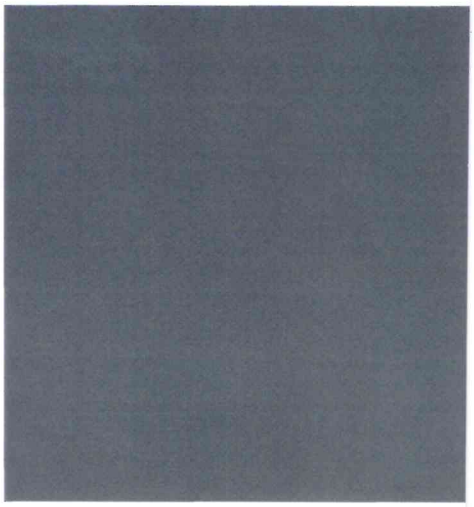
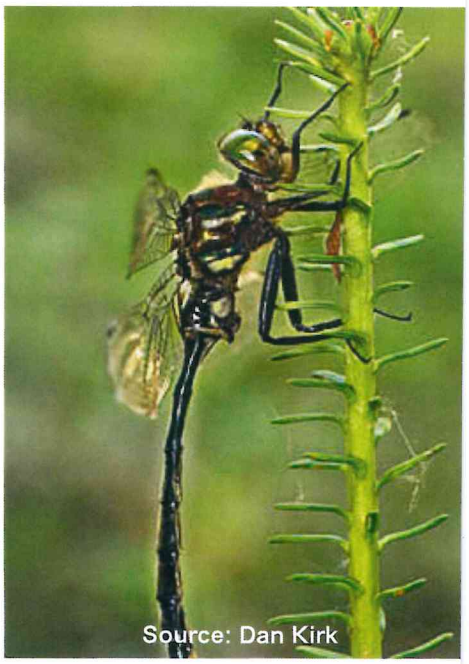
Long Run Creek Watershed-Based Plan

A Guide to Protecting and Restoring Watershed Health

EXECUTIVE SUMMARY





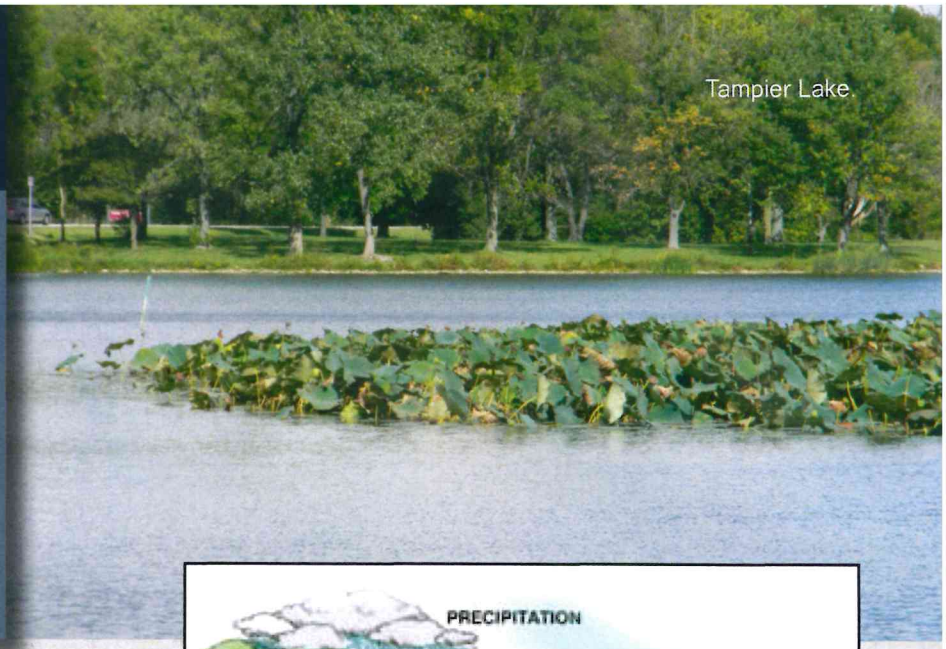
Source: Dan Kirk

Prepared for
Long Run Creek Watershed Planning Committee
By Applied Ecological Services, Inc.
March 2014

Applied Ecological Services, Inc.™

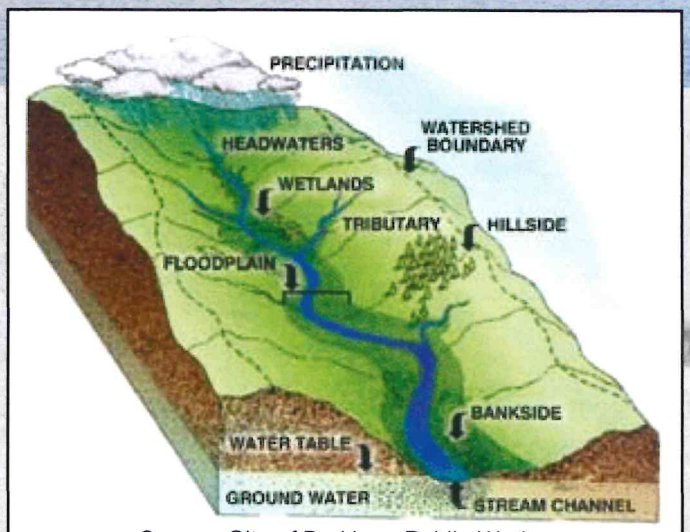
WHAT YOU WILL FIND INSIDE THIS EXECUTIVE SUMMARY:

1. INTRODUCTION
2. PURPOSE, MISSION, & GOALS
3. PAST, PRESENT, & FUTURE
4. CHALLENGES & THREATS
5. IMPORTANT NATURAL AREAS
6. GREEN INFRASTRUCTURE & YOUR BACKYARD
7. ACTION RECOMMENDATIONS
8. GET INVOLVED


Tampier Lake

INTRODUCTION

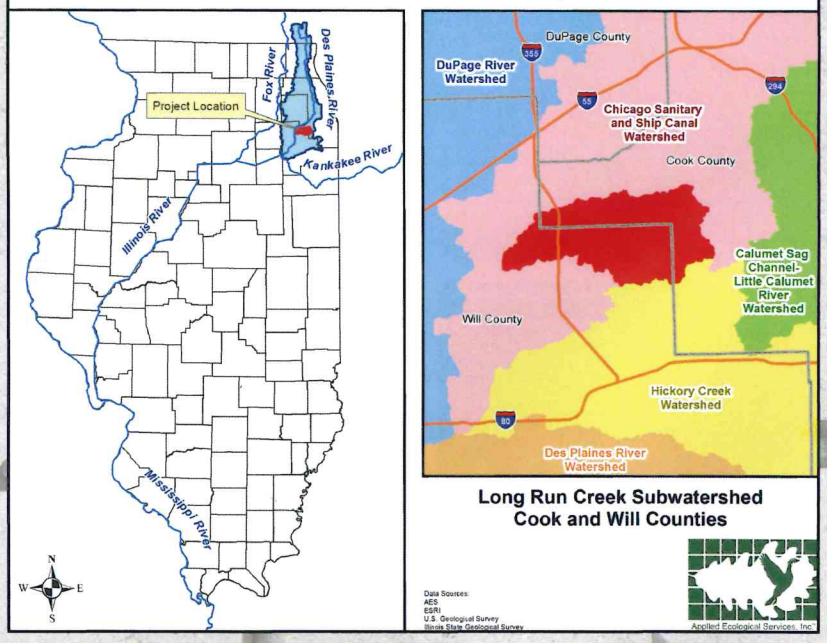
Each of us lives, works, and plays in a watershed. A watershed is best described as an area of land where surface water drains to a common location such as a stream, river, or lake. The source of groundwater recharge to aquifers, streams, and lakes is also considered part of a watershed. Watersheds are complex systems because there is interaction between natural elements such as climate, surface water, groundwater, vegetation, wildlife, and human elements. Human influences generally produce polluted stormwater runoff, increase impervious surfaces, alter stormwater flows, and degrade or fragment natural areas.

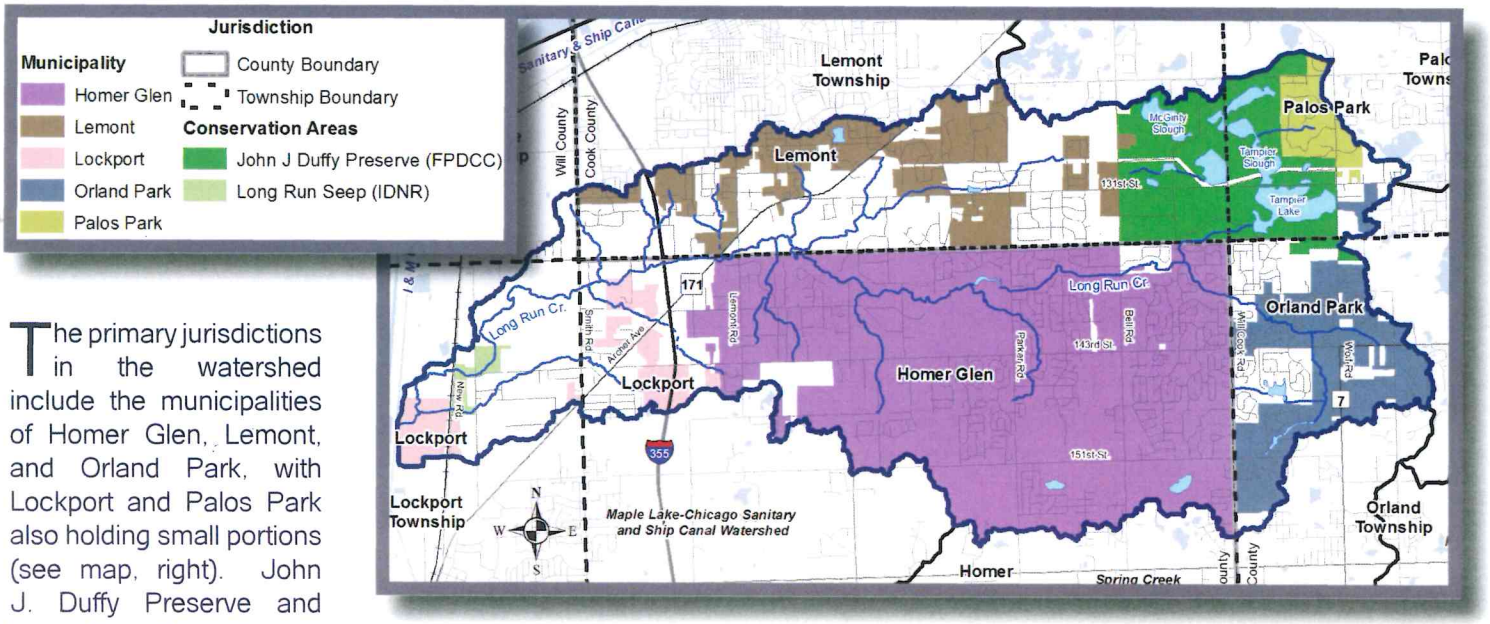


Source: City of Berkley - Public Works.

Long Run Creek watershed (HUC# 071200040703) is located 24 miles southwest of Chicago in both Cook and Will Counties, Illinois (see map, right). Long Run Creek and its many smaller tributaries account for roughly 32.7 stream and tributary miles that drain approximately 26.1 square miles (16,714 acres) of land surface. Long Run Creek drains westward for approximately 12.5 miles before it joins the Illinois and Michigan (I & M) Canal north of the City of Lockport. From there the I&M Canal flows south and parallels the Chicago Sanitary & Ship Canal for approximately 6 miles prior to joining the Des Plaines River. The Des Plaines River Basin (HUC# 07120004) drains over 1,300 square miles in Kenosha County, Wisconsin and Lake, Cook, DuPage, and Will Counties in Illinois. The Des Plaines River eventually joins the Kankakee River near Morris, Illinois to form the Illinois River. The Illinois River flows southwest across the heart of Illinois before joining the Mississippi River north of St. Louis, Missouri.

Watershed Locator Maps





WATERSHED JURISDICTIONS

The primary jurisdictions in the watershed include the municipalities of Homer Glen, Lemont, and Orland Park, with Lockport and Palos Park also holding small portions (see map, right). John J. Duffy Preserve and Long Run Seep Nature Preserve, owned by the Forest Preserve District of Cook County and Illinois Department of Natural Resources, respectively, also represent large holdings within the watershed.

PURPOSE

Tampier Lake, located in the northeast portion of the watershed, appears on the Illinois Environmental Protection Agency's 303(d) impaired waters list. Long Run Creek is not 303(d) listed, but water quality, biological, and habitat data suggest moderate impairment. In addition, critical habitat for the federally endangered Hine's Emerald Dragonfly is threatened by human activities. In response, a group of voluntary stakeholders came together to form the Long Run Creek Watershed Planning Committee (LRCWPC).

In 2010, LRCWPC applied for and received Illinois Environmental Protection Agency funding for 2012 through Section 319 of the Clean Water Act to undergo a volunteer planning effort to produce a comprehensive "Watershed-Based Plan" for Long Run Creek watershed. With this plan, identified improvement projects become eligible for state and federal grants. All recommendations in this plan are for guidance only and not required by any federal, state, or local agency.

MISSION

The Long Run Creek Watershed Planning Committee (LRCWPC) is comprised of concerned watershed stakeholders dedicated to the preservation, protection, and improvement of Long Run Creek watershed. The LRCWPC's mission is to:

"Develop and encourage the funding and implementation of a long-range plan among landowners, government, and other appropriate groups which will enhance, manage, and protect the human, ecological, and socio-economic resources within Long Run Creek watershed.

The Watershed-Based Plan will promote the health and safety of human inhabitants, stormwater management, improve surface and groundwater quality, aesthetic values, education, wildlife protection, and address the present and future flooding issues."

GOALS

GOAL 1: *Manage natural and cultural components of the identified Green Infrastructure Network.*

GOAL 2: *Improve groundwater recharge to benefit public water supply and federally endangered Hine's Emerald Dragonfly critical habitat.*

GOAL 3: *Improve surface water quality to meet applicable standards.*

GOAL 4: *Create and/or update county and local policy to protect watershed resources.*

GOAL 5: *Manage and mitigate for existing and future structural flood problems.*

GOAL 6: *Implement watershed educational opportunities.*

McGinty Slough.

THE PAST

Glaciers that receded about 14,000 years ago formed the existing landscape in Long Run Creek watershed. During this period the earth's temperature warmed and the ice slowly retreated leaving behind moraines, ridges, and river valleys. A tundra-like environment covered by spruce forest was the first ecosystem to colonize after glaciers retreated. As temperatures continued to rise, tundra was replaced by cool, moist deciduous forests and eventually by oak-hickory woodlands, oak savannas, prairies, and wetlands.

The U.S. public land surveys in the mid-1800s described the western half of Long Run Creek watershed as "Timber" while the eastern half was described as mostly "Prairie" mixed with areas of "Marsh" and pockets of "Timber." This mixture of "Prairie" and "Timber" is referred to today as "Savanna". The prairie-savanna landscape was maintained by and adapted to frequent lightning-strike fires, fires ignited by Native Americans, and grazing by bison and elk. Running through the prairie-savanna landscape were meandering stream corridors and low wet depressions consisting of sedge meadow, marsh, wet prairie and highly unique seeps, springs, and fen wetlands hydrated by alkaline rich groundwater discharge.

Photo, above: Pre-European settlement landscape at nearby Lockport Prairie Nature Preserve.

THE PRESENT

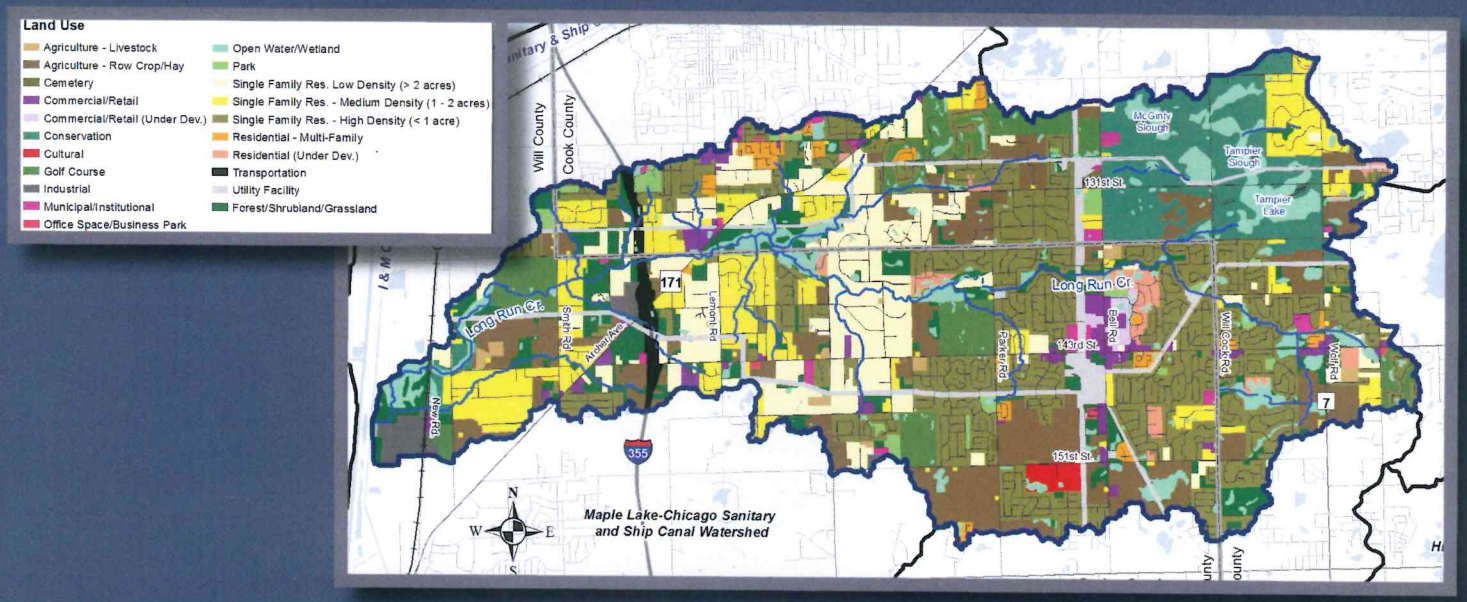
European settlement in the mid-1800s resulted in drastic changes to the fragile ecology of the watershed. Fires no longer occurred, bison and elk were extirpated, prairie and wetlands were tilled under or drained for farmland or developed, and many ditches were excavated through wetland areas to further drain the land for farming purposes. By the mid-1900s, many of the woodland communities described in the western portion of the watershed remained but farmland had replaced most of the prairie and wetland.

Conversion from farmland to residential and commercial uses swelled between the 1950s and early 2000s. By 2012, residential communities comprised over 40% of the watershed (see map, below). Most of this development used "traditional" practices that increased impervious surfaces and reduced groundwater recharge.

THE FUTURE

Predicted land use changes (see map, right) show most of the remaining farmland converting to residential, office space, or commercial uses. One of the best opportunites for local communities will be utilizing requirements for "Conservation" or "Low Impact" development that incorporates and preserves green infrastructure, thereby improving water quality, wildlife habitat, groundwater recharge, and quality of life for people.

EXISTING 2012 LAND USE/LAND COVER



CHALLENGES & THREATS

ERODED STREAMBANKS

SURFACE WATER

- Two wastewater treatment plants account for 56% and 65% of phosphorus and nitrogen loading, respectively.
- Fertilizer use on agricultural, residential, and commercial/retail land is contributing to phosphorus loading.
- 19% of the stream and tributary length is highly channelized.
- 20% of stream and tributary banks are highly eroded and account for 82% of sediment loading.
- 69% of the 185 detention basins surveyed are poorly designed for water quality benefits.
- Livestock and mulch processing operations threaten critical habitat for the endangered Hine's Emerald Dragonfly.
- Old and/or failing septic systems are a potential nutrient and bacteria threat.

POOR DETENTION DESIGN

GROUNDWATER

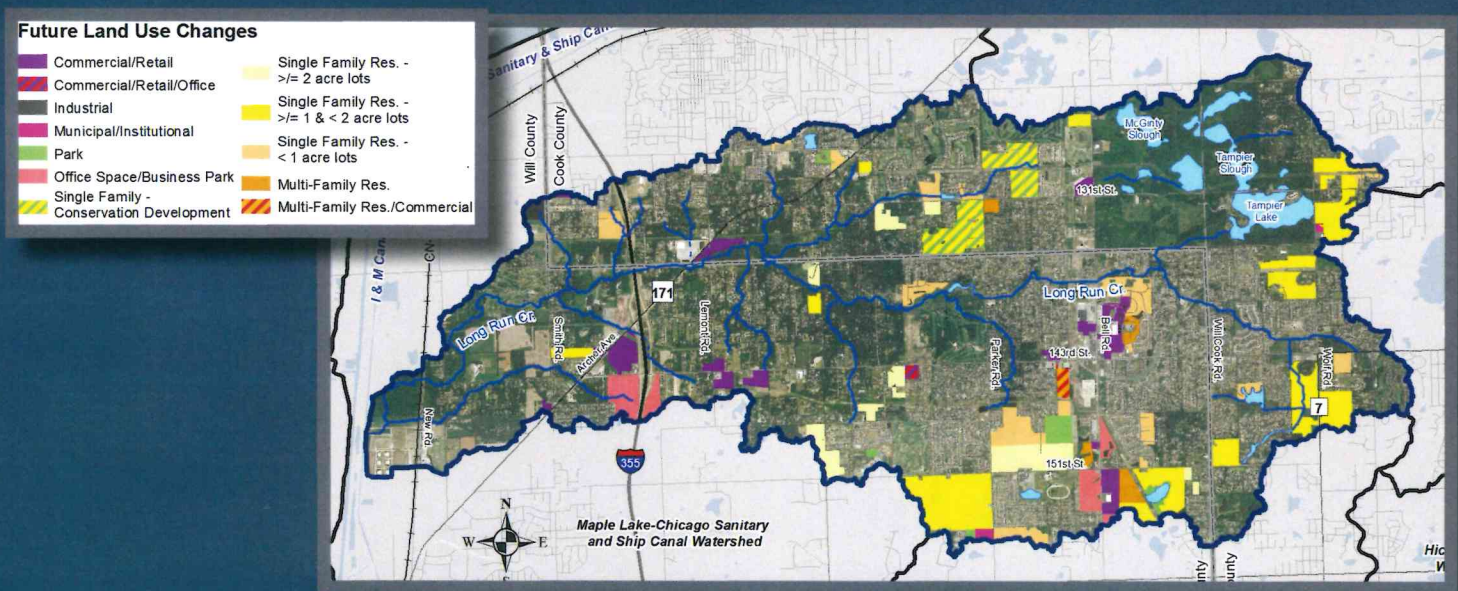
- Endangered Hine's Emerald Dragonfly habitat in seeps at Long Run Seep Nature Preserve is threatened by contaminated groundwater and hydrology changes.
- Studies by Illinois State Water Survey show deep aquifer drawdown exceeding 500 feet within the watershed.
- "Traditional" development over the past 20 years generally did not incorporate groundwater infiltration practices.

MULCH PROCESSING

LAND

- 1,600 acres of agricultural land and 200 acres of forest/grassland are predicted to become mostly residential or commercial/retail in the future.
- Invasive species such as common reed, reed canary grass, common buckthorn, and box elder are threats to most natural areas.
- Overall development policy among the watershed communities does not adequately protect green infrastructure.
- Chicago Metropolitan Agency for Planning predicts a 20,059 (47%) population increase by 2040.
- 37% of stream & tributary riparian areas are in "poor" ecological condition.
- 2,121 acres (64%) of historic wetlands have been lost to changing land uses.
- Educational surveys suggest that there is a lack of knowledge regarding watershed issues among residents and decision makers.

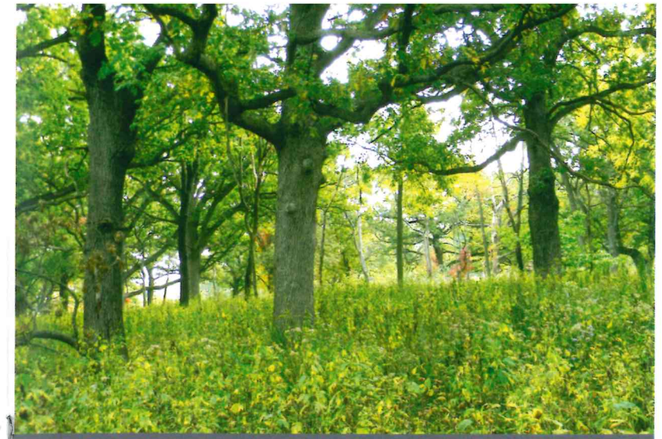
PREDICTED LAND USE CHANGES



IMPORTANT NATURAL AREAS

JOHN J. DUFFY PRESERVE

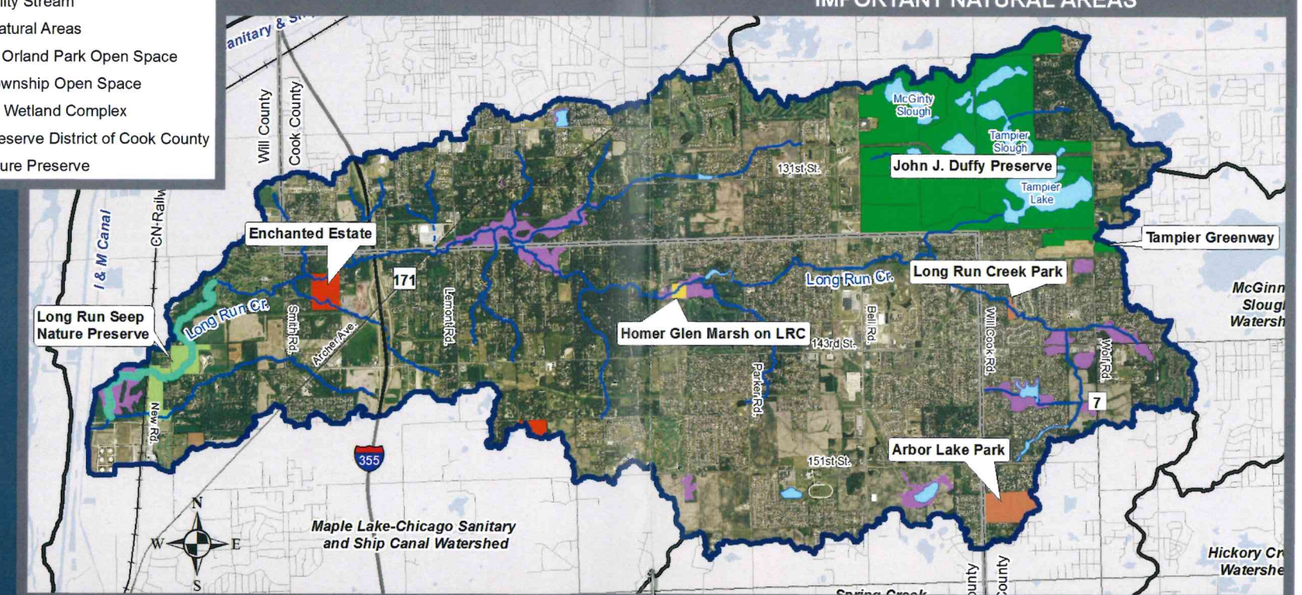
TAMPIER SLOUGH



LONG RUN SEEP NATURE PRESERVE

The watershed planning area has 1,614 acres of land within John J. Duffy Preserve which is owned and managed by the Forest Preserve District of Cook County. The preserve contains a variety of natural habitats including young and older growth woodlands, prairie, wetland sloughs, and lakes. A slough is a wetland within a channel or series of shallow lakes that flows at least periodically. McGinty Slough and Tampier Slough are found in the northwest and east portions of the preserve, respectively. These sloughs provide a bird-watchers paradise during spring and fall migrations when thousands of shorebirds, egrets, and waterfowl stop over. In fact, over 300 bird species have been spotted in and around the preserve. Tampier Lake is a 160-acre, man-made lake, found in the southeast portion of the preserve. This area was historically a series of shallow sloughs which were excavated out of peat to create a lake between 1958 and 1964. State endangered Ospreys, a large bird of prey that lives and breeds near wetlands and lakes, is known to nest at Tampier Lake.

IMPORTANT NATURAL AREAS

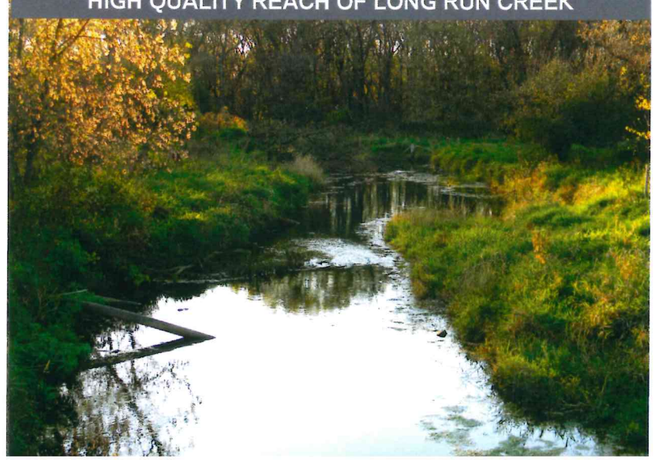


Long Run Seep Nature Preserve is owned by the Illinois Department of Natural Resources. This 89-acre site is home to seep, fen, wet-mesic floodplain forest, and dry-mesic woodland plant communities as well as the main channel of Long Run Creek and a tributary known locally as South Ditch. Of these communities, it is the seep and fen formed at the base of the Des Plaines River valley bluffs, that provide cold calcareous groundwater that supports many threatened and endangered plant species, including beaked spike rush (*Eleocharis rostellata*), grass pink orchid (*Calopogon tuberosa*), and slender bog arrow grass (*Triglochin palustris*). The seeps provide critical habitat for the federally endangered Hine's Emerald Dragonfly.

A 2.2-mile stretch of Long Run Creek meanders naturally between Big Run Golf Club and the I & M Canal and is of high quality. Dolomite is close to the surface providing stable substrate, good riffle-pool development, minimal bank erosion, and good aquatic habitat.

Several other important natural areas exist within Long Run Creek watershed, including twelve wetland complexes, Homer Glen Marsh on Long Run Creek, Arbor Lake Park, Long Run Creek Park, and two private woodlands.

HIGH QUALITY REACH OF LONG RUN CREEK



HINE'S EMERALD DRAGONFLY

Long Run Seep Nature Preserve provides critical habitat for the Hine's Emerald Dragonfly (HED), a federal and state listed endangered species. Recent studies have documented HED larval habitat and recruitment in Long Run Seep. The HED is defined by its brilliant emerald-green eyes and dark brown and metallic green body, with yellow stripes on its sides. Today, the HED is only found in a few locations in four states: Illinois, Michigan, Missouri, and Wisconsin. Its preferred habitat is calcareous spring-fed marshes, seeps, fens, and sedge meadows overlaying dolomite bedrock such as those found at Long Run Seep. The HED relies on the unique water quality features of calcareous seeps where the female lays eggs that later emerge into nymphs that live in the seeps for up to 4 years before becoming a flying adult dragonfly.

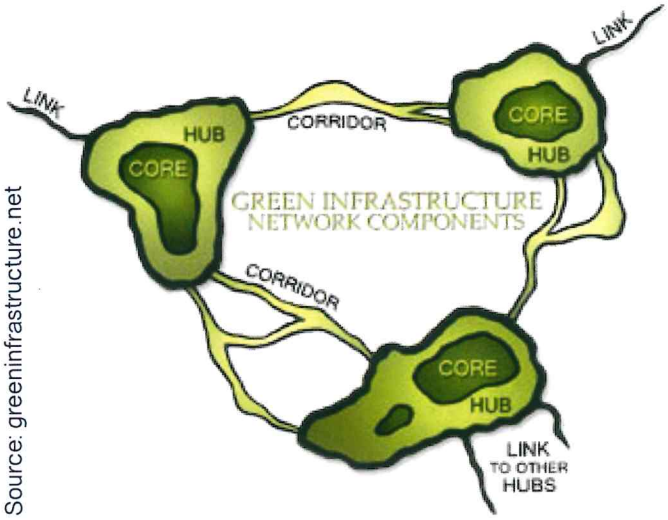
To help protect HED critical habitat, the Illinois Nature Preserves Commission (INPC) petitioned Illinois EPA in 2012 to designate the groundwater recharge area to Long Run Seep Nature Preserve as a Class III Special Resource Groundwater Classification. Class III designation allows an area to be subjected to special water quality standards and, if an impact to a protected nature preserve's groundwater resource can be shown, the Office of the Illinois Attorney General can immediately cease the source activity of the impact. INPC's petition process involves enlisting help from the Illinois State Geological Survey to delineate a "Final Groundwater Contribution Area (GCA)" to Long Run Seep Nature Preserve. The GCA extends east covering the southern 2/3 of Long Run Creek watershed and south into several adjacent watersheds. The total area is a vast 26,543 acres or 41.5 square miles. Note: The Final GCA is not considered a Class III area until it is designated as such by Illinois EPA.

HINE'S EMERALD DRAGONFLY

SOURCE: DAN KIRK

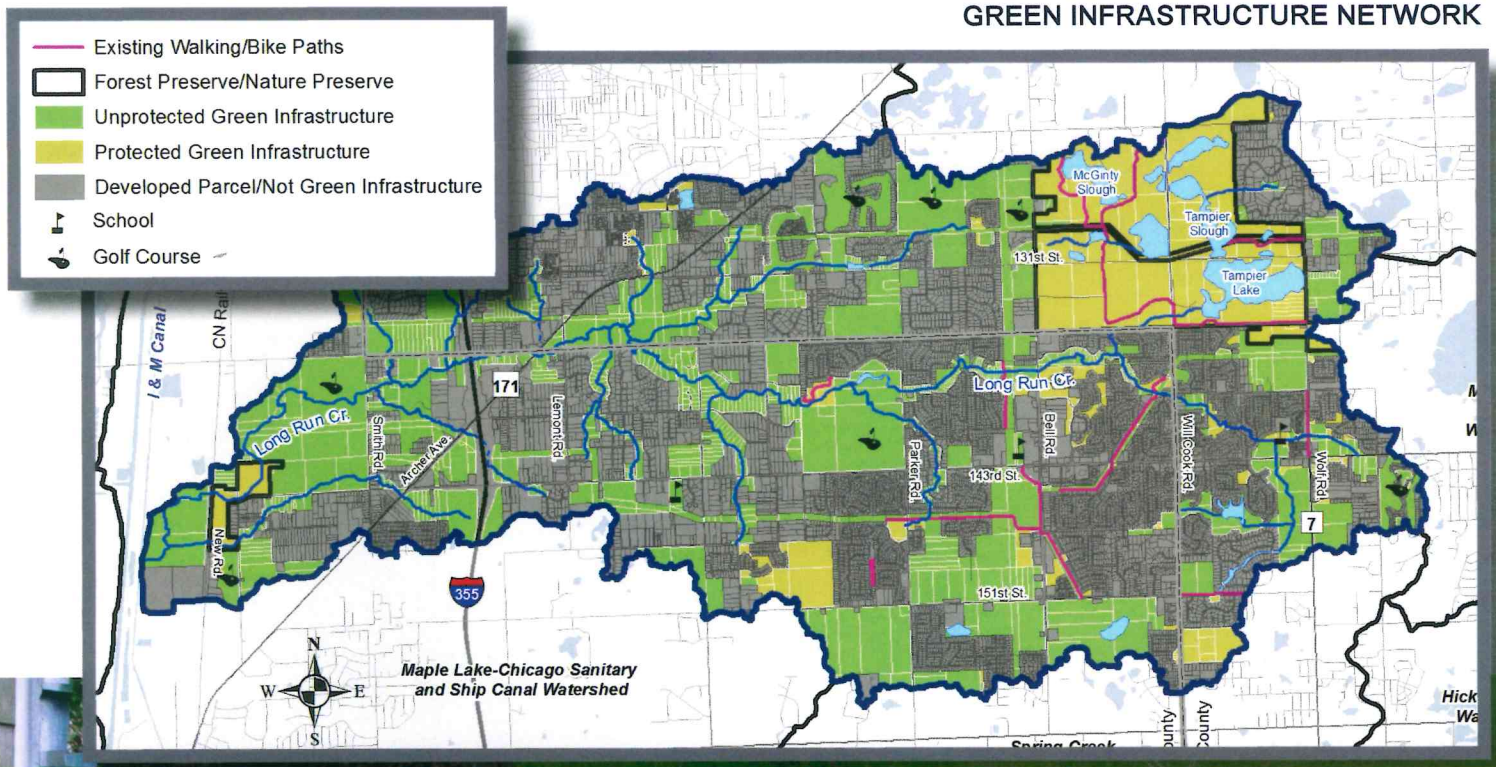
GREEN INFRASTRUCTURE & YOUR BACKYARD

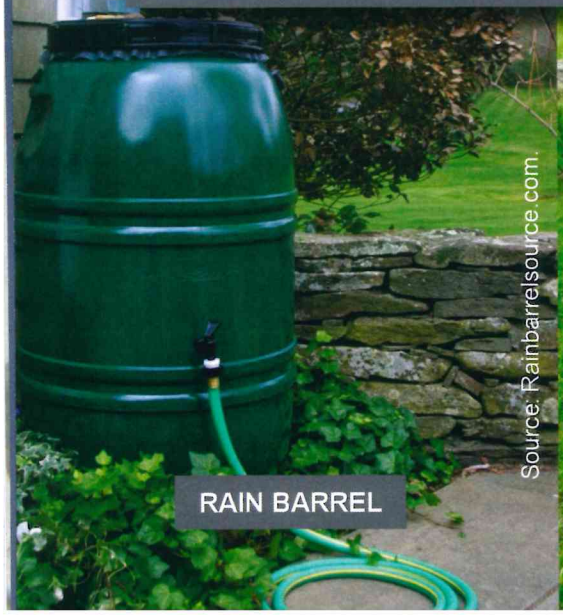
A Green Infrastructure Network is a connected system of natural areas and other open space that conserves natural ecosystem values and functions, sustains clean air and water, and provides a wide array of benefits to wildlife and people. The network (see map, below) is made up of hubs and linking corridors. Hubs generally consist of the largest and least fragmented areas such as John J. Duffy Preserve, Long Run Seep Nature Preserve, large agricultural areas, and golf courses. Corridors are generally formed by smaller private residential parcels along developed reaches of Long Run Creek and tributaries. Corridors are extremely important because they provide biological conduits between hubs. However, most parcels forming corridors are not ideal green infrastructure until residents embrace the idea of managing stream corridors or creating backyard habitats.



Source: greeninfrastructure.net

GREEN INFRASTRUCTURE NETWORK





Source: Rainbarrelsource.com.

If a portion of a stream runs through your backyard, here are some tips to help properly manage your piece of the green infrastructure network:

1. **MANAGE FERTILIZER USE**
   Avoid over fertilizing lawns adjacent to streams and only use phosphorus when soil testing shows that it is necessary.
2. **NO DUMPING**
   Avoid dumping yard waste and clear heavy debris jams.
3. **REMOVE NON-NATIVE SPECIES**
   Identify and remove plants that are out of place (see photo guide, right).
4. **PLANT NATIVE VEGETATION**
   Plants adapted to the Midwest climate can help control erosion by stabilizing banks.
5. **A NATURAL, MEANDERING STREAM IS A HAPPY STREAM**
   Work with experts to restore degraded streams.

For more detailed information, check out the Lake County Stormwater Management Commission's booklet, "Riparian Area Management: A Citizen's Guide," at www.lakecountyil.gov/stormwater.

Source: Appalachian Traveller.

Any property owner can improve green infrastructure. Create a safe place for wildlife by providing a few simple things such as food, water, cover, and a place for wildlife to raise their young. The National Wildlife Federation's Certified Wildlife Habitat® and the Conservation Foundation's Conservation@ Home programs can help you get started. Golf courses can become certified through the Audubon Cooperative Sanctuary Program.

Creating a rain garden, or a small vegetated depression, to capture water is another way of promoting infiltration while beautifying your yard and providing additional habitat. Disconnecting your roof downspouts and capturing that runoff in rain barrels not only reduces the amount of runoff entering streams, but also serves as a great source of water for irrigating your yard.

STREAM RESTORATION

REMOVE THESE NON-NATIVE AND INVASIVE SPECIES

COMMON REED

BUCKTHORN

Source: Loras.edu

REED CANARY GRASS

PURPLE LOOSESTRIFE

GARLIC MUSTARD

TEASEL

ACTION RECOMMENDATIONS

The Long Run Creek Watershed-Based Plan includes an "Action Plan" developed to provide stakeholders with recommendations to specifically address plan goals. The Action Plan includes two subsections: programmatic recommendations and site specific recommendations. Programmatic recommendations are general remedial, preventative, and regulatory watershed-wide actions. Site specific recommendations include actual locations where projects can be implemented to improve surface and groundwater quality, green infrastructure, and habitat. Programmatic recommendations and site specific High Priority-Critical Areas are discussed in this section.

POLICY TYPE PROGRAMMATIC GUIDANCE RECOMMENDATIONS*

*All recommendations are for guidance only and not required by any federal, state, or local agency.

NATURALIZED DETENTION

Plan Adoption and/or Support & Implementation Policy Recommendations

- Watershed Partners adopt the Long Run Creek Watershed-Based Plan as a "Guidance Document."

Green Infrastructure Network Policy Recommendations

- Each municipality consider incorporating the Green Infrastructure Network (GIN) into comprehensive plans and development review maps.
- Utilize tools such as protection overlays, setbacks, open space zoning, conservation easements, conservation and/or low impact development, etc. on GIN parcels.
- Utilize tools such as Development Impact Fees, Stormwater Utility Taxes, Special Service Areas (SSA) taxes, etc. to help fund future management of green infrastructure components where new and redevelopment occurs.
- Encourage developers to protect sensitive natural areas, restore degraded natural areas and streams, then donate all natural areas and naturalized stormwater management systems to a public agency or conservation organization for long-term management.
- Establish incentives for developers who propose sustainable or innovative approaches to preserving green infrastructure and using naturalized stormwater treatment trains.
- Consider limiting mitigation for all wetlands lost to development to occur within the watershed.

Groundwater Policy Recommendations

- Encourage extensive stormwater management practices that clean and infiltrate water in all new and redevelopment occurring within the Class III Groundwater Contribution Area (GCA) to Long Run Seep Nature Preserve.
- Limit future mitigation dollars from impacts to Hine's Emerald Dragonfly (HED) habitat to managing and restoring HED habitat or to fund projects that support groundwater recharge within the Class III GCA.

Road Salt Policy Recommendations

- Each municipality/township consider supplementing existing programs with deicing best management practices.

Lawn Fertilizer Policy Recommendations

- Municipalities/townships extend phosphorus regulation to all non-commercial applicators, consider soil testing pre-application, or ban out-right.

Stormwater Management Facility Policy Recommendations

- Allow new development and redevelopment to use stormwater management facilities that serve multiple functions including storage, water quality benefits, infiltration, and wildlife habitat.
- Consider reduced runoff volume from new and retrofitted detention basins.

Native Landscaping/Natural Area Restoration

- Allow native landscaping within local ordinances and ensure local "weed control" ordinances do not discourage or prohibit native landscaping.

Watershed tour at Annunciation of the Mother of God Byzantine Church.

OTHER PROGRAMMATIC RECOMMENDATIONS FOUND IN THE PLAN

Dry & Wet Bottom Detention Basin Design/Retrofits, Establishment, & Maintenance
Stream & Riparian Area Restoration & Maintenance
Natural Area Restoration & Native Landscaping
Conservation & Low Impact Development
Agricultural Management Practices
Rainwater Harvesting & Re-use
Septic System Maintenance
Rain Gardens
Street Sweeping
Pervious Pavement
Wetland Restoration
Vegetated Filter Strips
Green Infrastructure Planning
Vegetated Swales (bioswales)

HIGH PRIORITY-CRITICAL AREA SITE SPECIFIC PROJECT RECOMMENDATIONS (see map, below)

Detention Basin Retrofits & Maintenance

Many detention basins can be retrofitted by naturalizing with native vegetation. Naturalized basins improve water quality from developed areas, improve habitat, and require less maintenance. Twenty two detention basins were identified as High Priority-Critical Areas in the watershed.

Wetland Restoration

Wetland restoration sites are generally associated with large areas that were historically wetland prior to European settlement in the 1830s but were drained for agricultural purposes. Thirteen High Priority-Critical Area wetland restoration sites were identifiied, many of which can be restored by breaking existing drain tiles and planting with native vegetation as part of future development.

Streambank & Channel Restoration

Six stream reaches have been identified as High Priority-Critical Areas because they exhibit highly eroded banks or degraded channel conditions that are a major source of total suspended solids (sediment). Streambank stabilization and channel restoration using bioengineering will reduce sediment and improve habitat.

Riparian Area & Lake Buffer Restoration

Riparian areas along four stream reaches and a 9,000-linear foot section of shoreline along Tampier Lake are High Priority-Critical Areas because they are in poor ecological condition but have excellent ecological restoration potential.

Green Infrastructure Protection Areas

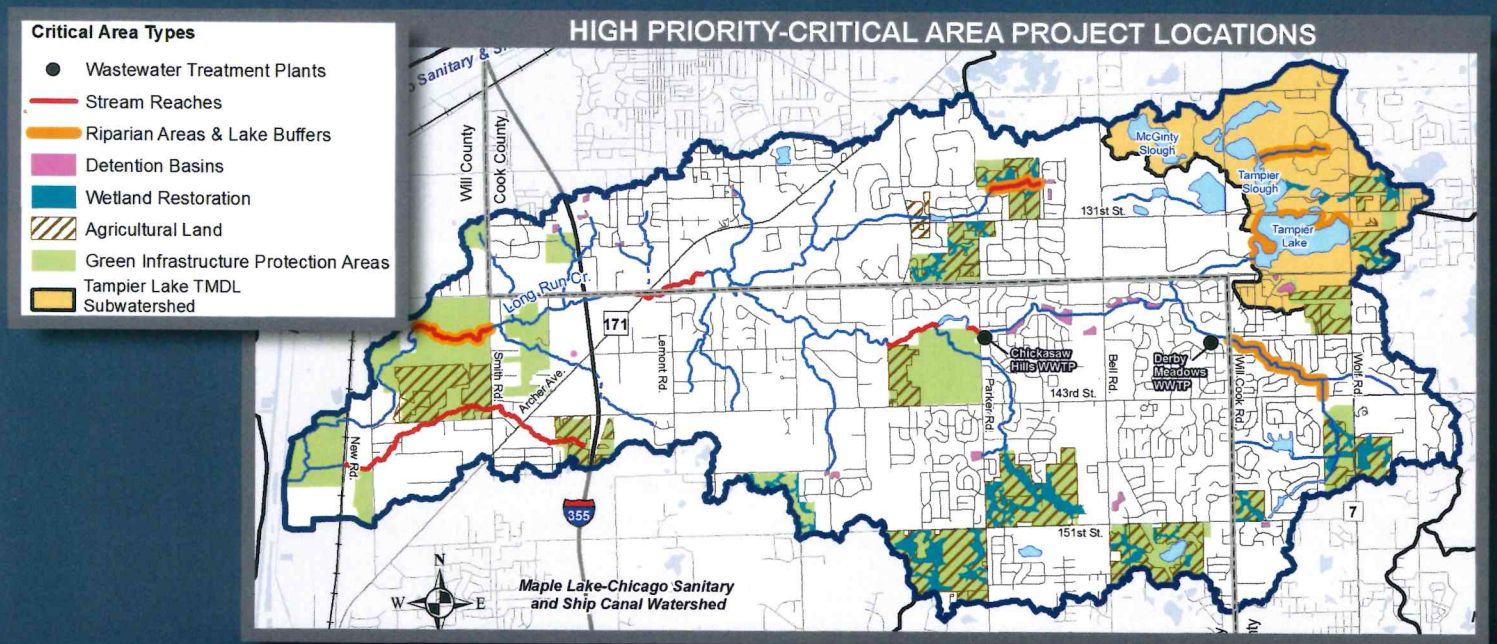
Nineteen green infrastructure protection areas have been selected in the watershed after careful review of predicted land use changes. Most parcels are existing agricultural land planned for future development. The recommendation is that these parcels be preserved or developed using conservation or low impact development designs.

Agricultural Management Practices

Agricultural measures would greatly reduce pollutant loading in the watershed. Recommendations in the plan include conservation tillage (no till) for cropland and manure management on livestock operations. Thirteen cropland areas and two livestock operations were identified as High Priority-Critical Areas for potential pollutant reduction based on their size and/or location in the watershed.

Wastewater Treatment Plant Upgrades

There are two permitted wastewater treatment plant (WWTP) discharges to Long Run Creek: Chickasaw Hills WWTP and Derby Meadows WWTP. These facilities are High Priority-Critical Areas because, combined, they contribute over 65% of the total nitrogen loading and over 56% of the total phosphorus loading. These plants should eventually upgrade with nutrient removal technologies. Local municipalities can also enforce a nutrient loading ordinance.



GET INVOLVED

Watershed planning and implementation is a voluntary effort. Active watershed stakeholders are needed to put this watershed plan into action. The Long Run Creek Watershed Planning Committee is in place to support plan implementation and future planning efforts. Contact the Lower Des Plaines Ecosystem Partnership to learn how you can help. The Long Run Creek Watershed-Based Plan can be downloaded at www.lowerdesplaines.org.

How can *you* help Long Run Creek?

Residents & Businesses

- ☐ Reduce fertilizer use on lawns and only use phosphorus based on soil testing results.
- ☐ Use less salt on driveways, parking lots, and sidewalks during winter months.
- ☐ Use native landscaping to decrease watering needs and maintenance.
- ☐ Install rain gardens and use rain barrels to reduce stormwater runoff.
- ☐ Manage your backyard as part of the green infrastructure network.
- ☐ Attend meetings with decision makers to express concerns about the watershed.
- ☐ Build a sense of community in your neighborhood around Long Run Creek and the watershed.
- ☐ Attend watershed education events.

Agricultural Community

- ☐ Consult your local Natural Resources Conservation Service (NRCS) office regarding enrollment in conservation programs to help reduce soil erosion, enhance water supplies, improve water quality, increase habitat, and reduce flood damages.

Forest Preserve Districts & IDNR

- ☐ Control non-native/invasive species and replace with native vegetation.
- ☐ Look for opportunities to acquire green infrastructure protection areas.
- ☐ Educate the public about the Hine's Emerald Dragonfly.

Municipalities & Townships

- ☐ Adopt the Long Run Creek Watershed-Based Plan and inform the public that a plan has been developed.
- ☐ Incorporate watershed plan goals and recommended actions into local comprehensive plans, zoning overlays, codes, and ordinances.
- ☐ Build "demonstration projects," or large-scale water quality & public education projects, near public facilities.
- ☐ Distribute materials to help residents manage streams in their backyards.

Long Run Creek Watershed Planning Committee

- ☐ Identify "champions" to participate at future Long Run Creek Watershed Planning Committee meetings, pursue projects, and to discuss and evaluate watershed plan implementation progress.
- ☐ Hire a Watershed Implementation Coordinator to follow through on plan implementation.

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.

Long Run Creek Watershed Planning Committee

BLUESTEM communications
Supporting coalitions • Building capacity • Inspiring action

Illinois Environmental Protection Agency

Historic Lemont est. 1836

For more information contact:
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www.lowerdesplaines.org

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Education Outreach:
Bluestem Communications
bluestemcommunications.org

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