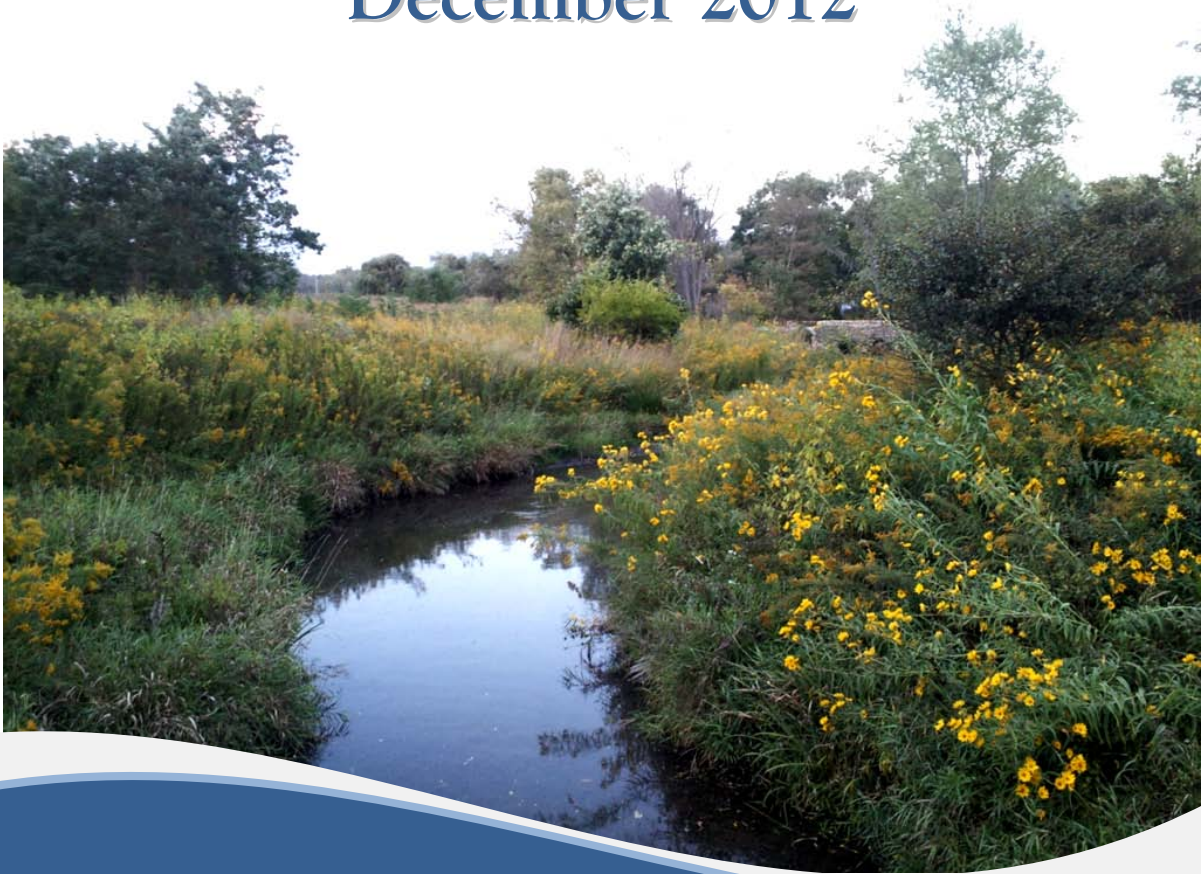
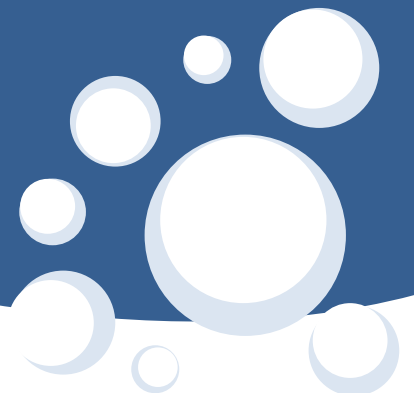


Jelkes Creek-Fox River Watershed Action Plan

Executive Summary December 2012

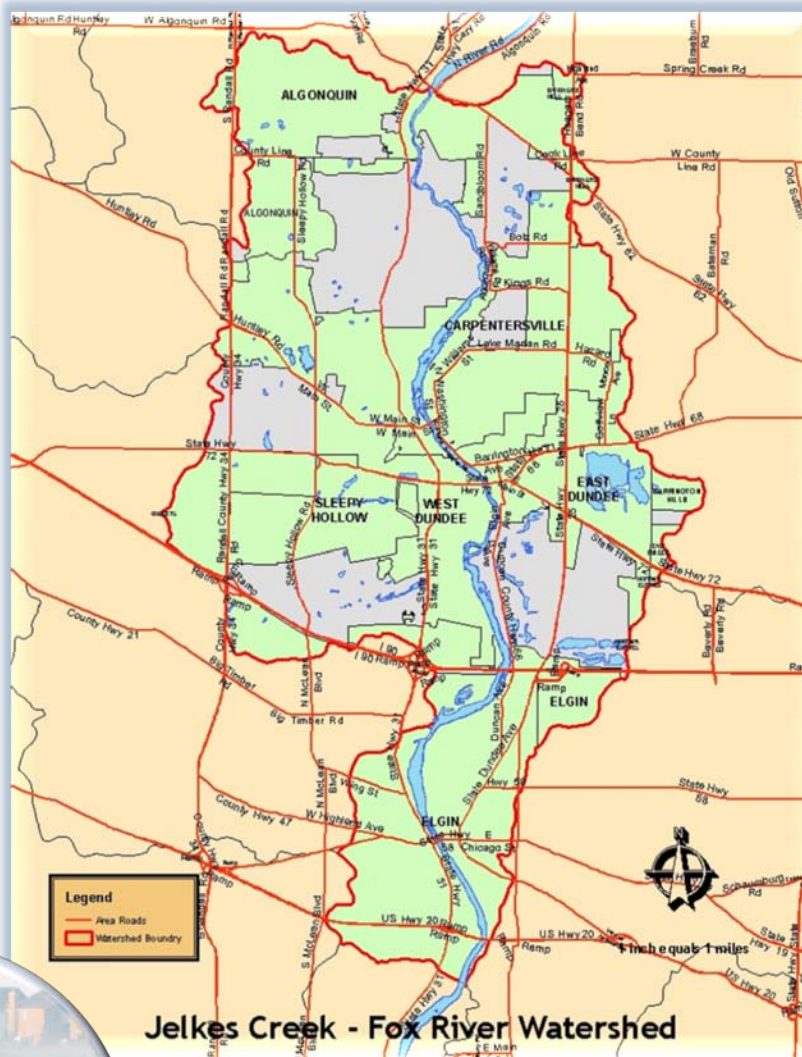


“The mission of the Jelkes Creek-Fox River Action Group is to improve water quality through outreach and best management practices including but not limited to, green infrastructure practices and restoration of riparian areas”



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Jelkes Creek-Fox River Watershed Action Plan Executive Summary



“If it rains on you, you are in a watershed”

-David Poweleit, Jelkes Creek-Fox River Watershed Resident

December 2012

Prepared by:
Geosyntec Consultants

&

Kane-DuPage Soil and Water Conservation District

This plan was prepared using United States Environmental Protection Agency funds under Section 319(h) of the Clean Water Act distributed through the Illinois Environmental Protection Agency. The findings and recommendations herein are not necessarily those of the funding agencies.

Acknowledgements



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The following individuals contributed their technical expertise or provided input at two or more meetings during the planning process.

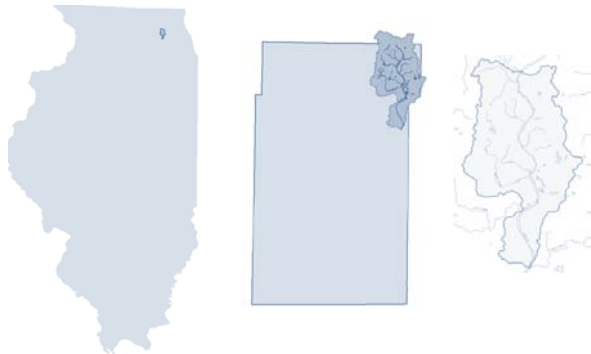
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Executive Summary



What is a Watershed?

A watershed is the land area that drains to a single body of water. Within a watershed, water runs to the lowest point such as a lake, river, stream, or wetland. On its way, water seeps into the ground or travels over suburban lawns, city streets, in storm sewers, farm fields, and natural areas. Watersheds come in many different sizes ranging from just a few square miles to hundreds of square miles. Although some watersheds can be quite large, most are a part of a larger watershed.



What is Non-point Source Pollution?

Non-point source pollution as defined by the United States Environmental Protection Agency (USEPA) is caused by rainfall or snowmelt moving over and through the



Nonpoint source pollution comes from many sources such as yards, and roads

ground. As the runoff moves over areas such as yards, roads and construction sites, it picks up and carries away natural and human made pollutants. This material is deposited into lakes, rivers,

wetlands, coastal waters, and groundwater.

Non-point source pollution comes from many diffuse sources unlike point source pollution which comes from sources such as industrial and sewage treatment plants and can be traced back to its origin.

The Watershed Planning Process

In 2010, the Kane-DuPage Soil and Water Conservation District (KDSWCD) was awarded an Illinois Environmental Protection Agency (Illinois EPA) Section 319 (h) of



Stakeholders determine goals during the watershed planning process

the of the Clean Water Act Grant to provide funding for the Jelkes Creek-Fox River Watershed Plan and Non-point Source Pollution Education Initiative. Since watershed plans had been completed for adjacent watersheds, this would encourage a contiguous effort toward promoting water quality in Northeastern Illinois. The main objectives of this project were to:

- Create a living watershed plan backed by local stakeholders
- Educate the public within the watershed and surrounding watersheds
- Form a coalition of people to drive the initiative forward

The watershed planning process relies on community involvement to create a comprehensive plan to restore aquatic resources

within a hydrologically defined area. Thus local residents, municipal staff, and technical experts from the Jelkes Creek-Fox River Watershed were assembled over a two and a half year period to develop and implement the plan. The purpose of the plan is to provide residents with an understanding of their watershed so that they can initiate projects to improve water quality. While water quality is the primary concern, projects in the plan can also help to conserve unique natural areas in the watershed, protect groundwater and preserve distinct geological features.

Watershed Goals

Six months into the planning process, the stakeholders within the Watershed were asked to identify their concerns and from this create goals. The goals that the Watershed Group developed are listed below:

Goal 1: Improve Water Quality

Objective 1: Increase levels of dissolved oxygen

Objective 2: Reduce salts and chlorides from roads

Objective 3: Require redevelopment to include best management practices (BMPs) and new detention

Objective 4: Reduce impacts from combined sewer overflows (CSOs)

Objective 5: Implement flood reducing best management practices

Goal 2: Reduce Nutrient Loading

Objective 1: Reduce streambank and bed erosion

Objective 2: Address point sources (sewage treatment)

Goal 3: Physical and Habitat Alterations

Objective 1: Complete removal, repair, and/or augment dams located with the Watershed (Algonquin, Carpentersville, and Elgin)

Goal 4: Educate the public about impairments to the Watershed and personal accountability

Objective 1: Develop and maintain stakeholder contact database

Objective 2: Inform the public about the mission of the Jelkes Creek-Fox River Watershed Plan

Objective 3: Create outreach tools including website and brochure

Objective 4: Ensure that non-point source educational programs are available throughout the Watershed

Goal 5: Incorporate BMPs into land use planning

Objective 1: Identify and implement areas for green infrastructure practices

Objective 2: Reduce nutrient loading from agricultural lands

Goal 6: Maintain and preserve existing aquatic and terrestrial ecosystems

Objective 1: Preserve unique fauna (mollusks, mayflies, darters, stoneflies, golden shiner)

Objective 2: Continue to perform stream inventories

Objective 3: Maintain physical and biological stream characteristics

Goal 7: Preserve natural aspects of geology in the Watershed

Objective 1: Develop conservation ordinances to protect springs and geological features

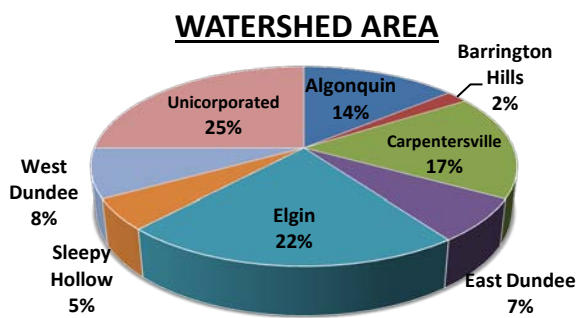
Objective 2: Explore and re-word language in existing ordinances that inhibit the adoption of conservation

Objective 3: Further identify significant geological areas

Objective 4: Inform communities about unique geological features in the Watershed

Watershed Description

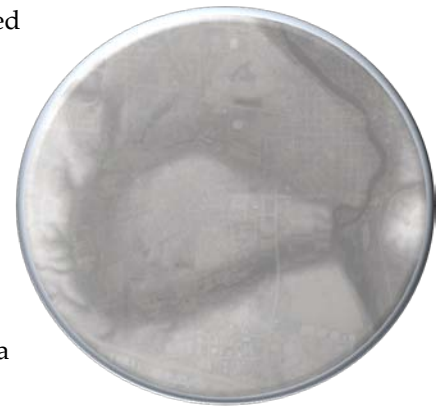
The Jelkes Creek-Fox River Watershed drains 40 square miles (24,916 acres) of land located in northern Kane, southern McHenry, and a small portion Cook Counties and is a sub-basin of the Upper Fox River Watershed. The watershed encompasses portions of Algonquin, Barrington Hills, Carpentersville, East Dundee, Elgin, Sleepy Hollow, and West Dundee. Algonquin, Carpentersville, and Elgin comprise the largest portions of incorporated area within the watershed.



Approximately 62 miles of tributaries located on either side of the Fox River drain towards the center of the Watershed and then flow south through a 12.4 mile stretch of the Fox River. Jelkes Creek is 4.1 miles long (21,648 feet) and is the largest tributary in the watershed. Other tributaries within the Watershed are Ratt Creek, Dixie Creek, Sleepy Creek, Fourwinds Way Creek (Shaw Creek), Carpenter Creek, MacIntosh (No Name) Creek. The Jelkes Creek-Fox River Watershed is surrounded by Watersheds such as Poplar Creek, Spring Creek, Norton Creek, and Tyler Creek.

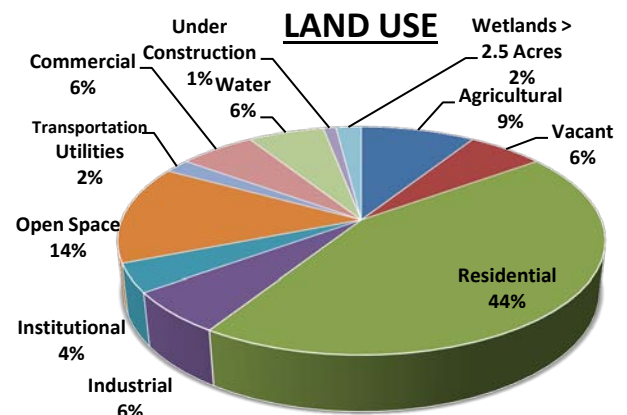
The Jelkes Creek-Fox River watershed is relatively flat in the upper watershed with steeper slopes concentrated along bluffs that flank the Fox River and Jelkes Creek. Jelkes Creek itself, which flows along a historical oxbow of the Fox River, is a distinctive feature of the watershed. The abandoned meander of the Fox River formed a

horseshoe-shaped channel that can be easily seen in maps and aerial photos. The watershed is comprised of 11% wetland areas including a number of rare fens. Fens are a



Jelkes Creek is a distinctive oxbow type of wet meadow fed by an alkaline water source which results in an elevated PH and gives rise to a variety of unique plants.

Prior to settlement, forested areas comprised 50% of the watershed and prairies composed 37%. Today, the largest land uses are agricultural, commercial, residential, institutional, and open space (public and private). Residential comprised the greatest amount of acreage within the watershed at 11,662 acres.



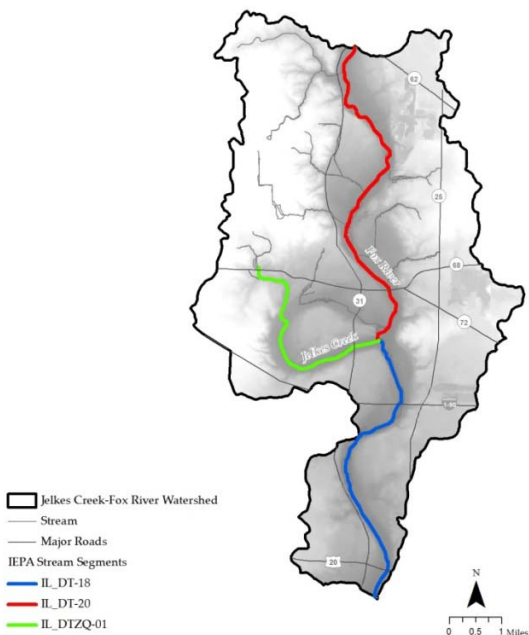
This highly urbanized area is still experiencing growth and redevelopment. Demographic data shows that the area experienced significant population growth between 2000 and 2010, with West Dundee having the highest percentage increase (35%) and Elgin having the greatest absolute increase (13,700). The watershed is also very diverse. Demographics show that Algonquin, for example has a population

that is 6.8% Hispanic or Latino (of any race) while Carpentersville has a 50.1 % Hispanic or Latino population. There is also diversity in income levels within the communities. Year 2010 census data indicates that Algonquin had a median household income of \$96,507 while Carpentersville’s median income was \$55,324. As a result marketing and outreach materials will need to be tailored to the specific audience.

Watershed Assessment

Water quality near urbanized communities in Illinois continues to be impacted by growth and development. Urbanization within the Jelkes Creek- Fox River Watershed has resulted in both point and non-point source water pollution. The Jelkes Creek-Fox River Watershed, designated HUC 071200061206 by Illinois EPA, is identified as a priority 1 targeted watershed, with an impaired portion of the Fox River (segments DT18 and DT20) flowing through its center. The segment of the Fox River includes moderately to heavily urbanized areas.

IEPA Stream Segments within the Jelkes Creek - Fox River Watershed



Potential causes and sources of impairments for aquatic life targeted for improvements along this segment of the Fox River include:

- ◆ low dissolved oxygen
- ◆ streambank modifications/destabilization
- ◆ total suspended solids
- ◆ sedimentation and siltation
- ◆ urban runoff/storm sewers
- ◆ alterations in stream cover
- ◆ combined sewer overflow
- ◆ municipal point source discharges
- ◆ other regime flow alteration

Impairments are not listed for the largest creek in the watershed, DTZQ-01 - Jelkes Creek.

A pollutant load analysis was conducted in conjunction with the watershed plan to identify pollutant non-point sources within the watershed and



Sediment entering Jelkes Creek

relative magnitude of pollutant loads. The results indicate that based on existing watershed conditions, urban land is the largest non-point source of nitrogen and biological oxygen demand (BOD) loads. Urban land and cropland contribute nearly equal amounts of phosphorus and sediment.

A separate study was conducted to statistically estimate erosion and sediment rates within the watershed. This study determined sedimentation from gully, streambank, and sheet/rill erosion. The study indicates that the sediment load from the Jelkes Creek-Fox River watershed is approximately 23,750 tons per year.



Severe streambank erosion (Source: Living Waters Consultants)

There are five major wastewater treatment plants that contribute more than one million gallons of water per day to the watershed. A Wastewater Reclamation and Reuse Study should be conducted to assess the impact of these facilities.

Physical, chemical, and biological data currently available for the Jelkes Creek-Fox River watershed is primarily limited to the



More efforts such as this fish survey are needed within the watershed

Fox River. A program for conducting periodic monitoring is recommended in order to better understand the stream channel, restoration needs, and effectiveness of projects to be implemented under the Jelkes Creek-Fox River Watershed Plan. Stakeholders should work with resource agencies and organizations to develop an appropriate strategy for monitoring including identifying

locations, frequency of sampling, funding needs, and available resources.

Vision and Policy

Local governments have a “vision” of how they aspire to grow, shape community character, and protect natural resources within their



Snuffy's Prairie (Source: Dundee Township Open Space)

current or eventual borders, as expressed through their comprehensive plans and ordinances. During the watershed planning process, a review of municipal and county stormwater, subdivision, zoning, landscaping, and related development ordinances was conducted in order to make policy recommendations. These recommendations are meant to improve water quality and overall health of the watershed by protecting stream habitat, stabilizing hydrologic conditions, and decreasing pollutant loading.

The review was accomplished through the delivery of a 75 question checklist that each of the communities within the watershed (Algonquin, Barrington Hills, Carpentersville, East Dundee, Elgin, Sleepy Hollow, and West Dundee) completed. The checklist revealed that the municipalities within the Watershed are varied in their approaches to development, preservation, and regulation. The ordinance review regarded these 5 major areas:

- Comprehensive Stormwater Standards
 - Stormwater drainage and detention

- Soil erosion and sediment control
- Floodplain management
- Stream and wetland protection
- ◆ Natural Area Standards
- ◆ Landscaping Standards
- ◆ Impervious Area Reduction: Street and Parking Requirement
- ◆ Conservation Design: Zoning/Subdivision Standards

The bulk of the watershed is in Kane County and is subject to the comprehensive stormwater provisions of the *Kane County Stormwater Ordinance* for



Natural landscaping (Source: Dave Poweleit, Resident)

protection of water quality, hydrology and aquatic resources. The review found that while a number of the individual municipal and county (unincorporated) ordinances exceed the minimum requirements of the countywide ordinance some have relatively traditional requirements resulting in gaps in the protection of water quality and wetland resources. With regard to subdivision, zoning and landscaping ordinances there are also communities with advanced standards and others that do not recognize flexible and innovative design practices such as natural landscaping, bio-infiltration, and permeable paving. Communities that wish to change their ordinances to better protect the Jelkes Creek-Fox River Watershed are encouraged to consider relevant elements of the ordinances of their neighboring watershed communities.

implementation of Green Infrastructure within the watershed. Green infrastructure is a strategic approach to protecting and managing networks of natural lands, and open space that conserve ecosystem values and functions. With regard to green infrastructure implementation, the watershed stakeholders are encouraged to consider implementing opportunities on multiple levels ranging from watershed to community, to neighborhood, to individual sites and lots. These would include land acquisition, ecological restoration, greenway and trail connections, private conservation easements, protective land use planning and zoning, conservation development, BMP retrofits, and farmland preservation.



Permeable pavers are a BMP

Watershed Projects

As part of the watershed planning process, watershed stakeholders, including municipal representatives, were asked to submit potential projects that could be implemented



Streambank stabilization on Carpenter Creek

to improve water quality within the Jelkes Creek-Fox River watershed. Three broad categories of representative projects are included in the plan:

- ◆ Retrofits to existing stormwater management infrastructure to address pollutant loading and increased runoff volume in developed areas
- ◆ Stream channel and stream corridor restoration projects to improve habitat

The plan also recommends strategies for

for aquatic life

- Improved management practices on farmland to reduce nutrient and sediment runoff

The projects contained in the plan can serve as examples that stakeholders can utilize to model other similar projects. A number of projects were more fully developed in consultation with the watershed stakeholders and potential project implementers and highlighted in the plan. Many of the recommended projects can provide an added educational benefit as they are in highly visible public areas.



White Chapel detention basin retrofit, Algonquin

A majority of the land in the watershed has already been developed and is classified as urban, as a result many of the project recommendations focus on retrofit opportunities. A variety of urban Best Management Practices (BMPs) could be used throughout the watershed such as the installation of detention basin retrofits, bioretention, and vegetated swales.

While only 9% of the watershed remains as agricultural land, this contributes a significant amount of nutrients and sediment.

Practices that reduce pollutant contributions from agricultural areas play an



No-till corn planted in soybean residue (Source: USDA, NRCS)

important role in improving the water quality within the watershed. Practices such as nutrient management, conservation tillage, crop rotation, and drainage water management. It is likely that these practices are already being utilized within the watershed to some extent and should be continued.

A number of stream and riparian corridor restoration projects are also listed in the plan. Projects listed include dam modifications, stream channel protection and stream and wetland restoration that will reduce nonpoint source pollution and improve water quality.

Education

Community support is essential to the success of a watershed plan. However, community members have become



Algonquin Community Days

disconnected from the watershed in which they live. This has resulted in land use issues and natural resource degradation. A base knowledge of the problems within their communities will enable stakeholders to implement the watershed plan and teach future generations to continue efforts towards protecting the Jelkes Creek-Fox River Watershed.

An online survey of watershed stakeholders was conducted to help determine the direction for continuing education efforts within the watershed. All stakeholders that had been involved with the planning process were invited to take the survey. Thirty-eight people responded. Of the respondents, 86% said that they were not aware of

existing education and information efforts related to water quality/watershed issues within the watershed. Stakeholders were also asked to rank threats to the watershed that are most important to address through education efforts. Those who responded to the survey ranked the concerns as follows:

Ranking	Concern
1-Tie	Runoff from streets and parking lots
1-Tie	Sediment laden runoff from construction activities
2	Streambank erosion
3	Physical habitat alterations
4	Lack of green infrastructure/appropriate ordinances
5	Nutrient loading from agricultural land
6	Fertilizers and pesticides from residential and commercial area

The education survey also asked stakeholders which audiences were most in need of education about watershed issues. Forty-seven percent of the people who responded chose homeowners as the audience to target followed by municipal and elected officials, businesses and youth in schools, scouts and youth groups.

The results of the survey can be used by the coalition to tailor the message and method to reach various audiences within the watershed. The coalition will begin by creating materials that will enable them to cultivate relationships with municipal and elected officials. This will be a critical step in raising awareness and maintaining

support for the plan. Similarly homeowners will be made aware of the plan through media such as press releases and brochures. The coalition should both partner with organizations already offering education opportunities within watershed and consider appointing an education chair in order to reach their goals for future education and outreach.

Conclusion

The Jelkes Creek-Fox River Watershed Action Plan should be viewed as a living document. While developing the plan was a critical step in the management process, the effectiveness of the plan for improving water quality in the watershed will be minimal if the recommendations are not implemented in a meaningful way. The stakeholders who helped to create the plan will now be responsible for carrying it forward by growing the coalition and insuring adoption and execution of the plan. Through their efforts, municipalities and residents alike will be able to use this document as a tool to help them protect water quality where they live.



Four Winds Way Creek
(Source: Jim Cudney)

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Geosyntec
consultants



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