

Chapter 4

Watershed Plan Recommendations

The recommendations presented in the Tyler Creek Watershed Plan are divided into two basic categories:

- Recommendations that are applicable to the entire Tyler Creek watershed or large regions of the watershed and,
- Recommendations that are site-specific to individual sub-watersheds.

At the end of this chapter (Section 3.3), there is a summary and explanation of the basic types of site-specific recommendations identified in the subwatershed chapters. The actual site-specific recommendations for each subwatershed are contained in Chapters:

5. Lower Tyler Creek
6. Central Tyler Creek
7. Upper Tyler Creek
8. Sandy Creek
9. Lower Pingree Creek
10. Upper Pingree Creek

For example, recommendations related to the retrofitting of existing dry bottom detention ponds in the industrial area northwest of McLean Boulevard and Big Timber Road are found in Chapter 5, the Lower Tyler Creek Subwatershed.

What follows here in Section 4.1 is a summary of the strategies that are essential to achieve the goals and objectives of the Watershed Plain. Overall recommendations for the watershed are listed in Section 4.2.

4.1 Key Watershed Protection Strategies:

1. Organize a Tyler Creek Watershed Coalition

Establish an organization that brings together stakeholders and takes responsibility for encouraging responsible parties to implement the recommendations contained in the Watershed Plan. The Tyler Creek Watershed Coalition should be comprised of watershed stakeholders who are committed to work together to preserve and protect the water quality and natural resources of Tyler Creek. The mission of the organization will be to bring together a diverse coalition of stakeholders to protect the unique and irreplaceable natural resources of the Tyler Creek Watershed through cooperative partnerships, smart land use decisions, and sensible growth. Stakeholders must include private landowners, homeowner associations, municipal staff & officials, and developers.

The Coalition would also benefit from the participation of county, state, and federal agency staff who are charged with natural resource / water resource protection in the watershed, the Fox River Study Group (FRSG), and representatives from umbrella conservation organizations such as the Fox River Ecosystem Partnership (FREPP), the Fox Valley Land Foundation, as well as The Conservation Foundation.

The mission of the Coalition will be achieved by working to have the TCWP recommendations implemented by the responsible parties, and by communicating and coordinating with municipalities, developers, and private landowners to ensure that the natural resources of the watershed are not compromised by rapid, hastily planned development.

Table 4.1 Potential Tyler Creek Coalition Participants	
<p>Watershed Stakeholders</p> <ul style="list-style-type: none"> • City of Elgin <ul style="list-style-type: none"> ○ Staff ○ Elected Officials • Village of Gilberts <ul style="list-style-type: none"> ○ Staff ○ Elected Officials • Village of Pingree Grove <ul style="list-style-type: none"> ○ Staff ○ Elected Officials • Private Landowners • Illinois Toll Authority • Corporate Landowners • Homeowner / Condo Associations • Developers (names & contact info available from municipal development / planning departments) • Kane County F.P. District • Fox Valley Land Foundation • Teachers, School Boards • Interested citizens who live, work or recreate in the watershed. • Active drainage districts 	<p>Advisory Agencies & Groups</p> <ul style="list-style-type: none"> • U.S. Fish & Wildlife • Illinois Department of Natural Resources • Chicago Metropolitan Agency for Planning (CMAP) • Kane County Department of Environmental Management • The Conservation Foundation • Friends of the Fox River • Fox River Ecosystem Partnership • Kane-DuPage Soil & Water Conservation District • USDA – Natural Resource Conservation Service • Kane County Farm Bureau

2. Protect the High Quality Section of Tyler Creek from the Gilberts Wastewater Treatment Plant (WWTP) to Randall Road

This three mile long reach of Tyler Creek is the highest quality stream segment in the entire watershed. It contains all of the physical and biological features of a stream in nearly pristine condition. This high quality reach faces two issues that will determine the future sustainability of this unique resource.

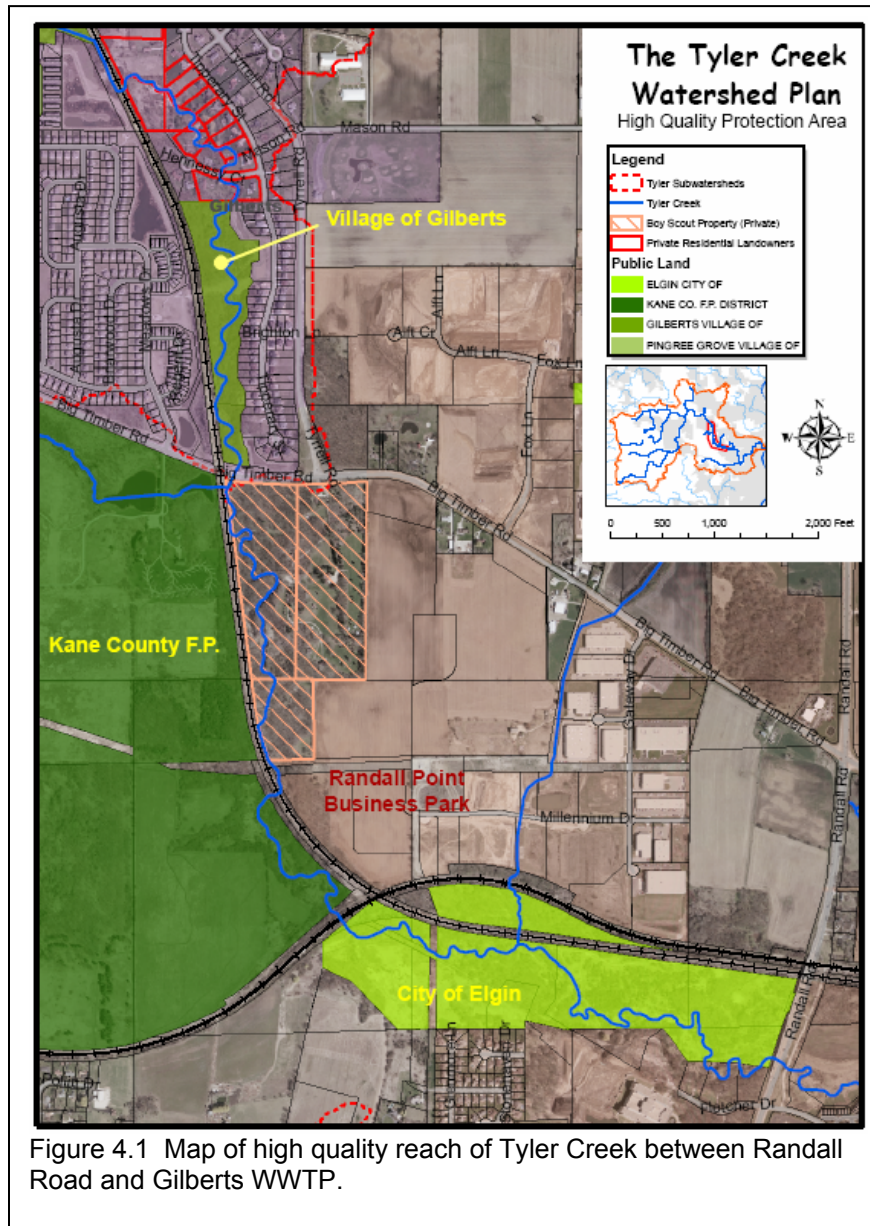
The first issue is protection of the remaining parcels along the reach that are not currently protected. Much of the stream corridor in this reach is already protected through public ownership by the Village of Gilberts, Kane County Forest Preserve, and the City of Elgin. There are two sections that are not protected from the impacts of future development. Section One is a ½ mile length of the stream corridor that extends along the west end of the Camp Big Timber Boy Scout property and across the southwest corner of the Randall Point Business Center. The Boy Scout property is privately owned and does not contain any type of legal conservation easements to prohibit development from encroaching into the high quality natural areas along the west and south sides of the camp property (should the property be sold). Enacting permanent protection of the sensitive areas of the property should be a high priority. This could be

accomplished through either a conservation easement or acquisition by the Kane County Forest Preserve District.

The Randall Point Business Center (RPBC) also owns property that contains part of the Tyler stream corridor. The RPBC parcel that contains the stream corridor should be developed in a manner that maximizes the stream corridor buffer to protect the stream and high quality wetland that lies within the stream corridor. Within this same reach, there is also a concern regarding the use of herbicides to control weeds along the Union Pacific Railroad right-of-way where Tyler Creek flows along the lower edge of the railroad embankment.

Section Two is a ½ mile long section of the stream corridor north of Big Timber Road that is under private ownership. This section, while containing high-quality in-stream features such as coarse substrate and pool and riffle structures, could benefit significantly by the establishment of a stream buffer and promoting ongoing management of a stream buffer of native vegetation between the stream channel and their landscaped lawn areas. This would require educating the landowners on the benefits and necessity of a stream buffer, as well as helping with local technical / funding assistance.

In addition to the permanent protection of the stream corridor along this portion of the Tyler Creek, another issue, no less critical, will be to preserve the quality and quantity of the water flowing in the stream. To accomplish this, a fundamental change must occur



in the way stormwater management is designed and constructed for developments in the Tyler Creek Watershed.

In short, the current Kane County Stormwater Ordinance and municipal & county subdivision ordinances are intended to simplify the design, construction and maintenance of stormwater facilities and control peak flows for only the large storm events, such as the 100-year storm. A study completed by Kane County in 2003 concluded that at the watershed scale, the 0.15 cubic feet per second (cfs) per acre release rate required by the Kane County Stormwater Ordinance does an adequate job of protecting downstream properties from floods with a 5- through 100-year frequency.

However, a watershed developing using conventional stormwater management design in its developments would generate significantly higher peak flows than if conservation development design was employed; up to 66% higher peak flows for the more frequent floods (1- to 2-year events). The science of fluvial geomorphology has demonstrated that it is these flood events, which occur on average every 1 to 2 years, that effectively control the stability of a stream channel (physical characteristics). Thus, a 60+% increase in these channel forming peak flows, as will occur under the current regulatory environment has the potential to do considerable harm to the channel stability of this high-quality reach.

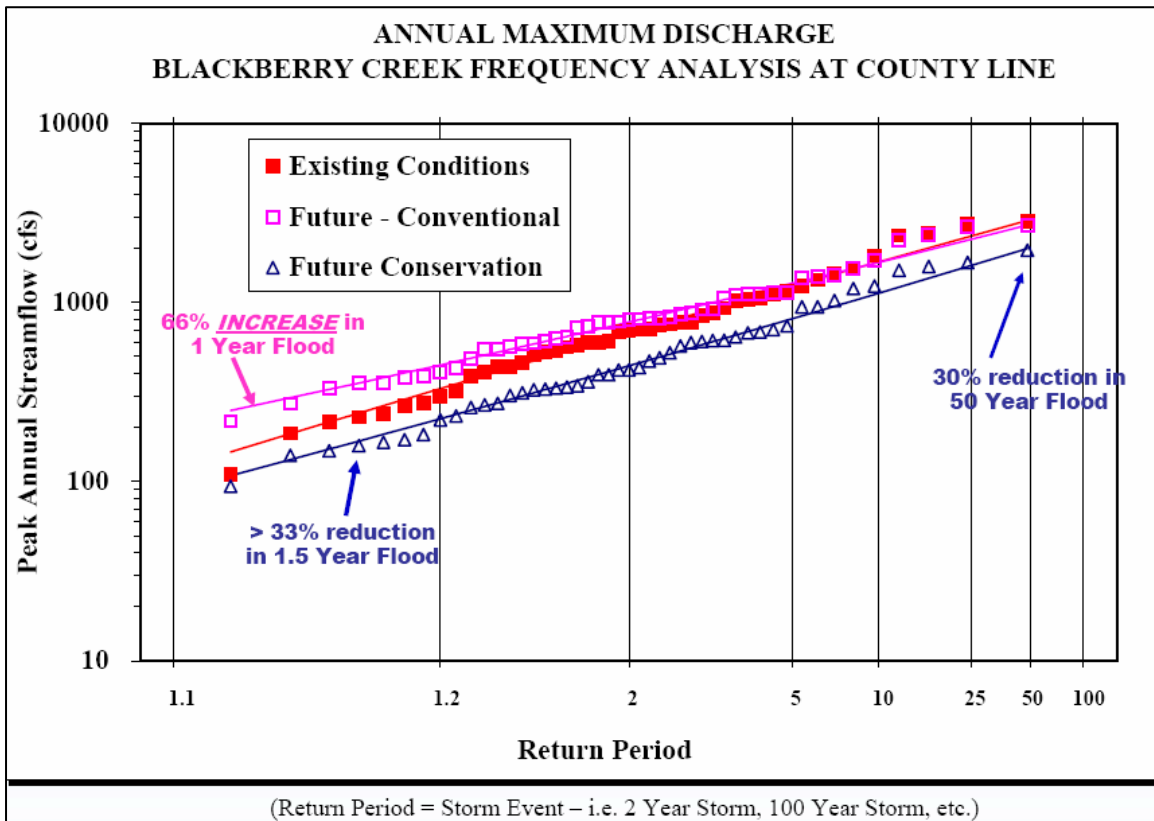


Figure 4.2: Graph of Blackberry Creek Alternative Futures Analysis watershed modeling results.

To mitigate the effects of increases in stormwater discharges resulting from land development, it is recommended that new developments implement stormwater

conservation techniques into their design. Conservation design, a major component of Low Impact Development (LID), includes a wide range of stormwater design elements, but can be summarized according to the following two principles::

- collect stormwater runoff as close to its point of origin as possible (lot scale versus subdivision scale), and
- retain it for infiltration into the soil or evapo-transpiration by the site's vegetation (i.e. – minimize total runoff volume leaving the development).

Examples include: green roofs, rain gardens, rain barrels or cisterns, bio-swales, infiltration trenches, and native vegetative buffers on undisturbed soil. A secondary benefit to this type of approach is that water quality of the remaining runoff that is discharged is usually improved without the need for structural BMP devices at development stormwater outlets. This is because the distributed stormwater system approach can be designed to treat the “first flush” of runoff, which is the first 0.5 – 0.75 inch of stormwater runoff that usually contains the highest concentration of pollutants. The result is that developments utilizing this type of stormwater management usually discharge little, if any, runoff to the receiving stream for the most frequent storm events (1 inch or less).

3. Implement habitat restoration projects and install water quality BMPs in the lower region of watershed east of Randall Road.

The reach of Tyler Creek east of Randall Road has the potential to be restored to a moderately high quality stream. The stream corridor has been preserved in most areas, albeit in a degraded condition due to lack of management, and resultant invasion by noxious plant species. Most reaches between Randall Road and Illinois Route 31 have sufficient stream slope (> 10 feet / mile) and existing in-stream habitat, such as pool and riffle structures, to support a diverse array of aquatic species. The limiting factors in this lower reach are likely poor water quality created by untreated urban stormwater runoff and densely shaded stream corridors choked with invasive plant species. Implementing an aggressive habitat restoration / management program, and pursuing a program to install structural BMPs in the storm sewer network would each have a significant positive impact on the quality and character of Tyler Creek in this lower reach.

4. Revise the existing Tyler Creek Watershed Model

The FRSG is a local watershed stakeholder group that organized in 2001. The group formed in response to concerns about declines in the water quality of the Fox River and its being listed as an Impaired Waterway by the IEPA. The FRSG is comprised of a diverse group of stakeholders representing municipalities, county government, water reclamation districts, environmental and watershed groups from throughout the Fox River watershed. The goal of the FRSG is to address water quality issues in the Fox River watershed and to assist with implementing activities to improve and maintain water quality. Identifying the sources of pollution and mechanisms of transport through the watershed are fundamental to determining which actions are needed to reduce impairment of the river water quality. The FRSG has initiated activities to more accurately characterize the water quality of the Fox River, including data collection and preparation of comprehensive water quality models.

The Illinois State Water Survey (ISWS) assisted the FRSG with the preparation of the computer models, which included preparation of a Tyler Creek watershed loading model

that accurately simulates the hydrology and pollutant loading occurring at the downstream end of Tyler Creek, where it discharges into the Fox River. These efforts and the resulting model represent a major achievement in terms of water quality modeling of Tyler Creek as a whole. However, in order to be used as a management tool within the Tyler Creek Watershed, additional stream monitoring is needed to generate data in the six subwatersheds. This stream monitoring and data acquisition will provide increased resolution and sensitivity so that the model can be updated to evaluate future pollutant loads and BMP effectiveness in specific jurisdictions within the Tyler Creek watershed.

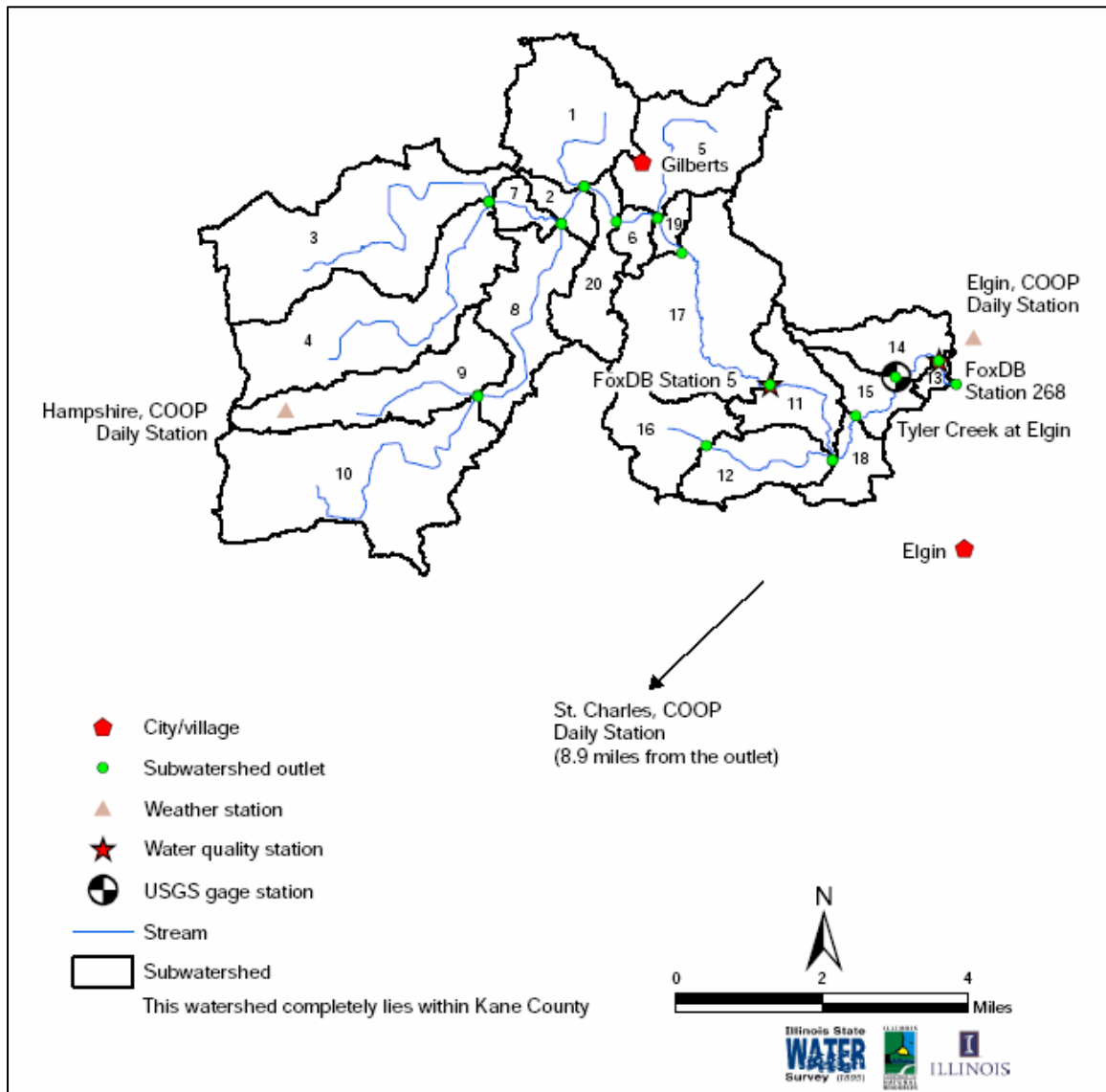


Figure 4.3 Map of Tyler Creek watershed loading model prepared by ISWS for Fox River Study Group, Inc. watershed analysis. More information on monitoring for Tyler Creek can be found in Chapter 13.

4.2 General Watershed Plan Recommendations

The following is a summary of recommendations developed as part of the TCWP. Recommendations in Section 4.2 pertain to programmatic actions—that is, those actions that should be undertaken or pursued in all areas of the Tyler Creek Watershed. Section 4.3 provides an overview and discussion of the types of site-specific recommendations presented at the end of each subwatershed chapter (chapters 5, 6, 7, 8, 9 and 10).

Each recommendation is accompanied with information on the following topics:

- **Type:** Education/Outreach; Regulatory; Site Restoration; Monitoring; Permanent Habitat Protection, Water Quality
- **Target Goals:** Which watershed plan goals the recommendation is intended to address.
- **Initial Cost:** the initial cost, in 2007 dollars to initiate the recommended action, if applicable.
- **Annual Cost:** the long term expected annual cost (in 2007 dollars) to successfully implementation of the recommendation
- **Responsible Party:** Identifies the LEAD agency, entity, or landowner who will ultimately have to execute the recommendation. SUPPORTING parties, such as government agencies, grant sources, etc. may also be identified here.
- **Priority:** A ranking of High, Medium, or Low, where High is represents a recommendation of utmost importance to be pursued immediately and Low represents those recommendations which may take more time and are less critical in terms their impact on meeting the watershed plan goals.

The project cost estimates contained in this report should be considered preliminary, and are only presented to identify the potential magnitude of cost, from a watershed scale perspective. No site-specific investigation, analysis, or design of any recommended project, from which accurate cost information could be obtained, was completed as part of the preparation of the 2008 TCWP

If a watershed stakeholder decides to apply for grant funding assistance to implement any of the recommended projects presented in this report, they should first undertake any additional studies / research needed to determine an updated / accurate project cost. They should not solely rely on the cost estimates presented in the TCWP report as the basis for their grant request.

Recommendation G-1

Establish a Tyler Creek Watershed Coalition.

Type: Education / Outreach

Target Goals: Goal 4, Objectives 1 & 2

Initial Cost: 8 hours per participant for two 4 hour “kickoff” meetings to organize and review watershed plan data.

Annual Cost: 8 hours per participant for 4 quarterly meetings and 16 hours per Responsible Party participants to prepare for meetings.

Responsible Party: The Conservation Foundation with support from municipal staff and officials, and interested watershed stakeholders

Priority: High

Recommendation G-2:

Draft and adopt revised Zoning and Subdivision Ordinances which implement the TCWP’s Green Infrastructure Plan.

Type: Regulatory

Target Goals: Goal 2

Initial Cost: unknown (municipal staff / elected official time)

Annual Cost: unknown (municipal staff / elected official time)

Responsible Party: City of Elgin, Village of Pingree, Village of Gilberts, Kane County Board.

Priority: High

Recommendation G-3:

Coordinate with and City Council of Elgin, and village boards of Gilberts and Pingree Grove to endorse and adopt the Recommendations in the TCWP

Type: Regulatory

Target Goals: Goals 1, 2, 3 and 4

Initial Cost: unknown (municipal staff / elected official time)

Annual Cost: unknown (municipal staff / elected official time)

Responsible Party: City of Elgin, Village of Gilberts, Village of Pingree Grove

Priority: High

Recommendation G-4:

Coordinate with all municipal governments to mandate conservation design practices (LID concepts) for land planning and stormwater management design to be used in all new developments to minimize stormwater discharge, maximize groundwater recharge, and maintain / enhance water quality in the watershed's streams. Example ordinance/zoning language can be obtained from the Kane County Department of Building and Environmental Management at:

<http://www.co.kane.il.us/kcstorm/blackberry/index.htm> .

Note: While this document was written for municipalities in the Blackberry Creek Watershed, it is nonetheless an excellent source for staff & elected officials in other municipalities seeking to build environmentally sustainable communities.

Type: Regulatory

Target Goals: Goal 2, Objectives 1, 2, and 3

Initial Cost: none

Annual Cost: none

Responsible Party: City of Elgin, Village of Gilberts, Village of Pingree Grove

Priority: High

Recommendation G-5:

Work with the FRSGF to update and revise the FRSG's Tyler Creek Watershed model and use the model to provide an accurate assessment of water quality in the watershed for predicted land development scenarios.

This model, when complete, could also be used to update the existing effective regulatory floodplain maps

Type: Education & Outreach

Target Goals: Goals 1 & 2

Initial Cost: \$150,000 over 2 year project period.

Annual Cost: about \$20,000 per "scenario" if new scenarios need to be assessed after the initial study is complete.

Responsible Party: Tyler Creek Watershed Coalition, with financial support from the City of Elgin, Village of Pingree Grove, and the Village of Gilberts.

Priority: High

Recommendation G-6:

Create a locally managed stream monitoring program to collect and evaluate basic water quality data (example: MBI, DO, Temp, TSS, N, P) to supplement the limited data currently collected to date by the IEPA and environmental advocacy groups. Coordinate with FRSG and their monitoring program.

This monitoring effort could also support or supplement the monitoring requirements needed to complete Recommendation G-5, but is really needed over the long term to provide baseline, as well as future, data on the conditions in the watershed's streams at many more locations than the two sections monitored by the IEPA at Randall Road and Illinois Route 31. Six stations should be included in the monitoring program – at the outlet point of each of the six subwatersheds. A three year, intensive monitoring program for low flows and storm flows, similar to those implemented by the FRSG, should be conducted, along with annual sampling by volunteers working with the Fox River Watershed Monitoring Network (FRWMN)

Type: Monitoring

Target Goals: Goals 1 & 2

Initial Cost: \$180,000 (\$30,000 per station)

Annual Cost: \$3000 (\$500 per site X 6 sites)

Responsible Party: Tyler Creek Watershed Coalition, with financial support from the City of Elgin, Village of Pingree Grove, the Village of Gilberts and Kane County. Organizations offering support could include: Kane County Forest Preserve District, Friends of the Fox River, Sierra Club, and Fox River Study Group, Inc.

Priority: Medium

Recommendation G-7:

Create and coordinate a watershed education program into the curriculum of schools in the Tyler Watershed. This is occurring to a limited extent at the elementary school level with schools already participating in the FRWMN. The education programs could also be offered to middle school students attending those schools in the watershed. A good local example of one such initiative is the program at Elgin High School centering on the Poplar Creek Watershed (led by educator Deb Perryman)

Type: Education

Target Goals: Goal 4

Initial Cost: unknown (Curriculum materials)

Annual Cost: unknown (Teacher training)

Responsible Party: School Districts U-46 & 301 initially; District 300 as soon as possible before significant development occurs in Upper Pingree Subwatershed; Kane – DuPage Soil & Water Conservation District; Friends of the Fox River

Priority: Medium

Recommendation G-8:

Develop an outreach and incentive program to encourage landowners to de-channelize select stream reaches (tributaries & main stem Tyler) on a voluntary basis. Encourage this practice to be incorporated into the design and planning of all remaining developments proposed on land where Tyler Creek or its tributaries have been channelized.

Type: Regulatory

Target Goals: Goal 1, Objective 3

Initial Cost: staff manhours; varies

Annual Cost: staff manhours; varies

Responsible Party: City of Elgin, Village of Pingree Grove, Village of Gilberts, Kane County Development Department

Priority: Medium

Recommendation G-9:

Complete detailed floodplain mapping for all streams / drainage ways currently mapped as FEMA Flood Zone A or unmapped, with a drainage area equal to or greater than one square mile. This project could be completed on a reach by reach basis and funded by developers as a condition of land development approval. There are an estimated 19.5 miles of stream channel that drain more than 1 square mile and have unmapped floodplains.

Type: Regulatory

Target Goals: Goal 2, Objective 3

Initial Cost: \$196,000 (\$10,000 / mile)

Annual Cost: none

Responsible Party: Kane County coordinating with City of Elgin, Village of Pingree Grove, and Village of Gilberts.

Priority: High

Recommendation G-10:

Create a Natural Area Inventory database of natural areas in the watershed and the biological flora and fauna that occur in the individual habitat communities. This database should inventory state and locally recognized natural areas and public forest preserve properties and document the plant and animal species present (all species, including the presence and distribution of state or federally listed threatened or endangered species). The field data collected should also include a description of the habitat types present, their condition at the time of survey, and an assessment as to the issues threatening to degrade these areas and the management strategies that should be implemented to preserve their natural integrity.

This inventory should be maintained by the Kane County Forest Preserve and updated continuously as new data becomes available from state/federal surveys and private entities working on new development. The format should be in an electronic database (such as Microsoft Access) and be made available to the public in a user-friendly format. A good example of such a database is the McHenry County Natural Areas Inventory database created by the McHenry County Conservation District.

Type: Monitoring

Target Goals: Goal 1, Objectives 1 & 3

Initial Cost: \$155,000 (1 KCFPD staff @ \$55,000 + consult to create database @ \$100,000)

Annual Cost: \$10,000 (for annual updates to database)

Responsible Party: Kane County Forest Preserve District / Kane County GIS Technologies

Priority: High

4.3 Overview of Subwatershed-specific Recommendations

The following is a discussion of the general types of recommendations which are presented for specific sites within the subwatershed chapters of this report (Chap. 5, 6, 7, 8, 9 and 10).

4.3.1 Site Restoration

Nearly all of the remaining natural areas along Tyler Creek are suffering from some degree of degradation due to invasive and noxious vegetation threatening to overwhelm and out-compete any remaining native vegetation. Eradication and removal of such invaders as Reed Canary Grass, Common Reed, Garlic Mustard, Purple Loosestrife, Common Buckthorn and Honeysuckle from the stream corridor and wetlands in the Tyler Watershed should be a priority action item for property managers and landowners. Stakeholders that could have the largest impact implementing this action item include the Kane County Forest Preserve District, City of Elgin Parks Department, the Village of Gilberts, homeowners association's involved in the management of existing developments, and real estate developers engaged in construction of new developments. Private landowners should also be contacted and educated on how to properly manage wetlands and stream corridors which lie on their property.

4.3.2 Water Quality

Detention basin retrofits

A majority of the detention facilities in the Tyler Creek watershed were constructed as either dry bottom detention basins or traditional wet "ponds". Both are typically characterized by mowed turf grass on steep side slopes. Dry bottom ponds frequently feature a concrete low-flow channel to carry so called "nuisance" flow from the storm outfall directly to the detention basin outlet structure. Dry-bottom basins that do not have this concrete low flow structure are typically landscaped with turf grass in the bottom. Mowed turf grass does not usually hold up to frequent wetting and drying caused by runoff from upstream impervious areas and the result is that the bottom of the turf grass detention basin becomes an unsightly and "mud hole". Neither of the concrete low flow design nor the "mud hole" design provide any significant water quality benefits and are generally unappealing in terms of aesthetics. These dry bottom basins are good candidates for retrofitting with native vegetation and micro-topography, which will improve water quality, increase stormwater residence times, provide wetland / riparian habitat functions, and improve the economic and aesthetic value of land designated for stormwater management.

These dry bottom detention basins should be reconstructed to include wetland micro-pools and native wet prairie and/or wetland vegetation in the bottom to increase pollutant removal efficiency through increase settling and pollutant uptake by the vegetation.

Traditional stormwater "wet ponds" can also be modified to provide wetland / riparian habitat and improve aesthetic value through the installation of native vegetation along the side slopes and shoreline edge. One common problem with traditional wet ponds is that over time the shoreline edge become eroded due to wave action against unnaturally

steep slopes with turf grass ground cover. Even ponds with shoreline rip-rap usually experience shoreline erosion over time, as the ponds are almost always constructed on structurally weak hydric soils that cause rip-rap shore protection to slide or settle into the basin, leaving the pond edge exposed to erosion. A solution to fix these problems in existing ponds is to install and propagate native emergent wetland vegetation along the pond shoreline to dissipate the energy of wave action. A secondary benefit to this type of retrofit is that it increases aquatic habitat, which can increase fishing opportunities in ponds located in residential developments.

Installation of structural BMP devices in the existing storm sewer network

Urban impervious surfaces, such as parking lots and streets, contribute the most concentrated pollutant loads in the watershed. This is especially true in urban areas that were developed without stormwater detention or water quality facilities to temporarily detain runoff or treat it prior to discharge into the stream. Such is the case in the City of Elgin within the Lower Tyler Creek Subwatershed. The City of Elgin has recognized this problem and has taken the initiative to reduce pollutant loadings by constructing water quality facilities as specified in the City of Elgin's Lower Tyler Creek Management Plan. These three proposed facilities are included in the recommendations specified in the Lower Tyler Creek Subwatershed.

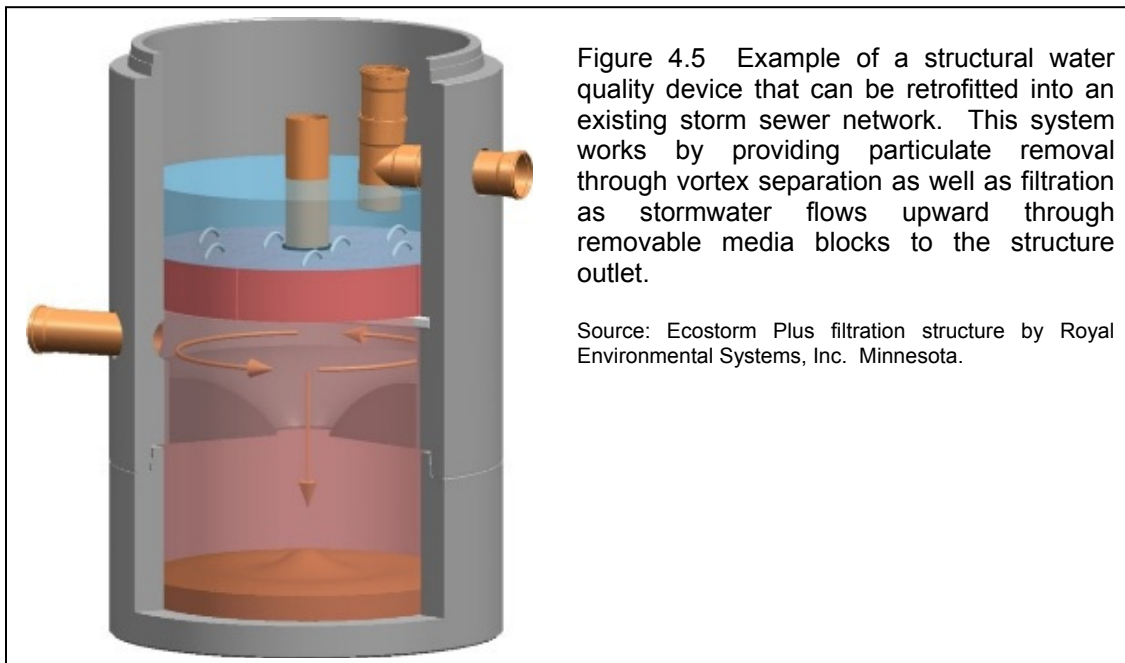


Figure 4.4 Water quality basin installed at Wing Park Pool as specified in Elgin's Lower Tyler Creek Management Plan (2000)

In addition to the water quality facilities currently planned for construction by the City of Elgin at three existing storm outfalls to Tyler Creek, there are at least 33 more storm sewer outfalls along Lower Tyler Creek ranging in size from 10 inches to 48 inches in diameter, draining highly urbanized areas up to 200 acres in size. These older storm sewer system networks were designed as a series of concrete inlets and catch basins connected together by a system of pipes which increased in size from upstream to downstream to carry additional stormwater runoff as the areas draining into the sewers increased. Historically, these systems offered virtually no water quality benefits except

for a modest amount of small fines removal, if the catch basins were cleaned on a frequent basis. In other parts of the U.S. where urban areas are located directly adjacent to high quality natural resources such as the Great Lakes, tidal bays or estuaries, self-contained, structural water quality devices have been installed to capture pollutants before they are discharged into the receiving water body. The same practice should be implemented in the Tyler Creek Watershed, as it, too, is a significant natural resource and discharges directly into the Fox River, a regionally significant natural resource and already documented to be impaired by pollution from urban runoff.

There are numerous water quality devices developed in recent years that have been specifically designed for installation within an existing storm sewer network. These are typically installed near the downstream end of the sewer network, just above the sewer outfall to the receiving stream. Larger storm sewer networks may require several structures distributed throughout the sewer network.



Encourage the Installation of rain gardens and rain barrels on existing properties (residential, commercial and office/industrial.)

Rain Gardens are simple, easy to build, landscape features that can be implemented as components of a large scale development, or individually by private landowners. Rain Gardens are created in existing or excavated depressions and planted with deep-rooted, native vegetation. Properly constructed and maintained, these small stormwater features can effectively trap and retain as much as 99% of the common pollutants associated with urban stormwater runoff. There are many resources available both on-line and in the greater Chicagoland area to help homeowners design and install their own rain garden landscapes. Individually, these systems can provide localized pollutant removal, but if installed in large enough numbers, have the potential to reduce peak storm flows and total runoff volumes on a subwatershed scale as well.

Stakeholder municipalities in the Tyler Creek watershed should develop a public outreach plan to encourage private landowners to install rain gardens on their properties and provide technical assistance & information to assist landowners with designing such features or finding a knowledgeable landscape professional who can design & build one for them. These drainage features can be an attractive amenity to any residence while providing incremental benefits in stormwater pollutant and runoff volume reduction.

Another valuable BMP is the use of rain barrels or cisterns to capture rainwater from roof tops and storing it in containers for future uses, such as water for landscaping. While the rain barrel concept can be very effective with residential landowners, it could even be applied to much larger applications such as existing commercial buildings. In these cases, a large tank could be attached to the side of a building and collect all or part of the rain falling on the roof. This tank could then be attached to an underground landscape sprinkler system and used to water the property's landscaping instead of using valuable drinking water. For example, a commercial/office building with a 10,000 square foot roof would generate more than 1,500 gallons of reusable water for only a 1/4" rainfall.

Many cities across the United States have successfully implemented rain garden or rain barrel programs and if implemented aggressively, they can have a measureable positive impact on runoff and pollutant load reduction in existing developed areas.



Figure 4.6
Example of a rain garden using native plant species installed in a roadside swale in a residential development.
(Source: Minnesota DNR)

4.3.3 Permanent Habitat Protection

Acquisition

The Kane County Forest Preserve District has a long history of recognizing the value and importance of preserving stream corridors and their associated wetlands. This approach is the basis of the Green Infrastructure Plan discussed in Chapter 10 of this report. The City of Elgin also has focused on acquiring riparian property, many of which are now public parks. Elgin's plan is to acquire the natural areas retained as part of new developments within its jurisdiction and then turn over ownership and control of these areas to the Kane County Forest Preserve District. The Village of Gilberts and the Village of Pingree Grove have begun to acquire riparian lands as well, largely through developer donations.

All of these agencies should continue to focus on acquiring and maintaining the riparian corridors of the Tyler Creek Watershed. Critical areas include the Camp Big Timber Boy Scout Camp, and the stream corridors in the upper watershed, where development has not yet occurred.

Conservation Easements

It is now recognized that land planning should not result in significant natural resources, such as stream corridors, wetlands, or remnant native plant communities (prairies, savanna's, etc.), being piecemealed onto a number of privately owned lots. It is far better to have these resources be included in a separately platted out-parcel, that can be managed by a homeowners association, using association fees paid by the individual lot owners.

Portions of the Tyler Creek stream corridor were developed decades ago, resulting in numerous small residential lots that each contain a small (50 to 100 feet) length of the stream channel, and little, if any, natural stream buffer. The management of these segmented stream systems can be a challenge, simply because numerous landowners much reach consensus on how to achieve and fund management goals.

For these reasons, encouraging riparian landowners to place a conservation easement on the sensitive portion of their property can be very beneficial. In addition to the real estate tax and income tax benefits that can result from granting the conservation easement to a not-for-profit land trust, such as the Fox Valley Land Foundation, the long-term protection of the area is ensured. If sufficient adjacent conservation easements are acquired (i.e. multiple lots/landowners), the potential for implementing streambank stabilization, vegetation management, and water quality / wildlife habitat benefits greatly increases. It also greatly improves the chances of applying for and receiving funding from environmental grant programs to implement these activities.

4.4 Potential Sources for Funding

By and large, the majority of funding for watershed protection must be a local effort. While the plan acknowledges that municipal and private funding sources in the watershed are limited and already stretched thin to address gray infrastructure costs and other municipal needs (police, fire, etc.), stakeholders must realize that the funding needed to implement the recommendations herein is really an investment in the environmental resources that will be needed to sustain their quality of life for the future. The costs for watershed protection and the small number of remedial activities now will certainly be less than the costs that will be incurred in the future, when delayed actions will create the need for more numerous and expensive remedial measures.

Protection measures in the western 2/3 of the watershed are generally activities that should be implemented when the land use is proposed to change from agricultural to urban development (residential, commercial, etc.). As such, the majority of recommendations for this region are ones that should be mandated by the municipal jurisdiction as green infrastructure requirements to be implemented or carried out as part of each new development in the watershed. These costs, usually viewed by the land development industry as additional costs they must incur, are really the incremental development costs necessary to sustain the community's environmental integrity when the land is converted to an intensive landuse, which includes roads, sewers, buildings, lawns, etc. All of these features of new development contribute excess runoff and pollutant loads that must be actively managed, just as sanitary sewerage is actively managed for each new development.

For watershed recommendations in existing developed areas (such as in Lower Tyler Creek, for example), municipalities should strive to establish a budget for implementing the recommendations, ideally according to their prioritization ranking and the milestones set forth in the watershed plan (see Chapter 12).

There are several state and federal grant programs that could be used to maximize the effectiveness of local funds. For example, the Illinois EPA 319 Grant Program provides up to 52% matching funds for the design and implementation of non-point source pollution control projects, such as the water quality projects identified in this watershed plan. The grant cycle for this program requires project applications be completed and submitted to the IEPA by August 1st of each year, and if the project is selected, funds usually become available the spring of the following year.

Another grant program available is the Illinois Department of Natural Resource's C-2000 Grant Program. This grant program is geared toward the preservation and restoration of the watershed's natural resources, such as streams, wetlands, woodlands and prairies. The C-2000 program (or it's equivalent DNR grant program in the future) provides up to 100% match for projects fitting it's criteria. The ecological restoration projects identified in the watershed plan would be prime candidates for IDNR C-2000 funding. This program requires grant application submittals in February and, if awarded, funding usually becomes available in the following November/December each year.

The Fox River Ecosystem Partnership (FREP) (for more info, see Chapter 12) has an agreement with both granting agencies that encourages potential grant applicants to work with FREP during the preparation of the project applications to insure that the projects support the overall Fox River Watershed protection goals. Projects are more

likely to be funded if they are endorsed by FREP, as it is an indication that collaboration on a watershed scale is occurring between stakeholders and that the best possible watershed improvement/protection projects are being proposed for funding.

Municipal stakeholders in the Tyler Watershed are encouraged to submit at least one grant application for one project each year, as this has the potential to pay for about 50% of the watershed projects in the long term, thus maximizing the effectiveness of local funds.

THIS PAGE INTENTIONALLY LEFT BLANK