APWA MINNESOTA CHAPTER
PUBLIC WORKS PROJECT OF THE YEAR NOMINATION FORM

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Submission Deadline: October 1, 2019

All nomination and supporting data are to be submitted as a PDF to Sarah at sarah.lloyd@bolton-menk.com with a maximum page size of 5 pages, including photos.

Project Nominated:

Managing Agency: _____
Contact Person: _____
Agency Address: _____
Agency Phone Number: _____

Project Design Firm: _____
Project Construction Administration Firm: _____
Project General Contractor: _____

Name of Person Making Nomination: _____
Phone Number: _____

Criteria for Nomination

- Project must be substantially completed by October 31, 2019.
- Includes use of innovative construction management techniques and completion of the project on schedule.
- Maintained excellent safety performance and safety program throughout construction.
- Evidence of strong community relations during all project phases.
- Consideration given to the environment. Sustainable design techniques involved.
- Unusual accomplishments given adverse conditions.
- Provides future value to the public works profession and perception by the public.
- Additional considerations such as value engineering, innovative project financing, multi-agency coordination and participation.

Reasons for Nomination: Describe the project with the aspects and features of the project that fulfilled any of the applicable criteria listed. (Include description on a separate page.)

City of Crystal Becker Park Storm Water Infiltration Project
American Public Works Association Award Nomination

In 2019, the City of Crystal installed one of the largest below-ground storm water infiltration galleries ever built in the Twin Cities Metro Area. The purpose of the Becker Park Storm Water Infiltration Project is to provide water quality treatment for the impaired Upper Twin Lake through the storage and infiltration of storm water runoff from 147 acres of commercial and residential land that was built with no treatment. The roots of the project began in 2014 when the City and the Shingle Creek Watershed Management Commission evaluated options for retrofitting storm water treatment in the City's downtown area. When Becker Park was identified as an ideal location for a regional Best Management Practice, the City quickly realized the potential to integrate the water quality improvements with park improvements. The growing scope of the storm water project led to City discussions about re-imagining Becker Park and ultimately led not only to a park reconstruction project to transform Becker Park into a destination park, but also to the development of a larger park system master plan. The massive infiltration gallery — 1.42 miles of interlinked 72" diameter pipe spanning 1.45 acres — is concealed underneath the park's new performance lawn and has the capacity to hold over 2.2 million gallons of runoff, allowing this water to soak into the sandy soils below. The project sets a model for integrating stormwater infiltration systems into functional public spaces in highly developed watersheds.

Design challenges included a relatively high water table in the area, an underground parking garage in an adjacent apartment building, and the sheer volume of storm water that was moving through the system in this area. With the design process starting in 2015 and the construction planned for 2019, the project team had enough time to gather needed information (for example, by sinking monitoring wells early in the design process) so that all the potential factors and challenges were worked through, ensuring a successful project.

The coordinated design, planning and community relations efforts during the design phase demonstrate the advantages of looking beyond conventional practices when planning infrastructure improvements. Often a storm water improvement is considered separate from a park visioning process, as an afterthought. In this case, however, the City took the opportunity to fully integrate the storm water improvement planning into the public input opportunities and ultimately the redesign of Becker Park to maximize water quality benefit while still achieving the destination park goals for the public park and open space. The City's engineering and landscape architecture consultants communicated frequently to ensure there were no conflicts between the below ground and above ground elements, all the way down to adjusting details of the gallery design to accommodate walking path light fixture footings.

The City, its Parks and Recreation Commission, and the Shingle Creek Watershed Management Commission all held input sessions to ensure many opportunities for public involvement, and there was local media coverage both before and during construction. The community visioning process resulted in a park plan that reflects local desires for a flagship community gathering space. The park is now transformed from a ballfield-oriented park to one with more flexible open areas and a large accessible playground. In the new park layout, the below-ground infiltration gallery can operate and be serviced (sumps cleaned out) and maintained without disrupting park amenities or programming.

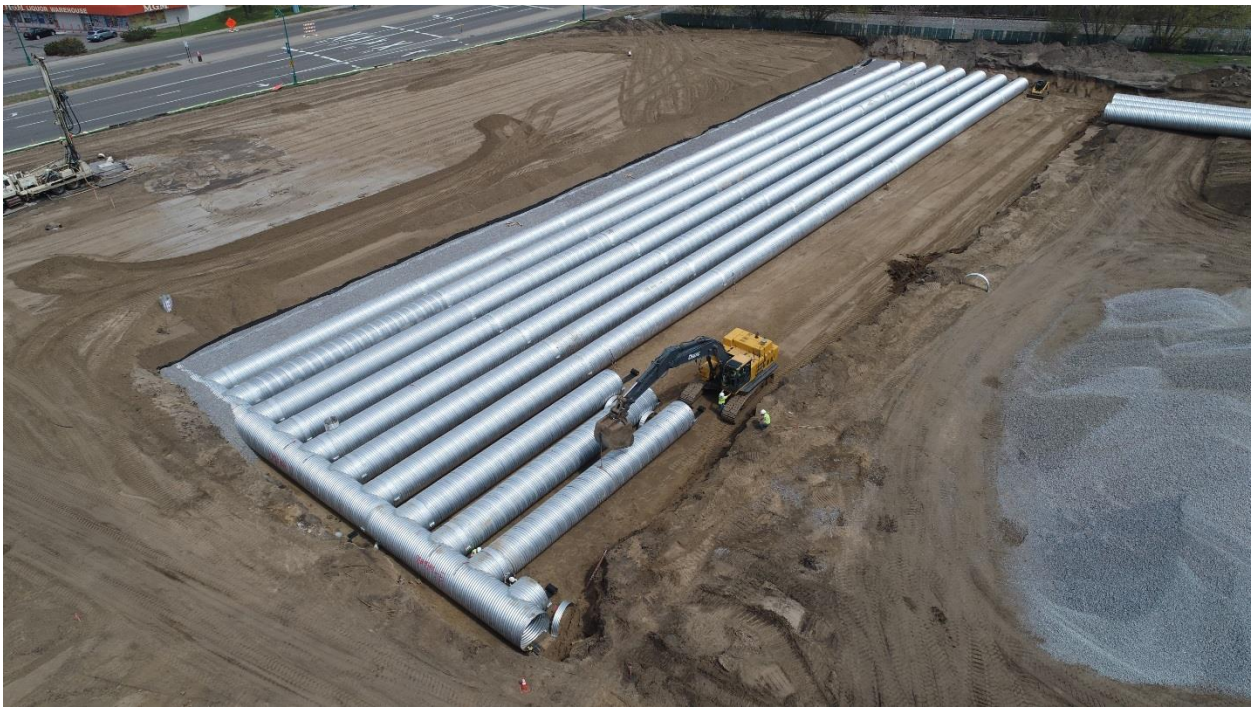
By integrating the storm water project into the park re-imagination, the public has become much more familiar with storm water and how it affects our surface waters. The best example of this is one resident referring to the infiltration system as a "giant sponge" when the concept was first presented and now understanding that it is an underground tank system that infiltrates storm water, preventing pollutants from travelling to the lake. The City also enhanced public education and outreach by flying a drone over the park during construction to create a YouTube video showing progress at various stages. The video has been viewed over 200 times on YouTube alone (not including the other social media outlets on which it has been shared). https://www.youtube.com/watch?v=O3iqLaodWgI

The cost of the storm water portion of this project was nearly $2.5 million. Four agencies contributed $1.475 million in grant and cost-share funding, including one of the largest Minnesota Clean Water Fund grants ever awarded; two grants from the Metropolitan Council - Green Infrastructure and Stormwater; a Hennepin County Natural Resources grant; and cost share from the Shingle Creek Watershed Management Commission. The balance was funded through the City of Crystal storm water fund.

The project is a significant environmental improvement for Upper Twin Lake. Upper Twin Lake is an Impaired Water, with poor water quality impacted by sediment and nutrients conveyed by runoff. Most of the pollution in stormwater runoff is conveyed by the "first flush," or the first ½ to 1 inch of rainfall. The Becker Park system infiltrates 0.6 inches of storm water runoff from 147 acres of commercial and residential land. The estimated annual reduction of pollutants to Upper Twin Lake is 118 pounds of total phosphorus (TP) and 38,400 pounds of total suspended solids. This 118 pound reduction represents 16% of the TMDL-required Upper Twin Lake TP reduction. In addition to these water quality benefits, buried debris and petroleum-contaminated soils identified during construction were removed, ensuring that these pollutants will not contribute pollutants into Upper Twin Lake or local groundwater.

The storm water portion of the Becker Park project was included as part of the total park construction project to minimize mobilization costs, maximize reuse of excavated materials on-site, and minimize overall community disturbance on this major park in downtown Crystal. Even though the project was constructed in a downtown area adjacent to two busy county roads, the project maintained a safe working environment for both the workers and citizens in the area. While significant environmental testing was completed as part of the design work, a number of old wells that had not been properly capped, old basement walls, and a small amount of contaminated material were found during construction. Since the project had anticipated capping a few wells, the contractor was able to quickly have their subcontractor seal the newly discovered wells, minimizing the impact to the construction schedule. The contaminated material and old basements were removed from the site and disposed of properly.

Overall, the Becker Park storm water infiltration project has led to a greater public awareness of storm water management in the community by leading the larger park re-visioning effort. While challenges were encountered during design and construction, these challenges were overcome by the project team. The underground infiltration system that was constructed provides value to the community not only by educating the public on storm water management, but also by providing water quality, rate control, and localized road flooding benefits for generations to come.



The pipe gallery was installed in three stages. This is the second stage. The area between the exposed pipe and the road to the north has already been completed and backfilled.

The general footprint of the infiltration gallery is shown on the right within the dotted lines.

A conveyor was used to place bedding rock between the perforated pipes, providing additional storage capacity.