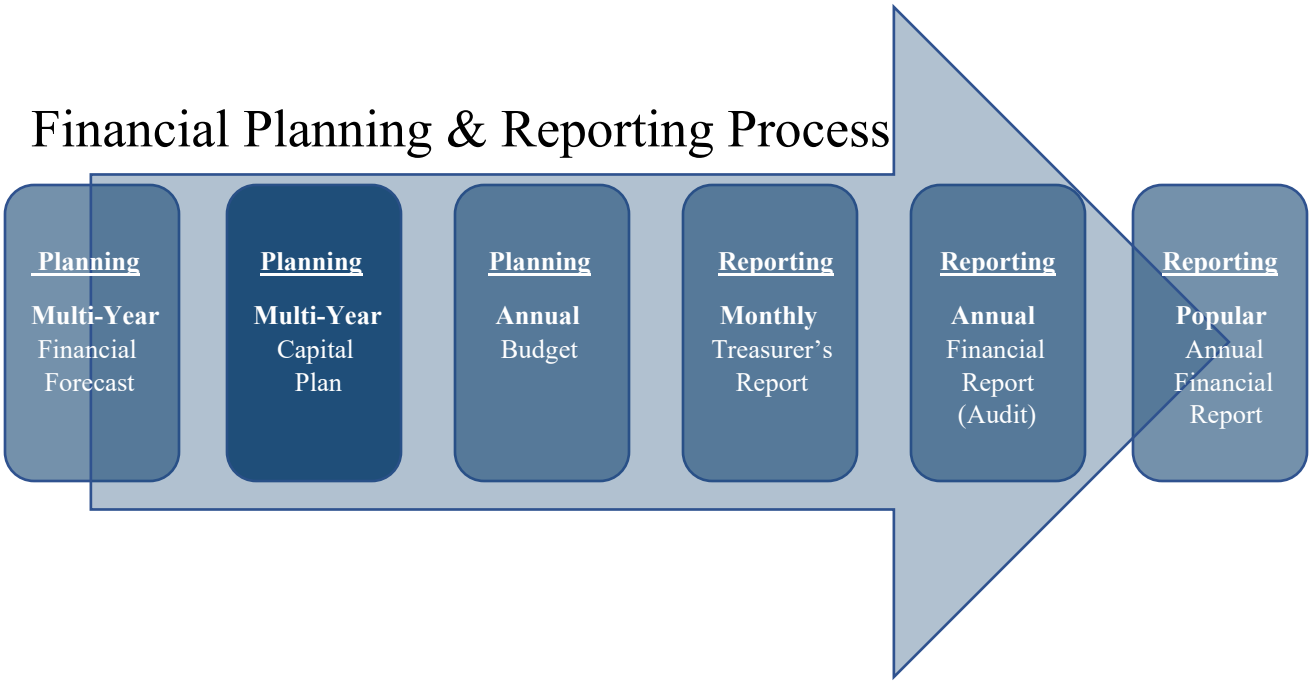
City of North Chicago Illinois



Multi-Year Capital Plan

Fiscal Years 2023-2032

(May 1, 2023 – April 30, 2032)

Prepared By: Trotter & Associates, Inc.

Presented: October 3, 2022

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Purpose

The City's Multi-Year Capital Improvement Plan (CIP) is part of the City's long-term strategic planning and is presented annually as part of the financial planning and reporting process. Each year, City staff meets with the City's engineering consultants to update the CIP. The updated Plan is then presented to the City Council in conjunction with the Multi-Year Financial Forecast which outlines available capital funding.

The process for preparing the plan includes identifying the inventory of assets requiring maintenance, repair, or replacement, with particular attention to those assets that are essential to the City's mission and long-term vision for the community. The plan focuses on the 4 main systems of infrastructure: Transportation, Water, Storm Sewer, and Sanitary Sewer.

Definitions

Capital Assets – Tangible and intangible assets that are used in operations and that have initial useful lives that extend beyond a single reporting period. They include land, land improvements, easements, buildings and improvements, machinery and equipment, infrastructure, and works of art, and historical treasures.

Infrastructure – Capital assets include infrastructure assets which are long-lived capital assets that normally are stationary in nature and can be preserved for a significantly greater number of years than most capital assets. Infrastructure assets include roads, bridges, tunnels, drainage systems, water and sewer systems, and lighting systems. The City reports all assets under their maintenance even if a third party maintains them under contract.

Estimated Useful Life – The period during which an asset is expected to be useful to the City, usually stated in years. The standards or parameters for estimating the useful lives of capital assets are based on professional judgments and industry averages, therefore determined to be objectively reasonable. The policy has been included in the City's Financial Report.

Maintenance Activities – For this plan maintenance activities are routine maintenance on an asset with a cost greater than $5,000.

Accounting

As a local government organization, the City utilizes Fund Accounting to account for various resources and activities. The City accounts for the replacement and major maintenance of its infrastructure assets in various funds to segregate the resources available. The various funds and a description of each follow:

General Fund – The City's largest operating fund, it houses a majority of what citizens would constitute as core city services such as the police and fire departments; economic development including building and code enforcement; planning/business support services, and facilities management; public works street maintenance services and executive, administrative and advisory support departments such as Mayor/City Council/City Clerk; Boards and Commissions; Treasurer; Comptroller; Human Resources and Information Technology. Revenues supporting this fund are derived mainly from property taxes; intergovernmental revenues from the State of Illinois like sales and income taxes; utility taxes; license and permit fees and court fines and charges.

Motor Fuel Tax Fund (MFT) – This fund consists of revenues and expenditures received from the State of Illinois on taxes it assesses on the sale of motor fuel throughout the state. Expenditures can only be used for road and sidewalk construction/resurfacing or related support services such as electrical energy for streetlights and the purchase of materials such as salt.

Water, Sewer and Refuse Fund - This fund consists of revenues and expenditures received from the sale of North Chicago water to residents, businesses, the Great Lakes Naval Base, and several companies located outside the City's corporate limits. Refuse revenues are the funds received from the refuse fees. Expenditures within the fund can only be used for water and sewer-related expenses and capital replacements of water and sewer mains. Refuse revenues and expenditures are a pass-through for the services provided by a private contractor.

Debt Service Funds – These funds account for the revenues and expenditures related to the repayment of principal and interest on debt that the City has issued previously for the redevelopment of the City. Revenues are received from either a property tax or revenues generated in the Village's Tax Increment Finance Districts.

Non-Major Funds – These are funds that are viewed by accountants of the City and are required to be segregated but by themselves, do not either constitute a significant portion of the budget either based on their size or their occasional financial activity. For example, the City's drug forfeiture fund is required to account for funds received but are relatively minor in nature or the Community Development Block Grant (CDBG) Fund only periodically receives funds from the federal government. When they are received, the fund is then utilized for the specific project the funds are used for.

Tax Increment Fund (TIF) Funds – These are special funds to account for the incremental tax revenues generated from a City-established district created specifically to promote economic development. Funds generated in these districts can only be dedicated to projects within that area and have a lifespan of only 23 years.

General Capital Projects Fund – This funding account identifies capital projects that have been deemed important by the City. This fund does not have set revenues and the projects may span multiple departments and locations. This allows for unified budgeting and clarity of the project cost of the purchase or improvement. Typical projects include infrastructure improvements (water, sewer, etc.), facility improvements (new roof, wash bays, etc.), or equipment purchases that do not fit in one specific department.

Overall Funding Strategy

The funding strategy for the CIP includes utilizing expiring debt service, incremental rate adjustments, revenues from new growth, and grant funding. The approach to developing a funding strategy included the following parameters:

- Funding must come from existing revenue streams and charges
- Target a balance between pay-as-you-go, grant funding, leasing, and debt funding
- Term of debt will not exceed the useful life of the asset
- No increase in the amount of outstanding debt over time

Recognizing the immediate need for infrastructure improvements and the lack of immediate funding for the total costs on a pay-as-you-go basis, the City has established a funding strategy that allows for grant funding, infusions of funding through General Obligation bond issuance, or low-interest loans in addition to the pay as you go portion for the Transportation and Water systems.

Transportation System

Overview

The City's Transportation System is comprised of over 48.8 centerline miles of roads and alleys with much of them having curb and gutter. The system also includes concrete sidewalks for pedestrian traffic.

Roadways require routine maintenance such as crack sealing, striping, and patching to achieve the maximum useful life of the surface. Resurfacing occurs approximately every 15-20 years to replace the surface given a sound structural road base underneath. Without the structural base, a full reconstruction of the roadway is required at a much higher cost. Sidewalks require maintenance periodically throughout their life consisting of lifting and concrete repair.

Ratings & Benchmarks

Trotter & Associates, Inc. rated all roadways to determine the most cost-effective use of funds. The system rates the pavement condition and assigns a PASER rating on a scale of 1-10, with 10 being new. Ratings are updated every 5-7 years and annually incorporate the active resurfacing programs. The last PASER report was completed in 2021 following the road program.

Assumptions & Approach

The Transportation System plan is based on a few broad assumptions.

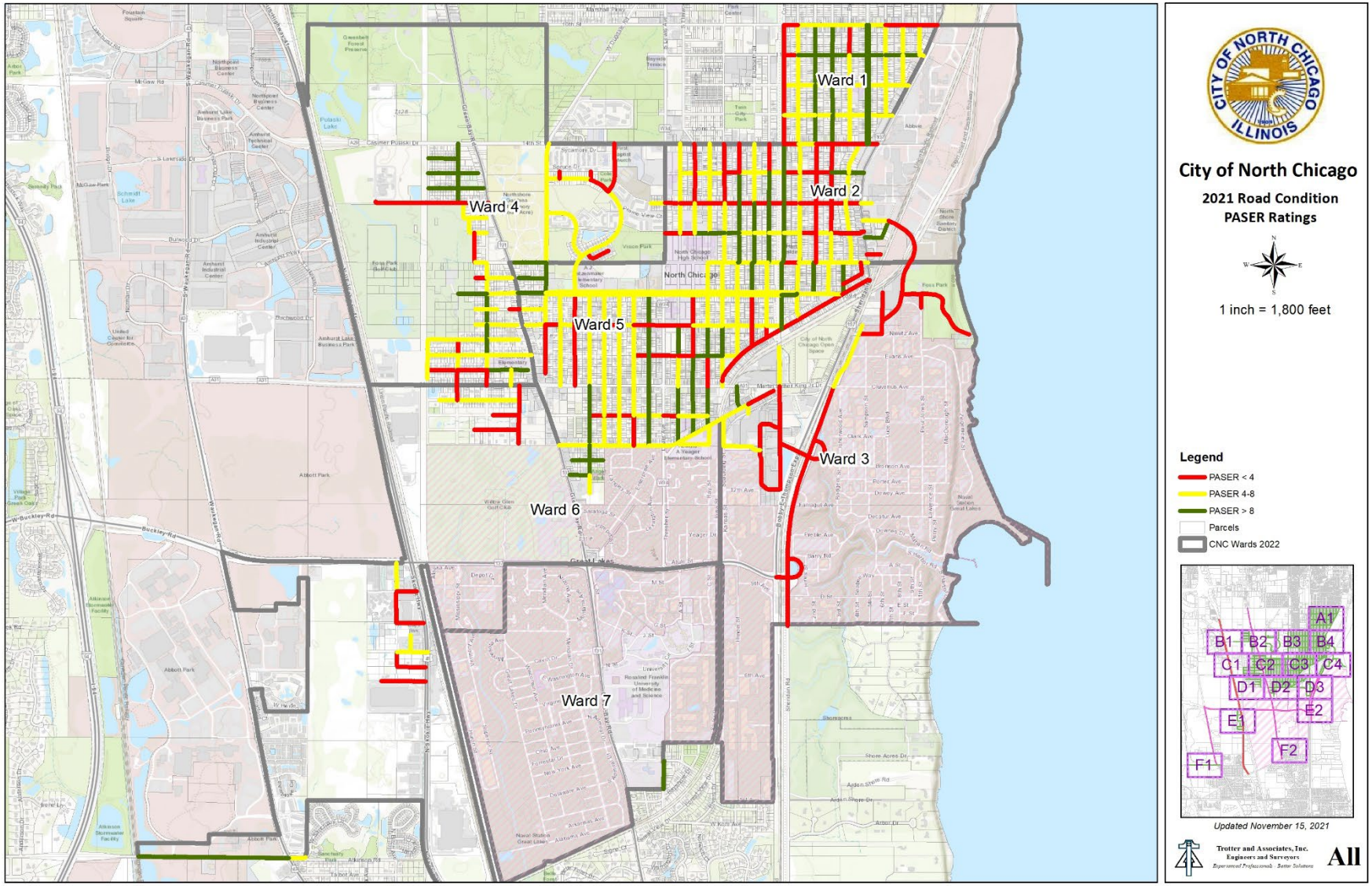
- All replacements are in-kind, no enhancements or new infrastructure is assumed without a dedicated funding source
- Replacement is timed in conjunction with utility and maintenance program work
- Compliance with State and Federal regulations
- Divide streets into categories based on a PASER rating and create a replacement queue for the whole system.
    - Resurface the roads with the lowest PASER rating first.
    - As roads are resurfaced or another PASER analysis is performed, continue to replace the worst condition streets and accommodate for public facilities such as schools and other areas crucial to the community.
- Routine maintenance programs stay at least 3-years ahead of road resurfacing program
- The program will be updated as needed when additional data becomes available to inform the forecasted schedule.

Funding Plan

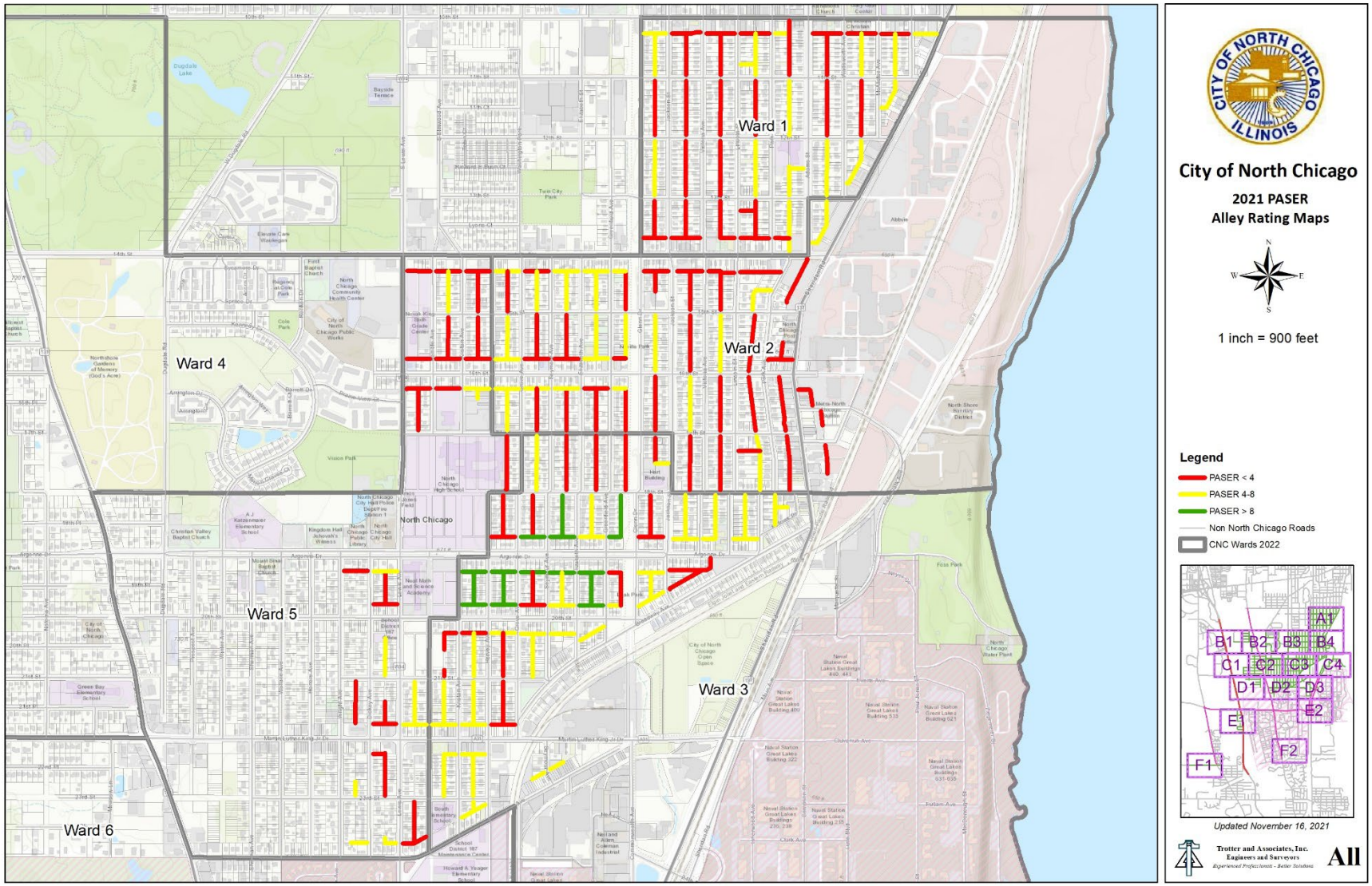
The City uses Property Tax Road Bridge (10.000.30090), Local Motor Fuel Tax (10.000.30310), regularly distributed Motor Fuel Tax (MFT) dollars and occasional Local Agency Functional Overlay (LAFO) grants through the Lake County Council of Mayors to fund the transportation system maintenance. To meet the regular maintenance costs for the roadways, the city should consider additional funding sources for the transportation system beyond the MFT funding source. The following graphic depicts the funding model for the 10-year period.

Description	FY2023 Budgeted	FY2024 Projected	FY2025 Projected	FY2026 Projected	FY2027 Projected	FY2028 Projected	FY2029 Projected	FY2030 Projected	FY2031 Projected	FY2032 Projected
Storm Sewer System										
Funding										
Motor Fuel Tax (20)	$ 1,250,000	$ 1,250,000	$ 1,250,000	$ 1,250,000	$ 1,250,000	$ 1,250,000	$ 1,250,000	$ 1,250,000	$ 1,250,000	$ 1,250,000
Public Works (10.400)	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000
Local Match Required				$ 2,500,000	$ 2,500,000					
STP Funding - Argonne	$ 300,000	$ 600,000		$ 6,966,800	$ 6,966,800					
Federal Grant for Study		$ 500,000	$ 1,000,000							
RTA Grant/ CMAQ			$ 600,000							
Total Transportation System Funding	$ 1,610,000	$ 2,410,000	$ 2,910,000	$ 10,776,800	$ 10,776,800	$ 1,310,000	$ 1,310,000	$ 1,310,000	$ 1,310,000	$ 1,310,000
Expenditures										
Resurfacing Program (2" R&R)	$ 1,250,000	$ 1,250,000	$ 1,250,000	$ 1,250,000	$ 1,250,000	$ 1,250,000	$ 1,250,000	$ 1,250,000	$ 1,250,000	$ 1,250,000
Crack Sealing	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000
Pavement Preservation (CAM)	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000
Alley Program	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
Argonne Road Reconstruction	$ 370,000	$ 800,000		$ 9,552,800	$ 9,552,800					
Sheridan Road Cooridor Study		$ 500,000	$ 1,000,000							
Lewis and Buckley Bus Stop			$ 700,000							
Total Expenditures Transportation System	$ 1,810,000	$ 2,740,000	$ 3,140,000	$ 10,992,800	$ 10,992,800	$ 1,440,000	$ 1,440,000	$ 1,440,000	$ 1,440,000	$ 1,440,000

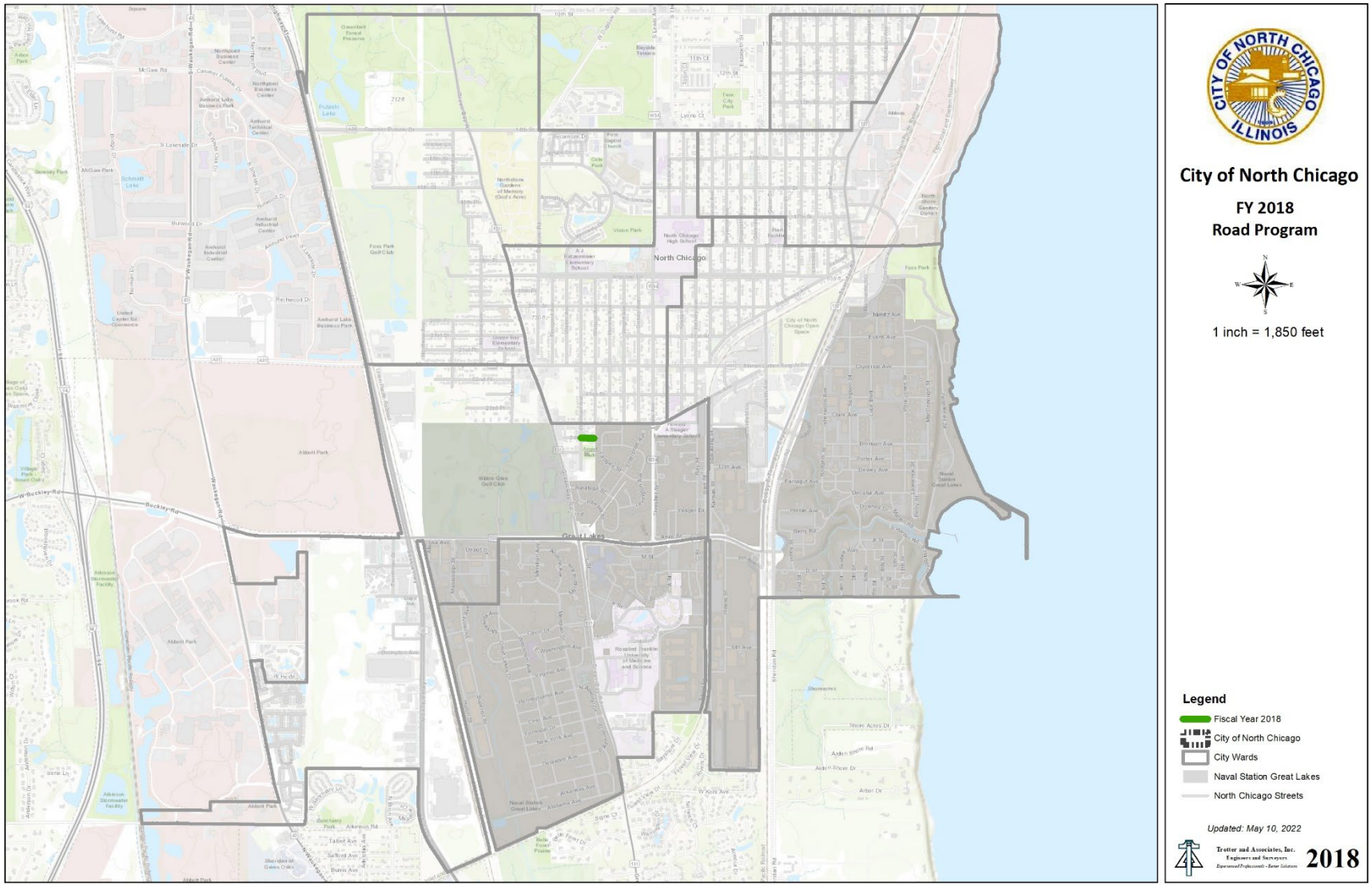
System Map

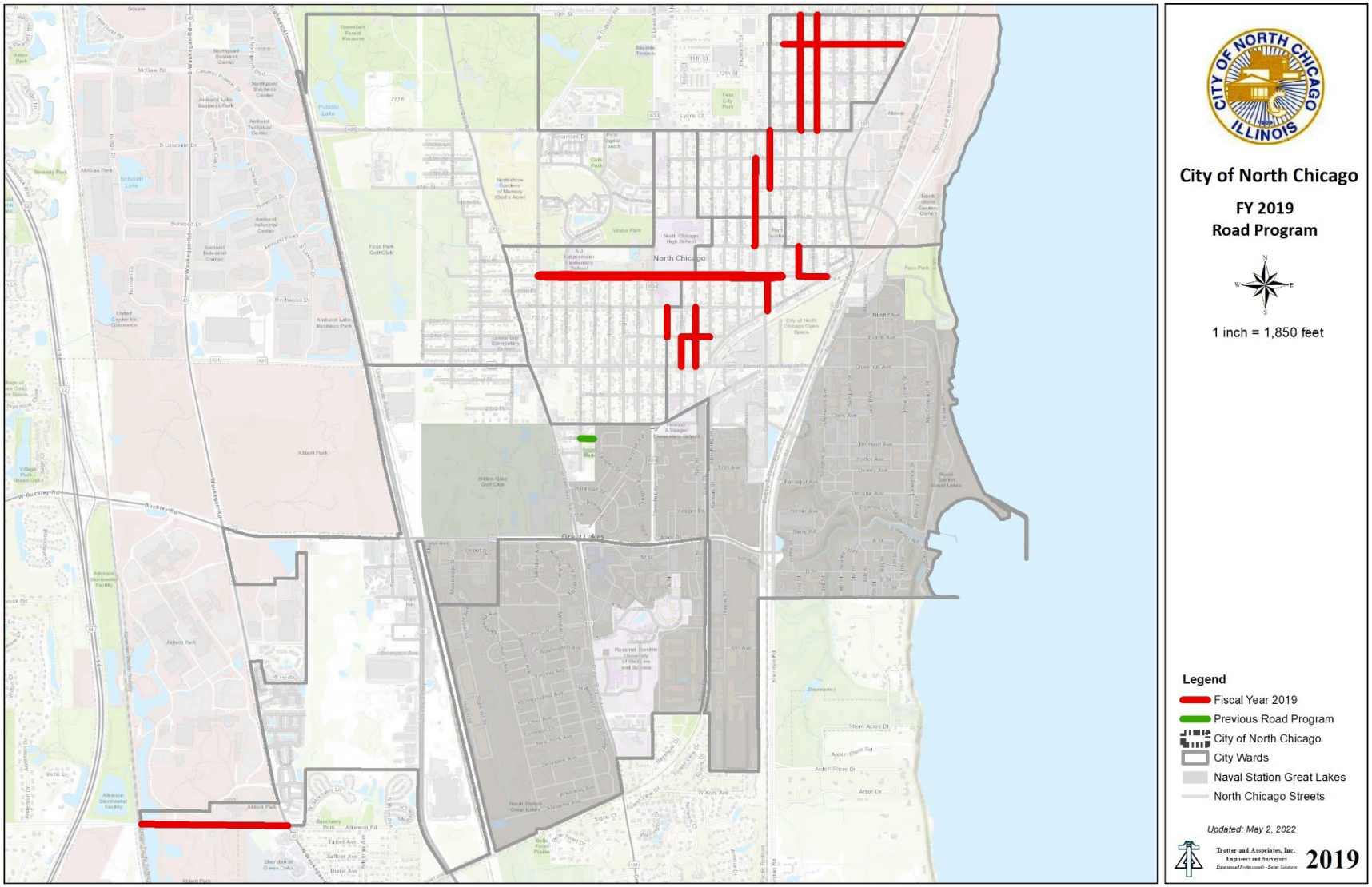

Ward 1
Ward 2
Ward 3
Ward 4
Ward 5
Ward 6
Ward 7
City of North Chicago
2021 Road Condition
PASER Ratings
1 inch = 1,800 feet
Legend
PASER < 4
PASER 4-8
PASER > 8
Parcels
CNC Wards 2022
A1
B1 B2 B3 B4
C1 C2 C3 C4
D1 D2 D3
E1 E2
F1 F2
Updated November 15, 2021
Trotter and Associates, Inc.
Engineers and Surveyors
All

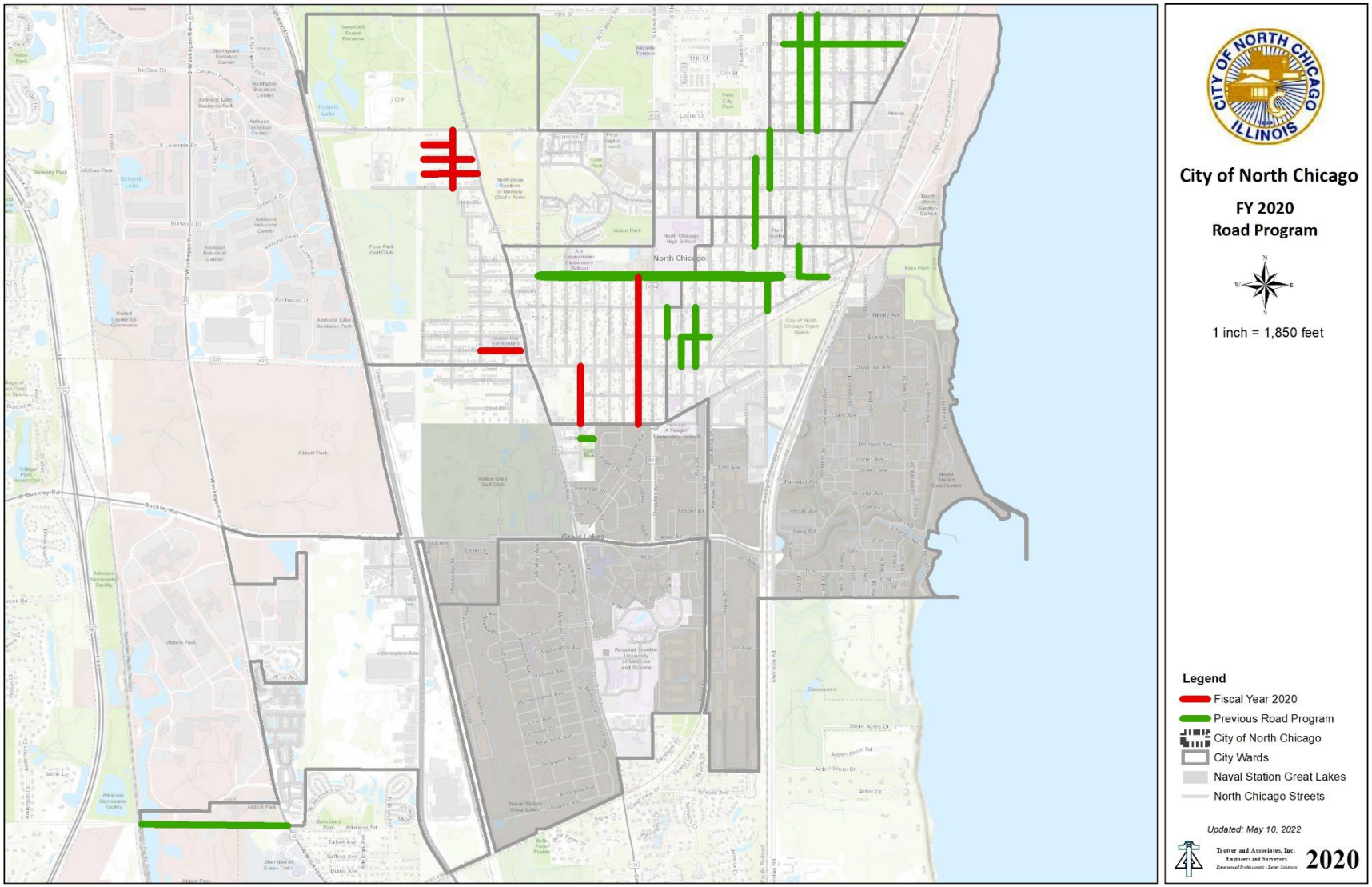
Alley Map

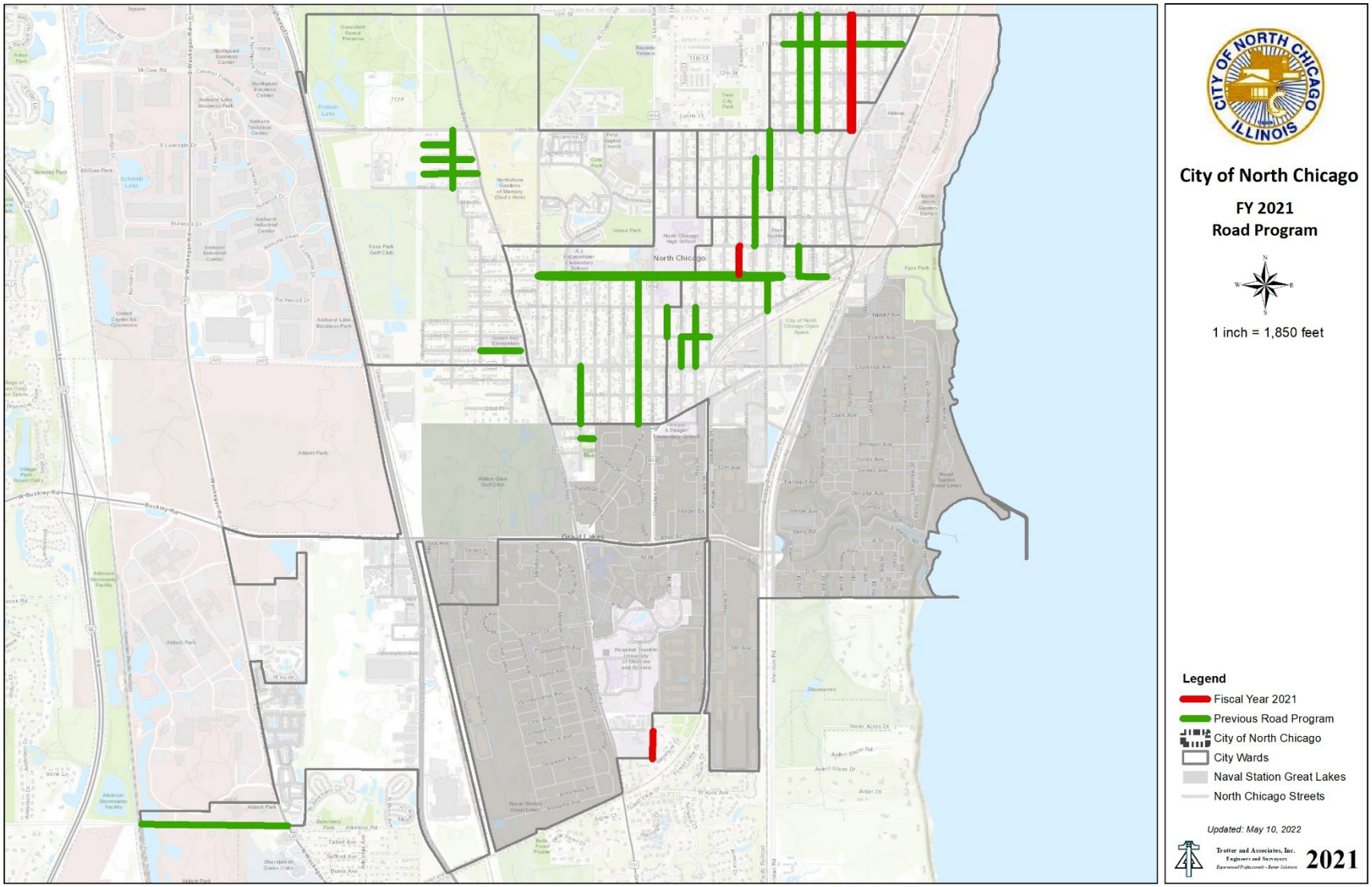

Ward 1
Ward 2
Ward 3
Ward 4
Ward 5
Ward 6
North Chicago
City of North Chicago
2021 PASER
Alley Rating Maps
1 inch = 900 feet
Legend
PASER < 4
PASER 4-8
PASER > 8
Non North Chicago Roads
CNC Wards 2022
A1
B1
B2
B3
B4
C1
C2
C3
C4
D1
D2
D3
E1
E2
F1
F2
Updated November 16, 2021
Trotter and Associates, Inc.
Engineers and Surveyors
All

Maintenance and Replacement Plan




City of North Chicago
FY 2019
Road Program
1 inch = 1,850 feet
Legend
Fiscal Year 2019
Previous Road Program
City of North Chicago
City Wards
Naval Station Great Lakes
North Chicago Streets
Updated: May 2, 2022
Trotter and Associates, Inc.
Engineers and Surveyors
2019


City of North Chicago
FY 2020
Road Program
1 inch = 1,850 feet
Legend
Fiscal Year 2020
Previous Road Program
City of North Chicago
City Wards
Naval Station Great Lakes
North Chicago Streets
Updated: May 10, 2022
Trotter and Associates, Inc.
Engineers and Surveyors
2020


City of North Chicago
FY 2021
Road Program
1 inch = 1,850 feet
Legend
Fiscal Year 2021
Previous Road Program
City of North Chicago
City Wards
Naval Station Great Lakes
North Chicago Streets
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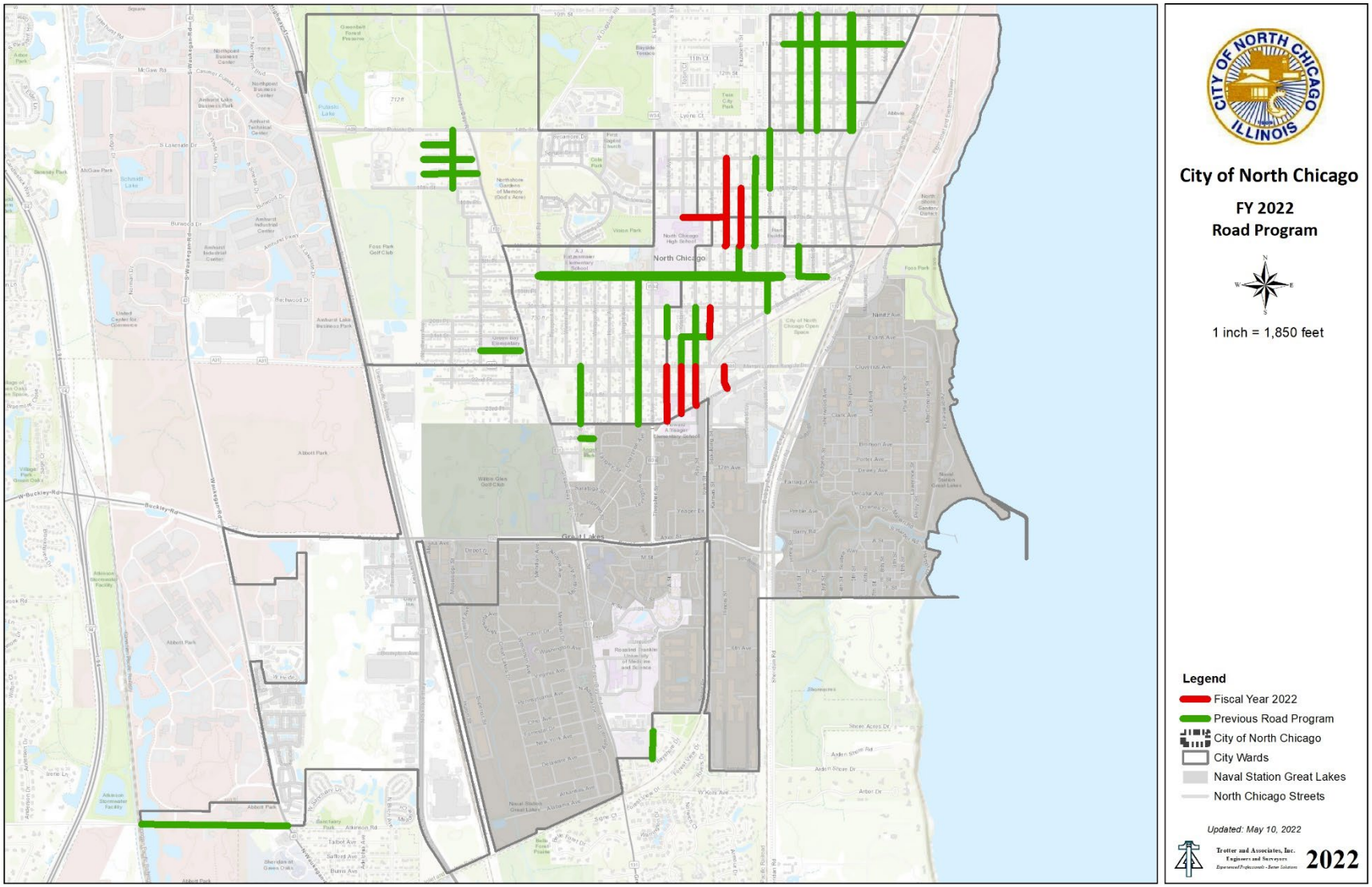
Trotter and Associates, Inc.
Engineers and Surveyors
2021


City of North Chicago
FY 2022
Road Program
1 inch = 1,850 feet
Legend
Fiscal Year 2022
Previous Road Program
City of North Chicago
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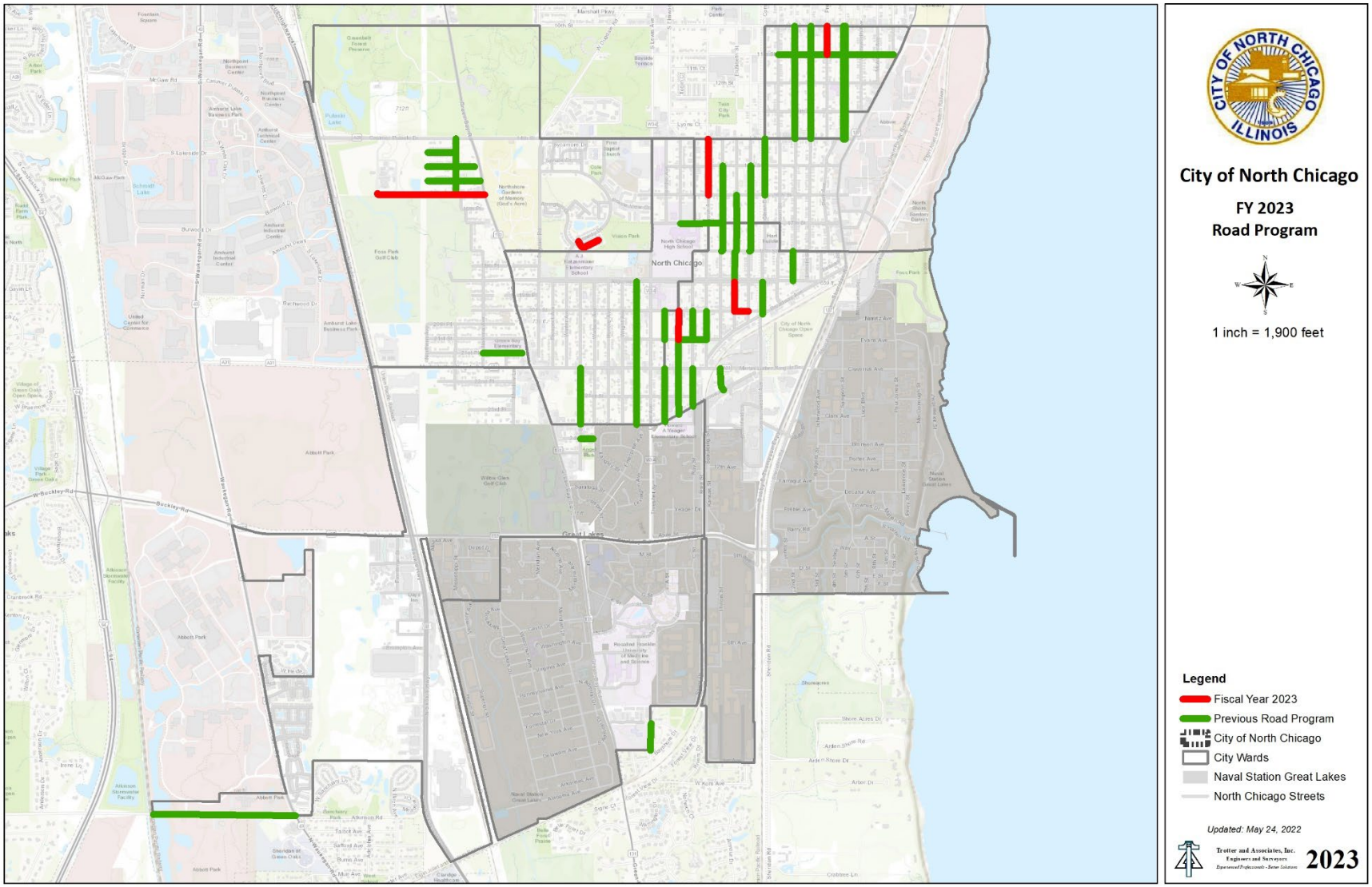
Trotter and Associates, Inc.
Engineers and Surveyors
2022


City of North Chicago
FY 2023
Road Program
1 inch = 1,900 feet
Legend
Fiscal Year 2023
Previous Road Program
City of North Chicago
City Wards
Naval Station Great Lakes
North Chicago Streets
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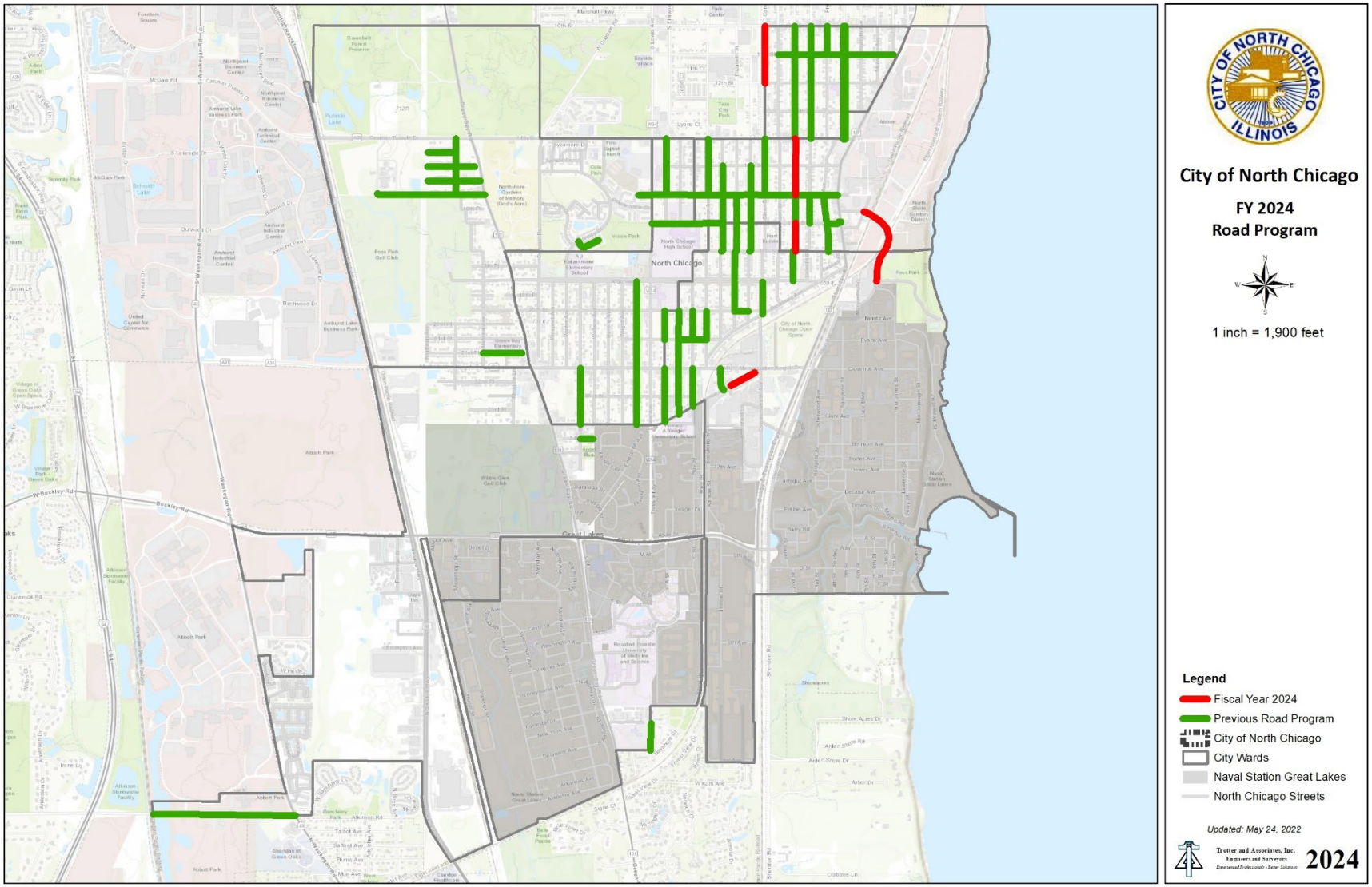
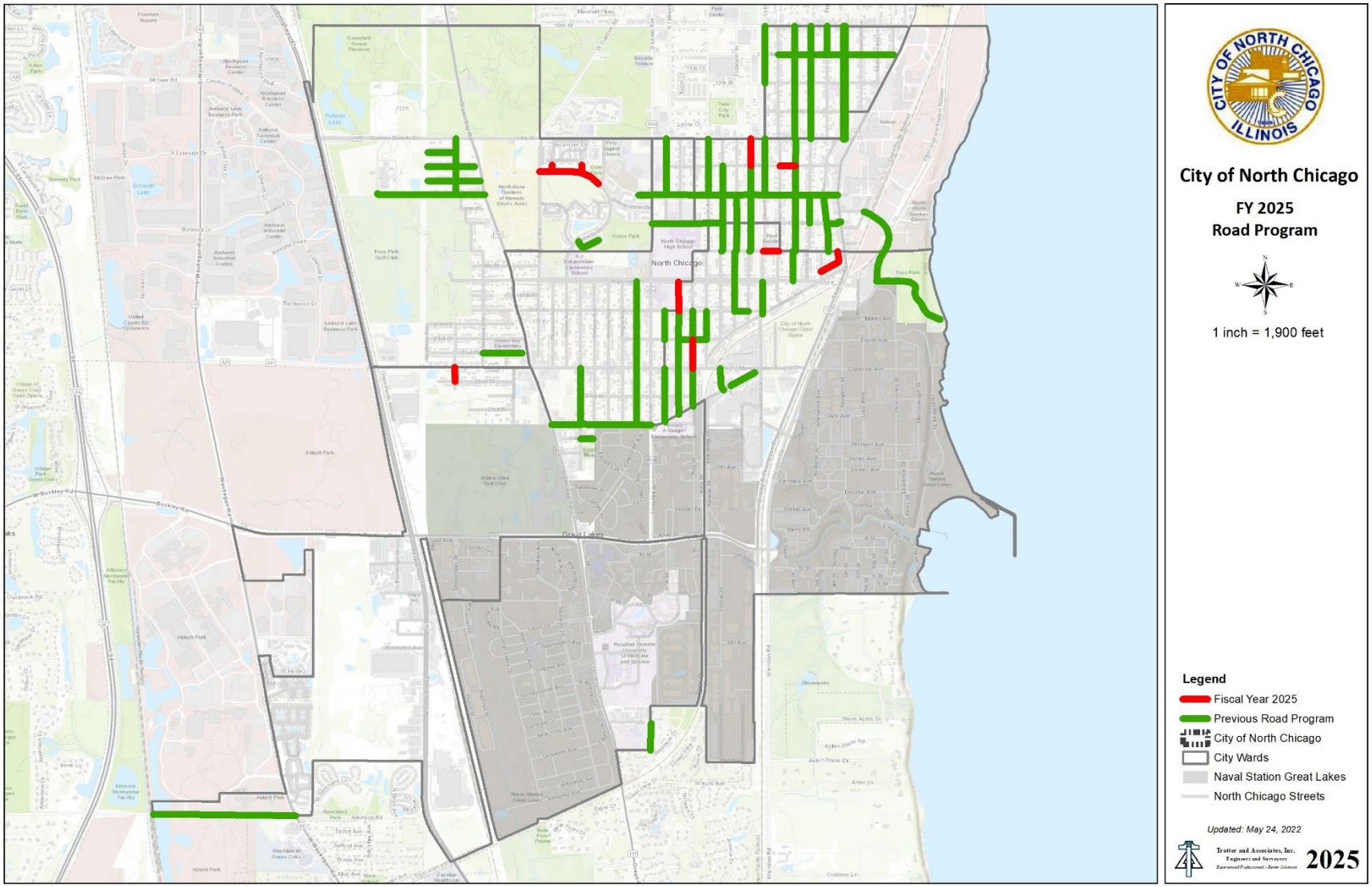
Trotter and Associates, Inc.
Engineers and Surveyors
2023


City of North Chicago
FY 2024
Road Program
1 inch = 1,900 feet
Legend
Fiscal Year 2024
Previous Road Program
City of North Chicago
City Wards
Naval Station Great Lakes
North Chicago Streets
Updated: May 24, 2022
Trotter and Associates, Inc.
Engineers and Surveyors
2024


City of North Chicago
FY 2025
Road Program
1 inch = 1,900 feet
Legend
Fiscal Year 2025
Previous Road Program
City of North Chicago
City Wards
Naval Station Great Lakes
North Chicago Streets
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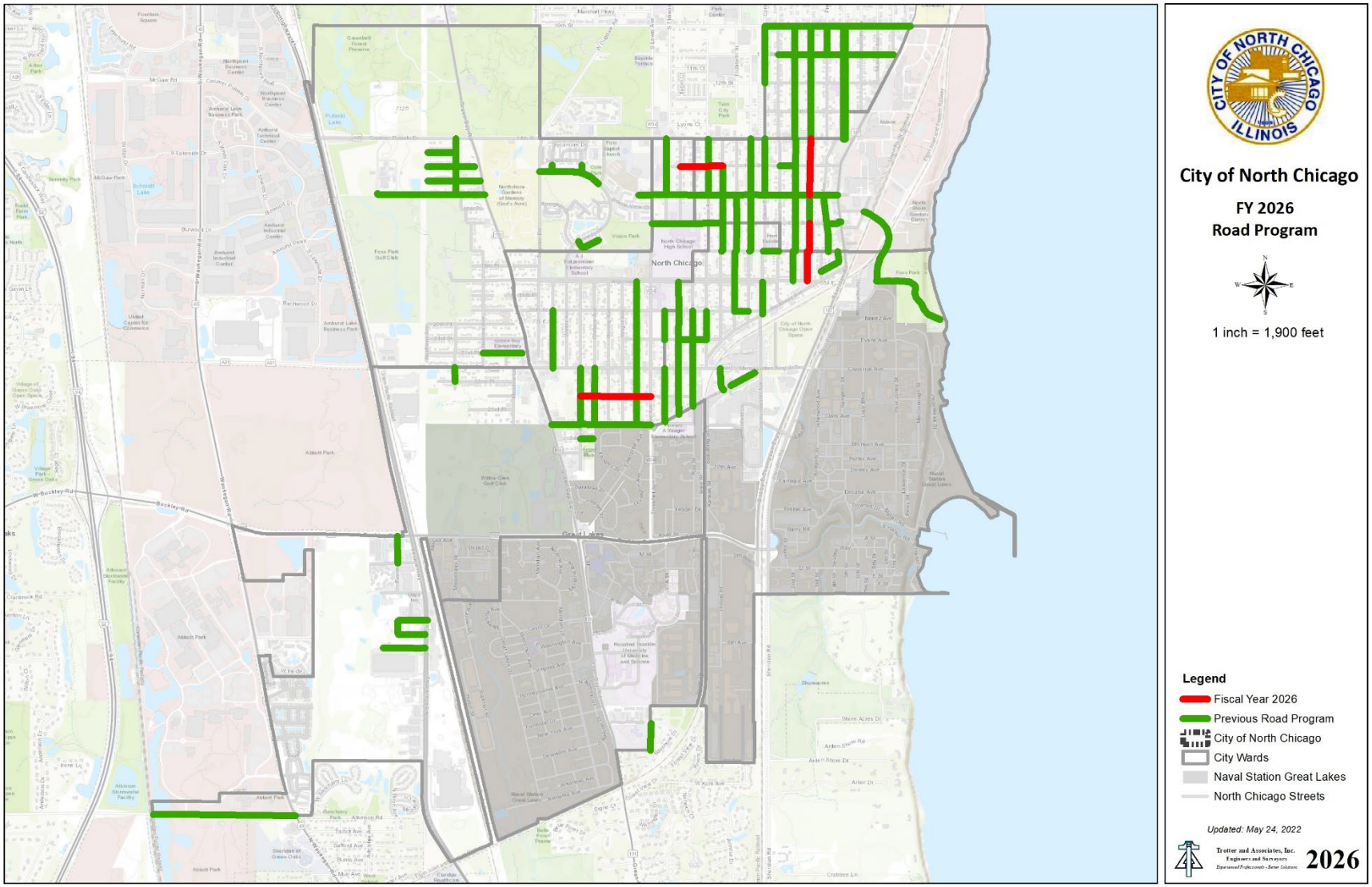
Trotter and Associates, Inc.
Engineers and Surveyors
2025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FY 2026
Road Program
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Fiscal Year 2026
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City of North Chicago
City Wards
Naval Station Great Lakes
North Chicago Streets
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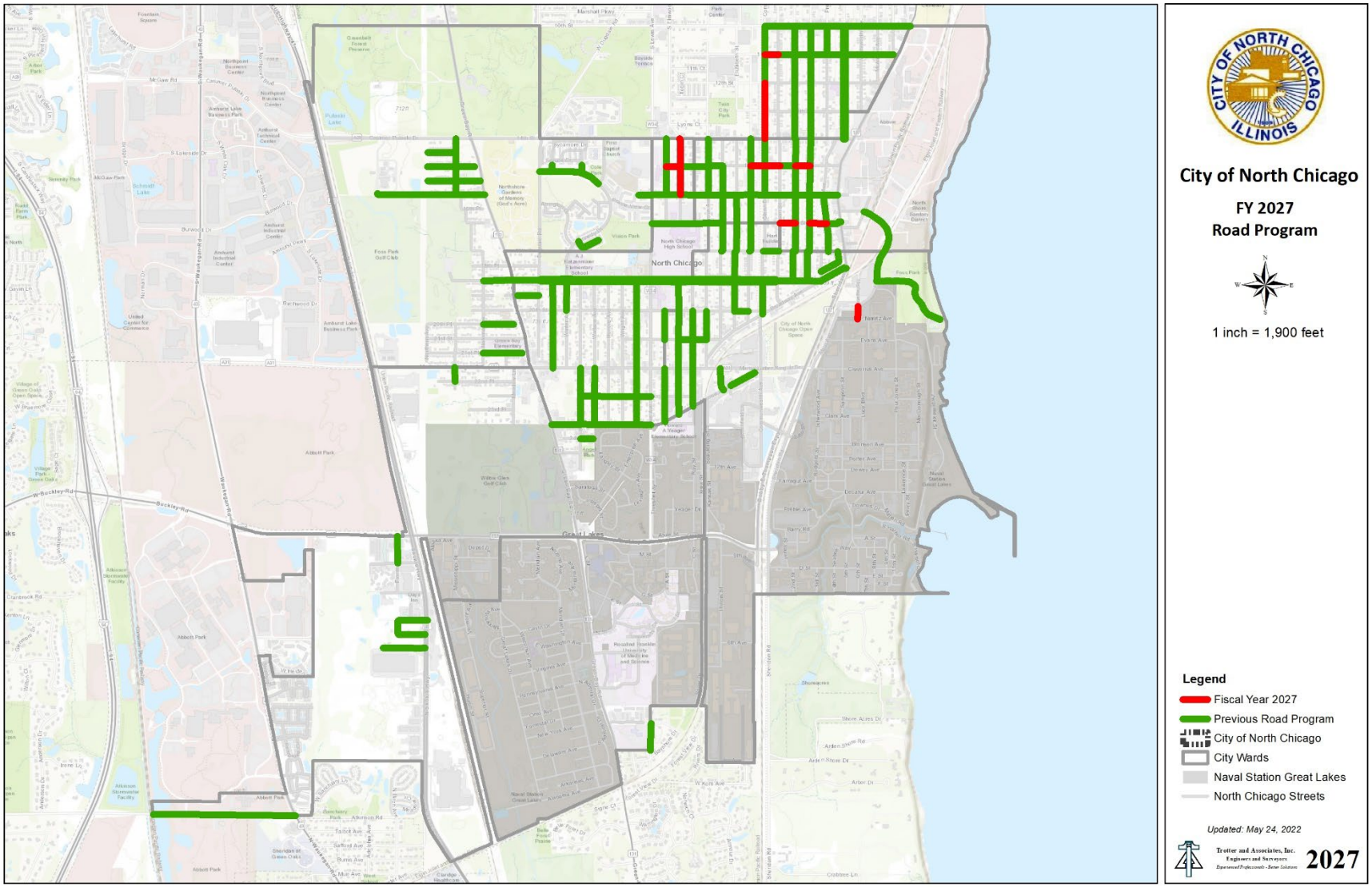
Trotter and Associates, Inc.
Engineers and Surveyors
2026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FY 2027
Road Program
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Fiscal Year 2027
Previous Road Program
City of North Chicago
City Wards
Naval Station Great Lakes
North Chicago Streets
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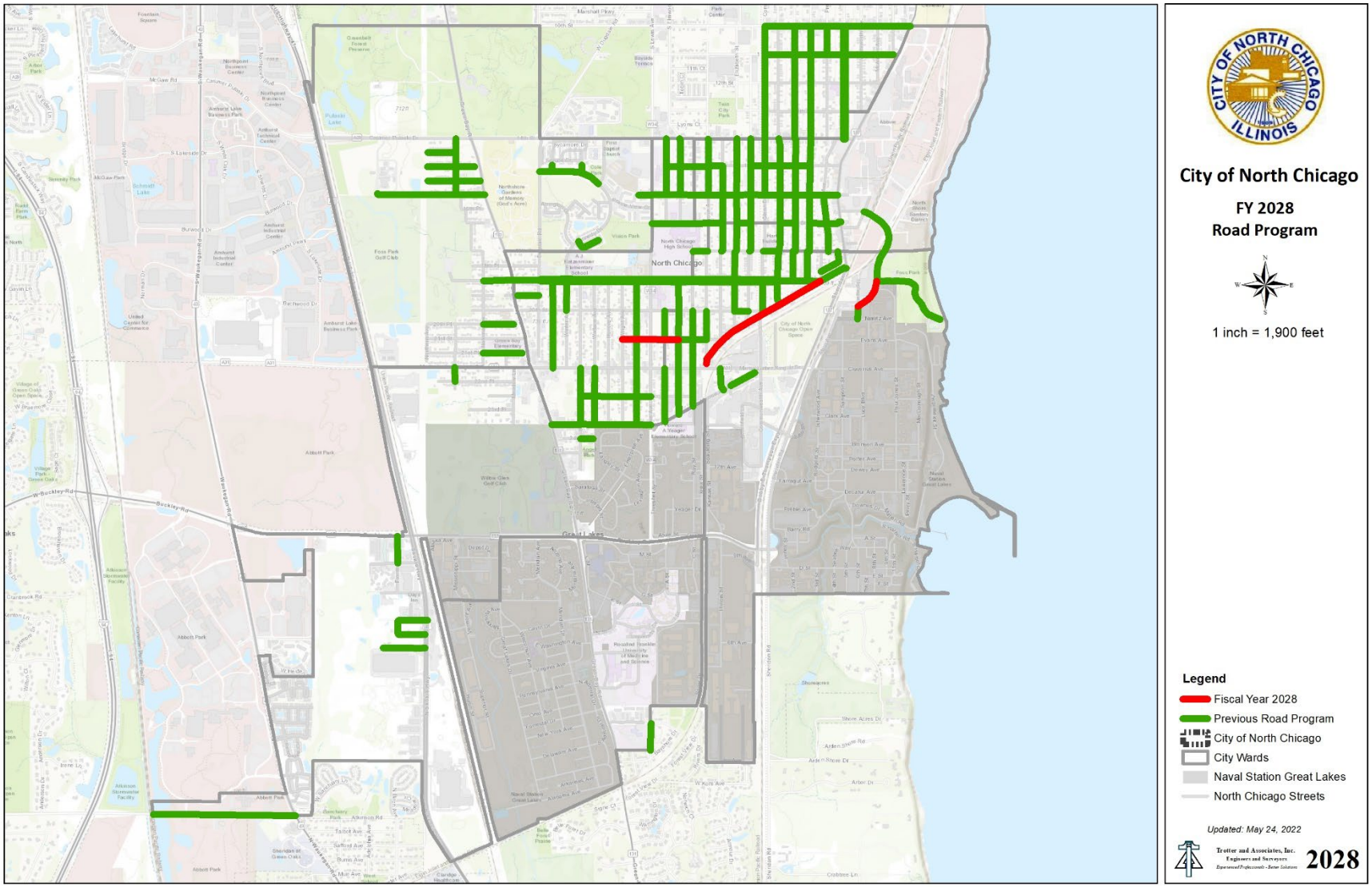
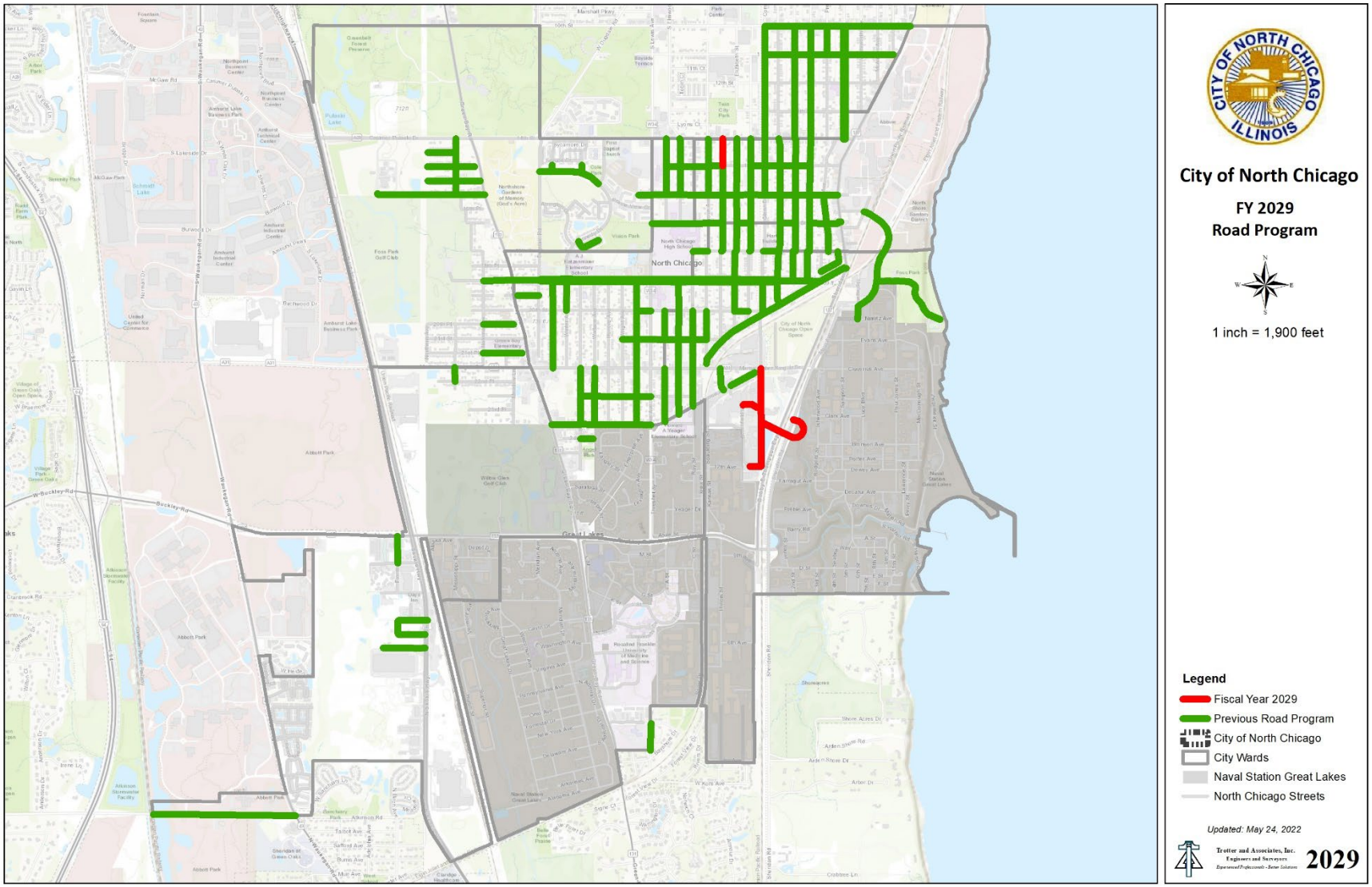
Trotter and Associates, Inc.
Engineers and Surveyors
2027


City of North Chicago
FY 2028
Road Program
1 inch = 1,900 feet
Legend
Fiscal Year 2028
Previous Road Program
City of North Chicago
City Wards
Naval Station Great Lakes
North Chicago Streets
Updated: May 24, 2022
Trotter and Associates, Inc.
Engineers and Surveyors
2028


City of North Chicago
FY 2029
Road Program
1 inch = 1,900 feet
Legend
Fiscal Year 2029
Previous Road Program
City of North Chicago
City Wards
Naval Station Great Lakes
North Chicago Streets
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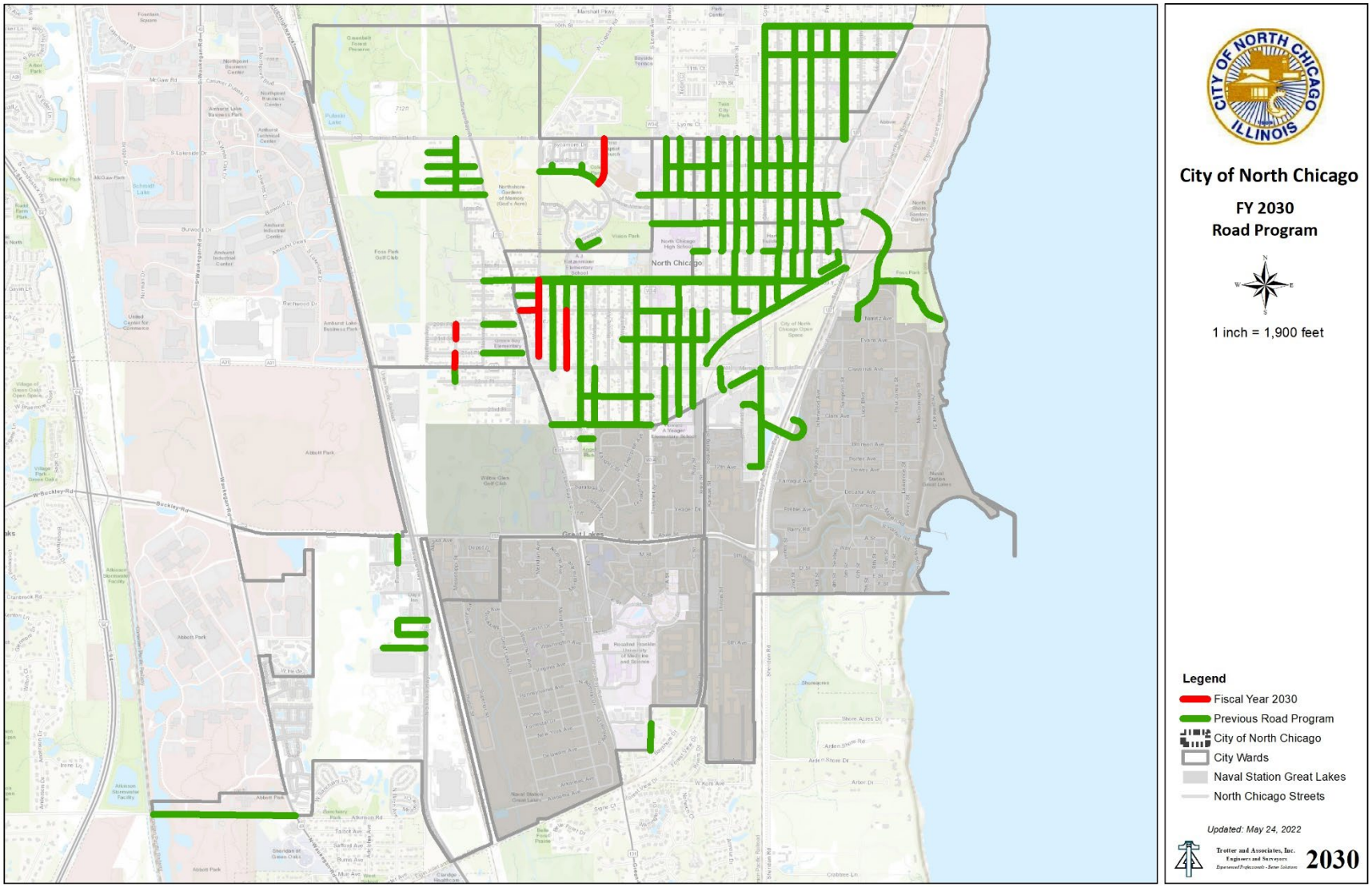
Trotter and Associates, Inc.
Engineers and Surveyors
2029


City of North Chicago
FY 2030
Road Program
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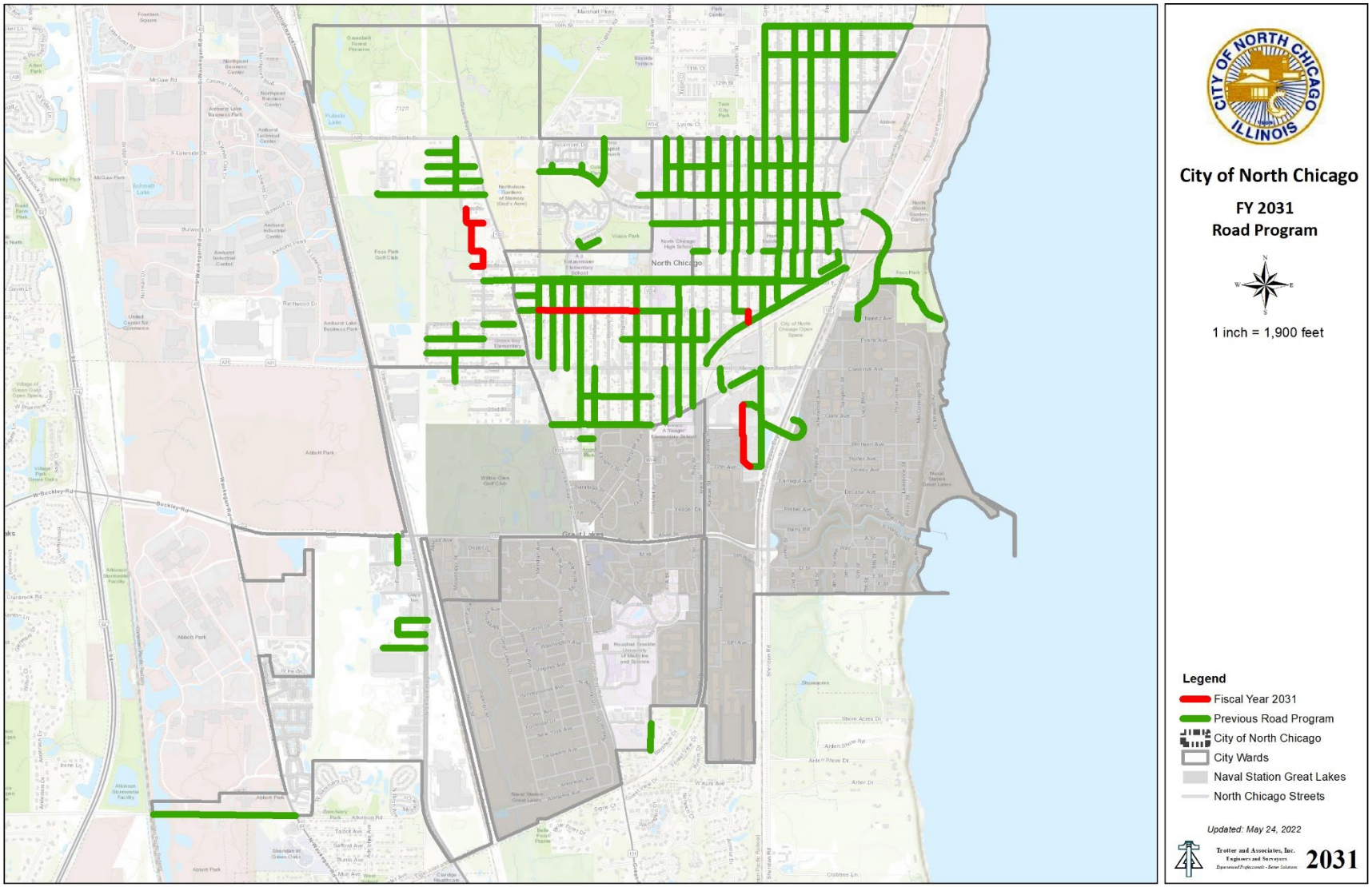
Legend
Fiscal Year 2030
Previous Road Program
City of North Chicago
City Wards
Naval Station Great Lakes
North Chicago Streets
Updated: May 24, 2022
Trotter and Associates, Inc.
Engineers and Surveyors
2030


City of North Chicago
FY 2031
Road Program
1 inch = 1,900 feet
Legend
Fiscal Year 2031
Previous Road Program
City of North Chicago
City Wards
Naval Station Great Lakes
North Chicago Streets
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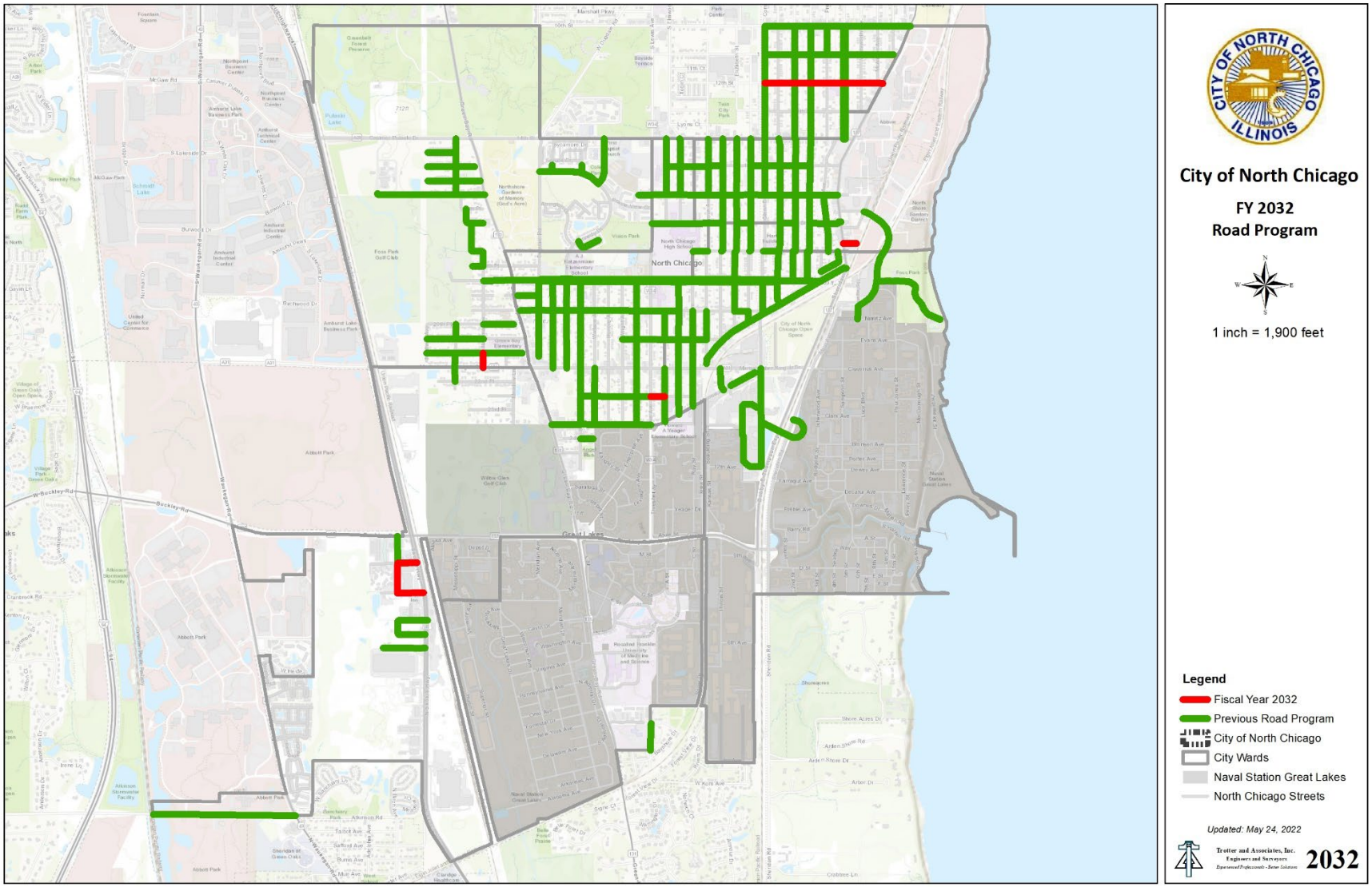
Trotter and Associates, Inc.
Engineers and Surveyors
2031


City of North Chicago
FY 2032
Road Program
1 inch = 1,900 feet
Legend
Fiscal Year 2032
Previous Road Program
City of North Chicago
City Wards
Naval Station Great Lakes
North Chicago Streets
Updated: May 24, 2022
Trotter and Associates, Inc.
Engineers and Surveyors
2032

Water System

Overview

The City's potable water supply is provided by the North Chicago Water Department and the source is Lake Michigan. The City's water distribution system consists of many miles of distribution piping, an elevated tank, several lift stations, and a large treatment facility serving North Chicago residents and commercial customers.

In addition, the water system consists of 59 miles of various-sized water distribution mains, appurtenances inclusive of 540 control valves, 476 fire hydrants, 4,200 water services, and metered accounts. Of the City's current residential population of 29,970 (2018), only 16,813 are connected to the City water system. The North Chicago WTP is rated to treat up to a Design Average Flow of 12 million gallons per day (MGD) and a Peak Flow of 16 MGD for potable use. Current Average Day and Maximum Day water demands within the City service area are approximately 2.5 MGD and 4.2 MGD.

Maintenance activities of water system assets include hydrant flushing and painting, valve exercising, intake cleaning, and maintenance, and pump maintenance and repair.

Ratings & Benchmarks

Due to the nature of most of the water system being underground, the primary indicators of ratings and benchmarks for water mains are age and main break history. The Public Works Department maintains a main break map that is utilized to determine the order of replacement. Above-ground assets such as water towers, hydrants, backup wells, and the pump station undergo routine inspections and maintenance by the Public Works department.

Assumptions Approach

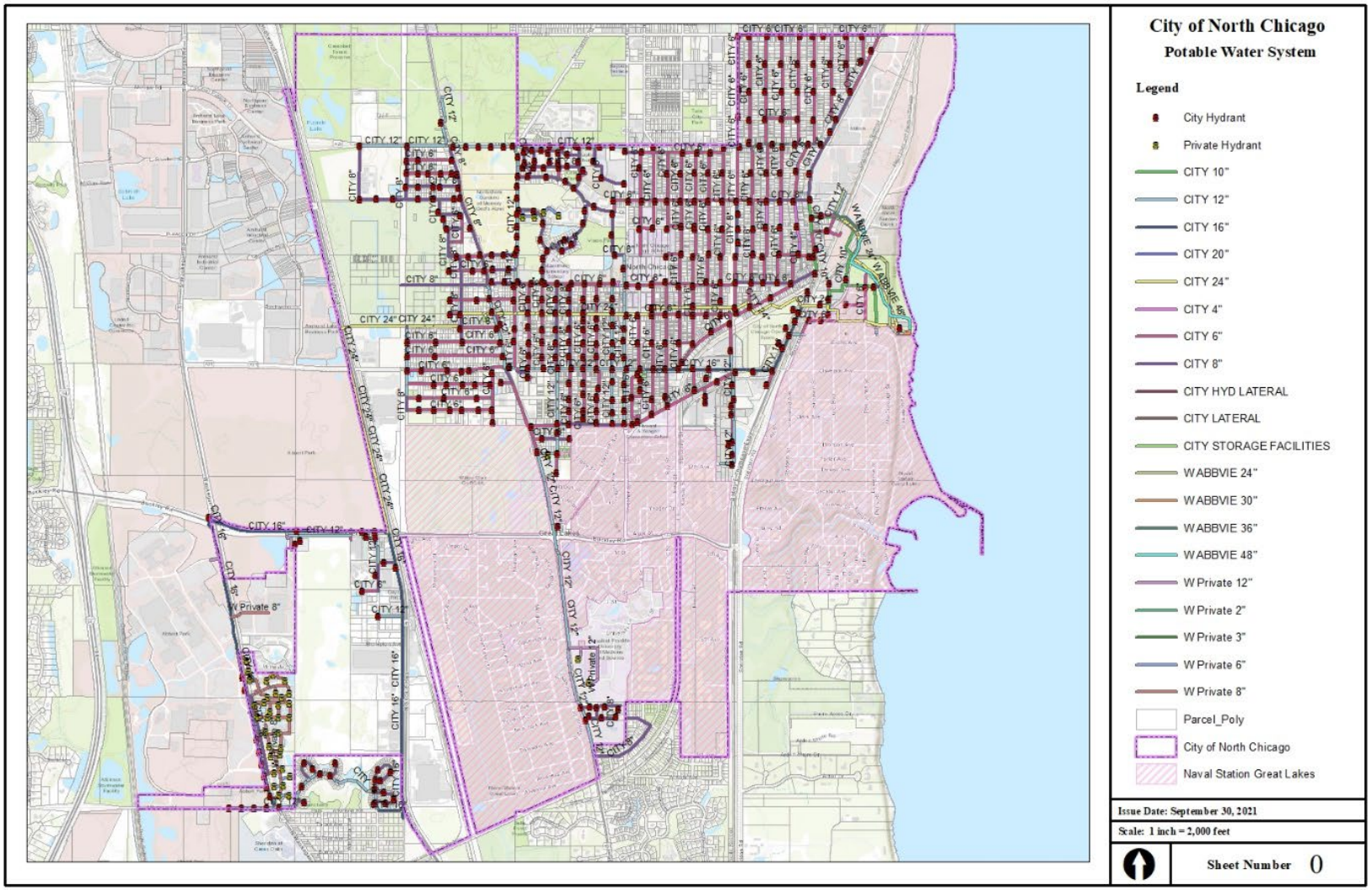
- Time underground work with road work
- Replace 4", 6", 8" main with 12" main to provide fire flows throughout the city
- Utilize main break history and age to determine maintenance and replacement
- Perform routine water main replacement programs to keep the system in operating condition
- The program will be updated as needed when additional data becomes available to inform the forecasted schedule.

Funding Plan

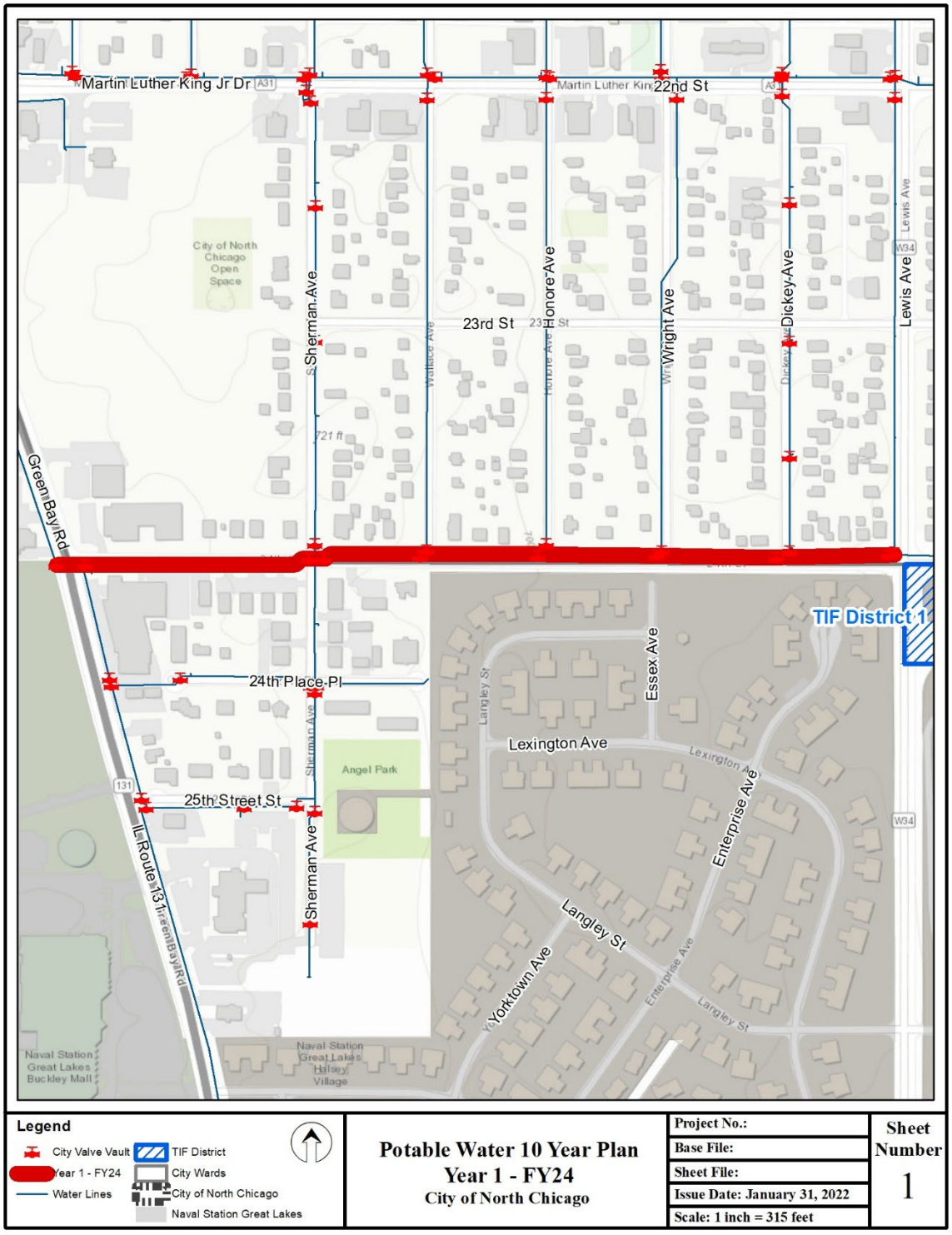
Maintenance of the water system is funded through user charges which are stored in the Water Fund. The Water Fund utilizes rates identified in the approved ordinance and currently does not cover the reoccurring costs of deferred maintenance or system improvements for fire flow and storage capacity. To supplement the budgetary shortfall, The City has ranked highly to acquire IEPA low-interest loans to provide the capital required to design and construct the fire flow improvements. The combination of user fees and the low-interest loan only provides a portion of the necessary budget to complete the deferred maintenance and proposed improvements Below is the yearly budget for water system projects over the planning period.

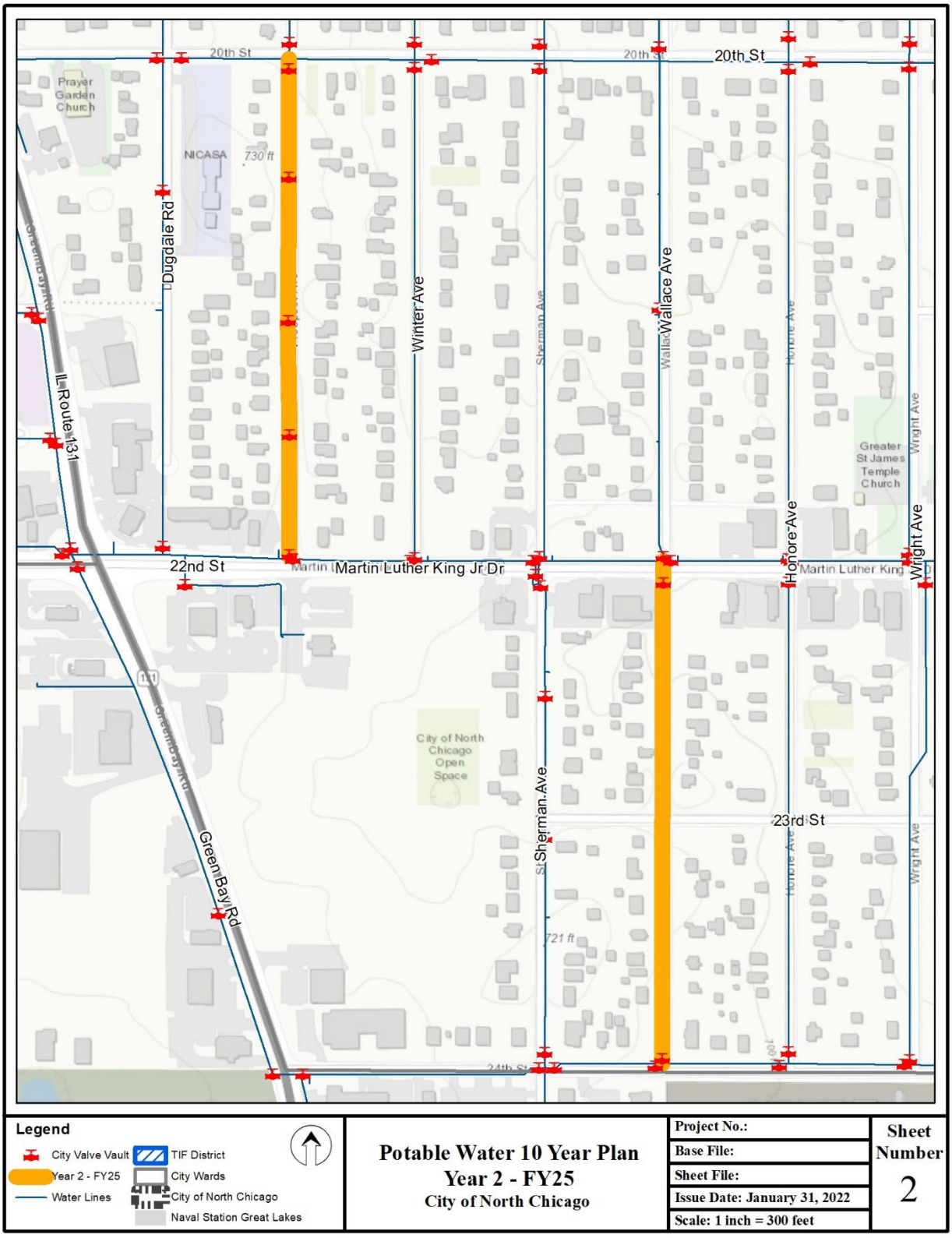
Description	Fund	FY2023 Projected	FY2024 Projected	FY2025 Projected	FY2026 Projected	FY2027 Projected	FY2028 Projected	FY2029 Projected	FY2030 Projected	FY2031 Projected	FY2032 Projected
Water System											
Funding											
Water, Sewer & Refuse Fund	70.500	$ 8,523,600	$ 8,523,600	$ 8,523,600	$ 8,523,600	$ 8,523,600	$ 8,523,600	$ 8,523,600	$ 8,523,600	$ 8,523,600	$ 8,523,600
IEPA Loan Total *	IEPA	$ 1,000,000	$ 5,596,890		$ 6,647,920	$ 3,470,420					
Total Water System Funding		$ 9,523,600	$ 14,120,490	$ 8,523,600	$ 15,171,520	$ 11,994,020	$ 8,523,600	$ 8,523,600	$ 8,523,600	$ 8,523,600	$ 8,523,600
Expenditures											
Capital Improvements**											
WATER SUPPLY											
Intake Cleaning (3-yr basis)				$ 100,000			$ 100,000			$ 100,000	
Raw Water Wet Well Cleaning (3-yr basis)		$ -		$ 70,000			$ 70,000			$ 70,000	
Screen Control Panels & Rehab		$ 713,000									
Intake Screen Chamber Grates		$ 4,000									
WATER TREATMENT BUILDING AND GROUNDS											
Phase 1 - Access Roadway Reconstruction				$ 70,000	$ 1,646,700	$ 548,900					
Phase 2 - On-Site Drainage Improvements			$ 70,000	$ 1,000,000							
Phase 3 - Sanitary Lift Station and Force Main				$ 20,000	$ 284,475	$ 94,825					
Phase 4 - Treatment Plant Building Repairs			$ 3,500,000								
WATER TREATMENT PROCESS IMPROVEMENTS											
Filtration System Equipment Replacement		$ 220,000	$ 1,500,000	$ 230,000	$ 1,500,000						
High Lift Valve Replacements 16-inch				$ 50,000	$ 50,000						
Liquid Polymer Feed / Sludge Handling			$ 250,000								
DISTRIBUTION SYSTEM											
Lead Service Replacement (included in Annual WM Replacement Project)		$ -									
Lead Service Planning		$ 50,000									
Annual Tank Inspections		$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000		
Phase 2B - Looping Water Mains (16th St and Kemble)	IEPA	$ 1,000,000	$ 5,596,890								
Phase 3 - 2 MG Elevated Tower & Transmission Main	IEPA	$ -			$ 6,647,920						
Phase 4 - 4 MG Standpipe Rehab and Booster Pumps	IEPA	$ -				$ 3,470,420					
Annual Water Main and Lead Service Line Replacement			$ 150,000	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 1,500,000
MISCELLANEOUS IMPROVEMENTS											
Interconnect Flow Meters		$ 53,000	$ 53,000	$ 53,000	$ 53,000	$ 53,000					
Water Treatment Intake Structure		$ 300,000	$ 300,000								
Water Loss Survey		$ 43,000									
GIS Asset Management System		$ -	$ 75,000	$ 75,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	
Update System Atlases		$ 15,000									
Hydrant Flushing & ISO Documentation		$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000		
Distribution System Valve Excercising		$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000		
Distribution System Leak Detection		$ 25,000		$ 25,000		$ 25,000		$ 25,000			
Emergency Repairs		$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000		
Water Service Meter Testing & Calibration		$ 40,000		$ 40,000		$ 40,000		$ 40,000			
Water Service Meter Replacements					$ 1,375,000	$ 1,375,000					
Transmission Main Leak Detection		$ 50,000	$ -		$ 50,000			$ 50,000			
Water Rate Study		$ -	$ -	$ 50,000							
Subtotal		**$ 2,733,000**	**$ 11,714,890**	**$ 3,503,000**	**$ 13,362,095**	**$ 7,362,145**	**$ 1,925,000**	**$ 1,870,000**	**$ 1,755,000**	**$ 1,705,000**	**$ 1,500,000**
Debt Service											
IEPA Loan (30 years at 2%)		$ 75,000	$ 354,766	$ 354,766	$ 651,263	$ 806,044	$ 806,044	$ 806,044	$ 806,044	$ 806,044	$ 806,044
Total ExpendituresWater System		$ 2,808,000	$ 12,069,656	$ 3,857,766	$ 14,013,358	$ 8,168,189	$ 2,731,044	$ 2,676,044	$ 2,561,044	$ 2,511,044	$ 2,306,044

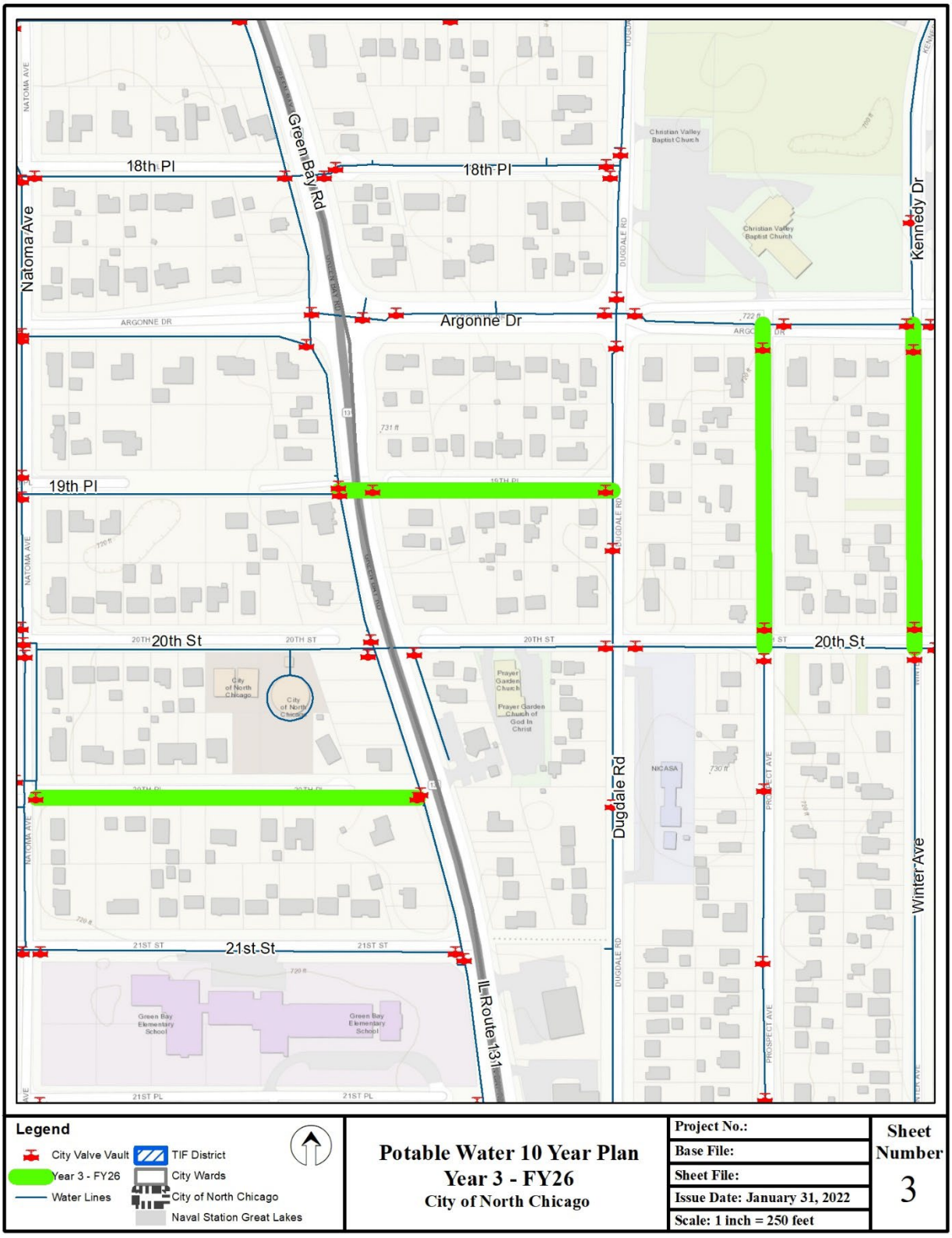
System Map

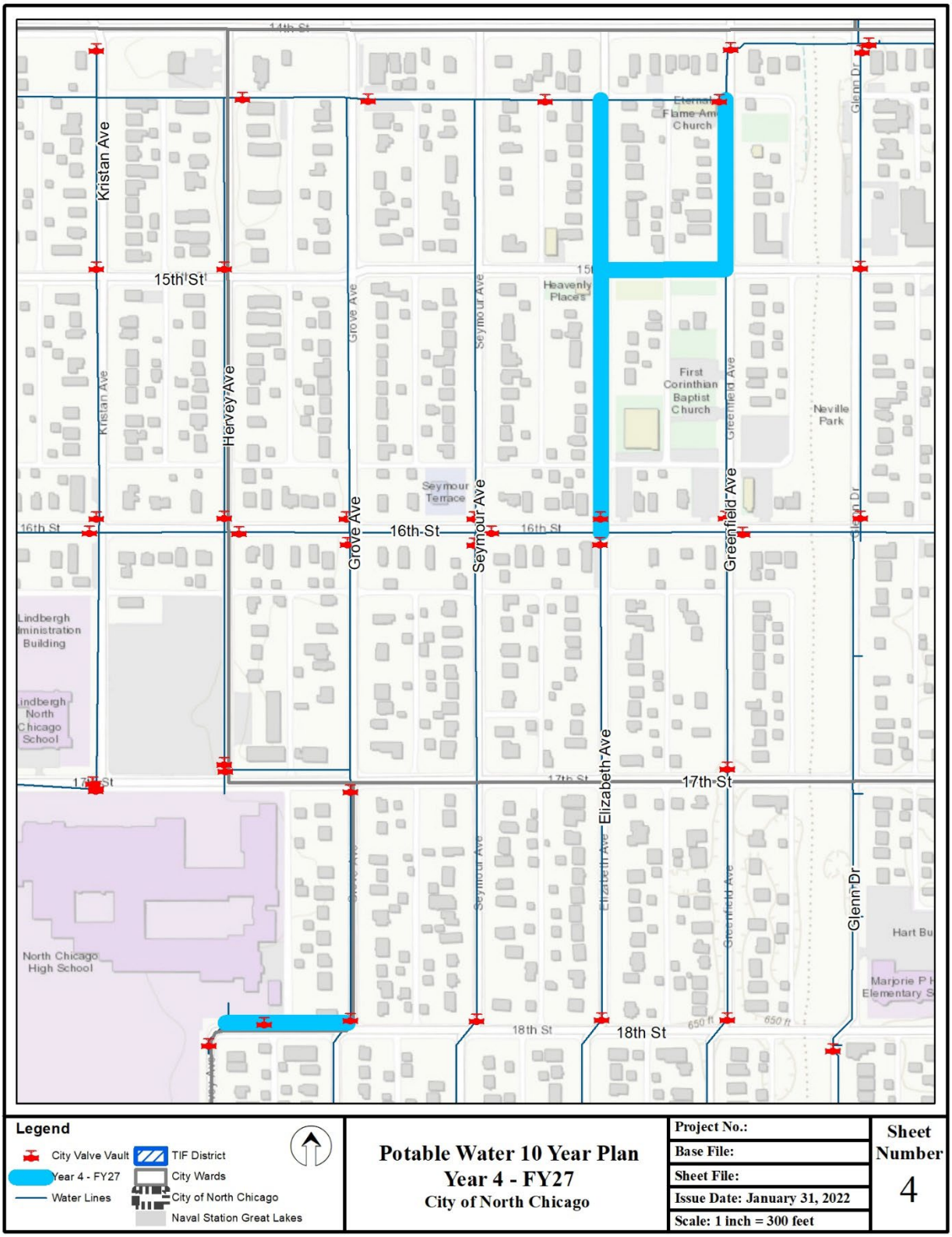

City of North Chicago
Potable Water System
Legend
City Hydrant
Private Hydrant
CITY 10"
CITY 12"
CITY 16"
CITY 20"
CITY 24"
CITY 4"
CITY 6"
CITY 8"
CITY HYD LATERAL
CITY LATERAL
CITY STORAGE FACILITIES
WABBVIE 24"
WABBVIE 30"
WABBVIE 36"
WABBVIE 48"
W Private 12"
W Private 2"
W Private 3"
W Private 6"
W Private 8"
Parcel_Poly
City of North Chicago
Naval Station Great Lakes
Issue Date: September 30, 2021
Scale: 1 inch = 2,000 feet
Sheet Number 0

Maintenance and Replacement Plan




20th St
20th St
Prayer Garden Church
NICASA
730 ft
Dugdale Rd
Winter Ave
Sherman Ave
Wallace Ave
Honore Ave
Wright Ave
Greater St James Temple Church
IL Route 131
22nd St
Martin Luther King Jr Dr
Martin Luther King
City of North Chicago Open Space
Green Bay Rd
23rd St
721 ft
24th St
Legend
City Valve Vault
Year 2 - FY25
Water Lines
TIF District
City Wards
City of North Chicago
Naval Station Great Lakes
Potable Water 10 Year Plan
Year 2 - FY25
City of North Chicago
Project No.:
Base File:
Sheet File:
Issue Date: January 31, 2022
Scale: 1 inch = 300 feet
Sheet Number
2


18th Pl
18th Pl
Natoma Ave
Green Bay Rd
Kennedy Dr
Argonne Dr
19th Pl
20th St
20th St
Dugdale Rd
Winter Ave
21st St
IL Route 131
Legend
City Valve Vault
Year 3 - FY26
Water Lines
TIF District
City Wards
City of North Chicago
Naval Station Great Lakes
Potable Water 10 Year Plan
Year 3 - FY26
City of North Chicago
Project No.:
Base File:
Sheet File:
Issue Date: January 31, 2022
Scale: 1 inch = 250 feet
Sheet Number
3



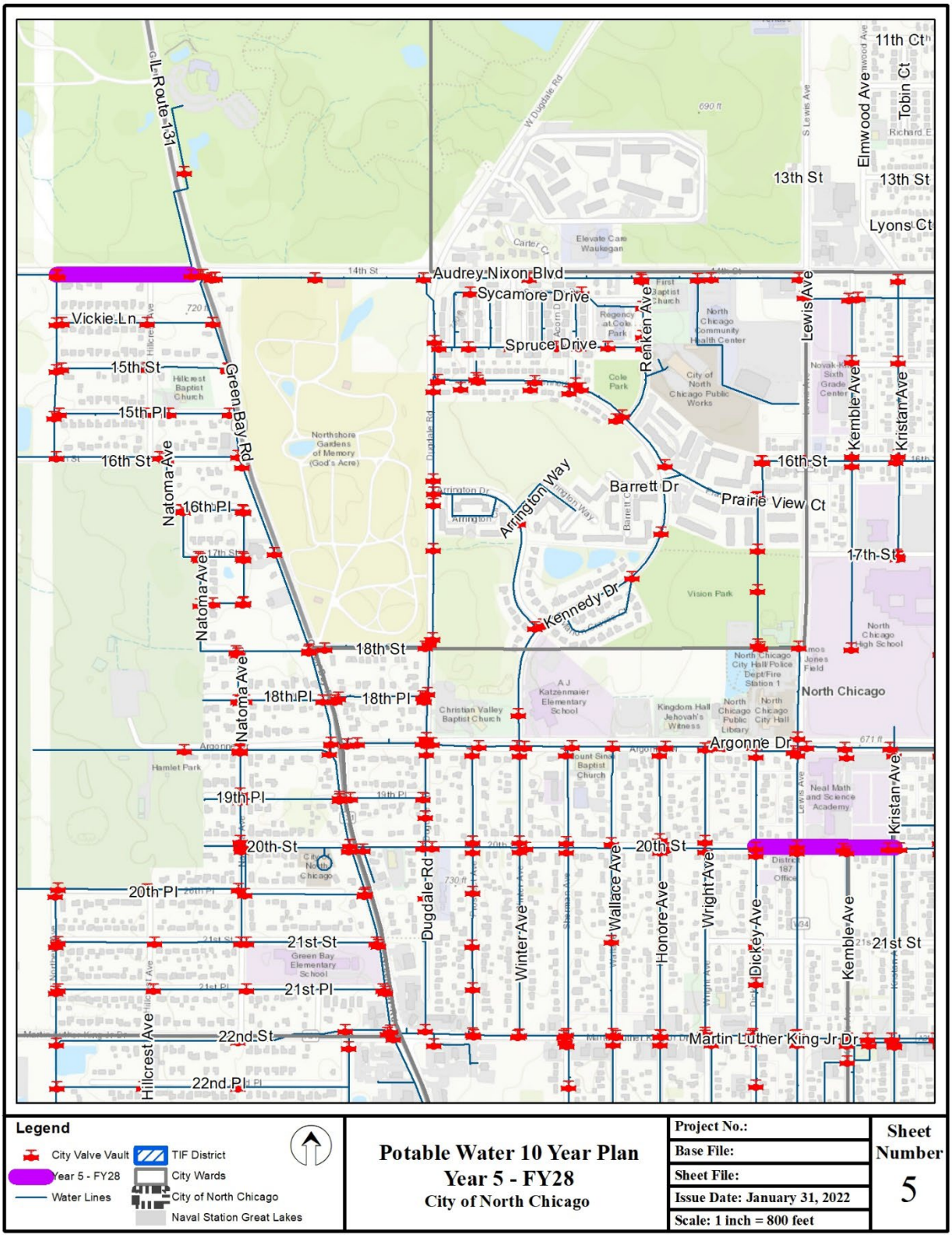
Legend

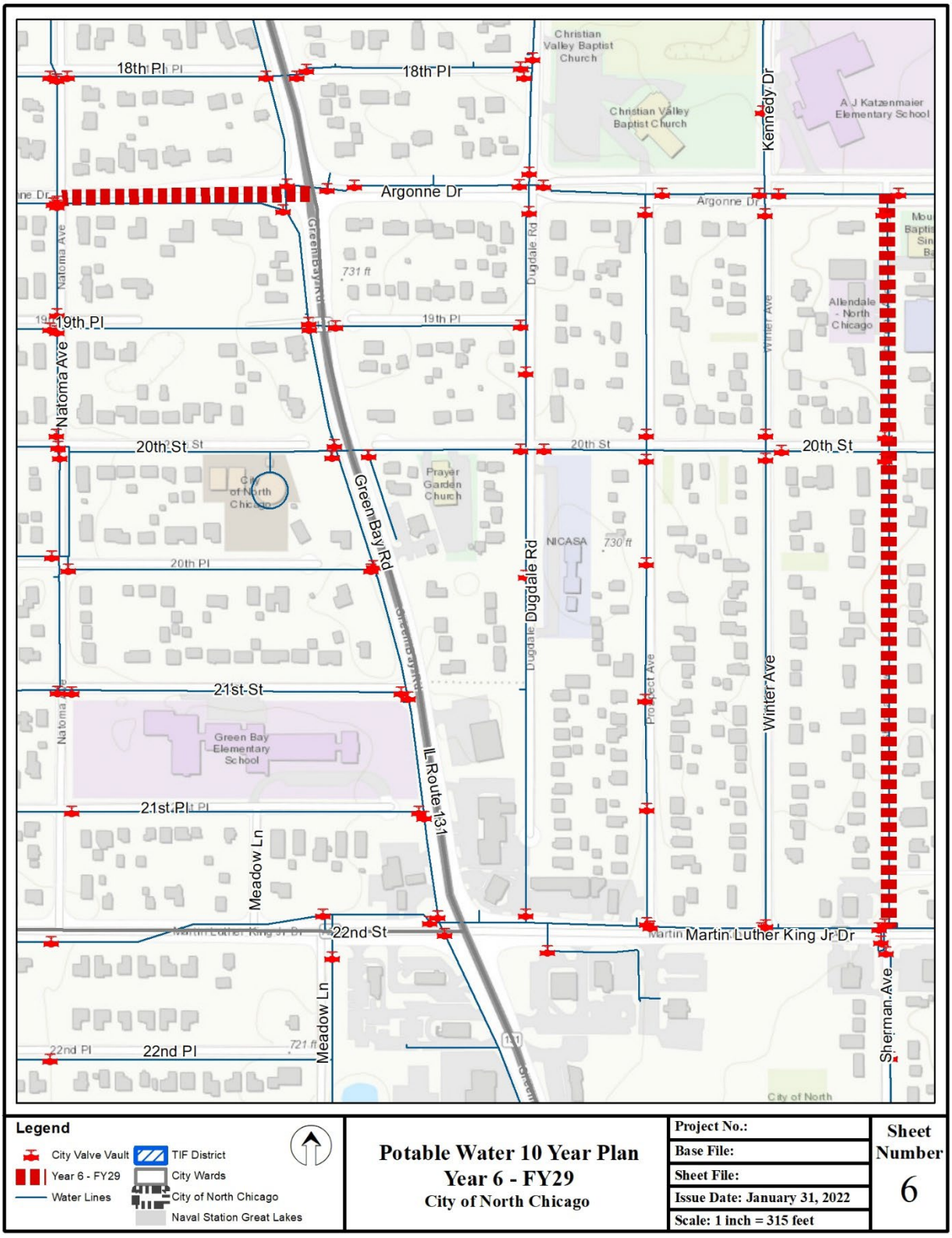
City Valve Vault
Year 4 - FY27
Water Lines
TIF District
City Wards
City of North Chicago
Naval Station Great Lakes

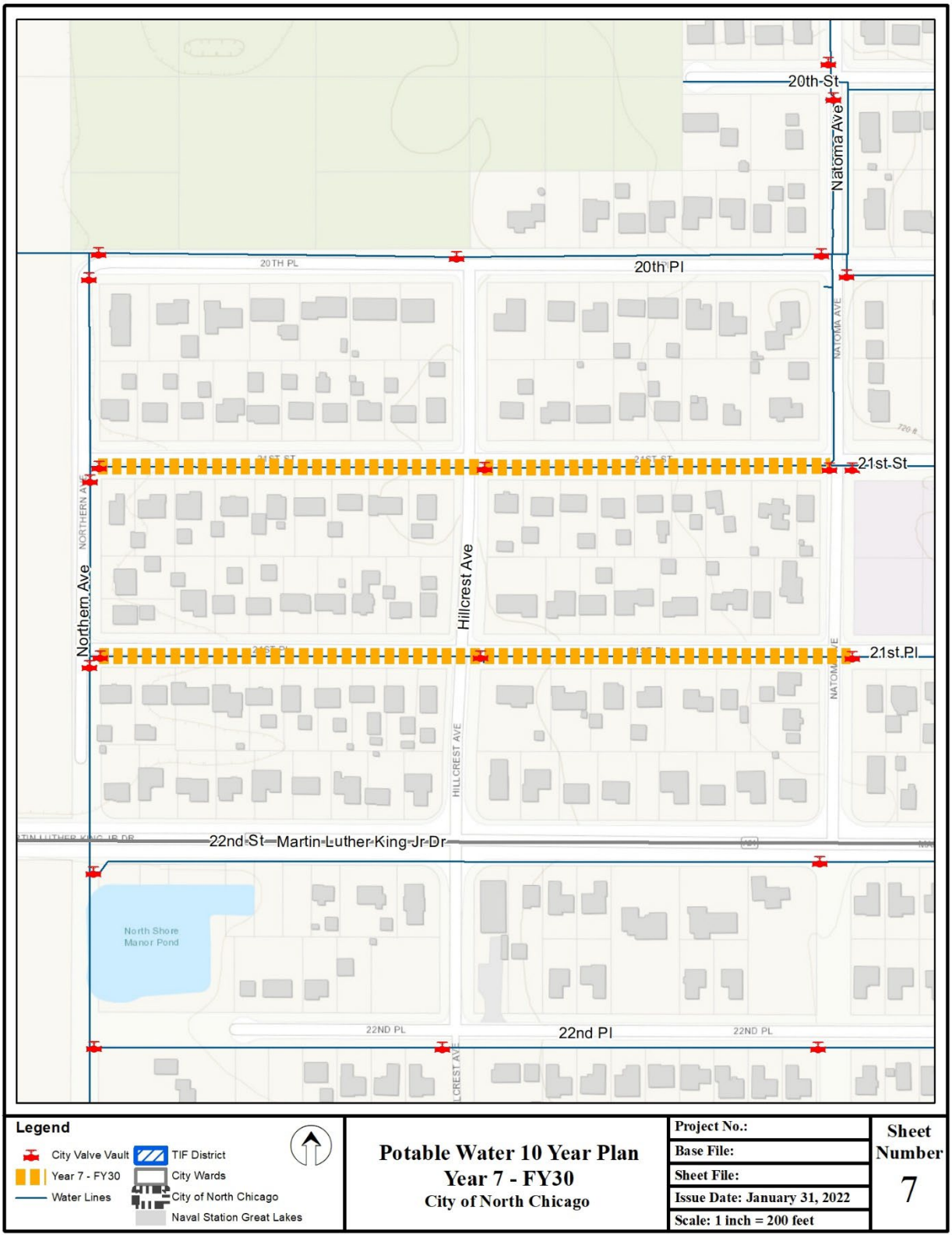
Potable Water 10 Year Plan
Year 4 - FY27
City of North Chicago

Project No.:	
Base File:	
Sheet File:	
Issue Date: January 31, 2022	
Scale: 1 inch = 300 feet	

Sheet Number 4


Legend
City Valve Vault
Year 5 - FY28
Water Lines
TIF District
City Wards
City of North Chicago
Naval Station Great Lakes
Potable Water 10 Year Plan
Year 5 - FY28
City of North Chicago
Project No.:
Base File:
Sheet File:
Issue Date: January 31, 2022
Scale: 1 inch = 800 feet
Sheet Number
5
Audrey Nixon Blvd
Sycamore Drive
Spruce Drive
Vickie Ln
15th St
15th Pl
16th St
16th Pl
17th St
18th St
18th Pl
19th Pl
20th St
20th Pl
21st St
21st Pl
22nd St
22nd Pl
Barrett Dr
Prairie View Ct
Arrington Way
Kennedy Dr
Argonne Dr
Martin Luther King Jr Dr
Natoma Ave
Green Bay Rd
Dugdale Rd
Renken Ave
Lewis Ave
Kemble Ave
Kristan Ave
Elmwood Ave
Tobin Ct
11th Ct
13th St
Lyons Ct
Winter Ave
Wallace Ave
Honore Ave
Wright Ave
Dickey Ave
Hillcrest Ave
Illinois Route 131
North Chicago


Christian Valley Baptist Church
Christian Valley Baptist Church
A J Katzenmaier Elementary School
Kennedy Dr
18th Pl
18th Pl
Argonne Dr
Argonne Dr
Natoma Ave
Green Bay Rd
731 ft
Dugdale Rd
19th Pl
19th Pl
Winter Ave
Allendale - North Chicago
20th St
20th St
20th St
City of North Chicago
Prayer Garden Church
NICASA
730 ft
20th Pl
Green Bay Rd
Dugdale Rd
21st St
Green Bay Elementary School
Project Ave
Winter Ave
Il Route 131
21st Pl
Meadow Ln
22nd St
Martin Luther King Jr Dr
Martin Luther King Jr Dr
Meadow Ln
Sherman Ave
22nd Pl
22nd Pl
721 ft
City of North
Legend
City Valve Vault
Year 6 - FY29
Water Lines
TIF District
City Wards
City of North Chicago
Naval Station Great Lakes
Potable Water 10 Year Plan
Year 6 - FY29
City of North Chicago
Project No.:
Base File:
Sheet File:
Issue Date: January 31, 2022
Scale: 1 inch = 315 feet
Sheet Number
6



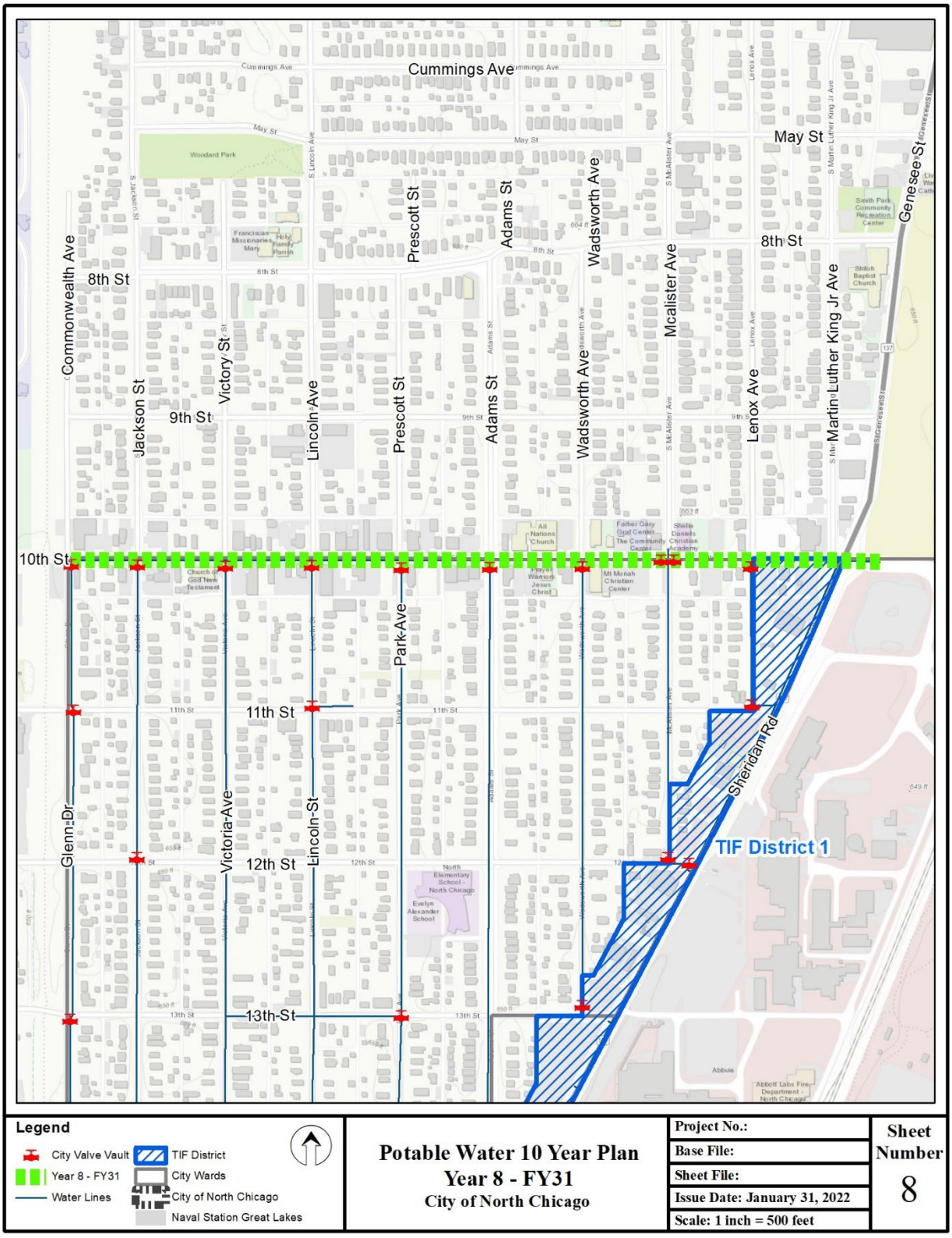
Legend

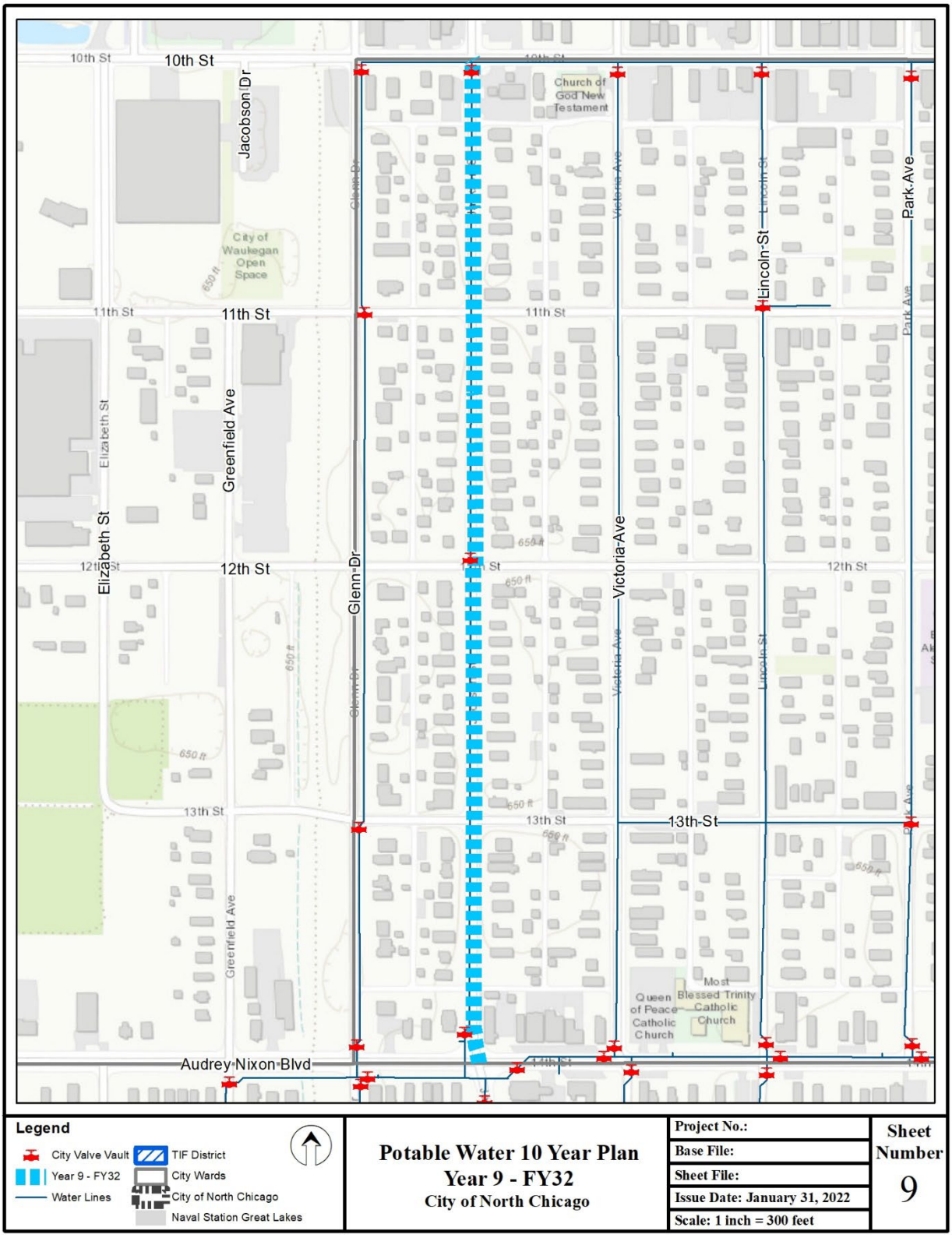
City Valve Vault
Year 7 - FY30
Water Lines
TIF District
City Wards
City of North Chicago
Naval Station Great Lakes

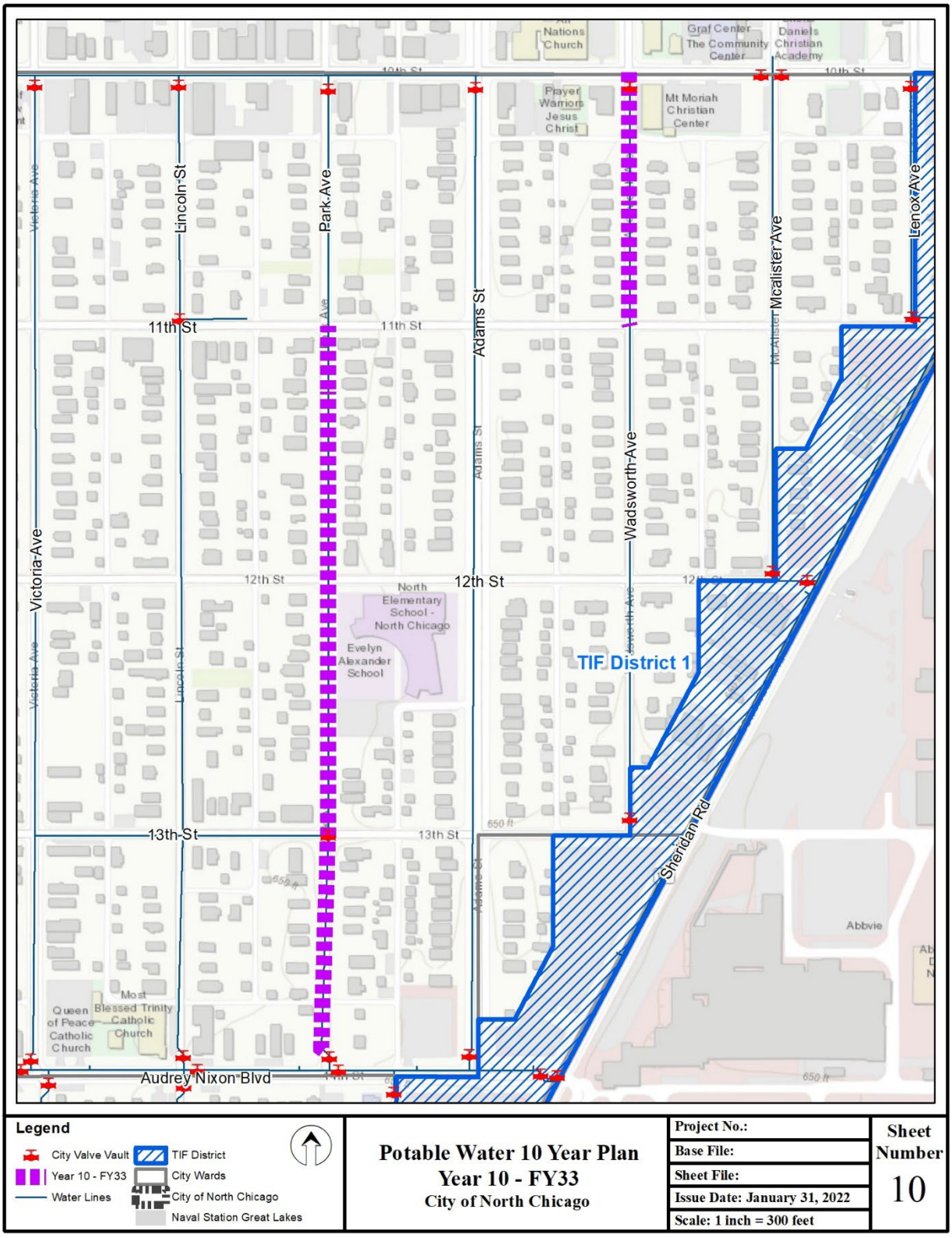
Potable Water 10 Year Plan
Year 7 - FY30
City of North Chicago

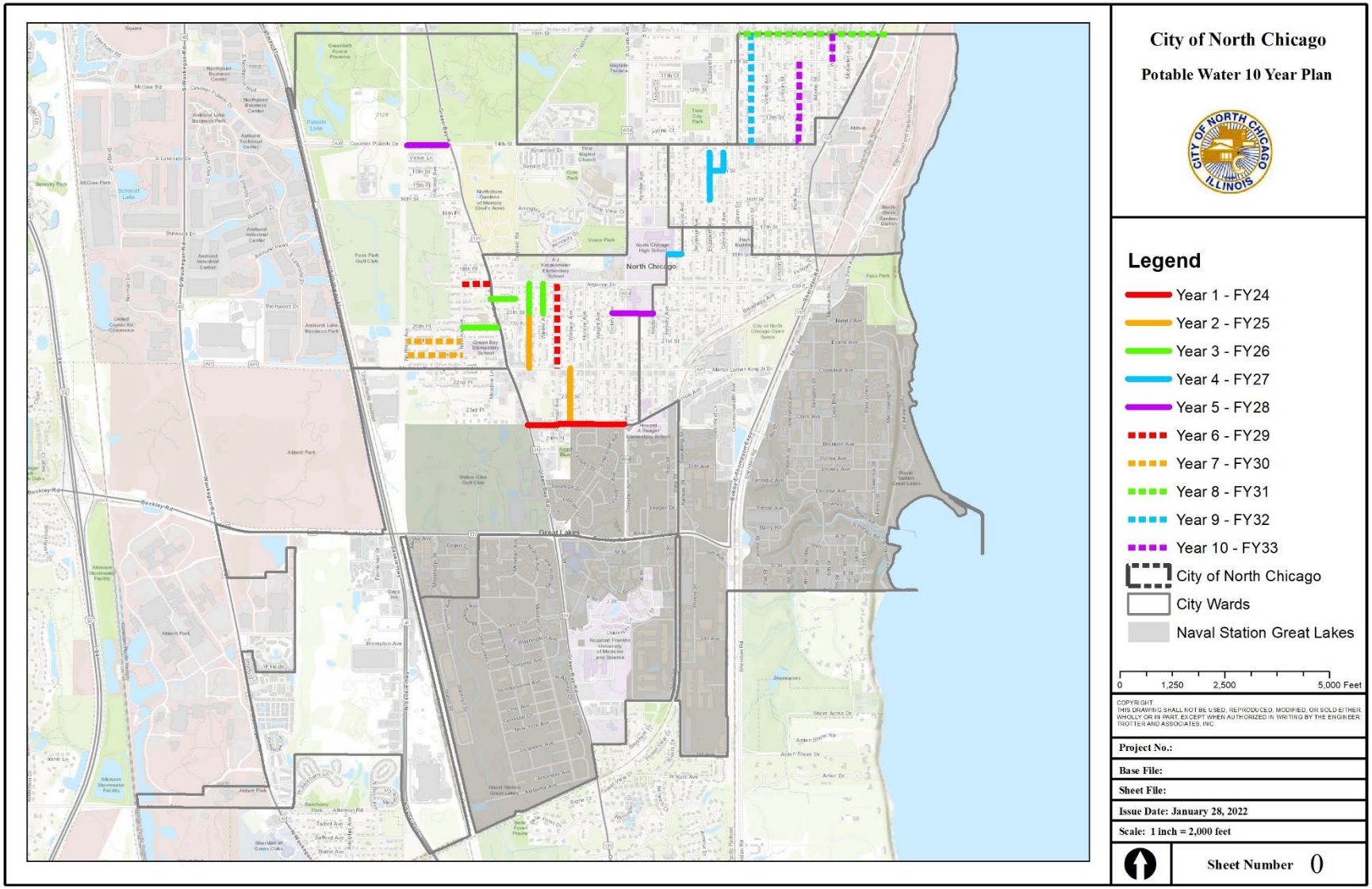
Project No.:	
Base File:	
Sheet File:	
Issue Date: January 31, 2022	
Scale: 1 inch = 200 feet	

Sheet Number
7


Cummings Ave
May St
8th St
9th St
10th St
11th St
12th St
13th St
Commonwealth Ave
Jackson St
Victory St
Lincoln Ave
Prescott St
Adams St
Wadsworth Ave
Mcalister Ave
Lenox Ave
Martin Luther King Jr Ave
Genesee St
Park Ave
Glenn Dr
Victoria Ave
Lincoln St
Sheridan Rd
TIF District 1
Woodard Park
Smith Park Community Recreation Center
Shiloh Baptist Church
All Nations Church
Father Gary Graf Center The Community Center
Sheila Daniels Christian Academy
Mt Moriah Christian Center
North Elementary School - North Chicago
Evelyn Alexander School
Abbvie
Abbott Labs Fire Department - North Chicago
Legend
City Valve Vault
Year 8 - FY31
Water Lines
TIF District
City Wards
City of North Chicago
Naval Station Great Lakes
Potable Water 10 Year Plan
Year 8 - FY31
City of North Chicago
Project No.:
Base File:
Sheet File:
Issue Date: January 31, 2022
Scale: 1 inch = 500 feet
Sheet Number
8


10th St
Jacobson Dr
Church of God New Testament
City of Waukegan Open Space
650 ft
11th St
Greenfield Ave
Elizabeth St
12th St
Glenn Dr
Victoria Ave
Lincoln St
Park Ave
13th St
Audrey Nixon Blvd
Queen of Peace Catholic Church
Most Blessed Trinity Catholic Church
Legend
City Valve Vault
Year 9 - FY32
Water Lines
TIF District
City Wards
City of North Chicago
Naval Station Great Lakes
Potable Water 10 Year Plan
Year 9 - FY32
City of North Chicago
Project No.:
Base File:
Sheet File:
Issue Date: January 31, 2022
Scale: 1 inch = 300 feet
Sheet Number
9


Nations Church
Graf Center The Community Center
Daniels Christian Academy
Prayer Warriors Jesus Christ
Mt Moriah Christian Center
Lincoln St
Park Ave
Adams St
Wadsworth Ave
Mcalister Ave
Lenox Ave
Victoria Ave
11th St
12th St
13th St
North Elementary School - North Chicago
Evelyn Alexander School
TIF District 1
Sheridan Rd
Abbvie
Most Blessed Trinity Catholic Church
Queen of Peace Catholic Church
Audrey Nixon Blvd
650 ft
Legend
City Valve Vault
Year 10 - FY33
Water Lines
TIF District
City Wards
City of North Chicago
Naval Station Great Lakes
Potable Water 10 Year Plan
Year 10 - FY33
City of North Chicago
Project No.:
Base File:
Sheet File:
Issue Date: January 31, 2022
Scale: 1 inch = 300 feet
Sheet Number
10


City of North Chicago
Potable Water 10 Year Plan
Legend
Year 1 - FY24
Year 2 - FY25
Year 3 - FY26
Year 4 - FY27
Year 5 - FY28
Year 6 - FY29
Year 7 - FY30
Year 8 - FY31
Year 9 - FY32
Year 10 - FY33
City of North Chicago
City Wards
Naval Station Great Lakes
0
1,250
2,500
5,000 Feet
COPYRIGHT
THIS DRAWING SHALL NOT BE USED, REPRODUCED, MODIFIED, OR SOLD EITHER WHOLLY OR IN PART, EXCEPT WHEN AUTHORIZED IN WRITING BY THE ENGINEER. TROTTER AND ASSOCIATES, INC.
Project No.:
Base File:
Sheet File:
Issue Date: January 28, 2022
Scale: 1 inch = 2,000 feet
Sheet Number 0

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Sanitary Sewer System

Overview

The City's sanitary sewer collection system consists of approximately 47 miles of various sizes of sanitary mains including 1,075 manholes. Sanitary sewage is conveyed to the North Shore Water Reclamation District from 4211 service connections where it is then treated and released. The Water and Sanitary Division maintenance programs include regular jetting, flushing, and cleaning of sanitary sewer mains and emergency response to sewer line blockages.

Maintenance activities related to the sanitary sewer system include; jetting, lining, manhole inspections, and repair list station maintenance.

Ratings & Benchmarks

The City is undertaking the task of televising the entire sanitary sewer main network systemically over the next 10 years. As a result of this televising, certain repairs and lining will be recommended and plugged into the capital plan.

Assumptions Approach

- Comply with the task to televise the entire system in 10 years and repeated
- As a result of the televising, identify spot repairs and lining
- After the complete lining of the system, spot repairs will not be needed as part of the yearly budget.
- The program will be updated as needed when additional data becomes available to inform the forecasted schedule.

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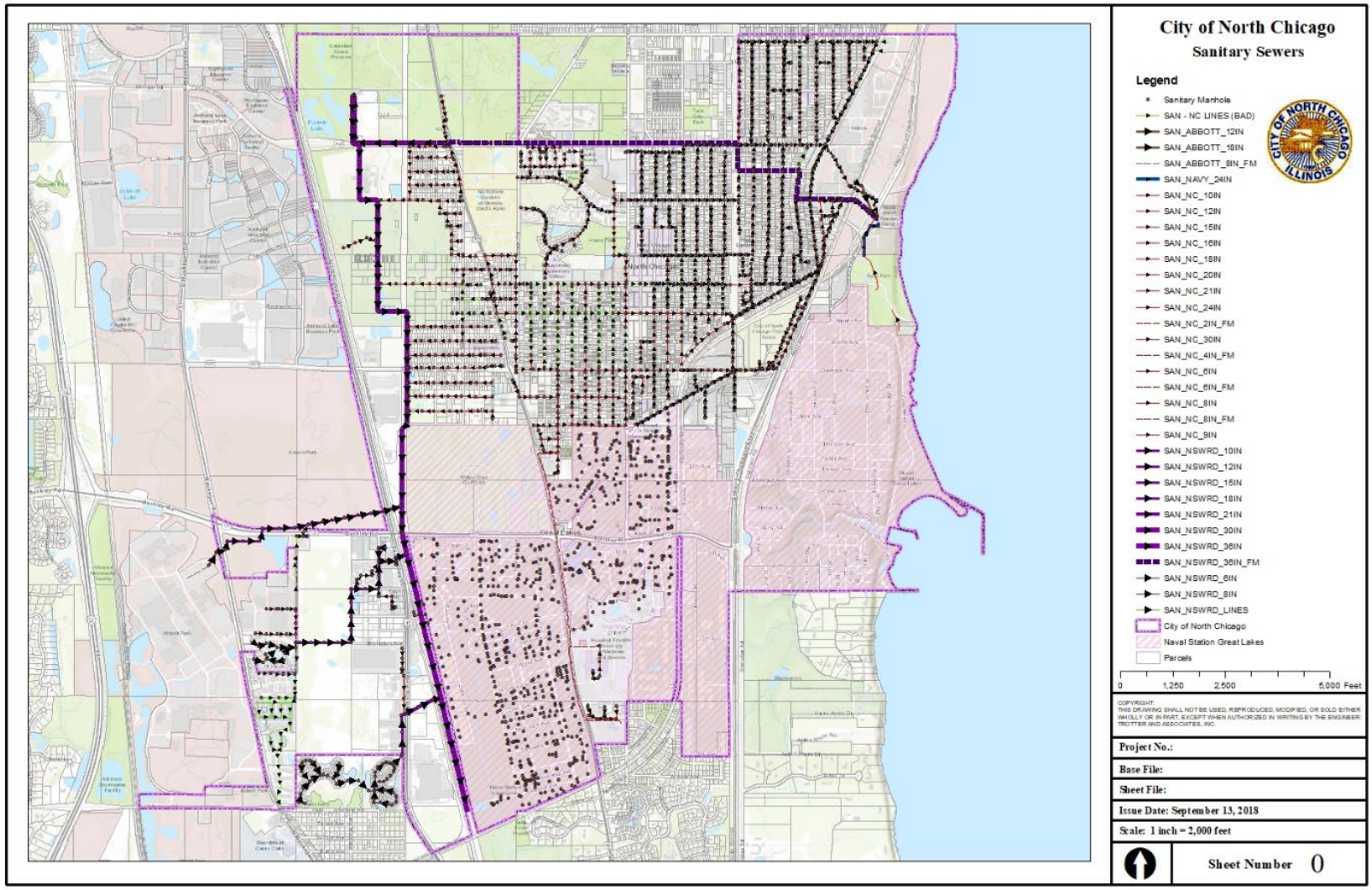
Funding Plan

To complete the annual televising program, a budget of $181,000 using CDBG Funds will be required based on the various sizes of sanitary sewer main. The remaining funding will be utilized for repairs identified by the televising and lining areas ahead of the water main and road programs as needed.

Description	Fund	FY2023 Budgeted	FY2024 Projected	FY2025 Projected	FY2026 Projected	FY2027 Projected	FY2028 Projected	FY2029 Projected	FY2030 Projected	FY2031 Projected	FY2032 Projected	FY2033 Projected
Sanitary Sewer System												
Funding												
Sewer Revenues	70.510.00000	$ 150,000	$ 155,000	$ 160,000	$ 165,000	$ 170,000	$ 175,000	$ 180,000	$ 185,000	$ 190,000	$ 195,000	$ 200,000
CBDG Fund	21.000.33070	$ 762,921	$ 181,000	$ 181,000	$ 181,000	$ 181,000	$ 181,000	$ 181,000	$ 181,000	$ 181,000	$ 181,000	$ 181,000
Total Sanitary Sewer System Funding		$ 912,921	$ 336,000	$ 341,000	$ 346,000	$ 351,000	$ 356,000	$ 361,000	$ 366,000	$ 371,000	$ 376,000	$ 381,000
Expenditures												
Cleaning & Televising & Lining	21.000.74005	$ 762,921	$ 181,000	$ 181,000	$ 181,000	$ 181,000	$ 181,000	$ 181,000	$ 181,000	$ 181,000	$ 181,000	$ 181,000
Cleaniing & Televising	70.510.52051	$ 150,000	$ 155,000	$ 160,000	$ 165,000	$ 170,000	$ 175,000	$ 180,000	$ 185,000	$ 190,000	$ 195,000	$ 200,000
Subtotal		$ 912,921	$ 336,000	$ 341,000	$ 346,000	$ 351,000	$ 356,000	$ 361,000	$ 366,000	$ 371,000	$ 376,000	$ 381,000
Total Expenditures Sanitary Sewer System		$ 912,921	$ 336,000	$ 341,000	$ 346,000	$ 351,000	$ 356,000	$ 361,000	$ 366,000	$ 371,000	$ 376,000	$ 381,000

System Map


City of North Chicago
Sanitary Sewers
Legend
Sanitary Manhole
SAN - NC LINES (BAD)
SAN_ABBOTT_12IN
SAN_ABBOTT_18IN
SAN_ABBOTT_8IN_FM
SAN_NAVY_24IN
SAN_NC_10IN
SAN_NC_12IN
SAN_NC_15IN
SAN_NC_16IN
SAN_NC_18IN
SAN_NC_20IN
SAN_NC_21IN
SAN_NC_24IN
SAN_NC_2IN_FM
SAN_NC_30IN
SAN_NC_4IN_FM
SAN_NC_6IN
SAN_NC_6IN_FM
SAN_NC_8IN
SAN_NC_8IN_FM
SAN_NC_9IN
SAN_NSWRD_10IN
SAN_NSWRD_12IN
SAN_NSWRD_15IN
SAN_NSWRD_18IN
SAN_NSWRD_21IN
SAN_NSWRD_30IN
SAN_NSWRD_36IN
SAN_NSWRD_36IN_FM
SAN_NSWRD_6IN
SAN_NSWRD_8IN
SAN_NSWRD_LINES
City of North Chicago
Naval Station Great Lakes
Parcels
0
1,250
2,500
5,000 Feet
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Base File:
Sheet File:
Issue Date: September 13, 2018
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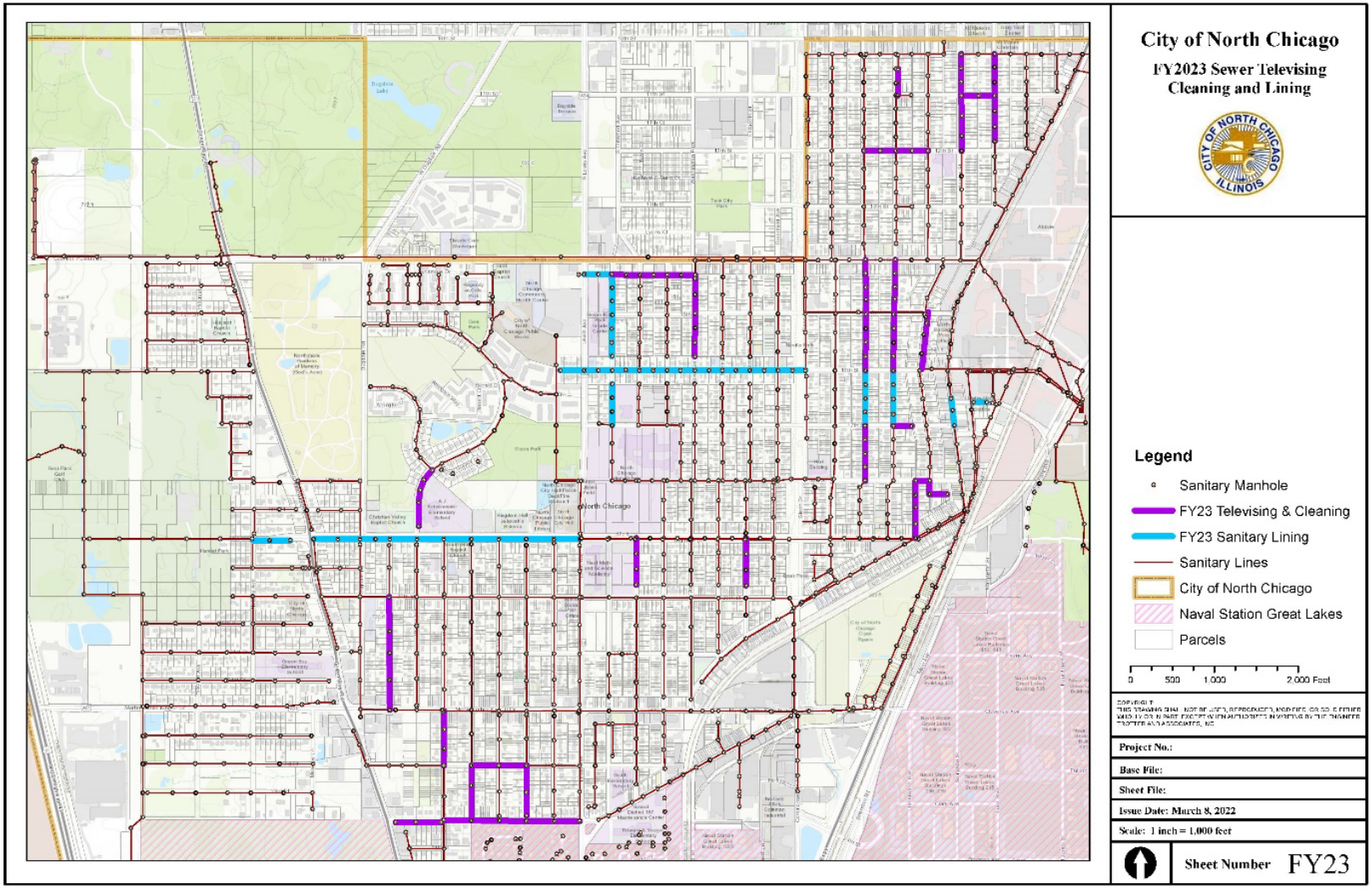
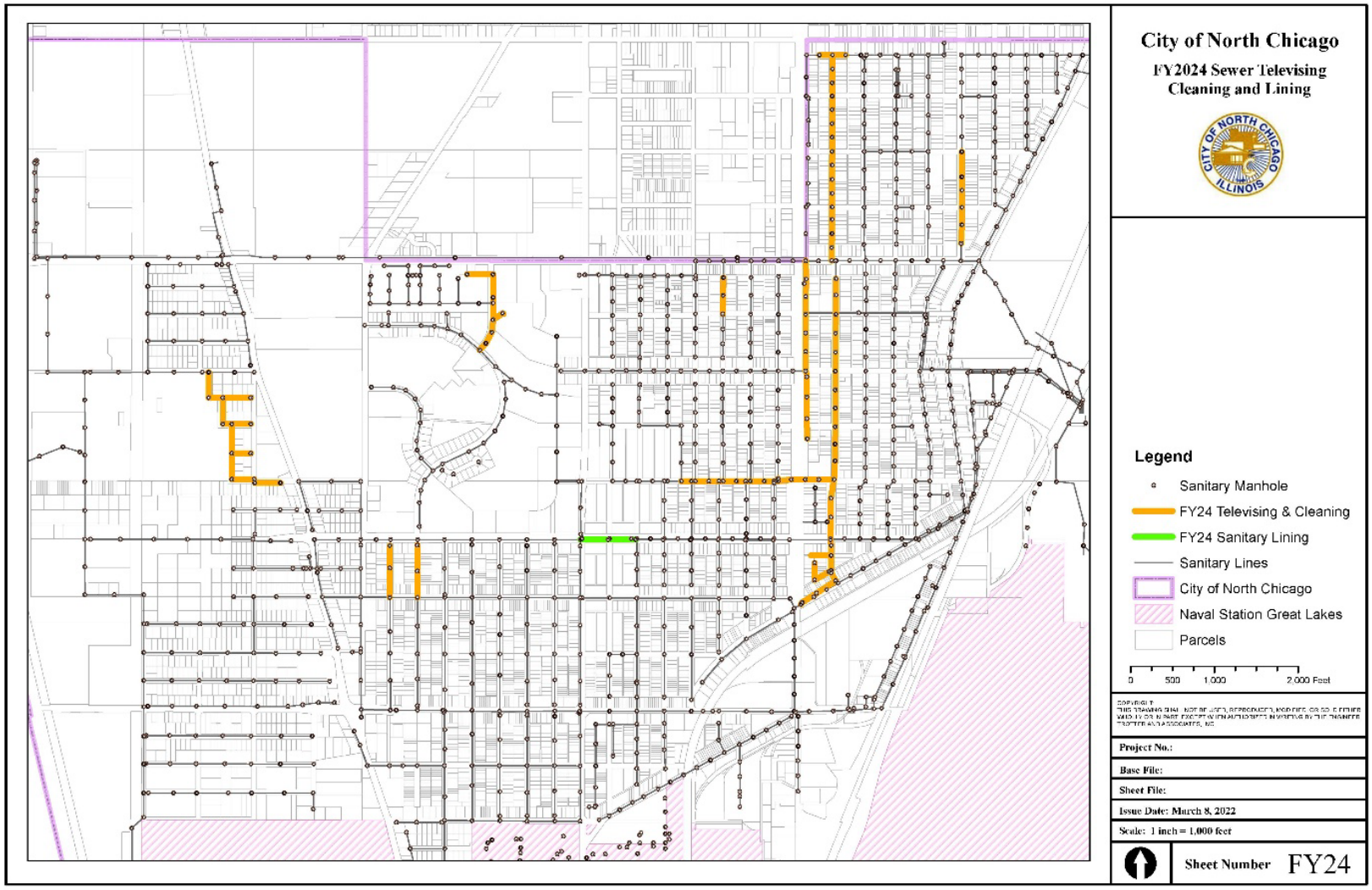
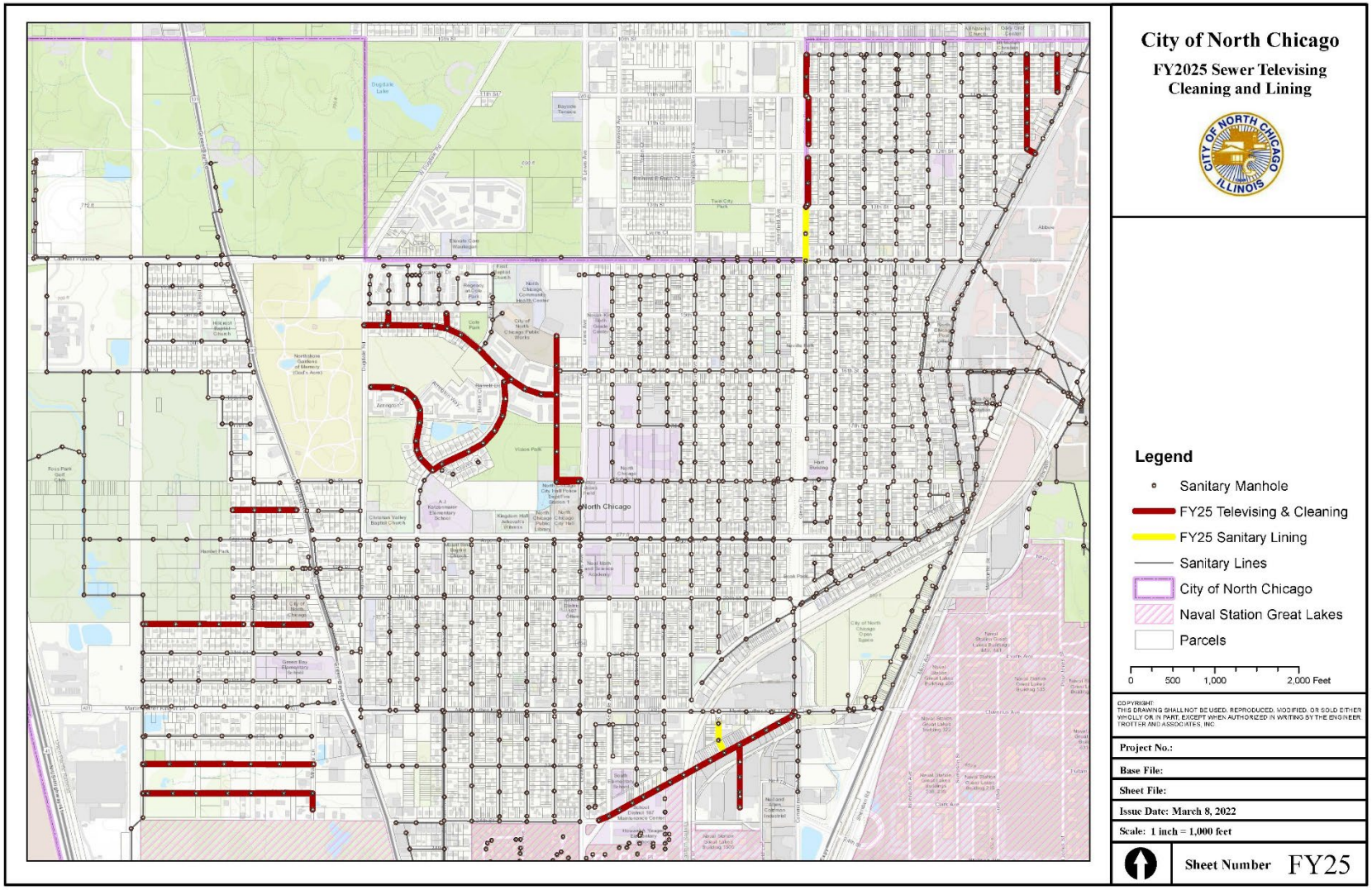
Sheet Number 0

Maintenance and Replacement Plan




City of North Chicago
FY2024 Sewer Televising
Cleaning and Lining
CITY OF NORTH CHICAGO
ILLINOIS
Legend
Sanitary Manhole
FY24 Televising & Cleaning
FY24 Sanitary Lining
Sanitary Lines
City of North Chicago
Naval Station Great Lakes
Parcels
0
500
1,000
2,000 Feet
Project No.:
Base File:
Sheet File:
Issue Date: March 8, 2022
Scale: 1 inch = 1,000 feet
Sheet Number
FY24


City of North Chicago
FY2025 Sewer Televising Cleaning and Lining
CITY OF NORTH CHICAGO ILLINOIS
Legend
Sanitary Manhole
FY25 Televising & Cleaning
FY25 Sanitary Lining
Sanitary Lines
City of North Chicago
Naval Station Great Lakes
Parcels
0 500 1,000 2,000 Feet
COPYRIGHT:
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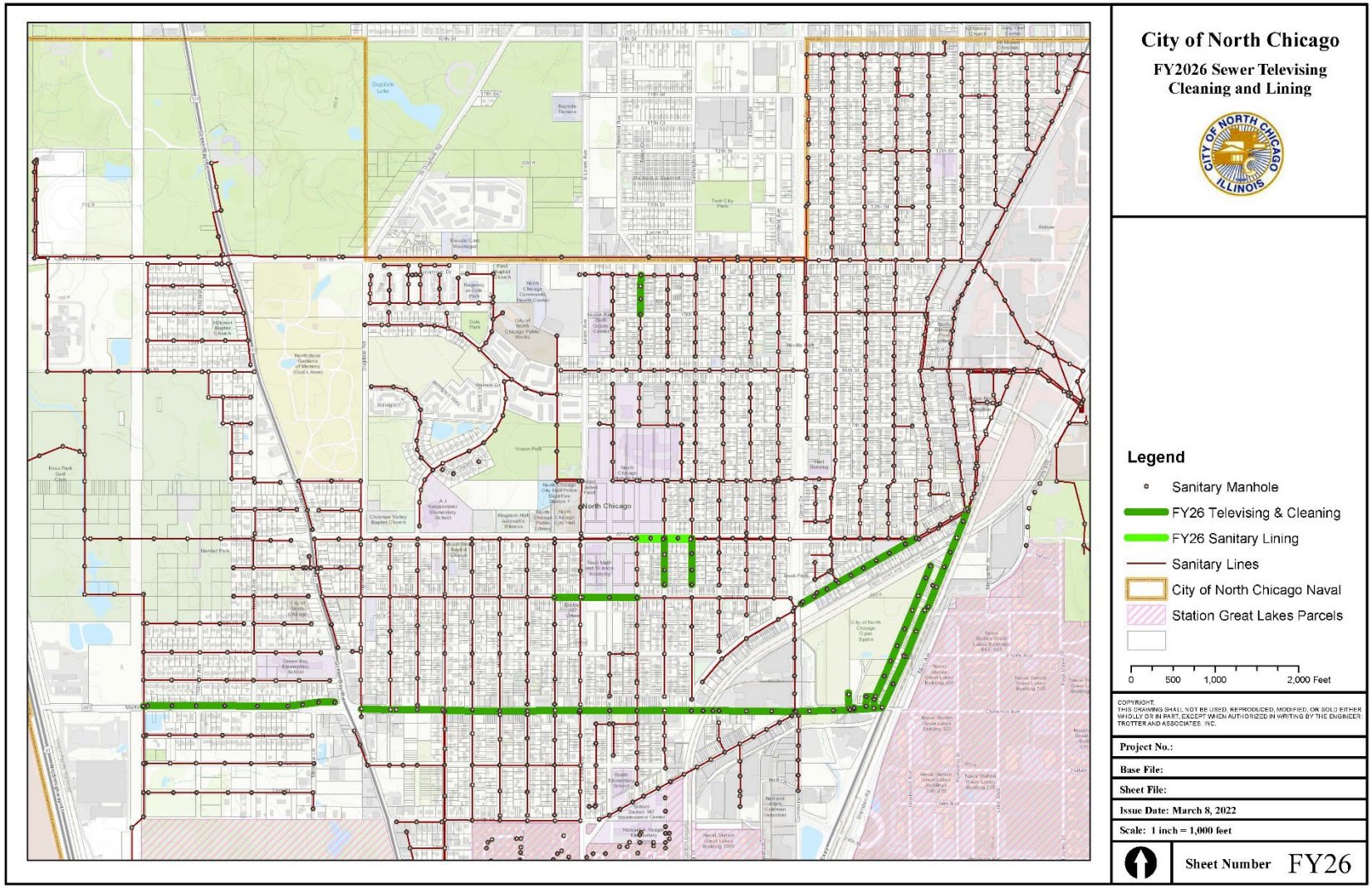
Project No.:
Base File:
Sheet File:
Issue Date: March 8, 2022
Scale: 1 inch = 1,000 feet
Sheet Number FY25


City of North Chicago
FY2026 Sewer Televising
Cleaning and Lining
Legend
Sanitary Manhole
FY26 Televising & Cleaning
FY26 Sanitary Lining
Sanitary Lines
City of North Chicago Naval
Station Great Lakes Parcels
0
500
1,000
2,000 Feet
COPYRIGHT.
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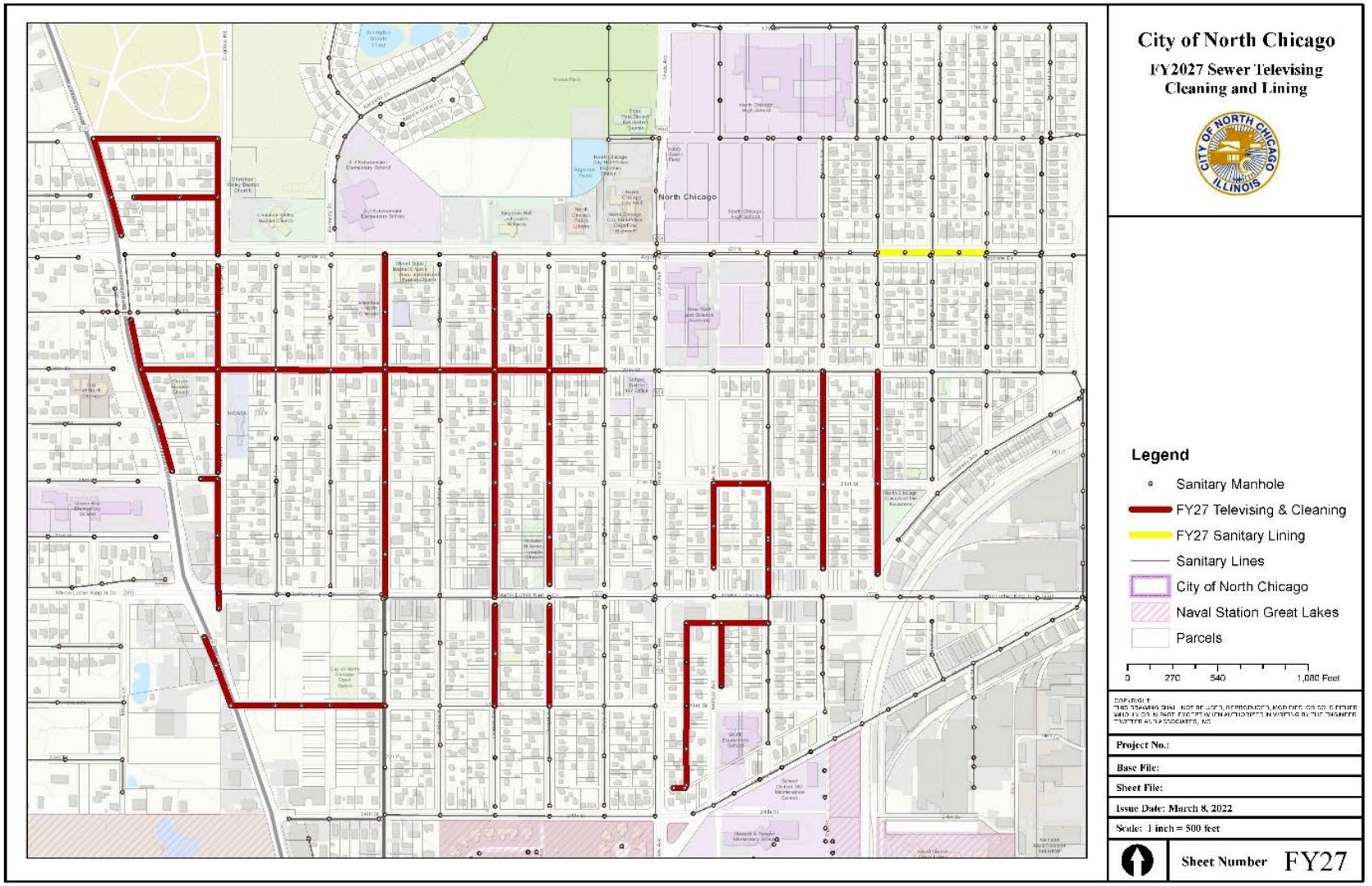
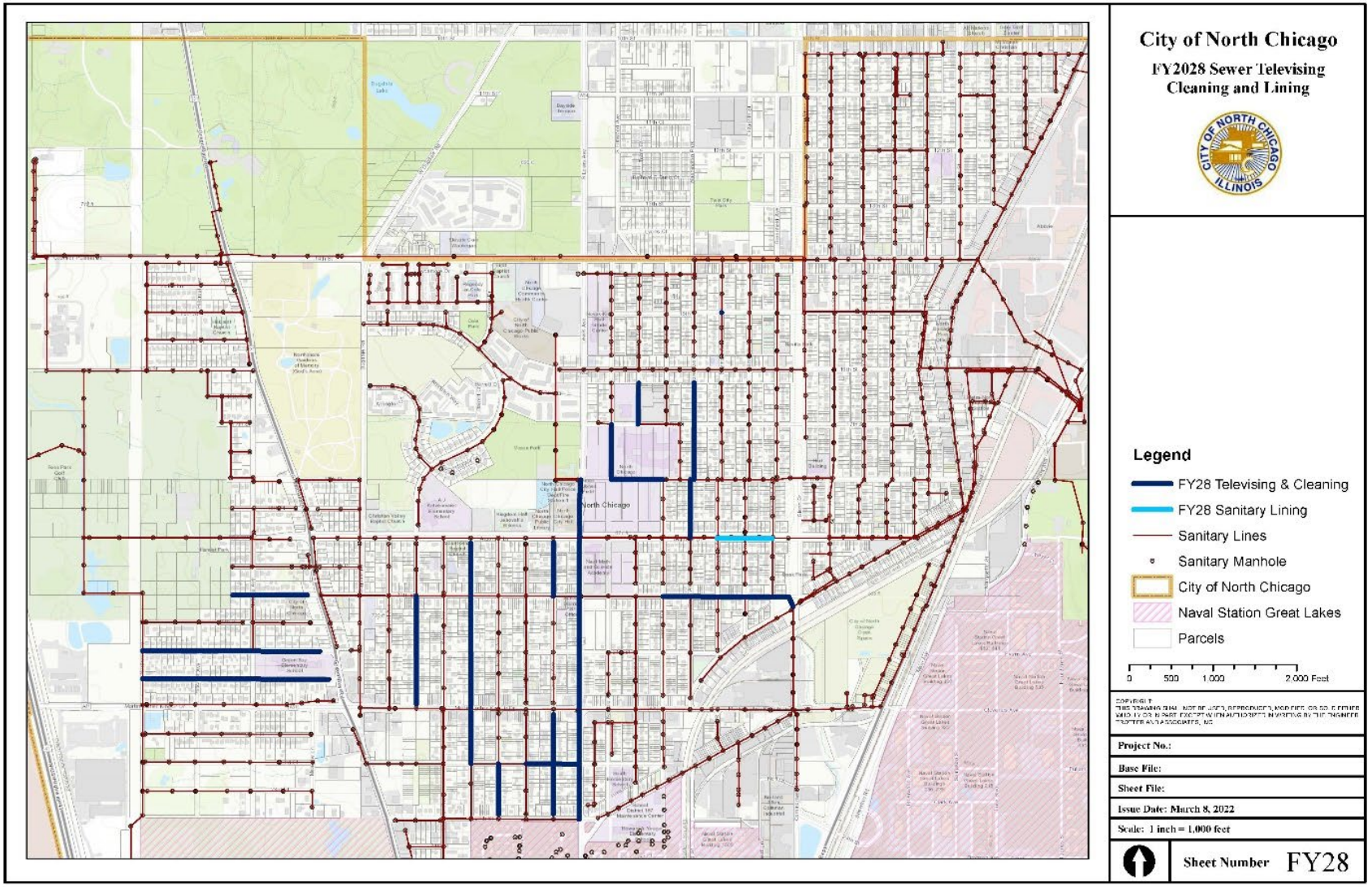
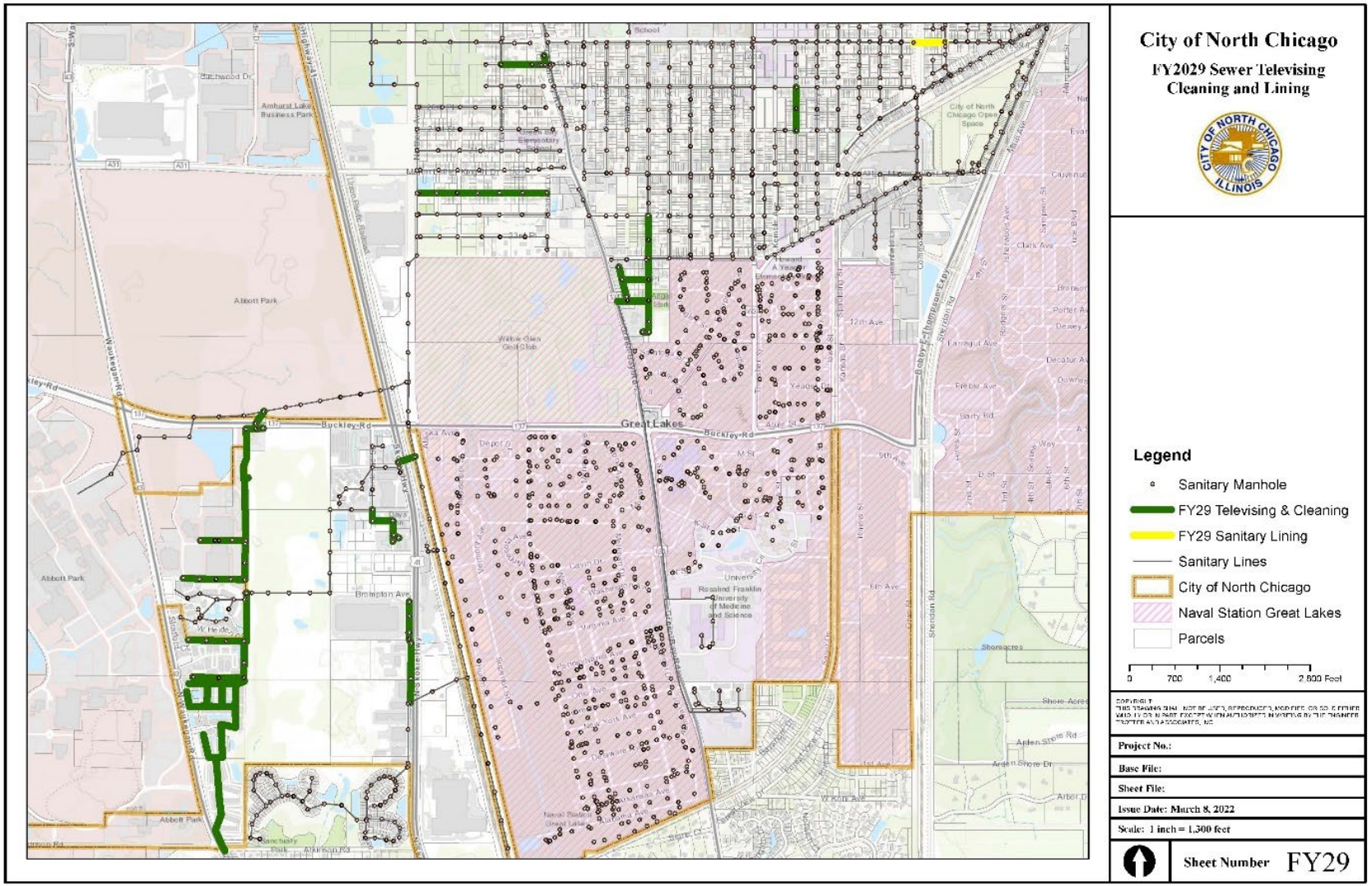
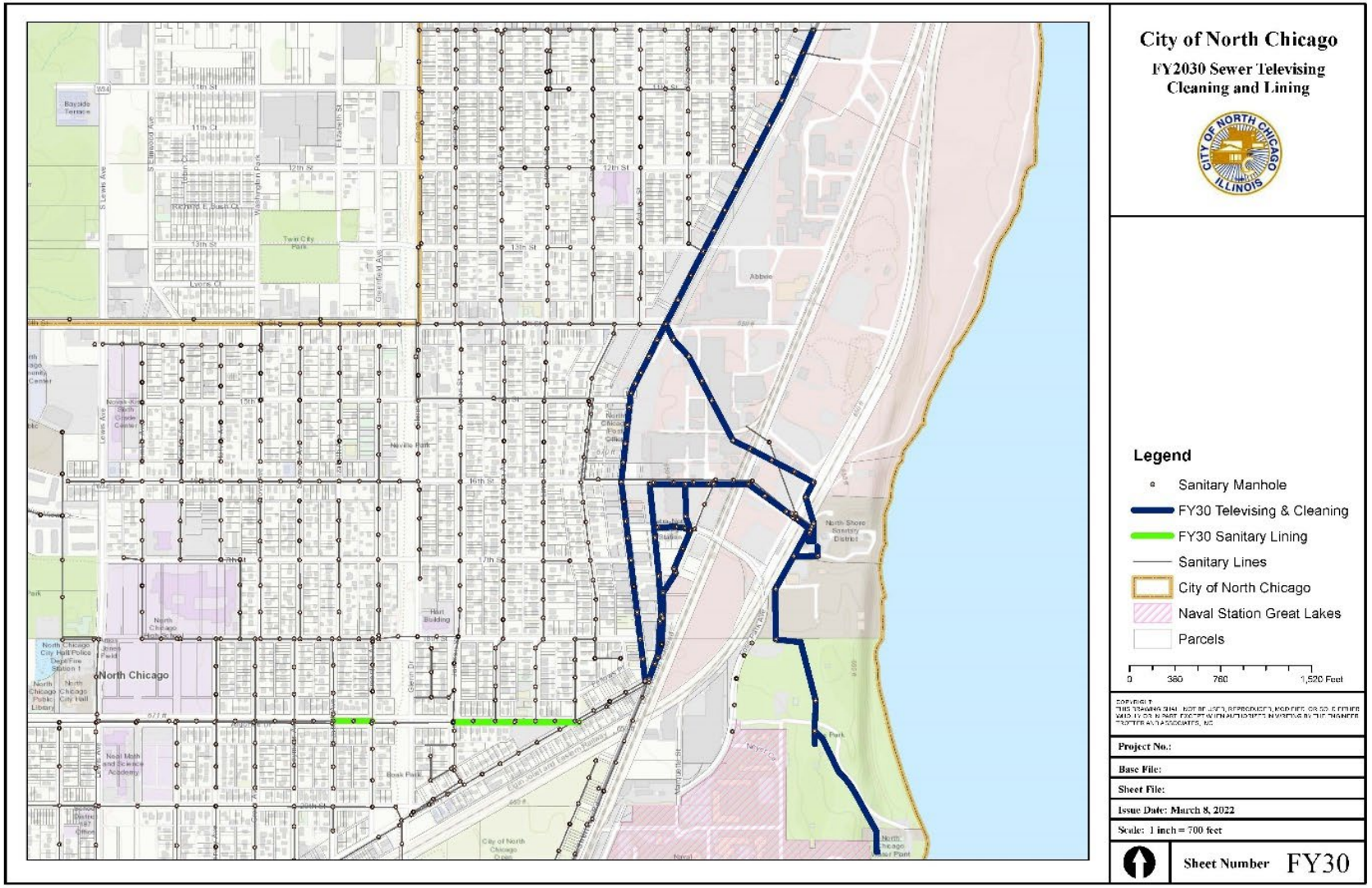
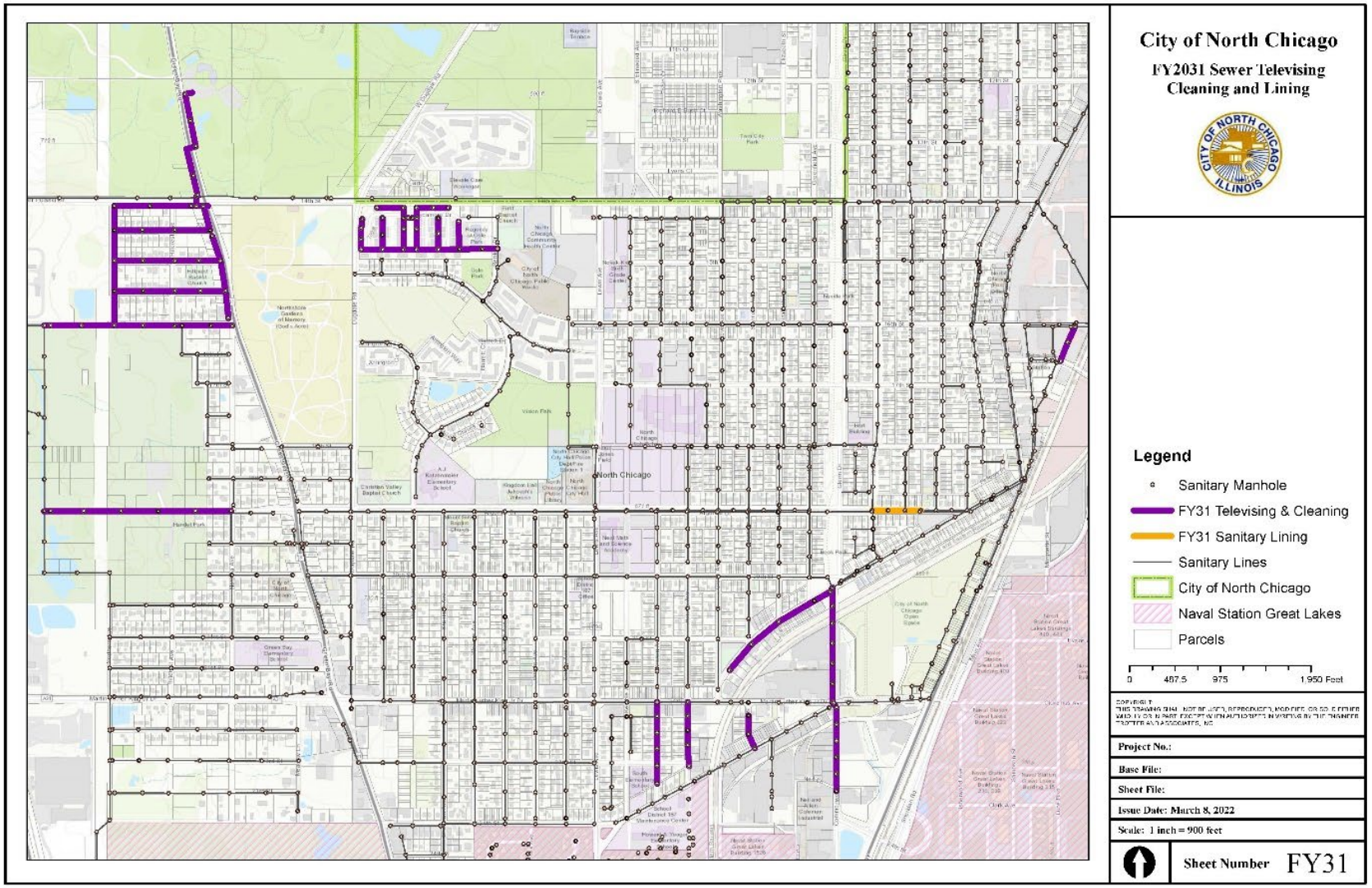
Project No.:
Base File:
Sheet File:
Issue Date: March 8, 2022
Scale: 1 inch = 1,000 feet
Sheet Number FY26

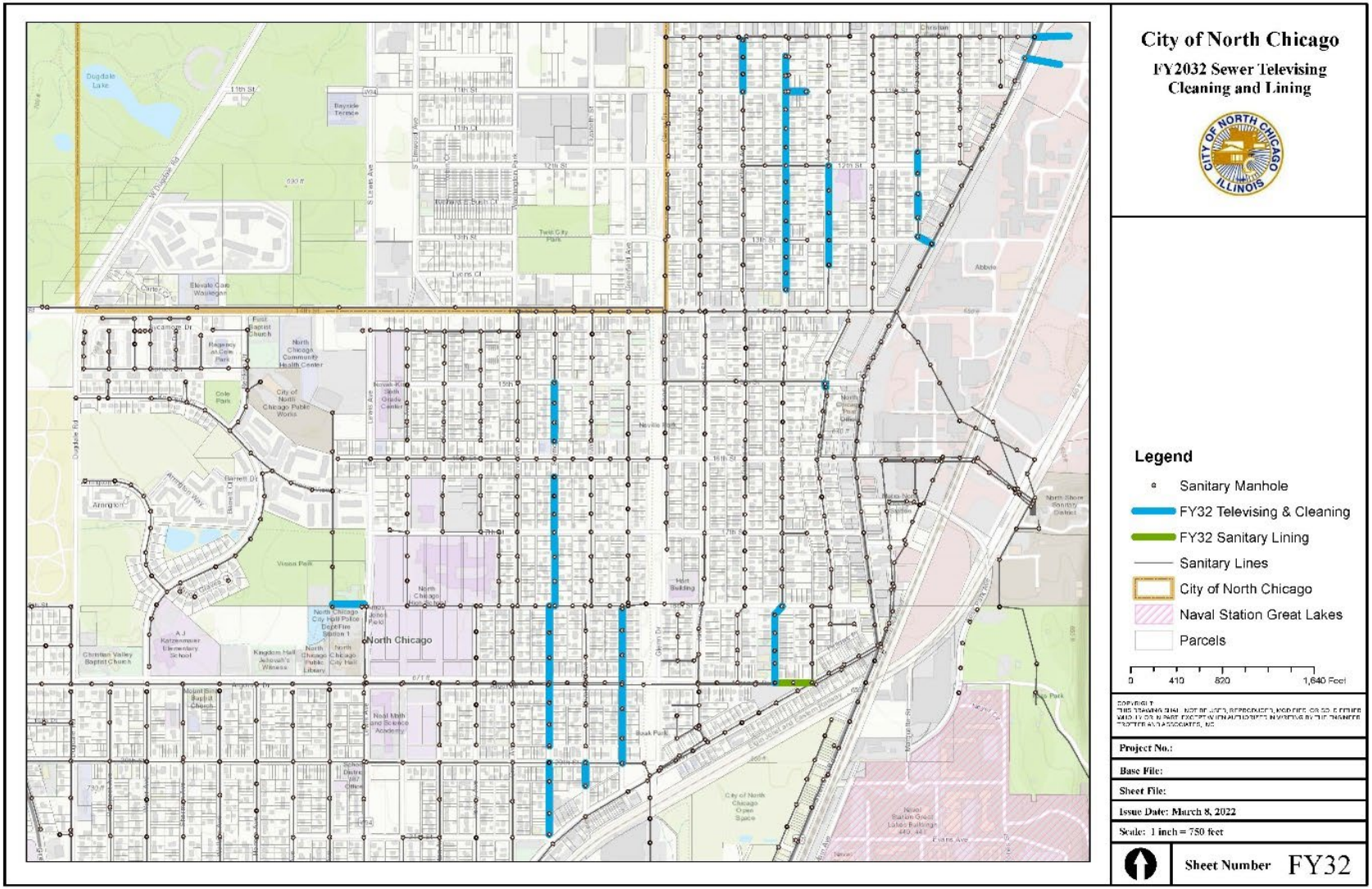

City of North Chicago
FY2027 Sewer Televising
Cleaning and Lining
CITY OF NORTH CHICAGO
ILLINOIS
North Chicago
Legend
Sanitary Manhole
FY27 Televising & Cleaning
FY27 Sanitary Lining
Sanitary Lines
City of North Chicago
Naval Station Great Lakes
Parcels
0
270
540
1,080 Feet
Project No.:
Base File:
Sheet File:
Issue Date: March 8, 2022
Scale: 1 inch = 500 feet
Sheet Number
FY27


City of North Chicago
FY2028 Sewer Televising
Cleaning and Lining
CITY OF NORTH CHICAGO
ILLINOIS
Legend
FY28 Televising & Cleaning
FY28 Sanitary Lining
Sanitary Lines
Sanitary Manhole
City of North Chicago
Naval Station Great Lakes
Parcels
0
500
1,000
2,000 Feet
Project No.:
Base File:
Sheet File:
Issue Date: March 8, 2022
Scale: 1 inch = 1,000 feet
Sheet Number FY28


City of North Chicago
FY2029 Sewer Televising
Cleaning and Lining
Legend
Sanitary Manhole
FY29 Televising & Cleaning
FY29 Sanitary Lining
Sanitary Lines
City of North Chicago
Naval Station Great Lakes
Parcels
0
700
1,400
2,800 Feet
Project No.:
Base File:
Sheet File:
Issue Date: March 8, 2022
Scale: 1 inch = 1,300 feet
Sheet Number FY29
Great Lakes
Buckley Rd
Abbott Park


City of North Chicago
FY2030 Sewer Televising
Cleaning and Lining
Legend
Sanitary Manhole
FY30 Televising & Cleaning
FY30 Sanitary Lining
Sanitary Lines
City of North Chicago
Naval Station Great Lakes
Parcels
0
380
760
1,520 Feet
Project No.:
Base File:
Sheet File:
Issue Date: March 8, 2022
Scale: 1 inch = 700 feet
Sheet Number FY30


City of North Chicago
FY2031 Sewer Televising
Cleaning and Lining
Legend
Sanitary Manhole
FY31 Televising & Cleaning
FY31 Sanitary Lining
Sanitary Lines
City of North Chicago
Naval Station Great Lakes
Parcels
0
487.5
975
1,950 Feet
Project No.:
Base File:
Sheet File:
Issue Date: March 8, 2022
Scale: 1 inch = 900 feet
Sheet Number
FY31


City of North Chicago
FY2032 Sewer Televising Cleaning and Lining
Legend
Sanitary Manhole
FY32 Televising & Cleaning
FY32 Sanitary Lining
Sanitary Lines
City of North Chicago
Naval Station Great Lakes
Parcels
0
410
820
1,640 Feet
Project No.:
Base File:
Sheet File:
Issue Date: March 8, 2022
Scale: 1 inch = 750 feet
Sheet Number FY32

Storm Sewer System

Overview

The City's storm sewer collection system consists of ditches, swales, approximately 46 miles of various storm sewer mains, 1,600 storm drainage structures (inlets, catch basins), and the Lewis Avenue detention pond. The purpose of the system is to handle stormwater runoff during rain events to prevent flooding in low-lying areas.

Maintenance activities related to the storm sewer system include; ditch and culvert inspection and repair, detention pond maintenance, and inlet inspection and repair.

Ratings & Benchmarks

The City is undertaking the task of cleaning, televising, and the storm sewer main network systemically over the next 10 years. As a result of this cleaning and televising, certain spot repairs will be recommended. System improvements and detention storage will be periodically reviewed and systems analyzed for potential maintenance activities and capital projects to improve the overall stormwater management facilities as additional data is collected.

Assumptions Approach

- Maintain a system to mitigate flooding.
- Clean and televise all the City's Storm sewers within the 10-year cycle.
- Reconstruct failing infrastructure in a regular program.
- The program will be updated as needed when additional data becomes available to inform the forecasted schedule.

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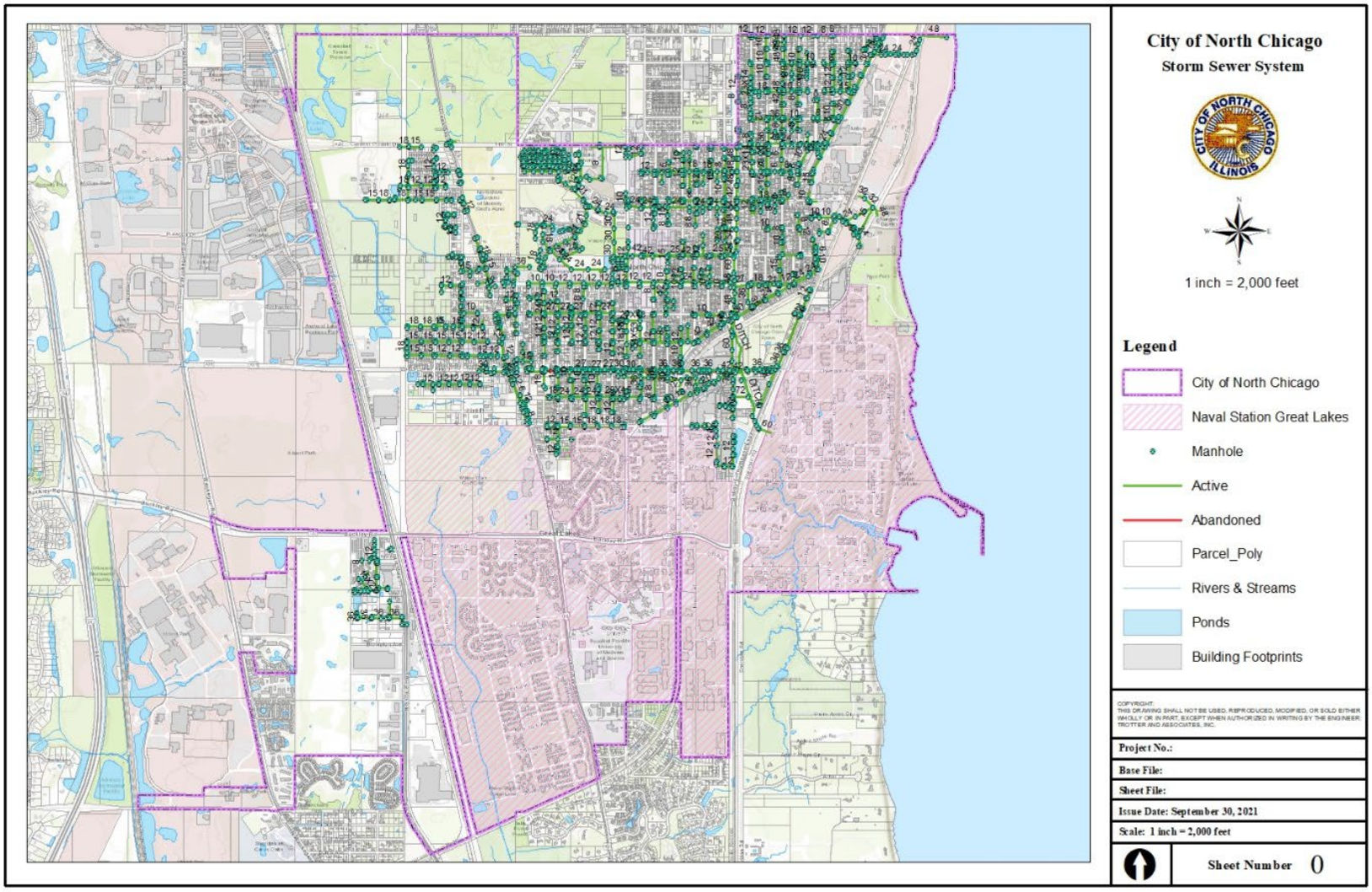
Funding Plan

A dedicated funding source for the storm sewer system does not exist. Repairs and maintenance are paid for from general revenues typically as part of the road work projects. Minor maintenance items are included in either the Public Works operating budgets or the general capital fund.

Description	Fund	FY2023 Budget	FY2024 Projected	FY2025 Projected	FY2026 Projected	FY2027 Projected	FY2028 Projected	FY2029 Projected	FY2030 Projected	FY2031 Projected	FY2032 Projected	FY2033 Projected	FY2034 Projected
Storm Sewer System													
Funding													
Storm Sewer Revenue	40.000	$ 709,000	$ 1,009,000	$ 495,000	$ 2,150,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000
Grant -Detenion Pond DECO Grant*	40.000.33040			$ 2,750,000	$ 1,750,000								
Grant - Lake County SMC Strawberry**	40.000.33040		$ 8,589,000										
Grant - American Rescue Plan	40.000.33040	$ 3,135,553											
Total Storm Sewer System Funding		$ 3,844,553	$ 9,598,000	$ 3,245,000	$ 3,900,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000
Expenditures													
Capital Improvements													
Strawberry Condos Drainage Improvements**	40.000.72500	$ 67,000	$ 9,042,000										
Lewis Ave. Detention Pond*	40.000.72500		$ 1,250,000	$ 2,850,000	$ 1,750,000								
Property Purchase at Lewis		$ 300,000											
Subtotal		$ 367,000	$ 10,292,000	$ 2,850,000	$ 1,750,000								
Reoccuring Construction													
Cleaning & Televising	40.000.72500	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000
Manhole Reconstruction, Flared End Sections, & Inlet Reconstruction	40.000.72500	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000
Subtotal		$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000
Total Expenditures Storm Sewer System		$ 767,000	$ 10,692,000	$ 3,250,000	$ 2,150,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000

System Map


City of North Chicago
Storm Sewer System
1 inch = 2,000 feet
Legend
City of North Chicago
Naval Station Great Lakes
Manhole
Active
Abandoned
Parcel_Poly
Rivers & Streams
Ponds
Building Footprints
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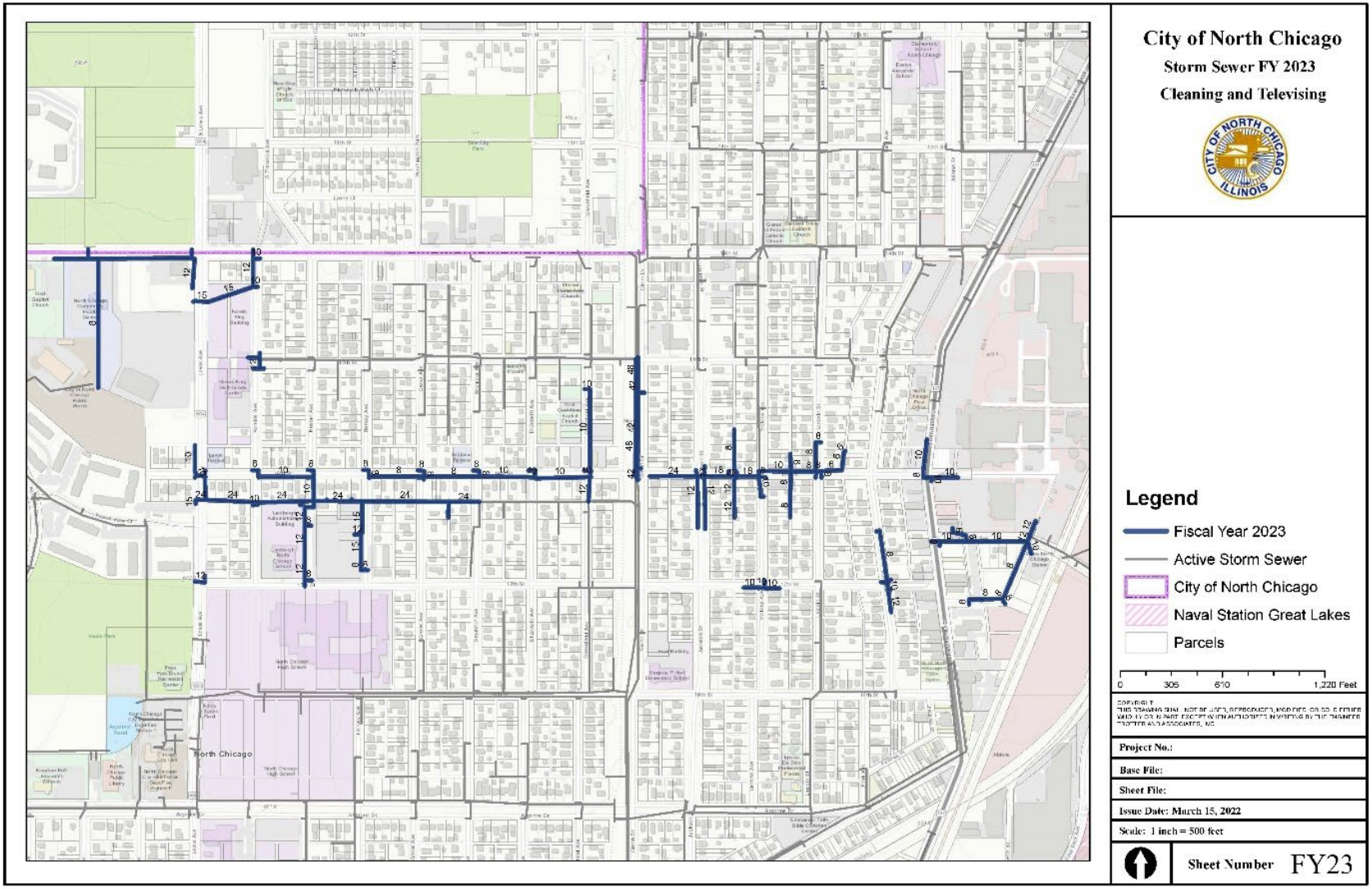
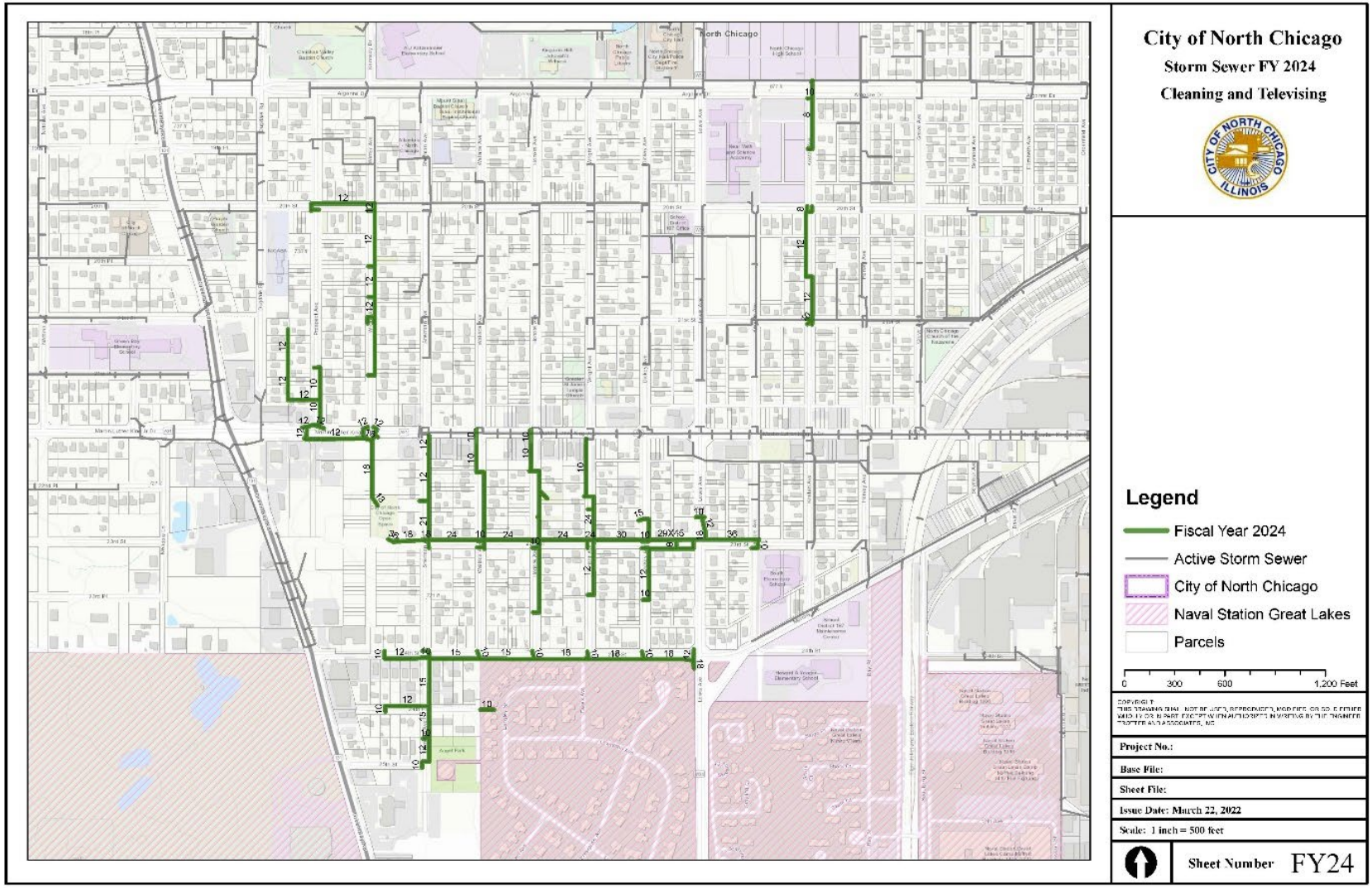
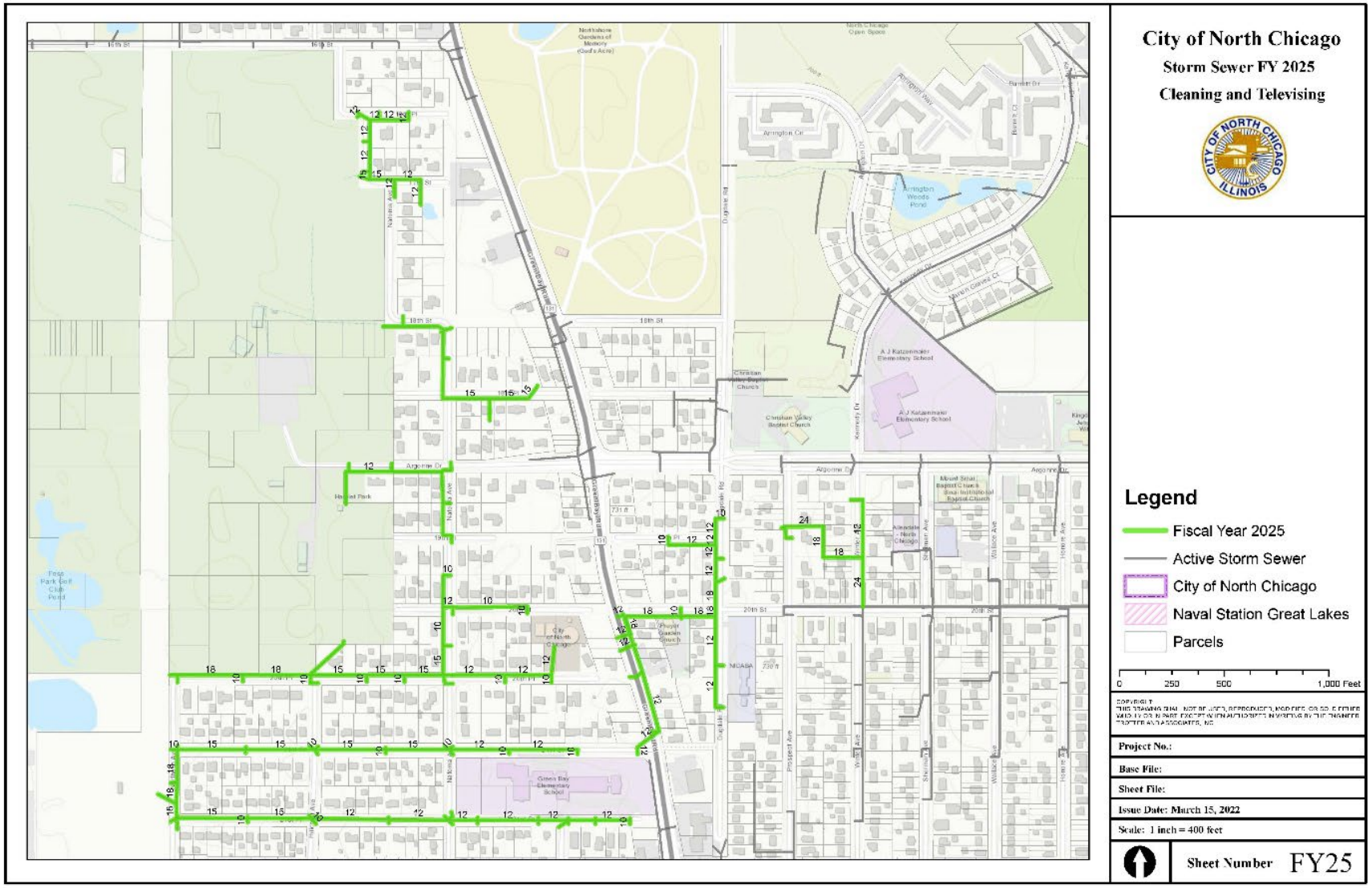
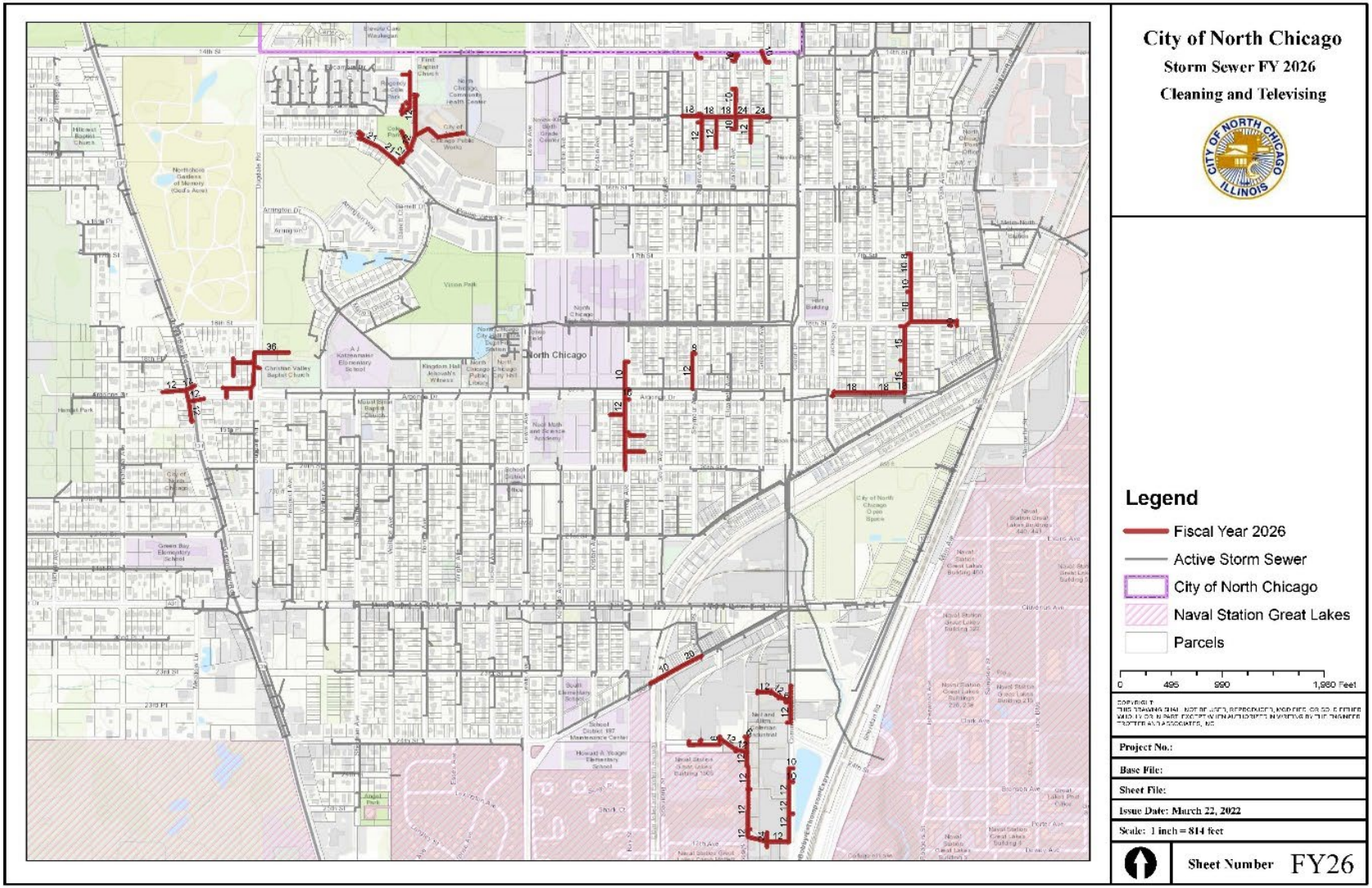
Project No.:
Base File:
Sheet File:
Issue Date: September 30, 2021
Scale: 1 inch = 2,000 feet
Sheet Number 0

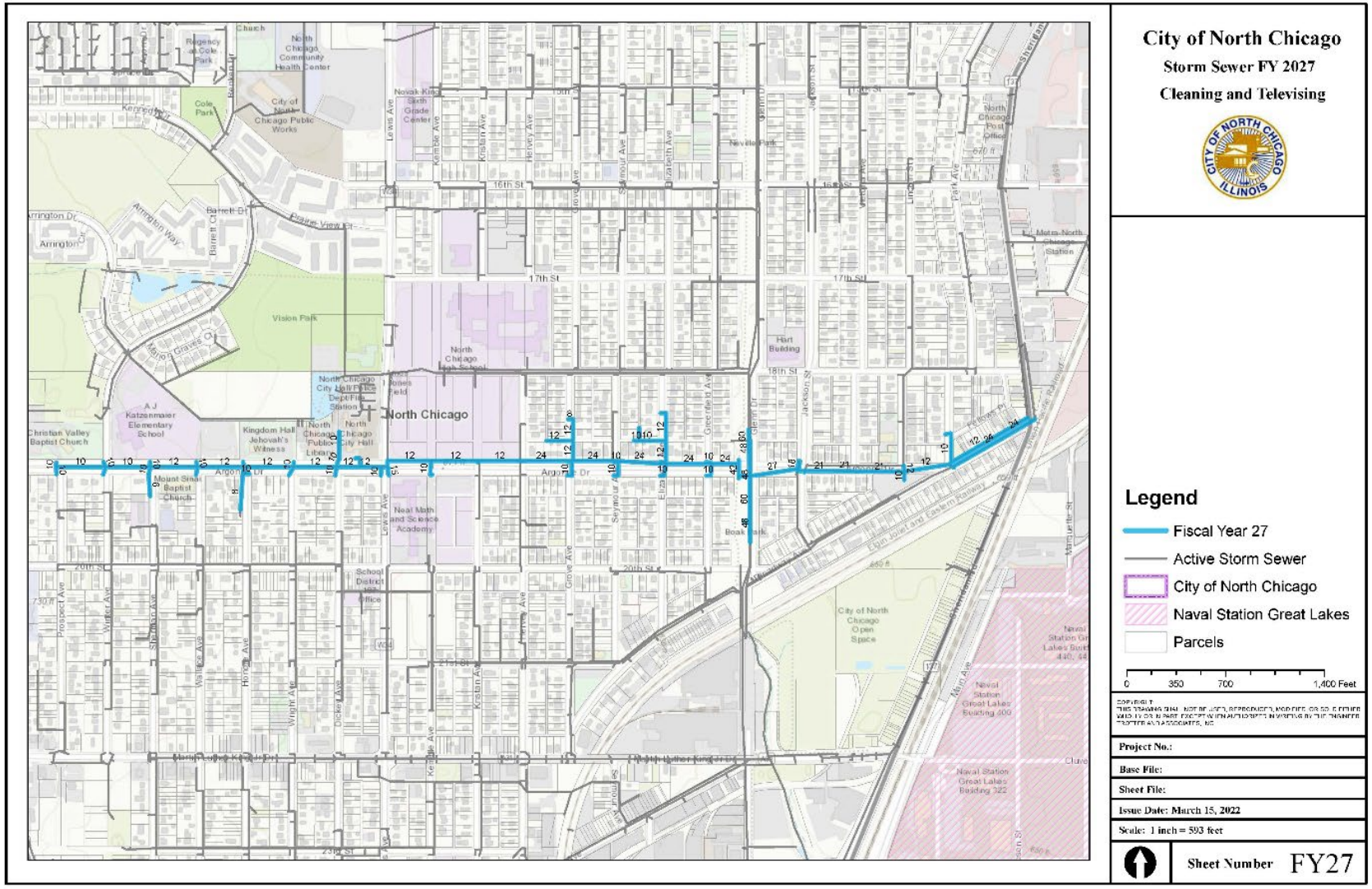
Maintenance and Replacement Plan

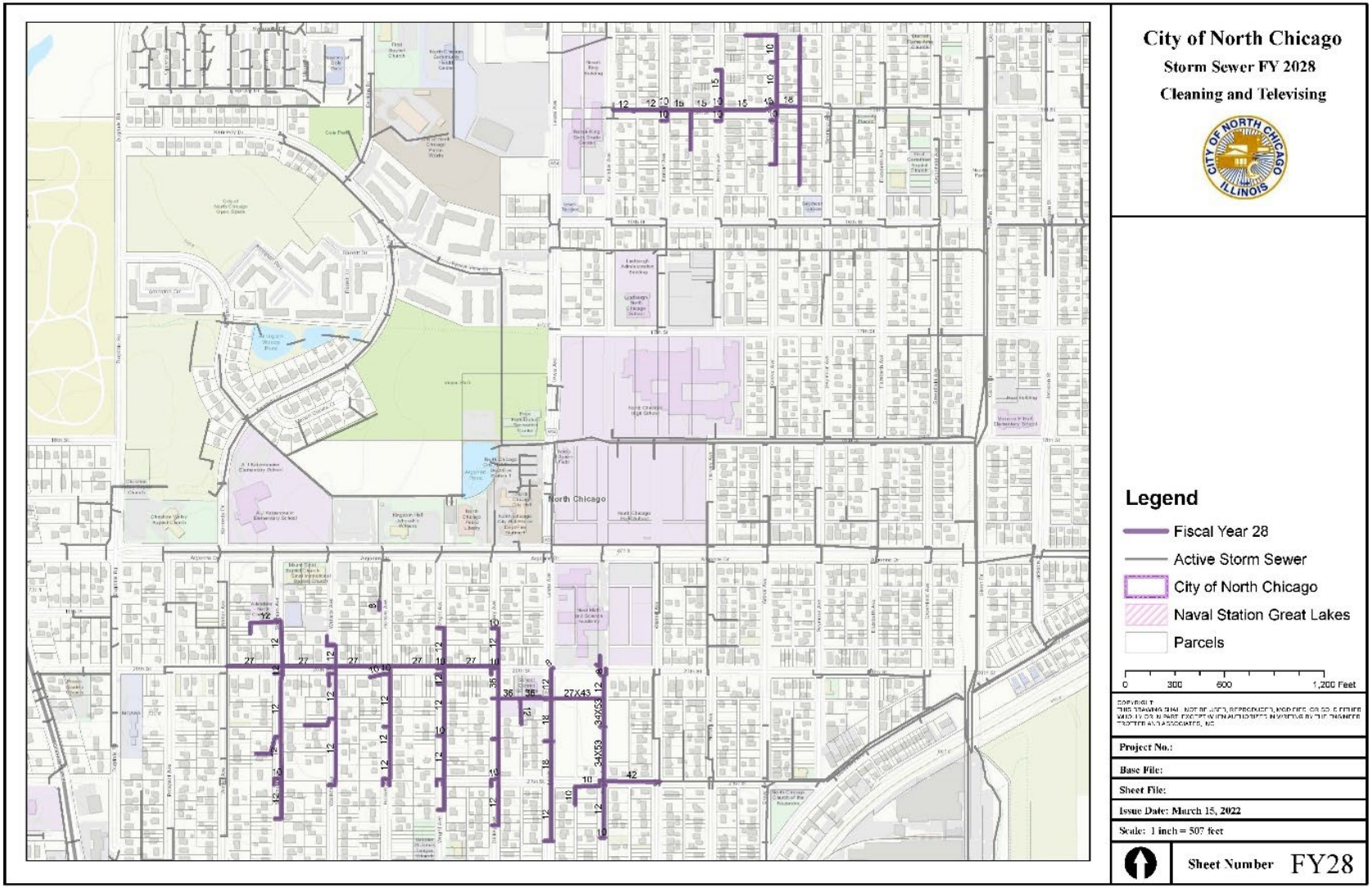



City of North Chicago
Storm Sewer FY 2024
Cleaning and Televising
Legend
Fiscal Year 2024
Active Storm Sewer
City of North Chicago
Naval Station Great Lakes
Parcels
0
300
600
1,200 Feet
Project No.:
Base File:
Sheet File:
Issue Date: March 22, 2022
Scale: 1 inch = 500 feet
Sheet Number FY24


City of North Chicago
Storm Sewer FY 2025
Cleaning and Televising
Legend
Fiscal Year 2025
Active Storm Sewer
City of North Chicago
Naval Station Great Lakes
Parcels
0
250
500
1,000 Feet
Project No.:
Base File:
Sheet File:
Issue Date: March 15, 2022
Scale: 1 inch = 400 feet
Sheet Number FY25


City of North Chicago
Storm Sewer FY 2026
Cleaning and Televising
Legend
Fiscal Year 2026
Active Storm Sewer
City of North Chicago
Naval Station Great Lakes
Parcels
0
495
990
1,980 Feet
Project No.:
Base File:
Sheet File:
Issue Date: March 22, 2022
Scale: 1 inch = 814 feet
Sheet Number FY26
North Chicago


City of North Chicago
Storm Sewer FY 2027
Cleaning and Televising
Legend
Fiscal Year 27
Active Storm Sewer
City of North Chicago
Naval Station Great Lakes
Parcels
0
350
700
1,400 Feet
Project No.:
Base File:
Sheet File:
Issue Date: March 15, 2022
Scale: 1 inch = 593 feet
Sheet Number FY27
North Chicago
Vision Park
Neal Math and Science Academy
Mount Sinai Baptist Church
Kingdom Hall Jehovah's Witness
A J Katzenmaier Elementary School
Christian Valley Baptist Church
North Chicago Community High School
Hart Building
City of North Chicago Open Space
Naval Station Great Lakes Building 322
Naval Station Great Lakes Building 600
Metra-North Chicago Station
16th St
17th St
18th St
20th St
Argonne Dr
Sheridan Rd


City of North Chicago
Storm Sewer FY 2028
Cleaning and Televising
CITY OF NORTH CHICAGO ILLINOIS
North Chicago
Legend
Fiscal Year 28
Active Storm Sewer
City of North Chicago
Naval Station Great Lakes
Parcels
0
300
600
1,200 Feet
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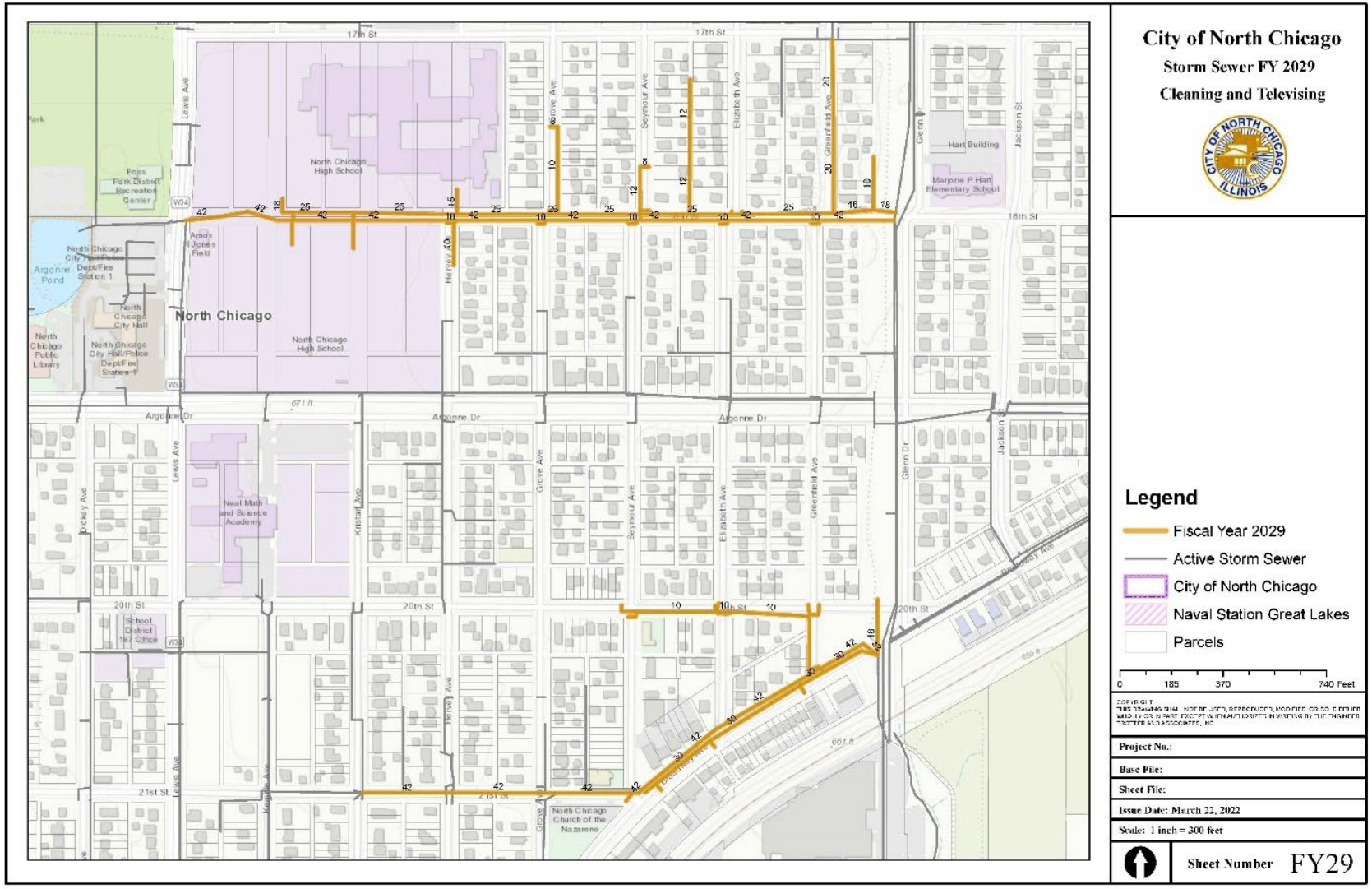
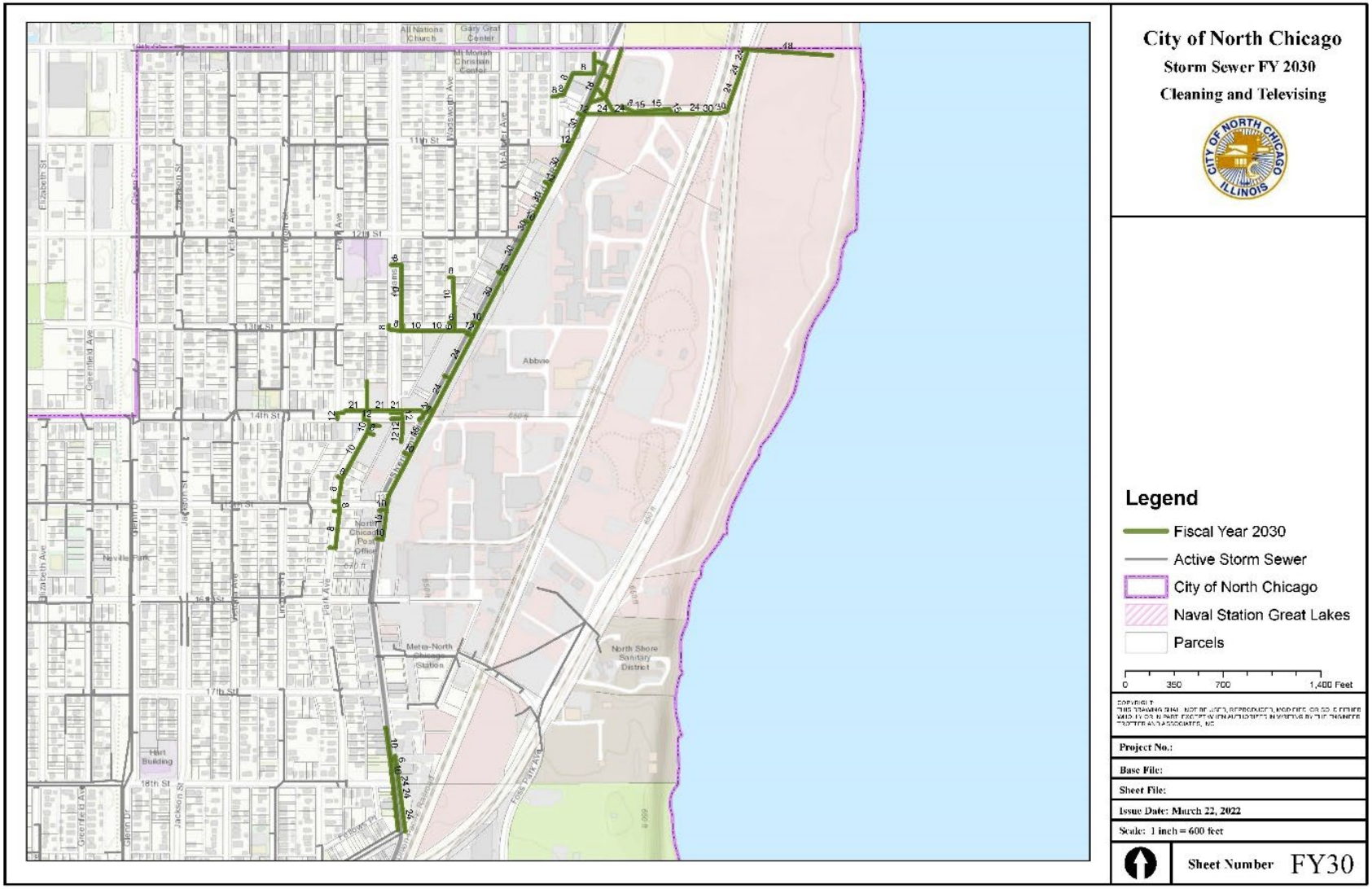
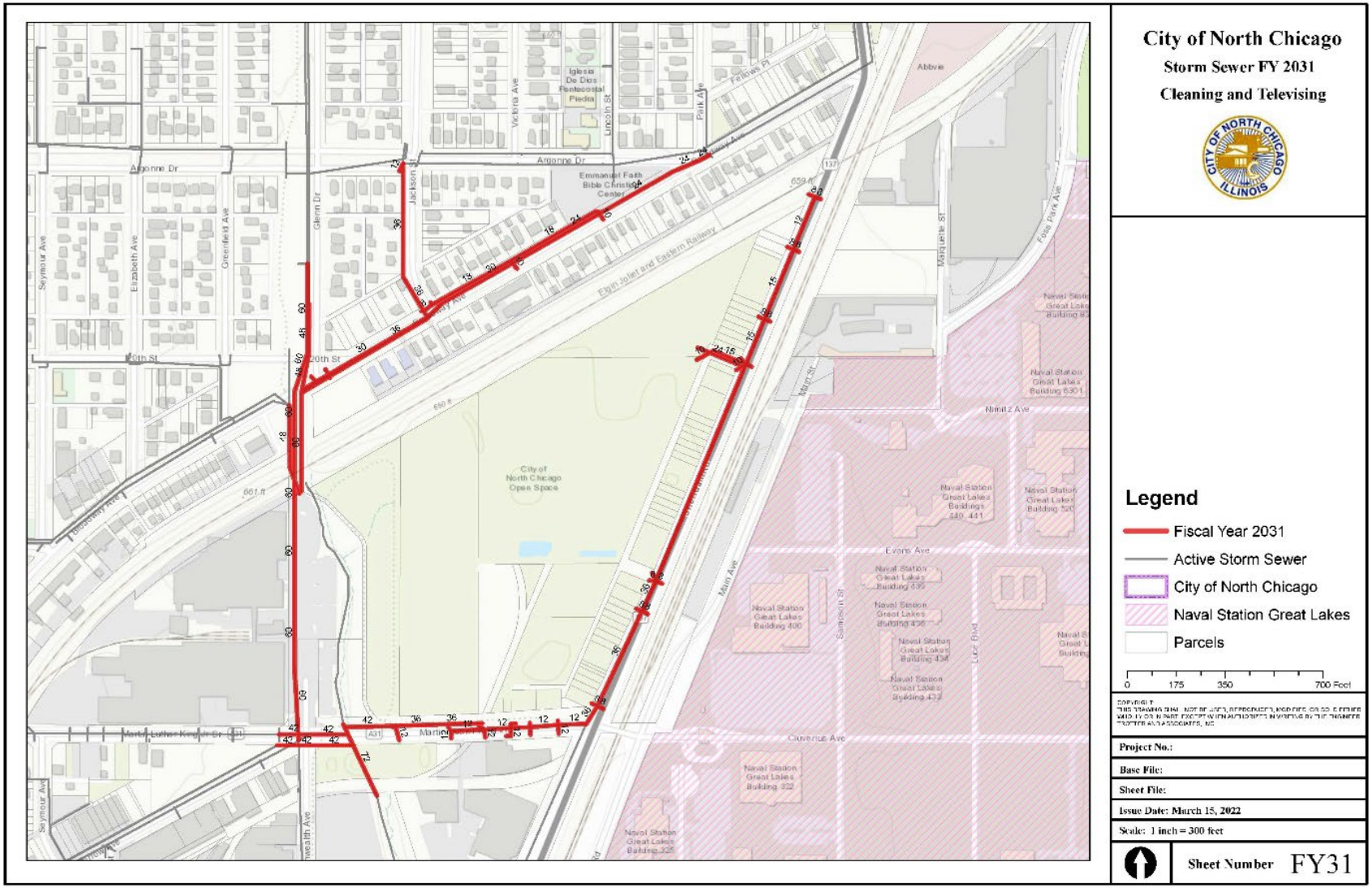
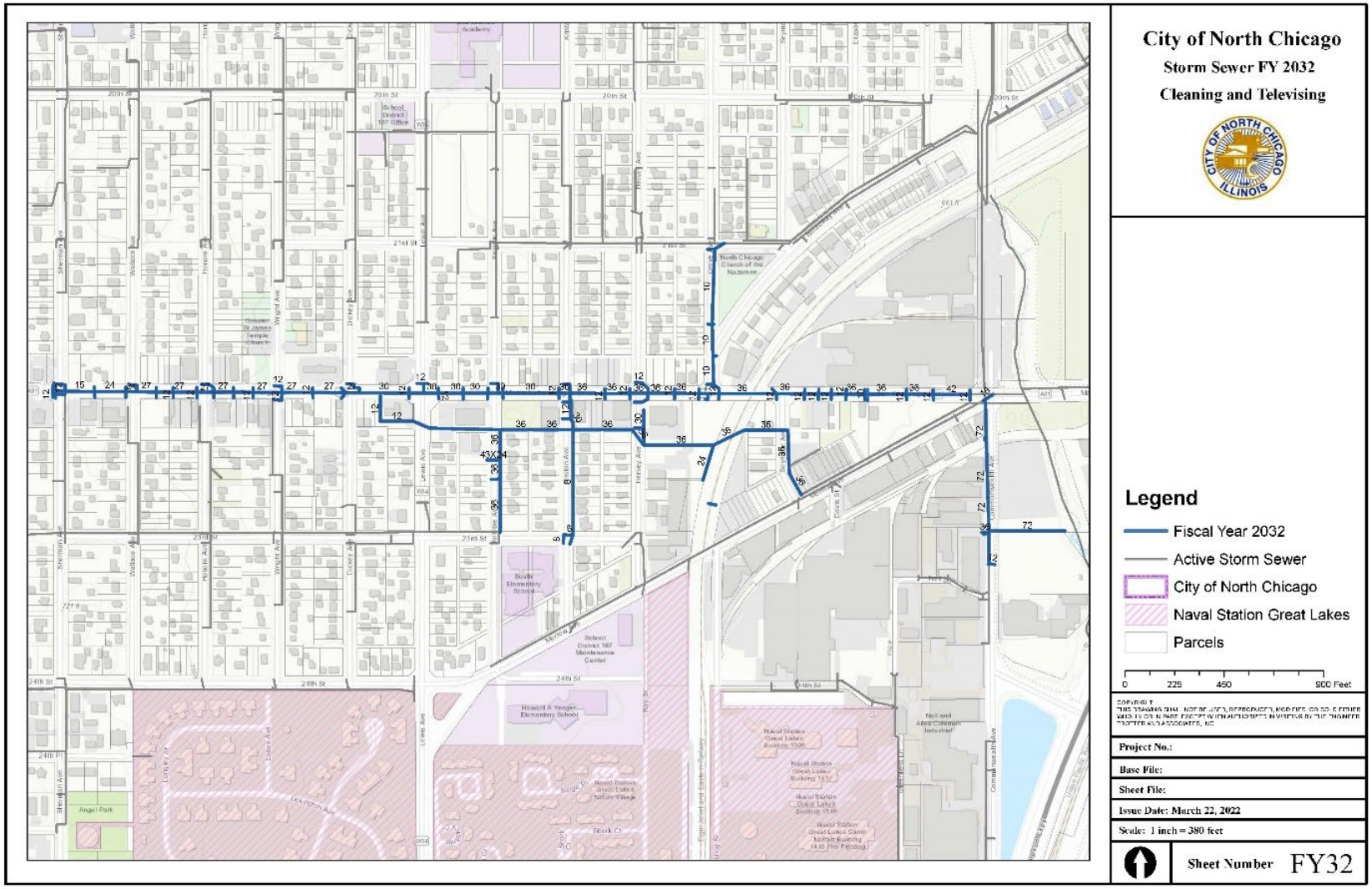
Issue Date: March 15, 2022
Scale: 1 inch = 507 feet
Sheet Number FY28


City of North Chicago
Storm Sewer FY 2029
Cleaning and Televising
Legend
Fiscal Year 2029
Active Storm Sewer
City of North Chicago
Naval Station Great Lakes
Parcels
0
185
370
740 Feet
Project No.:
Base File:
Sheet File:
Issue Date: March 22, 2022
Scale: 1 inch = 300 feet
Sheet Number FY29
North Chicago
17th St
18th St
20th St
21st St
Argonne Dr
Lewis Ave
Grove Ave
Seymour Ave
Elizabeth Ave
Greenfield Ave
Glenn Dr
Jackson St
Hervey Ave
Dickey Ave
Kristan Ave
North Chicago High School
Foss Park District Recreation Center
Amos Jones Field
North Chicago City Hall/Police Dept/Fire Station 1
North Chicago Public Library
Neal Math and Science Academy
School District 187 Office
Hart Building
Marjorie P Hart Elementary School
North Chicago Church of the Nazarene
Argonne Pond
671 ft
661 ft


City of North Chicago
Storm Sewer FY 2030
Cleaning and Televising
Legend
Fiscal Year 2030
Active Storm Sewer
City of North Chicago
Naval Station Great Lakes
Parcels
0
350
700
1,400 Feet
Project No.:
Base File:
Sheet File:
Issue Date: March 22, 2022
Scale: 1 inch = 600 feet
Sheet Number FY30


City of North Chicago
Storm Sewer FY 2031
Cleaning and Televising
Legend
Fiscal Year 2031
Active Storm Sewer
City of North Chicago
Naval Station Great Lakes
Parcels
0
175
350
700 Feet
Project No.:
Base File:
Sheet File:
Issue Date: March 15, 2022
Scale: 1 inch = 300 feet
Sheet Number FY31


City of North Chicago
Storm Sewer FY 2032
Cleaning and Televising
Legend
Fiscal Year 2032
Active Storm Sewer
City of North Chicago
Naval Station Great Lakes
Parcels
0
225
450
900 Feet
Project No.:
Base File:
Sheet File:
Issue Date: March 22, 2022
Scale: 1 inch = 380 feet
Sheet Number FY32