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MEMORANDUM

Date: March 5, 2018
To: Dan Walker, City Administrator
From: Brian J. Guldán, PE
Subject: Two Harbors Main Lift Station

This memorandum provides a narrative on the history and current improvement project for the City of Two Harbors Main Lift Station. Information provided below is a combination of historical information provided by city staff and engineering evaluations made during design of the improvements.

The main lift station was originally constructed in 1980 to convey over half of the City's waste water over skunk creek and eventually to the waste water treatment facility. The lift station has six total pumps to handle a large range of flows due to inflow and infiltration into the collection system. Over the last 38 years of operation the main lift has seen general yearly maintenance, but has not had any significant upgrades. Its technology has become antiquated and the station has become a major liability, directly contributing to three raw sewage bypasses into Skunk Creek and Lake Superior over the past 5 years.

In August 2013, high flows inundated the lift station leading to a bypass of 35,000 gallons of raw sewage into Skunk Creek and subsequently Burlington Bay of Lake Superior. The release of raw sewage led to the closure of the beach at Burlington Bay for several days due to elevated E. Coli levels. The City installed an auto-dialer system that would call out staff during emergency situations to prevent another such overflow. However, in January of 2014 another failure of the station occurred in an event that was unrelated to the first overflow in 2013. During the second failure, a power outage at the lift station and a faulty transfer switch left the station without power causing another raw sewage bypass into Skunk Creek and Lake Superior. As a result of these bypasses the MPCA issued a \$19,000 civil penalty on the City of Two Harbors as well as a stipulation agreement to fix the dialer and remove the bypass pipe from the collection system.

After the overflow events in 2013 and 2014 the City made it a priority to budget for improvements to the main lift station by having a facility plan and design documents prepared for the station during 2016 and 2017. As design of the improvements were nearing completion in August of 2017 the lift station was subject to another failure. During this event there was another power outage. The outdated controls caused all the pumps to start at once causing a failure of the generator leaving the station without power. Without power, the wetwell overflowed raw sewage into the building submersing the dry well pumps, electronics, conduits, and lighting fixtures. Untreated sewage eventually made its way out the door into Skunk Creek and to Lake Superior. The auto-dialer did dispatch out employees which were able to be on scene and keep the spill to a minimum, however the damage to the station had already been done and was severe.

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Due to the most recent flooding event the City Council authorized several additions to the original scope of work for the project including; specialized pumps for the dry well which will be able to continue operating under submerged conditions to prevent or minimize raw sewage volumes released into Skunk Creek and Lake Superior if the wetwell should overflow again, additional upgrades to the controls and radio network which will alert operations staff of any issues at the station, and replacement of all electrical conduit, wiring, and devices which were damaged in the flood. These additions are a major contributor to the project exceeding the original project budget by nearly \$350,000. The project was recently bid and awarded for a construction cost of \$1,603,000 which brings the total project cost with planning and engineering to approximately \$1,810,000. The original cost estimate for the entire project was \$1,462,500. The City currently has a pending insurance claim for the flood damage, but the claims will likely cover less than 5 percent of the entire project cost.

Several key components make this station especially critical for human and environmental health. This station has the ability to affect human health as was witnessed during the August 2013 overflow event in which the Burlington Beach was closed for several days due to elevated levels of E. Coli. In addition, the City of Two Harbors drinking water intake is only a few hundred feet from Burlington Bay and raw sewage discharged from this lift station could also contaminate the City's drinking water. Fortunately the Main Lift Station Improvements project is now ready to move forward and will provide critical upgrades to the facility to provide reliable operation. The project is expected to commence in April 2017, with operational improvements completed by February 2019.