

USGS Monitoring for Upper Badger Mill Creek

PROJECT TYPE

Stream Monitoring

START 2025

COMPLETION Ongoing (Min 5 years)

LOCATION

Upper Badger Mill Creek (Ex. Old PB or Ice Age Trail Bridge)

DESCRIPTION

The purpose of this project is to implement additional continuous monitoring for Badger Mill Creek (there is an existing monitoring station along Lower Badger Mill Creek at Bruce Street ([USGS Station 05435943](#)), currently being funded by MMSD with USGS cost-share). The monitoring would be conducted by the United States Geological Survey (USGS) who conducts stream monitoring at the existing downstream location and throughout the United States. Ongoing monitoring of Badger Mill Creek at this location would assist with assessing both short-term and long-term effects of discontinuation of effluent flow and help inform better watershed management decisions. For example, watershed projects implemented to sustain the health and resilience of Badger Mill Creek could be measured and adjustments made and/or additional projects implemented over time as needed, based on the results and trends identified by stream monitoring. Additional specific benefits and insights that could be obtained from the data include:

- Determining the ratio of baseflow to effluent
- Determining the contributions of runoff from the urban landscape in the City of Verona and its impacts with and without effluent flow from MMSD
- Comparing contributions of nutrients, temperature, dissolved oxygen (DO), and specific conductance between the upstream and downstream locations
- Determine speciation and ratio of instream phosphorus during baseflow and stormflow
- Inform modeling of DO within different reaches of the stream based on temperature, stage, and historical data (from existing station)

Key parameters proposed for inclusion in the monitoring plan are:

- Discharge (stream flow)
- Temperature
- Dissolved Oxygen
- Specific Conductance or Chloride
- Phosphorus

BACKGROUND

The various members of the stakeholder group put forward this project proposal to aid and supplement a comprehensive watershed management plan for the Badger Mill Creek Watershed. The USGS currently has a monitoring station on Badger Mill Creek at Bruce Street which has measured discharge (stream flow) since 1996 and dissolved oxygen, temperature, and specific conductance since 2007.

PARTICIPATING STAKEHOLDERS

Lead Organization(s): CARPC

Supporting Organization(s): City of Fitchburg, City of Madison, City of Verona, Trout Unlimited

This work will be implemented by USGS under contract with the lead organization(s).

FUNDING

USGS typically shares in the cost in the monitoring stations (~20-25%). It is expected that MMSD will fund the initial 5-year period to aid in assessment of the discontinuation of effluent flow. If desired to continue monitoring beyond this timeframe, additional partners could help fund continuation of monitoring. Potentially, funding may also be supplemented with WDNR Surface Water grants (this has been successfully done in the Black Earth Creek watershed).

Estimated Project Costs

\$215,000 for 5 years (\$161,250 MMSD BMC Funding / \$53,750 USGS – assuming 25% cost-share)

\$15k (Year 1 Start-up/Installation), \$40,000 (Annual Operation)

RESOURCE LINKS

[USGS Monitoring Station 05435943 Badger Mill Creek at Bruce Street](#)

[DNR Surface Water Grants Webpage](#)