

Green Infrastructure

Bisected by the Fox River, the city of Elgin is a river community having a strong affinity to the river, its tributaries, and its adjacent natural areas. The protection and enhancement of these natural resources and infrastructure is a primary focus of the Green Infrastructure working group. It has defined “green infrastructure” as the system of parks, open space, rivers and stream corridors, wetlands, forest, natural habitats and parkways which enhance a community by serving as a recreational asset-providing habitat for wildlife, and improving water quality by reducing storm runoff.

To that end, the Green Infrastructure working group has addressed opportunities for recreation, while at the same time protecting and enhancing the regional waterways, expanding native plantings and wildlife areas, as well as improving the overall livability of the city of Elgin. The focus has been to analyze the existing waterways, study opportunities for improving the water’s edge, develop recommendations for a long-term protection plan, offer suggestions regarding storm water runoff, as well as propose an on-going educational program for the protection of the waterways and natural habitats.

Green Infrastructure Goal I Achieve integrity of open space along the regional waterways

Elgin’s regional waterways include the Fox River and the creeks that flow into it. Water is essential for all life. Protecting local waterways is necessary to keep the water clean, to prevent flooding, and to provide habitat for fish and other aquatic species. The benefits of healthy waterways to the people of Elgin include clean drinking water, natural beauty, flood control, and recreation in the form of fishing, swimming, canoeing, hiking, wildlife viewing, photography and more. Protecting the areas adjacent to our waterways is a necessary part of protecting this local asset. Achieving a cohesive, connected open space corridor along all of the waterways would reduce run-off of fertilizer and other pollutants, reduce erosion which causes siltation and stream-bank destabilization, and provide natural corridors for wildlife. Recommended enhancements include creating low-impact multi-use trails for recreation that connect local attractions such as natural areas, parks, public transportation hubs, and popular places, such as the library, recreational services and educational institutions.

Objective 1

Analyze existing waterways and surrounding open spaces.

Tasks/Metrics

1. Develop a list of identified problems along waterways such as erosion, flooding and lack of buffer zone (vegetative strip) along the shore. Assess the quality of the existing shoreline, considering the biodiversity of vegetation, access to public, and the ability to support trails.
2. Utilize a rating system to indicate the severity of the problem in each location (see 303(d) listed watercourses list Appendix A—Elgin Environmental Research)
3. Survey the waterways of Elgin, applying the rating system to the open spaces along each waterway.
4. Produce a map of the waterways from the analysis, showing the ratings of areas along each waterway to highlight quality areas as well as trouble spots needing improvement.

Objective 2

Develop a strategy to address the problem areas identified in the existing waterway and surrounding open space analysis.

Part of the strategy should include solutions which incorporate the general public, such as recruiting volunteer groups to help with vegetation surveying, planting and maintenance.

Tasks/Metrics

1. Create a surveying program to track progress, using the rating system established for analysis. This should include recruitment of volunteers to go out once each growing season and survey each waterway. The map of the waterways would be updated with new ratings after each survey to track improvement or degradation of the areas.
2. Develop a short-term plan to address trouble areas with quick solutions, such as improvement of native vegetation diversity through planting and seeding, removal of invasive vegetation, and improved maintenance of existing vegetation.
3. Develop a long-term plan to address the more serious trouble areas. Solutions should include:
 - A plan for land purchasing to create “greenway” easements along waterways. Easements would establish space for buffer zones that address flooding, run-off and pollution issues, and provide corridors for wildlife and human recreation in the form of low-impact multi-use trails.
 - Stream-bank stabilization projects addressing run-off and erosion issues.
 - Landscaping plans with low-maintenance plantings that providing wildlife habitat.

Objective 3

Create ongoing education for the general public in the form of programs, as well as reference material, through websites or brochures for residents to refer back to as needed.

Tasks/Metrics

Inform the general public as to the importance of waterways and green space corridor protection along waterways and how the public can help as individuals. This should include information on:

Storm sewer safety:

- Avoid dumping waste into storm sewers as it goes straight to the river.
- Partner with local school teacher and environmental advocate, Deb Perryman of Elgin High School or model a volunteer effort after her program to do storm sewer stenciling throughout Elgin using Hawthorne Hill Nature Center to coordinate efforts. Hold stenciling days 2 or 3 times a year.
- Plant natural habitats along stream edges and in backyards as opposed to turf grass which attracts Canada geese and permits run-off and erosion.

Other potential projects to undertake:

- Surveying program
- Planting and weed control projects
- Clean-up projects
- Stream-bank stabilization projects
- Multi-use trail construction projects

Green Infrastructure Goal II

Reduce surface runoff

Runoff threatens the health of ponds, streams, rivers, and other water sources. It is the product of precipitation that is discharged from roofs, roadways, agricultural land, and turf grass lawns, with soil, silt, and/or chemicals but not limited to oil, roofing particulates, salt, fertilizers, pesticides, herbicides, and pet waste. Runoff expediently carries pollutants to storm sewers, drainage ditches, and waterways, negatively impacting water quality for the human community while destroying critical wildlife habitat for the natural world. Also causes erosion of hills and stream and river banks.

Runoff will deprive the land of water, depleting groundwater and shallow aquifers, requiring artificial irrigation to keep vegetation alive during periods of drought. Runoff also causes flooding. "Flooding is not caused by an unusual amount of water falling on the land, but by the inability of the landscape to absorb it," (Patchett, James H. and Gerould S. Wilhelm, *The Ecology and Culture of Water*, revised March 2008).

Storm sewer stenciling ◦

Involves the painting or marking of pavement right above storm sewers with a message alerting citizens to where the water drains. The goal of stenciling is to promote awareness about the effects dumping pollutants as well as how humans' activities directly affect the natural environment. Often stenciling is done by school-age children. It is a fun way for children to learn of environmental stewardship (see below)



Objective 1

Present 7 educational programs by December 31, 2011 about stormwater best management practices. (via Elgin Community Network, Elgin Community College, ReStore, Hawthorne Hill Nature Center, Elgin Climate Change Organization, and/or retail establishments or other education providers).

Programs will focus on: Rain barrels, permeable paver use, replacing portions of turf grass lawns with deep rooted native plants, backyard habitat, rain gardens, green roofs, vegetated swales, and decorative water retention alternatives.

Tasks/Metrics

1. Programs will need the support of retailers to provide incentives for attendance which will be relevant to what is being taught, so participants can receive discounts on supplies to implement the things they learn.

Objective 2

Create a City ordinance that recommends businesses consider using stormwater best management practices.

Objective 3

Create an incentive program (much like Elgin's tree bank planting program) which would include detailed instructions that would enable residents to receive sustainable native plants (at a reduced cost) to create rain gardens to reduce residential runoff.

Green Glossary

Backyard habitat provides food, water, shelter, and space for wildlife.

Green roofs consist of roofs fully or partially covered with soil and plants that can withstand extreme conditions, while absorbing water from rain, snow, and other precipitation, providing insulation, and protecting the building.

Permeable pavers contain space between each paver to allow water to be channeled to and stored in a water collection system. There are manufactured permeable pavers or flag-stones, a native Midwestern stone, can be utilized, especially for terraces, patios, and walk-ways.

Rain barrels are receptacles for gathering water that drains off roofs through downspouts. Spigot and overflow features allow this water to be used for watering plants during dry spells.

Rain gardens are shallow, humanly made depressions planted with deep-rooted native plants to capture storm water runoff from hard surfaces such as roofs or driveways and filter pollution.

Vegetated swales are drainage ditches enhanced by deep-rooted native plants to filter and absorb water, thereby curtailing runoff.



Photos courtesy of Pat Hill

Green Infrastructure Goal III

To protect, preserve, and enhance natural resources, parks, and other public areas.

There are many reasons to protect and enhance natural resources, they contribute to property values and maintaining these assets can reduce long term costs. With proper programming and communication one can attract visitors to Elgin. The recreation and enjoyment of natural resources creates positive economic impact for the City. As Elgin becomes more of a destination, it will become more attractive to potential citizens. Studies show that communities with more natural resources have lower crime rates and have more vital, happy citizens. With more local parks and bikeway accessibility, traffic congestion can be eased, providing healthier citizens. When time is allocated to preserve sensitive natural resources, the entire community benefits from ensuring that these resources are not permanently exhausted.

Objective 1

Increase percentage of available public areas per capita.

Tasks/Metrics

1. No specific ratio is being recommend. Simply that Elgin should focus on increasing the acreage of park area whenever possible. Neighborhood parks should be ¼ to ½ mile walking distance without having to cross any busy streets. Ideally they should be 3+ acres and include a playground, a shelter, an open field area, and a paved area. A historical look at Elgin's park acreage per 1000 citizens can be found in Appendix A—Elgin Environmental Research

Objective 2

Increase accessibility to open areas, bike trails, neighborhood parks, etc.

Tasks/Metrics

1. Strive for all bike lanes specified in the Bikeway Master Plan to be in place by 2015.

Objective 3

Establish an Urban and Community Forestry Master Plan with urban tree canopy goal by May, 2011.

Objective 4

Conduct an assessment of all open space within city limits.

Tasks/Metrics

1. Survey neighborhoods about their park needs (could be included in citizen survey)
2. Incorporate assessment results into parks master plan. Provide proper resources (capital and human) to maintain and enhance City assets. This should be included in the 2012 budget, with bi-yearly evaluations moving forward.

This study should answer at least the following questions:

- How many parks do we need?
- How much open space should we have?
- How do we determine land use?

Objective 5

Provide metrics to establish productivity and service standards for maintenance of City owned green infrastructure resources by December, 2012.

Tasks/Metrics

1. Conduct operational review of current service standards and provide recommendations if improvements can be achieved.

Objective 6

Establish network of public/private partnerships to improve ability to obtain local, State, and Federal grants by December, 2012.



Photos courtesy of Pat Hill

Additional Resources/Best Practices

City of Berkeley, California

<http://www.cityofberkeley.info/ContentDisplay.aspx?id=8022>

Provides children the opportunity to stencil storm sewers through their public works department.

Illinois Nature Preserves Commission

<http://dnr.state.il.us/inpc/>

High quality natural areas and habitats of endangered and threatened species are protected.

Illinois RiverWatch

<http://www.ngrrec.org/index.php/riverwatch>

Rivers and creeks are rated on their biological integrity using data collected annually.

Kane County Wild Plants and Natural Areas by Dick Young

Plant identification and rating based on their value to the natural environment. Natural areas maps and inventories.

Plants of the Chicago Region by Floyd Swink & Gerould Wilhelm

Plants are identified and plant communities are rated on integrity and conservation importance.

Seattle Washington

http://www.seattle.gov/util/Services/Drainage_&_Sewer/Keep_Water_Safe_&_Clean/RestoreOurWaters/Volunteer/StencilaStormDrain/index.htm

Administers an ongoing program by offering a toolkit for stormsewer stenciling.

Tall Grass Restoration Handbook by Stephen Packard & Cornelia F. Mutel

A field guide to the wetlands of Illinois by the Illinois Department of Natural Resources includes Natural Resources Regional Wetland Indicator Status and National Wetlands Inventory.