

**Lake County Municipal League
2016 Innovation Awards
Nomination**

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Executive summary

Please provide a summary of the project and include a description of the project, project objectives, project deliverables and project achievements.

Please see attached narrative.

Full description

Please provide a detailed description and address the items listed.

Purpose of the project:

Please see attached narrative.

Stakeholders of the project:

Please see attached narrative.

Future plans or expansion of the project:

Please see attached narrative.

Results and achievements:

Please see attached narrative.

Innovative components of the project:

Please see attached narrative.

Ease of replication by other municipalities:

Please see attached narrative.

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**Lake County Municipal League
2016 Innovations Awards Application
Waukegan 2015-2016 Sustainable Shoreline Plan**



November 3, 2016

Prepared for:



Lake County Municipal
League
1937 North Municipal
Way

Round Lake Beach, Lake County, Illinois 60073

Prepared by:



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1.0 Executive Summary

Waukegan's 2016 Sustainable Shoreline Program Represents Innovative Municipal Initiative Aimed at Improving Its Natural Environment and Recreational City Assets.

Waukegan has __ acres of Lake Michigan lakefront beaches and dunal environments within its municipal boundaries that are enjoyed by public residents and non-residents year-round.

Access and water quality improvements combined with operational enhancements have provided measurable benefits to the public's lakefront experience.

Beach area improvements are readily and economically implemented as public and private phased funding is obtained.

These initiatives will attract increased demographics and developers that contribute to the local economy.



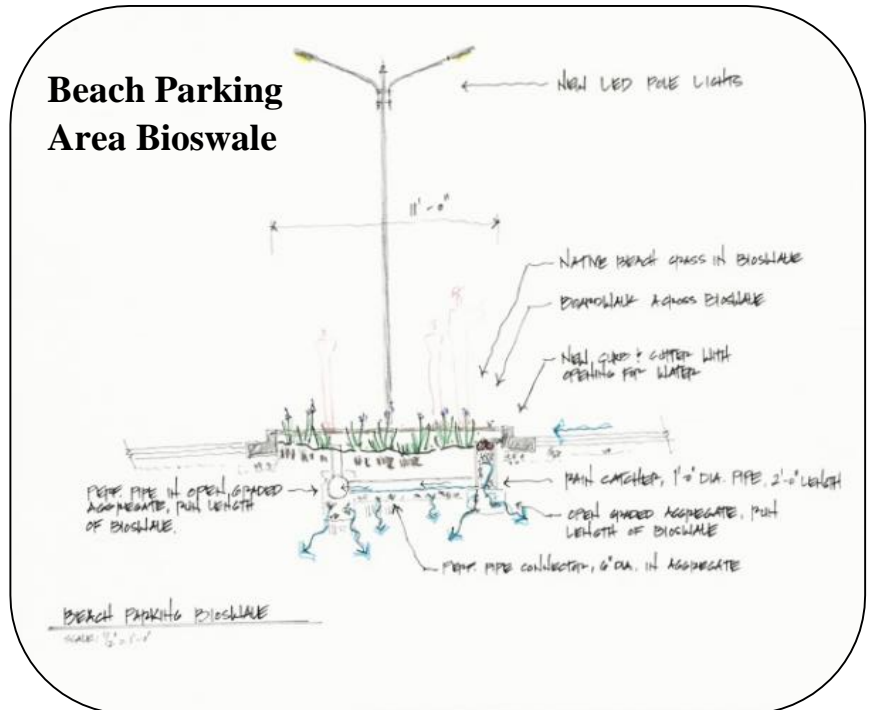
included a 50% reduction of beach closures in addition to a more aesthetically pleasing place to recreate.

In 2015 the City of Waukegan was awarded a \$200,000 Illinois Coastal Management Program (CMP) Grant from the Illinois Department of Natural Resources (IDNR), a federally funded program from the National Oceanic and Atmospheric Administration (NOAA) and U.S. Department of Commerce, to re-design the parking lot and beach access paths via Sea Horse Drive, and to address non-point source pollution to coastal waters from storm water runoff at Waukegan Beach. The objective of the 2015-2016 Waukegan Harbor AOC Sustainable Shoreline Plan was to develop a detailed engineering plan to improve public access to the Waukegan Municipal Beach while incorporating sustainable, green infrastructure measures and resultant environmental benefits along Lake Michigan. The Plan provides a balance of public recreational use/enjoyment and protection of the unique and valuable beach habitats along Waukegan's North and South Beach.

To bring portions of the Sustainable Shoreline Plan to fruition and share valuable information gathered throughout the planning stages of the Sustainable Shoreline Plan, the City of Waukegan formulated the Beach Ranger Program and a strategic plan to reduce beach closures. The Beach Rangers were formulated to help in day to day beach operations at the beach which included beach patrol/safety, refuse pick-up, and beach beautification projects. The City of Waukegan formulated a strategic plan to collect and properly manage waste to eliminate beach closures caused from gull feces in addition to implementing a beach sweeper program to aid in the reduction of beach closures. Project deliverables and achievements

1.1 Project Deliverables, Results and Achievements

Improving water quality is a major focus for the City of Waukegan. At Waukegan Beach, stormwater runoff from Sea Horse Drive and the beach parking lot shows the characteristics of typical urban runoff. Contaminants of concern in runoff include suspended solids, oil and grease from high vehicular traffic, E-coli from seagull droppings, and chlorides from winter salting applications. Stormwater runoff within the project area contributes to local non-point source pollution. This is caused by runoff ponding in low lying areas, along with drainage to the adjacent high quality wetlands and sensitive habitats.



To address stormwater runoff, approximately 50 feet of bioswale has been constructed at Waukegan Beach along Sea Horse Drive to serve as a prototype for future funding/construction. The prototype was constructed by the Waukegan Public Works Department in accordance to the 2015 Sustainable Shoreline Plan. In addition to the 50 linear feet of bioswale a turn-around was constructed to brand a centralized area of Waukegan beach. The turnaround area provides a safe, designated drop-off area for beach users and equipment in addition to a future food truck parking area.

A bioswale is a subsurface, linear drainage ditch covered with vegetation that collects, conveys, filters and infiltrates stormwater. During the busy beach season, vehicles may be parked along the north and south Waukegan beach. Parked vehicles can leave small amounts of residues including oil, grease, and suspended solids on the parking lot surface. Seagull droppings and trash can also accumulate in the runoff. During rain events these residues collect in the stormwater runoff that runs into the adjacent wetlands and Lake Michigan. The bioswale at Waukegan Beach works to remove these pollutants and is currently filtering stormwater in the parking lot of Waukegan Beach.

Stormwater flow containing non-point source pollution is directed to the bioswale located along Sea Horse Drive and the adjacent parking lot, allowing natural filtration of urban runoff, instead of sheet flow runoff which could run into the adjacent high quality wetland. By capturing and filtering non-point source pollution, surface and groundwater quality along Lake Michigan will vastly improve, thus improving the overall quality of surrounding wetland species habitats. The bioswale is covered with native plants and grasses, various flowers, and cobbles to increase

aesthetics and aid in the natural filtration process. The successfully completed bioswale is shown below:



During large storm events, where a normal bioswale would be completely inundated with water, Waukegan Beach's specialized bioswale directs stormwater to perforated piping, placed underground below the open graded cobbles and native plantings, running parallel with the bioswale. The stormwater will access the underground piping at each rain catchment area. Once collected in the underground perforated pipe, stormwater flows to the City storm water pipes, thus eliminating standing water along Sea Horse Drive and the adjacent parking lot area.

To help aid in water quality improvements the City of Waukegan installed numerous Waste Management trash receptacles at the beach to maintain a clean and safe beachfront while improving the experience of beach attendees. The new trash receptacles also contribute to the decrease in E. Coli by containing trash, which prevents trash from ending up in Lake Michigan. The additional trash collection helped to decrease the number of gull populations that live at the beach. Gull populations are found in abundance when trash/refuse accumulate on the beach and provide adequate food supply. The addition of trash receptacles has resulted in a more aesthetically pleasing beach.

The City has made great strides with water quality improvements at Waukegan Beach through the implementation of a beach sweeper that removes ponding of the stagnant water that causes public health impacts and water quality impairments to the surrounding sensitive habitats. The beach sweeper is also able to collect trash that attracts birds gathering on the beach and resultant bird-related fecal matter. Through the implementation of the Beach Sweeper Program there have been significantly less beach closures in 2016 compared to 2015.

The City of Waukegan has made great strides in 2016 to improve water quality and the aesthetics of the beach for both recreational users and the natural habitats found at Waukegan Beach. The City intends to expand off of all improvements.

2.0 Purpose

The purpose of Waukegan's beach improvement work was to aid in water quality improvements that improved beach functionality and aesthetics. The City has worked to rebrand the beach from the former heavy industrial area to a beach that is aesthetically an ideal place for beach users to recreate and enjoy the rare and endangered species. Rebranding has focused on improvement to

community communication and engagement by participating in community outreach and sharing accomplishments and updates with the public. Waukegan's work provides a balance of public recreational use/enjoyment and protection of the unique and valuable beach habitats along Waukegan's North and South Beach.

2.1 Stakeholders of the project

Stakeholders of the 2016 Waukegan Beach improvements include the City of Waukegan, Waukegan Port District, Waukegan Park District, Illinois DNR, Lake County, Friends of Waukegan Beach, and Waukegan and Lake County area beachgoers/recreational users.

2.2 Collaborative efforts

The 2016 Waukegan Beach improvements focused on the implementation water quality improvements and improved aesthetics and functionality that could have only been accomplished through a great deal of collaboration between the City of Waukegan, Deigan and Associates, Navy Volunteers, Beach Rangers, Waukegan Public Works, and the Waukegan community.

Volunteer Activities

Waukegan Public Works completed construction of the turnaround area, bioswale underdrain tie into the City storm sewer, and curb improvements through City funds to leverage potential future funding to finish constructing a bioswale along the Waukegan Beach Parking lot. Planting of the dune grasses and placement of the cobble stone in the constructed bioswale area was completed by U.S. Navy volunteers along with the Sustainable Shoreline design team, all organized by the Waukegan Beach Ranger Program.

During the planting of native grasses and cobble placement of the newly constructed bioswale, Deigan & Associates, LLC presented to the Navy volunteers. The presentation outlined the importance of the Navy's volunteer efforts in regards to water quality improvements necessary for Waukegan Beach. Through this joint volunteer effort by the design team, Beach Rangers, and U.S. Navy volunteers, the newly constructed turnaround is a functioning and aesthetically pleasing design of the Sustainable Shoreline Plan.



Beach Ranger Program

The City of Waukegan has focused on promoting recreational use at Waukegan Beach while protecting the surrounding sensitive and endangered habitats identified in the Sustainable Shoreline Plan. Prior to the City's busy beach season, the City formulated the Beach Ranger program to help aid in protecting the health of Waukegan Beach and provide community outreach

events and literature. The City detailed water quality improvements and the importance of species and habitats found at Waukegan Beach. This information was shared with the Beach Rangers who worked to inform the public of the importance.

The Beach Rangers worked to monitor the beach during the busy beach season, aid in water quality improvements, and inform the public of the rare and sensitive landscape that requires protection and enhancements. This was done through public presentations and informational literature provided to the public. Approximately 4,000 brochures were passed out to recreational users detailing the importance of keeping Waukegan's beaches clean. None of the informational brochures were found as litter on the beach or found in the trash receptacles. In addition, the City worked to rebrand Waukegan Beach with a new beach logo and slogan, "Cooler by the Lake." Rebranding Waukegan Beach has been important to the City to show that progress has been, and will continue to be, made on the Waukegan Lakefront.

Community Outreach

On July 9, 2016 Deigan & Associates' environmental engineers gave a presentation at Waukegan Beach to the public regarding the importance and functionality of bioswales in the natural ecosystem. The presentation detailed the importance of the City of Waukegan's work as well as how the newly constructed turnaround/bioswale feature at Waukegan Beach will improve water quality to Lake Michigan and the surrounding sensitive habitats.

The team constructed a working bioswale prototype for the community outreach event that aided in the visualization of the functionality of the bioswale constructed at Waukegan Beach.

The public could see simulated stormwater runoff that is typically found at Waukegan Beach and witness how the bioswale design is able to collect and infiltrate the stormwater runoff, thereby mitigating environmental impacts. The presentation also detailed the importance of Waukegan's beach sweeper program that promotes lowered E. Coli levels and improves the overall recreational user's public health. Additional topics presented to the public included how beach users can assist in the water quality improvements through trash pickup at the beach and surrounding parking lots.



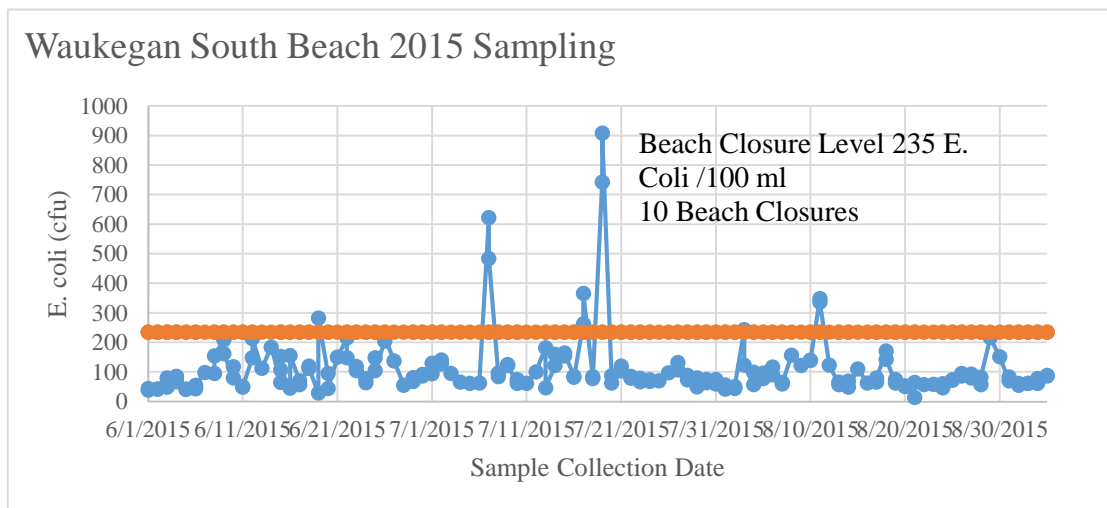
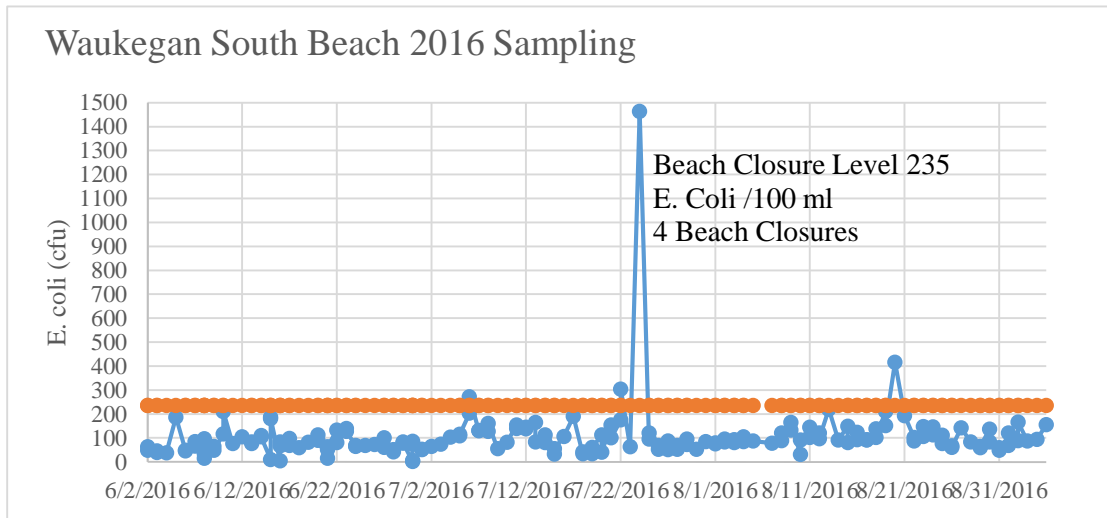
Waukegan Beach Groomer Program

The City has made great strides with water quality improvements at Waukegan Beach through the implementation of a beach sweeper that removes ponding of the stagnant water that causes public health impacts and water quality impairments to the surrounding sensitive habitats. The beach

sweeper is also able to collect trash that attracts birds gathering on the beach and resultant bird-related fecal matter.

2.3 Success Metrics

The various goals which have been successfully implemented through the 2016 Waukegan Beach Improvements have resulted in less beach closings due to E. Coli at Waukegan South Beach, where the majority of the work has taken place thus far. In 2015 for the months of May through August (prior to implementation of the Sustainable Shoreline Plan), there were ten beach closings due to high bacteria, whereas in 2016 there were only four.



Additionally, a bioswale has been successfully constructed in the parking lot adjacent to Lake Michigan. The bioswale is currently filtering urban stormwater/surface runoff through a vertical, subsurface system, resulting in clean water being discharged into the stormwater drains.

Lastly, the Waukegan community has expressed great interest in activities implemented through the 2015-2016 Sustainable Shoreline Plan and has pursued educational forums. The people of Waukegan are excited by the recent and upcoming improvements outlined in the Sustainable Shoreline Plan and have been able to more easily access the beautiful Waukegan Beach.

2.4 Barriers to Success Entry or Obstacles

Waukegan has been designated as one of the few remaining Environmental Justice Communities located in affluent Lake County, Illinois due to the historic contamination from the former industrial sites where the majority have been vacated, leading to a disproportionate number of Brownfield and Superfund sites scattered along Waukegan's lakefront. The contaminated lakefront areas are adjacent to Waukegan's downtown and residential neighborhoods that have left negative connotations surrounding the City and its ability to attract developers and promote a healthy, safe place to recreate along the lakefront.

In 2016 Waukegan has made tremendous strides to demonstrate to the public that Waukegan Beach has much more to offer than the negative connotations previously associated with the lakefront. The City has promoted Waukegan Beach as a safe, fun place to recreate through the various programs that have been adopted during the 2016 beach season. The Beach Ranger Program, beach sweeper, bioswale construction, the numerous community outreach events, and educational brochures have helped detail Waukegan's message regarding the beach, that is the surrounding sensitive and endangered habitats and species can be protected while still maintaining a balance for recreational users.

2.5 Future Plans or Expansion of the Project

The designs created by the 2016 Waukegan Beach Improvements are a first step to rebranding the beach area that promotes a safe place to recreate and enjoy the natural environment. In the coming years the City of Waukegan hopes to continue constructing the design ideas presented in the Sustainable Shoreline Plan to continue to improve water quality and the overall health at Waukegan Beach. The plan details a number of projects that can be sequenced for construction and implementation in a phase approach dependent on available funding. The City's Plan is a multi-million-dollar project where each conceptual design is a standalone project to allow for construction when funding becomes available. The City has been actively seeking grant funding to construct high priority projects in addition to budgeting specific projects for construction over an extended period.

2.9 Innovative Components of the Project

The Sustainable Shoreline Plan is an innovative detailed design that is able to reduce urban stormwater runoff by 50%, increase beach parking by 50% without increases to the impermeable

surface area, and provide a safe multiuse trail to gain access to the beach to reduce vehicle miles traveled. Waukegan was able to construct a portion of the bioswale design to demonstrate the importance of water quality improvements at Waukegan Beach. The bioswale construction is part of the rebranding efforts to demonstrate to the public that there is positive change happening at Waukegan Beach that is a different strategy to manage water quality than most of the local surrounding beaches.

2.6 Ease of Replication by Other Municipalities

The City of Waukegan has executed a portion of the Sustainable Shoreline Plans outlined throughout this report in such a manner that other municipalities could easily replicate. Waukegan Beach is a public beach and the City encourages both Waukegan and surrounding municipality residents to view the new construction of the bioswale turnaround. The City has worked hard to rebrand the beach demonstrating positive change through the adoption of the Beach Ranger program that gives young professionals the opportunity to make a difference in the community through leading and handing out educational information and working to beautify Waukegan Beach. The City of Waukegan is excited by the recent improvements and encourages other municipalities to participate in similar efforts of sustainability.



Acknowledgements

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Volunteers from U.S. Naval Great Lakes