



## Bassett Creek Watershed Management Commission

### MEMO

To: Bassett Creek Watershed Management Commissioners  
From: BCWMC Technical Advisory Committee  
Date: May 5, 2017

**RE: TAC Recommendations – 5/4/17 TAC Meeting**

The BCWMC Technical Advisory Committee met on May 4<sup>th</sup> to discuss the XP-SWMM Phase II project and the water quality requirements for linear projects. They forward the following recommendations for the Commission's consideration.

TAC Members and Others at 5/4/17 TAC Meeting:

Paul Hudalla and Lois Eberhart, Minneapolis  
Jeff Oliver and Eric Eckman, Golden Valley  
Erick Francis, St. Louis Park  
Richard McCoy, Robbinsdale  
Chris Long, New Hope  
Mark Ray, Crystal (partial attendance)  
Tom Dietrich, Minnetonka  
Ben Scharenbroich, Plymouth

Rachael Crabb, MPRB  
Stacy Harwell, Golden Valley Commissioner  
Gary Holter, Medicine Lake Commissioner  
Jim Prom, Plymouth Commissioner  
Laura Jester, Administrator  
Karen Chandler and Jen Koehler, Commission Engineers

#### 1. XP-SWMM Phase II

Commission Engineer Koehler gave a brief overview of a technical memo describing the model finalization process that resulted from meetings with individual cities, and additional data submitted by some cities and the Blue Line LRT Project Office. Engineer Koehler noted the final 100-year inundation area maps, along with a comparison table of the existing and proposed new flood elevations and peak discharges for areas along the BCWMC Trunk System. Engineer Koehler noted that the inundation area maps now distinguish between areas where the Commission has floodplain jurisdiction (along the BCWMC Trunk System) and areas outside of the Commission jurisdiction where cities have floodplain jurisdiction. Engineer Koehler reported that she was very comfortable with the model results and recommended that the TAC and Commission accept the model as complete.

Engineer Chandler thanked the cities for taking time to review the model and results individually with the Commission Engineers. She noted that it was a very helpful exercise for all parties.

There was some discussion about the differences between the Commission vs. city jurisdictions, how to improve the look of the maps, and how/when model updates would be needed. The

TAC agreed that the model should be considered final and to recommend approval by the Commission.

Commission Engineer Chandler noted that if the Commission adopts the new floodplain levels, the Commission would start reviewing projects within its floodplain jurisdiction (along the Trunk System) against these new elevations. There was discussion about the implications of adopting the new elevations and it was noted that in some areas, the elevations are lower than existing Commission floodplain levels and in other areas the elevations are higher than existing Commission floodplain levels. It was also noted that FEMA recently updated its floodplain maps and that in many areas the FEMA floodplain levels and Commission floodplain levels are different but that this discrepancy has occurred in the past. In areas where the city has jurisdiction, it would be up to individual cities whether or not to adopt the new floodplain elevations. Noting that it's important to use the latest information in reviewing projects, the TAC recommended that the Commission adopt the new floodplain levels within its jurisdiction and begin reviewing projects against the new elevations.

Engineer Koehler reported that the final XP-SWMM model will be run for the Atlas 14 2-year, 10-year, and 100-year, 24-hour design storm events. She noted that although the results for the 2- and 10-year events will not be summarized in the report, the results will be encrypted as an XP-Viewer file that can be used by member cities. She noted that XP-Viewer is a free software program that allows users to open the XP-Viewer file and see model inputs and results without needing an XP-SWMM license. The TAC members expressed interest in obtaining the XP-Viewer software and information.

TAC members discussed additional implications of the new floodplain levels, noting that most of the challenges will be in non-Commission jurisdiction areas. Mr. Eckman reported that Golden Valley looks at floodplain levels for two reasons: FEMA flood insurance needs and the protection of structures. He noted that cities can opt to simply use the new floodplain elevations as information to residents and businesses and to help provide technical assistance to those property owners in floodplains. It was noted that city comprehensive plans will need to show the BCWMC Trunk System and Commission-adopted floodplain elevations.

The TAC also discussed the need for a comprehensive communication piece from the Commission about the new floodplain levels but that for now the Commission Engineer can continue its current message with project proposers about the discrepancies in FEMA vs. Commission floodplain levels.

The TAC agreed that the Commission should not approach FEMA about officially changing the flood elevations at this time due to the expensive, long, and arduous process involved. The TAC also agreed that only member cities should be able to request the model on behalf of themselves and other entities working in the city (which is current practice) and that the Commission should develop its own user agreement for entities that wish to use the model. It was further noted that in order to maintain the integrity of the model, only the Commission Engineer will be authorized to revise and update the model.

**RECOMMENDATIONS:**

1. The TAC recommends that the Commission approve the XP-SWMM Phase II model and final report (see 6Ci for final report online).

2. The TAC recommends that the Commission adopt the new floodplain elevations within its floodplain jurisdiction, which lies along the BCWMC Trunk System, and begin reviewing development/redevelopment projects against these new elevations (see 6Cii Engineer's memo with tables and maps).
3. The TAC recommends that the Commission should not, at this time, begin the process of requesting an official map revision with the Federal Emergency Management Administration (FEMA).
4. The TAC recommends that the Commission allow only member cities to request the model on behalf of themselves and other entities working in the city.
5. The TAC recommends that the Commission develop a user agreement for entities that wish to use the model.
6. The TAC recommends that in order to maintain the integrity of the model, only the Commission Engineer be authorized to revise and update the model.

## **2. Water Quality Performance Standards for Linear Projects**

Commission Engineer Chandler noted that at the January Commission meeting, the Commission heard [recommendations from the TAC](#) regarding proposed revisions to the water quality performance standards (MIDS) in linear projects. She noted that the Commission Engineer was directed to further evaluate the issue and come to the Commission with their own recommendations. Engineer Chandler reported that at the March Commission meeting, the Commission Engineer presented her [analyses and recommendations](#) for a cost cap (in dollars/pound of total phosphorus removed) above which treatment in accordance with the MIDS performance goals for linear projects would not be required. Engineer Chandler noted that she reported that the Commission is the only organization that adopted MIDS in full and reported [that many organizations](#) only require treatment from new impervious surfaces, rather than from all reconstructed impervious surfaces. She reminded the TAC that the Commission directed her to consider and analyze a tiered approach, such as requiring the Commission's 2004 standard ("good faith effort" or "reasonable technology") for projects that add less than 5,000 ft<sup>2</sup> of imperviousness, then requiring MIDS for projects that create more than 5,000 ft<sup>2</sup> of imperviousness and that the TAC review the results of the analyses at their May 4<sup>th</sup> meeting.

The Commission Engineer presented [a table that showed analyses](#) of different alternatives for modifying the MIDS criteria for linear projects. She noted the table includes the existing BCWMC requirements and numerous alternative options for the criteria triggering treatment and the level of treatment that would be required. Further she noted the table includes and analyzes the BCWMC's project review data for linear projects from September 2015 through March 2017 and shows the alternatives that are similar to the requirements of other watershed management organizations in the area. The TAC discussed the results of the analyses and the various challenges to treating runoff from linear projects given limited space, existence of utilities, the desire to retain large boulevard trees, the need to sometimes include bike lanes, and the need to improve and consider pedestrian safety on trails and sidewalks. There was consensus that the cost of treating storm water in linear projects might well exceed the cost of the project itself and that there should be a balance of needs and outcomes. It was recognized that the funding and time spent attempting to retrofit storm water projects into such tight and challenging spaces could be better spent on projects with higher impact for lower costs. TAC members also noted that cities have always worked to include best management practices in street projects wherever possible within the project area.

There was also discussion about the challenges presented by new trail and sidewalk projects that are needed to address residents' desires for improvements in quality of life and community amenities. TAC members indicated that it is increasingly challenging to meet MIDS requirements on these projects due to public right of way, safety of trail users, presence of utilities, etc., and that although vegetated buffers are installed whenever possible, sometimes there is not space to include a buffer between the trail/sidewalk and road. After further discussion, there was consensus that trails and sidewalks should be exempt from the linear projects water quality performance standards. (Current BCWMC requirements: trails and sidewalks do not count as impervious surface if they are buffered by a vegetated area at least half the width of the trail (Section 4.5 of BCWMC [Requirements Document](#)).)

**RECOMMENDATIONS:**

The TAC recommends that the Commission revise its water quality performance standards for linear projects with the following requirements:

1. Trails and sidewalks are exempt from BCWMC water quality performance standards, and that buffers be provided where possible.
2. For projects that create less than 1 acre of net new impervious surface, the project must include the installation/construction of best reasonable technologies to improve water quality conditions and reduce storm water runoff.
3. Net new impervious surface calculations will be based on the street surface from back of curb to back of curb; trails/sidewalks (as noted above) and driveways are not included in the net new impervious surface calculations.
4. For linear projects that create 1 acre or more of net new impervious surface, the project must capture and retain 0.55 inches of runoff off of the net new impervious area.
5. The project must use the MIDS flexible treatment options for the net new impervious area if it is not possible to capture and retain 0.55 inches of runoff from these areas.

The attached table shows the TAC-proposed triggers and water quality performance standards for linear projects and compares this to the existing BCWMC requirements. The table also includes the BCWMC's project review data for linear projects from September 2015 through March 2017, and shows the provided/required treatment amount for these projects under the existing and proposed treatment requirements.

**Table 1. Proposed triggers and water quality performance standards for linear projects and comparison to existing BCWMC requirements**

BCWMC Reviews of Linear Projects		2015-32 Douglas Drive	2016-03 2016 Northwood South Area Infrastructure	2016-04 Three Rivers Park District BC Regional Trail	2016-06 GV 2016 PMP STH 169- Plymouth Ave	2016-17 SWLRT	2016-32 CSAH 24 Reconstruction Project	2016-38 Northwood North Area Infrastructure	2017-02 GV 2017 PMP	
<b>BCWMC Project Review Data</b>	Project Disturbance (acres)	32.87	11.81	7.14	2.82	57.90	4.20	12.09	6.33	
	Existing Impervious (acres)	18.29	6.48	4.29	1.98	41.30	-	6.51	4.40	
	Proposed Impervious (acres)	20.55	6.54	4.18	1.81	42.40	-	6.53	3.78	
	Change in Impervious (acres)	2.26	0.06	(0.11)	(0.17)	1.10	-	0.02	(0.62)	
	New Impervious (acres)	2.26	-	-	-	1.10	-	0.02	-	
	Reconstructed Impervious (acres)	18.29	6.54	0.33	1.81	18.23	-	6.51	3.78	
	Total New and Reconstructed Impervious (acres)	20.55	6.60	0.22	1.64	19.33	-	6.53	3.16	
	*Capture and Retain Volume Provided (acre-feet)	0.31	0.01	-	-	0.33	N/A	0.02	-	
<b>Existing BCWMC Requirement:</b>	Trigger MIDS at 1 acre of new/fully reconstructed impervious	MIDS Treatment: Capture & retain larger of 1.1 inches off the net increase in impervious – or – 0.55 inches off the new/fully reconstructed impervious (acre-feet)	0.94	0.30	-	0.08	0.89	-	0.30	0.14
<b>TAC-Proposed BCWMC Requirement:</b>	Trigger treatment at 1 acre of net new impervious	Capture & retain 0.55 inches off the net new impervious area (acre-feet), plus go through MIDS flexible treatment options for the net new impervious area if it's not possible to capture and retain 0.55 inches of runoff from these areas	0.10	-	-	-	0.05	-	-	-

\* Projects with site restrictions may not be required to "capture & retain" the water quality volume. These projects must follow MIDS FTOs.