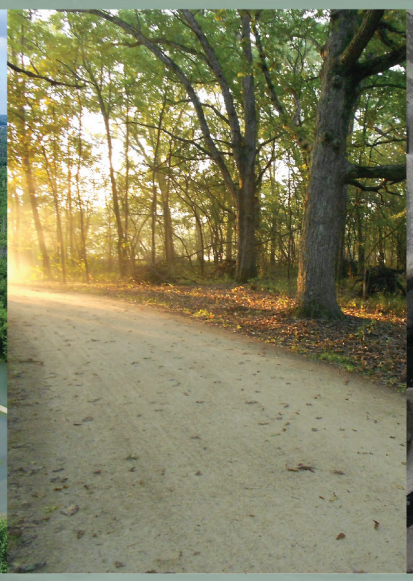
Des Plaines River Watershed-Based Plan






EXECUTIVE SUMMARY • June 2018

INTRODUCTION:

Why a Watershed-based Plan?

Water is elemental to our lives. Plants and animals, including humans, are largely composed of water, and generally require clean water to survive. Our communities, food systems, energy sources, and countless products that we consume everyday are dependent upon water. Despite this dependence, water is often taken for granted until it negatively affects us, usually due to short supply, inundation, or pollution.

This watershed-based plan is important because it specifically addresses water-related issues in communities within the Des Plaines River Watershed Planning Area. Clean and abundant water, healthy streams and lakes, and safety from flooding are important to residents and business and therefore play a significant role in the quality of life, health and economic vitality of our communities. Clean and healthy watersheds are assets that make communities more desirable for residents and businesses; however, flooding can damage property and result in local economic impacts. Lakes, rivers, and streams in the planning area provide recreational destinations for watershed residents as well as tourists and are a highly visible indicator of watershed health. These waterbodies support a diverse variety of water-dependent plants and animals and are critical to local ecosystems.

Your actions help to:

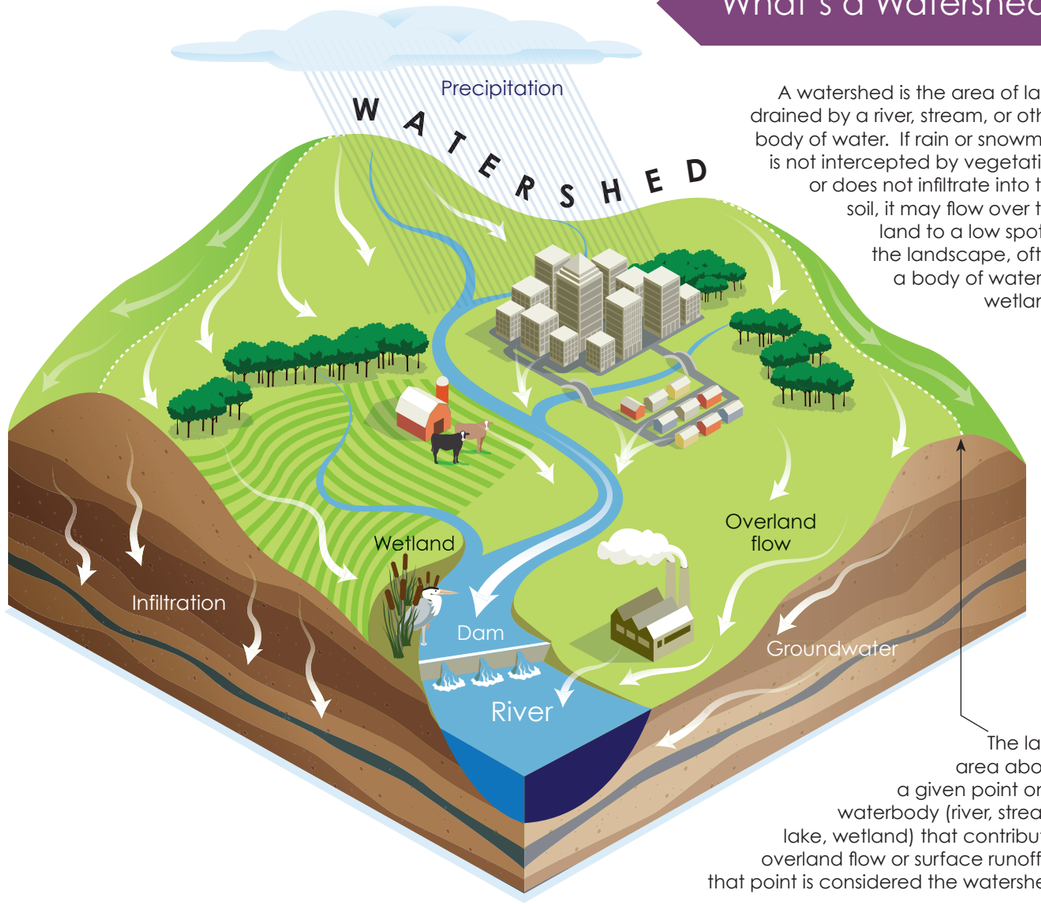
- keep water in our rivers, streams, lakes and wetlands clean
- reduce the impacts of flooding
- protect and enhance natural resources
- maintain "green" and "grey" infrastructure
- increase awareness of watershed issues and opportunities

Water does not generally flow according to political boundaries. Consequently, we recognize the watershed as the appropriate scale to address most water resource issues, which often involve multiple political jurisdictions. The Des Plaines River watershed planning process brought together numerous watershed stakeholders to provide input towards the management and enhancement of water resources in the planning area.

During this planning process, critical data was obtained from record flooding that occured in 2017, as well as a comprehensive water quality monitoring effort conducted on watershed streams.

This watershed-based plan utilizes these sources of up-to-date information as well as historical data to provide a comprehensive summary of existing watershed conditions and trends. It recommends actions stakeholders can take to protect resources that are in good condition and restore those that have been degraded. As a resident, landowner, business or community official, you make a difference.

What's a Watershed?



A watershed is the area of land drained by a river, stream, or other body of water. If rain or snowmelt is not intercepted by vegetation or does not infiltrate into the soil, it may flow over the land to a low spot in the landscape, often a body of water or wetland.

The land area above a given point on a waterbody (river, stream, lake, wetland) that contributes overland flow or surface runoff to that point is considered the watershed.

Des Plaines River Watershed Planning Area Vision Statement

The Des Plaines River watershed planning area will be a destination valued by residents, businesses, and governments that join together to actively engage in education and participate in improving water quality. Stakeholders will preserve and enhance regional green infrastructure, resulting in cleaner streams and lakes, better plant and animal biodiversity, and reduced flood damage – while balancing a sustainable native landscape with development and economic growth.

AT A GLANCE:

Des Plaines River Watershed Planning Area

The Land

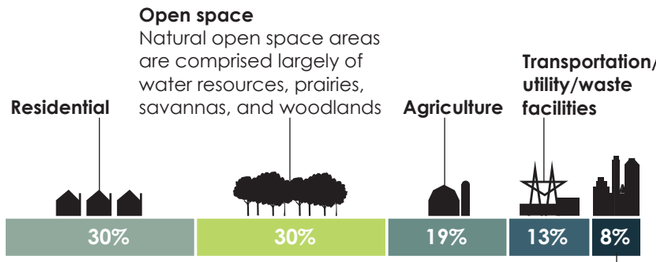
240 miles of rivers and streams

53 named lakes

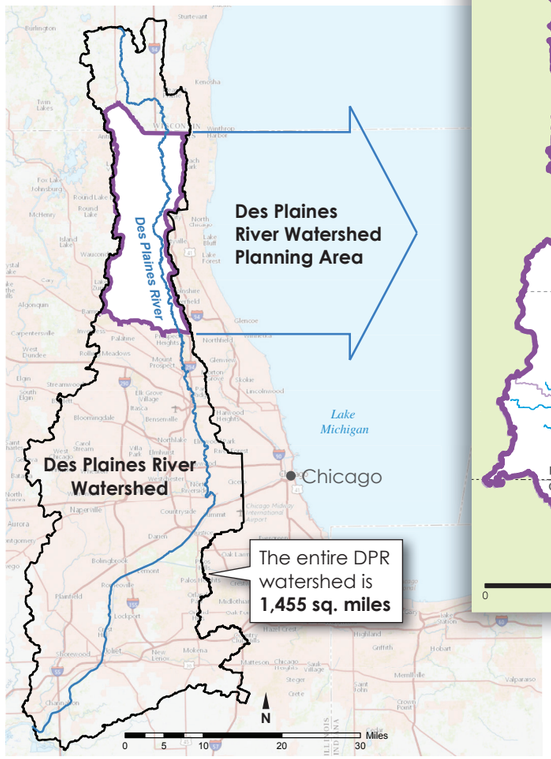
17,000 acres of wetlands

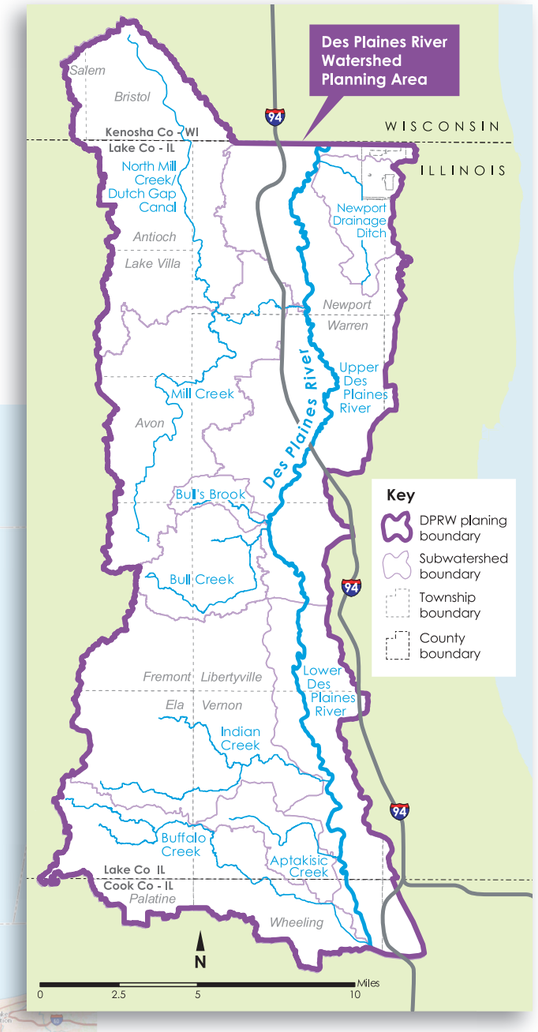
The Des Plaines River Watershed-Based Plan covers 235 square miles in Lake and Cook Counties in Illinois and Kenosha County in Wisconsin. This planning area is part of the much larger Des Plaines River watershed, which covers 1,455 square miles in Southeastern Wisconsin and Northeastern Illinois and is part of the Illinois and Mississippi River Basins. The planning area is divided into 10 smaller "subwatersheds": the Upper Des Plaines River, Lower Des Plaines River, Newport Drainage Ditch, North Mill Creek-Dutch Gap Canal, Mill Creek, Bull's Brook, Bull Creek, Indian Creek, Aptakisic Creek, and Buffalo Creek.

What's in the planning area:



Commercial, industrial, government/institutional, and office/research parks together encompass less than 10% of total watershed area but may have significant impacts on water resources, particularly where these uses are geographically concentrated.





The Des Plaines River Watershed-Based Plan is the first "umbrella" plan developed by SMC, in that it includes and updates five previous plans for smaller subwatersheds within the planning area: Bull Creek-Bull's Brook, Buffalo Creek, Indian Creek, Mill Creek, and North Mill Creek-Dutch Gap Canal, and completes planning for the remaining subwatershed areas with no previous watershed plans.

The People

400,000 approximate population in 2010

39 municipalities

15 townships

THE PLANNING AREA: A SPECIAL PLACE

The natural landscape of the planning area was formed by the retreat of a continental ice sheet more than 10,000 years ago. This process resulted in the low moraine ridges, kettle lakes and depressions, and outwash plains that give shape to the water resources and natural communities we see in the watershed today, including more than 50 lakes and 240 miles of river and streams. The planning area has a diverse mix of land uses with relatively large areas of natural and recreational open space interspersed with residential neighborhoods, commercial districts, and employment centers. Agriculture remains a major land use activity in the northern half of the planning area. The rural character in this part of the planning area has been identified as an important attribute by stakeholders.

Within the open space network are significant "ecological complexes" of more than 10,000 acres: one complex in the northern end of the planning area extending from Rollins Savanna to Red Wing Slough and one complex that runs along the Des Plaines River. These natural areas store and cleanse stormwater, provide important habitat for an array of plants and wildlife, and offer a myriad of recreational opportunities.

The Des Plaines River corridor is an archetype of "green infrastructure", providing an array of benefits including floodplain protection and flood damage reduction, open space and habitat preservation, and an unbroken recreational trail connection from north to south through the planning area. The planning area contains dozens of natural lakes and thousands of acres of wetlands resulting from the last glaciation. These lakes and wetlands often are a source of baseflow to streams, provide important habitat to native and threatened/endangered plants and wildlife and offer abundant recreational opportunities. The benefits of natural waterbodies are augmented by impounded and excavated lakes in the planning area that have been constructed over the years.

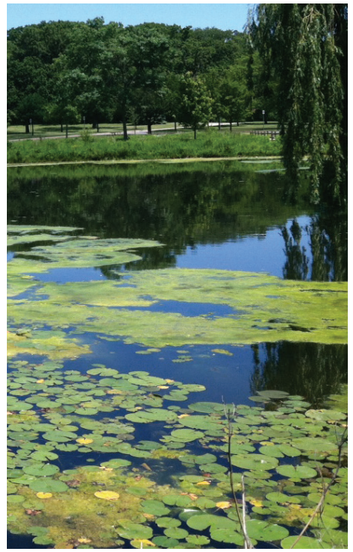
OUR FINDINGS:

A System Under Stress

Many rivers, streams and lakes in the planning area are impaired by nutrients, chloride, bacteria, and other forms of pollution. Pollution enters water bodies through stormwater runoff from urban and agricultural lands; from erosion of upland soils, streambanks, and lakeshores; and in permitted discharges of treated wastewater.

Fish and aquatic invertebrates found in rivers and streams indicate degraded water quality and aquatic habitat. Lakes have expanding populations of invasive aquatic plants and mussels, as well as high levels of nutrients, which can result in algae blooms. These algae blooms can produce harmful effects to people and aquatic life, limit recreational activities, and reduce the aesthetic quality of lakes.

Record flooding on the Des Plaines River in July of 2017 was accompanied by urban flooding in many areas outside of mapped flood hazard areas. Intense rainfall overwhelms older or undersized infrastructure. While wetland loss is not occurring at the rate it once did, wetland coverage is greatly reduced from its former extent. The capacity of wetlands to provide benefits such as flood water storage, uptake or retention of pollutants such as nutrients and sediment, and provision of baseflow to lakes and streams is correspondingly reduced.



Clockwise from top left: Algae bloom at Butter Lake; Watershed stakeholders providing feedback towards the plan; Fourth Lake Forest Preserve; volunteers cutting and pulling up sod to install native vegetation along Mill Creek.

WHAT'S AT RISK IN THE PLANNING AREA?

The amount of impervious surface in the planning area is projected to increase in the future. Increased imperviousness of the landscape results in a greater volume of stormwater runoff that must be detained or infiltrated in order to avoid an increase in downstream flood elevations. Additionally, impervious surfaces such as roads and parking lots are linked to urban pollutants such as chloride and polycyclic aromatic hydrocarbons (PAHs), which are becoming more prevalent in the planning area. Future pollutant loading scenarios based on municipal and county comprehensive plans suggest that nutrient and chloride pollution loads could increase dramatically in the future. If severe weather events such as those that resulted in the July 2017 flood become more frequent in the future, flooding in urban areas and along floodplains will be exacerbated.

Stressors

Specific watershed stressors include:

- **Nutrients, chloride, organic enrichment, and sedimentation/ siltation** are major causes of impairment in rivers and streams. Nutrients, sediment, and bacteria are major causes of water quality impairment in lakes.
- **Erosion** degrades water quality and aquatic habitat.
- **Chloride levels** are steadily rising in rivers, streams and lakes.
- There are **thousands of flood-prone structures**. Although 4,000+ structures are in mapped floodplains, many of the 2,000+ structures flooded in 2017 are outside mapped floodplains.
- Both **traditional and "green" stormwater infrastructure** may be insufficient for runoff volume or need repair.
- **More than half of the wetland acreage in the planning area has been lost** since European settlement.
- **Stakeholders** are generally unaware of the watershed stressors or do not have the experience or resources necessary to take action.
- **More collaboration** among jurisdictions is needed to address many of the watershed problems and take advantage of watershed opportunities.

ARE YOU A WATERSHED STAKEHOLDER?

Watershed stakeholders that contributed to the planning process include municipalities, townships, county agencies, wastewater treatment plant representatives, and the broader community of homeowner associations, businesses, non-profit organizations, institutions, and residents living, working or providing interest in the planning area.

Take Action!

10 in 10

TEN ACTIONS FOR STAKEHOLDERS TO TAKE IN THE NEXT TEN YEARS

1. **Adopt the watershed-based plan and implement high priority actions and/or projects,** including the allocation of funding for project implementation and maintenance.
2. **Determine a lead watershed organization to guide watershed plan implementation,** implement the education and outreach strategy, provide technical assistance to watershed stakeholders, and coordinate multi-partner projects.
3. **Municipalities and counties work collaboratively** and proactively to mitigate flood problem areas.
4. **Utilize low-impact development and stormwater best management practices** in new development and retrofit/maintain existing development to reduce and filter stormwater runoff from impervious areas.
5. **Restore wetlands,** particularly where they will provide additional flood storage and water quality benefits.
6. **Stabilize the worst "severe" eroding streambanks and lake shorelines** using techniques that provide water quality and aquatic habitat benefits.
7. **Stabilize eroding fields,** implementing nutrient management plans and implementing best farming practices to reduce soil loss.
8. **Reduce the amount of chloride in runoff** by implementing winter maintenance "de-icing" best practices and providing educational trainings and materials.
9. **Reduce phosphorus loads in runoff** through best management practices, projects, and programs.
10. **Use the results of watershed monitoring programs** to strategically target projects, develop programs, and update this watershed plan.

The Des Plaines River Watershed-Based Plan was completed following guidance from the Illinois Environmental Protection Agency and U.S. Environmental Protection Agency. Funding for this plan was provided, in part, by the Illinois Environmental Protection Agency through Section 319 of the Clean Water Act and the Lake County Stormwater Management Commission.

LAKE COUNTY

STORMWATER MANAGEMENT COMMISSION

Cover photo taken by Paul Klonowski.
Other photos courtesy of Lake County Stormwater Management Commission and Lake County Department of Transportation