the grant, and the lake is experiencing the best water quality on-record as a result.

In 2021, the Watershed in partnership with the City, received an additional Clean Water Fund grant to complete a stream restoration and BMPs installation project on Palmer Creek, a tributary to Bass Lake. The goal of the project is to reduce nutrients and sediment flowing into Bass Lake from the creek, improving aquatic habitat for fish and waterfowl.

The Watershed is currently working on the Crystal Lake Management Plan, a 319 grant administered by the PCA. Over 30% of the lake's estimated carp population has been removed using standard carp removal techniques, and one dose of an alum treatment has been applied. The Watershed works closely with the PCA to submit progress reports through the duration of the project.

**How will your organization directly involve, engage, and benefit BIPOC (Black, Indigenous, People of Color) and diverse communities with this project or through other activities?**

While the project does not directly impact the BIPOC and other diverse communities locally or in the city, Timber Shores Park is adjacent to Bass Lake and has over 1.1 miles of public trail, parking, restrooms, play equipment, and a fishing pier. The park can be enjoyed by anyone in the community. The City of Plymouth is committed to reaching out to all residents, property owners, and visitors to its community using a variety of communication methods and opportunities and will include information about this project in those efforts. It is unknown at this time if the BIPOC or other diverse communities are represented on the lake association.

**Project Timeline**

| Time Frame (month, season, and/or year) | Goal |
|---|---|
| June/July 2022 | Complete one harvest and planting event with assistance from DNR and BLIA |
| July/August | Complete biweekly monitoring of enclosures |
| September | Complete second harvest and planting event with assistance from DNR and BLIA |
| June 2023 | Assess overwintering of enclosures |
| August 2023 | Complete point-intercept and biovolume lake vegetation survey to assess success of transplantings |

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# Memo

**To:** Shingle Creek/West Mississippi WMO Commissioners/TAC

**From:** Diane Spector

**Date:** February 3, 2022

**Subject:** Watershed Based Implementation Funding Convene Meeting Preparation

| **Recommended Action** | For each watershed, designate two city representatives and a watershed representative. Provide general guidance to the selected designees. |
|---|---|

The Board of Water and Soil Resources (BWSR) biennially appropriates funding for a program called Watershed-Based Implementation Funding (WBIF). The WBIF funding is allocated to targeted watersheds to be distributed according to guidelines agreed upon by the eligible entities in the allocation area ("the Partnership"). The BWSR Board approved allocations for fiscal year 2022, including $95,501 to the Shingle Creek allocation area and $75,000 to the West Mississippi allocation area, which will become available July 1, 2022. A minimum 10% match is required.

The BWSR Funding Policy for the program specifies that each Partnership will include one decision-making representative from each watershed district and/or watershed management organization, soil and water conservation district, county with a current groundwater plan, and up to two decision-making representatives from municipalities within the allocation area. For these two allocation areas, that would include the respective commission, Hennepin County in its capacity as the county SWCD, and up to two cities. Other parties may participate in discussions regarding the use of the funding, but only the decision-making representatives may make the final recommendation to BWSR. The city and watershed representatives may be TAC members or Commissioners.

Staff recommends that at the February 10, 2022 TAC meeting the TAC and Commissions discuss *which two persons the cities would like to represent them at the first official convene meeting* to be held at the March 10, 2022 meeting, and *who should represent each Commission.* The county will also be asked to designate a representative, and BWSR will be formally represented as well. At that meeting the group will begin discussing options for the use of the funds.

Staff recommends that the TAC and Commissioners start thinking about their priorities and objectives for the funding. Activities eligible for funding span a very wide range of options, but all must be focused on prioritized and targeted cost-effective actions with *measurable water quality results*. Funding is not limited to capital projects; anything in the Third Generation Plan's Implementation Plan may be eligible as long as its end goal is the protection and improvement of water quality. As a reminder, the Implementation Plan included several broad areas, including:

- Keeping the Rules and Standards up to date
- Maintaining a robust monitoring program
- Implementing an education and outreach program
- Implementing TMDL management actions
- Completing subwatershed assessments and follow-up implementation cost share
- Matching grants
- Maintaining an ongoing and periodically updated capital improvement program (CIP)

The Partnerships may choose to award the funds to one high-priority project or make numerous awards for varying objectives – for example dividing up the funds into an allocation for BMP cost share, a lake internal load or stream restoration feasibility study, a priority subwatershed assessment, targeted resident outreach, and one or more projects. Or you may decide to focus on one or two priority lakes and undertake a suite of activities focused on making a measurable improvement in water quality.

Tables 1 and 2 show the current CIPs for each Commission. You may add one or more projects to the CIP by Minor Plan Amendment for eligibility for the WBIF funding if that is approved prior to submitting a work plan.

Aside from designating the required representatives, the secondary purpose of this discussion is to provide some broad guidance and direction to the designees to consider during the Convene meeting. For example, the Commissions may want to make it known to the Partnership that their preference is to fund capital projects.

At the March Convene meeting the Partnerships will complete some procedural details and then discuss the desired objectives and outcomes from the use of the funding before diving into determining how fundable activities will be solicited and selected. Recommended activities approved by BWSR may then be detailed in a work plan starting approximately June 2022. Funding would be available July 1, 2022, following submittal and approval of the work plan.

From BWSR WBIF Convene Meeting guidance:

Recommended Convene Meeting Objectives:

1. Choose a decision-making process.
1. Decide how to select activities for funding. Note that partnerships may also want to choose funding targets for different categories (e.g., projects, studies, education).
2. Partnerships may select activities by:
    - Developing a list of potential activities from eligible plans,
    - Dividing funding among eligible entities in an equitable manner,
    - Selecting a few priority waterbodies (lake, streams) and/or groundwater areas to prioritize activities,
    - Using agreed upon criteria to select activities, or
    - Using a process approved by the BWSR Central Region Manager.
3. Select the highest priority, targeted, measurable, and eligible activities to be submitted to BWSR as a budget request.
2. Confirm which entity will serve as grantee and/or fiscal agent for each selected activity and decide on the source of the 10% required match.

**Table 1. Current Shingle Creek CIP, as amended 2021.**

| CAPITAL IMPROVEMENT PROGRAM | 2020 | 2021 | 2022 | Comments |
|---|---|---|---|---|
| Cost Share Program | 200,000 | 200,000 | 200,000 | |
| Commission Contribution | 100,000 | 100,000 | 100,000 | |
| Local Contribution | 100,000 | 100,000 | 100,000 | |
| Partnership Cost-Share BMP Projects | 100,000 | 100,000 | 100,000 | |
| Commission Contribution | 50,000 | 50,000 | 50,000 | |
| Local Contribution | 50,000 | 50,000 | 50,000 | |
| Palmer Creek Estates Bass Creek Restoration | | 600,000 | | |
| Commission Contribution | | 600,000 | | |
| Local Contribution | | 0 | | |
| Channel Modification with SRP Filter Phase 2 | | 125,000 | | |
| Commission Contribution | | 125,000 | | |
| Local Contribution | | 0 | | |
| Maple Grove Pond P57 | | | 648,000 | Moved to future |
| Commission Contribution | | | 162,000 | |
| Local Contribution | | | 486,000 | |
| Maple Grove Pond P33 | | | 574,000 | Moved to future |
| Commission Contribution | | | 143,500 | |
| Local Contribution | | | 430,500 | |
| Shingle Cr Brookdale Park Habitat Enhancement | | | 150,000 | Nothing pending |
| Commission Contribution | | | 150,000 | |
| Local Contribution | | | 0 | |
| Minneapolis Webber Park Stream Restoration | | | 500,000 | Nothing pending |
| Commission Contribution | | | 500,000 | |
| Local Contribution | | | 0 | |
| Minneapolis Flood Area 5 Water Quality Projects | | | 6,000,000 | Nothing pending |
| Commission Contribution | | | 250,000 | |
| Local Contribution | | | 5,750,000 | |
| Maple Grove Pond P55 | | | 855,000 | Moved to future |
| Commission Contribution | | | 213,800 | |
| Local Contribution | | | 641,200 | |
| **TOTAL PROJECT COST** | **1,750,000** | **1,025,000** | **9,227,000** | |
| **TOTAL COMMISSION SHARE** | **1,325,000** | **875,000** | **1,769,300** | |
| **TOTAL CITY SHARE** | **425,000** | **150,000** | **7,457,700** | |

**Table 2. Current West Mississippi CIP, as amended 2021.**

| CAPITAL IMPROVEMENT PROGRAM | 2020 | 2021 | 2022 | Comments |
|---|---|---|---|---|
| Cost Share Program | 100,000 | 100,000 | 100,000 | |
| Commission Contribution | 50,000 | 50,000 | 50,000 | |
| Local Contribution | 50,000 | 50,000 | 50,000 | |
| River Park Stormwater Improvements | 485,000 | | | |
| Commission Contribution | 121,250 | | | |
| Local Contribution | 363,750 | | | |
| Miss Crossings Phase B Infiltration Vault | 400,000 | | | Moved per Todd |
| Commission Contribution | 100,000 | | | |
| Local Contribution | 300,000 | | | |
| Partnership Cost Share Program | | 100,000 | 100,000 | |
| Commission Contribution | | 100,000 | 100,000 | |
| Local Contribution | | | | |
| Champlin Woods Trail Rain Gardens | | | 180,000 | Moved per Todd |
| Commission Contribution | | | 45,000 | |
| Local Contribution | | | 135,000 | |
| Wetland Restoration Project | | | 250,000 | Nothing pending |
| Commission Contribution | | | 62,500 | |
| Local Contribution | | | 187,500 | |
| **TOTAL PROJECT COST** | **985,000** | **200,000** | **630,000** | |
| **TOTAL COMMISSION SHARE** | **271,250** | **150,000** | **257,500** | |
| **TOTAL CITY SHARE** | **713,750** | **50,000** | **507,500** | |