



# Bassett Creek Watershed Management Commission

## Technical Advisory Committee Meeting

Wednesday February 1, 2023

10:30 – 12:00

Wirth Lake Room, Brookview

1. CALL TO ORDER
2. COMMUNICATIONS
3. BUSINESS

### A. Review and Make Comments within 500-year Inundation Maps and Impacted Buildings and Roadways

Please see the attached memo from the Commission Engineers for the recent mapping results, a table with the number of impacted structures by city, and a link to an ArcGIS map showing flood extents. The map includes an editable point layer TAC members can use to add points and comments at specific locations within the watershed for consideration/discussion. If possible, please do this before the TAC meeting.

Questions for consideration at the meeting:

1. Where are the vulnerabilities (e.g., critical facilities or infrastructure) in your city and how are they impacted by the 100-year and 500-year flood events?
2. How can the BCWMC and/or member cities use this data to better plan for, or respond to, flooding emergencies?
3. Is there other information or data that would be useful in assisting the BCWMC and/or cities in planning for, and responding to, flooding emergencies?
4. Are there other questions we should be asking regarding climate change/flood risk planning/prioritization?

### B. Begin Considering 5-year CIP – See table in meeting notice & in email

Ideas for moving or adding projects to the CIP can be reviewed at this meeting. The current CIP is attached and includes some suggested modifications (tracked). Modifications include moving CL-3 to 2024 to more quickly assess and address Crane Lake chlorides; and lowering the cost of the Lagoon Dredging Project due to lower than budgeted construction cost. It's likely current 2024 projects will be more expensive than originally budgeted so changes may need to be made there as well.

Please bring your proposed projects to the meeting (preferably using the CIP fact sheet template) and please score the project in the [CIP prioritization matrix](#). We will continue to refine the recommended 5-year CIP at the March TAC meeting.

### C. Review Updated Chloride Hotspot and Land Use Map – Info Only (See map in meeting notice & in email)

In order to help develop potential strategies to address chloride pollution, the hotspot map that was created in 2017 was updated with 2020 land use. The map is being presented for your information but can be discussed if there are questions or comments.

**D. Review Minneapolis Stormwater Pathogen Toolbox – Info Only**

The City of Minneapolis and the Minneapolis Park and Recreation Board recently completed development of the Minneapolis Stormwater Pathogen Toolbox (found [HERE](#)). The city and MPRB invite you to use it as you see fit with credits given to the City of Minneapolis and the Minneapolis Park and Recreation Board. They request that the document not be edited in order to preserve the formatting, which was prepared to be fully compliant with Section 508 requirements. Instead, please forward any suggestions on content or any other edits to Shahram Missaghi or Rachael Crabb.

**E. Next Meeting – March 1 @ 10:30 a.m. Wirth Lake Room, Brookview**

**4. ADJOURN**

See Commission Engineer's Memo pages 3 - 5

## Technical Memorandum

**To:** BCMWC TAC  
**From:** Jennifer Koehler, PE, Greg Williams, PE, & Karen Chandler, PE  
**Subject:** Assess impacts of climate change on water resources and build climate resiliency  
**Date:** January 24, 2023  
**Project:** 23/27-0051.54 200 E01  
**c:** Laura Jester, BCWMC Administrator

As part of the Bassett Creek Watershed Management Commission (BCWMC) Watershed Management Plan (Plan) update, the commissioners seek to assess the impacts of climate change on water resources and address climate resiliency. In support of this goal, commission staff are tasked with:

- reviewing existing climate resiliency resources (e.g., [Hennepin Council Climate Action Plan](#), [Hennepin County Climate Vulnerability Assessment](#), [BWSR climate resiliency toolbox](#), [Metropolitan Council community planning tools](#)),
- summarizing existing and planned future roles of other organizations,
- seeking input from the TAC regarding member city priority concerns, roles and planned actions,
- updating the hydrologic and hydraulic modeling and associated inundation mapping, and
- developing draft policy, performance standards, and/or future implementation actions to characterize a range of actions and roles available to the Commission (or possibly member cities in support of BCWMC strategies).

This memo summarizes the effort to understand the potential future flood risk in the BCWMC using hydrologic and hydraulic modeling. Currently, there is limited information regarding future precipitation estimates at the local level (i.e., locally-downscaled climate models). Although there is much research into the impact of climate change on design storm events (including efforts by NOAA (i.e., *Assessment Report Analysis of Impact of Nonstationary Climate on NOAA Atlas 14 Estimates* (January 2022)), there is not a clear definition as to what a mid- or late-century design storm event may look like, although we expect it to be greater than the current 100-year design storm event.

As part of the Plan update effort, the Commission Engineer utilized the watershed-wide hydrologic and hydraulic modeling (2021 XP-SWMM update model approved by the BCWMC in August 2022) to evaluate both the Atlas 14 100-year, 24-hour (7.42 inches) and 500-year, 24-hour (10.3 inches) design storm events. Similar to many other communities and watersheds in the Twin Cities metropolitan area, we used the Atlas 14 500-yr, 24-hour (50th percentile) event as a surrogate to represent the mid-21st century 100-year, 24-hour precipitation event.

The Commission Engineer developed inundation mapping for the 100-year and 500-year events to better characterize flooding and capacity issues within the watershed. The 100-year and 500-year inundation mapping was also used to flag potentially impacted structures by incorporating Microsoft's 2020 building/structure data. The inundation mapping was further used to flag roadways that are potentially impacted by flooding in the 100-year and/or 500-year design storm events. The results of the update may be considered later, when the Commission develops Plan policy or implementation actions as part of the originally scoped Plan update.

The Commission Engineer created an [ArcGIS online map](#) that presents this information; this map is available for member city review in advance of the Technical Advisory Committee (TAC) meeting. The map includes the following layers:

- Aerial photo with streets and highways labeled
- Municipal boundaries
- BCWMC watershed boundary
- Major watersheds within the BCWMC (aligns with XPSWMM model)
- BCWMC subwatersheds (per 2021 XPSWMM model update)
- Atlas 14 100-year, 24-hour inundation mapping, impacted structures, and impacted roadways
- Atlas 14 500-year, 24-hour inundation mapping, impacted structures, and impacted roadways

Although the 2021 model update reflect projects implemented through 2021, the inundation mapping was based on the 2011 MnDNR LiDAR data. Thus, while model storage volumes and elevations reflect recent changes (e.g., such as additional storage areas developed since 2011), the corresponding inundation mapping may not reflect current topography. Table 1 summarizes the number of potentially impacted structures (primary and secondary) by municipality for the 100-year and 500-year events.

**Table 1 Summary of Structures Potentially Impacted by the 100-year and 500-year Events**

Municipality	Potentially Impacted Structures (100-yr, 24-hr event)	Potentially Impacted Structures (500-yr, 24-hr event)
Plymouth	351	664
Medicine Lake	14	38
Golden Valley	302	525
Crystal	91	157
New Hope	52	119
Robbinsdale	46	78
Minnetonka	34	54
St. Louis Park	18	33
Minneapolis	376	609
<b>Total</b>	<b>1284</b>	<b>2277</b>

Note: number of structures does not distinguish between primary and secondary structures; identification of impacted structures is based on GIS data and not survey data.

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**Page:** 3

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The [ArcGIS online map](#) includes a point layer TAC members may use to add points and comments at specific locations within the watershed for consideration/discussion. To add points and comments to the map, follow the steps below:

1. Click on **Edit** on the left sidebar.
2. Click on the arrow (<) before the **Select feature**.
3. Click on **Comments** under **Create feature**.
4. Click on the map where you would like to add the comment.
5. When complete, click on **Select tool** under the Editor and then on the **Legend** on the left sidebar.

Questions for consideration before or during the TAC meeting:

- 1) Where are the vulnerabilities (e.g., critical facilities or infrastructure) in your city and how are they impacted by the 100-year and 500-year flood events?
- 2) How can the BCWMC and/or member cities use this data to better plan for, or respond to, flooding emergencies?
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