



**NORTH BRANCH
CHICAGO RIVER
WATERSHED
WORKGROUP**

NORTH BRANCH CHICAGO RIVER WATERSHED WORKGROUP 2024 ANNUAL NEWSLETTER

Executive Board

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Alternate: Mark Olszewski

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Alternate: *Vacant*

Leonard Dane, Hey & Associates
Alternate: *Vacant*

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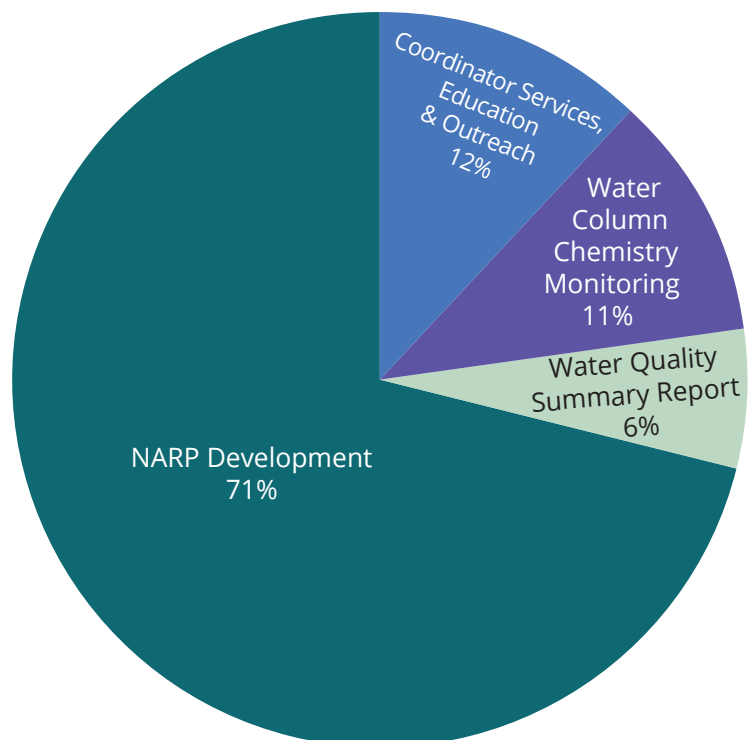
Michael Warner, Gewalt Hamilton
Alternate: Karolina Cho

The North Branch Chicago River Watershed Workgroup (NBWW) is a voluntary, dues-paying organization. The workgroup is governed by bylaws, an elected Executive Board, and voting dues-paying members. The NBWW monitors water quality in the North Branch Chicago River watershed planning area upstream (north) of Dempster Street in Morton Grove, which includes the three subwatersheds: West Fork, Middle Fork, and Skokie River. In addition to meeting members' Illinois Environmental Protection Agency (Illinois EPA) National Pollutant Discharge Elimination System (NPDES) permit requirements, the NBWW can prevent duplicated monitoring efforts and will accomplish more with less! Membership dues are used to implement the water quality program, which includes: data collection, analysis, and identification of potential water quality impairments based on collected water quality data.

WORKGROUP MISSION

To bring together a diverse coalition of stakeholders to preserve and improve water quality in the North Branch Chicago River and its tributaries through long term monitoring and gaining a better understanding of the stressors to the aquatic system.

2024 NBWW EXPENSES



2024 ACCOMPLISHMENTS

NPDES PERMITTING

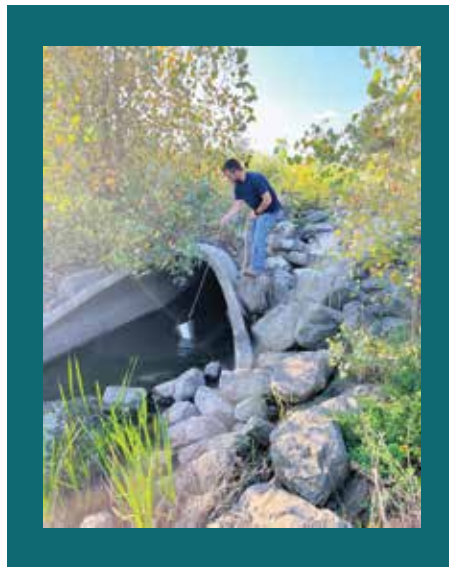
- Compiled and submitted the March 1, 2023 - February 29, 2024 annual report to the Illinois EPA to satisfy the National Pollution Discharge Elimination System (NPDES) water quality monitoring component of the annual permit reporting requirements for NBWW agency members.
- NBWW maintained the NBWW MS4 Resources page, www.nbwwil.org/resources.

- NBWW contracted with Geosyntec Consultants in March 2024 to create an NBWW Water Quality Summary Report for NBWW members. The intent of this water quality report is to summarize 2018-2023 NBWW monitoring data on an annual and accrual basis to assess trends in water quality and against current Illinois water quality standards.

MONITORING ACTIVITIES

Water Column Chemistry

North Shore Water Reclamation District (NSWRD) was contracted to conduct water column chemistry monitoring at all 25 monitoring sites. NSWRD sampled water column chemistry five times a year in the months of February, May, July, August, and September. All monitoring is conducted under an Illinois EPA approved NSWRD Quality Assurance Project Plan (QAPP) and the North Branch Chicago River Watershed QAPP.



WATER QUALITY MODELING & REPORTING

- MBI has integrated NBWW monitoring data into the Identification and Prioritization System Model (IPS Model). This model will be utilized to prioritize projects that will improve aquatic assemblages in a measurable and systemic manner.
- Geosyntec Consultants continues to work on the NBWW Nutrient Reduction Assessment Plan (NARP). See page 3 for more information.
 - The NARP is a requirement in the Special Conditions of the NPDES discharge permits for major publicly owned treatment works (POTWs) in Illinois.

EDUCATION & OUTREACH

- NBWW held 14 meetings in 2024; 7 executive board, 2 general membership, and 5 monitoring & water quality impairment abatement committee meetings.
- Continued outreach to public-sector stakeholders, townships, park districts, drainage districts, school districts etc., to inform them of the Workgroup's activities and invite them to become members.
- Maintained NBWW website; www.nbwwil.org, for posting information on the workgroup and distributing updates to NBWW members and the public.
- The NBWW sponsored seven Winter Best Practices Workshops (virtual/in-person) in 2024 (Sept-Oct). The workshops aim to help personnel from municipalities and public works facilities implement Best Management Practices (BMPs) to reduce the amount of salt they use in snow fighting operations and to address NPDES Permit Requirements.
- The NBWW also sponsored a Lake County Calibration Event in October 2024. The calibration sessions allowed participants to talk with representatives from Force America and staff from the Lake County Division of Transportation to learn how to calibrate your vehicle and about common deicing pitfalls.

NUTRIENT ASSESSMENT REDUCTION PLAN

As part of the Nutrient Assessment Reduction Plan (NARP) process, the NBWW completed significant efforts in 2024 towards understanding the effects of POTW and MS4 discharges to the North Branch Chicago River (NBCR). A WASP instream water quality model was developed utilizing outputs from the SWMM modeling and water quality data collected during 2022-2023. The WASP model was used to simulate water quality dynamics, and is calibrated and validated against the flow and water quality measurements taken throughout the watershed. The calibrated model was used to evaluate the baseline water quality conditions in the NBCR and its tributaries, and help to identify water bodies that are prone to phosphorus-based impairments observed as part of the data collection and monitoring process.

The model was further utilized to analyze the implications of adjusting both the NSWRD Clavey Road and Village of Deerfield POTWs down to 0.5 mg/L and 0.1 mg/L phosphorus effluent limit. Model runs indicate adjustments to 0.5 mg/L at the NSWRD Clavey Road POTW have limited returns, most likely since the facility is already near the 0.5 mg/L discharge requirements. Adjustments at the Deerfield POTW show more significant improvement. Both plants show diminished improvement at the 0.1 mg/L TP discharge level.

Evaluation in 2025 is intended to determine how additional point and non-point source (NPS) practices may benefit the watershed through implementation. These include the impact of the Skokie Lagoons, MS4 load reductions, watershed plan implementation projects, and other scenarios that may reflect important management decisions that can be considered to reduce phosphorus loading within the NBCR watershed. Based on model evaluation performed to date, wastewater effluent reductions alone will not eliminate all the phosphorus-based impairments in the watershed.

The NBWW intends to facilitate a short survey to NBWW members to identify appropriate actions and activities for the proposed implementation plan to be submitted as part of the NARP. The goal of the survey is to obtain feedback from members which supports an appropriate process for obtaining water quality goals consistent with goals of the group.

Be on the lookout for this survey in early 2025, YOUR FEEDBACK IS IMPORTANT!

NBWW MEMBERSHIP BENEFITS

NBWW MEMBERSHIP DUES PROVIDE SIGNIFICANT COST SAVINGS TO THE WATERSHED AND INDIVIDUAL COMMUNITIES.

Collaborative watershed monitoring and reporting

General NPDES Permit No. ILR40, Part V, Item A.b.x

- NBWW has designed and implemented a watershed monitoring program.
- NBWW assesses the water quality of the water bodies and the sources of pollutants.
- Monitoring data is analyzed and summarized into a comprehensive report to meet Illinois EPA annual submittal requirements.

Over \$200,000 saved every year

General NPDES Permit No. ILR40, Part V, Item A, Section 2b

- An individual monitoring program managed by a MS4 community costs upwards of \$10,000 annually.
- NBWW's annual water quality and bioassessment monitoring program costs \$82,000 on average.
- Collectively, the workgroup (29 member permit holders) saves the watershed over \$200,000 annually.

MS4 permit compliance for chlorides

General NPDES Permit No. ILR40, Part III, Item D

- If permittee performs any deicing activities that can cause or contribute to a violation of an applicable State chloride water quality standard:
 - Permittee shall participate in any watershed group(s) organized to implement control measures.
 - Reduce the chloride concentration in any receiving stream in the watershed.

Minimum Control Measures (MCM) Scorecard

www.nbwwil.org/reports-and-data

- NBWW provides members with an annual scorecard evaluation for applicable MCMs of the NPDES ILR40 permit requirements.
- The scorecard indicates specific NBWW activities to "Corresponding MS4 MCMs", which can be reflected as measurable goals in permittees' Stormwater Management Program Plan (SMPP) as well as annual facility inspection report.

NBWW MEMBERS

2024 ANNUAL MEMBERSHIP DUES \$209,629 & 47 NBWW MEMBERS

33 AGENCY MEMBERS

- City of Evanston
- City of Highland Park
- City of Lake Forest
- City of North Chicago
- City of Park City
- City of Waukegan
- Cook County
- Cook County Dept. of Trans. & Highways
- Forest Preserve District of Cook County
- Illinois Department of Transportation
- Lake County
- Lake County Division of Transportation
- Lake County Forest Preserve District
- Libertyville Township
- North Shore Water Reclamation District
- Skokie Consolidated Drainage District
- Union One Middle Fork DD
- Union One West Fork DD
- Vernon Township
- Village of Bannockburn
- Village of Deerfield
- Village of Glencoe
- Village of Glenview
- Village of Green Oaks
- Village of Lincolnshire
- Village of Morton Grove
- Village of Niles
- Village of Northbrook
- Village of Northfield
- Village of Riverwoods
- Village of Skokie
- Village of Wilmette
- Village of Winnetka

14 ASSOCIATE MEMBERS

- Chicago Botanical Garden
- Christopher Burke Engineering
- Deerfield Park District
- Engineering Resource Associates Consultants
- Fehr Graham Engineering & Environmental
- Friends of the Chicago River
- Geosyntec Consultants
- Gewalt Hamilton
- Hey & Associates
- Illinois Sierra Club
- Integrated Lakes Management
- Lake County Stormwater Management Commission
- Lake Forest Open Lands
- Metropolitan Water Reclamation District of Greater Chicago

2025 WORKGROUP GOALS

NPDES PERMITTING

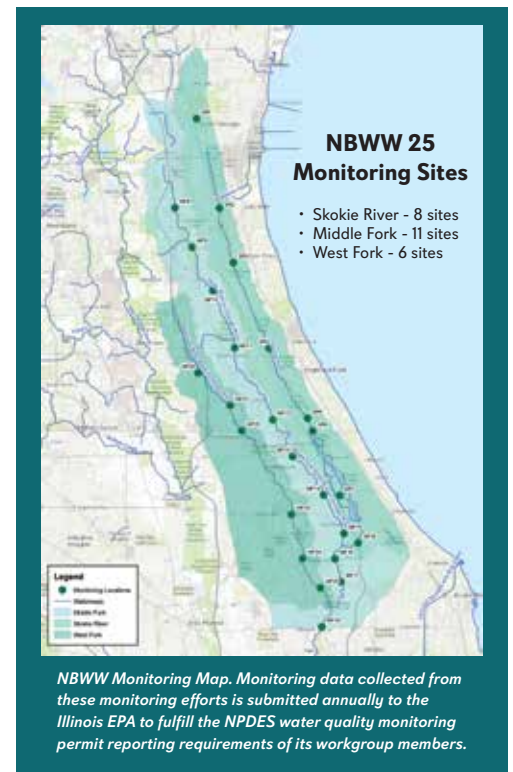
- Perform and analyze sixth-year watershed monitoring results and implement the NBWW Monitoring Strategy.
- Compile the March 1, 2024 - February 28, 2025 NBWW monitoring data in a format to be included in an annual report prepared to satisfy the NPDES water quality monitoring permit reporting requirements.

WATER QUALITY MODELING

- Continue working with Geosyntec Consultants to develop the NBWW NARP and simulate watershed management scenarios.
- Participate in MBI's IPS Model training with regional workgroups to use monitoring data and assessment results with water quality management goals and objectives in order to better guide decision-making at regional and local watershed scales.
- Contract with a consultant to update the NBWW Water Quality Summary Report.

EDUCATION & OUTREACH

- Continue to host meetings that provide education and outreach targeted towards achieving attainment of water quality standards and designated uses for the watershed.
- Support the North Branch Watershed Planning Committee and the North Branch Watershed Consortium through fostering general membership forums.
- Continue to sponsor local winter best practice education and outreach efforts, which will help achieve NBWW bylaw goals and objectives.



POTW PHOSPHORUS REDUCTION MEASURES

NORTH SHORE WATER RECLAMATION DISTRICT

The North Shore Water Reclamation District operates the Clavey Water Reclamation Facility (WRF), which discharges treated effluent to the Skokie River. The Clavey WRF has a design flow of 17.8 million gallons per day (MGD). In 2018, North Shore completed a major improvement project converting a portion of the secondary treatment processes for biological phosphorus removal at all of its facilities. This construction project cost approximately \$14 million, of which about a third was attributed to this facility. This project modified existing aeration tanks to selector zones accommodating anaerobic/aerobic cycling for selection of polyphosphate accumulating organisms. Mixers were added to the anaerobic zones and existing air diffusers were replaced with new fine bubble air diffusers in the aerated zones. High efficiency variable speed blowers were also added as part of this project.

Since project completion, the operations staff have worked toward optimizing the new processes, including additions of online instrumentation, automatic controls of dissolved oxygen and sludge retention time, adjustments to various operational processes and procedures, and extensive sampling and lab analyses. Since project completion, phosphorus reductions of nearly 50% have been realized. To further reduce effluent phosphorus concentrations, chemical phosphorus removal back-up systems were constructed at the Clavey WRF in 2023 in the amount of \$1.3 million.

The District's Clavey WRF prevented 177,000 pounds of phosphorus from reaching the North Branch of the Chicago River during 2023 alone, at over an 85% removal rate. The phosphorus was instead recovered in the biosolids for beneficial re-use.



VILLAGE OF DEERFIELD

In June 2020, the Village of Deerfield Water Reclamation Facility (WRF) received a new negotiated NPDES permit, which included a 1.0 mg/L total phosphorus limit to go into effect four years later. The four years provided the Village time to complete a Phosphorus Removal Feasibility Study, design and construct a phosphorus removal facilities, and time to optimize the new process.

The Phosphorus Removal Feasibility Study investigated alternatives to meet the new limits. The study recommended that the WRF construct Chemical Phosphorus Removal facilities to address the impending limit. Construction of a chemical building and the necessary piping began in November 2022 and the project was completed in June 2023. The total cost of this project was \$1.447 million.

The chemical system includes a 6,000 gallon tank, three pumps and an on-line analyzer, among other equipment. The tank holds ferric chloride, a chemical that when pumped into our processes grabs on to phosphorus in the wastewater and turns it into a solid, which is then easily removed and ends up as essentially fertilizer. The chemical pumps are controlled by the on-line analyzer which takes a sample of the water discharged every few minutes to make sure there isn't too much or too little chemical.

The phosphorus coming into the WRF averages 3.81 mg/L. Prior to the addition of ferric chloride the discharge would average 2.11 mg/L. **Since June 2024, the phosphorus measured in the effluent of the treatment plant is averaging 0.76 mg/L. That equates to about 33 lbs of phosphorus per day no longer ending up in the West Fork.**



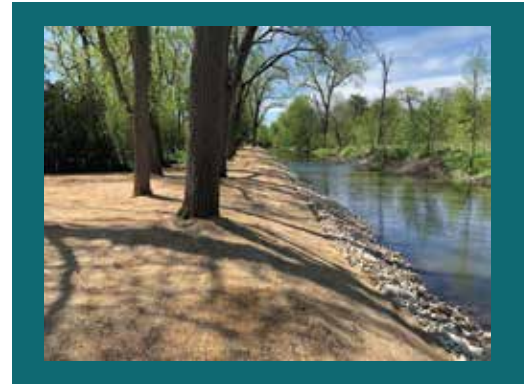
WATERSHED PROJECT HIGHLIGHTS

VILLAGE OF GLENVIEW'S LONGVALLEY STREAMBANK STABILIZATION PROJECT

The Longvalley Streambank Stabilization Project was constructed along a portion of the West Fork of the North Branch Chicago River (West Fork) located at a former residential site that had frequent flood damage.

The project stabilized 875 linear feet of streambank, aerating the stream, improving water quality, and enhancing aquatic, wetland, and upland habitat all while encouraging public education and interaction with this natural resource.

Two pool-and-riffle structures were added to the stream, boulder toe was installed, and 0.6 acres native herbaceous plants, 600 perennial plant plugs, 20 native trees and 12 native shrubs were installed. The Longvalley Streambank Stabilization Project construction was substantially complete by April 2024, and finalized with native plants and a volunteer event in June 2024. The nonpoint source pollutant reduction benefits include but are not limited to the following: sediment load reduction, 70.7 tons/yr; TSS reduction, 7,940 lbs/yr; TP reduction, 84 lbs/yr; and TN reduction, 225 lbs/yr.



VILLAGE OF LINCOLNSHIRE WINDSOR DRIVE DRAINAGE IMPROVEMENTS PROJECT

The \$4.98 million 2024 Windsor Drive Drainage Improvements project provides relief for the Windsor Drive area (Lincolnshire) right-of-way flooding in an area known as Lincolnshire Woodlands 2nd Addition Unit 1 & Unit 2. The parallel storm sewer consists of reinforced concrete pipe with the overall limits starting at Brunswick Lane (western limits) and terminating at the West Fork (easterly limits).

Historically, roadway flooding up to four feet deep has impacted these neighborhoods and will be alleviated with this project, adding capacity for underground storage. This storage will reduce runoff collected by the storm sewer system and allow for opportunities for sediment to be collected and settle in catch basins instead of being directly discharged into the NBCR. The outfall pipe into the West Fork will be completed in 2025.



2024 WINTER BEST PRACTICES EVENTS

The NBWW has sponsored and supported the Northeastern Illinois Regional Winter Best Practices Workshops since 2021. The workshops focus training efforts on ways to keep public and private sector professionals up-to-date on best management practices (BMPs) for winter maintenance that safely reduces road salt use. The 2024 virtual and in-person workshops trained over 1,000 individuals in winter BMPs for both public roads and parking lots & sidewalks.

On October 23, 2024, the NBWW also sponsored the Lake County Calibration Event, which was the collaborative effort of several Lake County departments: Stormwater Management Commission, Health Department, and Division of Transportation (LCDOT). This event was targeted towards people who are responsible for calibrating snow removal vehicles or those that will be training their staff on how to calibrate their vehicles. Lake County sold out of time slots within 2 weeks of announcing the event. The response to the event was overwhelmingly positive and was able to help local winter maintenance professionals calibrate their vehicles for the winter.

The NBWW encourages members to look for ways to reduce road salt use while ensuring safe travel on transportation surfaces. Check out the **Salt Smart**

Collaborative and **Lake County** for resources to use and share on winter deicing BMPs.

