Village of Algonquin

Woods Creek Watershed-Based Plan 2025 Update

Prepared by:

BAXTER & WOODMAN Consulting Engineers

www.baxterwoodman.com

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INTRODUCTION

The Woods Creek Watershed-based Plan was approved by IEPA in 2013 and served as a comprehensive guide to protecting and restoring the health of the watershed. In preparation for the update, a Watershed-Based Plan Joint Evaluation Form was completed on the original plan to serve as a roadmap for necessary updates that might be needed. According to that evaluation, the original plan still meets the United States Environmental Protection Agency's (USEPA's) requirements for an approved watershed-based plan, and it was determined in discussions with Illinois Environmental Protection Agency (IEPA) staff that the update be written as a stand-alone document that references the original plan and incorporates new and additional information and activities that have developed over the ensuing ten years as necessary.

The mission of the Woods Creek Watershed-Based Plan is to "*Improve water quality through refined stormwater management, flood reduction, enriched natural area management, groundwater recharge protection, utilization of green infrastructure, and control of invasive species. The goal is to enhance ecosystem benefits within Woods Creek watershed and ultimately the Fox River through education and stewardship.*" Since the original plan was approved, the members of the Woods Creek Watershed Committee (WCWC) have tirelessly worked to implement plan recommendations. The plan update will serve as a valuable roadmap to follow up on existing protection and restoration opportunities, identify and prioritize new opportunities, detail new information and accomplishments that have occurred since the plan was approved, inspire stakeholders to get or stay involved in the watershed, and help stakeholders secure grant funding for implementation of the plan and its recommendations.

In the ten years since the plan was originally approved, several major accomplishments have occurred that have affected the watershed. These include:

- The Village of Algonquin has used the plan to implement a Green Infrastructure Network to protect valuable natural resources.
- Between the Village of Algonquin, the Village of Lake in the Hills, and the Crystal Lake Park District over 20,880 linear feet of stream and 406 acres of riparian and natural areas have been restored.
- Water quality has generally improved according to water quality studies conducted by Fox River Study Group and IEPA.
- And overall Goal Report Card scores are generally high.

MEETINGS

In preparation for updating the watershed-based plan, the Woods Creek Watershed Committee (WCWC), under the leadership of the Village of Algonquin, met with numerous partners and held two stakeholder meetings dedicated to plan review, gathering additional information, and rejuvenating stakeholder engagement in the plan. An outline of meeting agendas, and a summary of what took place during each is included in **Table 1**.

TABLE 1. Woods Creek watershed-based plan update meeting schedule.

Date	Agenda	Summary
June 18, 2024 (virtual)	• Call for project/plan updates • Review inventory • Discussion and next steps: Report Cards, Project Lists	20+ stakeholders attended and participated. A lot of projects have been implemented in the last 10 years by multiple partners – discussed gathering full list of completed work plus any new additional projects that need to be added and process to submit them. Algonquin is concurrently trying to wrap up a comprehensive plan update – will adjust timeline accordingly. Discussed need to update the report cards.
Dec. 11, 2024 (virtual)	• Plan update review • Water quality updates • Project and implementation updates • Report Card results • What we're still working on	20+ stakeholders attended and participated. Updated water quality, groundwater, and designated use information was presented, followed by the results of the field inventory and the new project recommendations found in the update. A summary of completed projects by each community since the 2013 plan was finalized and shared as well as the results of the report card assessment. A list of the last few items left to fully update the plan was shared.

During the renewed planning process some comments and suggestions for the update arose. They were discussed in follow-up meetings, addressed in the updated plan as appropriate and are summarized here:

- The Village of Algonquin was working with an outside consulting firm to complete a Comprehensive Plan update, with the intent of including the updated information in this plan.

- The Village of Algonquin began conducting limited water quality sampling in 2023 across four sites and expects to continue monitoring three times per year.

- The Villages of Algonquin, Lake in the Hills, Crystal Lake, and the Crystal Lake Park District have all been actively implementing projects from the 2013 Woods Creek WBP within their jurisdictional boundaries.

This plan update is a product of these stakeholder meetings and many other meetings with municipalities, other stakeholder organizations, and individual stakeholders.

UPDATES TO THE 2013 WOODS CREEK WATERSHED-BASED PLAN

The following sections have been identified as needing to be updated to bring the original 2013 plan current to 2025. Updates have been organized by section. Each section references and corresponds to the original Woods Creek Watershed-Based Plan sections and then details any new, additional, or updated information as appropriate.

1.6 Prior Studies and Work (Update)

Various studies and research have been completed since the 2013 plan was written that provide additional insight into describing and analyzing conditions within Woods Creek watershed. A list of additional studies completed in the last 10 years and relevant to this effort is summarized below.

1. McHenry County's Groundwater Protection Action Plan (McHenry County 2009) addresses groundwater issues by presenting model policies that all local governments can consider and modify to address their individual needs.

2. The City of Crystal Lake updated their Comprehensive Plan in 2012.

3. The Illinois State Water Survey has completed several groundwater studies for the 11-county Northeastern Illinois Regional Water Supply Planning area, which includes the Woods Creek watershed (2012, 2013, 2015).

4. In February 2019, Illinois State Water Survey produced a report entitled "Water Quality Trend Analysis for the Fox River Watershed: Stratton Dam to the Illinois River" that was based on water quality data collected by Fox River Study Group.

5. McHenry County developed and adopted the McHenry County Water Resources Action Plan in 2011. The McHenry County WRAP Task Force completed an update that was adopted on November 17, 2020. The updated WRAP is a comprehensive guide designed to educate decision-makers from the county, municipalities, businesses and individuals about water resources, the potential threats to those resources, and Best Management Practices that can help protect or restore them. The County also updated their Stormwater Management Ordinance.

6. The Village of Algonquin kicked off a Comprehensive Plan update in 2023 which should conclude in 2025.

3.4 Jurisdictions, Roles & Protections (Update)

Jurisdictional Roles and Responsibilities

Natural resources throughout the United States are protected to some degree under federal, state, and/or local law. Watershed boundaries do not correlate with political boundaries and therefore, to

properly protect water and other natural resources, cooperation and coordination among all these entities is essential.

Other governments and private entities with watershed jurisdictional or technical advisory roles include the USFWS and IDNR, County Board Districts, and the McHenry Soil and Water Conservation Districts (SWCDs). The USFWS and IDNR play a critical role in natural resource protection, particularly for rare or high-quality habitat and threatened and endangered species. They protect and manage land that often contains wetlands, lakes, ponds, and streams. County Boards oversee decisions made by respective county governments and therefore have the power to override or alter policies and regulations. The SWCDs provide technical assistance to the public and other regulatory agencies. Although the SWCDs have no regulatory authority, they influence watershed protection through soil and sediment control and pre- and post-development site inspections.

Federal Government Roles and Protections

United States Army Corps of Engineers (USACE) - In the watershed area, the U.S. Army Corps of Engineers (USACE) regulate wetlands through Section 404 of the Clean Water Act. Land development affecting water resources (rivers, streams, lakes, wetlands, and floodplains) is regulated by the USACE when "Waters of the U.S." are involved. These types of waters include any wetland or stream/river that is hydrologically connected to navigable waters. The USACE primarily regulates filling activities and requires buffers or wetland mitigation for developments that impact jurisdictional wetlands. (USACE, 2020)

United States Department of Agriculture (USDA)- The United States Department of Agriculture, is the federal department responsible for developing and executing federal laws related to farming, forestry, rural economic development, and food. Agencies within the USDA include: Agricultural Marketing Service (AMS), Agricultural Research Service (ARS), Animal and Plant Health Inspection Service (APHIS), Center for Nutrition Policy and Promotion (CNPP), Economic Research Service (ERS), Farm Service Agency (FSA), Food and Nutrition Service (FNS), Food Safety and Inspection Service (FSIS), Foreign Agricultural Service (FAS), Forest Service (FS), National Agricultural Library (NAL), National Institute of Food and Agriculture (NIFA), Natural Resources Conservation Service (NRCS), Risk Management Agency (RMA), Rural Development (RD), Rural Utilities Service (RUS), Rural Housing Service (RHS), and Rural Business-Cooperative Service (RBS). The programs most relevant to the management of the watershed are discussed further in the following paragraphs. (USDA, 2020)

USDA Agricultural Research Service (ARS)- ARS is USDA's principal in-house research agency studying agricultural research and information. National Research Programs such as Nation Program 211: Water Availability and Watershed Management serve to manage water resources while protecting the environment and human and animal health effectively and safely. This goal is pursued by characterizing potential hazards, developing management practices, strategies and systems to alleviate problems, and providing practices, technologies, and decision support tools for the benefit of customers, stakeholders, partners, and product users. (USDA, 2020)

USDA Farm Service Agency (FSA)- The Farm Service Agency implements agricultural policy, administers credit and loan programs, and manages conservation, commodity, disaster and farm marketing programs through a national network of offices. The FSA's strives to support a market-oriented, economically and environmentally sound American agriculture that delivers an abundant, safe, and affordable food and fiber supply while sustaining quality agricultural communities. (USDA, 2020)

USDA Forest Service (FS)- The Forest Service works to sustain the health, diversity and productivity of America's forests and grasslands. The Forest Service seeks to support nature in sustaining life through their stewardship work. The Forest Service works in collaboration with communities and partners in providing access to resources and experiences that promote economic, ecological, and social vitality; and connecting people to the land and one another. (USDA, 2020)

USDA National Institute of Food and Agriculture (NIFA)- The National Institute of Food and Agriculture (NIFA) provides leadership and funding for programs that advance agriculture related sciences. NIFA's mission is to invest in and advance agricultural research, education, and extension to solve societal challenges. NIFA invests in and supports initiatives that ensure the long-term viability of agriculture. NIFA applies an integrated approach to ensure that discoveries in agriculture-related sciences and technologies reach the people who can put them into practice. (USDA, 2020)

USDA Natural Resources Conservation Service (NRCS)- NRCS is the primary federal agency that collaborates with private landowners to help them conserve, maintain and improve their natural resources to implement conservation practices that clean the air, conserve, and clean the water, prevent soil erosion and create and protect wildlife habitat. They provide technical assistance to the USDA Farm Service Agency for sodbuster, wetland and highly erodible land determinations and compliance issues. (USDA, 2020)

USDA Rural Utilities Service (RUS)- RUS provides much-needed infrastructure and infrastructure improvements to rural communities. This includes water and wastewater treatment, electric power and telecommunications services. These services help to expand economic opportunities and improve the quality of life for rural residents. The Water and Environmental Programs (WEP) provides loans, grants and loan guarantees for drinking water, sanitary sewer, solid waste and storm drainage facilities in rural areas and cities and towns of 10,000 or less. Public bodies, non-profit organizations and recognized Indian tribes may qualify for assistance. WEP also makes grants to nonprofit organizations to provide technical assistance and training to help rural communities with their water, wastewater and solid waste problems. (USDA, 2020)

United States Department of Transportation (USDOT)- USDOT's mission is to serve the United States by ensuring a fast, safe, efficient, accessible and convenient transportation system that meets our vital national interests and enhances the quality of life of the American people, today and into the future. (USDOT, 2020)

United States Environmental Protection Agency (USEPA)- The mission of the USEPA is to protect human health and the environment. The EPA works to ensure that Americans have clean air, land and water, and that National efforts to reduce environmental risks are based on the best available scientific information. They also work to ensure that Federal laws protecting human health and the environment are administered and enforced fairly and effectively.

As environmental stewardship is integral to U.S. policies concerning natural resources, human health, economic growth, energy, transportation, agriculture, industry, and international trade; these factors are similarly considered in establishing environmental policy. As well as ensuring that all parts of society have access to accurate information sufficient to effectively participate in managing human health and environmental risks. They also oversee that contaminated lands and toxic sites are cleaned up by potentially responsible parties and revitalized and chemicals in the marketplace are reviewed for safety. (USEPA, 2020)

United States EPA Office of Water (OW)- The Office of Water (OW) ensures drinking water is safe, and restores and maintains oceans, watersheds, and their aquatic ecosystems to protect human health, support economic and recreational activities, and provide healthy habitat for fish, plants and wildlife. OW is responsible for implementing the Clean Water Act and Safe Drinking Water Act, and portions of the Coastal Zone Act Reauthorization Amendments of 1990, Resource Conservation and Recovery Act, Ocean Dumping Ban Act, Marine Protection, Research and Sanctuaries Act, Shore Protection Act, Marine Plastics Pollution Research and Control Act, London Dumping Convention, the International Convention for the Prevention of Pollution from Ships and several other statutes. (USEPA, 2020)

United States Fish and Wildlife Service (USFWS)- USFWS and Illinois Department of Natural Resources (IDNR), along with Illinois Nature Preserves Commission (INPC) and Forest Preserve Districts, are responsible for protecting federal and state threatened and endangered species in the watershed--which are often found on land that contains wetlands, lakes, ponds, and streams. The USFWS and IDNR play a critical role in natural resource protection, particularly for rare or high-quality habitat and threatened and endangered species. They protect and manage land that often contains wetlands, lakes, ponds, and streams. Their programs function to enforce federal wildlife laws, protect endangered species, manage migratory birds, restore nationally significant fisheries, conserve and restore wildlife habitat such as wetlands, help foreign governments with their international conservation efforts, and distribute hundreds of millions of dollars, through their Wildlife Sport Fish and Restoration program. (USFWS, 2020)

Federal Aviation Administration (FAA)- FAA's mission is to provide a safe, efficient aerospace system. The Federal Aviation Administration (FAA) plays a role in land use planning through advisory circulars such as AC 150/5200-33C "Hazardous Wildlife Attractants on or near Airports" which provides guidance on certain land uses that have the potential to attract hazardous wildlife on or near public use airports. It also discusses airport development projects (including airport construction, expansion, and renovation) affecting aircraft movement near hazardous wildlife attractants. In which they recommend land uses such as wetlands, landfills, or detention basins

should be outside of a 1-5-mile buffer zone, depending on the types of aircraft serviced by the airport. (FAA, 2020)

State Government Roles and Protections

Illinois Department of Agriculture (IDOA)- IDOA advocates for Illinois' agricultural industry and provides necessary regulatory functions to benefit consumers, agricultural industry, and Illinois' natural resources. The IDOA's vision is to promote and regulate agriculture in a manner which encourages farming and agribusiness while protecting Illinois' consumers and our natural resources. The IDOA regulates pesticides and pesticide applicators, as well as the siting and construction of livestock production facilities, reduction of soil erosion on agricultural land, and oversees the Illinois Groundwater Well Monitoring Network.

The Conservation Practices Program seeks to protect and enhance natural resources and outdoor recreation in Illinois, with the Illinois Department of Agriculture overseeing the agriculture-related components. The primary goals of the SSRP are to develop and demonstrate low-cost bio-engineering techniques for stabilizing streambanks and to encourage adoption of such practices by providing financial incentives, technical assistance, and educational information to landowners with critically eroding streambanks. The Well Decommissioning Program seeks to seal abandoned wells to protect groundwater from direct contamination.

Illinois Department of Natural Resources (IDNR)- IDNR works to manage, conserve, and protect Illinois' natural, recreational, and cultural resources, further the public's understanding and appreciation of those resources, and promote the education, science and public safety of Illinois' natural resources for present and future generations. Offices within IDNR include Architecture, Engineering and Grants; Compliance, Equal Employment Opportunity and Ethics; Grant Management & Assistance; Law Enforcement; Land Management (State Parks); Legal Affairs; Legislation; Mines & Minerals; Oil & Gas; Realty & Capital Planning; Resource Conservation; State Museums; Strategic Services; Water Resources; and World Shooting & Recreational Complex.

IDNR Office of Water Resources (OWR)- The Office of Water Resources is the lead state agency for water resources planning, navigation, floodplain management, the National Flood Insurance Program, water supply, drought, and interstate organizations on water resources. Interagency duties include the state water plan, drought response, flood emergency reports, and the comprehensive review of Illinois water use law. The Office of Water Resources consists of three Divisions: The Division of Capital Programs, the Division of Resource Management, and the Division of Regulatory Programs.

The Division of Capital Programs administers the Urban Flooding Mitigation program, water supply planning including water withdrawals from Federal reservoirs, stream gaging, and operation and maintenance of state facilities. The Division of Capital Programs is the Technical Liaison to the Illinois Emergency Management Agency and provides daily briefings on flood conditions of monitored streams throughout the state and its boundary waters during and following a flood or other disasters. The Division of Regulatory Programs administers regulatory programs over

construction in the floodways of rivers, lakes, and streams; construction in the shore waters of Lake Michigan; construction and operation of dams; construction in public bodies of water; and diversion of water from Lake Michigan. Resource Management inspects dams, gives permits, coordinates the National Flood Insurance Program and regulates floodplains.

IDNR Illinois Nature Preserves Commission (INPC)- The mission of the Illinois Nature Preserves Commission (INPC) is to assist private and public landowners in protecting high quality natural areas and habitats of endangered and threatened species, in perpetuity, through voluntary dedication or registration of such lands into the Illinois Nature Preserves System. The Commission promotes the preservation of these significant lands and provides leadership in their stewardship, management, and protection.

Illinois Environmental Protection Agency (IEPA)- IEPA works to safeguard the state's natural resources from pollution to provide a healthy environment for its citizens. Through partnership with businesses, local governments, and citizens, IEPA works to continue protection of the air we breathe and our water and land resources. IEPA Bureau of Air, Bureau of Land, Bureau of Water, and Office of Energy operate within their respective fields.

IEPA Bureau of Land (BOL)- The BOL protects human health and the environment by regulating the transfer, storage, and disposal of waste, and by overseeing the cleanup of contaminated properties. The BOL's permitting programs regulate a wide range of waste related activities, including those involving municipal waste, landscape waste, composted material, construction and demolition debris, potentially infectious medical waste, and hazardous waste.

IEPA Bureau of Water (BOW)- The BOW is committed to ensuring that Illinois' rivers, streams, and lakes will support all uses for which they are designated including protection of aquatic life, recreation, drinking water supply and fish consumption. The BOW works to ensure that every Illinois public water system provides water that is superior quality, meets all regulatory requirements, and that Illinois' groundwater resources are protected for designated drinking water and other beneficial uses. To accomplish this mission, the BOW monitors the quality of the state's surface and groundwater resources; runs a municipal, stormwater, and industrial effluent permitting program; administers a permit program for community water supplies; regularly inspects sources of water pollution and drinking water treatment facilities; responds to citizen complaints; ensures compliance with regulatory standards; and enforces applicable regulatory requirements. To assist, the BOW provides several loan and grant programs designed to upgrade or build new wastewater, stormwater treatment and public water supply infrastructure, reduce nonpoint source pollution, conduct green infrastructure projects, and protect and restore Illinois' inland lakes and streams.

IEPA is the designated state agency in Illinois to receive Clean Water Act Section 319 federal funds from U.S. EPA. The purpose of IEPA's 319 program is to collaborate with units of local government and other organizations toward the mutual goal of protecting the water quality in Illinois through the control of nonpoint source (NPS) pollution. The program includes providing funding to these

groups to implement projects that utilize cost-effective best management practices (BMPs) on a watershed scale. Projects may include structural BMPs such as detention basins and filter strips, non-structural BMPs such as construction erosion control ordinances and setback zones to protect community water supply wells. Technical assistance and information/education programs are also eligible.

NPDES Phase II Stormwater Permit Program

The IEPA BOW regulates wastewater and stormwater discharges to streams and lakes by setting effluent limits, and monitoring/reporting on results. The BOW oversees the National Pollutant Discharge Elimination System (NPDES) program. The NPDES program was initiated under the federal Clean Water Act to reduce pollutants to the nation's waters. This program requires permits for discharge of 1) treated municipal effluent; 2) treated industrial effluent; and 3) stormwater from municipal separate stormsewer systems (MS4's) and construction sites.

The IEPA's NPDES Phase I Stormwater Program began in 1990 and applies only to large and medium-sized municipal separate stormsewer systems (MS4s), several industrial categories, and construction sites hydrologically disturbing 5 acres of land or more. The NPDES Phase II program began in 2003 and differs from Phase I by including additional MS4 categories, additional industrial coverage, and construction sites hydrologically disturbing greater than 1 acre of land. More detailed descriptions can be viewed on the IEPA's web site.

Under NPDES Phase II, all municipalities with small, medium, and large MS4s are required to complete a series of Best Management Practices (BMPs) and measure goals for six minimum control measures:

1. Public education and outreach
2. Public participation and involvement
3. Illicit discharge detention and elimination
4. Construction site runoff control
5. Post-construction runoff control
6. Pollution prevention and good housekeeping

The Phase II Program also covers all construction sites over 1 acre in size. For these sites the developer or owner must comply with all requirements such as completing and submitting a Notice of Intent (NOI) before construction occurs, developing a Stormwater Pollution Prevention Plan (SWPPP) that shows how the site will be protected to control erosion and sedimentation, completing final stabilization of the site, and filing a Notice of Termination (NOT) after the construction site is stabilized.

IEPA BOW also manages the states Total Maximum Daily Load (TMDL) program. The TMDL program determines the greatest amount of a given pollutant that a water body can receive without violating water quality standards and designated uses and sets reduction goals necessary to improve impaired waters. Like a watershed-based plan, a TMDL takes a watershed approach in determining the pollutant loads that can be allowed in each lake or stream but considers both point and non-point sources. There are no TMDLs within the watershed.

IEPA administers a program to manage discharges from Combined Animal Feeding Operations (CAFOs) under their General NPDES permits. The rules target improvement of the CAFO regulations' effectiveness to help correct improper management practices. There are no permitted CAFOs within the watershed.

County and Local Government Roles and Protections

Kane & McHenry County Boards – McHenry County operates under the township form of county government. The governing body is the County Board. The primary function of the County Board is to establish the various budgets of the county funds and adopt ordinances and rules pertaining to the management and business of the county departments (McHenry County, 2020). Kane County is divided into 26 independently elected districts, with one board member elected to represent each district. The Mission of Kane County Government is to be accountable to its citizens in providing innovative and high-quality government services in an economical, fair, professional, and courteous manner to enhance and protect the health, welfare, and safety of those who live and work in Kane County (Kane County, 2024).

McHenry County Planning and Development - The primary function of the Planning and Development Department is to "facilitate orderly, safe, and resilient development, the preservation of natural and historic resources, and the creation of communities of opportunity." There is a Building Division, Community Development Division, Planning, Zoning, and Land Use Division, and a Water Resources Division; as well as several committees, commissions, and boards related to agriculture, community development and housing, historic preservation, gravel mining, regional planning, stormwater management, and zoning.

The Planning, Zoning, and Land Use Division is the point of contact for people seeking to rezone property, obtain conditional use permits, request variations, and subdivide property within unincorporated McHenry County. This division also is responsible for developing and implementing plans and studies such as the 2030 & Beyond Plan, the 2030 Comprehensive Plan, the Comprehensive Economic Development Strategy, the Fox Valley Corridor Plan, and the Green Infrastructure Plan, and the Historic Preservation Plan; as well as the Unified Development Ordinance for implementing many of the policies contained in the 2030 Comprehensive Plan which results land use, subdivisions, etc.

The Water Resources Division oversees stormwater management and planning as well as the sustainable use of the County's water supply. Public and private potable water supplies in McHenry County are 100% dependent on groundwater. This Division responds to concerns regarding site

grading, flooding, drainage, and wetland; assist property owners in obtaining stormwater management permits; and review building permits for compliance with stormwater regulations. The Division also serves as the liaison to the Stormwater Management Commission, the Stormwater Technical Advisory Committee and the Groundwater Taskforce.

McHenry County Health Department- The McHenry County Health Department participates in a broad spectrum of public health services. They oversee environmental health and permitting, animal control and records, administer a broad variety of clinical services, as well as overseeing and implementing a broad variety of public health planning and oversight. The Department's environmental health programs serve to foster safe and healthy interrelationships between residents and their environment including public beach water quality, solid and hazardous waste, drinking and surface water analysis, groundwater protection, septic system and private well oversight, and environmental health ordinances among other services.

Kane County Health Department - The Kane County Health Department offers a full array of public health programs and is certified by the Illinois Department of Public Health. Their vision is to see that every resident has the knowledge and access to opportunities to live their healthiest life possible. Their mission is to improve health outcomes by working in partnership with the community to understand the cultural, environmental, historical and social issues impacting our residents' health so we can effectively direct resources and services in an equitable and inclusive manner. They maintain a Septic System and Sewage Disposal Program that conducts inspections, educates residents, and oversees public complaint investigations. They also offer water well services for non-community water systems, including inspections, and educate residents on ground water protection and well maintenance (Kane County, 2024).

McHenry & Kane County Division of Transportation- McHenry County Division of Transportation oversees the Administration, Design, Construction, Maintenance, and Planning of transportation systems in McHenry. Some roles of the Division include defining the County's snow and ice removal policy and de-icing, roadside tree planting and replacement policy, storm sewer maintenance, street sweeping, design of transportation infrastructure, and long-term planning of transportation services. Similarly, Kane County Division of Transportation's (KDOT) mission is to provide and maintain a safe and efficient transportation system while maintaining the County's visions and values. KDOT is responsible for the maintenance, planning, design and construction of their roadways and provides technical assistance to its townships and coordinates with several different State, regional, and local agencies on transportation and land use issues.

Kane County Planning Cooperative- The Kane County Planning Cooperative is an integrated effort - between Kane County's Health, Transportation and Development planning staff to implement the County's array of long-range plans including the 2012-2016 Community Health Improvement Plan, the 2040 Long Range Transportation Plan and the 2040 Plan. The Planning Cooperative was created as the central core of the 2040 Plan's implementation strategies and has the focus of planning for the 2040 Plan's overarching theme, Healthy People, Healthy Living and Healthy Communities. The partnership is a tool to capture and distribute funding and technical assistance and an all-

encompassing planning entity that has Kane County in the best possible position to effectively sustain and plan for the future quality of Kane County (Kane County, 2024).

McHenry County Emergency Management- McHenry County Emergency Management department works to plan and train residents in disaster preparedness. This includes Natural Hazard Mitigation planning and flooding preparation.

McHenry-Lake County Soil and Water Conservation District (SWCD)- McHenry-Lake County SWCD provides technical assistance to the public and other regulatory agencies. They work to protect and maintain healthy soil and clean water for all generations. The Soil and Water Conservation District is a local resource for natural resource concerns for the residents of McHenry County. The Conservation District are actively involved with watershed planning in McHenry County, they serve as a resource for natural resources education for youth and adults and are advocates for preserving prime farmland in McHenry County. Although the SWCD has no regulatory authority, it influences watershed protection through soil and sediment control and pre- and post-development site inspections.

Kane-DuPage Soil & Water Conservation District- Kane-DuPage SWCD provides technical information to individuals and groups on methods of soil and water conservation in Kane and DuPage Counties. It is guided by a five-member board of directors elected by District residents. This board of directors, the District's staff, and the District Conservationist assigned by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) develop annual and long-range plans that direct the activities of the District.

McHenry County Conservation District- McHenry County Conservation District's mission is to preserve, restore and manage natural areas and open spaces for their intrinsic value and for the benefit of all generations. The mission and vision of the Conservation District serves to inspire respect for the land; promote sound environmental practices; promote the long-term viability of the county's biodiversity; provide opportunities for responsible use of the land in concert with natural resources; promote environmental stewardship; provide quality experiences that promote green, healthy and balanced lifestyles; connect children to nature and foster public and private partnerships.

Municipalities

Watershed Municipalities (Village of Algonquin, City of Crystal Lake, Village of Lake in the Hills) and Unincorporated Townships- Municipalities in the watershed may or may not provide additional watershed protection beyond existing watershed ordinances under local City or Village Codes. Municipal codes present opportunities for outlining and requiring recommendations in this plan such as conservation development, Special Service Area (SSA) or watershed protection fees, and natural landscaping.

For example, the Village of Algonquin currently provides additional protections within their Subdivision Regulations. Under Section 22.07 Stormwater Management, identifies:

> *B. Watershed Plans: Any watershed, wetland and floodplain protection plan approved by the Village Board shall also be followed when reviewing subdivision/planned development plans (i.e., Woods Creek Watershed-Based Plan and the Jelkes Creek-Fox River Watershed Action Plan and any future watershed plans).*

The Village plans to use the watershed plan to update its comprehensive plan. Other municipalities in the watershed are encouraged to do the same.

Water resources located on unincorporated land within McHenry County are ultimately regulated by the McHenry County Department of Planning and Development and Water Resources Division. Development affecting water resources in these townships must be reviewed by the respective agencies listed above. McHenry County passed the "Conservation Design Standards and Procedures" in 2008 which was consolidated into the Unified Development Ordinance in 2014.

Land development in McHenry County is regulated by the McHenry County Stormwater Management Ordinance (amended April 5, 2016) and by the Kane County Stormwater Management Ordinance (revised June 1, 2019) in Kane County. The ordinances are enforced by county agencies or by "Certified Communities". All the municipalities in the watershed are certified.

Ordinance Review

Protection of natural resources and green infrastructure during future growth will be important for the future health of the Woods Creek watershed. To assess how future growth might further impact the watershed, an assessment of local ordinances was performed to determine how development currently occurs in each local government. In this way, potential improvements to local ordinances can be identified. As part of the assessment, municipal governments were asked to compare their local ordinances against model policies outlined by the Center for Watershed Protection (CWP) in a publication entitled "Better Site Design: A Handbook for Changing Development Rules in Your Community" (CWP, 1998) and complete The Code & Ordinance Worksheet: A Tool for Evaluating Development Rules in Your Community (CWP, 2017).

CWP's recommended ordinance review process involves assessments of four general categories including Residential Streets & Parking Lots, Lot Development, Conservation of Natural Areas, and Runoff Reduction. Various questions with point totals are examined under each category. The maximum for the Suburban worksheet is 126 points and final scores are depicted as a percentage of the total. CWP also provides general guidance based on scores. Scores between 60 and 80 suggest that it may be advisable to reform local development ordinances. Scores less than 60 generally mean that local ordinances are not environmentally friendly and serious reform may be needed. McHenry County scored 59 points or 47%, the Village of Algonquin scored 63 points (50%), and the City of Crystal Lake scored 68 points or 54%. Although scores are relatively low, it should be noted that this assessment is meant to be a tool to local communities to help guide development of future ordinances and draw awareness to sections that might be easy to update to improve scores. Various

policy recommendations are included in the Action Plan section of the report to address general ordinance deficiencies.

3.6 Existing and Future Land Use/Land Cover (Update)

The Village of Algonquin kicked off a Comprehensive Plan update in 2023, which is still in the process of being completed at the date of this plan update. For the most recent Village of Algonquin Comprehensive Plan detailing both existing and future land use changes, please visit the Village of Algonquin's website at www.Algonquin.org.

3.11.1 Woods Creek & Tributaries (Update)

Baxter & Woodman reassessed the stream reaches within the Village of Algonquin during the field inventory for the watershed plan update. Streams and tributaries were assessed based on stream reaches, consistent with the original watershed-based plan. Methodology included walking accessible portions of streams, collecting measurements, taking photos, and noting stream conditions on Stream Inventory/BMP Data Forms as well as making map notations as appropriate. Note: stream reaches that were not reassessed are assumed to be consistent with the findings in the original plan.

Channelization (Update)

Each updated stream reach was characterized as either having little-to-no channelization (highly sinuous, no human disturbance), moderate channelization (some sinuosity but altered), or highly channelized (straightened by humans) (**Table 2; Figure 1**). Summarizing channelization on the reassessed streams, 51% (11,561 lf) of stream and tributary length is naturally meandering; approximately 40% (9,035 lf) is moderately channelized; 9% (2,110 lf) is highly channelized.

TABLE 2. Summary of updated stream and tributary channelization.

Stream or Tributary Name	Reach Code	Stream Length Assessed (ft)	None or Low Channelization		Moderate Channelization		High Channelization	
			feet	%	feet	%	feet	%
Woods Creek	WC	15,363.9	8,113.30	53	5,140.50	33	2,110.10	14
Woods Creek Tributary Reach 6/7	WCT	1,484.3	1,484.30	100				
Fairway View Drive Creek	FDC	2,228.0			2,228.0	100		
Quarry Creek	QC	1,666.8			1,666.8	100		
Winding Creek	WDC	1,963.8	1,963.8	100				
Totals		**22,706.9**	**11,561.4**	**51**	**9,035.3**	**40**	**2,110.1**	**9**

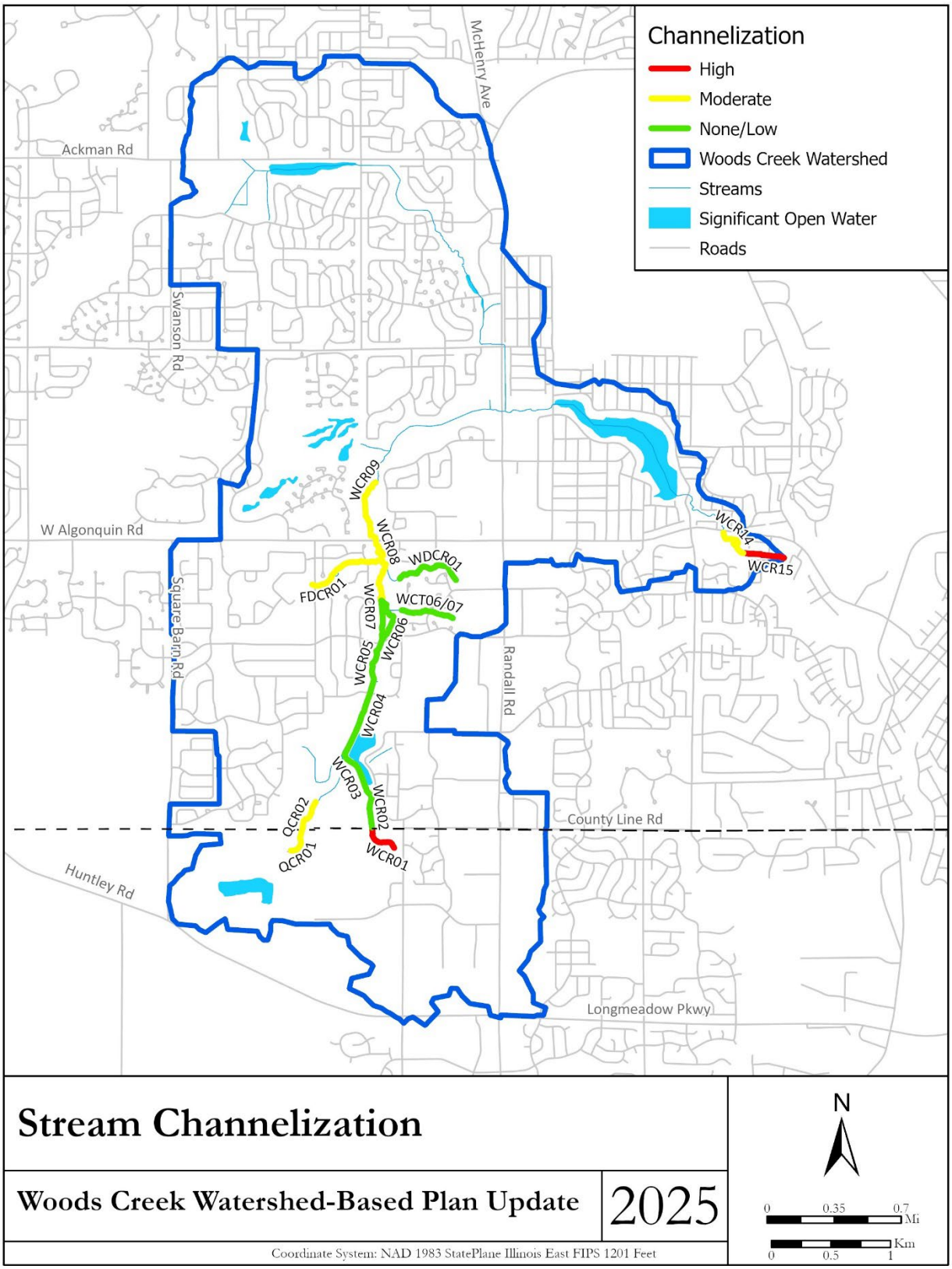


FIGURE 1. Stream Channelization.

Streambank and Streambed Erosion (Update)

The location and severity of streambank erosion is summarized for the updated stream reaches in **Table 3** and depicted on **Figure 2**. Approximately 51% (11,561 lf) of the total stream and tributary length exhibits no or low bank erosion while moderate erosion is occurring along 41% (9,258 lf) of streambanks. Highly eroded streambanks account for 8% (1,888 lf) of the total stream length. Streambed erosion was moderate on WCR01, WCR09, and FDCR01 and low on all other reaches.

TABLE 3. Summary of stream and tributary bank erosion.

Stream or Tributary Name	Reach Code	Stream Length Assessed (ft)	None or Low Erosion		Moderate Erosion		High Erosion	
			feet	%	feet	%	feet	%
Woods Creek	WC	15,363.9	8,113.3	53	5,362.9	34	1,887.7	12
Woods Creek Tributary Reach 6/7	WCT	1,484.3	1,484.3	100				
Fairway View Drive Creek	FDC	2,228.0			2,228.0	100		
Quarry Creek	QC	1,666.8			1,666.8	100		
Winding Creek	WDC	1,963.8	1,963.8	100				
Totals		**22,706.9**	**11,561.4**	**51**	**9,257.7**	**41**	**1,887.7**	**8**

Riparian Area Condition (Update)

The location and condition of updated riparian area reaches are summarized in **Table 4** and **Figure 3**. Approximately 49% (11,145 lf) of the riparian areas are Poor quality. Another 1,964 linear feet or 9% of riparian areas are in Average condition and 42% (9,598 lf) are in Good condition.

TABLE 4. Summary of stream and tributary riparian area condition.

Stream or Tributary Name	Reach Code	Stream Length Assessed (ft)	Good Condition		Average Condition		Poor Condition	
			feet	%	feet	%	feet	%
Woods Creek	WC	15,363.9	8,113.3	53			7,250.6	47
Woods Creek Tributary Reach 6/7	WCT	1,484.3	1,484.3	100				
Fairway View Drive Creek	FDC	2,228.0					2,228.0	100
Quarry Creek	QC	1,666.8					1,666.8	100
Winding Creek	WDC	1,963.8			1,963.8	100		
Totals		**22,706.9**	**9,597.6**	**42**	**1,963.8**	**9**	**11,145.4**	**49**

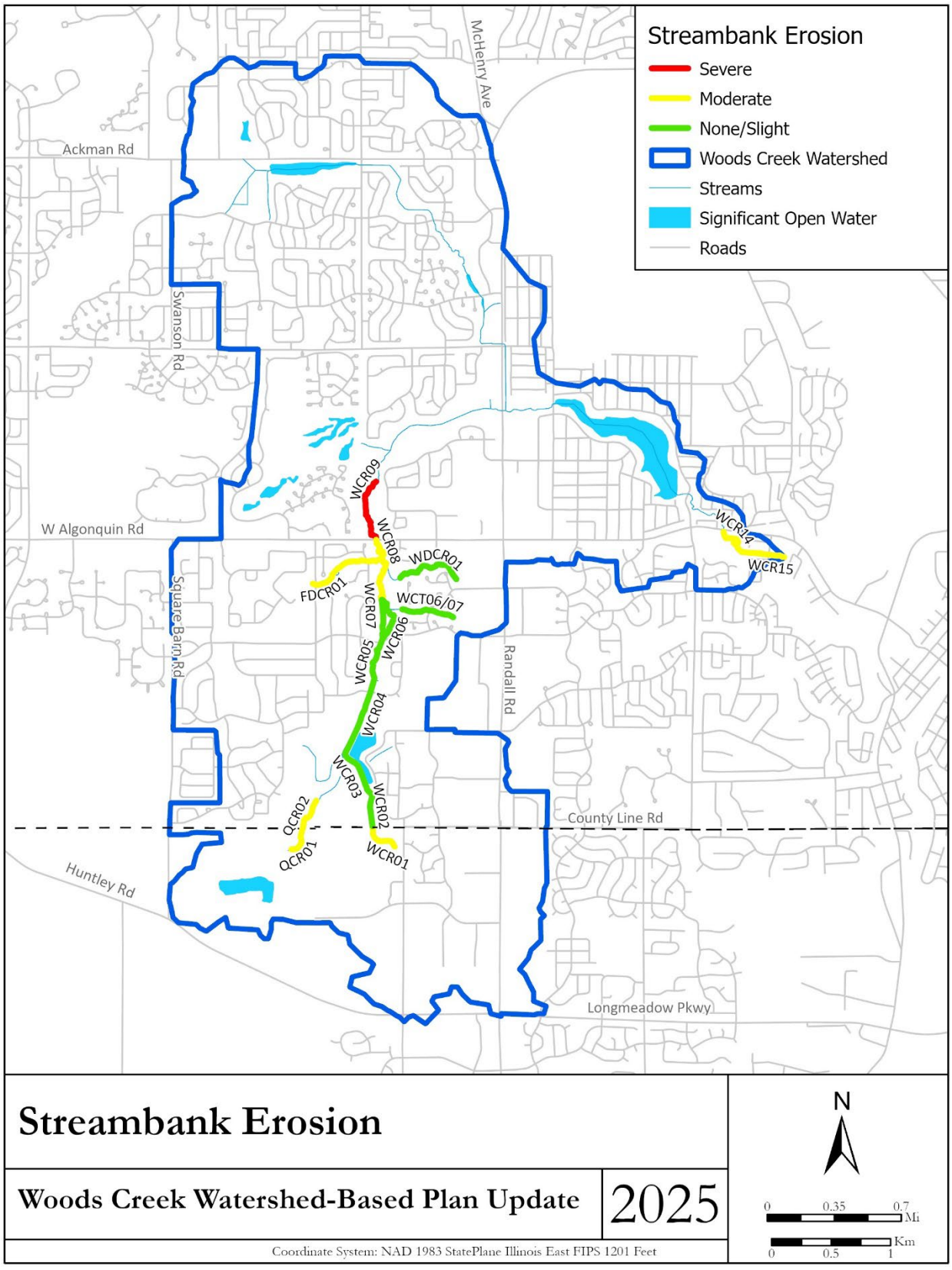


FIGURE 2. Streambank Erosion.

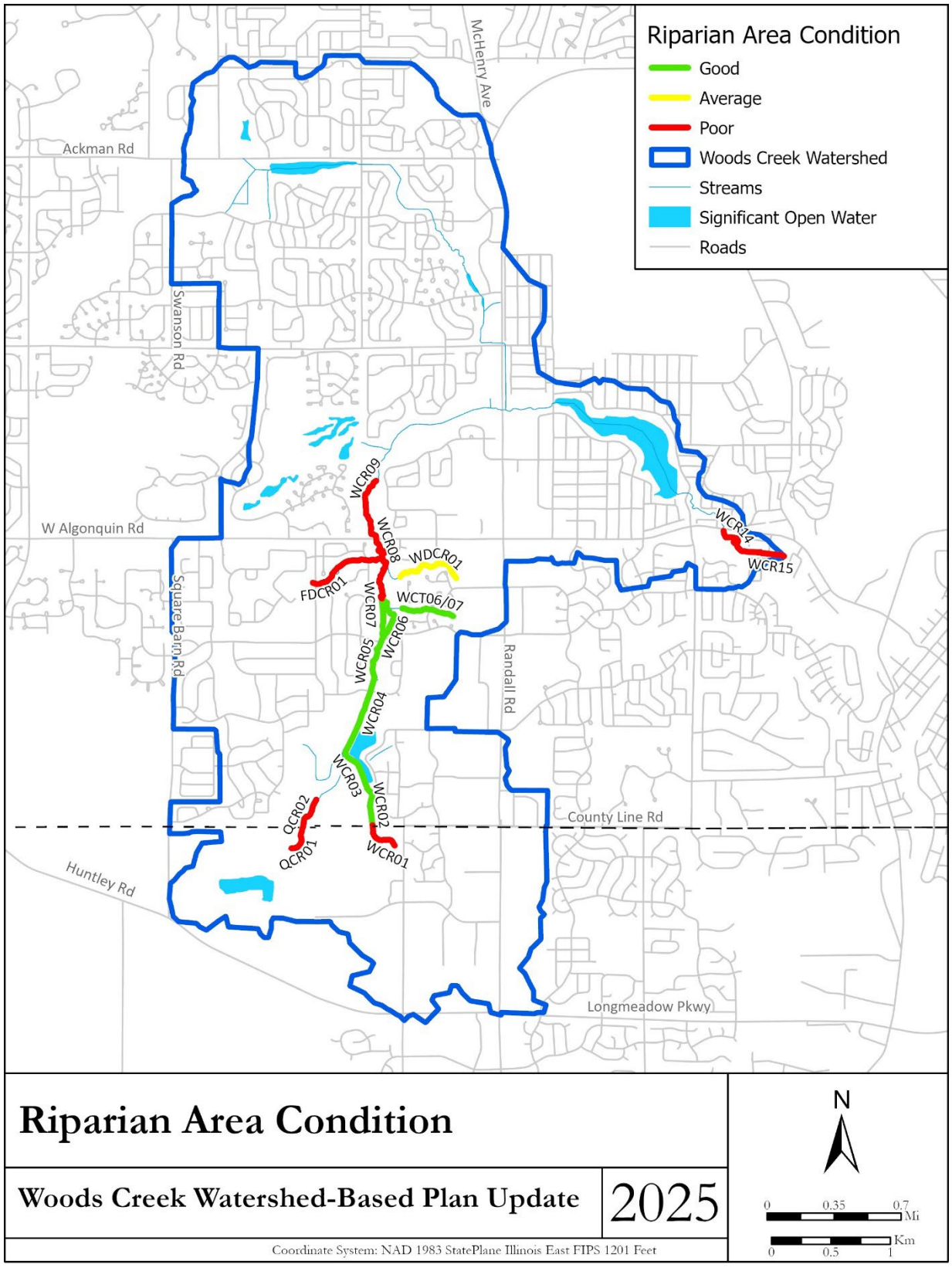


FIGURE 3. Riparian Area Condition.

3.11.2 Detention Basins (Update)

Baxter & Woodman reassessed 101 detention basins within the Village of Algonquin during the field inventory for the watershed plan update (**Table 5**, **Figure 4**). Assessment methodology included a visit to each site and collection of data relevant to existing conditions. Each basin was assigned a Site ID and detailed notes were recorded related to existing ecological condition and potential water quality improvement retrofit Management Measures for eventual inclusion into the Action Plan section of this report.

The reassessment resulted in 5 dry bottom basins, 71 wet bottom basins, and 25 wetland bottom basins (**Table 5**). 79 of the basins were naturalized and the remaining 22 had turf grass side slopes. Additionally, of the 101 basins, 27 (27%) provide *Good* ecological and water quality benefits, 24 basins (23%) likely provide *Average* benefits, while the remaining 50 basins (50%) likely provide *Poor* ecological and water quality benefits (**Table 5**, **Figure 4**) because most were designed simply to meet stormwater storage volume requirements. Designs that also improve water quality and wildlife habitat were not necessarily considered because they were not required to do so under local or federal regulations at the time of their construction.

TABLE 5. Summary of detention basin types, ecological condition, and acreage.

Site ID	Basin Type	Buffer Type	Ecological Condition	Size (Acres)
1	Wetland Bottom Detention	Natural	Average	2.8
2	Wetland Bottom Detention	Natural	Average	1.1
3	Wetland Bottom Detention	Natural	Average	1.9
4	Wet Bottom Detention	Natural	Average	2.1
5	Wetland Bottom Detention	Natural	Average	1.8
6	Wet Bottom Detention	Natural	Average	2.3
7	Wet Bottom Detention	Natural	Poor	2.5
8	Wet Bottom Detention	Natural	Average	2.3
9	Wet Bottom Detention	Natural	Good	1.4
10	Wet Bottom Detention	Natural	Average	0.4
11	Wet Bottom Detention	Natural	Average	1.5
12	Wet Bottom Detention	Natural	Poor	0.4
13	Wetland Bottom Detention	Natural	Poor	0.3
14	Wet Bottom Detention	Turf	Poor	0.4
15	Wet Bottom Detention	Natural	Average	1.1
16	Wet Bottom Detention	Natural	Poor	1.3
17	Wetland Bottom Detention	Natural	Average	3.0
18	Wetland Bottom Detention	Natural	Average	2.1
19	Wet Bottom Detention	Natural	Poor	0.9
20	Wet Bottom Detention	Natural	Poor	1.5
21	Wet Bottom Detention	Natural	Poor	3.4
22	Wet Bottom Detention	Natural	Poor	1.2

Site ID	Basin Type	Buffer Type	Ecological Condition	Size (Acres)
23	Wet Bottom Detention	Natural	Poor	1.6
24	Wet Bottom Detention	Turf	Poor	0.7
25	Wet Bottom Detention	Turf	Poor	1.2
26	Wet Bottom Detention	Natural	Poor	1.1
27	Wet Bottom Detention	Natural	Average	1.3
28	Wet Bottom Detention	Natural	Poor	1.5
29	Wet Bottom Detention	Natural	Average	4.5
30	Wetland Bottom Detention	Natural	Average	2.7
31	Wet Bottom Detention	Natural	Poor	1.6
32	Wet Bottom Detention	Natural	Poor	0.9
33	Wet Bottom Detention	Natural	Average	4.1
34	Wet Bottom Detention	Natural	Good	0.5
35	Dry Bottom Detention	Natural	Good	0.5
36	Wet Bottom Detention	Natural	Good	2.5
37	Wet Bottom Detention	Natural	Good	11.8
38	Wetland Bottom Detention	Natural	Good	2.1
39	Dry Bottom Detention	Turf	Poor	1.6
40	Dry Bottom Detention	Turf	Poor	1.5
41	Wetland Bottom Detention	Natural	Poor	2.9
42	Wetland Bottom Detention	Natural	Average	3.1
43	Wet Bottom Detention	Turf	Poor	0.9
44	Wet Bottom Detention	Turf	Poor	1.1
45	Wet Bottom Detention	Turf	Poor	1.6
46	Wetland Bottom Detention	Natural	Poor	1.0
47	Wetland Bottom Detention	Natural	Poor	2.5
48	Wetland Bottom Detention	Natural	Poor	0.5
49	Wetland Bottom Detention	Natural	Poor	2.7
50	Wet Bottom Detention	Natural	Poor	1.9
51	Wetland Bottom Detention	Natural	Poor	8.2
52	Wetland Bottom Detention	Natural	Poor	0.8
53	Wetland Bottom Detention	Turf	Poor	1.1
54	Wet Bottom Detention	Natural	Average	4.8
55	Wetland Bottom Detention	Natural	Average	14.3
56	Wet Bottom Detention	Natural	Good	2.4
57	Dry Bottom Detention	Turf	Poor	2.5
58	Wet Bottom Detention	Turf	Poor	2.8
59	Wet Bottom Detention	Natural	Good	1.1
60	Wet Bottom Detention	Natural	Good	2.0
61	Wet Bottom Detention	Natural	Good	11.7
62	Wet Bottom Detention	Natural	Good	7.7
63	Wet Bottom Detention	Turf	Poor	4.2

Site ID	Basin Type	Buffer Type	Ecological Condition	Size (Acres)
64	Wet Bottom Detention	Turf	Poor	3.8
65	Wet Bottom Detention	Turf	Poor	3.6
66	Wet Bottom Detention	Turf	Poor	1.3
67	Wet Bottom Detention	Turf	Poor	1.0
68	Wet Bottom Detention	Natural	Average	1.0
69	Wet Bottom Detention	Natural	Average	1.3
70	Wet Bottom Detention	Natural	Average	1.0
71	Wet Bottom Detention	Natural	Good	1.2
72	Wet Bottom Detention	Natural	Good	0.9
73	Wet Bottom Detention	Natural	Good	1.0
74	Wet Bottom Detention	Natural	Good	0.5
75	Wet Bottom Detention	Natural	Good	0.8
76	Wet Bottom Detention	Natural	Good	0.2
77	Wet Bottom Detention	Natural	Good	0.2
78	Wet Bottom Detention	Natural	Good	0.2
79	Wet Bottom Detention	Natural	Good	0.9
80	Wet Bottom Detention	Natural	Good	1.4
81	Wet Bottom Detention	Natural	Good	0.7
82	Wet Bottom Detention	Natural	Good	2.4
83	Wet Bottom Detention	Natural	Good	0.6
84	Wet Bottom Detention	Turf	Poor	0.7
85	Wet Bottom Detention	Turf	Poor	0.4
86	Wet Bottom Detention	Turf	Poor	1.3
87	Wet Bottom Detention	Turf	Poor	0.2
88	Wet Bottom Detention	Natural	Poor	1.0
89	Wetland Bottom Detention	Natural	Good	0.7
90	Wet Bottom Detention	Natural	Poor	3.8
91	Wet Bottom Detention	Natural	Poor	1.0
92	Wetland Bottom Detention	Natural	Poor	3.4
93	Wetland Bottom Detention	Natural	Poor	0.7
94	Wetland Bottom Detention	Natural	Average	0.9
95	Wetland Bottom Detention	Natural	Poor	2.2
96	Wet Bottom Detention	Turf	Average	1.4
97	Wet Bottom Detention	Natural	Poor	1.0
98	Dry Bottom Detention	Turf	Poor	0.3
99	Wet Bottom Detention	Natural	Good	2.8
100	Wetland Bottom Detention	Natural	Good	1.2
101	Wet Bottom Detention	Natural	Poor	1.1

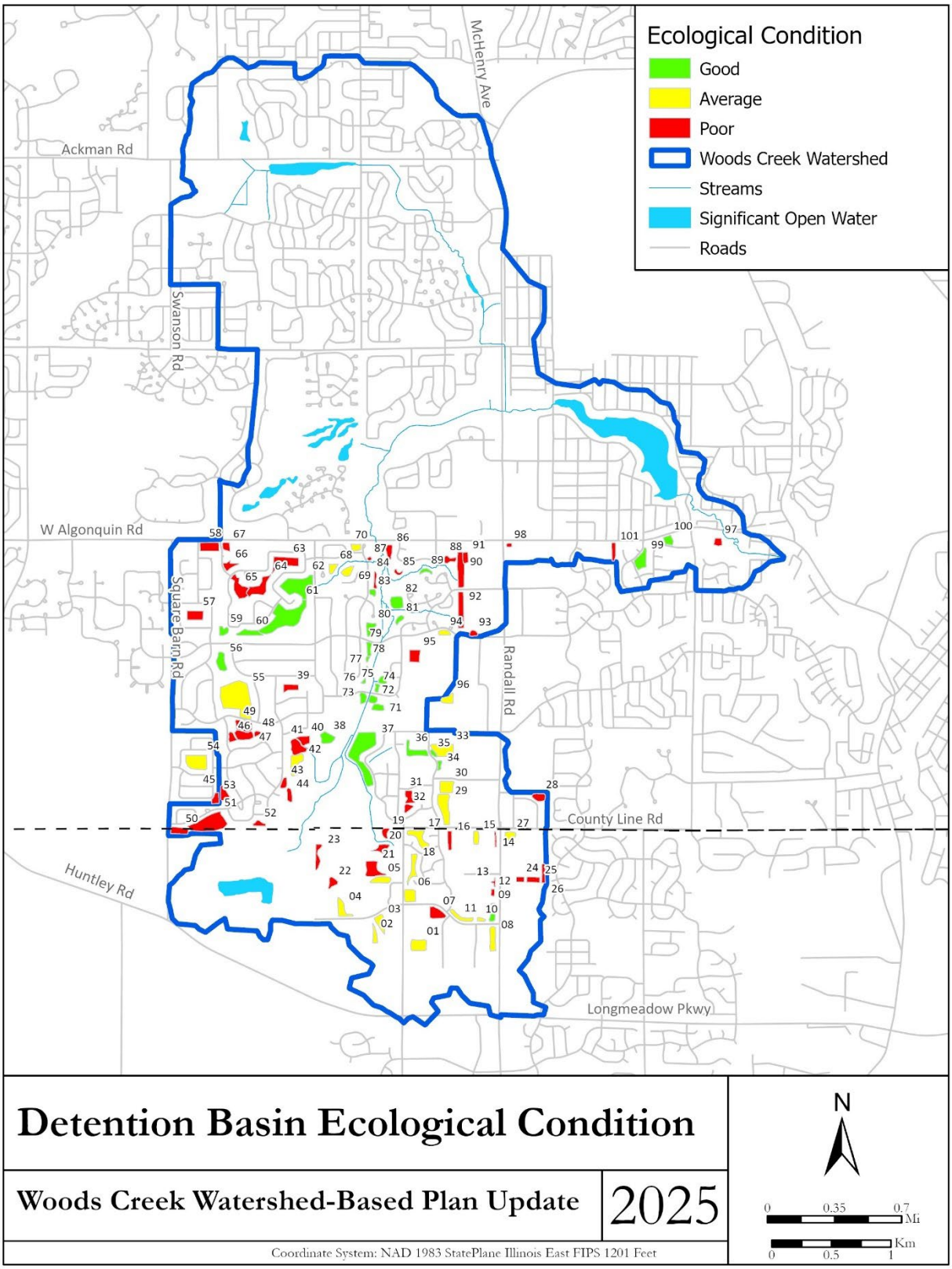


FIGURE 4. Detention Basin Ecological Condition.

3.13 Groundwater (Update)

Over the last decade, several studies and reports on groundwater resources within Woods Creek watershed have been completed. The Illinois State Water Survey published a report in 2015 entitled *Changing Groundwater Levels in the Sandstone Aquifers of NE Illinois*. This report shows that the sandstone aquifers below Woods Creek watershed have exhibited approximately 400 feet of drawdown as compared to predevelopment head levels (**Figure 5**). Additionally, McHenry County developed and adopted the McHenry County Water Resources Action Plan (WRAP) in 2011 followed by an update that was adopted on November 17, 2020. The updated WRAP is a comprehensive guide designed to educate decision-makers from the county, municipalities, businesses and individuals about water resources, the potential threats to those resources, and Best Management Practices that can help protect or restore them. The WRAP contains a more detailed mapping of the potential risk of declining well performance by 2050, as detailed by ISWS (**Figure 6**). These areas are experiencing desaturation and may face increasing challenges to pumping and water supplies in the future. Much more detailed information about groundwater resources in Woods Creek watershed can be found in both the ISWS 2015 report and the Updated McHenry County WRAP (2020), both available online from their respective websites.

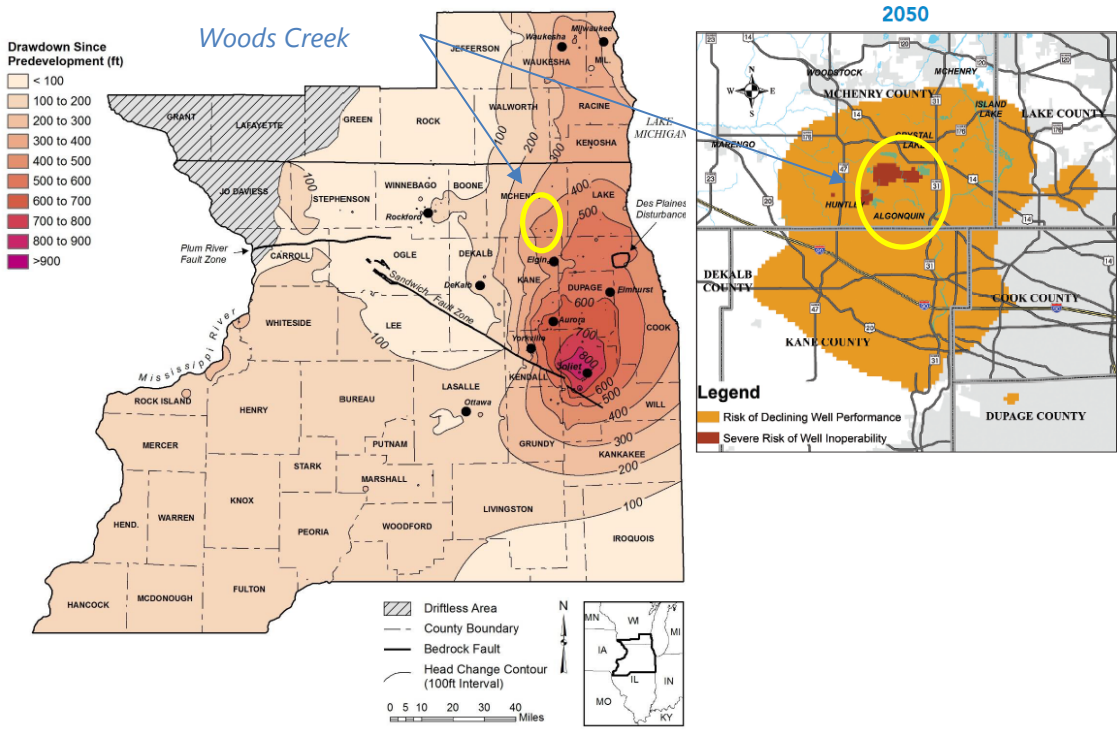


FIGURE 5 (left). Drawdown of heads in the Cambrian-Ordovician sandstone aquifers from predevelopment to 2014 (ISWS, 2015).

FIGURE 6 (right). ISWS maps illustrate approximate desaturation zones by 2050 within the Ironton-Galesville sandstone aquifer under McHenry County (McHenry County, 2020).

4.1 Causes & Sources of Impairment (Update)

According to the most recent Illinois Integrated Water Quality Report and Section 303 (d) list (2022), Woods Creek Lake (AUID IL_RTZZ) is the only impaired waterbody in the watershed. It is impaired for the Aesthetic Quality and Fish Consumption designated uses and the causes of impairment include phosphorus, total suspended solids, aldrin, dieldrin, endrin, heptachlor, mirex, and toxaphene. Previously, Woods Creek Lake was also impaired for aquatic plants and mercury, neither of which are currently listed. Sources of these impairments include hydromodification, dam or impoundment, waterfowl, urban runoff, failing septic systems, streambank erosion, agricultural runoff, legacy agricultural pollution, contaminated sediments, soil contamination, and runoff from existing or legacy industry.

Water Quality

Woods Creek

In February 2019, the Illinois State Water Survey produced a report entitled Water Quality Trend Analysis for the Fox River Watershed: Stratton Dam to the Illinois River that was based on water quality data collected by Fox River Study Group. Water quality data between 2003 and 2016 was analyzed for the Crystal Creek at Route 31 site, which includes Woods Creek and Crystal Creek watersheds combined. The report shows that **both total and dissolved phosphorus have been decreasing over time, by 26.6% and 25.5% per year, respectively, over the course of the study**. Nitrate nitrogen showed a slight (2.2%) increasing trend year over year. Dissolved oxygen and pH have also been decreasing slightly over time, consistent with most of the sampling sites included in the study. No other trends were identified at this site (ISWS, 2019).

As part of the planning process for the adjacent Crystal Creek Watershed-Based Plan, Applied Ecological Services (AES) sampled Woods Creek where it outlets to Crystal Creek in June of 2020 to establish base flow water quality and in May of 2020 after a storm event. Results of this sampling are shown in **Table 6**. The 2020 sampling results show that total phosphorus, total suspended solids, and *E. coli* are below the guidance criteria during base flows but exceeded the criteria after a storm event. Nitrogen data was incomplete, but from the available sampling only total Kjeldahl nitrogen exceeded the target. All other parameters were within guidance.

TABLE 6. AES water chemistry data at Woods Creek (2020).

ID Code/ Parameter	Statistical, Numerical, or General Use Guidelines	Woods Creek Base Flow	Woods Creek Storm Event
Dissolved Oxygen	> 5.0 mg/l*	7.2	10.3
pH	>6.5 or <9.0*	8.12	8.32
Total Phosphorus (TP)	< 0.075 mg/l**	0.055	0.08
Nitrate-Nitrite Nitrogen (NO2+NO3)	1.798 mg/l**	0.448	0.301
Ammonia Nitrogen (NH3)	<15 mg/l*	ND	ND
Total Kjeldahl Nitrogen (TKN)	<0.663 mg/l**	1.15	N/A
Total Nitrogen (TN) (calculated)	<2.461 mg/l**	1.6	N/A
Total Suspended Solids (TSS)	<19 mg/l***	1.8	24.2
E. coli (MPN/mL	<200 CFU/100ml*	185	325.5
Chloride	<500 mg/l*	111	156

-Cells highlighted in red exceed recommended statistical, numerical, or General Use guidelines, * Illinois EPA General Use Standard, ** Ambient Water Quality Criteria Recommendations: Rivers and Streams in Nutrient Ecoregion VI (USEPA 2000), *** Present and Reference Concentrations and Yields of Suspended Sediment in Streams in the Great Lakes Region and Adjacent Areas (USGS 2006)

Woods Creek Lake

Since the original watershed plan was completed, IEPA has collected additional chemical/physical data within Woods Creek Lake. B&W analyzed water quality data since 2013 for Woods Creek Lake available via EPA's WQX/Storet water quality database (through 2024). Average sample results at Woods Creek Lake for chloride, nitrate-nitrite nitrogen, total phosphorus, total suspended solids, conductivity, pH, Secchi disk depth, chlorophyll a, and dissolved oxygen are reported in **Table 7**. Monitoring results show that total phosphorus is the only parameter exceeding criteria guidelines.

TABLE 7. Illinois EPA water chemistry data (averages) at Woods Creek Lake (2013-2024).

ID Code/ Parameter	Statistical, Numerical, or General Use Guidelines	Woods Creek Lake
Chloride	< 500 mg/l*	204.9
Nitrate-Nitrite Nitrogen (N)	< 0.015 mg/l**	0.204
Total Phosphorus (TP)	< 0.05 mg/l*	0.27
Total Suspended Solids (TSS)	< 12 mg/l**	9.6
Conductivity	<1,667 µmhos/cm**	1182
pH	> 6.5 and < 9.0*	7.6
Secchi disk depth	> 18 in. (eutrophic status) **	34.7
Chlorophyll a	< 55 µg/l*	33
Dissolved Oxygen	> 5.0 mg/l*	6.0

Cells highlighted in red exceed recommended statistical, numerical, or General Use guidelines. * Illinois EPA General Use Standard; **other literature

According to the US Food and Drug Administration (US FDA), the highest allowable average mercury concentration in fish per serving when eating 3 servings per week is 0.15 µg/g. Any fish with an average mercury concentration less than or equal to 0.15 µg/g is categorized as "Best Choices" and eating 2 to 3 servings a week is considered safe (US FDA, 2024). Screening values for fish categories, as recommended by US FDA, are depicted in **Table 8**. Mercury in fish tissue at Woods Creek Lake was sampled by IEPA in 2017 and all values were below 0.15 µg/g, with an average sample result of 0.09 µg/g.

TABLE 8. Screening Values for Fish Categories (Source: US FDA, 2024).

Weekly fish servings	Screening value (µg/g)	Chart category
0	> 0.46	Choices to Avoid
1	≤ 0.46	Good Choices
2	≤ 0.23	Good Choices
3	≤ 0.15	Best Choices

5.1 Programmatic Management Measures Action Plan (Update)

In addition to the Programmatic Actions to address goal objectives outlined in the 2013 Plan, extensive policy and general, watershed-wide recommendations have been developed in the ensuing years in support of improving water quality in the Woods Creek watershed.

Various recommendations are made throughout this report related to how local governments can improve the condition of Woods Creek watershed through policy. Policy recommendations focus on improving watershed conditions by preserving green infrastructure, protecting groundwater, minimizing road salts, minimizing lawn fertilizer, sustainable management of stormwater, and allowances for native landscaping. To be successful, the Woods Creek Watershed-Based Plan would need to be adopted and/or supported by local communities. The process of creating and implementing policy changes can be complex and time consuming. And, although there are numerous possible policy recommendations for the watershed, the following policy recommendations are considered the most important and highest priority for implementation.

Plan Adoption & Implementation Policy Recommendations

- Watershed Partners adopt and/or support (via a resolution) the Woods Creek Watershed Improvement Plan and incorporate plan goals, objectives, and recommended actions into comprehensive plans and ordinances.

Green Infrastructure Network Policy Recommendations

- Each municipality considers incorporating the identified Green Infrastructure Network (GIN) into comprehensive plans and development review maps.

- Utilize tools such as protection overlay zones, setbacks, open space zoning, conservation easements, conservation and/or low impact development, etc. in municipal comprehensive plans and zoning ordinances to protect environmentally sensitive areas within identified Green Infrastructure Network parcels.

- Utilize tools such as Development Impact Fees, Stormwater Utility Taxes, Special Service Area (SSA) Taxes, etc. to help fund implementation of plan and future management of green infrastructure components where new and redevelopment occurs.

- Require developers to protect sensitive natural areas, restore degraded natural areas and streams, and then encourage donation of all natural areas and naturalized stormwater management systems to a public agency or conservation organization for long term management with dedicated funding such as Development Impact Fees, Stormwater Utility Taxes, Special Service Area (SSA) Taxes, etc. In general, it is not recommended that these features be turned over to HOA's to manage, as they lack the resources and experience to do so effectively.

- Establish incentives for developers who propose sustainable or innovative approaches to implement the watershed-based plan, including priority for preserving green infrastructure and using naturalized stormwater treatment trains.

- Require mitigation for all wetlands lost prior to allowing development within the watershed.

Groundwater Policy Recommendations

- Encourage extensive stormwater management practices that clean and infiltrate water in any development or redevelopment.

- Limit impervious cover within new and redevelopments occurring within Subwatershed Management Units 3, 6, and 11 which are ranked as highly vulnerable to future impervious cover.

Road Salt Policy Recommendations

- Each municipality/township supplements existing programs with deicing best management practices such as utilizing alternative deicing chemicals, anti-icing or pretreatment, controlling the amount and rate of spreading, controlling the timing of application, utilizing proper application equipment, equipment calibration, and educating/training deicing employees.

- Establish additional new best management practice recommendations based on the results of various ongoing studies and research being produced by Illinois Tollway to reduce, re-use, and offset the impacts of winter roadway operations. These include converting invasives to energy, harvesting cattails for the purpose of removing excess nutrients,

potentially quantifying chloride removal, re-using the plant mass for compost or compressed into an Energy product or potentially using the byproducts of the biomass as a replacement for beet juice on roadways (Illinois Tollway, 2019; Paap, 2019; and Wetlands Research, 2019).

Lawn Fertilizer and Paving Policy Recommendations

- Local governments extend phosphorus regulation to all non-commercial applicators, require soil testing pre-application, or ban out-right.
- Local governments ban coal tar sealants within their jurisdiction.
- Local governments permit the use of pavement alternatives such as permeable pavers in appropriate areas.

Stormwater Management Policy Recommendations

- Require new development and redevelopment to use stormwater management techniques/ facilities that serve multiple functions including storage, water quality benefits, infiltration, and wildlife habitat.
- Require reduced runoff volume from new and retrofitted detention basins.
- Local governments develop tree planting programs.

Native Landscaping/Natural Area Restoration

- Allow native landscaping within local ordinances.
- Ensure local "weed control" ordinances do not discourage or prohibit native landscaping.
- Include short- and long-term management with performance standards for restored natural areas and stormwater features within new and redevelopment.

5.1.2 Detention Basin Design/Retrofits, Establishment, & Maintenance (New)

Detention basins are best described as human made depressions for the temporary storage of stormwater runoff with controlled release following a rain event. Most of the detention basins in Woods Creek watershed are associated with residential and urban development. Most existing wet bottom basins are essentially ponds planted with turf grass along the slopes, and the majority of the dry bottom basins are similarly planted with turf grass. These attributes do not promote water quality improvement, water infiltration, or wildlife and pollinator habitat capabilities.

FIGURE 7. Example Naturalized dry bottom detention basin at Highland Avenue detention in Algonquin.

Studies reveal the benefits of detention basins that serve multiple functions. According to USEPA, well designed dry bottom infiltration basins reduce total suspended solids (sediment) by 58%, total phosphorus by 26%, and total nitrogen by 30%. Wet bottom basins designed to have wetland characteristics reduce total suspended solids (sediment) by 78%, total phosphorus by 44% and total nitrogen by 20% (MDEQ, 1999).

Detention Basin Recommendations

Future detention basin design within the watershed should consist of naturalized basins that serve multiple functions, including appropriate water storage, water quality improvement, infiltration, natural aesthetics, and wildlife and pollinator habitat. There are also many opportunities to retrofit existing dry or wet bottom detention basins by incorporating minor engineering changes to alter water depths and naturalizing with native vegetation. Site-specific retrofit opportunities are identified in the Site-Specific Action Plan. Location, design, establishment, and long-term maintenance recommendations for naturalized detention basins are included below. Note: requirements of local stormwater management ordinances, such as volume and release rates, will apply to the design recommendations included below.

Detention Basin Location Recommendations

- Naturalized detention basins should be restricted to natural depressions or previously drained hydric soil areas and adjacent to other existing green infrastructure to aesthetically fit and blend into the landscape and form green infrastructure corridors.
- Basins should not be constructed in any average to high quality ecological community.
- Outlets from detention should not enter sensitive ecological areas.

FIGURE 8. Example of a naturalized wet bottom detention basin at Trails of Woods Creek subdivision in Algonquin.

Detention Basin Design Recommendations

- One appropriately sized, large detention basin should be constructed across multiple development sites rather than constructing several smaller basins.
- Side slopes should be no steeper than 4H:1V, at least 25 feet wide, planted to native mesic prairie, and stabilized with biodegradable erosion control blanket. Native oak trees *(Quercus sp.*) and other fire-tolerant species should be the only tree species planted on the side slopes. Shrubs should not be planted as they will not tolerate prescribed burning.

- Dry bottom basins should be planted to mesic or wet-mesic prairie depending on site conditions.
- A minimum 10-foot-wide shelf planted with native emergent plugs should extend from the normal water level to 1 foot below normal water level in wet and wetland bottom basins.
- Open water areas in wet and wetland bottom basins should be at least 5 feet deep.
- Irregular islands and peninsulas should be constructed in wet and wetland bottom basins to slow the movement of water through the basin. They should be planted to native wet-mesic or wet prairie depending on elevation above normal water level.

Short Term (3 Years) Native Vegetation Establishment Recommendations

In most cases, the developer or owner should be responsible for implementing short term management of detention basins and other natural areas to meet a set of performance standards. A minimum of three years of management is needed to establish native plant communities within detention basins. Measures needed include mowing during the first two growing seasons following seeding to reduce annual and biennial weeds. Spot herbicide is also needed annually to eliminate problematic non-native/invasive perennial species such as thistle, reed canary grass, common reed, purple loosestrife, and emerging cottonwood, Callery pear, sandbar willow, buckthorn, and box elder saplings. In addition, the inlet and outlet structures should be checked for erosion and clogging during every site visit**. Table 9** includes a three-year schedule appropriate to establish native plantings around naturalized detention basins.

TABLE 9. Three-year vegetation establishment schedule for naturalized detention basins.

Year 1 Establishment Recommendations
Mow prairie areas to a height of 6-12 inches in late May and early September.
Spot herbicide non-native/invasive perennial species throughout the site as needed during the growing season.
Check for clogging and erosion control at inlet and outlet structures during site visits.
Year 2 Establishment Recommendations
Mow prairie areas to a height of 12 inches in June and spot mow thereafter as needed.
Spot herbicide non-native/invasive perennial species throughout the site as needed during the growing season.
Plant additional emergent plugs if needed prior to September 1 and reseed any failed areas as a dormant fall seeding.
Check for clogging and erosion control at inlet and outlet structures during site visits.
Year 3 Establishment Recommendations
Spot herbicide non-native/invasive perennial species throughout the site as needed during the growing season.
Check for clogging and erosion control at inlet and outlet structures during site visits.

Long Term (3 Years +) Native Vegetation Maintenance Recommendations

Long term management of detention basins associated with development should be the responsibility of the local municipality or conservation organization and the land should be donated to such organizations. These organizations often have better knowledge and financial resources to ensure long-term maintenance is performed. **Table 10** includes a cyclical long-term schedule appropriate to maintain native vegetation around detention basins; this schedule starts in year 4 and should be repeated every three years.

TABLE 10. Three-year cyclical schedule for long-term maintenance of naturalized detention basins.

Year 1 of 3 of Maintenance Cycle
Conduct controlled burn in early spring or late fall. Mow to 12 inches in November if burning is restricted.
Spot herbicide problematic perennial non-native/invasive species and spot mow annual and biennial non-native/invasive species throughout the site as needed during the growing season.
Check for clogging and erosion control at inlet and outlet structures during site visits.
Year 2 of 3 of Maintenance Cycle
Spot herbicide problematic perennial non-native/invasive species and spot mow annual and biennial non-native/invasive species throughout the site as needed during the growing season.
Check for clogging and erosion control at inlet and outlet structures during site visits.
Year 3 of 3 of Maintenance Cycle
Spot herbicide problematic perennial non-native/invasive species and spot mow annual and biennial non-native/invasive species throughout the site as needed during the growing season.
Check for clogging and erosion control at inlet and outlet structures during site visits.
Cycle begins again with Year 1 of Maintenance Cycle above

5.1.3 Rain Gardens (New)

Rain gardens have become a popular way of creating a perennial garden that cleans and infiltrates stormwater runoff from rooftops and sump pump discharges. A rain garden is a small shallow depression that is typically planted with deep rooted native wetland vegetation. These small gardens can be installed in a variety of locations but work best when located in existing depressional areas or near gutters and sump pump outlets. Not only do rain gardens clean and infiltrate water, but they also provide food and shelter for many birds, butterflies, and insects. Rain gardens are typically 100-300 square feet in size, should be installed outside of wetlands and floodplains, and planted with native plants to improve water quality and habitat benefits. They should be designed in conjunction with an engineer and an ecologist to assure their size meets the runoff they are collecting and that the plant selections will survive the stormwater inundation time and flow. Soil amendments are usually required to ensure support of native plants. After installation, rain gardens require ongoing maintenance to ensure they are performing properly. Rain gardens can "micro-manage" stormwater runoff as close to the source (like downspouts, driveways, sump pump discharges) as possible.

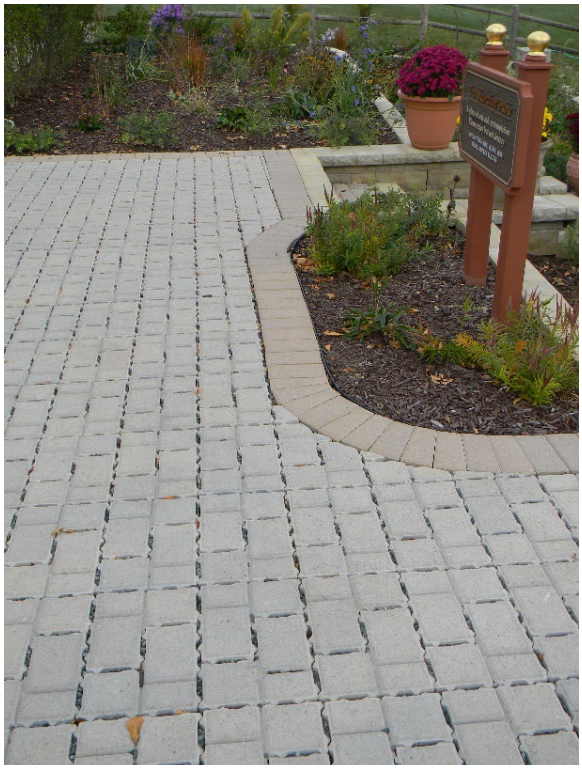
Rain Garden Recommendations

Information programs in the watershed should focus on teaching residents and businesses the beneficial uses of rain gardens and how to build and maintain them. Local governments and public agencies in the watershed should also install demonstration rain gardens as a way for the public to better understand their application. Local governments and the SWCDs could hold rain garden training seminars and potentially provide partial funding to residents and businesses that install rain gardens.

Rain garden adjacent to single family home

5.1.4 Pavement Alternatives (New)

Pervious concrete, permeable asphalt, and paver systems are potential alternatives to conventional asphalt or concrete parking lots and roadways. These alternatives allow for natural infiltration of the water by allowing water that falls on the surface to flow to a storage gallery through holes in the pavement. Areas that are paved with pervious pavement produce less stormwater runoff than conventionally paved areas.



Pervious pavers installed adjacent a park

Traditionally, the quantity and quality of water running off paved and other impermeable surfaces are the primary reason for the need for stormwater treatment. Pavement alternatives reduce runoff rates and volumes and can be used in almost every capacity in which traditional asphalt, concrete, or pavers are used.

Pavement alternatives capture first flush rainfall events and allow water to percolate into the ground. Pavement alternatives treat stormwater through soil biology and chemistry as the water slowly infiltrates. Groundwater and aquifers are recharged and water that might otherwise go directly to streams will slowly infiltrate, reducing flooding and peak flow rates entering drainage channels. Studies documented by USEPA show that

properly designed and maintained pervious pavements reduce total suspended solids (sediment) by 90%, total phosphorus by 65%, and total nitrogen by 85% (MDEQ, 1999).

In recent years, concerns have been raised about the environmental effects of the use of coal-tar sealants. Coal-tar sealant is a surface treatment typically applied to protect asphalt on driveways and parking lots which contains polycyclic aromatic hydrocarbons (PAHs). PAHs are a group of chemicals that have been linked to cancer in humans and have been shown to be toxic to aquatic life and damaging to the environment (Needleman, 2015). According to studies, "PAHs are significantly elevated in stormwater flowing from parking lots and other areas where coal-tar sealcoats were used as compared to stormwater flowing from areas not treated with the sealant (USEPA, 2016)." Pervious concrete, permeable asphalt, and paver systems are all potential alternatives to the need for coal-tar sealants. Additionally, several states and municipalities have banned the use and/or sale of coal-tar sealants to further protect their communities.

Pavement Alternatives Recommendations

Future development and redevelopment in the Woods Creek watershed should consider the use of pavement alternatives, particularly for parking lots that receive high levels of public use. Pavement alternatives can be used in a variety of settings including parking lots, private roads, residential driveways, and sidewalks. It is important to note that there are limitations to using pavement alternatives based on subsoil composition and they do require annual maintenance to remain effective over time.

5.1.5 Vegetated Filter Strips (New)

Vegetated filter strips are shallowly sloped vegetated surfaces that remove suspended sediment, and nutrients from sheet flow stormwater that runs across the surface. This Management Measure is often referred to as a buffer strip. The type of vegetation can dramatically affect the functionality of the filter strip. Filter strips can either be planted or can be comprised of existing vegetation. Turf grass should be avoided as it removes less total suspended solids than filter strips planted with native vegetation.

Filter strip along municipal building in Algonquin, IL

The wider they are the more effective filter strips are because the amount of time water has for interception/ interaction with the plants and soil within the filter strip is increased. When installed and functioning properly, the USEPA has documented that filter strips can reduce total suspended solids (sediment) by 73%, total phosphorus by 45%, and total nitrogen by 40% (MDEQ, 1999).

Vegetated Filter Strip Recommendations

Vegetated filter strips work in a variety of locations. Vegetated filter strips in rural and urban areas should be installed along streams, lakes, or ponds. Additionally, they can be used adjacent to buildings and parking lots that sheet drain. The water would then pass through the vegetated filter strip and into a waterway, such as a vegetated swale, stream, lake, pond, or other stormwater feature.

5.1.6 Natural Area Restoration & Native Landscaping (New)

Native landscaping near residential home

Natural area restoration and native landscaping are essentially one in the same but at different scales. Natural area restoration involves transforming a degraded natural area into one that exhibits better ecological health and is typically done on larger sites such as nature/forest preserves. Native landscaping is done at smaller scales around homes or businesses and is often formal in appearance. Both require the use of native plants to create environments that mimic historic landscapes such as prairie, woodland, and wetland. Native plants are defied as indigenous terrestrial or aquatic plant species that evolved naturally in an ecosystem. The use of native plants in natural areas or native landscaping is well documented. They adapt well to environmental conditions, reduce erosion, improve water quality, promote water infiltration, do not need fertilizer, provide wildlife food and habitat, and have minimal maintenance costs.

Several environmental agencies support the use of native plants including Illinois Nature Preserves Commission (INPC), Illinois Department of Natural Resources (IDNR), McHenry County and Kane County Forest Preserve Districts, the SWCDs, U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), National Wildlife Federation (NWF), and the Conservation Foundation (TCF).

Natural Area Restoration/Native Landscaping Recommendations

Large residential lots with existing natural components such as oak woodlands and wetlands and golf courses provide many of the best opportunities for natural area restoration and native landscaping at a larger scale. Homeowners interested in restoring natural areas or implementing native landscaping can find guidance through the agencies listed above or by contacting a local ecological consulting company. Homeowners need to check with their local ordinances to determine what regulations local municipalities have for installing native vegetation on private property.

Backyard habitats can be certified through the National Wildlife Federation's Certified Wildlife Habitat program or Conservation Foundation's Conservation@Home program.

5.1.7 Wetland Restoration (New)

Wetland restoration at Carrington Reserve Conservation Development in West Dundee, Illinois

Over 1,056 acres or 71% of the historic wetlands in Woods Creek watershed have been lost to farming and other development practices since European settlement in the 1830s. Wetlands are essential for water quality improvement and flood reduction in any watershed and provide habitat for a wide variety of plant and animal species.

Over 203 acres of drained wetlands were discovered in areas of the watershed where wetland restoration might be possible. These areas are located on land that is either part of the existing floodplain, currently in agricultural production, or slated for a land use change in the future. The wetland restoration process involves returning hydrology (water) and vegetation to soils that once supported wetlands. The USEPA estimates that wetland restoration projects can reduce suspended solids (sediment) by 77.5%, total phosphorus by 44%, and total nitrogen by 20% (MDEQ, 1999).

Wetland Restoration Recommendations

Local governments should strongly consider requiring Conservation Design that incorporates wetland restoration on parcels slated for future development. Another potential option is to restore wetlands as part of a wetland mitigation bank where wetlands are restored on private land. Then, developers can buy wetland mitigation credits from the wetland bank for wetland impacts occurring elsewhere in the watershed. It is also possible that in the future, Illinois EPA may require more strict nutrient policies for wastewater treatment plants. Wetland banks may provide an opportunity for WWTP owners to buy water quality trading credits. The Site-Specific Action Plan section of this report identified sites where wetland restoration might be feasible.

5.1.8 Tree Planting Program (New)

Trees provide extensive evapotranspiration and cooling benefits, improve water and air quality, provide habitat, increase property values, and improve aesthetics in urban landscapes (see **Figure 9**). Trees play a valuable role in absorbing stormwater, reducing pollutants, and holding soil in place during rain events and help to recharge groundwater supplies. A 25-foot canopy diameter tree can

process the runoff of a 2,400 square foot adjacent impervious surface (EPA, 2016). Depending on the size and species, one tree can store 100 gallons or more of stormwater (Fazio, 2010).

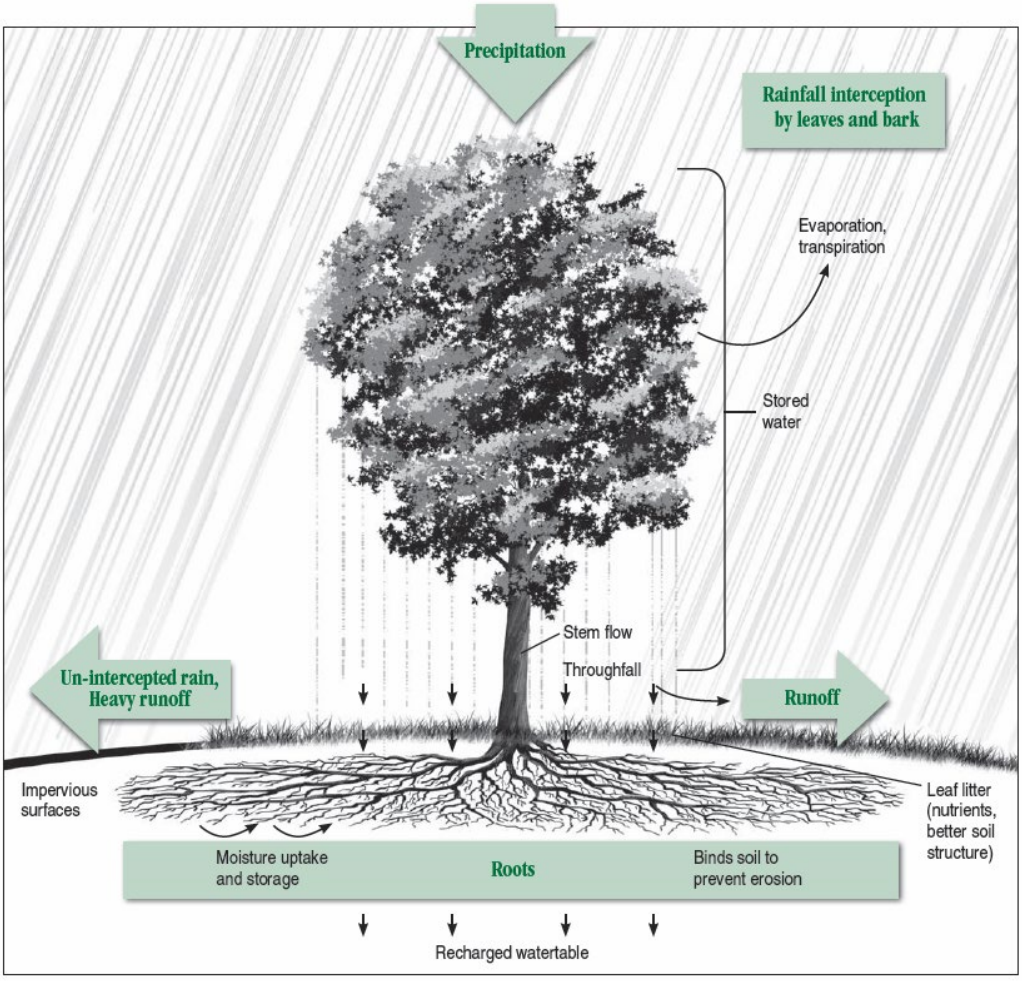


FIGURE 9. Illustration of how trees help with stormwater management. (Source: Fazio, 2010).

Implementing a successful tree program can be complicated. Space and soil quality constraints can often be the limiting factors on whether a site is appropriate for installing trees. Other constraints include finding an appropriate species of tree, steep slopes, utility lines, impervious surfaces, and pre-existing structures. With a little planning and engineering, many of these constraints can be overcome. In 2016, USEPA produced a Technical Memorandum on Stormwater Trees that provides detailed information on the benefits and challenges to implementing an effective program and maintaining the trees over time. This report is available on the USEPA's website at https://www.epa.gov/green-infrastructure/stormwater-trees.

Municipalities in the watersheds should consider adopting a tree planting program where these are not already in place.

5.1.9 Street Sweeping & Yard Waste Management (new)

Street sweeping is often overlooked as a Management Measure option to reduce pollutant loading in watersheds. Municipal street sweeping programs could significantly reduce non-point source pollutants from urban areas in Woods Creek watershed. Street sweeping works because pollutants such as sediment, trash, road salt, oils, nutrients, and metals that would otherwise wash into stormsewers and streams following rain events are gathered and disposed of properly. The USEPA and Center for Watershed Protection (CWP) report similar pollutant removal efficiencies for street sweeping; weekly street sweeping can remove between 9% and 16% of sediment and between 3% and 6% of nitrogen and phosphorus (MDEQ, 1999; CWP 2017).

Yard waste, such as grass clipping and leaf litter, can also impact water quality when not managed correctly. "Grasscycling and composting are two techniques homeowners can use to reduce waste disposal and possible water contamination as well as save time, money and energy while returning valuable nutrients back into their lawns and gardens. (Gibb, 2012)" Composting of yard waste and grasscyclying, or leaving grass clippings on a lawn, can keep nutrients such as nitrogen in place. When grasscycling or composting, it is important to keep clippings on the lawn and off sidewalks, driveways, or other impervious surfaces where they might otherwise get washed into adjacent drainage systems or become a safety hazard (Gibb, 2012).

Routine street sweeping is an effective Management Measure

Street Sweeping Recommendations

It is likely that several if not all the municipalities in the watershed already implement street sweeping to some degree. The frequency of street sweeping is a matter of time and budget and should be determined by each municipality. Weekly street sweeping would provide the best results, but bi-weekly sweeping is cited as being sufficient in most cases. Homeowners should also compost yard waste and practice grasscycling at home.

5.1.10 Stream & Riparian Area Restoration & Maintenance (New)

Stream and riparian area restoration is one of the best Management Measures that can be implemented to improve degraded stream and riparian area conditions. This work involves improvements to a stream channel using artificial pool-riffle complexes, streambank stabilization using a combination of bioengineering with native vegetation and hard armoring with rock if needed. Adjacent riparian areas should also be improved via removal of non-native vegetation and replacement with native species. These practices are typically done together to improve water

quality by reducing sediment transport, increasing oxygen, and improving habitat. The USEPA cites that as much as 90% of sediment, phosphorus, and nitrogen can be reduced following stream restoration. Stream restoration projects include detailed construction plans, regulatory permitting, and construction that must be done by a qualified contractor. Stream maintenance includes an ongoing program to remove blockages caused by accumulated sediment, fallen trees, etc. and is a cost-effective way to prevent flooding and streambank erosion.

Woods Creek Reach 3 restoration in Algonquin

Riparian buffers are defined as land adjoining any water body including ponds, lakes, streams, and wetlands. In 2010 the Southeastern Wisconsin Regional Planning Commission (SEWRPC) produced a document entitled "Managing the Water's Edge: Making Natural Connections" (SEWRPC, 2010). The research presented in SEWRPC's document was conducted to determine if an optimal riparian buffer design or width could be determined that effectively reduces pollutants, provides water quality protection, helps prevent channel erosion, provides adequate fish and wildlife habitat, enhances environmental corridors, augments baseflow, and moderates water temperature.

No consensus of optimal buffer width could be determined but what is apparent is that many riparian corridors no longer fulfill their potential due to encroachment by agricultural and urban development. SEWRPC's document summarizes how to maximize both water quality protection and conservation of aquatic and terrestrial wildlife populations using buffers as shown in **Figure 10**.

As described in SERWPC's document, implementing the green infrastructure network to connect open space and other natural area features should be embraced, whereby 75% minimum of the total stream length should be naturally vegetated to protect the functional integrity of the water resource and 75-foot-wide minimum riparian buffers are recommended from the top edge of each stream bank that are naturally vegetated to protect water quality.

Stream & Riparian Area Recommendations

There are many opportunities to implement stream and riparian area restoration in the watershed. All stream and riparian area opportunities are identified in the Site-Specific Action Plan. It is also important to note that not all debris in streams is harmful. The American Fisheries Society has created a short document called "Stream Obstruction Removal Guidelines" which is meant to clarify the appropriate ways to maintain obstructions in streams to preserve fish habitat.

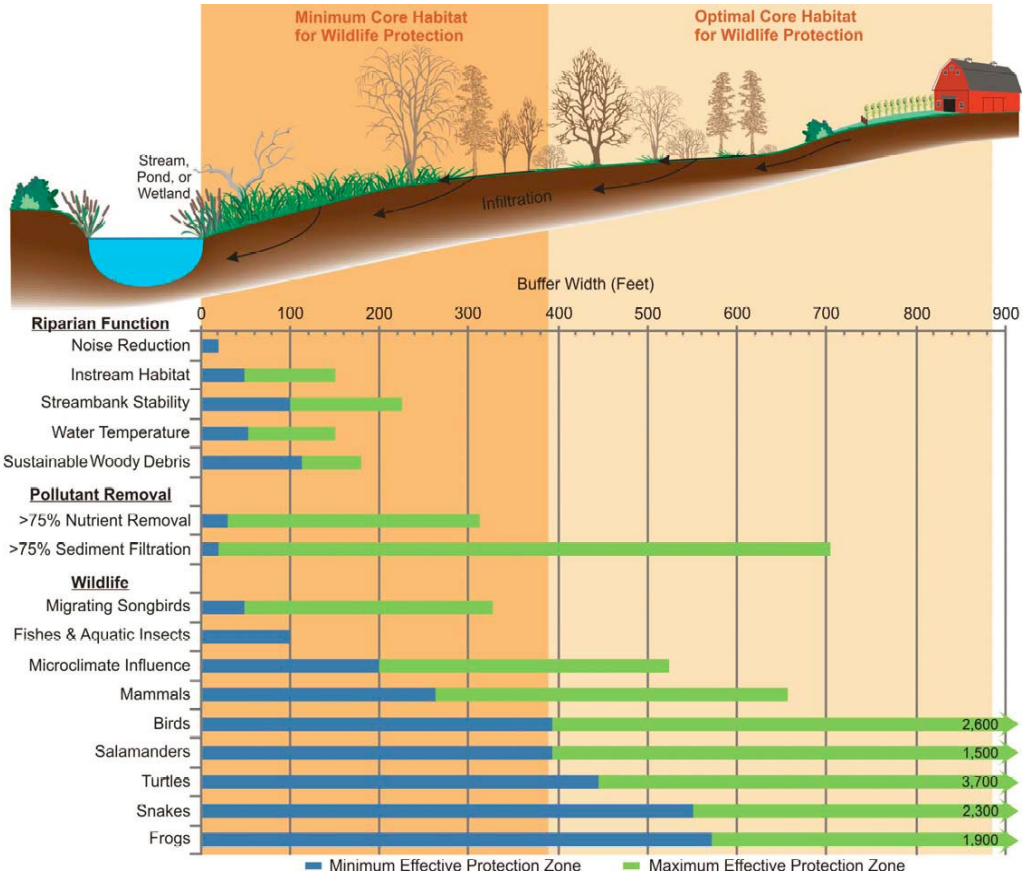


FIGURE 10. Riparian benefits for various buffer widths. (Source: SEWRPC, 2010)

5.1.11 Septic System Maintenance (New)

Septic systems in McHenry and Kane County are managed by the respective County Health Departments. When septic systems are not maintained and subsequently fail, they can contribute high levels of nutrients and bacteria to the surrounding environment. The failure rate of septic systems in the watershed is unknown. However, literature sources across the nation indicate a failure rate of approximately 20% (Brown, 1998; Mancl, 1984; Stout, 2003; UKCE, 2012).

Septic System Recommendations

Septic owners should contact the McHenry or Kane County Health Department to schedule a septic system inspection to ensure that they are designed and operating properly. More information and resources are available online at https://www.mchenrycountyil.gov/departments/health-department/environmental-health/onsite-wastewater-treatment for McHenry County or https://www.kanehealth.com/Pages/Septic-Sewage.aspx for Kane County. USEPA also provides an excellent guide for septic system owners called "A Homeowner's Guide to Septic Systems (USEPA,

2005)." The guide explains how septic systems work, why and how they should be maintained, and what makes a system fail.

5.1.12 Agricultural Management Practices (New)

While small pockets of agriculture remain in the watershed today, local comprehensive plans suggest that these remaining agricultural areas will be phased out and developed in the future. Agricultural recommendations are provided here as a guide because watershed-wide changes to agricultural practices can have a dramatic effect on pollutant loading in the watershed. Fortunately, there are numerous agricultural measures and funding sources that can be utilized by farmers to implement practices on their land to improve water quality and soil health, while reducing soil and nutrient losses. Many recommended programs are offered through the local county Soil and Water Conservation Districts (SWCD), U.S. Department of Agriculture (USDA) Natural Resource Conservation Program (NRCS), and Farm Service Agency (FSA).

Conservation Tillage (no till) farming

No-till is a land management option within the EQIP program and is the leading recommendation for farmers in Woods Creek watershed. With no-till, the land is left undisturbed from harvest through planting, preserving a canopy of crop residue on the surface to protect the soil from erosion. Along with soil conservation benefits, high fuel prices are driving a switch to no-till for many farmers. Eliminating tillage passes reduces both fuel and labor expenses (USDA, 2020).

Agricultural Conservation Easement Program (ACEP)

The Agricultural Conservation Easement Program (ACEP) assists landowners, land trusts, and other entities to protect, restore, and enhance wetlands, grasslands, and working farms and ranches through conservation easements. There are two components to ACEP, the Agricultural Land Easements component and the Wetland Reserve Easement component. The NRCS Agricultural Land Easements component helps American Indian tribes, state and local governments, and nongovernmental organizations protect working agricultural lands and limit non-agricultural uses

of the land. NRCS Wetland Reserve Easements component, helps to restore, protect, and enhance enrolled wetlands through the purchase of easements and assistance in restoration (NSAC, 2019).

ACEP - Wetland Reserve Easements (WRE)

The Wetlands Reserve Easement program (WRE) is a voluntary program offering farmers the opportunity to protect, restore, enhance, and protect wetlands on their property. The NRCS provides technical and financial support to help landowners with their wetland restoration efforts. The goal of NRCS is to achieve the greatest wetland functions and values, along with optimum wildlife habitat, on every acre enrolled in the program. This program offers landowners an opportunity to establish long-term conservation and wildlife practices and protection. Land that's eligible for enrollment in ACEP as a Wetland Reserve Easement includes farmed or converted wetland that can be successfully restored as natural wetland habitat in a cost-effective manner. NRCS prioritizes applications for Wetland Reserve Easements based upon their potential for protecting and enhancing habitat for migratory birds and other wildlife. Wetland reserve easements enable landowners to reduce impacts from flooding, recharge groundwater, enhance and protect wildlife habitat and provide outdoor recreational and educational opportunities. Producers can retain grazing rights as part of a wetland easement if the grazing activity is consistent with long-term wetland protection and enhancement goals for which the easement was established. The easement payment would be reduced by an amount equal to the grazing value (USDA, 2020).

ALE- Agricultural Land Easements (ALE)

The purpose of the Agricultural Land Easement (ALE) component is to protect farms and ranches from development, specifically to ensure farm viability for future generations, and to conserve grazing land, rangeland, pasture and shrub land. NRCS provides financial assistance to eligible partners for purchasing Agricultural Land Easements that protect the agricultural use and conservation values of eligible land. In the case of working farms, the program helps farmers and ranchers keep their land in agriculture. The program also protects grazing uses and related conservation values by conserving grassland, including rangeland, pastureland and shrubland. Eligible partners include American Indian tribes, state and local governments and non-governmental organizations that have farmland, rangeland or grassland protection programs. For Agricultural Land Easements, NRCS can contribute up to 50% of the fair market value of the agricultural land easement. Where NRCS determines that grasslands of special environmental significance will be protected, NRCS may contribute up to 75% of the fair market value of the agricultural land easement. Eligible entities can now include cash contributions, landowner contributions, or other non-USDA federal funding to satisfy the match requirements.

Farm Service Agency (FSA)- Conservation Reserve Program (CRP)

The USDA Farm Service Agency's (FSA) CRP is a voluntary program that contracts agricultural producers so that environmentally sensitive agricultural land is devoted to conservation benefits. The Food Security Act of 1985, as amended, authorized CRP. The program is implemented by FSA on behalf of USDA's Commodity Credit Corporation. In exchange for a yearly rental payment, farmers

enrolled in the program agree to remove environmentally sensitive land from agricultural production and plant species that will improve environmental health and quality. Contracts for land enrolled in CRP are 10-15 years in length.

CRP participants establish long-term, resource-conserving vegetative species, such as approved grasses or trees (known as "covers"), to control soil erosion, improve the water quality and enhance wildlife habitat. The long-term goal of the program is to re-establish valuable land cover to help improve water quality, prevent soil erosion, and reduce loss of wildlife habitat. CRP protects millions of acres of American topsoil from erosion and is designed to safeguard the nation's natural resources. By reducing water runoff and sedimentation, CRP protects groundwater and helps improve the condition of lakes, rivers, ponds and streams. The vegetative covers also make CRP a major contributor to increased wildlife populations in many parts of the country.

Additionally, there is a CRP Grasslands program which helps landowners and operators protect grassland, rangeland, and pastureland while maintaining the areas as grazing lands. The program emphasizes support for grazing operations, plant and animal biodiversity, and grassland and land containing shrubs and forbs under the greatest threat of conversion.

Grass waterway on highly erodible soils

The following conservation practices are eligible under CRP, and thus land must be suitable for any of these practices: Grass Waterway, Shallow Water Area for Wildlife, Contour Grass Strip, Filter Strip, Riparian Buffer, Denitrifying Bioreactor on Filter Strip and Riparian Buffer, Saturated Filter Strip and Riparian Buffer, Habitat Buffers for Upland Birds, Wetland and Buffer SAFE Practices, Wetland Restoration on Floodplain and Non-Floodplain, Prairie Strips, Windbreaks, Shelterbelts, Living Snow Fences, Marginal Pastureland Wetland Buffer and Wildlife Habitat Buffers, Long Leaf Pine Establishment, Duck Nesting Habitat, Pollinator Habitat, Bottomland Timber Establishment on Wetlands, Farmable Wetlands Program (FWP) Constructed Wetland, FWP Aquaculture Wetland Restoration, FWP Flooded Prairie Wetland, Farmable Wetlands and Farmable Wetland Buffer, and Wellhead Protection Area Practices.

Principles of Soil Health

Improving water quality in runoff from agricultural lands can often be achieved by maintaining soil health and following soil health principles. There are five principles of soil health; they include soil armor, minimizing soil disturbance, plant diversity, continual live plant/root, and livestock integration. Armoring the soil refers to cover for the soil and controls erosion and evaporation rates,

maintains soil temperatures, reduces compaction, suppresses weed growth and provides habitats for species. Minimizing soil disturbance reduces erosion, increases infiltration, and helps keep organic matter in the soil. Diversifying crop rotations can improve biodiversity, improve infiltration and nutrient cycling, and reduce pests. Providing some type of live plant root on a year-round basis is important for building soil health, ensuring that there is food for the soil web continuously throughout the year. Finally, integrating animals or livestock in the form of grazing can help balance the carbon to nitrogen ration, manage crop rotation, and help suppress weeds by fulfilling the natural symbiotic relationships between plants, animals, and the soil web (Fuhrer, 2018). Landowners should work with their local USDA-NRCS representative and cropping consultants to implement a system that will work for them.

Regenerative Agriculture

Regenerative agriculture promotes a method of farming that encourages the regeneration of topsoil, improves water quality, increases biodiversity, and supports carbon sequestration in effort to mitigate the effects of climate change (Terra Genesis International, 2016). The practice is guided by a holistic approach of making appropriate, context-specific recommendations for farmers based on agroecology and restoration ecology methodologies with the goal of rebuilding quantity and quality of topsoil while creating equitable and just relationships amongst all stakeholders. By rebuilding soil organic matter and soil health, yields should increase, and fewer inputs should be needed over time. Simultaneously, the improved biomass helps to sequester carbon and offset greenhouse gases, while the reduced disturbance of the soil improves water quality (Regeneration International, 2019). Many of the practices involved are recommended by NRCS, the county Soil and Water Conservation Districts, and the principles of soils health. Potential practices include "no-till/minimum tillage techniques, the use of cover crops, crop rotations, compost, and animal manures, the inoculation of soils with composts or compost extracts to restore soil microbial activity, and managed grazing (CSU Chico, 2017)."

The regenerative agriculture approach, research, and methodologies are evolving and need to be tailored to the context of individual farms. Many sources of additional information are available including online resources available from Regeneration International, Terra Genesis International, and California State University – Chico, among others.

5.1.13 Downspout Disconnection/Rainwater Harvesting & Re-use (New)

Downspout disconnection and rain barrel programs help to reduce the amount of stormwater that travels downstream. Water harvesting and re-use via rain barrels and cisterns are important options to decrease the amount of stormwater runoff in a watershed. It is a simple, economical solution that can be done by any homeowner or business. On most homes and buildings, the storm water from roofs flows into downspouts and then onto streets, parking areas, and into storm sewers. Disconnecting downspouts and using either rain barrels or cisterns for stormwater re-use later can reduce the flood levels in local streams.

Water re-use differs based on the type of storage and treatment. A rain barrel is typically attached to a downspout and collects water for later use, such as irrigation purposes. In some areas, irrigation can account for almost 50 percent of residential water consumption. Re-using water collected in a rain barrel is a great way of minimizing outdoor water consumption and reducing water bills.

A cistern also stores water from rooftop runoff to be used later. However, a cistern is often larger, sealed, and the water can be filtered for a wider variety of uses. Cistern water can be used many outdoor uses such as lawn and garden watering, irrigation, car washing, and window cleaning.

The primary purpose of rain barrels and cisterns is water storage. Rain barrels typically store 55 gallons each. Cisterns can store greater amounts. Rain barrels and cisterns also reduce outdoor water demand in summer months by reducing the potable water used for irrigation or other outdoor household uses.

Rain barrel adjacent to residential home

Rainwater Harvesting & Reuse Recommendations

Education programs in the watershed should focus on teaching residents and businesses the beneficial uses of downspout disconnection, rain barrels and cisterns. Local governments in the watershed can install demonstration projects as a way for the public to better engage in their water use and re-use around residential homes and businesses.

5.1.14 Conservation Design & Low Impact Development (New)

Conservation design facilitates development density needs while preserving the most valuable natural features and ecological functions of a site. One way to do this is by reducing the lot size while increasing the available land area to allow for open space and natural resources (**Figures 13-15**). Open space is typically preserved or restored as natural areas that are integrated with Stormwater Treatment Train features and recreational trails. They also serve as an amenity to the entire development. The open space allows the residents to feel like they have larger or more private lots because most of the lots adjoin the open space system.

FIGURE 11. Conservation development concept plan in Algonquin (Source: Lennar, 2023).

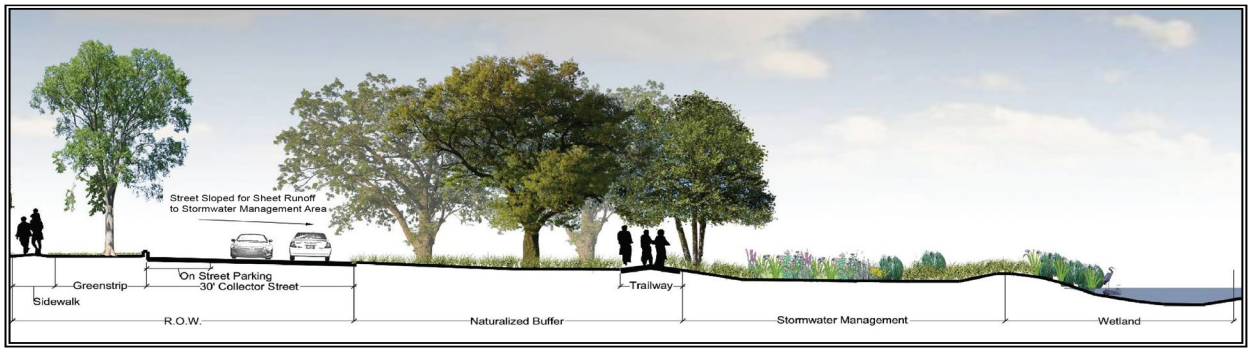


FIGURE 12. Stormwater Treatment Train within Conservation Development.

FIGURE 13. Conservation/Low Impact development design.

Conservation design can help to retain or increase the development rights of the property owner and the number of occupancy units permitted by the underlying zoning designation, while encouraging environmentally responsible development. Conservation design is most appropriate in areas having natural and open space resources to be protected and preserved such as floodplains, groundwater recharge areas, wetlands, woodlands, streams, wildlife habitat, etc. It can also be used to preserve and integrate agricultural uses into the land pattern. The approach first considers the natural landscape and ecology of a development site rather than determining design features based on pre-established density criteria. The general steps included below are generally followed when designing the layout of a development site:

Step 1: Identify natural resources, conservation areas, open space areas, physical features, and scenic areas and preserve and protect these areas from any negative impacts generated because of the development.

Step 2: Locate building sites to take advantage of open space and scenic views by requiring smaller lot sizes or cluster housing as well as to protect the development rights of the property owner and the number of occupancy units permitted by the underlying zoning of the property.

Step 3: Design the transportation system to provide access to building sites and to allow movement throughout the site and onto adjoining lands; roads should not traverse sensitive natural areas.

Step 4: Prepare engineering plans which indicate how each building site can be served by essential public utilities.

Low impact development (LID) focuses on the hydrologic impact of development and tries to maintain pre-development hydrologic systems, treating water as close to the source as possible (see **Figure 16**). LID principles can be incorporated into development or stormwater ordinances and used in new development or retrofitting existing developments. Green infrastructure systems are created to mimic natural processes that promote water infiltration, native plant evapotranspiration, and stormwater reuse.

FIGURE 14. Greener streetscape using LID practices (Source: "Greening the Code", Washington County, OR).

Low impact development seeks to keep stormwater out of pipes and instead keep the entire infrastructure more natural and above ground. Solutions start at the lot scale such as rain gardens and overflows to swales adjacent to roads. Larger impervious areas, such as commercial development, may utilize constructed wetlands for stormwater storage while adding value to the area by enhancing aesthetics, site interest, and ecological health. Entities such as Milwaukee Metropolitan Sewerage District have been influential in determining pollutant reductions for various LID methodologies.

Both conservation developments and low impact developments (LID) are not only environmentally sound choices, but economical ones for both developers and municipalities. Conservation design can produce some of its biggest cost savings in infrastructure costs such as site preparation, stormwater management, site paving, and sidewalks (Conservation Research Institute, 2005). According to a study conducted by Applied Ecological Services, Inc., the average savings created by choosing conservation development over more traditional footprints is 24% (**Table 11**) (AES, 2007). Not only do lots in conservation developments typically cost less to install, but they also "carry a price premium … and sell more quickly than lots in conventional subdivisions (Mohamed, 2006)." Another

study conducted in Concord, Massachusetts found that over an eight-year period, a cluster development with protected open space had a 2.6% higher annual appreciation rate over "residential properties with significantly larger private yards, but without the associated open-space (Lacy, 1990)."

TABLE 11. Savings of Conservation Design over traditional subdivision design for 10 Midwestern conservation development projects (AES, 2007).

Positive numbers are savings of Conservation Development over Traditional.
Negative numbers are costs of Conservation Development over Traditional.

Project:	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	Average
ITEM											
Grading	-$214,740	$257,832	$1,813,726	$2,215,025	$1,856,206	$1,862,988	$796,705	$291,957	$302,497	$2,852,312	51.00%
Roadway	$84,702	$18,754	-$16,477	-$130,230	$1,464,599	$1,187,386	$205,168	$9,231	-$9,963	$801,484	18.00%
Storm Sewer	$181,611	$31,220	$6,648	$89,676	$974,689	$547,184	$210,289	$65,501	$110,021	$678,302	40.00%
Sanitary Sewer	$41,614	-$4,365	$0	-$203,064	$850,962	$224,776	$72,436	-$15,502	$5,960	$423,458	6.00%
Water	$44,483	-$4,671	-$63,680	-$215,881	$905,157	$240,064	$76,815	-$16,257	$5,973	$451,084	5.00%
Ecological	-$56,500	-$74,857	-$277,472	-$400,321	-$407,131	-$625,084	-$160,341	-$93,954	-$264,513	-$380,992	-154.00%
Amenities	$17,572	-$16,202	-$94,399	-$226,216	$552,667	$221,666	$7,825	-$15,749	-$39,274	$266,982	6.00%
Contingencies	$132,055	$51,928	$342,087	$282,247	$1,549,287	$914,745	$302,225	$56,307	$27,675	$1,273,157	24.00%
Total Savings	$660,277	$259,639	$1,710,433	$1,411,235	$7,746,436	$4,573,725	$1,511,124	$281,534	$138,377	$6,365,787	
Total Percent Savings	19.00%	20.00%	33.00%	15.00%	43.00%	32.00%	25.00%	15.00%	4.00%	37.00%	24.30%*
Cost Savings Per Lot	$8,725.00	$6,978.00	$147,012.00	$29,012.00	$7,904.00	$20,077.00	$7,346.00	$4,078.00	$4,959.00	$67,676.00	$30,376.70

* Total Savings Percentage is *not* the percentage savings of all individual Items added together, because dollar-values of Items are different.
Visit www.appliedeco.com for more detailed info.

While low impact development covers a range of stormwater practices, it has some of the same cost benefits as conservation design. Typically LID practices "can cost less to install, have lower operations and maintenance costs, and provide more cost-effective stormwater management and water-quality services than conventional stormwater controls (ECONorthwest, 2007)." Like conservation design, cost savings from utilizing LID practices can be found as a reduction in the amount of drainage infrastructure and land disturbance required; additionally, property values can be increased by 12 - 16% (UNH Stormwater Center, 2011).

There is also evidence that combining both conservation and low impact development practices through holistic site design can create deeper cost savings for developers as well as increased ecosystem benefits – particularly by combining clustered site designing and naturalized stormwater management systems (Conservation Research Institute, 2005). Not only do conservation and low impact development practices provide a more economical possibility for developers and municipalities, but they can improve water quality, habitat, and property values in the watershed.

5.1.15 Green Infrastructure Network Planning (New)

A green infrastructure network provides communities with a tool to identify and prioritize open space land use or conservation opportunities and plan development that benefits both people and nature by providing a framework for future growth. It identifies areas not suitable for development, areas suitable for development but that should incorporate conservation or low impact design standards, and areas that do not affect green infrastructure.

Park Districts, Forest Preserve Districts, IDNR, and watershed stakeholders can use green infrastructure plans for trail routing, open space linkages, and natural area restoration decisions. Residents can use green infrastructure recommendations to reduce runoff from their properties and to see how their properties fit into the larger network. A Green Infrastructure Network for the watershed was developed in Section 3.9.

Green Infrastructure Network *implementation* has several actions:

- Protect specific unprotected green infrastructure parcels through acquisition, regulation, and/or incentives.
- Incorporate conservation or low impact design standards on green infrastructure parcels where development is planned.
- Incorporate agricultural preservation and enhanced agricultural best management practices on green infrastructure parcels where appropriate.
- Limit future subdivision of green infrastructure parcels.
- Implement long-term management of green infrastructure.

Green Infrastructure Recommendations

A Green Infrastructure Network can only be realized by coordinated planning efforts of local municipalities, park districts, developers, and private landowners. Stakeholders should follow the recommended process below to initiate and implement the Green Infrastructure Network for the Woods Creek watershed.

- Include all green infrastructure parcels in updated community comprehensive plans and development review maps.
- Utilize tools such as protection overlays, setbacks, open space zoning, conservation easements, conservation and/or low impact development, agricultural preservation, etc. on all green infrastructure parcels.
- Utilize tools such as Development Impact Fees, Stormwater Utility Taxes, Special Service Area (SSA) Taxes, etc. to help fund future management of green infrastructure components where new and redevelopment occurs.
- Identify important unprotected green infrastructure parcels not suited for development then protect and implement long term management.
- Work with private landowners along stream/tributary corridors to manage their land for green infrastructure benefits.

- Use the Green Infrastructure Network to identify new trails and trail connections.

5.1.16 Water Quality Trading & Adaptive Management (New)

While Illinois has not yet set up policies or a system to implement water quality trading or adaptive management, nearby Wisconsin has developed policies and several resources for both, and their guidance could be used as a model to follow in Illinois. The following information is cited directly from a Wisconsin Department of Natural Resources (WDNR) document entitled "A Water Quality Trading How to Manual" (WDNR, 2013).

Water Quality Trading presents a way for municipal and industrial NPDES permit holders to demonstrate compliance with water quality-based effluent limitations. Generally, trading involves a point source facing relatively high pollutant reduction costs compensating another party to achieve less costly pollutant reduction with the same or greater water quality benefit. In other words, trading provides point sources with the flexibility to acquire pollutant reductions from other sources in the watershed to offset their point source load so that they will comply with their own permit requirements, while simultaneously helping to fund water quality improvements nearby. Trading is not a mandatory program or regulatory requirement, but rather a market-based option that may enable some industrial and municipal facilities within the watershed to meet regulatory requirements more cost-effectively. With ever-tightening water quality standards and restrictions going into effect, trading may become economically preferable to other compliance options.

There are many benefits to trading:

- Permit compliance through trading may be economically preferable to other compliance options.

- New and expanding point source discharges can utilize trading to develop new economic opportunities in a region, while still meeting water quality goals.

- Permittees, and the point and nonpoint sources that work cooperatively with them, can demonstrate their commitment to the community and to the environment by working together to protect and restore local water resources.

Adaptive management is sometimes confused with trading since both options allow permittees to work with nonpoint or other point sources of phosphorus in a watershed to reduce the overall phosphorus load to a given waterbody. In Wisconsin, which has developed a numeric phosphorus criterion, adaptive management is solely focused on phosphorus compliance and improving water quality so that the applicable phosphorus criterion is met. Trading is not limited to phosphorus and may be used to meet limits for any pollutant for which a criterion has been established. Trading focuses on compliance with a discharge *limit* while adaptive management focuses on compliance with phosphorus *criteria.*

Water quality trading has seven components: pollutant, trading participants, pollution reduction credit, credit threshold, trade ratio, location, and timing (**Figure 17**). Each of these components must be adequately addressed in a trading strategy. The "pollutant" is simply the contaminant being traded. The "trading participants" are entities involved in the trade. "Credit" is the amount of a given pollutant that is available for trading. "Credit Threshold" is the amount of pollutant reduction that needs to be achieved before credits are generated. "Trade ratios" are put in place due to uncertainty margins. "Location" refers to the fact that the credit user and generator must discharge to the same waterbody. "Timing" is important because credits must be generated before they can be used to offsite the pollution.

For more information and guidance on water quality trading and adaptive management, see Wisconsin Department of Natural Resources (WDNR) document entitled "A Water Quality Trading How to Manual" (WDNR, 2013).

FIGURE 15. Water quality trading components (Source: WDNR).

5.2 Site-Specific Measures Action Plan (Update)

Over 200 Site-Specific Management Measures (Best Management Practices) were assessed and listed by jurisdiction with recommendations backed by findings from the 2013 watershed field inventory. In the ten years since the plan was completed, many projects have been implemented by multiple entities and the watershed has seen marked improvement in ecological conditions. Additionally, a limited watershed field reassessment inventory was conducted (within the Village of Algonquin) as well as input gathered from stakeholders to identify new projects and updates to some past projects. While many of the projects listed in the original 2013 plan are still valid, new and updated projects are shown in **Table 12**. The vast majority of these are detention basin retrofits, followed by a few stream and riparian area restorations. The Site-Specific Measures Action Plan Update is organized by jurisdiction with significant detail and estimated pollutant reduction and cost. This makes it easy for users to identify project sites and valuable supporting details.

5.2.1 Detention Basin Retrofits & Maintenance (Update)

During the reassessment, 101 detention basin retrofit opportunities were assessed within the Algonquin portion of Woods Creek watershed. Updated recommended detention basin retrofits and/or maintenance recommendations are shown in **Figure 18** by priority and Site ID# which correspond with the ID# used in the field investigation. In total, there were 27 detention basins identified as High Priority/Critical Areas. Details about each recommendation can be found in the Action Plan Table (**Table 12**) within the appropriate jurisdictional boundary. All the High priority

recommendations are considered Critical Areas. Most of these basins were prioritized based on their ability to treat polluted stormwater runoff, have significant problems, or present a good opportunity for retrofitting. Low or Medium priority is generally assigned to smaller private basins and those with fewer problems or maintenance needs.

During the Woods Creek watershed plan update process, 40 detention basins were identified by the Village of Algonquin as being prioritized for future acquisition with the intent of restoring and managing them for green infrastructure benefit. These basins are mapped on **Figure 19** and include Site IDs 6-8, 17-21, 23, 29-33, 39-53, 68-70, 88, and 90-93.

5.2.3 Streambank & Channel Recommendations and 5.2.4 Riparian Area Restoration & Maintenance (Update - Combined)

During the reassessment, some stream reaches within the Village of Algonquin were updated during the field inventory for the watershed plan update. Updated recommended streambank and riparian area restoration recommendations are shown in **Figure 20** by priority and Site ID# which correspond with the ID# used in the field investigation. In total, there were eight reaches identified as Critical Area/High Priority for restoration, 1 reach identified as low priority, and 6 previously restored stream reaches identified as Critical Maintenance. Details about each recommendation can be found in the Action Plan Table (**Table 12**) within the appropriate jurisdictional boundary. All the High priority recommendations are considered Critical Areas.

5.2.6 Priority Green Infrastructure Protection Areas (Update)

The Village of Algonquin supplied updates to their Priority Green Infrastructure Protection Areas. Updated recommended Priority Green Infrastructure Protection Areas are shown in **Figure 21** by priority and Site ID# which correspond with the ID# assigned by the Village of Algonquin. In total, there were 22 Critical Area/High Priority parcels identified as Priority Green Infrastructure Protection Areas (700.8 acres). Details about each recommendation can be found in **Table 12** by project type. All 22 parcels are considered Critical Area/High Priority based on their importance in preserving the Green Infrastructure Network in the future.

5.2.7 Other Management Measures (Update)

The Village of Algonquin supplied updates to their Other Management Measure Recommendations. Updated recommended other management measure recommendations are shown in **Figure 22** by priority and Site ID# which correspond with the ID# assigned by the Village of Algonquin. In total, there were 4 Critical Area/High Priority other management measures, 3 medium, and 1 low priority other management measures. Details about each recommendation can be found in **Table 12** by project type. Most of these were prioritized based on their ability to treat polluted stormwater runoff, have significant problems, or present a good opportunity for restoration. Low priority is generally assigned to areas with less urgent concerns.

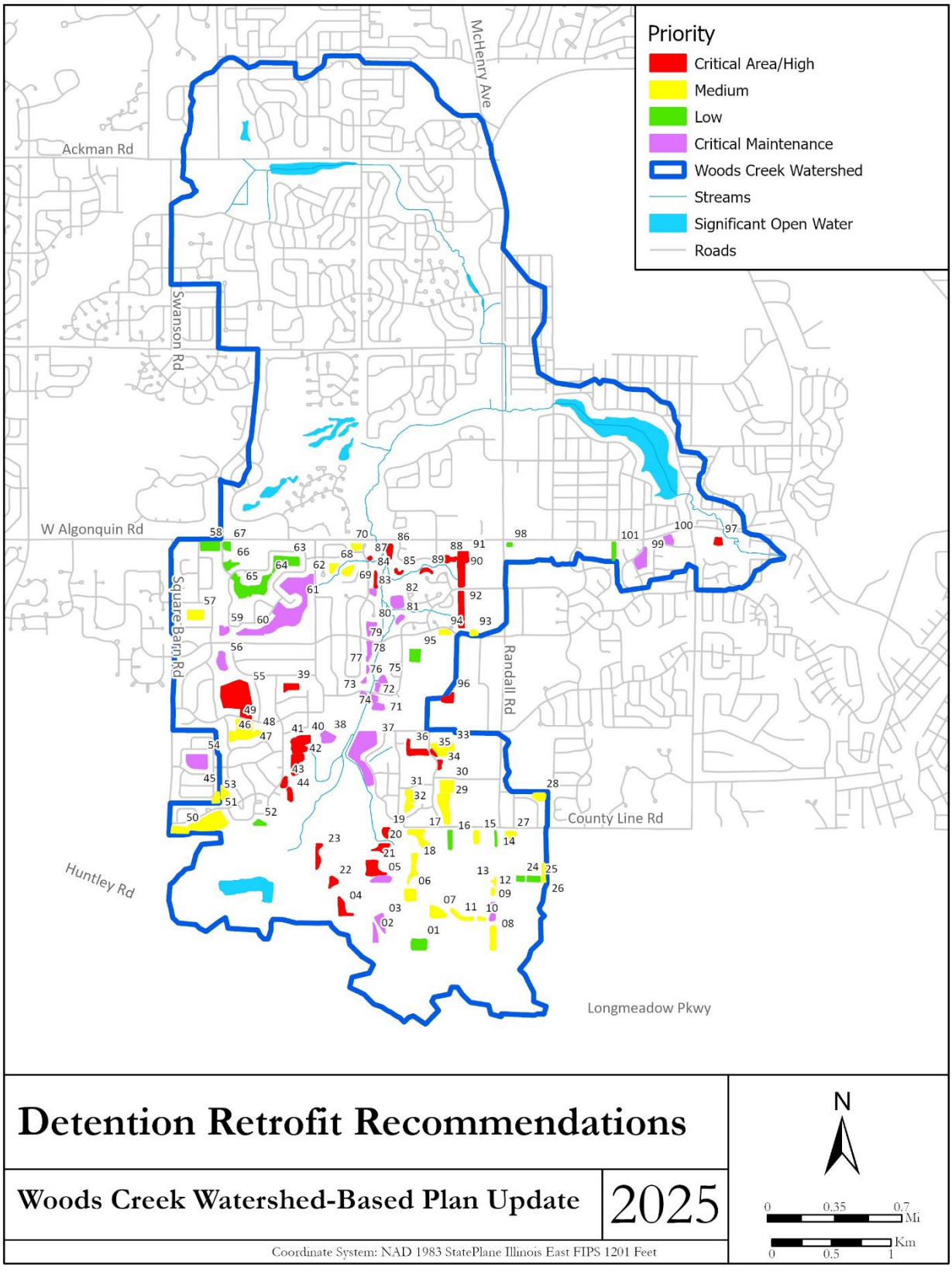


FIGURE 16. Detention Basin Retrofit Recommendations.

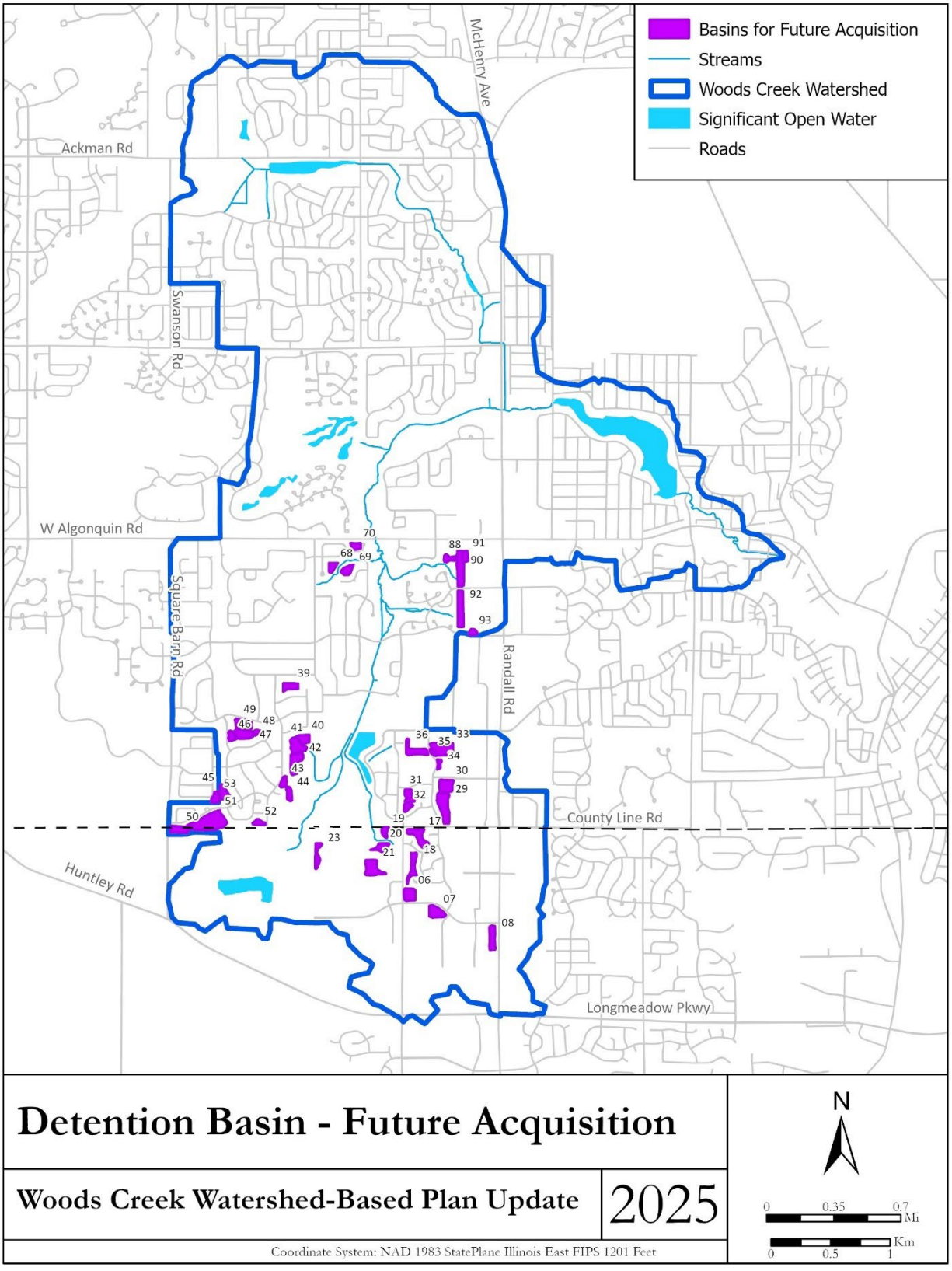


FIGURE 17. Detention Basins for Future Acquisition by the Village of Algonquin.

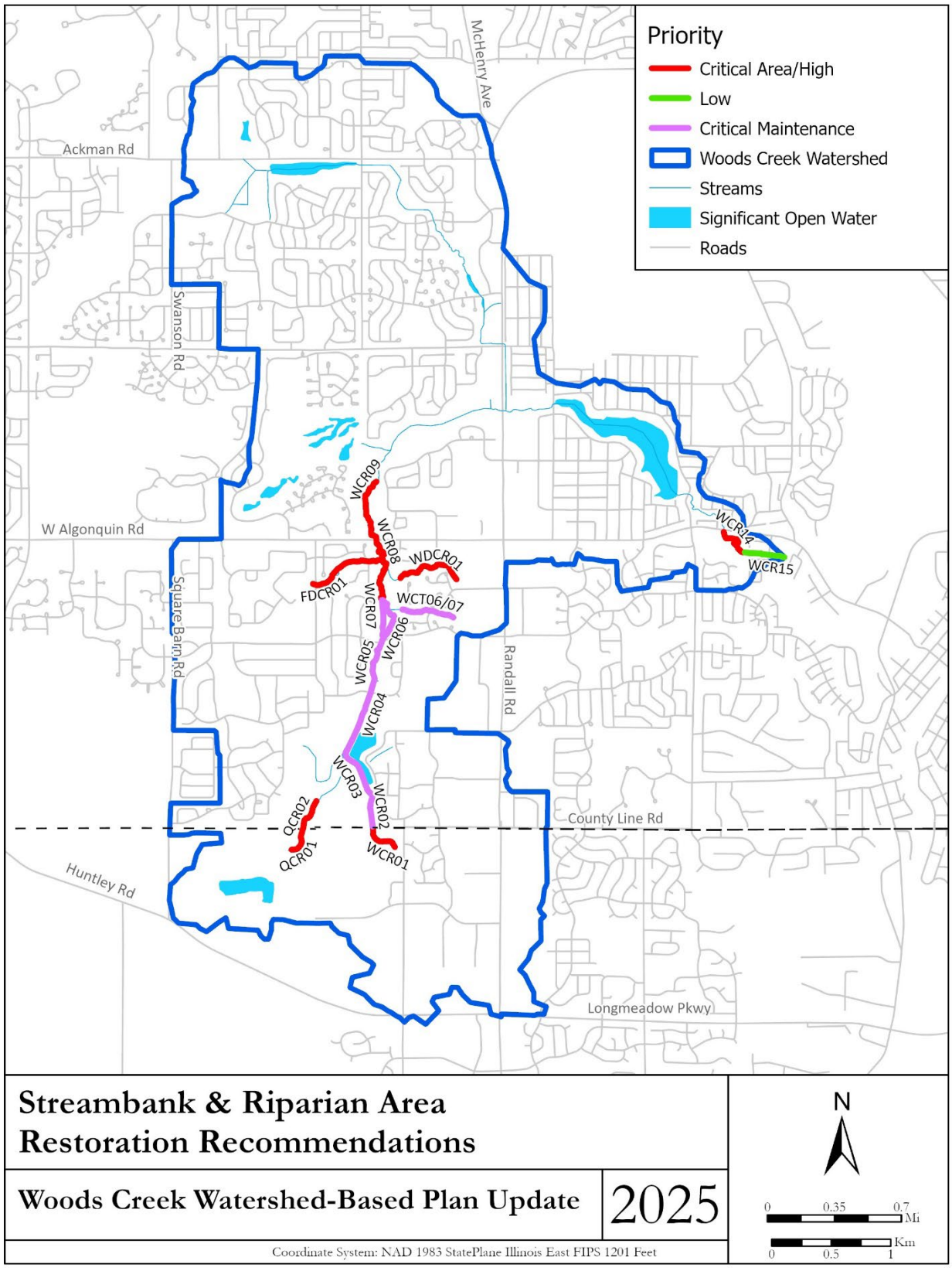


FIGURE 18. Streambank & Riparian Area Restoration Recommendations.

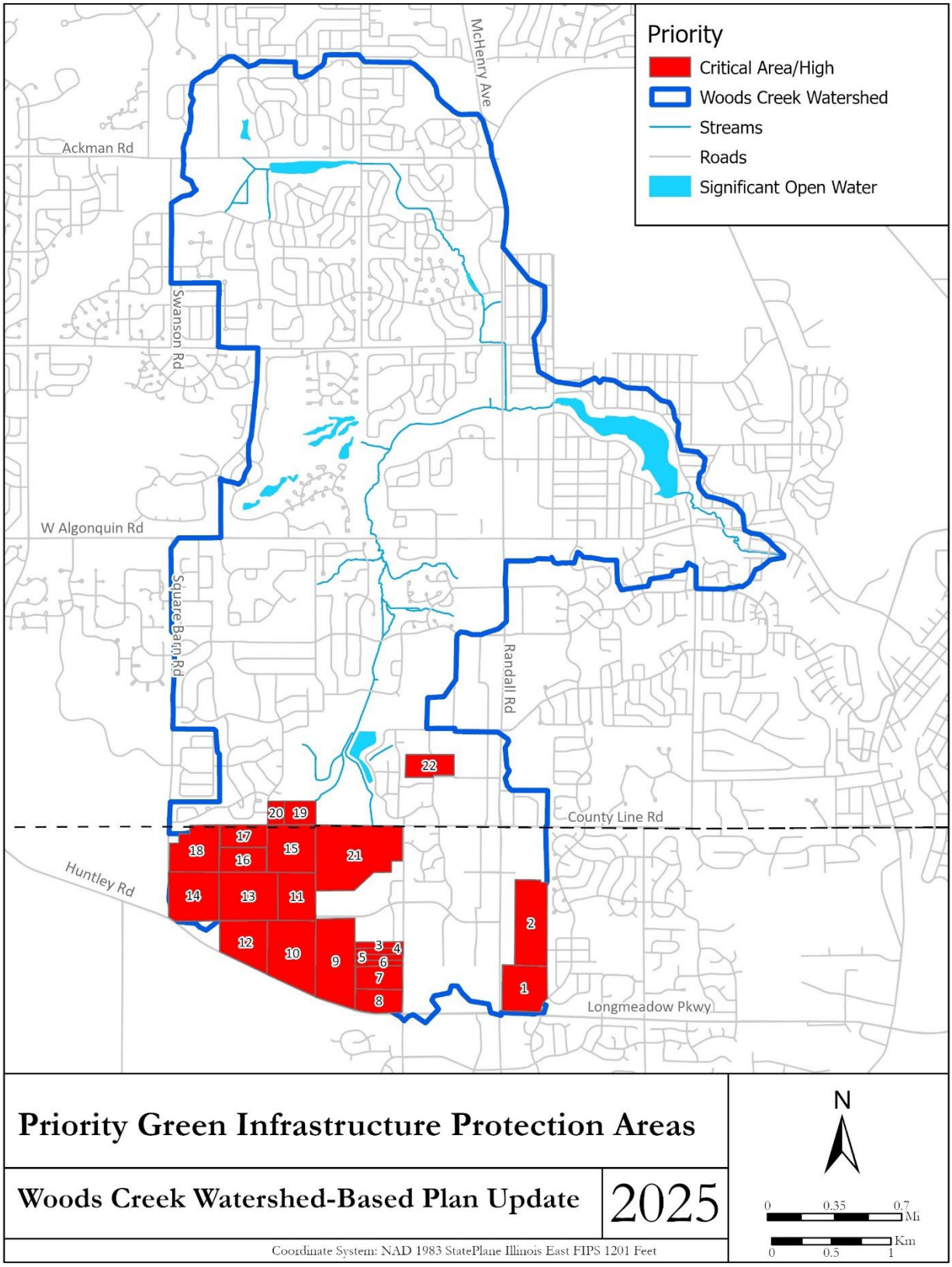


FIGURE 19. Priority Green Infrastructure Protection Areas.

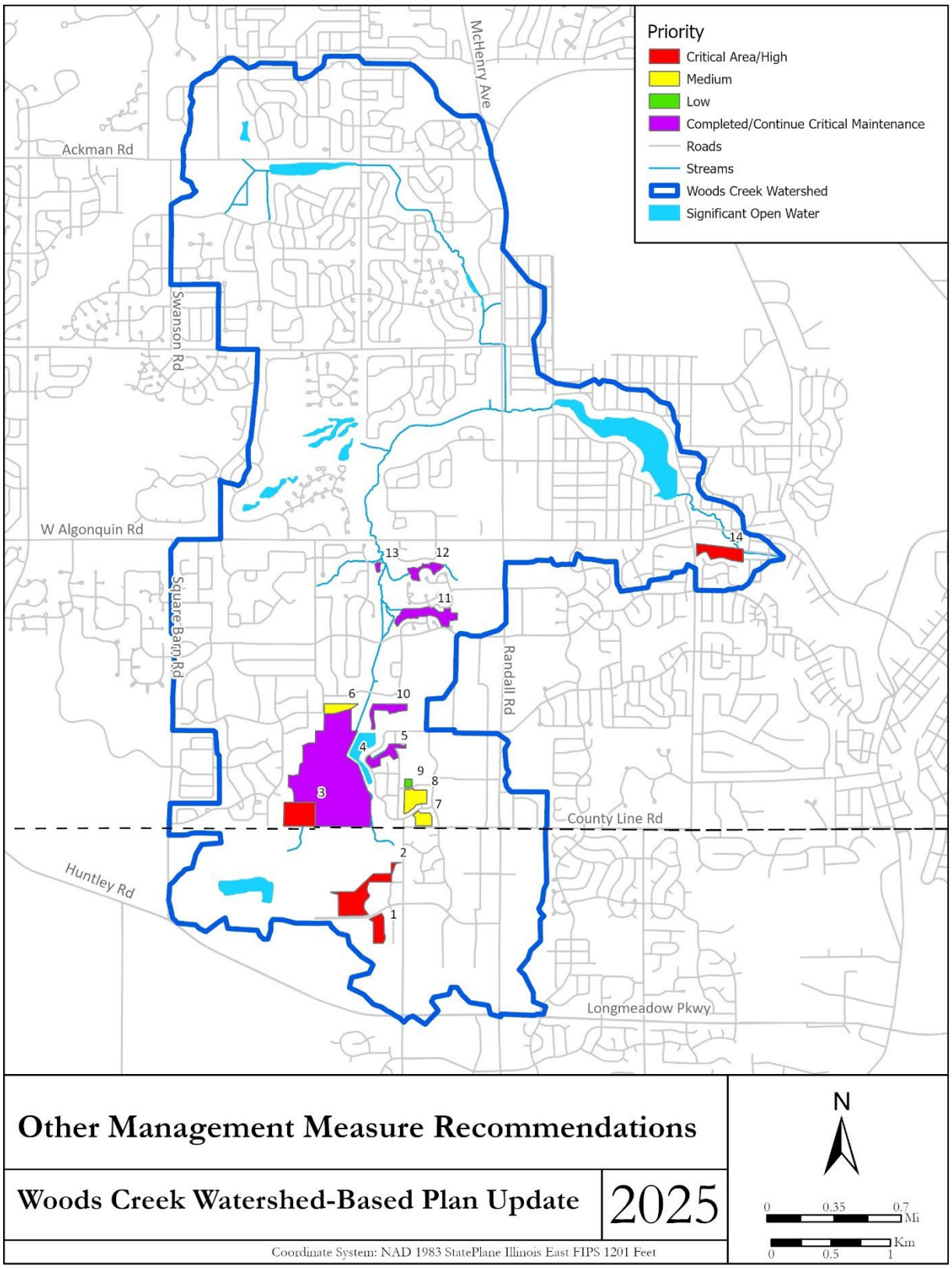


FIGURE 20. Other Management Measure Recommendations.

TABLE 12. New and Updated Site-Specific Action Plan Project Recommendations.

ALGONQUIN

ID #	Site Name/ Location	Units (Acres or Linear Feet)	Existing Condition	Management Measure Recommendation	Pollutant Reduction Efficiency			Priority	Owner & Responsible Entity	Sources of Technical Assistance	Cost Estimate	Implementation Schedule (Years)
					TSS (tons/yr)	TP (lbs/yr)	TN (lbs/ yr)					
Detention Basin Retrofit Recommendations - See Figure 18 for project location												
01	Algonquin Square Apartment Detention	2.8	Wet bottom detention area in average ecological condition, buffer consisting of mostly invasive herbaceous vegetation and willow, with minor toe erosion.	Design and implement a project to remove invasive species and plant with native plants.	0	1	3	Low	Private Owner	Ecological Consultant/ Contractor	$56.6K to design and construct. $9.9K to implement three-year M&M.	10-20+ Years
02	Corporate Campus Preserve Detention	1.1	Wetland bottom detention area in average ecological condition, previously naturalized but now with nonnative and woody resprouts.	Design and implement a project to remove invasive species and replant with natives.	1	1	13	Critical Area/High	Village of Algonquin	Ecological Consultant/ Contractor	$22.6K to design and construct. $4K to implement three-year M&M.	1-10 Years
03	Corporate Campus Preserve Detention	1.9	Wetland bottom detention area in average ecological condition, previously naturalized but now with nonnative and woody resprouts.	Design and implement a project to remove invasive species and replant with natives.	0	1	2	Critical Area/High	Village of Algonquin	Ecological Consultant/ Contractor	$37.5K to design and construct. $6.6K to implement three-year M&M.	1-10 Years
04	Corporate Campus Preserve Detention	2.1	Wet bottom detention area in average ecological condition, with a basin buffer dominated by invasive species.	Design and implement a project to remove invasive species, seed side slopes, and add plant plugs.	1	2	24	Critical Area/High	Village of Algonquin	Ecological Consultant/ Contractor	$42.4K to design and construct. $7.4K to implement three-year M&M.	1-10 Years
05	Corporate Campus Preserve Detention	1.8	Wetland bottom detention area in average ecological condition, previously naturalized basin now becoming dominated by woody second growth.	Design and implement a project to remove invasive species and replant with natives.	0	1	2	Critical Area/High	Village of Algonquin	Ecological Consultant/ Contractor	$37.5K to design and construct. $6.6K to implement three-year M&M.	1-10 Years
06	Corporate Drive Detention	2.3	Wet bottom detention area in average ecological condition, basin dominated by invasive herbaceous and woody species.	Design and implement a project to remove invasive species, seed or plug with native species, and maintain the site. Potential future acquisition.	1	2	27	Medium	Private Owner	Ecological Consultant/ Contractor	$45.6K to design and construct. $8K to implement three-year M&M.	5-15 Years
07	Corporate Drive Detention	2.5	Wet bottom detention area in poor ecological condition, with a basin buffer dominated by invasive species and second growth woody.	Design and implement a project to remove invasive species, seed native species or add plugs; Potential Future Acquisition Opportunity	0	1	8	Medium	Private Owner	Ecological Consultant/ Contractor	$50K to design and construct. $8.7K to implement three-year M&M.	5-15 Years
08	Hobby Lobby Detention	2.3	Wet bottom detention area in average ecological condition, previously naturalized detention buffers taken over by alder, calorie pear, and phragmites.	Design and implement a project to remove woody invasives and treat phragmites; Potential Future Acquisition Opportunity	1	2	27	Medium	Private Owner	Ecological Consultant/ Contractor	$45.4K to design and construct. $7.9K to implement three-year M&M.	5-15 Years

ID #	Site Name/ Location	Units (Acres or Linear Feet)	Existing Condition	Management Measure Recommendation	Pollutant Reduction Efficiency			Priority	Owner & Responsible Entity	Sources of Technical Assistance	Cost Estimate	Implementation Schedule (Years)
					TSS (tons/yr)	TP (lbs/yr)	TN (lbs/ yr)					
10	Algonquin Commons Detention Private	0.4	Wet bottom detention area in average ecological condition, previously naturalized basin now lacking maintenance with woody resprouts and phragmites.	Design and implement a project to recommend the owner establish ongoing maintenance.	0	0	5	Medium	Private Owner	Ecological Consultant/ Contractor	$20K to design and construct. $3.5K to implement three-year M&M.	5-15 Years
11	Algonquin Commons Detention Private	1.5	Wet bottom detention area in poor ecological condition, previously naturalized basin lacking maintenance and becoming dominated by woody invasives and phragmites.	Design and implement a project to reestablish maintenance by the owner.	1	1	17	Medium	Private Owner	Ecological Consultant/ Contractor	$29.9K to design and construct. $5.2K to implement three-year M&M.	5-15 Years
12	Algonquin Commons Detention Private	0.4	Wetland bottom detention area in poor ecological condition, previously naturalized basin lacking maintenance now dominated by invasive woody and herbaceous species.	Design and implement a project to reestablish maintenance by the owner.	0	0	5	Medium	Private Owner	Ecological Consultant/ Contractor	$20K to design and construct. $3.5K to implement three-year M&M.	5-15 Years
13	Algonquin Commons Detention Private	0.3	Wet bottom detention area with poor ecological condition, featuring turf and hardscape buffer with some toe erosion.	Design and implement a project to reseed the basin buffer and control invasives.	0	0	3	Medium	Private Owner	Ecological Consultant/ Contractor	$20K to design and construct. $3.5K to implement three-year M&M.	5-15 Years
14	Algonquin Commons Detention Private	0.4	Wet bottom detention area in poor ecological condition, with a buffer dominated by rye grass and sweet clover.	Design and implement a project to implement toe stabilization.	0	0	5	Low	Private Owner	Ecological Consultant/ Contractor	$8.4K to design and construct. $1.5K to implement three-year M&M.	10-20+ Years
15	Algonquin Commons Detention Private	1.1	Wet bottom detention area in poor ecological condition, with side slopes dominated by perennial rye grass and sweet clover.	Design and implement a project to reestablish owner maintenance and stabilize the toe slope.	1	1	13	Medium	Private Owner	Ecological Consultant/ Contractor	$22.6K to design and construct. $4K to implement three-year M&M.	5-15 Years
16	Algonquin Commons Detention Private	1.3	Wet bottom detention area in average ecological condition, basin erosion present due to steep slope, and second growth woody species and phragmites.	Design and implement a project to completely reseed buffers and perform minor toe stabilization.	1	1	15	Low	Private Owner	Ecological Consultant/ Contractor	$25.6K to design and construct. $4.5K to implement three-year M&M.	10-20+ Years
17	Canterbury Townhomes Detention	3.0	Wet bottom detention area in poor ecological condition, previously naturalized basin lacking maintenance now a failing due to woody and herbaceous species.	Design and implement a project to ensure continued maintenance by the HOA; Potential Future Acquisition Opportunity	0	2	10	Medium	Private Owner	Ecological Consultant/ Contractor	$59K to design and construct. $10.3K to implement three-year M&M.	5-15 Years
18	Canterbury Townhomes Detention	2.1	Wetland bottom detention area in average ecological condition, with a naturalized basin showing evidence of maintenance.	Design and implement a project to have the HOA continue maintenance; Potential Future Acquisition Opportunity	0	1	7	Medium	Private Owner	Ecological Consultant/ Contractor	$41.9K to design and construct. $7.3K to implement three-year M&M.	5-15 Years

ID #	Site Name/ Location	Units (Acres or Linear Feet)	Existing Condition	Management Measure Recommendation	Pollutant Reduction Efficiency			Priority	Owner & Responsible Entity	Sources of Technical Assistance	Cost Estimate	Implementation Schedule (Years)
					TSS (tons/yr)	TP (lbs/yr)	TN (lbs/ yr)					
19	Plote Property	0.9	Wetland bottom detention area in average ecological condition, naturalized basin undergoing some form of maintenance.	Design and implement a project to seed the buffer, install emergent plant plugs, and stabilize emergent areas as needed; Potential Future Acquisition Opportunity	0	0	0	Critical Area/High	Private Owner	Ecological Consultant/ Contractor	$18K to design and construct. $3.1K to implement three-year M&M.	1-10 Years
20	Plote Property	1.5	Wet bottom detention area in poor ecological condition, with a buffer dominated by woody and herbaceous species and some toe erosion.	Design and implement a project to seed with native species and install emergent plant plugs; Potential Future Acquisition Opportunity	0	0	2	Critical Area/High	Private Owner	Ecological Consultant/ Contractor	$29.1K to design and construct. $5.1K to implement three-year M&M.	1-10 Years
21	Plote Property	3.4	Wet bottom detention area in poor ecological condition, with a buffer dominated by invasive species.	Design and implement a project to seed with native plants and install emergent plant plugs; Potential Future Acquisition Opportunity	0	0	4	Critical Area/High	Private Owner	Ecological Consultant/ Contractor	$68K to design and construct. $11.9K to implement three-year M&M.	1-10 Years
22	Plote Property	1.2	Wet bottom detention area in poor ecological condition, with a buffer dominated by woody and herbaceous invasive species.	Design and implement a project to install native seed and emergent plant plugs.	0	0	2	Critical Area/High	Private Owner	Ecological Consultant/ Contractor	$23.4K to design and construct. $4.1K to implement three-year M&M.	1-10 Years
23	Plote Property	1.6	Wet bottom detention area in poor ecological condition, with a buffer dominated by invasive woody and herbaceous species.	Design and implement a project to install native seed and emergent plant plugs. Potential future Acquisition.	0	0	2	Critical Area/High	Private Owner	Ecological Consultant/ Contractor	$31.3K to design and construct. $5.5K to implement three-year M&M.	1-10 Years
24	Kensington Development Detention	0.7	Wet bottom detention area in poor ecological condition, with a buffer dominated by woody and herbaceous species.	Design and implement a project to mow side slopes, monitor, and maintain erosion as needed.	0	1	8	Low	Private Owner	Ecological Consultant/ Contractor	$20K to design and construct. $3.5K to implement three-year M&M.	10-20+ Years
25	Kensington Development Detention	1.2	Wet bottom detention area in average ecological condition, with a previously restored buffer being taken over by willow and phragmites.	Design and implement a project to mow side slopes and monitor or maintain as needed.	1	1	14	Low	Private Owner	Ecological Consultant/ Contractor	$24K to design and construct. $4.2K to implement three-year M&M.	10-20+ Years
26	Galleria Center Detentions	1.1	Wet bottom detention area in poor ecological condition, with a buffer dominated by woody and herbaceous species.	Design and implement a project to reseed the buffer with native species and install emergent plant plugs.	1	1	13	Medium	Private Owner	Ecological Consultant/ Contractor	$21.2K to design and construct. $3.7K to implement three-year M&M.	5-15 Years
27	Galleria Center Detentions	1.3	Wet bottom detention area in average ecological condition, with a previously restored buffer being taken over by willow and phragmites.	Design and implement a project to reseed the buffer and install emergent native plant plugs.	1	1	15	Medium	Private Owner	Ecological Consultant/ Contractor	$25.3K to design and construct. $4.4K to implement three-year M&M.	5-15 Years
28	Briarwood Center Detention	1.5	Wet bottom detention area in poor ecological condition, with a buffer dominated by woody and herbaceous species.	Design and implement a project to reseed the buffer with emergent native plants.	1	1	17	Medium	Private Owner	Ecological Consultant/ Contractor	$29.8K to design and construct. $5.2K to implement three-year M&M.	5-15 Years

ID #	Site Name/ Location	Units (Acres or Linear Feet)	Existing Condition	Management Measure Recommendation	Pollutant Reduction Efficiency			Priority	Owner & Responsible Entity	Sources of Technical Assistance	Cost Estimate	Implementation Schedule (Years)
					TSS (tons/yr)	TP (lbs/yr)	TN (lbs/ yr)					
29	Wal Mart Detention	4.5	Wet bottom detention area in average ecological condition, with a buffer dominated by second growth woody species.	Design and implement a project to remove woody vegetation and reseed with native species; Potential Future Acquisition Opportunity	2	4	52	Medium	Private Owner	Ecological Consultant/ Contractor	$90.7K to design and construct. $15.9K to implement three-year M&M.	5-15 Years
30	Millbrook Townhome Detentions	2.7	Wetland bottom detention area in average ecological condition, with buffers dominated by second growth woody species and evidence that it was once a planted prairie.	Design and implement a project to remove woody invasives and assess how prairie vegetation responds, Potential Future Acquisition Opportunity	1	2	11	Medium	Private Owner	Ecological Consultant/ Contractor	$53.1K to design and construct. $9.3K to implement three-year M&M.	5-15 Years
31	Millbrook Townhome Detentions	1.6	Wet bottom detention area in poor ecological condition, with a previously naturalized basin now overrun by second growth woody species.	Design and implement a project to reseed the buffer and plant emergent plant plugs; Potential Future Acquisition Opportunity	0	1	5	Medium	Private Owner	Ecological Consultant/ Contractor	$32.3K to design and construct. $5.7K to implement three-year M&M.	5-15 Years
32	Millbrook Townhome Detentions	0.9	Wet bottom detention area in poor ecological condition, with a previously naturalized basin now overrun by second growth woody species.	Design and implement a project to reseed the buffer and plant emergent plant plugs; Potential Future Acquisition Opportunity	0	0	3	Medium	Private Owner	Ecological Consultant/ Contractor	$20K to design and construct. $3.5K to implement three-year M&M.	5-15 Years
33	Oakridge Shopping Center Detention	4.1	Wet bottom detention area in average ecological condition, with a previously naturalized basin beginning to show signs of woody and herbaceous species.	Design and implement a project to remove woody invasives and manage the buffer; Potential Future Acquisition Opportunity	2	4	47	Medium	Private Owner	Ecological Consultant/ Contractor	$82.7K to design and construct. $14.5K to implement three-year M&M.	5-15 Years
34	Spectrum Detentions	0.5	Wet bottom detention in good ecological condition	Potential future Acquisition by the Village of Algonquin.	Not applicable			Critical Area/High	Private Owner	Not applicable	Not applicable	1-10 Years
35	Spectrum Detentions	0.5	Dry bottom detention in good ecological condition	Potential future Acquisition by the Village of Algonquin.	Not applicable			Critical Area/High	Private Owner	Not applicable	Not applicable	1-10 Years
36	Spectrum Detentions	2.5	Wet bottom detention in good ecological condition	Potential future Acquisition by the Village of Algonquin.	Not applicable			Critical Area/High	Private Owner	Not applicable	Not applicable	1-10 Years
39	Coves Unit 1 Subdivision	1.6	Dry bottom detention area with turf in poor ecological condition, featuring a mowed turf grass buffer bottom when dry.	Design and implement a project to seed side slopes to prairie base and add wet prairie plugs to the base and bottom; Potential Future Acquisition Opportunity	0	0	3	Critical Area/High	Private Owner	Ecological Consultant/ Contractor	$31.4K to design and construct. $5.5K to implement three-year M&M.	1-10 Years
40	Coves Unit 1 Subdivision	1.5	Dry bottom detention area with turf in poor ecological condition.	Design and implement a project to naturalize with native species; Potential Future Acquisition Opportunity	0	0	3	Critical Area/High	Private Owner	Ecological Consultant/ Contractor	$30.8K to design and construct. $5.4K to implement three-year M&M.	1-10 Years

ID #	Site Name/ Location	Units (Acres or Linear Feet)	Existing Condition	Management Measure Recommendation	Pollutant Reduction Efficiency			Priority	Owner & Responsible Entity	Sources of Technical Assistance	Cost Estimate	Implementation Schedule (Years)
					TSS (tons/yr)	TP (lbs/yr)	TN (lbs/ yr)					
41	Coves Subdivision Unit 1	2.9	Wetland bottom detention area in poor ecological condition, dominated by herbaceous and woody species.	Design and implement a project to remove invasive species and install a variety of native vegetation communities; Potential Future Acquisition Opportunity	0	1	3	Critical Area/High	Private Owner	Ecological Consultant/ Contractor	$58.9K to design and construct. $10.3K to implement three-year M&M.	1-10 Years
42	Cove Unit 1 Detention	3.1	Wetland bottom detention area in average ecological condition, featuring primarily turf buffer and native vegetation on the basin bottom.	Design and implement a project to naturalize the basin buffer and manage the basin bottom; Potential Future Acquisition Opportunity	0	1	4	Critical Area/High	Private Owner	Ecological Consultant/ Contractor	$62.9K to design and construct. $11K to implement three-year M&M.	1-10 Years
43	Cove Unit 1 Detention	0.9	Wet bottom detention area with turf in poor ecological condition, with a mowed turf grass buffer and slight erosion.	Design and implement a project to naturalize the buffer, stabilize the eroded toe, and install emergent plant plugs; Potential Future Acquisition Opportunity	0	0	3	Critical Area/High	Private Owner	Ecological Consultant/ Contractor	$20K to design and construct. $3.5K to implement three-year M&M.	1-10 Years
44	Cove Unit 1 Detention	1.1	Wet bottom detention area with turf in poor ecological condition, with a mowed turf grass buffer and slight erosion.	Design and implement a project to naturalize the buffer, stabilize the eroded toe, and install emergent plant plugs; Potential Future Acquisition Opportunity	0	1	4	Critical Area/High	Private Owner	Ecological Consultant/ Contractor	$21.4K to design and construct. $3.7K to implement three-year M&M.	1-10 Years
45	Coves Unit 2 Detention	1.6	Wet bottom detention area with turf in poor ecological condition, with mowed turf grass side slopes and significant toe erosion.	Design and implement a project to naturalize side slopes and stabilize the erosion. Potential future Acquisition.	0	1	5	Medium	Private Owner	Ecological Consultant/ Contractor	$32.7K to design and construct. $5.7K to implement three-year M&M.	5-15 Years
46	Coves Unit 2 Detention	1.0	Wetland bottom detention area in poor ecological condition, with a basin bottom dominated by cattail and side slopes dominated by woody and herbaceous species.	Design and implement a project to naturalize the buffer; Potential Future Acquisition Opportunity	0	0	1	Medium	Private Owner	Ecological Consultant/ Contractor	$20K to design and construct. $3.5K to implement three-year M&M.	5-15 Years
47	Coves Unit 2 Detention	2.5	Wetland bottom detention area in poor ecological condition, with a basin bottom dominated by cattail and side slopes dominated by woody and herbaceous species.	Design and implement a project to naturalize the buffer; Potential Future Acquisition Opportunity	0	1	3	Medium	Private Owner	Ecological Consultant/ Contractor	$49.3K to design and construct. $8.6K to implement three-year M&M.	5-15 Years
48	Coves Unit 2 Detention	0.5	Wetland bottom detention area in poor ecological condition, with a basin bottom dominated by cattail and side slopes dominated by woody and herbaceous species.	Design and implement a project to naturalize the buffer; Potential Future Acquisition Opportunity	0	0	1	Medium	Private Owner	Ecological Consultant/ Contractor	$20K to design and construct. $3.5K to implement three-year M&M.	5-15 Years

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					TSS (tons/yr)	TP (lbs/yr)	TN (lbs/ yr)					
49	Coves Unit 2 Detention	2.7	Wetland bottom detention area in poor ecological condition, with a basin bottom dominated by cattail and side slopes dominated by woody and herbaceous species.	Design and implement a project to naturalize the buffer; Potential Future Acquisition Opportunity	0	1	3	Medium	Private Owner	Ecological Consultant/ Contractor	$54.2K to design and construct. $9.5K to implement three-year M&M.	5-15 Years
50	Coves Unit 3 Detention	1.9	Wet bottom detention area in poor ecological condition, with side slopes overrun by woody and herbaceous species and a severe algae problem.	Design and implement a project to naturalize the buffer; Potential Future Acquisition Opportunity	0	1	2	Medium	Private Owner	Ecological Consultant/ Contractor	$37.5K to design and construct. $6.6K to implement three-year M&M.	5-15 Years
51	Coves Unit 3 Detention	8.2	Wetland bottom detention area in poor ecological condition, with buffers dominated by second growth woody and herbaceous species.	Design and implement a project to naturalize the buffer; Potential Future Acquisition Opportunity	1	3	10	Medium	Private Owner	Ecological Consultant/ Contractor	$146.7K to design and construct. $24.5K to implement three-year M&M.	5-15 Years
52	Coves Unit 3 Detention	0.8	Wetland bottom detention area in poor ecological condition, with a basin dominated by woody and herbaceous species.	Design and implement a project to remove invasive species and naturalize with native plants; Potential Future Acquisition Opportunity	0	0	1	Low	Private Owner	Ecological Consultant/ Contractor	$20K to design and construct. $3.5K to implement three-year M&M.	10-20+ Years
53	Westview Crossing Detention Private	1.1	Wetland bottom detention area with turf in poor ecological condition, with a turf buffer and basin bottom dominated by cattails.	Design and implement a project to seed side slopes with native vegetation; Potential Future Acquisition Opportunity	0	0	1	Medium	Private Owner	Ecological Consultant/ Contractor	$22.8K to design and construct. $4K to implement three-year M&M.	5-15 Years
55	Wood Park Detention	14.3	Wetland bottom detention area in average ecological condition, with a buffer dominated by second growth woody vegetation and a basin dominated by cattail.	Design and implement a project to dredge wetlands, design to restore wetland capacity, and redesign to be a naturalized detention area.	2	5	17	Critical Area/High	Village of Algonquin	Ecological Consultant/ Contractor	$228.7K to design and construct. $35.7K to implement three-year M&M.	1-10 Years
57	Prestwicke Subdivision Detention	2.5	Dry bottom detention area with turf in poor ecological condition, with mowed turf grass on side slopes, base, and bottom.	Design and implement a project to naturalize basin side slopes and the bottom.	0	1	5	Medium	Private Owner	Ecological Consultant/ Contractor	$50.9K to design and construct. $8.9K to implement three-year M&M.	5-15 Years
58	Prestwicke Subdivision Detention	2.8	Wet bottom detention area with turf in poor ecological condition, featuring riprap toe and mowed side slopes.	Design and implement a project to naturalize the side slopes.	0	2	9	Low	Private Owner	Ecological Consultant/ Contractor	$56.4K to design and construct. $9.9K to implement three-year M&M.	10-20+ Years
63	Trails of Woods Creek Detention Private	4.2	Wet bottom detention area with turf in poor ecological condition, featuring mowed turf grass side slopes with no emergent cattails.	Design and implement a project for continued maintenance.	1	2	14	Low	Private Owner	Ecological Consultant/ Contractor	$84.9K to design and construct. $14.9K to implement three-year M&M.	10-20+ Years
64	Trails of Woods Creek Detention Private	3.8	Wet bottom detention area with turf in poor ecological condition, featuring mowed turf grass side slopes with no emergent cattails.	Design and implement a project for continued maintenance.	1	2	13	Low	Private Owner	Ecological Consultant/ Contractor	$76.1K to design and construct. $13.3K to implement three-year M&M.	10-20+ Years

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					TSS (tons/yr)	TP (lbs/yr)	TN (lbs/ yr)					
65	Trails of Woods Creek Detention Private	3.6	Wet bottom detention area with turf in poor ecological condition, featuring mowed turf grass side slopes with no emergent cattails.	Design and implement a project for continued maintenance.	0	2	12	Low	Private Owner	Ecological Consultant/ Contractor	$71.7K to design and construct. $12.5K to implement three-year M&M.	10-20+ Years
66	Trails of Woods Creek Detention Private	1.3	Wet bottom detention area with turf in poor ecological condition, featuring mowed turf grass side slopes with no emergent cattails.	Design and implement a project for continued maintenance.	0	1	4	Low	Private Owner	Ecological Consultant/ Contractor	$25.2K to design and construct. $4.4K to implement three-year M&M.	10-20+ Years
67	Trails of Woods Creek Detention Private	1.0	Wet bottom detention area with turf in poor ecological condition, featuring mowed turf grass side slopes with no emergent cattails.	Design and implement a project for continued maintenance.	0	1	3	Low	Private Owner	Ecological Consultant/ Contractor	$20K to design and construct. $3.5K to implement three-year M&M.	10-20+ Years
68	Fairway View Estates Detentions	1.0	Wet bottom detention area in average ecological condition, previously naturalized basin now with second growth woody and phragmites.	Design and implement a project to salvage the site and treat phragmites; Potential Future Acquisition Opportunity	0	1	3	Medium	Private Owner	Ecological Consultant/ Contractor	$20K to design and construct. $3.5K to implement three-year M&M.	5-15 Years
69	Fairway View Estates Detentions	1.3	Wet bottom detention area in average ecological condition, previously naturalized basin now with second growth woody and phragmites.	Design and implement a project to salvage the site and treat phragmites; Potential Future Acquisition Opportunity	0	1	4	Medium	Private Owner	Ecological Consultant/ Contractor	$27K to design and construct. $4.7K to implement three-year M&M.	5-15 Years
70	Fairway View Estates Detentions	1.0	Wet bottom detention area in average ecological condition, previously naturalized basin now with second growth woody and phragmites.	Design and implement a project to salvage the site and treat phragmites; Potential Future Acquisition Opportunity	0	1	3	Medium	Private Owner	Ecological Consultant/ Contractor	$20.3K to design and construct. $3.6K to implement three-year M&M.	5-15 Years
84	Woods Creek Reach Corridor 8 Detention	0.7	Wet bottom detention area with turf in poor ecological condition, featuring a buffer dominated by second growth woody and herbaceous species.	Design and implement a project to remove invasive species and reseed with native plants and plugs.	0	0	2	Critical Area/High	Village of Algonquin	Ecological Consultant/ Contractor	$20K to design and construct. $3.5K to implement three-year M&M.	1-10 Years
85	Woods Creek Reach Corridor 8 Detention	0.4	Wet bottom detention area with turf in poor ecological condition, featuring a buffer dominated by second growth woody and herbaceous species.	Design and implement a project to remove invasive species and reseed with native plants and plugs.	0	0	1	Critical Area/High	Village of Algonquin	Ecological Consultant/ Contractor	$20K to design and construct. $3.5K to implement three-year M&M.	1-10 Years
86	Woods Creek Reach Corridor 8 Detention	1.3	Wet bottom detention area with turf in poor ecological condition, featuring a buffer dominated by second growth woody and herbaceous species.	Design and implement a project to remove invasive species and reseed with native plants and plugs.	0	1	4	Critical Area/High	Village of Algonquin	Ecological Consultant/ Contractor	$26.4K to design and construct. $4.6K to implement three-year M&M.	1-10 Years
87	Woods Creek Reach Corridor 8 Detention	0.2	Wet bottom detention area in poor ecological condition, with part of the turf buffer exhibiting second growth woody and herbaceous invasive species.	Design and implement a project to remove invasive species and reseed with native plants and plugs.	0	0	1	Critical Area/High	Village of Algonquin	Ecological Consultant/ Contractor	$20K to design and construct. $3.5K to implement three-year M&M.	1-10 Years

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					TSS (tons/yr)	TP (lbs/yr)	TN (lbs/ yr)					
88	Winding Creek Center Detention	1.0	Wet bottom detention area in poor ecological condition, with wart turf buffer with second growth woody and herbaceous invasive species.	Design and implement a project to remove invasive species and install native plants and plugs and reseed with natives; Potential Future Acquisition Opportunity	0	0	3	Critical Area/High	Private Owner	Ecological Consultant/ Contractor	$20.3K to design and construct. $3.6K to implement three-year M&M.	1-10 Years
89	Winding Creek Townhome Subdivision	0.7	Wetland bottom detention area in good ecological condition, with naturalized side slopes under existing management.	Potential future acquisition by the Village of Algonquin.	Not applicable			Critical Area/High	Private Owner	Private Owner	Private Owner	1-10 Years
90	Home Depot Detentions	3.8	Wet bottom detention area in poor ecological condition, with side slopes dominated by invasive species.	Design and implement a project to remove invasive species and install native plants and plugs; Potential Future Acquisition Opportunity	1	2	13	Critical Area/High	Private Owner	Ecological Consultant/ Contractor	$75.3K to design and construct. $13.2K to implement three-year M&M.	1-10 Years
91	Home Depot Detentions	1.0	Wet bottom detention in poor ecological condition; side slopes dominated by invasive species.	Design and implement a project to remove invasive species and install native plants and plugs; Potential Future Acquisition Opportunity	0	1	3	Critical Area/High	Private Owner	Ecological Consultant/ Contractor	$20K to design and construct. $3.5K to implement three-year M&M.	1-10 Years
92	Meijer Detention	3.4	Wetland bottom detention in poor ecological condition; side slopes dominated by woody and herbaceous species with a bottom mostly covered by phragmites.	Design and implement a project to remove invasive species and install native plants and plugs; Potential Future Acquisition Opportunity	0	1	4	Critical Area/High	Private Owner	Ecological Consultant/ Contractor	$68.1K to design and construct. $11.9K to implement three-year M&M.	1-10 Years
93	Meijer Detention	0.7	Wetland bottom detention in poor ecological condition; buffer dominated by second growth woody and herbaceous species.	Design and implement a project to remove invasive species and install native plants and plugs. Potential future acquisition.	0	0	1	Medium	Private Owner	Ecological Consultant/ Contractor	$20K to design and construct. $3.5K to implement three-year M&M.	5-15 Years
94	Jacobs High School Detention	0.9	Wetland bottom detention in average ecological condition; basin bottom natural and in good condition, south side slope dominated by second growth woody species.	Design and implement a project to remove woody vegetation from the south slope and reseed with native species.	0	0	1	Medium	School District 300	Ecological Consultant/ Contractor	$20K to design and construct. $3.5K to implement three-year M&M.	5-15 Years
95	Jacobs High School Detention	2.2	Wetland bottom detention in poor ecological condition; surrounded by second growth woody species.	Design and implement a project to control woody invasives.	0	1	3	Low	School District 300	Ecological Consultant/ Contractor	$43.5K to design and construct. $7.6K to implement three-year M&M.	10-20+ Years

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96	Jacobs High School Detention	1.4	Wet bottom detention in average ecological condition; basin toe is naturalized, but buffer is turf grass	Design and implement a project to remove turf and naturalize basin and slopes with natives.	0	1	4	Medium	School District 300	Ecological Consultant/ Contractor	$26.4K to design and construct. $4.6K to implement three-year M&M.	5-15 Years
97	Funeral Home Detention	1.0	Wet bottom detention in poor ecological condition; basin buffer dominated by second growth woody and herbaceous species.	Design and implement a project to remove invasive species and install native plants and plugs.	0	1	4	Critical Area/High	Village of Algonquin	Ecological Consultant/ Contractor	$20K to design and construct. $3.5K to implement three-year M&M.	1-10 Years
98	Jewel Detention Basin	0.3	Dry bottom detention with turf in poor ecological condition; mowed turf on side slopes and bottom.	Design and implement a project to continue mowing as is.	0	0	1	Low	Private Owner	Ecological Consultant/ Contractor	$20K to design and construct. $3.5K to implement three-year M&M.	10-20+ Years
101	Clarendale Detention	1.1	Wet bottom detention in poor ecological condition; relatively new basin with mowed turf grass side slopes, edge dominated by second growth woody species and other herbaceous species.	Design and implement a project to grade side slopes and manage invasive species along the edge.	1	1	2	Low	Private Owner	Ecological Consultant/ Contractor	$22.8K to design and construct. $4K to implement three-year M&M.	10-20+ Years
Stream & Riparian Area Restoration Recommendations - See Figure 20 for project location												
FDCR01	Fairway View Drive Creek - Fairview Dr. to Woods Creek	2,228.0	The stream riparian area is characterized by scrub/shrub and is dominated by second-growth invasive trees and shrubs.	Design, permit, and implement a project to remove invasive trees and shrubs and install native vegetation in the stream and riparian area. Additionally, selectively armor eroded stream banks and grade other banks to create floodplain shelves.	70	71	149	Critical Area/High	Village of Algonquin	Environmental Consultant/ Contractor, McHenry County, MCSWCD	$1M to design and construct. $76.7K to implement three-year M&M.	1-10 Years
QCR01	Quarry Creek – Gravel pit off Square Barn to ComEd parcel	834.5	The stream riparian area is characterized by scrub/shrub and is dominated by second-growth invasive trees, shrubs, and herbaceous species.	Design, permit, and implement a project to restore the stream channel and riparian area. Naturalize the area with native vegetation.	37	41	77	Critical Area/High	Private Owner	Environmental Consultant/ Contractor, McHenry County, MCSWCD	$376K to design and construct. $29K to implement three-year M&M.	1-10 Years
QCR02	Quarry Creek – ComEd parcel	832.4	The stream riparian area is characterized by scrub/shrub and is dominated by second-growth invasive trees, shrubs, and herbaceous species.	Design, permit, and implement a project to restore the stream channel and riparian area. Naturalize the area with native vegetation.	37	41	77	Critical Area/High	ComEd	Environmental Consultant/ Contractor, McHenry County, MCSWCD	$374K to design and construct. $29K to implement three-year M&M.	1-10 Years

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WCR01	Woods Creek Reach 1 - Boyer Rd to WCR02	995.9	The stream riparian area, characterized by scrub/shrub, is in an agricultural zone and is dominated by second-growth woody and herbaceous species.	Design, permit, and implement a project to restore stream channel banks and the riparian area. Naturalize the area with native vegetation.	22	24	65	Critical Area/High	Private Owner	Environmental Consultant/ Contractor, Kane County, KDSWCD	$448.1K to design and construct. $34.3K to implement three-year M&M.	1-10 Years
WCR08	Woods Creek Reach 8 – South of Algonquin Rd and east of Brookside Dr	2,110.1	The stream riparian area is characterized by scrub/shrub and has a buffer dominated by second-growth woody species.	Design, permit, and implement a project to selectively armor eroded banks, regrade other portions of the bank, and create floodplain benches. Restore degraded riparian areas and maintain higher-quality areas, naturalizing them with native vegetation.	45	47	110	Critical Area/High	Village of Algonquin	Environmental Consultant/ Contractor, McHenry County, MCSWCD	$949.5K to design and construct. $72.7K to implement three-year M&M.	1-10 Years
WCR14	Woods Creek Reach 14 - South of Algonquin Road west of Scotty Ave.	1,142.8	The stream is characterized by scrub/shrub, with severely eroded banks and an actively down-cutting channel.	Design, permit, and implement a project to selectively armor stream banks, regrade other stream banks, install floodplain shelves, and restore riparian areas.	37	38	88	Critical Area/High	Village of Algonquin	Environmental Consultant/ Contractor, McHenry County, MCSWCD	$514.3K to design and construct. $39.4K to implement three-year M&M.	1-10 Years
WCR15	Woods Creek Reach 15 - W. of Dennis Ave. to Crystal Creek	1,114.2	The area is primarily characterized by homeowner practices and landscaping, with a lot of second-growth woody species.	Design and implement a project to clean up invasive second-growth vegetation.	47	47	96	Low	Private Owner	Environmental Consultant/ Contractor, McHenry County, MCSWCD	$501.4K to design and construct. $38.4K to implement three-year M&M.	10-20+ Years
WDCR01	Winding Creek Reach 1 – south of Talaga Dr.	1,963.8	The stream riparian area is characterized by scrub/shrub and is dominated by second-growth woody species. Some areas are in good condition and managed upstream, while others have been previously restored or are dominated by second-growth trees and shrubs.	Design and implement a project to remove second-growth trees and shrubs and plant native vegetation. Conduct ongoing maintenance on previously restored areas, remove invasive species from upstream areas, and restore them with native plants.	6	7	25	Critical Area/High	Village of Algonquin	Environmental Consultant/ Contractor, McHenry County, MCSWCD	$883.7K to design and construct. $67.6K to implement three-year M&M.	1-10 Years
Priority Green Infrastructure Protection Areas – See Figure 21 for project location												
1	Private Ag Parcel	35	Privately owned parcels currently in agricultural production	Incorporate Conservation Design standards into future development with an emphasis on promoting groundwater/ aquifer recharge and reducing impervious surfaces. Future acquisition opportunity for the Village of Algonquin.	Not applicable			Critical Area/High	Private Owner	Ecological Consultant; USACE; NRCS/ SWCD; IEPA; Kane County	Not Applicable	1-10 Years

ID #	Site Name/ Location	Units (Acres or Linear Feet)	Existing Condition	Management Measure Recommendation	Pollutant Reduction Efficiency			Priority	Owner & Responsible Entity	Sources of Technical Assistance	Cost Estimate	Implementation Schedule (Years)
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2	Kensington Parcel	48.3	Privately owned parcel, currently in agricultural production, east of Enclave Development	Incorporate Conservation Design standards into future development with an emphasis on promoting groundwater/ aquifer recharge and reducing impervious surfaces. Future acquisition opportunity for the Village of Algonquin.	Not applicable			Critical Area/High	Private Owner	Ecological Consultant; USACE; NRCS/ SWCD; IEPA; Kane County	Not Applicable	1-10 Years
3-6	Private Residential Property	20.3	Privately owned residential parcels east of Boyer Rd	Incorporate Conservation Design standards into future development with an emphasis on promoting groundwater/ aquifer recharge and reducing impervious surfaces. Future acquisition opportunity for the Village of Algonquin.	Not applicable			Critical Area/High	Private Owner	Ecological Consultant; USACE; NRCS/ SWCD; IEPA; Kane County	Not Applicable	1-10 Years
7-11	Private Ag Parcel	182.8	Privately owned parcels currently in agricultural production	Incorporate Conservation Design standards into future development with an emphasis on promoting groundwater/ aquifer recharge and reducing impervious surfaces. Future acquisition opportunity for the Village of Algonquin.	Not applicable			Critical Area/High	Private Owner	Ecological Consultant; USACE; NRCS/ SWCD; IEPA; Kane County	Not Applicable	1-10 Years
12-17	Quarry Property	205.9	Privately owned parcels currently a quarry north of Huntley Rd and east of Square Barn Rd	Incorporate Conservation Design standards into future development with an emphasis on promoting groundwater/ aquifer recharge and reducing impervious surfaces. Future acquisition opportunity for the Village of Algonquin.	Not applicable			Critical Area/High	Private Owner	Ecological Consultant; USACE; NRCS/ SWCD; IEPA; Kane County	Not Applicable	1-10 Years
18	Private Ag Parcel	36.1	Privately owned parcels currently in agricultural production	Incorporate Conservation Design standards into future development with an emphasis on promoting groundwater/ aquifer recharge and reducing impervious surfaces. Future acquisition opportunity for the Village of Algonquin.	Not applicable			Critical Area/High	Private Owner	Ecological Consultant; USACE; NRCS/ SWCD; IEPA; Kane County	Not Applicable	1-10 Years
19-20	ComEd Parcel	20.0	ComEd parcel at end of Par Dr	Incorporate Conservation Design standards into future development with an emphasis on promoting groundwater/ aquifer recharge and reducing impervious surfaces. Future acquisition opportunity for the Village of Algonquin.	Not applicable			Critical Area/High	ComEd/ Private	Ecological Consultant; USACE; NRCS/ SWCD; IEPA; McHenry County	Not Applicable	1-10 Years

ID #	Site Name/ Location	Units (Acres or Linear Feet)	Existing Condition	Management Measure Recommendation	Pollutant Reduction Efficiency			Priority	Owner & Responsible Entity	Sources of Technical Assistance	Cost Estimate	Implementation Schedule (Years)
					TSS (tons/yr)	TP (lbs/yr)	TN (lbs/ yr)					
21	Plote Property	84.5	Privately owned parcel on southwest corner of Boyer Rd and County Line Rd	Incorporate Conservation Design standards into future development with an emphasis on promoting groundwater/ aquifer recharge and reducing impervious surfaces. Future acquisition opportunity for the Village of Algonquin.	Not applicable			Critical Area/High	Private Owner	Ecological Consultant; USACE; NRCS/ SWCD; IEPA; Kane County	Not Applicable	1-10 Years
22	Beckly Lynn Ln Wetland	18.7	Privately owned parcel north of Becky Lynn Ln right-of-way	Incorporate Conservation Design standards into future development with an emphasis on promoting groundwater/ aquifer recharge and reducing impervious surfaces. Future acquisition opportunity for the Village of Algonquin.	Not applicable			Critical Area/High	Private Owner	Ecological Consultant; USACE; NRCS/ SWCD; IEPA; McHenry County	Not Applicable	1-10 Years
Other Management Measure Recommendations – See Figure 22 for project location												
1	Corporate Campus Preserve Swale Retrofit	5.5	Corporate Campus Preserve west of Boyer Rd and south of Corporate Parkway	Future restoration opportunity.	21	31	339	Critical Area/High	Village of Algonquin	Ecological Consultant/ Contractor	Not Applicable	1-10 Years
2	Corporate Campus Preserve Wetlands	17.1	Corporate Campus Preserve west of Boyer Rd and north of Corporate Parkway	Future restoration opportunity.	68	97	1,075	Critical Area/High	Village of Algonquin	Ecological Consultant/ Contractor	Not Applicable	1-10 Years
3	ComEd Parcel	13.2	ComEd parcel at south end of Par Dr.	Future acquisition by the Village of Algonquin and future restoration opportunity.	5	15	59	Critical Area/High	ComEd	Ecological Consultant/ Contractor	Not Applicable	1-10 Years
6	Spella Park Degraded Woodland	4.3	Spella Park degraded woodland north of Spella Sled Hill	Future restoration opportunity.	2	5	25	Medium	Village of Algonquin	Ecological Consultant/ Contractor	Not Applicable	5-15 Years
7	County Line Rd Open Space	3.8	County Line Rd open space between County Line Rd and Williamsburg Dr.	Future acquisition by the Village of Algonquin and future restoration opportunity.	1	3	22	Medium	Private	Ecological Consultant/ Contractor	Not Applicable	5-15 Years
8	11905 Eshbach Ln	7.0	11905 Eshbach Ln	Future acquisition by the Village of Algonquin and future restoration opportunity.	2	5	36	Medium	Private	Ecological Consultant/ Contractor	Not Applicable	5-15 Years
9	Pond View Dr Park	1.0	Pond View Dr Park on Pond View Dr.	Future restoration opportunity.	1	1	7	Low	Village of Algonquin	Ecological Consultant/ Contractor	Not Applicable	20+ Years
14	Highland Glen Townhomes Woodland	9.4	Highland Glen Townhomes woodland between townhomes and WCR14	Future acquisition by the Village of Algonquin and future restoration opportunity.	11	25	221	Critical Area/High	Private	Ecological Consultant/ Contractor	Not Applicable	1-10 Years

LAKE IN THE HILLS

ID #	Site Name/ Location	Units (Acres or Linear Feet)	Existing Condition	Management Measure Recommendation	Pollutant Reduction Efficiency			Priority	Owner & Responsible Entity	Sources of Technical Assistance	Cost Estimate	Implementation Schedule (Years)
					TSS (tons/yr)	TP (lbs/yr)	TN (lbs/ yr)					
Stream & Riparian Area Restoration Recommendations – See Figure 20 for project location												
WCR09	Woods Creek Reach 9	1,887.7	The stream riparian area is characterized by scrub/shrub and features a riparian corridor dominated by second-growth trees and shrubs. It additionally has areas of low-quality, cattail marsh. The banks are severely eroded, and the channel is actively downcutting.	Design, permit, and implement a project to remove second-growth trees and shrubs and plant native vegetation. Regrade banks, enhance existing riffles, create floodplain benches, and remeander where feasible.	305	307	626	Critical Area/High	Private Owner	Environmental Consultant/ Contractor, McHenry County, MCSWCD	$849.5K to design and construct. $65K to implement three-year M&M.	1-10 Years

In the ten years since the plan was completed, many projects have been implemented by multiple entities and the watershed has seen marked improvement in ecological conditions. **Table 13** provides a list of projects recommended in the original 2013 Woods Creek WBP plan that have been completed over the last 10 years, again listed by jurisdiction. These projects will require ongoing maintenance by the Village/landowner and are prioritized as "Completed/Continue Critical Maintenance" and mapped as such on **Figure 18**, **20**, and **22**. Highlights include:

Village of Algonquin

- 31 detention basin retrofits (69.2 acres)
- 7 Streambank & Channel Restorations (9,597.6 LF)
- 2 Riparian Area Restorations (194.7 acres)
- 6 Other Management Measures (131.8 acres)


Left: Restored Woods Creek Reach 2-3, Right: Restored Woods Creek Reach 5

Crystal Lake Park District

- 5 detention basin retrofits (33 acres)
- 2 Streambank & Channel Restorations (3,803 LF)
- 2 Riparian Area Restorations (29 acres)
- 1 Other (30 acres) - Willows Edge Park


Left: Restored Fetzner Park Detention, Right: Restored Woods Creek Tributary Reach 4

Village of Lake in the Hills

- 3 Stream & Riparian Area Restorations (6,479 LF)
- 1 Lake Shoreline Restoration (1,000 acres) – Turtle Island Park

Left: Restored Woods Creek Reach 10, Right: Restored Woods Creek Reach 11

TABLE 13. Projects completed from 2013 plan.

ALGONQUIN

ID #	Site Name/ Location	Units (Acres or Linear Feet)	Existing Condition	Management Measure Recommendation	Priority
Detention Basin Retrofit					
09	Algonquin Commons Detention	1.4	Wet bottom detention area in good ecological condition, with a previously restored native buffer.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
34	Spectrum Detentions	0.5	Wet bottom detention area in good ecological condition, with a naturalized basin actively being managed.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
35	Spectrum Detentions	0.5	Dry bottom detention area in good ecological condition, with a naturalized detention being actively managed.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance

ID #	Site Name/ Location	Units (Acres or Linear Feet)	Existing Condition	Management Measure Recommendation	Priority
36	Spectrum Detentions	2.5	Wet bottom detention area in good ecological condition, with a restored buffer actively being managed.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
37	Grand Reserve Detention	11.8	Wet bottom detention area in good ecological condition, with a previously restored basin actively being managed.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
38	Spella Park Detention	2.1	Wetland bottom detention area in good ecological condition, with a previously restored basin actively being managed.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
54	Westview Crossing Detention Village	4.8	Wet bottom detention area in average ecological condition, featuring new development with native vegetation in the establishment phase.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
56	Wood Park Detentions	2.4	Wet bottom detention area in good ecological condition, featuring a recently restored buffer and emergent native plant plugs.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
59	Trails of Woods Creek Detention	1.1	Wet bottom detention area in good ecological condition, recently restored with native vegetation.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
60	Trails of Woods Creek Detention	2.0	Wet bottom detention area in good ecological condition, recently restored with native vegetation.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
61	Trails of Woods Creek Detention	11.7	Wet bottom detention area in good ecological condition, recently restored with native vegetation.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
62	Trails of Woods Creek Detention	7.7	Wet bottom detention area in good ecological condition, recently restored with native vegetation.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
71	Woods Creek Corridor Detention	1.2	Wet bottom detention area in good ecological condition, previously restored with natives.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
72	Woods Creek Corridor Detention	0.9	Wet bottom detention area in good ecological condition, previously restored with natives.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance

ID #	Site Name/ Location	Units (Acres or Linear Feet)	Existing Condition	Management Measure Recommendation	Priority
73	Woods Creek Corridor Detention	1.0	Wet bottom detention area in good ecological condition, previously restored with natives.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
74	Woods Creek Corridor Detention	0.5	Wet bottom detention area in good ecological condition, previously restored with natives.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
75	Woods Creek Corridor Detention	0.8	Wet bottom detention area in good ecological condition, previously restored with natives.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
76	Woods Creek Corridor Detention	0.2	Wet bottom detention area in good ecological condition, previously restored with natives.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
77	Woods Creek Corridor Detention	0.2	Wet bottom detention area in good ecological condition, previously restored with natives.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
78	Woods Creek Corridor Detention	0.2	Wet bottom detention area in good ecological condition, previously restored with natives.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
79	Woods Creek Corridor Detention	0.9	Wet bottom detention area in good ecological condition, previously restored with natives.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
80	Woods Creek Corridor Detention	1.4	Wet bottom detention area in good ecological condition, previously restored with natives.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
81	Woods Creek Corridor Detention	0.7	Wet bottom detention area in good ecological condition, previously restored with natives.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
82	Woods Creek Corridor Detention	2.4	Wet bottom detention area in good ecological condition, previously restored with natives.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
83	Woods Creek Corridor Detention	0.6	Wet bottom detention area with turf in poor ecological condition, featuring a buffer dominated by second growth woody and herbaceous species.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance

ID #	Site Name/ Location	Units (Acres or Linear Feet)	Existing Condition	Management Measure Recommendation	Priority
99	Lake Drive South Detention	2.8	Wet bottom detention in good ecological condition; previously restored with native species.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
100	Arquilla Detention	1.2	Wetland bottom detention in good ecological condition; previously restored with natives.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
Streambank & Channel Restoration					
WCR02	North of County Line	1,073.4	The stream riparian area is characterized by prairie with previously restored banks and channels.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
WCR03	South of pedestrian bridge at Spella Park	1,963.3	The stream riparian area is characterized by prairie with previously restored banks and channels.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
WCR04	Between Spella Park pedestrian bridge & Woods Creek Ln.	1,077.2	The stream riparian area is characterized by prairie with previously restored banks and channels.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
WCR05	Between Woods Creek Ln. and Bunker Hill Dr.	1,590.9	The stream riparian area is characterized by prairie with previously restored banks and channels.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
WCR06	North of Bunker Hill Dr	1,335.6	The stream riparian area is characterized by prairie with previously restored banks and channels.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
WCR07	N. of Bunker Hill Dr. & W. of Reach 6	1,072.9	The stream riparian area is characterized by prairie with previously restored banks and channels.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
WCT06 /07 (CCR01 from 2013 plan)	N. of Woods Creek Ln	1,484.3	The stream riparian area is characterized by prairie with previously restored banks and channels.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance

ID #	Site Name/ Location	Units (Acres or Linear Feet)	Existing Condition	Management Measure Recommendation	Priority
Riparian Area Restoration (as identified in 2013 Plan)					
2	Woods Creek Riparian Corridor Reaches 2-7: County Line to Algonquin Rd.	185.0	The stream riparian area is characterized by prairie with previously restored banks and channels.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
Other Management Measures					
4	Spella Wetland/Sled Hill/Southwest Fen	105.1	Previously restored natural areas, wetland, and fen	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
5	Grand Reserve Prairie	5.4	Previously restored prairie	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
10	Woods Creek Library/ Soccer Field	5.5	Previously restored natural area	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
11	Creekside Townhomes Riparian Area	10.7	Previously restored riparian area	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
12	Winding Creek Corridor Restored Section	4.3	Previously restored riparian area	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
13	Brookside Bridge Prairie	0.7	Previously restored prairie	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance

CRYSTAL LAKE PARK DISTRICT

ID #	Site Name/ Location	Units (Acres or Linear Feet)	Existing Condition	Management Measure Recommendation	Priority
Detention Basin Retrofit					
97	Hampton	3.5 ac	An approximately 0.16 ac pollinator plot/rain garden was installed in 2017 around two drain outlets on the east side of the park.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
101	Woodscreek Park	17.0 ac	Invasive trees and shrubs were removed throughout the pond buffer in winter 2023-24. Native mesic prairie buffer and wet prairie shoreline/lower slope seed mixes have been installed. Some supplemental native emergent plugs have been installed along the shoreline edge. Ongoing vegetation maintenance is being conducted, directed at control of invasive herbaceous and woody vegetation.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
113, 114	Fetzner Park	4.5 ac	Both dry bottom basins have been converted to native vegetation (2018) and have received ongoing vegetation maintenance directed at control of invasive herbaceous and woody vegetation for several years.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
121, 123	Winding Creek Park	4.5 ac	Invasive trees and shrubs were removed in winter 2023-24 throughout the western pond buffers on CLPD property. Native mesic prairie buffer and wet prairie shoreline/lower slope seed mixes have been installed. Ongoing vegetation maintenance is being conducted, directed at control of invasive herbaceous and woody vegetation.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
124	Indian Prairie Park	3.5 ac	Ongoing vegetation maintenance is being conducted, directed at control of invasive herbaceous and woody vegetation.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
Streambank & Channel Restoration					
WCTR 2: Woods Cr Trib Reach 2	Fetzner Park	2,396 lf	Four artificial riffle structures were installed within the stream channel as part of a riparian corridor restoration project in 2017.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance

ID #	Site Name/ Location	Units (Acres or Linear Feet)	Existing Condition	Management Measure Recommendation	Priority
TRB: Unnamed Trib B	N. of Alexandra Blvd. along path in Woodscreek Park	1,407 lf	In winter 2023-24, European black alder trees were removed from the banks of this tributary, immediately west of Woodscreek Park. Herbaceous invasive vegetation control including common reed control is being conducted along this reach.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
Riparian Area Restoration & Maintenance					
13	Woods Creek Reach 2 Riparian Corridor in Fetzner Park	15 ac	In conjunction with Critical Detention Project # 113/114 and high priority Streambank/Channel Restoration WCTR 2, selective removal of invasive trees, shrubs and turf grass has been conducted along the stream banks and immediate buffer in 2017. Native seed mixes as well as native trees and shrubs have been installed. Ongoing vegetation maintenance is being conducted, directed at control of invasive herbaceous and woody vegetation.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
15	Riparian Corridor along Woods Creek Trib. Reach 4 along Winding Creek Park	14 ac	Winter 2022-23, some invasive shrub and smaller invasive tree removal work was conducted within the corridor along the western bank on CLPD property. Ongoing vegetation maintenance is being conducted, directed at control of invasive herbaceous and woody vegetation within the corridor and buffers.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
Other Management Measures					
11	Willows Edge Park	30 ac	(winter 2022-23) In selected areas along the trail corridor, invasive shrub and tree removal work were carried out. Ongoing vegetation maintenance is being conducted, directed at control of invasive herbaceous and woody vegetation throughout the buffer areas. Native seed mixes and plugs have been installed in restoration project areas.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance

LAKE IN THE HILLS

ID #	Site Name/ Location	Units (Acres or Linear Feet)	Existing Condition	Management Measure Recommendation	Priority
Stream & Riparian Area Restoration					
WCR10	Carpenter Park	1,817 lf	Completed in 2019. 1,800 linear feet of stream restoration and 25 acres of riparian wetlands and prairie restoration. Involved herbaceous and woody invasive species removal followed by native seeding in the riparian area. Streambanks were regraded with some areas stabilized with stone toe. Various cross vane riffles were also restored. Project design and construction were funded by IEPA 319 Grant.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
WCR11	Carpenter Park	3,129 lf	Completed in 2022. 3,100 linear feet of stream remeandering and restoration and 25 acres of riparian and wetlands and prairie restoration. Involved herbaceous and woody invasive species removal followed by native seeding in the riparian area. Entire reach was previously channelized and entire reach remeandered. Streambanks were regraded with some areas stabilized with stone toe. Various cross vane riffles were also restored. Project design and construction were funded by IEPA 319 Grant.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance
WCR12	Morningside Park/Acorn Ln	1,533 lf	Completed in 2023. 700 liner feet of streambank stabilization. Outside meanders were stabilized with rock toe and several wing deflectors. Debris jams were removed from the stream channel. Invasive shrubs were removed from the streambanks.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance

ID #	Site Name/ Location	Units (Acres or Linear Feet)	Existing Condition	Management Measure Recommendation	Priority
Lake Shoreline Restoration					
Turtle Island Park	Five LITH-owned parks around Woods Creek Lake	1,000 lf	LITH completed a shoreline stabilization project in 2019 along the adjacent shoreline of Turtle Island Park and along the circumference of Turtle Island, located on Woods Creek Lake. The shoreline along the island was experiencing severe erosion. The project included approximately 388 linear feet of shoreline stabilization using bioengineered techniques. The shoreline was stabilized using two separate methods, which include limestone fishing outcroppings and coir log toe protection with native vegetation. Additionally, a butterfly garden, bioswale and native landscaping was incorporated into the Park.	Continue ongoing site maintenance.	Completed/ Continue Critical Maintenance

Woods Creek Reach 11 after restoration

7.4 Additional Investigations (New)

Over the course of the planning process several instances were identified that were beyond the scope of the initial planning process where additional research or discovery in the future might further plan goals and implementation. Additional potential watershed investigations that the Woods Creek Watershed Committee (WCWC) could pursue in the future include, but are not limited to, the following:

- Updated Comprehensive Plan from the Village of Algonquin or other communities as appropriate
- Augmenting or modifying the Site-Specific Action Plan to reflect any new projects
- Review of FEMA's updated regulatory floodplain maps and how changes might affect Woods Creek watershed

These additional investigations are considered High Priority/Critical Areas for future funding should the WCWC decide to pursue them in the future.

7.5 Plan Amendments (New)

Data, research, and methodologies are continuously updating and evolving. To accommodate new and updated information, WCWC may decide to update the plan by way of Amendment as often as yearly, if necessary. The process for updating the plan will be led by WCWC and include amendments as agreed to and documented during meetings and attached to the final watershed-based plan as an Amendment. Amendments should be written as stand-alone documents that reference the plan and appropriate plan sections. The process is outlined as follows:

- WCWC research and documents Amendment
- WCWC approves Amendment
- WCWC sends Amendment to IEPA for review and approval
- IEPA and WCWC agree to make edits as necessary
- WCWC publishes Amendment

Amendments might include additional projects that were not identified during the planning process; new practices, methodologies, or programs that will improve implementation and our watershed outcomes; the results or outcomes of any additional investigations (as identified in Section 7.4); updated Illinois State Water Survey groundwater research; or any similar findings that WCWC and IEPA agree to. WCWC will house a link to the approved watershed-based plan and any approved

amendments on the Village of Algonquin's website, currently available at https://www.algonquin.org/egov/documents/1378486374_5526.pdf.

8.2 Goal Milestones/Progress Evaluation "Report Cards" (Update)

As part of the update process, the original report cards of the plan were reviewed and progress towards milestones was recorded. In some cases, it was determined that some of the 10–20-year milestones needed to be revised to align with current policies and practices. For example, there have been massive changes around getting the word out to stakeholders about the watershed; the Village now uses QR Codes at project restoration sites to inform residents of the project and watershed plan details. These QR Codes drive much more extensive and targeted engagement than methods utilized ten years ago – one site alone had over a thousand views with high levels of engagement. A summary of milestone progress and adaptive management revisions to report cards follows, by report card.

Goal A Report Card

Identify, protect, and manage the Green Infrastructure Network.

Historic and Current Condition:

- The historic landscape was a mix of prairie, savanna, and wetland prior to European settlement in the 1830s.
- In 2012, medium density residential comprises the most acreage in the watershed (1,812.3 acres; 32.9%) followed by transportation (753.1 acres; 13.7%), and commercial/retail (458.3 acres; 8.3%). Only 404.9 acres (7.4%) of wetlands remain.
- The largest loss of a land use/land cover is predicted to occur on agricultural land (-293.6 acres; -5.3%) in the next 30 years.
- A parcel level inventory found that green infrastructure comprises over 2,000 acres or nearly 40% of the watershed.
- Several Ecologically Significant Areas remain as green infrastructure: 5 ADID wetlands, Spella Park wetland, 2 McNAI sites.

Criteria to Meet Goal Objectives:

- # of communities incorporating Green Infrastructure Plan into Comprehensive Plans and development review maps.
- # of new developments on "Priority Green Infrastructure Protection Areas" that incorporate Conservation Design.
- % of protected green infrastructure parcels harboring "Ecologically Significant Areas" or T&E species.
- % of public natural area Green Infrastructure Network parcels with management plans that are implemented.
- Dollars leveraged from road expansion projects used to fund green infrastructure management.

Goal Milestones:	**Grade**
1-5 Yrs: *(Critical)* 1) The Green Infrastructure Plan is incorporated into all municipal Comp Plans and development reviews. 2) All "Priority Green Infrastructure Protection Area" recommendations are followed. 3) Management plans are developed for all of public natural area Green Infrastructure Network parcels. 4) >$100K is leveraged from road & other infrastructure projects for green infrastructure management.	A
1-10 Yrs: *(Short)* 1) At least 50% of sites with Ecologically Significant Areas or T&E species are protected. 2) All "Priority Green Infrastructure Protection Areas" recommendations are followed. 3) All management plans developed for public natural area Green Infrastructure Network parcels are implemented. 4) >$200K is leveraged from road & other infrastructure projects for green infrastructure management.	A
10-20 Yrs *(Long)* 1) At least 75% of sites with Ecologically Significant Areas or T&E species are protected. 2) All "Priority Green Infrastructure Protection Area" recommendations are followed. 3) All management plans developed for public natural area Green Infrastructure Network parcels are updated and implemented. 4) >$400K is leveraged from road & other infrastructure projects for green infrastructure management.	

Monitoring Needs/Efforts:

- Track number of communities that incorporate Green Infrastructure Plan into Comp Plans and development reviews.
- Track new developments on "Priority Green Infrastructure Protection Areas" that incorporate Conservation Design.
- Track number of protected parcels with "Ecologically Significant Areas" or T&E species.
- Track number of green infrastructure natural areas with management plans and those where implementation has occurred.
- Track dollars levered from road & other infrastructure projects that is used to manage green infrastructure.

Remedial Actions:

- Find out why a community does not include the Green Infrastructure Plan in Comp Plans and development reviews.
- Reassess municipal budgets for green infrastructure protection efforts and adjust if necessary.
- Check permitting process to ensure "Priority Green Infrastructure Protection Area" recommendations are considered.
- Determine if an attempt was made to leverage money from road & other infrastructure projects.

Notes:

Excellent track record on Green Infrastructure protection

Grade Evaluation: 80%-100% met = A; 60%-79% met = B; 40%-59% met = C; and < 40% = failed.

Goal B Report Card

Create policy to protect watershed resources from the impacts of future development.

Current Policy and Regulations:

- Various levels of watershed protection policy and regulations exist for Woods Creek watershed.
  - Land development is regulated by county Stormwater Ordinances.
  - Other entities with watershed jurisdictional or technical advisory roles include the USACE, USFWS and IDNR, and the McHenry and Kane Soil and Water Conservation Districts (SWCDs).
  - Municipalities in the watershed may or may not provide additional watershed protection above and beyond existing county watershed ordinances under local Village Codes.
  - The Illinois EPA Bureau of Water regulates wastewater and stormwater discharges to streams and lakes via the National Pollutant Discharge Elimination System (NPDES) program.

Criteria to Meet Goal Objectives:

- # of municipalities that adopt the Woods Creek Watershed-Based Plan.
- # of municipal ordinances that include a protection overlay requiring Conservation Design on green infrastructure parcels.
- % of new developments where protection, restoration, and/or donation of natural areas is required.
- Policy is in place that requires Development Impact Fees/Special Service Area taxes used to fund green infrastructure.
- % of watershed partners who actively use the watershed plan for policy purposes.

Goal Milestones:	**Grade**
1-5 Yrs: *(Critical)* 1) All municipalities in the watershed adopt the Woods Creek Watershed-Based Plan. 2) All municipal ordinances include a watershed protection overlay that specifically requires some degree of Conservation Design for all development located on green infrastructure parcels. 3) Each municipality creates policy that requires Development Impact Fees/Special Service Area taxes.	B
1-10 Yrs: *(Short)* 1) >50% of new developments protect, restore, and/or donate natural areas to the appropriate management agency. 2) All watershed partners actively use the watershed plan for policy purposes.	A
10-20 Yrs: *(Long)* 1) All municipalities include policy recommendations in Comp Plan and ordinance updates. 2) All municipal ordinances leverage a watershed protection overlay to protect the GIN.	

Monitoring Needs/Efforts:

- Track number of municipalities that adopt the Woods Creek Watershed-Based Plan.
- Track municipal ordinances that include Conservation Design policy on Green Infrastructure parcels.
- Each municipality track % of developments where natural areas are donated to appropriate agency for management.
- Track requirements of each municipality related to Impact Fees/SSAs that fund green infrastructure.
- Create stakeholder survey related to phosphorus use.
- Track number of municipalities that use the watershed plan for policy purposes.

Remedial Actions:

- Find out why a partner may not have adopted the Woods Creek Watershed-Based Plan or any of the policy recommendations and work with the partner(s) to address concerns.
- Find out how Impact Fees/SSAs are being collected and used to fund green infrastructure and work with partners to find appropriate natural area management companies.
- Offer free soil testing related to phosphorus use if surveys indicate no positive change.
- Work with partners to implement the watershed plan who do not have a professional on staff dedicated to this role.

Notes:

Algonquin has completed all of the 1-5 year milestones; need more support from other partners.
IL Phosphorus laws have changed requiring updates to long-term goals. Revised accordingly.

Grade Evaluation: 80%-100% met = A; 60%-79% met = B; 40%-59% met = C; and < 40% = failed.

Goal C Report Card

Restore and manage aquatic and terrestrial habitat.

Current Condition:

- The historic landscape consisted of prairies, savannas, and wetlands prior to European settlement in the 1830s.
- Following European settlement, fires rarely occurred, prairies were tilled for farmland or developed, wetlands were drained, and several streams were channelized.
- Several "Ecologically Significant Areas" remain within the watershed: 5 ADID wetlands, Spella Park wetland, 2 McNAI sites.
- Over 64% of stream length is moderately to high channelized; 62% of stream length is moderately to highly eroded.
- 269 acres (57%) of riparian corridor is in poor condition; 205 acres (43%) is average to good condition.
- 134 total detention basins, 9 (7%) provide "Good" ecological and water quality benefits, 34 (26%) provide "Fair" benefits, 91 (68%) basins provide "Poor" ecological/water quality benefits.
- Aquatic plant cover in Woods Creek Lake is 54%.

Criteria to Meet Goal Objectives:

- Percentage of natural area Green Infrastructure Network parcels with management plans that are implemented.
- Acres of riparian habitat managed, restored, or enhanced.
- Linear feet and/or number of stream reaches where habitat is enhanced.
- Percentage of good to fair ecological condition detention basins that are actively managed.
- Number of "Critical Area" and "High Priority" detention basins retrofitted with native vegetation.
- Overall aquatic plant cover in Woods Creek Lake less than 40%.

Goal Milestones:	**Grade**
1-5 Yrs: (Critical) 1) Management plans are developed for all of public natural area Green Infrastructure Network parcels. 2) ≥ 2 "Critical Area" stream reaches where habitat is enhanced. 3) >50% of all good to fair condition detention basins are managed. 4) ≥ 2 "Critical Area" detention basins retrofitted with native vegetation.	A
1-10 Yrs: (Short) 1) All management plans for public natural area Green Infrastructure Network parcels are implemented. 2) >250 acres of riparian habitat is managed, restored, or enhanced. 3) ≥ 2 "Critical Area" or "High Priority" stream reaches where habitat is enhanced. 4) >75% of all good to fair condition detention basins are managed. 5) ≥ 4 "Critical Area" or "High Priority" detention basins retrofitted with native vegetation. 6) Aquatic plant cover in Woods Creek Lake is maintained at less than 40%.	B
10-20 Yrs: (Long) 1) All management plans for public natural area Green Infrastructure Network parcels are updated and implemented. 2) >100 additional acres of riparian habitat is managed, restored, or enhanced. 3) ≥ 4 "Critical Area" or "High Priority" stream reaches where habitat is enhanced. 4) All good to fair condition detention basins are managed. 5) ≥ 10 "Critical Area" detention basins retrofitted with native vegetation. 6) Aquatic plant cover in Woods Creek Lake is maintained at less than 40%.	

Monitoring Needs/Efforts:

- Public entities track % and acres of natural green infrastructure areas where management plans have been developed and implemented.
- Track total linear feet of stream or number of stream reaches where habitat is enhanced.
- Track number of good to fair condition detention basins that are managed.
- Track number of "Critical Area" and "High Priority" detention basins retrofitted with native vegetation.
- IDNR and VLMP continue to estimate aquatic plant cover in Woods Creek Lake during scheduled inventories.

Remedial Actions:

- Public entities prepare annual budgets for restoring habitat and leverage mitigation dollars from proposed road expansions.
- Assist detention basin owners with selecting ecological management companies and potential funding sources.
- Meet with IDNR or VLMP prior to Woods Creek Lake surveys and request an inventory of aquatic plant cover.

Notes:

Need more work on management of good to fair detention basins and Critical Area detention retrofits.

Grade Evaluation: 80%-100% met = A; 60%-79% met = B; 40%-59% met = C; and < 40% = failed.

Goal D Report Card

Provide watershed educational opportunities.

Current Condition:

- The Village of Algonquin is currently spearheading and promoting the Watershed-Based Plan. Crystal Lake Park District, Crystal Lake, and Lake in the Hills are the other partners involved.
- The watershed partners: Algonquin, Crystal Lake Park District, Crystal Lake, and Lake in the Hills currently promote appreciation and stewardship of the watershed through many education and volunteer campaigns.
- Education will be ongoing and involve constant and continuous campaigns to reach as many target audiences as possible.

Criteria to Meet Goal Objectives:

- Number of ways taken to inform the general public that a watershed plan has been developed.
- Number of people that attend campaigns aimed at land management links to watershed impacts, benefits of ecological restoration, and benefits of managing green infrastructure.
- Number of people that attend education campaigns related to management of phosphorus and road salt use.
- Number of elected officials that attend watershed tours.
- Number of people attending "Volunteer Days" in the watershed.
- Number of school or boy/girl scout service projects.
- Number of demonstration projects implemented.

Goal Milestones:	**Grade**
1-5 Yrs: 1) Watershed partners inform public about the watershed plan via media and watershed activity campaigns. *(Critical)* 2) At least one elected official representing each watershed partner attend a watershed tour. 3) ≥2 demonstration projects are implemented.	B
1-10 Yrs: 1) ≥20 people attend each land management, ecological restoration, and green infrastructure campaign. *(Short)* 2) ≥30 people attend each phosphorus and road salt education campaign. 3) At least two elected officials representing each watershed partner attend a watershed tour. 4) ≥50 people attend each "Volunteer Days" event. 5) ≥5 school or boy/girl scout projects are supported by watershed partners. 6) ≥4 demonstration projects are implemented.	C
10-20 Yrs: 1) ≥50 people follow QR Codes to get more information on ongoing projects in the watershed. *11-(Long)* 2) ≥50 people attend each "Volunteer Days" event. 3) ≥5 school or boy/girl scout projects are supported by watershed partners. 4) ≥4 demonstration projects are implemented.	

Monitoring Needs/Efforts:

- Track number of ways taken to inform general public that a watershed plan has been developed.
- Track number of people accessing QR codes with water quality and project details.
- Track number of elected officials that attend each watershed tour.
- Track number of school and boy/girl scout projects supported.
- Track number of demonstration projects implemented.
- Track attendance at Volunteer Days.

Remedial Actions:

- Woods Creek Watershed Committee (WCWC) consider hiring a Watershed Implementation Coordinator to organize education programs.
- Ask state, county, and government agencies such as IDNR, NRCS, and Conservation Districts to sponsor workshops.
- Actively pursue target audiences if attendance at education campaigns is low.
- Put out requests for volunteers to spearhead watershed education campaigns.
- Contact elected officials with a personal invite to attend watershed tours.
- Provide access, signage, and QR codes for all watershed improvement projects to promote them as demonstrations.

Notes: While there is extensive local government participation, the nature of public outreach has changed dramatically. Algonquin has successfully used signage at restoration projects with QR codes to drive residents to detailied outreach information housed on their website. A single project had nearly 700 unique visitors to its dedicated project website. Goal revised to match current approach.

Grade Evaluation: 80%-100% met = A; 60%-79% met = B; 40%-59% met = C; and < 40% = failed.

Goal E and F Report Card

Improve and monitor surface water quality.
Improve groundwater recharge.

Current Conditions:

- Water quality in Woods Creek is generally fair based on collected data. All parameters tested meet recommend standards during base flow conditions. However, total phosphorus, and total suspended solids exceed recommended standards following significant storm events just upstream of Woods Creek Lake; streambank erosion is a primary cause.
- Woods Creek Lake is fully supporting for aquatic life but impaired for fish consumption because of high mercury levels, and impaired for aesthetic quality because of total suspended solids, total phosphorus, and aquatic plants.
- Sensitive Aquifer Recharge Areas: 4,535 acres (82%) is "Low to Moderate" sensitive, 520 acres (10%) is "Moderately High" sensitive, and 453 acres (8%) has "High" potential for aquifer recharge.
- ISWS modeling shows significantly lower levels of stream discharge (-40% to -60%) and significant shallow bedrock aquifer drawdown (70 to 100 feet) by 2049 compared to predevelopment conditions.

Criteria to Meet Goal Objectives:

- Linear feet of restored streambank and lake shoreline.
- Acres of wetland restoration.
- Mercury management study completed for Woods Creek Lake?
- Number of entities using alternatives to road salt.
- % of surveyed stakeholders who changed phosphorus use on lawns based on soil testing.
- Number of detention basins retrofitted with native vegetation.
- Water quality monitoring plan in place; chemical water quality standards: <20 NTUs, <12 mg/l TSS, <0.0725 mg/l TP.
- % of Sensitive Aquifer Recharge Areas (SARA) developed using model policies in county "Groundwater Protection Plans".

Goal Milestones:	**Grade**
1-5 Yrs: (Critical) 1) Construction plans developed for all "Critical Area" and "High Priority" streambank restoration projects. 2) Construction plans developed for eroded shorelines at five LITH parks along Woods Creek Lake. 3) A mercury study is completed for Woods Creek Lake. 4) The municipalities in the watershed implement recommended water quality monitoring plan. 5) All municipalities adopt policy that protects Sensitive Aquifer Recharge Areas (SARA).	A
1-10 Yrs: (Short) 1) All "Critical Area" and "High Priority" streambank restoration projects implemented. 2) Shorelines at all five LITH parks along Woods Creek Lake stabilized. 3) "Critical Area" wetlands are restored on all parcels where new development occurs. 4) Actions included in the mercury study are implemented by LITH. 5) Alternatives to road salt are used by all municipalities. 6) 25% of surveyed stakeholders reduce phosphorus use on lawns based on soil testing. 7) All "Critical Area" detention basins are retrofitted with native vegetation.	B
10-20 Yrs: *(Long)* 1) > 25 residential lots along Woods Creek Lake have restored shoreline. 2) "Critical Area" wetlands are restored on all parcels where new development occurs. 3) Alternatives to road salt are used by all municipalities and DOTs. 4) All "High Priority" detention basins are retrofitted with native vegetation. 5) Water quality monitoring indicates <20 NTUs, <12 mg/l TSS, <0.0725 mg/l TP in Woods Creek.	

Monitoring Needs/Efforts:

- Water chemistry will need to continue indefinitely to track changes in water quality.
- Track # of streambank, shoreline, wetland, and detention retrofit projects implemented.
- Produce stakeholder survey related to phosphorus use on lawns.

Remedial Actions:

- Assess number of projects and actions that have been implemented versus water quality changes to determine if projects are effectively removing pollutants.
- Review policy changes made to protect Sensitive Aquifer Recharge Areas (SARS).

Notes:
Mercury study no longer needed based on fish sampling - mercury in all Woods Creek Lake samples were less than 0.15 µg/g (Best Choices). Phosphorus law changed -related goals are no longer applicable - updated.

Grade Evaluation: 80%-100% met = A; 60%-79% met = B; 40%-59% met = C; and < 40% = failed.

Goal G Report Card
Increase and/or improve recreational opportunities

Current Conditions:

- Biking path/trails are abundant in the watershed, especially along the Woods Creek and Woods Creek Tributary. However, there are areas that lack connectivity.
- The primary fishing opportunities are found at Woods Creek Lake and Woodscreek Park. Fishing along Woods Creek is limited.
- Many publically owned detention basins in the watershed currently support fish and could be improved for fishing access.
- The watershed partners: Algonquin, Crystal Lake Park District, Crystal Lake, and Lake in the Hills currently provide a wide variety of recreational opportunities via local programs and campaigns.

Criteria to Meet Goal Objectives:

- Number of bike path/trail connections made.
- Number of detention basins and stream reaches where fishing access is created or improved.
- Number of new recreation areas or enhancements to existing areas that protect and incorporate green infrastructure.

Goal Milestones:	**Grade**
1-5 Yrs: 1) Plan is developed for bike path/trail connection at County Line Rd. to Boyer Rd. to Harnish Dr. *(Critical)* 2) One publically owned detention basin is improved to support fishing.	B
1-10 Yrs: 1) Bike path/trail connection at County Line Rd. to Boyer Rd. to Harnish Dr. is implemented. *(Short)* 2) Two publically owned detention basins and one stream reach along Woods Creek is improved to support fishing. 3) All new recreation areas and improvements to existing areas incorporates green infrastructure amenities.	B
10-20 Yrs: 1) All new recreation areas and improvements to existing areas incorporates green infrastructure amenities. *(Long)* 2) New residential developments that include detentions incorporate fishing access if appropriate.	

Monitoring Needs/Efforts:

- Track number of bike path/trail connections made.
- Track number of detention basins and/or stream reaches where fishing access is created or improved.
- Track number of new recreation areas or enhancements to existing areas that protect and incorporate green infrastructure.

Remedial Actions:

- Reassess municipal budgets related to recreation.
- Perform survey of publically owned basins and stream reaches where fishing opportunities can be created or improved.
- Require a planning/review step for new recreation areas or enhancements to existing areas that aims to protect and incorporate green infrastructure.

Notes:

Fishing areas have not been added. No longer recommended based on interference with natural area restoration and management.

Grade Evaluation: 80%-100% met = A; 60%-79% met = B; 40%-59% met = C; and < 40% = failed.

Goal H Report Card

Mitigate for existing structural flood problem areas.

Current Condition:

- Two documented Flood Problem Areas (FPAs) were identified in the Woods Creek watershed. FPA #1 is located at Wood Creek's intersection with Woods Creek Lane in the Village of Algonquin. During extremely high water events, Woods Creek overtops Woods Creek Lane. This happens because the culverts under Woods Creek Lane are likely undersized and Woods Creek Lane lies relatively low within the FEMA 100-year floodplain. Obvious mitigation opportunities include the construction of a conspan bridge over Woods Creek or increase in existing culvert size. The Village of Algonquin recently implemented a channel maintenance program in this area which is alleviating the flood problem to some degree.
- FPA #2 is located downstream from the dam on Woods Creek Lake between Hilltop Drive and Algonquin Road (Route 62) within the Village of Lake in the Hills. Overbank flooding causes structural damage to homes and other buildings located within FEMA's 100-year floodplain. Potential mitigation measures in this area are limited. Options include flood proofing individual structures, increasing flood storage volume upstream, and reducing impervious cover as new and re-development occurs upstream

Criteria to Meet Goal Objectives:

- Annual inspection of Dam at Woods Creek Lake by LITH.
- Number of stream restoration projects that reconnect the stream channel to the adjacent floodplain.
- % of new and redevelopment that incorporates impervious reduction stormwater measures.
- # of identified FPAs that are mitigated for.

Goal Milestones:	Grade
1-5 Yrs: 1) The dam at Woods Creek Lake is inspected annually by LITH. *(Critical)* 2) Stream reaches WCR2, WCR3, WCR5, WCR10, WCR11 and TRA1 are evaluated for potential to reconnect hydrologically to adjacent floodplain.	A
1-10 Yrs: 1) The dam at Woods Creek Lake is inspected annually by LITH. *(Short)* 2) All "Priority Green Infrastructure Protection Areas" are developed using Conservation Design. 3) Mitigate for flooding at FPA #1. 4) At least one stream reach is modified to help the hydrologic connection to the adjacent floodplain.	A
10-20 Yrs: 1) The dam at Woods Creek Lake is inspected annually by LITH. *(Long)* 2) All "Priority Green Infrastructure Protection Areas" are developed using Conservation Design. 3) At least one stream reach is modified to help the hydrologic connection to the adjacent floodplain.	

Monitoring Needs/Efforts:

- Track number of inspections of Woods Creek dam conducted by LITH.
- Track number of stream projects that include floodplain reconnection.
- Track number of new and redevelopments that incorporate impervious reduction stormwater measures.
- Track number of mitigated Flood Problem Areas

Remedial Actions:

- Reassess municipal budgets for green infrastructure protection efforts.
- Conduct follow-up visits to Flood Problem Area sites during flood events to determine if additional remedial work is needed.
- Conduct inventory of new and redevelopments to determine feasibility for potential flood reduction retrofits.

Notes:

All 1-10 year recommendations completed.

Grade Evaluation: 80%-100% met = A; 60%-79% met = B; 40%-59% met = C; and < 40% = failed.

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