



2020

Green Bond Report for the City of Bloomington



Penn-American Stormwater Storage Project

City of Bloomington Finance
Department

1800 West Old Shakopee Rd
Bloomington, MN 55431

8/27/2020

INTRODUCTION

The City of Bloomington, Minnesota (the “City”) is committed to building a more sustainable community. Environmental sustainability is one of the pillars of the City’s strategic priorities developed by the Bloomington City Council. The City is working to sustain water, land, energy, and waste by being forward thinking to address both sustainability and human behavior.



In 2018, the City issued its first Green Bond and became the 4th community in the State of Minnesota to issue Green Bonds. The General Obligation Storm Water Utility Bonds, Series 2018D (the “Series 2018D Bonds”) financed the Penn-American Linear Storm Water Storage Project designed to serve the flood-prone area immediately southwest of the I-35W & I-494 interchange.

This specific high impact project was selected for its ability to provide multiple environmental sustainability benefits such as mitigating flood risk and improving surface water quality.

GREEN BOND ISSUANCE AND PRINCIPLES

The City issued the Series 2018D Bonds as “Green Bonds” based upon the environmental benefits of the capital project financed with proceeds of the Series 2018D Bonds. The City designated the capital project financed with the Series 2018D Bonds as a “Green Project” due to the fact that the project was designed to be environmentally beneficial in the categories of clean water and sustainable waste management and climate change adaption.

The City intends to comply with the Green Bond Principles (“GBP”) as outlined by the International Capital Market Association (“ICMA”) in effect as of the date of issuance of the Series 2018D Bonds, and the City does not make any representation that the Series 2018D Bonds will comply with any future changes to the GBP enacted after the date of issuance of the Series 2018D Bonds, as the GBP may be modified by ICMA in the future.

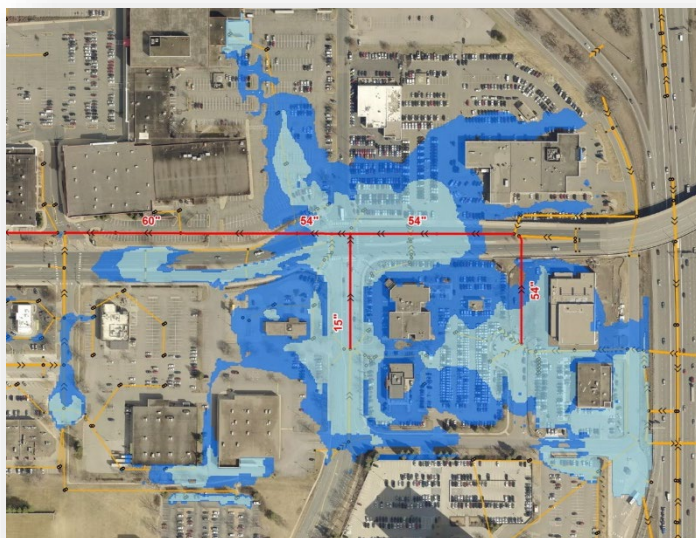
The City of Bloomington intends to report on its Green Bond program by summarizing the project and providing a description of the environmental impact of the project at least annually, or until all of the proceeds have been spent. As of the date of this report, all of the proceeds related to the Series 2018D Bonds have been spent as discussed herein. Therefore, no additional Green Bond reporting related to the Series 2018D Bonds will occur. This report will be filed on the City’s website and linked to the Electronic Municipal Market Access (EMMA) system.



USE OF PROCEEDS

The focus of the Penn-American Linear Storm Water Storage Project included improvements to the storm sewer system to reduce the risk of impacts related to flooding for the area. During even moderate rainfall events, runoff overwhelmed the existing storm sewer system and was stored above ground, within the streets and adjacent properties, until the existing pipe system could attenuate the flow. The highly impervious, fully developed nature of the contributing watershed combined with significant overland flows to the low storage areas only exacerbated the flooding issues.

Under the previous conditions, rainfall events with a 50% chance of occurrence would cause temporary flooding around the intersection of American Boulevard and Knox Avenue. This flooding inundated roadways as well as the adjacent private property limiting travel, access to the commercial area and, in more extreme events, damage to property.



The Project included conveyance infrastructure upgrades using oversized connecting pipes, establishing storm water storage and infiltration under the future 80½ Street area, and a large diameter pipe array. The complex network of underground storage areas was connected with a 72" diameter pipe. The outflow of the system is regulated by an outlet control structure where the system connects to the Penn Avenue trunk storm sewer line at 82nd Street. In total, the system established 12.2 acre-foot of storm water storage. When this storage volume is combined with the future development requirements that sites retain the first 1.1-inch of precipitation, the total volume mitigated is over 16 acre-feet, thereby establishing a 10-year level of service for the area.



PROJECT EVALUATION AND SELECTION

The City's 2018-905 Penn-American Linear Storm Water Storage Project is located within the Penn-American District, roughly in the southwest quadrant of I-494 and I-35W. The Penn-American District is redeveloping consistent with the vision set forth in the City's Penn-American District Plan for a higher density, pedestrian friendly, transit-oriented development.



Upon completion of the storm water project, development activity began with the Metro Transit Bus Rapid Transit Orange Line Project and the Penn-American Phase III development, both of which initiated construction in the fall of 2019. The Penn-American Phase III development will add 248 units of rental housing, including 50 units affordable at 50% AMI. Previous flooding conditions were providing additional challenges for redevelopment activity in this area. Resolving the temporary flooding in this area eliminated significant challenges for these projects allowing them to move forward.

The City works to protect public health and welfare through storm water management, planning, identification of flood-risk, and implementation of flood-risk reduction projects. Over the past 10 years, City Staff have been studying various possible solutions to the flood-prone area in the Penn-American District with multiple studies and more than 18 different analysis aimed at alleviating flooding in the area. Several parallel pipe systems were considered to convey the flow to Penn Lake more efficiently. However when the NOAA Atlas 14 precipitation frequency data was released in 2013 and, subsequently included in the analysis, these pipe systems were found to increase flood levels in the receiving waters beyond an acceptable level. This set back resulted in considering the old open water wetland that once existed in the area with the thought of recreating the previously existing storage area to reduce flooding.



The Project established a large diameter, linear storm water storage project capable of storing 12.2 acre-feet of water, providing water quality benefits to downstream resources, and reducing flood risk in the area.

The Project was selected as a green bond eligible project due to its ability to mitigate climate change impacts as well as its ability to provide sustainable water management.

CLIMATE CHANGE ADAPTATION: As documented in the 2013 Atlas 14, Volume 8 publication by the National Oceanic and Atmospheric Administration (NOAA), climate change has altered storm characteristics. Data analysis combined with firsthand experience confirmed the area has seen an increase in short duration, high intensity rainfall events, or cloud bursts which only exacerbated the flooding in this already flood prone area.

SUSTAINABLE WATER AND WASTEWATER MANAGEMENT: Upper and Lower Penn Lake serve as the receiving water bodies for this area. These water bodies are surrounded by single family homes so it was critical to not increase the threat of flooding around these water bodies. Additionally, both Upper and Lower Penn Lake have been identified as impaired for nutrients by the Minnesota Pollution Control Agency (MPCA). In addition to flood risk reduction benefits, the project also included surface water quality benefits by providing storm water infiltration along a



700-foot segment of the system. This volume reduction component of the project provides a reduction in the total amount of nutrients being discharged to the downstream receiving waters thereby improving the water quality of both Upper and Lower Penn Lake and ultimately Nine Mile Creek and the Minnesota River.

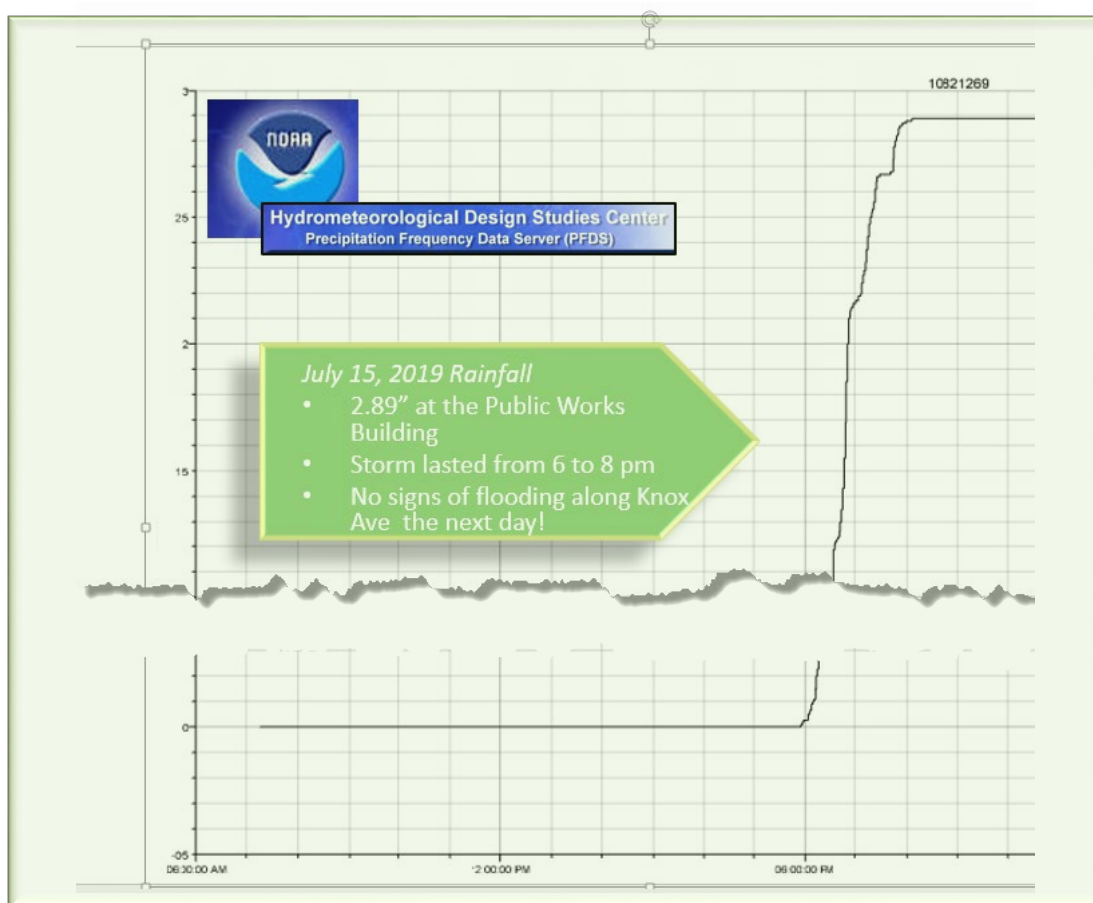
MANAGEMENT OF PROCEEDS AND ENVIRONMENTAL IMPACTS

Bond Issuance	Net Proceeds Deposited	Net Proceeds Expended	Ending Balance
Storm Water Utility Bonds, Series 2018D (Green Bonds)	\$11,650,000	\$11,650,000	-

The MSP airport weather station, located 3.6 miles from the project site as the crow flies, had just broken its annual precipitation record in 2016, but broke it again in 2019 with 44.17 inches. Precipitation came fast and furious between February and May, with heavy late-winter snows and

spring rains. After a relatively average summer precipitation, the extremely wet conditions resumed in September when over half of the State of Minnesota received at least two times the normal amount of precipitation. There were no known incidents of flooding in the area in 2019 even though it was the wettest year on record.

The project was completed on time meeting its June 30, 2019 completion date. Shortly thereafter, the project received its first big test. On July 15, 2019, 2.89 inches of rain fell within a 2-hour period. This correlates to a 10-year event which was the design event for the project. Previously, this type of storm event would have caused significant flooding in the area with flood depths of 2-3 feet at low points on the roadway. The project functioned as designed with no flooding of roadways or adjacent property.



In addition to providing flood protection, the Project also provides on going water quality benefits to both Upper and Lower Penn Lake which are the receiving waters for this area. The total watershed area draining through the project area is 150 acres and is largely impervious surface with little storm water treatment. Construction of this project provides the City with a sustainable urban drainage system by infiltrating a portion of the runoff thereby decreasing both runoff volume and nutrient levels being conveyed to downstream resources via the storm sewer system.

Annual water quality benefits from the project were evaluated using the P8 Urban Catchment Model, which is a computer modeling Program for Predicting Polluting Particle Passage thru Pits, Puddles, and Ponds. The P8 Urban Catchment Model was originally developed for USEPA and is a tool used to for predicting the generation and transport of storm water pollutants in urban watersheds. The P8 Urban Catchment Model was used to provide an estimate of the annual storm water runoff volume reduction and pollutant load reductions for total phosphorus and total suspended solids (TSS).

P8 URBAN CATCHMENT MODEL RESULTS FOR THE AREA USING BEST MANAGEMENT PRACTICES (BMPS):



AWARD WINNING PROJECT

The environmental benefits and complexity of the project were also recognized by local engineering and public works professionals receiving three awards in 2019.

- 2019 AMERICAN PUBLIC WORKS ASSOCIATION – MINNESOTA CHAPTER (APWA–MN) PROJECT OF THE YEAR AWARD
- 2019 AMERICAN COUNCIL OF ENGINEERING COMPANIES OF MINNESOTA (ACEC-MN) HONOR AWARD
- 2019 CITY ENGINEERS ASSOCIATION OF MINNESOTA (CEAM) PROJECT OF THE YEAR; HONORABLE MENTION

