

MEETING DATE: May 26, 2016

TITLE: Approval of Continuing Minnehaha Creek Watershed District and United States Geological Survey Agreement for Joint Funding of O&M of Gage Station near Minnehaha Falls and Grays Bay Dam for 2016 and 2017

RESOLUTION NUMBER: 16-048

PREPARED BY: Yvette Christianson, Water Quality Manager

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REVIEWED BY: Administrator Counsel Program Mgr. (Name): Craig Dawson
 Board Committee Engineer Other:

WORKSHOP ACTION:

<input type="checkbox"/> Advance to Board meeting Consent Agenda	<input type="checkbox"/> Advance to Board meeting for discussion prior to action
<input type="checkbox"/> Refer to a future workshop (date): _____	<input type="checkbox"/> Refer to taskforce or committee (date): _____
<input type="checkbox"/> Return to staff for additional work	<input type="checkbox"/> No further action requested.
<input checked="" type="checkbox"/> Other (specify): Not reviewed at a workshop	

PURPOSE or ACTION REQUESTED:

Authorization to continue the Joint Funding Agreement with the United States Geological Survey (USGS) to continue to operate, maintain, and publish data from the Lake Minnetonka gage and Hiawatha Gage and collect water quality samples from storm events on Minnehaha Creek near Minnehaha Falls.

PROJECT/PROGRAM LOCATION:

Minnehaha Creek near Hiawatha Avenue and upstream of Minnehaha Falls, and Lake Minnetonka water level monitoring at Grays Bay dam.

PROJECT TIMELINE:

USGS Fiscal Year:
October 1, 2015 through September 30, 2016
October 1, 2016 through September 30, 2017

PROJECT/PROGRAM COST:

Fund name and number: Water Quality (5001)
Current budget: \$412,516
Requested amount of funding: FY2016 Costs = \$19,453; FY2017 Costs = \$21,522
Is a budget amendment requested? No
Is additional staff requested? No

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PAST BOARD ACTIONS:

- 01/29/16 Resolution Number 15-007:
 - Authorization to Enter into a Joint Funding Agreement with the United States Geological Survey (USGS) for the Operations and Maintenance of a Stage Gage on Lake Minnetonka
- 05/08/14 Resolution Number 14-042:
 - Approval of Continuing Minnehaha Creek Watershed District (MCWD) and United States Geological Survey (USGS) Agreement for Joint Funding of Operations and Maintenance of a Year-Round Gaging Station near Minnehaha Falls for 2014 and 2015
- 05/09/13 Resolution Number 13-061:
 - Approval of Continuing Minnehaha Creek Watershed District (MCWD) and United States Geological Survey (USGS) Agreement for Joint Funding of Operations and Maintenance of a Year-Round Gaging Station near Minnehaha Falls 2013
- 05/24/12 Resolution Number 12-049:
 - Approval of Continuing Minnehaha Creek Watershed District (MCWD) and United States Geological Survey (USGS) Agreement for Joint Funding of Operations and Maintenance of a Year-Round Gaging Station near Minnehaha Falls 2012.
- 07/28/11 Resolution Number 11-057:
 - Approval of Continuing Minnehaha Creek Watershed District (MCWD) and United States Geological Survey (USGS) Agreement for Joint Funding of Operations and Maintenance of a Year-Round Gaging Station near Minnehaha Falls.
- 08/05/10 Resolution Number 10-063:
 - Approval of Continuing Minnehaha Creek Watershed District (MCWD) and United States Geological Survey (USGS) Agreement for joint funding of operations and maintenance of a year-round gaging station near Minnehaha Falls.
- 03/20/08 Resolution Number 08-016:
 - Approval of Joint Watershed Research Program proposal
- 09/08/05 Resolution Number 05-052:
 - Approval of joint funding agreement with the USGS to install and operate a year-round gaging station on Minnehaha Creek near Minnehaha Falls.

SUMMARY:

The benefits of this agreement and partnership between the MCWD and the USGS extend beyond the data collected. The District stands to benefit by having year-round data which can be accessed by residents in real time, which should reduce the number of inquiries District staff receives. This data is published on the USGS website and linked to the MCWD website. Both gage sites are one of the USGS most frequently visited webpages.

MCWD in partnership with USGS initiated the Hiawatha gaging station in 2005. It is a joint project where each agency pays approximately half of the cost of operation, maintenance, and publishing of the data. Minnehaha Creek was listed impaired by EPA for chloride in 2008. MCWD staff worked with USGS staff to install a chloride and temperature probe to collect year-round every fifteen-minute data for the creek at Hiawatha monitoring site. In 2012, a refrigerated automatic storm water sampler was installed to collect data that will be used for defining loads, tracking trends, and modeling for TMDLs for Minnehaha Creek and Mississippi River.

In 2013, the Metropolitan Council Environmental Services' Water Outlet Monitoring Program's station at 34th Ave. in Minneapolis was discontinued due to lack of funding to manage and operate and a high risk of vandalism. MCWD is now partnering with Metropolitan Council by providing additional monitoring parameters at the Hiawatha gaging station in exchange for advanced calculated modeling of annual and monthly pollutant loads that may be used for future projects.

In 2015, an additional gage was established on Lake Minnetonka at the outlet of Grays Bay dam. The high water levels experienced throughout 2014 highlighted the high level of public exposure that the Lake Minnetonka water level and Grays Bay dam operations are subject to. Based on the 2014 high water experience, District staff thought creatively about how the District could improve its service delivery to local communities and citizens. Given the success of the MCWD and USGS partnership for the gaging station along Minnehaha Creek at Hiawatha Avenue, District staff and USGS staff collaborated on an idea to install a lake gage on Lake Minnetonka.

The Joint Funding Agreement for October 1, 2015 through September 30, 2016 and October 1, 2016 through September 30, 2017 (see attachment) will continue to be funded by the MCWD and the USGS. The costs to the current agreement is for the stream gage operations and maintenance and daily discharge computation, continuous specific conductance and water temperature, and water quality runoff sampling and laboratory analysis.

The USGS is well-known for being a pioneer in the field of discharge and water level gaging techniques. We will also be able to tap into the extensive expertise of the USGS for future MCWD projects.

RESOLUTION

RESOLUTION NUMBER: 16-048

TITLE: Approval of Continuing Minnehaha Creek Watershed District and United States Geological Survey Agreement for Joint Funding of O&M of Gage Station near Minnehaha Falls and Grays Bay Dam for 2016 and 2017

WHEREAS, Minnehaha Creek has been identified by the District as a high priority resource; and

WHEREAS, MCWD has partnered with USGS in the management, operations, and publishing of the Hiawatha Gage Station since 2005; and

WHEREAS, In 2013, an additional partnership was formed with the Metropolitan Council where MCWD agreed to collect additional data at the Hiawatha site and share the data with the Metropolitan Council; and

WHEREAS, the Metropolitan Council will provide MCWD with advanced calculated modeling of annual and monthly pollutant loads that may be used for future projects on Minnehaha Creek; and

WHEREAS, a second gage station was set up at Grays Bay dam in 2015 to manage, operate, and publish water level on Lake Minnetonka; and

WHEREAS, data is published on the USGS website and linked to the MCWD website and both Hiawatha and Grays Bay sites are at the top of their most frequently visited webpages; and

WHEREAS, the USGS is the leader in the field with regards to discharge measurement; and

WHEREAS, accurate discharge data is crucial for the calculation of stream pollutant loads (e.g., phosphorus, chloride) and for calibration of water quantity/quality models; and

WHEREAS, such data can be used to generate the most accurate discharges and loads for the purposes of future projects and TMDL plans; and

NOW, THEREFORE, BE IT RESOLVED, that the MCWD Board of Managers authorize MCWD district administrator to extend an agreement with USGS to continue the Joint Funding Agreement for services from October 1, 2015 through September 30, 2017 in which the total cost not to exceed \$41,000.

Resolution Number 16-048 was moved by Manager _____, seconded by Manager _____.

Motion to adopt the resolution _ ayes, _ nays, _ abstention. Date:

Date: _____

Secretary _____

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U.S. Geological Survey
 Summary of Data Program
 In Cooperation with
 Minnehaha Creek Watershed District
 For the 2016 Federal Fiscal Year (October 1, 2015 through September 30, 2016)

1) Minnehaha Creek at Hiawatha Avenue

The U.S. Geological Survey will maintain a streamgage for computation of continuous streamflow, specific conductance, and water temperature; and collect and analyze water-quality samples from runoff.

(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 in order to compute an accurate record of streamflow.

(B) Continuous specific conductance and water temperature

In-stream sensors will be maintained and operated 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 (4)

A refrigerated automatic sampler will be used to collect samples from 4 runoff events. For each event, a discharge-weighted sample, composited from discrete samples obtained during the rising limb and peak of the runoff hydrograph, will be analyzed. Auto-samples will be 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. If there are opportunities to collect more than 4 event samples, the MCWD may authorize additional through an amended agreement at a cost of \$1,200 per sample.

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-phosphosphate	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	--

2) Lake Minnetonka above Gray's Bay Outlet in Minnetonka

The U.S. Geological Survey will maintain the lake gage for computation of continuous water level during periods when the stilling well is not frozen.

Data Publication - Provisional and approved data from the monitoring summarized above will be published on USGS NWISWeb at

http://waterdata.usgs.gov/mn/nwis/nwisman/?site_no=05289800 and
http://waterdata.usgs.gov/mn/nwis/uv/?site_no=05289000

A summary of program costs are shown in Table 2.

Table 2. Program cost summary for FY16

Task	Total	USGS Matching Funds	MCWD Share
Streamgage O&M, Minnehaha Cr	\$16,128	\$7,678	\$8,450
Continuous Sp Cond & Temp, Minnehaha Cr	\$7,253	\$3,453	\$3,800
Autosamples (4), Minnehaha Cr	\$5,539	\$1,108	\$4,431
Gage O&M, Lake Minnetonka	\$3,798	\$1,026	\$2,772
TOTAL	\$32,718	\$13,265	\$19,453

U.S. Geological Survey
 Summary of Data Program
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 Minnehaha Creek Watershed District
 For the 2017 Federal Fiscal Year (October 1, 2016 through September 30, 2017)

The workplan for 2017 is abbreviated below because it is identical to 2016, with 2 exceptions:

- The number of auto-samples to be collected in 2017 was increased to 6 total.
- Costs were increased 2% for inflation

Program costs for FY17 and both years combined are shown below in tables 3 and 4 respectively.

1) Minnehaha Creek at Hiawatha Avenue

The U.S. Geological Survey will maintain a streamgage for computation of continuous streamflow, specific conductance, and water temperature; and collect and analyze water-quality samples from runoff.

(A) Streamgage operation and maintenance and streamflow computation

(B) Continuous specific conductance and water temperature

(C) Runoff-triggered auto-samples (6)

A refrigerated automatic sampler will be used to collect samples from 6 runoff events. The MCWD may authorize additional samples through an amended agreement at a cost of \$1,200 per sample.

2) Lake Minnetonka above Gray's Bay Outlet in Minnetonka

The U.S. Geological Survey will maintain the lake gage for computation of continuous water level during periods when the stilling well is not frozen.

Data Publication - Provisional and approved data will be published on USGS NWISWeb.

Table 3. Program and cost summary for FY17

Task	Total	USGS Matching Funds	MCWD Share
Streamgage O&M, Minnehaha Cr	\$16,451	\$7,832	\$8,619
Continuous Sp Cond & Temp, Minnehaha Cr	\$7,398	\$3,522	\$3,876
Autosamples (6), Minnehaha Cr	\$7,749	\$1,550	\$6,199
Gage O&M, Lake Minnetonka	\$3,874	\$1,047	\$2,827
TOTAL	\$35,472	\$13,950	\$21,522

Table 4. Program and cost summary for FY 16-17 combined

Task	Total	USGS Matching Funds	MCWD Share
Streamgage O&M, Minnehaha Cr	\$32,579	\$15,510	\$17,069
Continuous Sp Cond & Temp, Minnehaha Cr	\$14,651	\$6,975	\$7,676
Autosamples (10), Minnehaha Cr	\$13,288	\$2,658	\$10,630
Gage O&M, Lake Minnetonka	\$7,672	\$2,073	\$5,599
TOTAL	\$68,190	\$27,215	\$40,975