

Baseflow Augmentation (Goose Lake) for Badger Mill Creek

PROJECT TYPE

Baseflow Augmentation

START

Design: In progress

Construction: Summer 2025

COMPLETION

Design: Summer 2025

Construction: Spring 2026

LOCATION Goose Lake Watershed

DESCRIPTION

The purpose of this project is to develop and construct a project that would provide baseflow augmentation to Badger Mill Creek from Goose Lake and possibly other regional stormwater facilities. The City of Fitchburg and Town of Verona in conjunction with their consulting engineering team, are evaluating options for controlling and stabilizing water levels at Goose Lake and the Quarry Ridge regional stormwater pond through a steady release of groundwater. The project will be developed in 3 phases, a feasibility/constructability phase, a design phase of the most beneficial option, followed by a construction phase. Key considerations of the design phase include providing sustainable and quality flow to Badger Mill Creek when it is most needed (during periods of dry weather rather than during rain events) and sustaining cool water temperatures and water quality to Badger Mill Creek. The options of open channel or closed conduits, as well as infiltration and filtering beds are some of the design alternatives to be considered. Preliminary estimates indicate that up to approximately 25% of the of the base flow currently provided by MMSD's effluent could be replaced through this project. This project could also be augmented by other water sources, including a deep aquifer well to maintain optimum flow rates and enhance water quality.

BACKGROUND

The City of Fitchburg, Friends of Badger Mill Creek Environmental Corridor, City of Madison, Madison Metropolitan Sewerage District, Trout Unlimited Southern Wisconsin Chapter, WDNR, members of the stakeholder group have put forward project proposals to develop a baseflow augmentation project in the Badger Mill Creek Watershed. The City of Fitchburg and Town of Verona have contracted with a consulting team of AECOM/Ruekert-Mielke to design and permit stormwater improvements for Fitchrona Road and Goose Lake with the intent to mitigate recurring flooding on Fitchrona Road while simultaneously providing base flow to Badger Mill Creek. Initially, the City of Fitchburg and Town of Verona had investigated more conventional approaches to mitigate flooding of Fitchrona Rd, largely based on providing a more efficient conveyance path from Goose Lake to Badger Mill Creek. Through discussion with members of the Badger Mill Stakeholder Group, it was recognized that there may be an opportunity to alleviate flooding while providing base flow to Badger Mill Creek. The City of Fitchburg and Town of Verona desire to provide enhancements to Badger Mill Creek with this proposed project that would not be seen if a conventional approach was pursued and implemented. Dane County is the property owner of much of the land surrounding Goose Lake and WisDOT controls several important culverts and drainage features which may impact the project. Coordination with these stakeholders will be key to the implementation and success of this proposed project.

PARTICIPATING STAKEHOLDERS

Lead Organization(s): City of Fitchburg, Town of Verona

Supporting Organization(s): CARPC, City of Madison, Dane County, MMSD, Trout Unlimited, USRWA

FUNDING

It is anticipated that funding for this project would be contributed by the City of Fitchburg, Town of Verona, and MMSD.

Estimated Project Cost

Design Phase: \$120,000 (100% paid by City of Fitchburg & Town of Verona)

Construction Phase: \$700,000 (\$420,000 paid by City of Fitchburg & Town of Verona and \$280,000 paid by MMSD BMC funds) MMSD BMC funds to solely cover the added cost over the previously proposed flood control work. Items covered by the requested MMSD funding to include construction of low flow pipe and outlet control structures, additional wetland restoration, temperature and DO monitoring, and re-aeration temperature control practices.

RESOURCE LINKS

AE2S Technical Memorandum (2021)

https://www.fitchburgwi.gov/DocumentCenter/View/22192/Final-Tech-Memo_Fitchrona-Road-Flood-Study

Jamestown Watershed and Goose Lake Water Level and Rainfall Monitoring (2007)

<https://www.fitchburgwi.gov/DocumentCenter/View/27108/Quarry-Ridge-Study-Memo-2007-10-25>