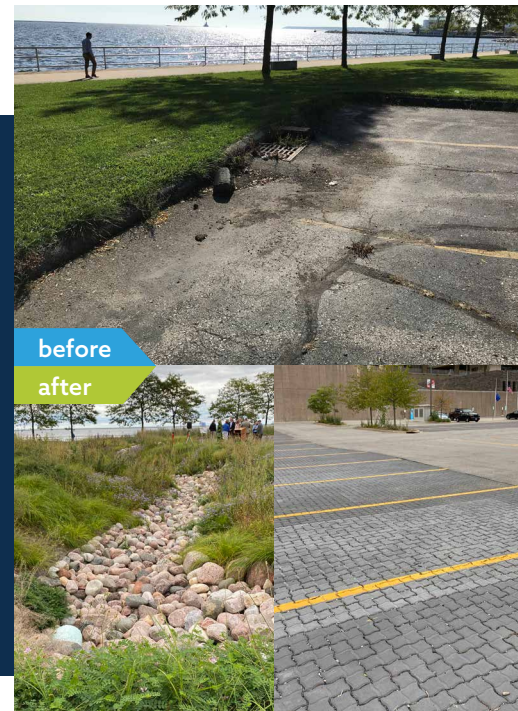


MILWAUKEE, WIS WAR MEMORIAL CENTER

The War Memorial Center in Milwaukee, Wis. is a living memorial and museum intended to “Honor the Dead by Serving the Living”. Constructed in 1955, this site needed restructuring to better treat stormwater runoff from parking lots prior to entering Lake Michigan. The final WMC parking lot renovation design reflects the Greenprint vision and stakeholder input, including a variety of grant requirements.



PROBLEM

The War Memorial Center (WMC) parking lot renovation is part of the Green Print Master Plan, for green-sustainable improvements along Milwaukee’s lakefront. The original parking lots provided no stormwater treatment and allowed runoff to enter the lake directly. AQUALIS’ Engineering Division (formerly Stormwater Solutions Engineering) was tasked with incorporating water quality measures into the existing park while maintaining or improving the existing function and beauty. As this park is publicly supported, stakeholder opinion greatly influenced the project.

SOLUTIONS

With stakeholder input and publicly held forums, the project evolved, adding a relocation of one of the parking lots, away from the lake, as well as the addition of many green infrastructure features such as permeable concrete, bioswales, a cobble-lined stream channel and native plantings to manage runoff from the previously untreated site. The public requested open space for recreation and limited trees to maintain a clear lakefront view.

AQUALIS first evaluated the site to understand what stormwater control measures (SCMs) would suit the park best. The WMC was built on a high-water table, due to its proximity to Lake Michigan. Because of this, some SCM options were eliminated such as constructed wetlands, regenerative stormwater conveyance and cisterns. To work with the high-water table rather than against it, AQUALIS chose stormwater assets that would incorporate drainage and appropriately treat water.

AQUALIS Engineering Services applied for and received on behalf of the client approximately \$966,000 in funding for the green infrastructure elements in this project. This project complied with the Wisconsin Department of Natural Resources Technical Standards. AQUALIS continued contact with the Design and Construction Document development to ensure that the grant promises were kept and that Milwaukee County’s tenant the War Memorial Center was the recipient of a green investment that will be maintainable with a long useful life.

Of the four existing parking lots, AQUALIS was able to remove one and redesign the others to allow for additional vegetation while maintaining parking capacity. Along the parking area, a bioretention swale was installed offering water quality and quantity benefits. Porous pavement was incorporated into a section of the parking area to divert runoff from directly entering the lake.

In addition to the parking lot improvements, the open space was redesigned to integrate a focused, contemplative experience with recreational lakefront usage. Educational signage includes information on water management, water quality and habitat for migratory insects and birds. The green infrastructure provides 190,775 gallons of storage per storm and reduced sediment loading to Lake Michigan by 1,500 pounds annually.

Video: https://www.instagram.com/reel/ChSawsKsz_K/