# Request for City Council Committee Action From the Department of Public Works

Date: June 23, 2015

**To:** Honorable Kevin Reich, Chair Transportation & Public Works
**Referral to:** Honorable John Quincy, Chair Ways & Means Committee

**Subject:** **Collaborative Research Project Agreement with the University of Minnesota**

**Recommendation:**

Authorize the proper city officials to enter into an agreement with the University of Minnesota Board of Regents to conduct research to determine the design and operating parameters that will lead to improved performance of granular activated carbon filters.

**Previous Directives:**

March 8, 2012 City Council authorized execution of an agreement with the University of Minnesota's Board of Regents to conduct research into parameters impacting performance of granular activated carbon filters with respect to particle removal, taste, and odor removal in the City's water treatment process.

April 2, 2010 City Council authorized the proper City officers to enter into an agreement with the Board of Regents of the University of Minnesota to conduct research in determining the most effective type and use of powder activated carbon in drinking water for taste and odor control.

**Prepared by:** Annika M. Bankston, Superintendent, Water Treatment Plant Operations, 661-4975

**Approved by:** _____
Steven A. Kotke, P.E., Director of Public Works

**Presenters:** Annika M. Bankston, Supt. Water Treatment, Department of Public Works, Water Treatment & Distribution Services

**Financial Impact**

Action is within the approved budget.

**Background/Supporting Information**

This collaborative research project will be the third in an ongoing research partnership between the City and the University of Minnesota regarding the use of activated carbon in the Minneapolis drinking water treatment process.

Design is underway to upgrade the Fridley Filter Plant with granular activated carbon (GAC) filters. The conversion to GAC should address the majority of taste and odor concerns historically experienced by Minneapolis. Staff needs to determine the optimal operating conditions for the GAC filters and the effect on biological activity. In addition, this research will evaluate the GAC filters' capability to treat contaminants of emerging concern.

The 2010-2012 research project yielded valuable information about the optimal location within the current treatment process train to add Powdered Activated Carbon (PAC) to address taste and odor issues. The 2012 – 2014 research project investigated the performance of GAC with respect to taste and odor and particle removal.

The planned research for 2015 – 2017 will continue to use the pilot GAC filter system built for the previous research project. Minneapolis staff will operate and maintain the system. The objectives of this next phase of research are to:

1. Determine the importance of sorption in removal of target compounds.
2. Determine the baseline performance of the GAC filters in terms of headloss, filter runtime, and removal of particles and microbial contaminants.
3. Identify the effects of filter operating parameters and high concentration spikes of chemical contaminants on simultaneous removal of the contaminants and particles.
4. Identify the impact of the chemical contaminants on the microbial community composition in the filters.
5. Compare the effects of non-chlorinated versus chloraminated water on filter performance and microbial community composition.
6. Provide guidance to assist Minneapolis and other water utilities in achieving removal of multiple chemical contaminants using biofiltration without compromising particle removal and filter run time.

The fee for this research project is anticipated to be $180,000 over a two-year period. Funding for this research partnership has been allocated in the Division budget. The University of Minnesota represents a unique and valuable knowledge resource for the Division of Water Treatment & Distribution Services.