



*Metropolitan Water Reclamation District of Greater Chicago*

# ***NORTH SIDE WATER RECLAMATION PLANT***

Facility Improvements  
Master Plan for the Future

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# NORTH SIDE WATER RECLAMATION PLANT

## *Protecting Our Water Environment*

The **Metropolitan Water Reclamation District of Greater Chicago** (District) provides the citizens of Cook County with award-winning environmental service at the lowest possible cost. The District's North Side Water Reclamation Plant (WRP), located at 3500 W. Howard St. in Skokie, will face new challenges in the coming years, and the District plans to meet them with cost effective, state-of-the-art technology.

Today the North Side WRP provides a multi-step wastewater treatment process, cleaning the water even more thoroughly than required by the discharge permit, before the treated water is discharged to the North Side Channel. Solids removed from the wastewater are piped to the Stickney WRP where they are processed and taken from the plant for off-site beneficial reuse. The North Side WRP can treat an average flow of 333 million gallons per day (mgd), and receives flow from a population of 1,349,392<sup>(1)</sup> as well as discharges from commercial and industrial establishments. Treatment consists of the following:

**Preliminary Treatment** – A mechanical process that removes rags, wood, trash, and grit from the wastewater through screening and settling in tanks

**Primary Treatment** – A process in which settle-able organic and inorganic materials in the wastewater are removed using settling tanks

**Secondary Treatment** – A biological process that breaks down remaining organic matter

To ensure that the North Side WRP continues to provide high quality service to the community into the future, the District has initiated a major study to determine future needs and establish a long-range plan for the facility that will improve the air and water environment. This effort, called the **North Side Master Plan**, will serve as a road map for the District's future course of action. Major challenges include:

- Adding additional treatment processes with minimal disruption to the neighborhood and the adjacent park, operated on District-leased land.
- Meeting potential changes in State regulation, which may require additional levels of wastewater treatment.
- Maintaining infrastructure that dates to the 1920s.
- Taking units out of service for rehabilitation, while continuing to meet the permit conditions.

After analyzing recent population trends and projections made by the Northeastern Illinois Planning Commission, the District anticipates the population of the area served by the North Side WRP to grow by

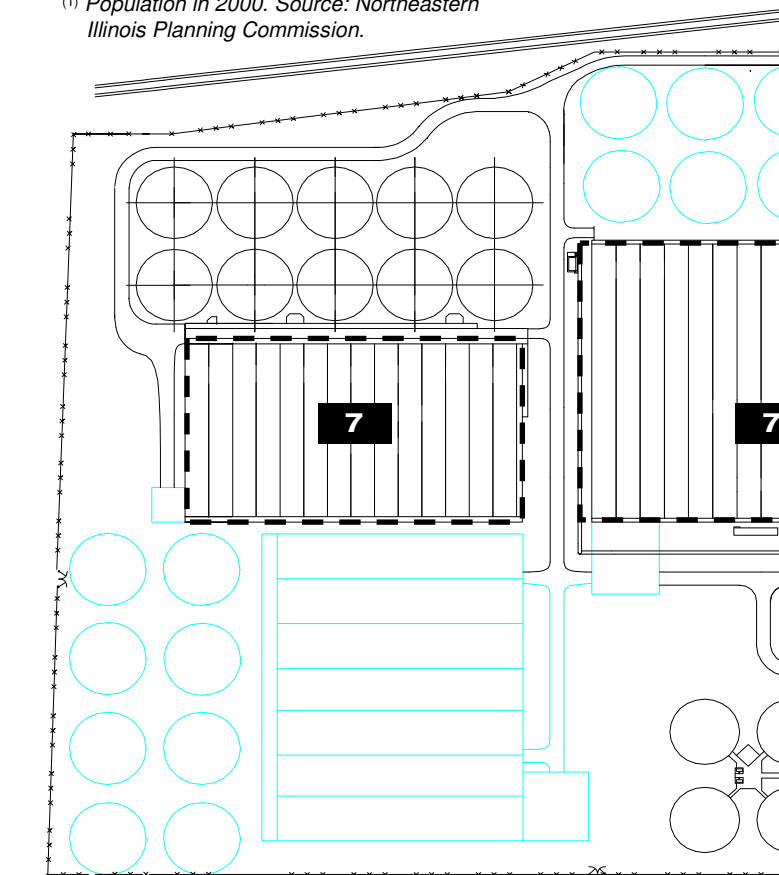
approximately 8.8% between 2000 and 2040. The projected annual average flow is still below the design average flow rating of the plant of 333 MGD, therefore, the North Side Master Plan improvements will not increase the plant's capacity. However, the number of days the North Side WRP will treat 333 MGD will increase. Therefore, additional treatment facilities are required to insure the plant can consistently meet permit requirements and to provide necessary redundancy so that units can be taken out of service for upgrade and repair.

Key objectives for the North Side Master Plan are as follows:

- Assess future flows and pollutant loadings.
- Maintain treatment capacity for flows projected through the year 2040.
- Replace/upgrade existing plant components.
- Review opportunities for process changes.
- Reduce energy costs.
- Provide increased odor control.

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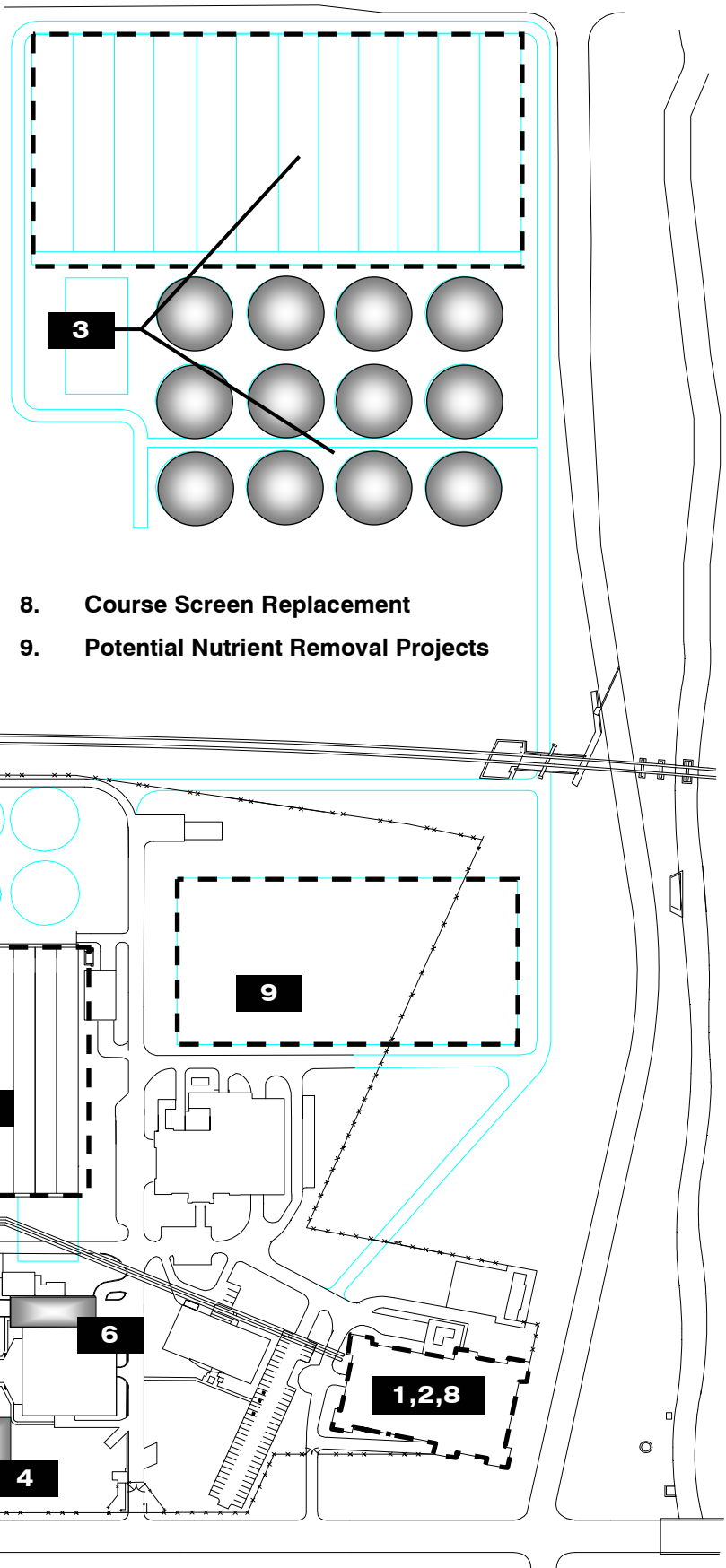
<sup>(1)</sup> Population in 2000. Source: Northeastern Illinois Planning Commission.



# North Side Water Reclamation Plant

## NORTH SIDE WRP Planned Improvements

1. Aeration Blower Upgrades
2. Raw Sewage Pump Upgrades
3. New North Battery E and North Site Primaries
4. Piping to Battery E and Flow Splitting Weir Structure
5. Sludge Concentration Tanks
6. Grit Dewatering Modification and Sodium Hypochlorite Feed System/Feed Point Modifications
7. Battery A, B, C, and D Modifications; Diffuser Replacements; FST Maintenance; Air and Flow Distribution Improvements; Aeration Tank Repairs; Air Lift Pump Replacements; and Plant Drain Improvements



8. Course Screen Replacement
9. Potential Nutrient Removal Projects

# NORTH SIDE WATER RECLAMATION PLANT

## *Protecting Our Water Environment*

The North Side Master Plan now includes 9 major projects. The graphic inside lists the projects and indicates the areas in which they will take place. The District estimates the total cost to implement these comprehensive improvements to be \$690,600,000, not including potential nutrient removal projects.

Near-term projects include construction of a new north battery E, aeration blower upgrades, raw sewage pump upgrades, investigate and replace sludge pipe line to Stickney WRP, new sludge concentration tanks, and grit dewatering modifications. These projects will help the North Side WRP increase firm capacity, facilitate future construction projects, improve treatment and reduce energy costs.

Long-term projects include Battery A, B, C, and D modifications, diffuser replacements, final settling tank maintenance, air and flow distribution improvements, aeration tank repairs, plant drain improvements and coarse screen replacements. There is also a potential for projects that may be needed to provide additional levels of treatment in response to increasingly stringent environmental regulations, such as filters for nutrient removal. Construction will be phased through the year 2040 to ensure the treatment plant's capacity is maintained while

new facilities are built and old facilities are being taken out of service. Effluent quality will meet or exceed that required by the State at all times during construction.

The North Side Water Reclamation Plant has been recognized in the past for its outstanding performance in treating wastewater. The District is hard at work to ensure that the exceptional performance of the North Side WRP will continue far into the future.



Replacement of the aeration blowers (pictured above) with new blowers will improve plant energy efficiency and reduce maintenance requirements.



Aeration basins A and B (above right) will receive many improvements including: tank repairs, diffuser and pump replacements, and air and flow distribution improvements. These improvements will enhance treatment and reduce maintenance and energy requirements.