



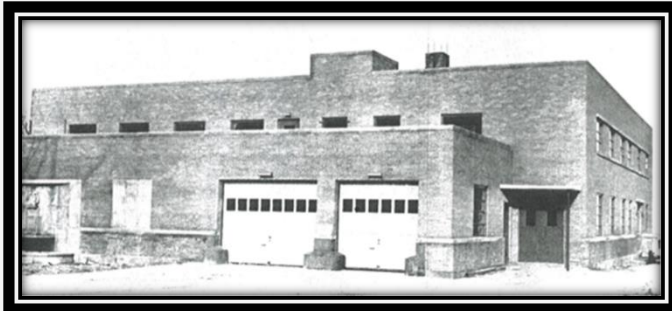
*The Premier Community on the Great Lakes*

# 2023 Water Utility Annual Report



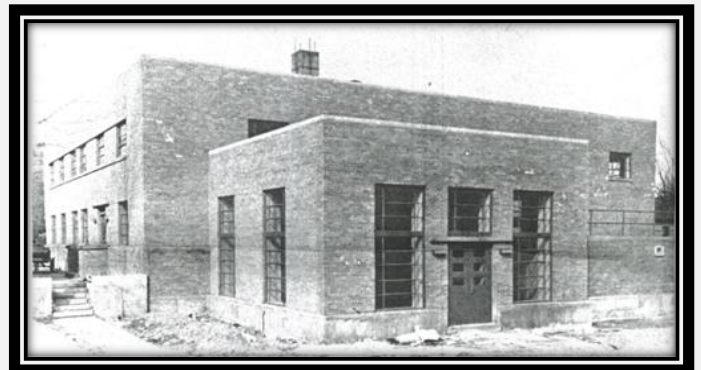
Port Washington Pumping & Power Station, 1919.

Est. 1901



Port Washington Water Filtration Plant – 1949

View From North Lake Street



View From North Lake Michigan



Port Washington Water Filtration Plant – 2024



### History



Water main installation through Downtown, 1901.

- Excavation began for the new plant foundation on September 25, 1947.
- The Construction of the new plant continued on until the Public Grand Opening on April 9-10, 1949.
- The original plant was capable of producing 750,000 gallons of filtered water per day.
- In 1967, the City Council ordered the construction of a 2 million gallon per day addition to the already 2 MGD plant. A new 16" intake replaced the original damaged 12" line. This intake extends 2,100 feet into Lake Michigan, terminating in 30 feet of water.
- In 1985 the exterior of the Water Filtration Plant was renovated. This renovation was the last major work completed on the facility.

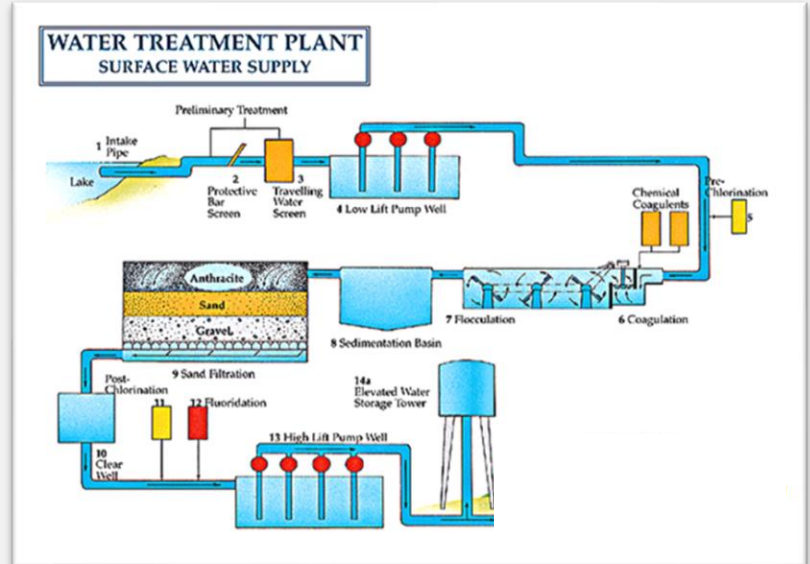
- The City of Port Washington begins pumping water from Lake Michigan in 1901.
- On August 28, 1947, citizens of Port Washington vote in a special referendum election in favor of construction of a new state of the art \$405,000 water filtration plant.
- Demolition of the old power and pumping station began in fall of 1947. The 95-foot chimney was demolished on October 10, 1947.





## Port Washington Water Utility System Summary

- The Port Washington Water Treatment Plant is considered a conventional rapid sand surface water treatment plant.
  - This process includes Coagulation, Flocculation, Sedimentation, Filtration, Storage, and Pumping.
- The Water Distribution System consists of:
  - Three Booster Stations
  - Three Elevated Water Towers
  - Over 650 Fire Hydrants
  - Over 5,000 Services & Water Meters
  - Approximately 60 Miles of Water Main



### Water Utility Staff – 10 Full Time Employees

Water Utility Superintendent - 1

Lead Field Operator – 1

Lead Plant Operator – 1

Field Operators – 4

Plant Operators – 3

## 2023 Achievements

- The Utility transitioned from a walking/driving based meter reading system to an Advanced Meter Infrastructure System (AMI). A fixed-based antenna was installed on the Thomas Drive Water Tower. This technology allows for real-time meter reads.
- Field Operators maintained compliance with all WDNR and PSC requirements for Valve Exercising, Hydrant Flushing, Meter Change-Outs, & Testing.
- Plant Operators analyzed thousands of samples of raw and tap water throughout the year adjusting treatment operations as necessary.
- Utility staff and consultants completed the design of the Water Treatment Plant Upgrade Project.

<b>WTP Bacteriological Samples</b>	<b>1,095</b>
<b>Distribution Bacteriological Samples</b>	<b>120</b>

<b>Water Meters</b>	
<b>New Meters/Services</b>	<b>40</b>
<b>Change-Out/Replacement Meters</b>	<b>166</b>

<b>Field Operations</b>	<b>2022</b>	<b>2023</b>
<b>Water Main Breaks</b>	<b>14</b>	<b>7</b>
<b>Service Line Breaks</b>	<b>3</b>	<b>1</b>
<b>Hydrants Flushed</b>	<b>668</b>	<b>738</b>
<b>Valves Operated</b>	<b>505</b>	<b>553</b>

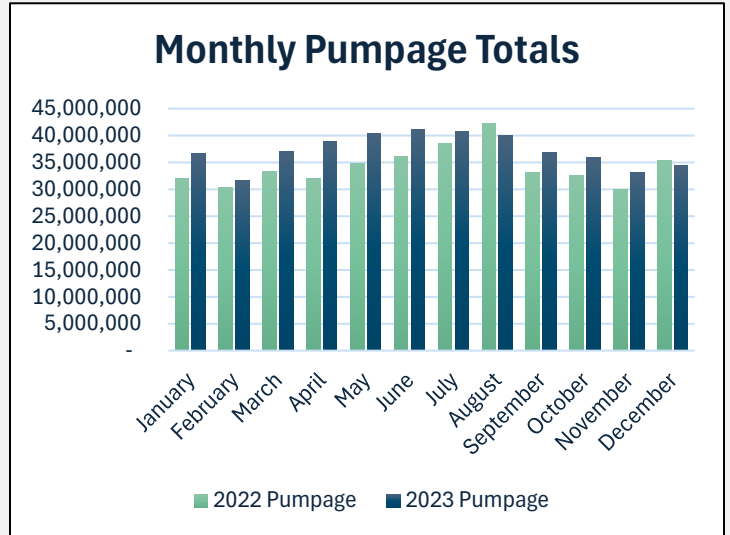
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## Water Treatment Plant Pumpage (Gallons)

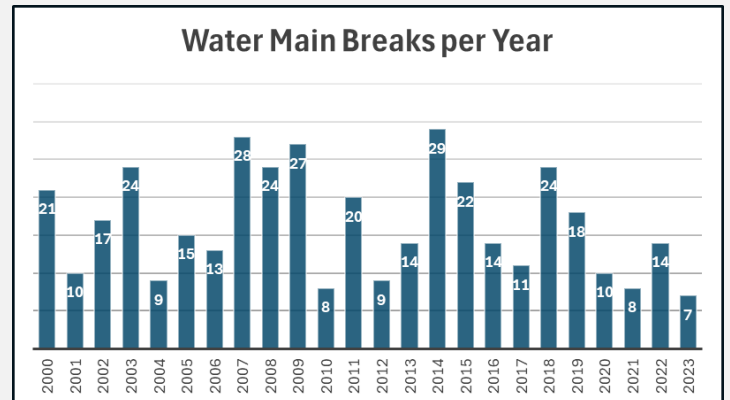
Month	2022 Pumpage	2023 Pumpage
January	32,044,000	36,582,000
February	30,350,000	31,671,000
March	33,320,000	37,102,000
April	32,028,000	38,859,000
May	34,745,000	40,339,000
June	36,168,000	41,098,000
July	38,540,000	40,777,000
August	42,287,000	40,038,000
September	33,123,000	36,785,000
October	32,486,000	35,879,000
November	29,927,000	33,165,000
December	35,305,000	34,382,000
<b>Totals</b>	<b>410,323,000</b>	<b>446,677,000</b>

Average Gallons Per Day (GPD)	1,223,299
Maximum Gallons Pumped In One Day	1,791,000
Minimum Gallons Pumped In One Day	783,000



Metered Sales to General Customers	
Customer Type	Total Gallons Sold
Residential	176,678,000
Commercial	40,035,000
Industrial	109,565,000
Public Authority	14,340,000
Multifamily Residential	15,206,000
<b>Total</b>	<b>355,824,000</b>



Water Treatment Chemical Usage (lbs)		
Chemical	2022	2023
4090 (PAC)	36,097	35,747
Carbon	-	-
Chlorine	8,220	7,839
Hydrofluosilic Acid	9,830	10,267
Phosphate	14,340	14,276



### **Water Treatment Plant Improvements Project**

In 2018 the Wisconsin Department of Natural Resources (WDNR) completed a Sanitary Survey to evaluate the system's source, facilities, equipment, operation, maintenance, and management as they relate to providing safe drinking water. Two major deficiencies were noted and required to be corrected by 2027. Design was completed in 2023. The two-year construction will start in Summer, 2024.

- The clearwell floor (structure that holds treated water), must be at least 2-feet above groundwater level.
- Install a generator to provide emergency power to the WTP in the event of an outage.

A Needs Assessment was developed to identify other items that show the need to be upgraded. This assessment was determined based on age and operation of all plant conditions, processes, and equipment.

#### **Goals**

- Address the deficiencies noted in the WDNR Sanitary Survey.
- Replace equipment that has reached the end of its service life.
- Replace and improve plant electrical equipment.

#### **Highlights**

- Construction of a new Ultraviolet (UV) Disinfection System. UV disinfection technology destroys the DNA of microorganisms which leaves them dead and unable to grow further. UV, paired with Chlorine will enable a robust, multibarrier of protection against micro-organisms.
- Installation of a new generator to provide emergency backup power.
- Replacement of the chlorine gas system with liquid sodium hypochlorite to improve environmental safety.
- Replacement of Water Treatment Plant electrical equipment and security systems.
- Construction of a new clearwell.
- Replacement of pumping equipment and mixers.

