Lake County
Forest Preserves

General Offices
1899 West Winchester Road
Libertyville, Illinois 60048
847-367-6640 • Fax: 847-367-6649
www.LCFPD.org

DATE: April 1, 2024

Agenda Item # 10.7

MEMO TO: Paras Parekh, Chair
Planning Committee

FROM: Pati Vitt
Director of Natural Resources

RECOMMENDATION: Recommend approval of a Resolution supporting and approving the Lake County Stormwater Management Commission's Updated Lake Michigan and North Branch Chicago River Watershed-Based Plans.

STRATEGIC DIRECTIONS SUPPORTED: Conservation; Leadership

FINANCIAL DATA: There is no financial impact

BACKGROUND: The health of a particular stream, river, lake, or wetland is a direct reflection of how the land in the surrounding watershed is used and managed. Watersheds cross jurisdictional boundaries, providing the opportunity for stakeholders to collaboratively plan and manage land use and other activities that impact both land and water resources through the creation of a watershed-based plan. Watershed-based plans help address water quality problems in a holistic manner by fully assessing the potential contributing causes and sources of pollution, then prioritizing restoration and protection strategies to address these problems.

The North Branch Chicago River Watershed covers 95 square miles in Lake and Cook Counties and includes four subwatersheds that encompass the Skokie River and the Middle Fork, West Fork, and North Branch of the Chicago River. Natural open space comprises 29.1% of the watershed area, including prairies, woodlands and wetlands located in Lake County and held by the District.

The Lake Michigan Watershed covers 57 square miles in Lake and Cook Counties, with 35% of the area comprised of natural open spaces. There are five subwatersheds including Kellogg Creek, Dead River, Waukegan River, Pettibone Creek and the Bluff/Ravine.

The Lake County Stormwater Management Commission (SMC) recently finished updates to its watershed-based plans for both the North Branch Chicago River Watershed and the Lake Michigan Watershed (collectively, the "Plans"). The Plans were originally prepared in 2008 and have been updated to maintain consistency with Illinois EPA and Clean Water Act current guidance and regulations. The Plans include projects designed to improve water quality that are eligible for grant funding through the Clean Water Act. To be eligible for Clean Water Act Section 319 grant funding for nonpoint source pollution control projects, the Plans must be approved by the Illinois EPA and subsequently adopted by stakeholders. In February 2022, SMC submitted drafts of the Plans to the Illinois EPA, and they have now been reviewed and approved. Therefore, staff recommends that the District approve and adopt the updates to both watershed Plans.

REVIEW BY OTHERS: Chief Operations Officer, Director of Finance, Manager of Board Operations, Corporate Counsel

STATE OF ILLINOIS)
) **SS**
COUNTY OF LAKE)

BOARD OF COMMISSIONERS
LAKE COUNTY FOREST PRESERVE DISTRICT
SPECIAL ~~**REGULAR**~~ **APRIL MEETING**
APRIL ~~16~~, 2024
9

MISTER PRESIDENT AND MEMBERS OF THE BOARD OF COMMISSIONERS:

Your **PLANNING COMMITTEE** presents herewith "A Resolution Supporting and Approving the Lake County Stormwater Management Commission's Updated Lake Michigan and North Branch Chicago River Watershed-Based Plans," and requests its approval.

PLANNING COMMITTEE:

Date: 4-1-2024 ☐ Roll Call Vote: Ayes: ___ Nays: _____

☒ Voice Vote Majority Ayes; Nays: 0

LAKE COUNTY FOREST PRESERVE DISTRICT
LAKE COUNTY, ILLINOIS

A RESOLUTION SUPPORTING AND APPROVING THE LAKE COUNTY STORMWATER MANAGEMENT COMMISSION'S UPDATED LAKE MICHIGAN AND NORTH BRANCH CHICAGO RIVER WATERSHED-BASED PLANS

WHEREAS, the Lake County Forest Preserve District (the "District") owns properties that are located within the Lake Michigan and North Branch Chicago River watersheds; and

WHEREAS, the District has issues of common interest with certain units of local government, including the Lake County Stormwater Management Commission ("SMC"); and

WHEREAS, the SMC and watershed stakeholders have been working since 2018 to revise and update the SMC's Lake Michigan Watershed-Based Plan and North Branch Chicago River Watershed-Based Plan, hereinafter referred to as the "Watershed-Based Plans"; and

WHEREAS, the Watershed-Based Plans were developed through a series of 10 watershed planning meetings and 18 focused discussion meetings with the cooperative effort of numerous stakeholders representing different watershed entities, ranging from individual homeowners & homeowner associations, consulting companies, businesses, large landowners and non-profit environmental organizations to local government, county, state and federal agencies that attended meetings during the planning process; and

WHEREAS, staff from the Natural Resources Department attended meetings hosted by the SMC to represent the District as a valued stakeholder during the development of the updated Watershed-Based Plans; and

WHEREAS, the purpose of the Watershed-Based Plans is to improve degraded conditions in the watersheds by implementing best management practices and programs to retrofit existing problem areas and prevent future problems from occurring and to identify opportunities for watershed communities to integrate multi-objective watershed management in community decisions and activities; and

WHEREAS, approval of the updated Watershed-Based Plans will guide the successful implementation of a series of individual site-specific projects and watershed-wide programmatic actions to: improve water quality, reduce flood damage potential, protect and enhance natural resources including the watershed's lakes, streams and wetlands; and in addition, will provide watershed education and recreation opportunities and improve community cooperation and participation in watershed improvement activities; and

WHEREAS, it is beneficial to the District for these Watershed-Based Plans to be approved and adopted so that grant funding may be sought for projects on District owned and managed land;

NOW, THEREFORE, BE IT RESOLVED by the Board of Commissioners of the Lake County Forest Preserve District, Lake County, Illinois **THAT**:

Section 1. Recitals. The recitals set forth above are incorporated as a part of this Resolution by this reference.

Section 2. Approval of the Updated Watershed-Based Plans. The District hereby approves and adopts the Watershed-Based Plans. Nothing herein obligates the District to spend any funds, incur any liabilities, or take any further actions pursuant to the approved Watershed-Based Plans.

Section 3. Effective Date. This Resolution shall be in full force and effect from and after its passage and approval in the manner provided by law.

PASSED this _____ day of _____, 2024

AYES:

NAYS:

APPROVED this _____ day of _____, 2024

_____
Angelo D. Kyle, President
Lake County Forest Preserve District

ATTEST:

_____
Julie Gragnani, Secretary
Lake County Forest Preserve District

Exhibit No. _____

Lake Michigan Watershed-Based Plan

EXECUTIVE SUMMARY • December 2021

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.

Your actions help to:

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

This watershed-based plan is important because it specifically addresses water-related issues in communities within the Lake Michigan Watershed Planning Area. Clean and abundant water, healthy streams, the integrity of Lake Michigan along with its coastal habitats and beaches, and safety from flooding and coastal hazards 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. Lake Michigan is a destination for watershed residents as well as tourists and provides potable water for nearly all residents and businesses in the planning area and millions of others in the region and beyond. The lake and associated coastal habitats support a unique array of plants and animals. Streams, ravines, wetlands and other water resources support a variety of water-dependent species are are critical to local ecosystems.

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 Lake Michigan watershed planning process brought together numerous watershed stakeholders to provide input towards the management and enhancement of water resources in the planning area.

This watershed-based plan utilizes the most up-to-date sources of information available 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.

AT A GLANCE:

Lake Michigan Watershed Planning Area

The Land

81 miles of rivers and streams

3,600 acres of wetlands

1 Great Lake

Lake Michigan Watershed-Based Plan covers 57 square miles in Lake and Cook Counties in Illinois and Kenosha County in Wisconsin. This planning area is part of the much larger Lake Michigan watershed, which covers 67,900 square miles in Illinois, Wisconsin, Michigan and Indiana and is part of the Great Lakes/St. Lawrence River Basin. The planning area is divided into 5 smaller "subwatersheds": Kellogg Creek, Dead River, Waukegan River, Pettibone Creek and Bluff/Ravine.

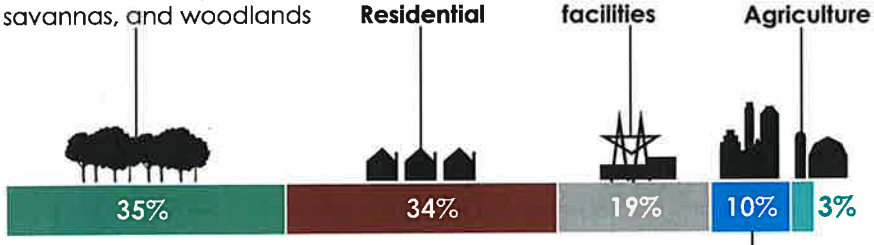
What's in the planning area:

Open space
Natural open space areas are comprised largely of water resources, prairies, savannas, and woodlands

Residential

Transportation/ utility/waste facilities

Agriculture



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

The People

180,000 approximate population in 2020

12 municipalities

7 townships

OUR FINDINGS:

A System Under Stress

Many streams and Lake Michigan shoreline segments in the planning area are impaired by nutrients, sediment, metals, chloride, bacteria, and other forms of pollution. Pollution enters water bodies through stormwater runoff from urban and agricultural lands; from the surrounding landscape and from erosion of upland soils and streambanks. Some pollutants are likely legacy materials that are present in stream sediments from activities that occurred during past development of the watershed.

Fish and aquatic invertebrates found in rivers and streams indicate degraded water quality and aquatic habitat. Lake Michigan beaches are listed as impaired due to occasionally or persistently high levels of fecal coliform bacteria present during swimming season. Waukegan Harbor was designated an Area of Concern in 1987 and has been undergoing environmental remediation for more than 25 years. Five of six of its beneficial uses have been restored from impairment over the last decade, but fish consumption advisories remain in effect.

Record flooding in the region 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. Wetland coverage is greatly reduced from its former extent and due to the developed nature of much of the watershed planning area, it is unlikely that large swaths of former wetlands can be restored. 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.

Stressors

Specific watershed stressors include:

- **Nutrients, chloride, metals, and sedimentation/siltation** are likely causes of impairment in streams. Bacteria is a major cause of Lake Michigan beach impairment.
- **Erosion** degrades water quality and aquatic habitat. Coastal erosion damages or threatens property, infrastructure and high quality natural resources.
- Data indicate **high chloride levels** in some streams but more monitoring is needed to determine the true extent of the issue.
- There are **hundreds of flood-prone structures**. Many structures affected by floods in 2017, as well as other flood events before or after, are outside of mapped flood hazard areas.
- Both **traditional and "green" stormwater infrastructure** may be insufficient for runoff volume or need repair.
- **About half of the wetland acreage in the planning area has been lost** since European settlement. Due to the largely developed character of the planning area, opportunities for wetland restoration are limited, particularly south of Waukegan.
- **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.

ake Action!

10 in 10

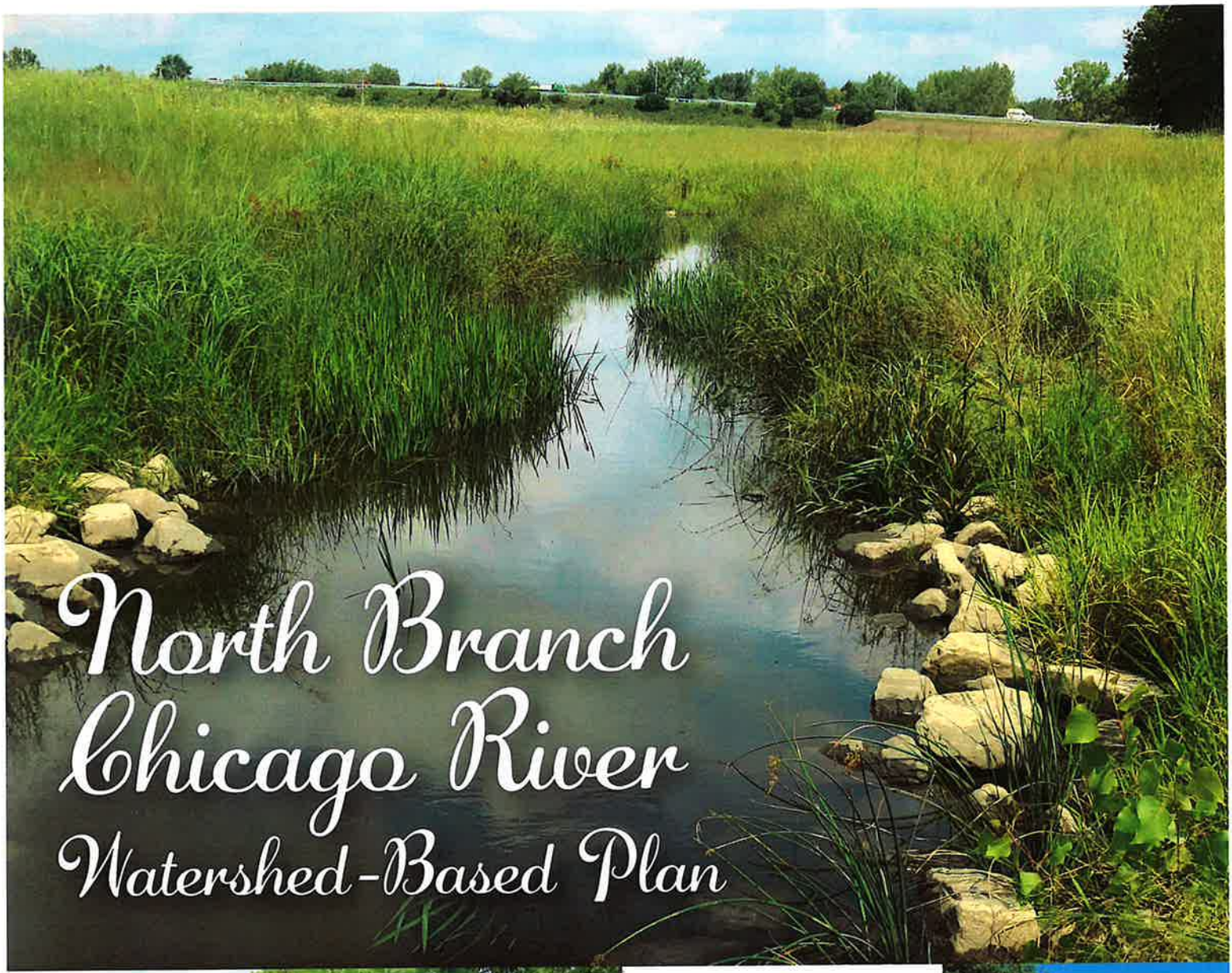
TEN ACTIONS FOR STAKEHOLDERS TO TAKE IN THE NEXT TEN YEARS

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 wherever possible,** as opportunities are extremely limited in the planning area.
6. **Stabilize the worst "severe" eroding streambanks** using techniques that provide water quality and aquatic habitat benefits.
7. **Develop and implement a watershed monitoring strategy** to provide a more complete temporal and geographic picture of water quality in the planning area.
8. **Reduce the amount of chloride in runoff** by implementing winter maintenance "de-icing" best practices and providing educational trainings and materials.
9. **Perform sanitary surveys** and develop and implement management plans at beaches to reduce the number of closures due to bacteria levels.
10. **Protect coastal resources** including property, infrastructure and natural areas from damage resulting from periodic high Lake Michigan water levels.

The Lake Michigan 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, the Illinois Coastal Management Program and the Lake County Stormwater Management Commission.

LAKE COUNTY

STORMWATER MANAGEMENT COMMISSION



North Branch Chicago River Watershed-Based Plan




EXECUTIVE SUMMARY • December 2021

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.

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

This watershed-based plan is important because it specifically addresses water-related issues in communities within the North Branch Chicago 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 and rivers in the planning area provide recreational destinations for watershed residents as well as tourists and are a highly visible indicator of watershed health.

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 North Branch Chicago 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 flood problem area data was obtained from watershed stakeholders, as well as a comprehensive water quality monitoring effort conducted on watershed streams through the North Branch Chicago River Watershed Workgroup (NBWW).

This watershed-based plan utilizes the most up-to-date sources of information available 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.

AT A GLANCE:

North Branch Chicago River Watershed Planning Area

The Land

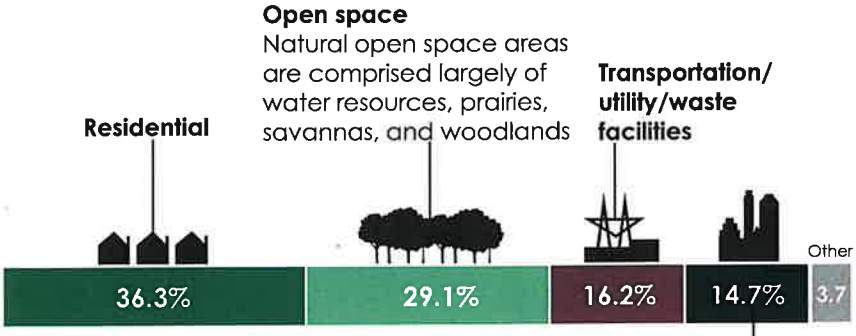
80.6 miles of rivers and streams

10 assessed lakes

2,440 acres of wetlands

The North Branch Chicago River Watershed-Based Plan covers 95 square miles in Lake and Cook Counties in Illinois. This planning area is part of the much larger Chicago River watershed, which covers 270 square miles in northeastern Illinois and is part of the Illinois and Mississippi River Basins. The planning area is divided into four smaller "subwatersheds": the West Fork North Branch Chicago River, Middle Fork North Branch Chicago River, Skokie River and the North Branch Chicago River.

What's in the planning area:



Commercial, industrial, government/institutional, and office/research parks together encompass 14.7% of total watershed area but may have significant impacts on water resources, particularly where these uses are geographically concentrated.

The People

204,279 approximate population in 2015

26 municipalities

11 townships

4 drainage districts

OUR FINDINGS:

A System Under Stress

Many rivers and lakes in the planning area are impaired by nutrients, sediments, metals, chloride, bacteria, and other forms of pollution. Pollution enters water bodies through stormwater runoff and wastewater from the surrounding landscape and from erosion of upland soils and streambanks. Some pollutants are likely legacy materials that are present in stream sediments from activities that occurred during past development of the watershed.

Fish and aquatic invertebrates found in rivers and streams indicate degraded water quality and aquatic habitat. Rivers and lakes have 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 aesthetic quality.

Record flooding in the region July of 2017 was accompanied by urban flooding in many areas outside of mapped flood hazard areas. Intense rainfall overwhelms older or undersized infrastructure. Wetland coverage is greatly reduced from its former extent and due to the developed nature of much of the watershed planning area, it is unlikely that large swaths of former wetlands can be restored. 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.

Stressors

Specific watershed stressors include:

- **Nutrients, chloride, organic enrichment (low dissolved oxygen), metals, and sedimentation/siltation** are major causes of impairment in the river tributaries and mainstem. Nutrients and bacteria are major causes of water quality impairment in lakes.
- **Erosion** degrades water quality and aquatic habitat.
- **Monitoring data indicates chloride levels** are steadily rising in rivers, streams and lakes.
- There are **hundreds of flood-prone structures**. Many structures affected by floods in 2017, as well as other flood events before or after, are outside of mapped flood hazard areas.
- 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. Due to the largely developed character of the planning area, opportunities for wetland restoration are limited.
- **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.

ake 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,** wherever possible, as opportunities are extremely limited in the planning area.
6. **Stabilize the worst "severe" eroding streambanks and lake shorelines** using techniques that provide water quality and aquatic habitat benefits.
7. **Continue watershed water quality monitoring** to provide a more complete temporal and geographic picture of water quality in the planning area.
8. **Reduce the amount of chloride in runoff** by implementing best practices for winter maintenance and providing educational trainings and materials.
9. **Reduce phosphorus and fecal coliform 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 North Branch Chicago 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

Photos courtesy of Lake County Stormwater Management Commission