



Title: Approval to Continue Joint Funding Agreement with the USGS for Gauging Stations and Technical Assistance in 2022 and 2023

Resolution number: 21-072

Prepared by: Name: Kailey Cermak
Phone: 952-641-4501
kcermak@minnehahacreek.org

Reviewed by: Name/Title: Brian Beck/R&M Manager

Recommended action: Board approval to continue a joint funding agreement with the United States Geological Survey

Schedule: USGS Fiscal Year:
10/1/21-9/30/22
10/1/21-9/30/23

Budget considerations: Fund name and code: R&M Contracted Services 500-5001-4320
Fund budget: \$421,468
Expenditures to date: 0
Requested amount of funding: NTE \$46,000 annually

Past Board action:

Res #: 20-019	Title: Approval to Continue Joint Funding Agreement with the USGS for Gauging Stations and Technical Assistance in 2020 and 2021
Res #: 18-017	Title: Approval of Continuing MCWD and USGS Agreement for Joint Funding of O&M of Gage Stations near Minnehaha Falls and Grays Bay Dam for 2018 and 2019
Res #: 16-048	Title: Approval of Continuing MCWD and USGS Agreement for Joint Funding of O&M of Gage Stations near Minnehaha Falls and Grays Bay Dam for 2016 and 2017
Res #: 15-007	Title: Authorization to enter into a Joint Funding Agreement with the USGS for the O&M of a Stage Gage on Lake Minnetonka

Summary:

Minnehaha Creek Watershed District (District) staff are tasked with managing the water quantity, quality, and ecological integrity within the District's legal boundary. The District's role in managing water quantity requires obtaining and curating information about how water moves through the watershed. There are two locations within Minnehaha Creek Watershed District that are critically important for managing water quantity, which include Grays Bay Dam and the outlet of Minnehaha Creek Watershed District into the Mississippi River. The water level at Grays Bay Dam and the

outlet of Minnehaha Creek in Minneapolis are used to inform our dam management, understand the District’s water budget, and calculate pollutant loads.

In 2005, District staff initiated a partnership with the United States Geological Survey (USGS) at the Hiawatha gauging station on Minnehaha Creek. The USGS is the national leader in the field of discharge measurement and water level gauging techniques, which ensures that critical flow measurement accuracy and precision is held to the highest standard.

The monitoring partnership remains a joint project where each agency pays a portion of the cost for operation, maintenance, and distribution of the data. Following record flooding in 2014, the partnership between the District and USGS was extended to include an additional gauge on Lake Minnetonka at the Grays Bay Dam. The District’s partnership with USGS to obtain highly accurate water level and flow data have allowed District staff to improve dam management, forge partnerships with other agencies on water quantity management, and communicate current water level conditions to the public.

The benefits of this partnership agreement extend beyond the stream gauging stations. As key initiatives like the real-time sensor network and 2D modeling work are carried forward, staff will utilize the expertise available at the USGS. The contract, in addition to the routine stream gauging and storm sampling work, now includes technical support for the following areas:

1. Surface-water instrumentation
2. Record analysis: rating curve development/maintenance and load analysis
3. Groundwater monitoring/modeling assistance

Projected costs for the gauging stations and technical support tasks are outlined in Table 1. Costs associated with the two gauging stations are required and include operations and maintenance, daily discharge computation, continuous specific conductance and water temperature, and stormwater collection and analysis. The USGS contributes funds toward the gauging stations, lowering the cost for the District. Optional technical support dollars can be utilized on an as-needed basis; the District is not obligated to spend any of those dollars during the two-year contract cycle.

Table 1. Annual Cost Breakdown

Task	MCWD Share	USGS Matching Funds
Required Spending		
Grays Bay Station	\$3,579	\$1,371
Hiawatha Ave. station	\$22,153	\$15,667
Sub-total	\$25,732	\$17,038
Optional Technical Support (not to exceed)		
Instrumentation support and record analysis	\$7,100	\$0
Groundwater Monitoring/Modeling	\$5,916	\$0
Add-on storm runoff samples	\$6,320	\$0
Sub-total	\$19,336	\$0
Annual Total	\$45,068	\$17,038

The Joint Funding Agreement between MCWD and the USGS needs to be renewed once every two years. MCWD governance policies state that the Administrator will not enter into a professional services contract exceeding \$25,000 without using a competitive process. Staff has not obtained competitive quotes in this case under the rationale that the USGS is uniquely qualified for this scope of work based on their status as national leaders within the area of flow measurement, extensive track record of effective collaboration, and willingness to defray portions of the cost. For the reasons listed above District staff recommend that the Board proceed without a competitive selection process.

The agreement renewal, which continues funding by USGS and MCWD is for the following timeframe: October 1, 2021 through September 30, 2022 and October 1, 2022 through September 30, 2023. MCWD's portion of the contract will not exceed \$46,000 annually.

Supporting documents (list attachments):

USGS Statement of Work



RESOLUTION

Resolution number: 21-072

Title: Approval to Continue Joint Funding Agreement with the USGS for Gauging Stations and Technical Assistance in 2022 and 2023

- WHEREAS, the Minnehaha Creek Watershed District (District) staff are tasked with managing water quantity, quality, and ecological integrity;
- WHEREAS, the District’s role in managing water quantity requires obtaining and curating information about how water moves through the watershed;
- WHEREAS, the United States Geological Survey (USGS) is the leader in the field with regards to stream gauging techniques;
- WHEREAS, the District has partnered with the UGGS in the management, operations, and publishing of stream gauging information since 2005;
- WHEREAS, continuing the operation of the Hiawatha Avenue and Grays Bay Dam gauging stations is critical for dam operations, nutrient load calculations, and future model development;
- WHEREAS, staff also foresee utilizing the expertise at the USGS for additional services on an as-needed basis to help carry key initiatives forward and have included technical support into the scope of services;
- WHEREAS, the joint funding agreement between MCWD and the USGS needs to be renewed every two years;
- WHEREAS, MCWD governance policies specify a competitive process for selection of professional services for a scope exceeding \$25,000, however, the USGS is uniquely qualified for this scope of services based on its history of effective collaboration with the District, its status as national leaders in regards to gauging techniques, and their willingness to defray costs;

NOW, THEREFORE, BE IT RESOLVED that the Minnehaha Creek Watershed District Board of Managers authorize the Administrator to extend a joint funding agreement with the USGS for services from October 1, 2021 through September 30, 2023 with a total cost not to exceed \$46,000 annually.

Resolution Number 21-072 was moved by Manager _____, seconded by Manager _____. Motion to adopt the resolution ___ ayes, ___ nays, ___ abstentions. Date: 11/4/2021

Secretary Date: _____

U.S. Geological Survey Statement of Work
In Cooperation with Minnehaha Creek Watershed District
Federal Fiscal Years 2022 and 2023

The scope of work is identical for Fiscal Years 2022 and 2023, as described narratively below in tasks (1) – (5) and Table 1. Funding required for MCWD and USGS is by Federal Fiscal Years 2022 and 2023 and for the entire agreement in Tables 2-4, respectively, following the narrative.

Data collected and computed in tasks (1) – (2) will be posted online at the links provided below in provisional format immediately after initial quality-assurance, and in approved format each fiscal year; except as noted for precipitation.

1) At Lake Minnetonka Dam in Grays Bay

The U.S. Geological Survey will operate and maintain a gaging station for publication of continuous water level (stage) for head and tail-water pools at Grays Bay Dam. Specifically, by USGS Station Name and Identifier with links:

- (A) Lake Minnetonka at Grays Bay outlet in Minnetonka, MN (station ID 05289000)
https://waterdata.usgs.gov/nwis/inventory/?site_no=05289000
- (B) Minnehaha Cr below Grays Bay Dam in Minnetonka, MN (station ID 05289100)
https://waterdata.usgs.gov/nwis/inventory/?site_no=05289100

2) Minnehaha Creek at Hiawatha Avenue

The U.S. Geological Survey will maintain a streamgage for computation of continuous gage-height, streamflow, specific conductance, water temperature and precipitation; and collect and analyze water-quality samples from streamflow runoff. Data for the components below will be published in provisional and approved forms on USGS NWISWeb at
http://waterdata.usgs.gov/mn/nwis/nwisman/?site_no=05289800

(A) Streamgage operation and maintenance and streamflow computation

A streamgage will be maintained and operated. Discharge measurements will be made to define changes to the stage-discharge rating over the range of flows that occur to compute an accurate record of streamflow.

(B) Continuous specific conductance and water temperature

In-stream sensors will be operated and maintained to provide a record of continuous specific conductance and water temperatures. Sensors will be cleaned and calibrated monthly or as needed to ensure an accurate record of data.

(C) Runoff-triggered auto-samples (8)

A refrigerated autosampler will be used to collect samples from up to 8 runoff events, dependent on weather. For each event, a discharge-weighted sample will be composited from discrete samples obtained during the rising limb and peak of the runoff hydrograph, and analyzed for the constituents in Table 1. To minimize nutrient degradation, chilled samples will be processed, preserved, and shipped to the laboratory within 48-72 hours of initial sample collection. The MCWD may authorize additional samples to allow for unusually frequent runoff during wet years at a cost of \$1,580 per sample, as noted in item (5) of funding tables.

(D) Tipping bucket precipitation gage

A tipping bucket rain gage will be operated and maintained during the open-water season. Precipitation data will be available only in provisional format for 150 days before being purged from the USGS data base. Additional quality assurance and costs would be required to publish and archive approved data.

U.S. Geological Survey Statement of Work
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Federal Fiscal Years 2022 and 2023

Table 1. Laboratory analyses and physical measurements to be obtained from composited samples

Laboratory Analyses	
Nutrients	Dissolved chloride
Total phosphorus	Total suspended solids
Dissolved phosphorus	Volatile suspended solids
Dissolved ortho-phosphate	Suspended sediment concentration
Total ammonia plus organic nitrogen	Physical measurements from composite samples
Dissolved ammonia nitrogen	Specific conductance
Dissolved nitrite plus nitrate nitrogen	pH
Dissolved nitrite nitrogen	--

Upon request by MCWD staff, the activities described in items (3)-(5) may be undertaken. The USGS is to be paid for performing completed activities. Costs negotiated prior to work. Below are estimates.

3) Technical assistance for surface-water site installations, instrumentation, and record analysis of discharge and or water-quality load computations.

4) Staff-time for groundwater assistance, as requested.

5) Additional storm runoff composite samples; up to 4 additional to those scheduled in item 2-C as a contingency for an unusual amount of precipitation events; upon request by MCWD staff.

Table 2.--Federal FY22 Workplan summary and agency contributions (Oct. 1, 2021 - Sept. 30, 2022)

Task Number	Task	Total	USGS Matching Funds	MCWD Share
1-A	Lake Minnetonka at Grays Bay (station 05289000): -Stage sensor O&M and publication of stage data	\$3,935	\$1,066	\$2,869
1-B	Minnehaha Cr below Grays Bay Dam (station 05289100): -Stage sensor O&M, publication of stage data -1-2 discharge measurements during inspections, on request	\$1,015	\$305	\$710
2	Minnehaha Cr at Hiawatha Ave (station 05289800):			
2-A	-Streamgage O&M and data publication	\$17,750	\$8,347	\$9,403
2-B	-Cont. spec. conductance & water temperature O&M, publication	\$7,435	\$3,520	\$3,915
2-C	-Storm runoff sampling by autosample (up to 8 samples)*	\$12,635	\$3,800	\$8,835
2-D	-Tipping bucket precipitation gage O&M (provisional data only)	\$0	\$0	\$0
	Subtotal for Data Monitoring (1A – 2D)	\$42,770	\$17,038	\$25,732
3	Staff-time for assistance with surface-water site evaluation, instrumentation, and/or record analysis, as requested; up to 6-person days of USGS GS-12	\$7,100	\$0	\$7,100
4	Staff-time for groundwater assistance, as requested; up to 5-person-days of USGS GS-12.	\$5,916	\$0	\$5,916
5	*Additional storm runoff autosamples subsequent to the 8 samples scheduled in 2-C; upon request, up to 4 @\$1580 each	\$6,320	\$0	\$6,320
	Subtotal for Technical Assistance (3-5)	\$19,336	\$0	\$19,336
	TOTAL, FY22	\$62,106	\$17,038	\$45,068

U.S. Geological Survey Statement of Work
In Cooperation with Minnehaha Creek Watershed District
Federal Fiscal Years 2022 and 2023

Table 3.--Federal FY23 Workplan summary and agency contributions (Oct. 1, 2022 - Sept. 30, 2023)

Task Number	Task	Total	USGS Matching Funds	MCWD Share
1-A	Lake Minnetonka at Grays Bay (station 05289000): -Stage sensor O&M and publication of stage data	\$3,994	\$1,082	\$2,912
1-B	Minnehaha Cr below Grays Bay Dam (station 05289100): -Stage sensor O&M, publication of stage data -1-2 discharge measurements during inspections, on request	\$1,030	\$310	\$721
2	Minnehaha Cr at Hiawatha Ave (station 05289800):			
2-A	-Streamgage O&M and data publication	\$18,016	\$8,472	\$9,544
2-B	-Cont. spec. conductance & water temperature O&M, publication	\$7,547	\$3,573	\$3,974
2-C	-Storm runoff sampling by autosample (up to 8 samples)*	\$12,825	\$3,857	\$8,968
2-D	-Tipping bucket precipitation O&M (provisional data only)	\$0	\$0	\$0
	Subtotal for Data Monitoring (1A – 2D)	\$43,412	\$17,294	\$26,119
3	Staff-time for assistance with surface-water site evaluation, instrumentation, and/or record analysis, as requested; up to 6-person days of USGS GS-12	\$7,207	\$0	\$7,207
4	Staff-time for groundwater assistance, as requested; up to 5-person-days of USGS GS-12.	\$6,005	\$0	\$6,005
5	*Additional storm runoff autosamples subsequent to the 8 samples scheduled in 2-C; upon request, up to 4 @\$1580 each	\$6,415	\$0	\$6,415
	Subtotal for Technical Assistance (3-5)	\$19,336	\$0	\$19,336
	TOTAL	\$63,039	\$17,294	\$45,746

Table 4.--Total program and agency contributions for FY22-23

Item	Total	USGS Matching Funds	MCWD Share
Subtotal for Data Monitoring (1A – 2D), FY22 and FY23	\$86,182	\$34,332	\$51,851
Subtotal for Technical Assistance, upon request, FY22 and FY23	\$38,963	\$0	\$38,963
Total Program for FY22 and FY232 combined	\$125,145	\$34,332	\$90,814