

GREEN STORMWATER INFRASTRUCTURE PLAN

AQUALIS developed a comprehensive Green Stormwater Infrastructure (GSI) Plan for the City of Green Bay to address urban flooding and water quality issues by identifying and prioritizing 50 strategic public and private sites for GSI implementation.

PROBLEM

The City of Green Bay, like many cities along the coast of Lake Michigan, is highly urbanized with dense development and large expanses of impervious surface such as pavements, roofs and parking lots. As such, there are flood-prone and stormwater ponding areas and water quality challenges facing the City and its residents. Green Stormwater Infrastructure (GSI) is one strategy for mitigating the effects of urbanization on water quality by managing the stormwater where it falls on each property in each watershed. GSI attempts to mimic the natural environment by capturing, storing, treating and slowly releasing stormwater runoff thereby improving water quality and reducing the peak load on the stormwater drainage system and receiving waters.

Since GSI is an emerging practice within civil planning/engineering, it can be difficult to build support among stakeholders who are unfamiliar with these stormwater management techniques. Additionally, many City Engineers are not trained in the planning or design of these projects. After an attempt to implement permeable pavement within the City was denied, AQUALIS was contracted to prepare a comprehensive plan to justify these projects and train City staff for future implementation.

SOLUTIONS

The City-Wide Green Stormwater Infrastructure Plan (GSI Plan) identifies the priority areas within the City where GSI strategies would have the greatest positive impacts as well as an evaluation of the cost-effectiveness of implementing GSI strategies in those identified priority areas. The plan gives the City's decision makers a clear guide to achieving the goals of reduced flood risk and healthier surface waters and environment, while improving the quality of life for its residents in the most cost-effective manner possible. The plan guides decisions for incorporating GSI elements into development, redevelopment or public infrastructure improvements projects for the purpose of building future flood and climate change resiliency, increase healthy green spaces for the community and improve water quality in the Fox River, East River and other tributaries, Green Bay and Lake Michigan.

The plan recommends 50 locations within the City of Green Bay (30 public properties and 20 private properties) where implementation of GSI would have the greatest benefits to water quality and flood risk. These locations were strategically selected based on flood reports, water quality data and the City's Capital Improvement Program. In addition to recommending these locations, preliminary engineering was performed to estimate pollutant removal, volume of runoff capture and implementation cost for each location.

