

1.0 Introduction

1.1 Wind Point Watershed Setting

People live, work, and recreate in areas of land known as "Watersheds". A watershed is best described as an area of land where surface water drains to a common location such as a stream, river, or lake (Figure 1). The source of groundwater recharge to streams, rivers, and lakes is also considered part of a watershed. Despite the simple definition for a watershed, they are complex systems with interaction between natural elements such as climate, surface water, groundwater, vegetation, and wildlife as well as human interactions. Agriculture and urban development produce polluted stormwater runoff, increase impervious surfaces thereby altering stormwater flows, and degrade or fragment natural areas. Other common names given to watersheds, depending on size, include basins, sub-basins, subwatersheds, and Subwatershed Management Units (SMUs).

Figure 1. Hypothetical watershed setting. (Source: USEPA)

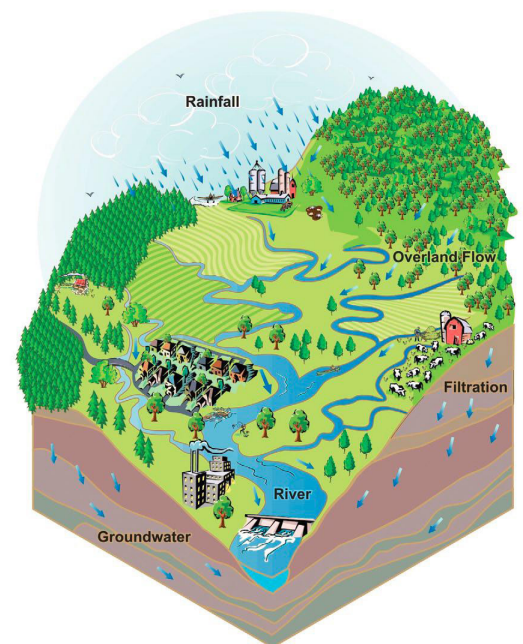
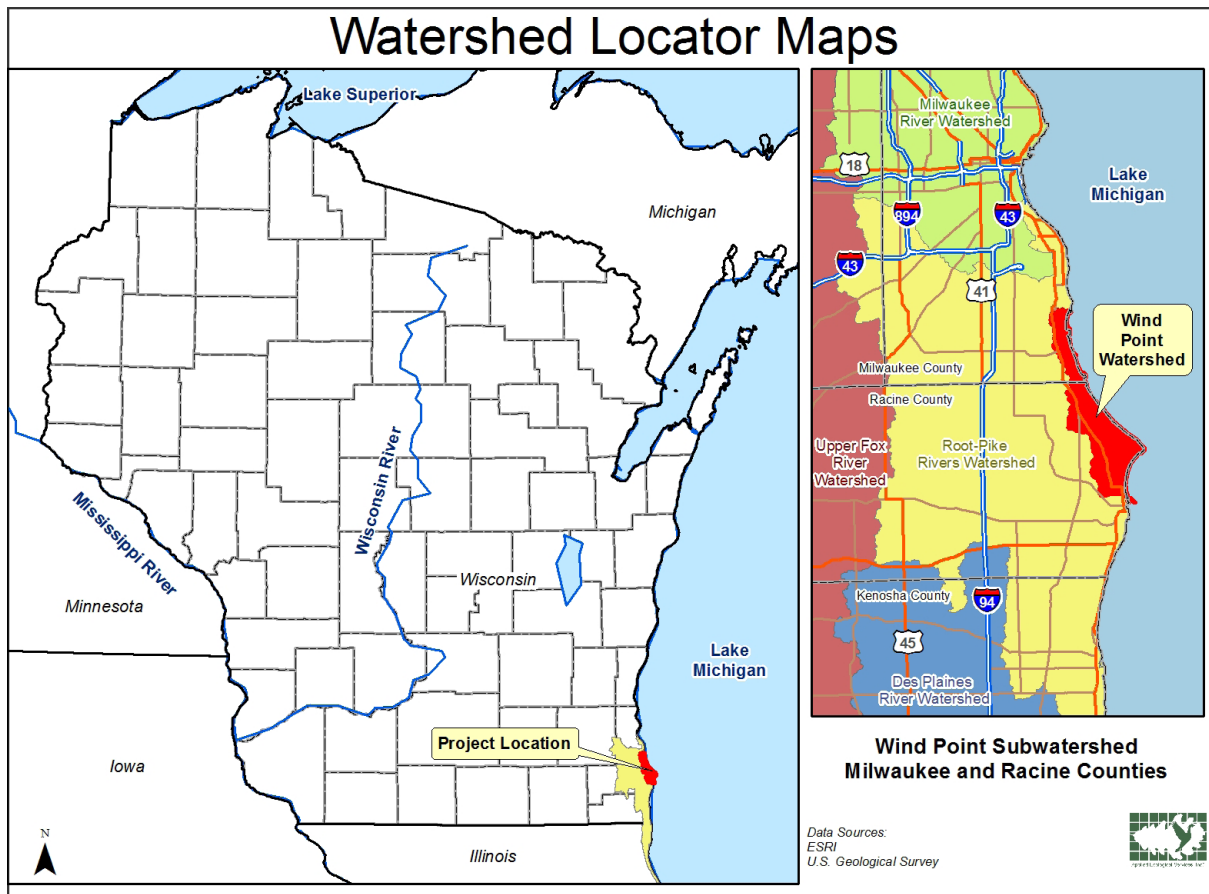


Figure 2. Watershed locator maps.



Wind Point watershed (12 Digit HUC: 040400020101) is located in southeast Wisconsin in both Milwaukee and Racine Counties (Figure 2). It is named for the conspicuous “Point” that extends out into Lake Michigan in the southeast portion of the watershed. The watershed is relatively narrow with a north-south orientation along Lake Michigan. Many small tributary streams and stormsewer networks in the watershed drain approximately 18.7 square miles (11,996 acres) of land surface east to Lake Michigan. Municipalities found in the watershed include Racine, Caledonia, North Bay, Wind Point, Oak Creek, and South Milwaukee.

Prior to European settlement, the Wind Point watershed was ecologically intact, with clean water and a diversity of plant and wildlife

populations. The mosaic of mesic/dry-mesic/lowland forests, marshes, and beach/dune communities were preserved by the cool moist climate along Lake Michigan, unlike most of southeast Wisconsin where the landscape was shaped and maintained by frequent wildfires. During these times most of the water that fell as precipitation was absorbed in these forested and wetland communities. Southeast Wisconsin was inhabited by the Potawatomi Indian tribe until 1833 when the U.S. Government purchased 5 million acres of land and moved the Potawatomi to areas in the western United States.

Ecological conditions changed quickly and drastically following European settlement in the mid 1800s. Large scale fires no longer occurred and bison and elk were extirpated. Significant portions

of wooded communities and nearly all prairies were tilled and tile systems were installed to drain wetland areas as farming became the primary land use by the early 1900s. Conversion from farmland to primarily residential and commercial uses followed, particularly over the past 30 years because of the close proximity to Milwaukee and Chicago, affordable land costs, and existing transportation networks. Wind Point watershed is presently dominated by residential areas, vacant land, transportation (roads, etc), cropland and mixture of commercial / industrial centers.

With ongoing “Traditional” development and landscape change in the watershed comes negative impacts to the environment. Impervious surfaces greatly reduce the ability



Remnant dry-mesic woodland on We Energies property

of precipitation to infiltrate into the ground and instead cause stormwater runoff to quickly reach streams and tributaries resulting in downcutting, widening, and bank erosion causing sediment and nutrient loading downstream. Meanwhile, invasive species established in adjacent floodplain wetlands are causing loss of wildlife habitat and reduced floodplain function. In addition, nutrients from residential lawn fertilizers are negatively impacting the watershed.

Discharged water from various sources that is not properly filtered is referred to as “non-point source pollution” and is the primary focus of this plan.

According to the Wisconsin Department of Natural Resources (WDNR) 2012 Water Quality Report and Section 303d List (WDNR 2012), none of the tributary streams in Wind Point watershed are listed as impaired for any of their “Designated Uses” because they

have not been assessed by WDNR. The findings of this report however, suggest moderate impairment of the tributary streams caused by channelization, streambank erosion, draining of wetlands, and high phosphorus and E. coli in agricultural and urban stormwater runoff. Additionally, Zoo Beach and North Beach, located along Lake Michigan in the south portion of the watershed, are not impaired.

Watershed at a Glance

- Wind Point watershed lies in an area covered by the most recent glacial event - the Late Wisconsin Glaciation.
- Southern mesic, dry-mesic, and lowland forests were common prior to European settlement in the 1830s.
- The climate is temperate; Lake Michigan reduces heat of summer and buffers the cold of winter.
- Tributaries in the watershed drain 18.7 square miles of land in Milwaukee & Racine Counties, Wisconsin.
- The dominant land uses in 2012/2013 include vacant land, residential development, and transportation networks.
- Municipalities include Caledonia, Racine, Oak Creek, Wind Point, South Milwaukee, & North Bay.
- North Beach Park is well known for its swimming beaches and restored foredune complexes.
- The population of the watershed in 2000 was over 51,000 and expected to increase to over 60,000 by 2035.
- Water quality in tributaries is impacted by phosphorus, sediment, and E. coli; one of the beaches are impaired.
- 34% of streams and tributaries are naturally meandering; 66% are moderately to highly channelized.
- 86% of streams and tributaries exhibit minimal bank erosion; 14% are moderately to highly eroded.
- 22% of the riparian areas are in “Good” ecological condition, 33% are “Moderate”; and 45% are “Poor”.
- There were 2,945 acres of wetlands prior to European settlement; 577 acres or 20% remain in 2012/2013.
- There are 39 known detention basins; only 10 (26%) provide “Good” ecological/water quality benefits.
- Open space parcels comprise approximately 2,508 acres or 24% of the watershed.
- 17 “Important Natural Areas” make up 2,257 acres and are home to several threatened & endangered species.
- Shallow and deep groundwater aquifers provide the water supply for many private users and municipalities.
- Water quality modeling indicates that streambank erosion contributes the most to sediment loading.
- Cropland is modeled as the highest contributor of nitrogen while residential areas contribute the most phosphorus.
- 42 “Critical Areas” were identified for potential implementation of Management Measures.

1.2 Project Scope & Purpose

The Root-Pike Watershed Initiative Network (Root-Pike WIN) is a grassroots watershed organization that awards grants to projects that will preserve, promote, and protect watershed health. Root-Pike WIN received grant funding from the Fund for Lake Michigan, SC Johnson Fund, and We Energies to undergo a watershed planning effort and produce a comprehensive “Watershed-Based Plan” for Wind Point watershed that meets requirements as defined by the United States Environmental Protection Agency (USEPA). Ultimately, the intent is to develop and implement a Watershed-Based Plan designed to achieve water quality

standards/criteria. Root-Pike WIN, acting as fiscal agent, hired Applied Ecological Services, Inc. (AES) in September 2012 to develop the plan.

The watershed planning process is a collaborative effort involving voluntary stakeholders with the primary scope to restore impaired waters and protect unimpaired waters by developing an ecologically-based management plan for Wind Point watershed that focuses on improving water quality by protecting green infrastructure, creating protection policies, implementing ecological restoration, and educating the public. Another important outcome is to improve the quality of life for people in the watershed for current and future generations.

The primary purpose of this plan is to spark interest and give stakeholders a better understanding of Wind Point watershed to promote and initiate plan recommendations that will accomplish the goals and objectives of this plan. This plan was produced via a comprehensive watershed planning approach that involved input from stakeholders and analysis of complex watershed issues by watershed planners, ecologists, GIS specialists, water quality specialists, and environmental engineers. In addition, ideas and recommendations in this plan are designed to be updated through adaptive management that will strengthen the plan over time as additional information becomes available.

1.3 USEPA Watershed-Based Plan Requirements

In March 2008, the United States Environmental Protection Agency (USEPA) released watershed protection guidance entitled “Non-point Source Program and Grant Guidelines for States and Territories.” The document was created to ensure that Section 319 funded projects make progress towards restoring waters impaired by non-point source pollution. Applied Ecological Services, Inc. consulted USEPA’s “Handbook for Developing Watershed Plans to Restore and Protect Our Waters” (USEPA 2008) to create this watershed plan. Having a Watershed-Based Plan will allow Wind Point watershed stakeholders to access 319 Grant funding and other funding for watershed improvement projects recommended in this plan. Under USEPA guidance, “Nine Elements” are required in order for a plan to be considered a Watershed-Based Plan.

USEPA Nine Elements

- Element A:** Identification of the causes and sources or groups of similar sources of pollution that will need to be controlled to achieve the pollutant load reductions estimated in the watershed-based plan;
- Element B:** Estimate of the pollutant load reductions expected following implementation of the management measures described under Element C below;
- Element C:** Description of the BMPs (non-point source management measures) that are expected to be implemented to achieve the load reductions estimated under Element B above and an identification of the critical areas in which those measures will be needed to implement
- Element D:** Estimate of the amounts of technical and financial assistance needed, associated costs, and/or the sources and authorities that will be relied upon, to implement the plan;
- Element E:** Public information/education component that will be implemented to enhance public understanding of the project and encourage early and continued participation in selecting, designing, and implementing/maintaining non-point source management measures that will be implemented;
- Element F:** Schedule for implementing the activities and non-point source management measures the plan; identified in this plan that is reasonably expeditious;
- Element G:** Description of interim, measurable milestones for determining whether non-point source management measures or other control actions are being implemented;
- Element H:** Set of environmental or administrative criteria that can be used to determine whether loading reductions are being achieved over time and substantial progress is being made towards attaining water quality standards;
- Element I:** Monitoring component to evaluate the effectiveness of the implementation efforts over time.

1.4 Planning Process

Watershed Stakeholder Planning Committee

Planning for Wind Point watershed utilized a unique approach that was designed in three phases. Phase I, included four public meetings that occurred between June and November, 2013. This phase was focused on building early stakeholder engagement in support of the planning process, educating stakeholders on watershed conditions, challenges, and threats, and determining stakeholder visions and goals for the watershed. Phase II of the planning process included

seven meetings between January 2014 and February 2015. This phase revolved around the development of the Watershed-Based Plan, including all of the nine Elements required by the USEPA. Information gathered from municipalities, townships, state and federal agencies, nonprofit organizations, and watershed residents during Phase I of the planning process and interests, issues, and opportunities identified by Root-Pike WIN were addressed and incorporated into the watershed plan. Phase III follows plan completion and is centered around implementation and restoration projects as identified

in the plan.

Root-Pike WIN played an important role in the early identification of watershed issues, stakeholder goals, and an overall vision for watershed improvements. Meetings were initiated by the Watershed Coordinator, Susan Greenfield/Allison Thielen, and covered a wide range of topics specific to Wind Point watershed. Meeting schedules for both Phases I and II, including the topics of those meetings, are included in Table 1. Meeting minutes are included in Appendix A.

Site visit along North Beach following August 15, 2013 meeting



Table 1. Phase I and II meeting agendas and summaries.

Date	Agenda	Summary
Phase I Meetings		
June 13, 2013	<ul style="list-style-type: none"> • Recognition of funders • Introduction to Watershed Planning Presentation • Overview of Wind Point Watershed Presentation 	Project funders were recognized followed by presentations by Applied Ecological Services that described the planning process and what to expect. As well as a summary of the field inventory work completed in fall 2012.
August 15, 2013	<ul style="list-style-type: none"> • Areas of Interest Exercise • Water Quality Presentation • Tour of Lake Michigan Shoreline 	Root-Pike WIN started with the Areas of Interest exercise. Next, Racine Health Department provided a snapshot summary of their water quality sampling in the watershed. Last, Racine Health Department led a tour of Lake Michigan Shoreline Projects.
October 17, 2013	<ul style="list-style-type: none"> • Areas of Interest Exercise • Land Use Planning Presentation • Protecting the Water's Edge Presentation 	Root-Pike WIN started with the Areas of Interest exercise. Next, SEWRPC provided a presentation about land use planning in the watershed. SEWRPC also presented on the importance of buffers around waterways.
November 16, 2013	<ul style="list-style-type: none"> • Watershed Overview Presentation • World Café Exercise <ul style="list-style-type: none"> - Mission & Vision - Watershed Goals 	Applied Ecological Services first gave summary of the Wind Point watershed to prepare stakeholders for a visioning session. The visioning session followed a World Café Exercise format whereby stakeholders provided valuable information about the group's mission/vision and goals for the watershed.
Phase II Meetings		
January 16, 2014	<ul style="list-style-type: none"> • Present Introduction & portions of Plan Section 3.0 	Applied Ecological Services presented the Introduction section of the plan and portions Section 3.0 (Watershed Resource Inventory) including climate, geology, topography, watershed boundary, pre-European settlement landscape, soils, jurisdictions, demographics, policy, existing & future land use, transportation network, and impervious cover.
March 20, 2014	<ul style="list-style-type: none"> • Present remaining portions of Plan Section 3.0 • Role of Land Trusts, Existing Easements, & Preserved Land 	Applied Ecological Services presented portions of Section 3.0 (Watershed Resource Inventory) including open space, green infrastructure, natural areas, drainage system, and groundwater. Caledonia Conservancy then discussed the role of land trusts in preserving conservation easements and permanently preserving lands.
May 15, 2014	<ul style="list-style-type: none"> • Watershed Tour 	Root-Pike WIN organized a watershed tour that visited North Beach, Tabor Woods, WE Energies Fishing Pier, Bender Park, Klema Ditch, and a detention basin. Multiple individuals explained the conditions at each site and importance in the watershed.
July 17, 2014	<ul style="list-style-type: none"> • Water Quality Data Summary • Pollutant Loading Model • Causes & Sources of Impairment 	Applied Ecological Services presented plan Section 4.0 (Water Quality & Pollutant Modeling Assessment). It was explained to the group that sediment, phosphorus, and E. coli are the primary water quality threats in the watershed.
September 11, 2014	<ul style="list-style-type: none"> • Critical Areas • Programmatic Action Plan • Site Specific Action Plan 	Applied Ecological Services presented plan Section 5.0 (Causes & Sources of Impairment & Reduction Targets) and 6.0 (Management Measures Action Plan). This also included a discussion of the "Critical Areas" within the watershed and potential projects.
November 20, 2014	<ul style="list-style-type: none"> • Executive Summary • Information & Education Plan • Future Water Quality Monitoring 	Applied Ecological Services presented the Executive Summary. This was followed by an in depth presentation of the plan Section 7.0 (Information & Education Plan) by Root-Pike WIN. The Racine Health Department presented the Future Water Quality Monitoring Plan from plan Section 8.0.
May, 2015	<ul style="list-style-type: none"> • Present Final Watershed Plan • Discuss Phase III Implementation 	Applied Ecological Services and Root-Pike WIN presented the Final Watershed Plan to the public.

1.5 Using the Watershed-Based Plan

The information provided in this Watershed-Based Plan is prepared so that it can be easily used as a tool by any stakeholder including elected officials, federal/state/county/municipal staff, and the general public to identify and take actions related to watershed issues and opportunities. The pages below summarize what the user can expect to find in each major “Section” of the Watershed-Based Plan.

Section 2.0: Mission, Goals, and Objectives

Section 2.0 of the plan contains the Root-Pike WIN mission and goals/objectives. Goal topics include Green Infrastructure Network, Education & Stewardship, Surface Water Quality, Communication & Coordination, and Groundwater Quantity & Quality. In addition, “Measurable Objectives” were developed where possible for each goal so that the progress toward meeting each goal can be measured in the future by evaluating information included in Section 9.0 (Measuring Plan Progress & Success).

Section 3.0: Watershed Resource Inventory

An inventory of the characteristics, problems, and opportunities in Wind Point watershed is examined in Section 3.0. Resulting analysis of the inventory data led to recommended watershed actions that are included in Section 6.0 (Management Measures Action Plan). Inventory results also helped identify causes and sources of watershed impairment as required under USEPA’s Element A.

Section 3.0 includes summaries and analysis of the following inventory topics:

Watershed Resource Inventory Topics *Included* in the Plan

- 3.1 Geology & Climate
- 3.2 Pre-European Settlement Landscape & Present Landscape
- 3.3 Topography, Watershed Boundary, Subwatersheds
- 3.4 Soils
- 3.5 Jurisdictions
- 3.6 Existing Policies
- 3.7 Demographics
- 3.8 Transportation Network
- 3.9 Existing & Future Land Use
- 3.10 Impervious Cover Impacts
- 3.11 Open Space and Green Infrastructure
- 3.12 Highly Productive Agricultural Land
- 3.13 Natural Areas
- 3.14 Watershed Drainage System
 - Tributaries
 - Detention Basins
 - Wetlands
 - Floodplain
- 3.15 Groundwater

Section 4.0: Water Quality & Pollutant Modeling Assessment

A summary and analysis of available water quality data for the watershed and pollutant modeling assessment is included in its own section because of its importance in the watershed planning process. This section includes a detailed summary of physical, chemical, and biological data available for Wind Point watershed. Water quality data combined with pollutant loading data provides information that sets the stage for developing pollutant reduction targets and identifying “Critical Areas” as outlined in Section 5.0 (Causes & Sources of Impairment & Reduction Targets).

Section 5.0: Causes & Sources of Impairment & Reduction Targets

This section of the plan includes a list of causes and sources of watershed impairment as identified in Section 3.0 (Watershed Resource Inventory) and by watershed stakeholders that affect Wisconsin DNR “Designated Uses” for water quality and other watershed features. As required by USEPA, Section 4.0 also addresses

all or portions of *Elements A, B, & C* including an identification of the “Critical Areas”, pollutant load reduction targets, and estimate of pollutant load reductions following implementation of recommended Critical Area Management Measures identified in Section 6.0.

Section 6.0: Management Measures Action Plan

A “Management Measures Action Plan” is included in Section 6.0. The Action Plan is divided into a Programmatic Action Plan and a Site Specific Action Plan. Programmatic recommendations are described in paragraph format; site specific recommendations are presented in paragraph, figure, and table formats with references to entities that would provide consulting, permitting, or other technical services needed to implement specific measures. The site specific tables also outline project priority, pollutant reduction efficiency, implementation schedule, sources of technical and financial assistance, and cost estimates. This section also contains a watershed-wide summary table of specific information for all recommended site specific management measures combined including “Units,” “Cost,” and “Estimated Pollutant Load Reduction”. This section addresses all or a portion of USEPA *Elements C & D*.

Section 7.0: Information & Education Plan

This section is designed to address USEPA *Element E* by providing an Information/Education component to enhance public understanding and to encourage early and continued participation in selecting, designing, and implementing recommendations provided in the Watershed-Based Plan. This is accomplished by providing a matrix that outlines each recommended education action, target audience, package or vehicle for implementing the action, who will lead the effort, what the expected outcomes or behavior change will be, and estimated costs to implement.

Sections 8.0 & 9.0: Plan Implementation & Measuring Plan Progress & Success

A list of key stakeholders and discussion about forming a Watershed Implementation Committee that forms partnerships to implement watershed improvement projects is included in Section 8.0. Section 9.0 includes two monitoring components; 1) a “Water Quality Monitoring Plan” that includes specific locations and methods where future sampling should occur and a set of water quality “Criteria” that can be used to determine whether pollutant load reduction targets are being achieved over time and 2) “Report Cards” for each plan goal used to measure milestones and to determine if Management Measures are being implemented on schedule, how effective they are at achieving plan goals, and need for adaptive management if milestones are not being met. Sections 8.0 and 9.0 address USEPA *Elements F, G, H, and I*.

Sections 10.0 & 11.0: Literature Cited and Glossary of Terms

Section 10.0 includes a list of literature that is cited throughout the report. The Glossary of Terms (Section 11.0) includes definitions or descriptions for many of the technical words or agencies that the user may find useful when reading or using the document.

Appendix

The Appendix to this report is included on the attached CD located on the back cover (hard copies only). It contains watershed stakeholder meeting minutes (Appendix A), Center for Watershed Protection local ordinance review summary (Appendix B), results of the watershed resource field inventory (Appendix C), Racine Health Department water quality monitoring data and report (Appendix D), a raw data used to develop pollutant loading and reduction models (Appendix E), list of potential funding opportunities (Appendix F), and a stakeholder Environmental Issues Identification Survey (Appendix G).

1.6 Prior Studies and Projects

Various studies have been completed describing and analyzing conditions within Catfish Creek watershed. Several ecological restoration

efforts have also been implemented. This Watershed Management Plan uses existing data to analyze and summarize work that has been completed by others and integrates new data and information. A list of known studies or restoration work is summarized below.

1. In 2002 the Wisconsin Department of Natural Resources (WDNR) and the Root-Pike WIN researched the current conditions of the Root-Pike River Basin and created a report entitled “The State of the Root-Pike River Basin” (WDNR 2002). This report provides an overview of the land and water resource quality and identifies challenges within this basin.
2. In 2003/2004, the Bay-Lake Regional Planning Commission produced “A Guide to Planning for Coastal Communities in Wisconsin” (BLRPC 2004). This document identifies and provides guidance on issues facing coastal communities in comprehensive planning efforts.
3. In 2003 the Wisconsin Department of Natural Resources (WDNR) prepared a navigability determination on the waterways located within the proposed Elm Road Generating Station project for We Energies (WDNR 2003). The purpose was to determine where Chapter 30 permits will be needed from future projects impacting “navigable” waterways.
4. We Energies created close to 25 acres of wetland mitigation with surrounding prairie and woodland buffer that is protected in perpetuity. The mitigation was required as a result of a WDNR/USACOE permit issued for construction activities in 2005.
5. In 2000, Applied Ecological Services, Inc. (AES) prepared a Master Plan (AES 2000) for the Frank Lloyd Wright designed

home and 35-acre campus now known as The Johnson Foundation at Wingspread. The intent of the Master Plan was to propose sustainable campus solutions for the conference center and its grounds while preserving the historical integrity of Wingspread and its surrounding landscape. Since 2000, many of the proposed Master Plan improvements have been implemented. In 2009, AES completed a Master Plan update to make adjustments/ accommodations as necessary to improve site ecological health, decrease campus carbon footprint, and extend the initial sustainability operational goals.

6. In 2000 the City of Racine undertook a study of the English Street stormsewer outfall and its impact upon bacteria levels near the North Beach area. The sewer system connected to the outfall drains approximately 400 acres. The City undertook a unique project to reconstruct the outfall by including Vortechs Systems as primary treatment and a wetland filter near the beach as secondary treatment. During rain events, water is now directed through the vortex structures then into wetland cells where bacteria and nutrient levels are lowered by uptake. Wildlife habitat is another beneficial outcome of the wetland areas along the beach.
7. Several demonstration rain gardens have been constructed in Wind Point watershed under the guidance of Root-Pike Watershed Initiative Network. Rain gardens are located at the Prairie School, Village of Wind Point Clerk’s Office, Caledonia Fire Station No. 2, YMCA River bend Nature Center, and Glynn residence.
8. In 2006 the Village of Caledonia completed a study entitled “Ravine Erosion and Natural

Resources Assessment Study” (Hey & Associates 2006). The study examines erosion and ecological issues within five ravine systems including Rifle Range Ravine, Cliffside Park Ravine, Breaker’s Ravine, Dominican Creek Ravine, and

Birch Creek Ravine. This study provides a comprehensive inventory and analysis of each ravine and its watershed to address unfavorable impacts of urban development. The study provides the Village of Caledonia with the information

necessary to provide proactive stewardship of the ravines and their natural resources.

9. In the early 1990’s Milwaukee County appropriated funds to complete a Master Plan and feasibility study for Bender

RIGHT: Native planting in swale at Wingspread. BELOW: Rain garden at Caledonia Fire Station No. 2



Park. The Master Plan was developed in 1995-1996 and identified the critical need for bluff and shoreline stabilization along 6,000 linear feet of Lake Michigan shoreline. Although shoreline and bluff erosion is considered a natural process, historical records indicated that since 1945 the shoreline at Bender Park had eroded 8-9 feet per year. Between 1993 and 1998

- Phase I of the Bender Park Master Plan, *Shoreline Protection and Bluff Stabilization Project*, was implemented and completed at a cost of approximately \$7 million dollars. This project included regrading the bluff slope behind 3,000 linear feet of revetment in the northern portion of the park, installation of stone revetment along the 6,000 linear feet of shoreline, creation of an access road from the upland park area down to the waterfront, and the prairie seeding of the regraded slopes. Via implementation of this stabilization project 20 acres of lost park land was recreated at the base of the bluff in Bender Park.
- Phase II of the Bender Park Master Plan involved the installation of a Marina.
- Phase III of the Bender Park Master Plan would have involved the construction

of a golf course within the 207 acres of Bender Park just north and south of Fitzsimmons Road. Regrading of the slope along the southern portion of Bender Park would have been done in concurrence with golf course construction, however, Phase III of the Bender Park Master Plan was not implemented. The 207 acres originally selected for construction of a golf course remain as natural area within the park.

The significant bluff slope erosion on the southern portion of the Bender Park shoreline was later addressed in 2003-2005 with the *Bender Park Slope Stabilization Demonstration Project*. The project was funded via the Great Lakes Basin Program with matching contributions from Gillen Construction Company. This project included the installation of approximately 3,000 linear feet of wick drains below the existing top of the Lake Michigan shoreline bluff between Oakwood Road and Fitzsimmons Road. After installation a slope stability analysis was done and groundwater levels were recorded with results displaying that there had been a successful lowering of the water levels with the wick drains along the southern bluffs in Bender Park.

10. In response to financial and environmental impacts in recent years, Milwaukee County set forth a series of initiatives to promote practices intended to control operating costs and improve the quality of life for the citizens of Milwaukee County through sound environmental stewardship. In 2007, the Milwaukee County Board of Supervisors and County Executive approved the Milwaukee County Green Print Initiative. Details regarding the initiative can be view at <http://county.milwaukee.gov/sustain>
11. In 2013, the Milwaukee County DPRC received \$125,300 in funding to implement green infrastructure improvements and invasive species control at 3 Lake Michigan coastal properties, including Bender Park. This project, funded by the Fund for Lake Michigan and a cooperative agreement with the Alliance for the Great Lakes through the Sustain Our Great Lakes Program involved converting approximately 48 acres of County owned, leased agricultural fields to native prairie at Bender Park.
12. Surface water (beach) and stormwater outfall/stream monitoring was conducted by the Racine Health Department (RHD) since 2002. The Johnson swale has been monitored by the Prairie School.