City of Park Ridge

Sewers 101

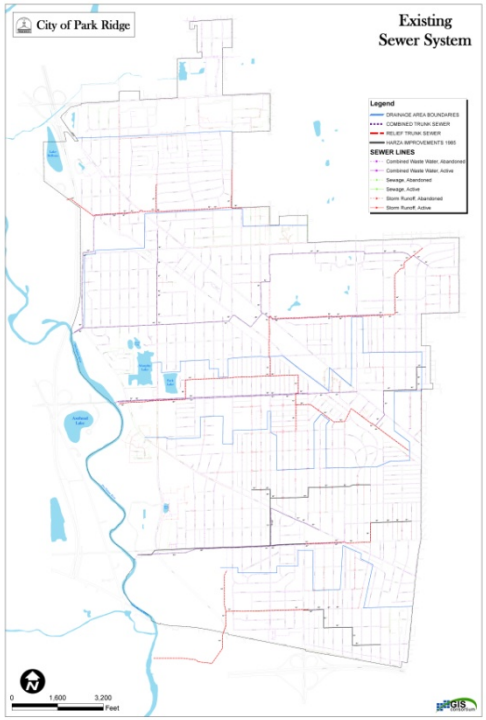
Watersheds

- A *watershed* is an area of land where all of the water that drains off of it goes to one place
- Watersheds are determined on the topography of the land as if there were no sewer system collecting the water

Park Ridge's Watersheds

- Sibley (55% of the City's area)
- Devon (35% of the City's area)
- North Area (10% of the City's area)

City Sewer Map



Park Ridge's Sewer System

- The original large trunk sewers on Devon and Touhy were built in the 1920's
- During the 1960's and 1970's, the City constructed four very large relief sewers on Glenlake, Touhy, Sibley, and Glenview
- These large trunk and relief sewers carry sewage to the west
- The rest of the City's sewer system is made up of combined sewers on each block

Combined System

- Storm & sanitary in same sewer lines
- When sewer system & MWRDGC interceptor fills, stormwater flows into combined sewer outflows (CSO's)
- NPDES permits (National Pollutant Discharge Elimination System)
- Metropolitan Water Reclamation District of Greater Chicago (MWRDGC)
- Sibley Lift Station
- Mayfield & Carol / Crain Lift Stations
- Deep Tunnel

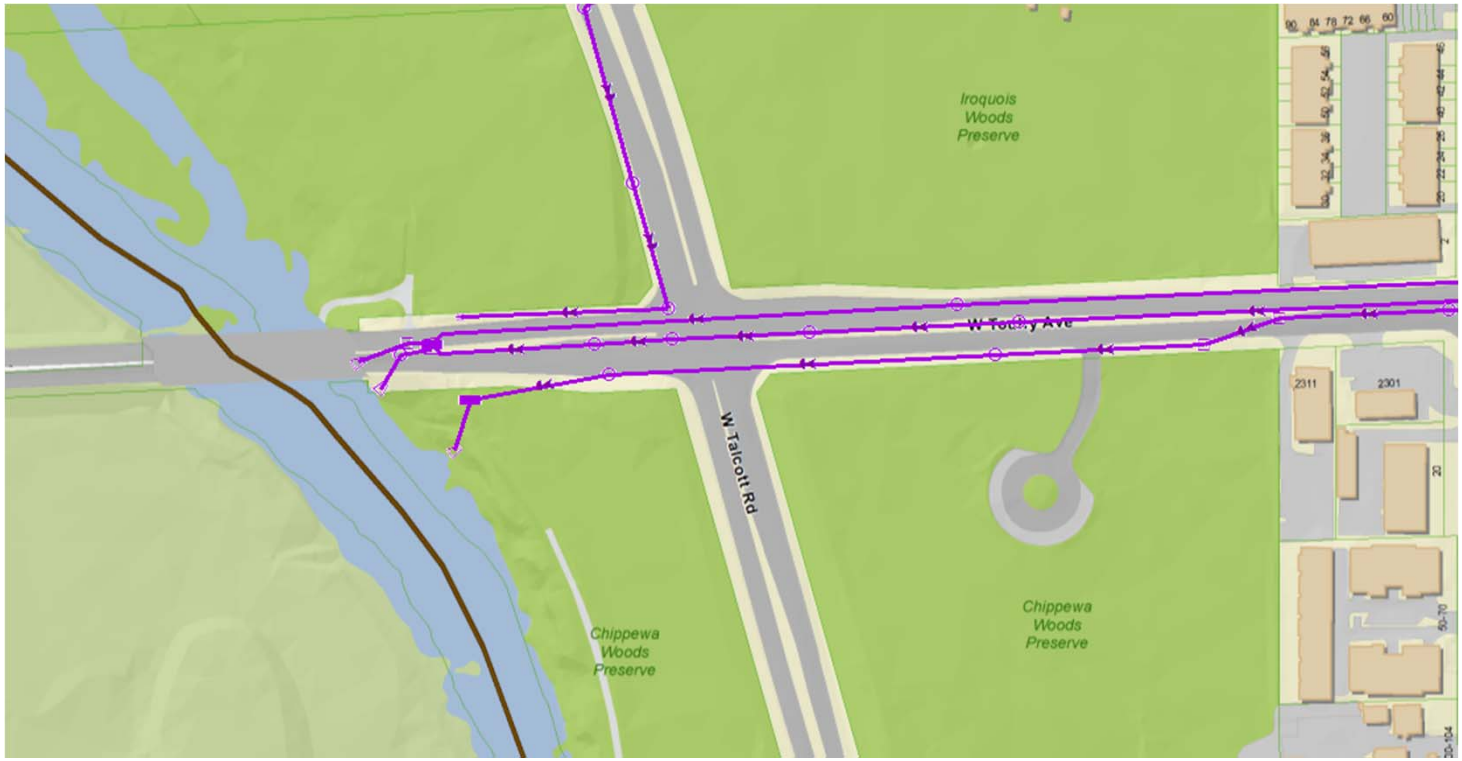
Deep Tunnel

- The Deep Tunnel was built to reduce the overflow of sewage to the rivers when the sewers are too full to transport sewage & runoff to the treatment plant
- It is intended to transport the initial flow during a heavy rain that contains the most pollutants
- *It was not built to prevent flooding*
- There are several large storage reservoirs that have not been built yet

Combined Sewer Outflow Locations

Discharge Number	Location	Receiving Water
005	Algonquin Road(E) 84” (bridge abutment)	Des Plaines River
002	Sibley Ave (E) 66”	Des Plaines River
006	Sibley Ave (E) 84”	Des Plaines River
003	Touhy Ave (E) 72”	Des Plaines River
007	Touhy Ave (E)96”	Des Plaines River
004	Devon Ave (E) 102”	Des Plaines River
008	Devon Ave (E) 42”	Des Plaines River

Touhy Outflows



Touhy Outflow

Sibley trough

Sibley sludge

Mayfield Lift Station

Mayfield Lift Station Pump

Where does the water go?

- Inlets – Inlet Laterals
- Catch Basins
- Sewer Mains
- Trunk Lines
- Flushing / Root Cutting
- Sewer Lining

When does flooding occur?

- Sewer capacity is the amount of flow a sewer can handle
- Flow into a sewer is determined by storm intensity, or the amount of rain that falls in a given time
- Flooding occurs when the storm produces an intensity that exceeds the capacity of the sewer

Storm Level Definitions

- A 100-year storm is a flood event that has a 1% probability of occurring in any given year
- Likewise, a 10-year storm is a flood event that has a 10% probability of occurring in any given year

Sewer Surcharge

- Street flooding occurs when sewers surcharge
- We can model storm levels to help predict areas where surcharging will occur

Inlet & Catch Basin

Catch Basin

Sewer Manhole – Cherry & Aldine

Cherry & Aldine 15” Sewer

Sibley 84” Trunk Line

Washout

Cracked Sewer Line

Sewer Lining

Flood Control

- Des Plaines River
- Prairie Farmers Creek / Levee 50
- Gate, Locks & Magic Valves
- Chicago River – North Branch
- Flood Wall on Dempster
- Flood Wall / Berm on Riverside

Des Plaines River Storyboard

Levee 50

Deep Tunnel Shaft by Sibley & Riverside

Chicago River

Sewer Improvement Plan

- After the 2008 flood, Burke Engineering performed a preliminary study of 6 areas
- In 2010, they performed a citywide sewer capacity analysis, which is the basis of the projects in our multi-year plan
- Bonds were issued in 2011 for the first 3 years of projects (approx. $5.4 million)
- 3 projects were constructed last year and 3 more will be constructed this year
- The City Council will determine if bonds will be issued to fund the remaining projects identified in the plan

Tracking Infrastructure Improvements

- The City uses GIS to map our infrastructure and track our infrastructure and maintenance projects
- Examples include water and sewer lines, sewer lining, street resurfacing, etc.
- We do not have the sewer and water maps available online for security reasons

Dempster Flood Wall

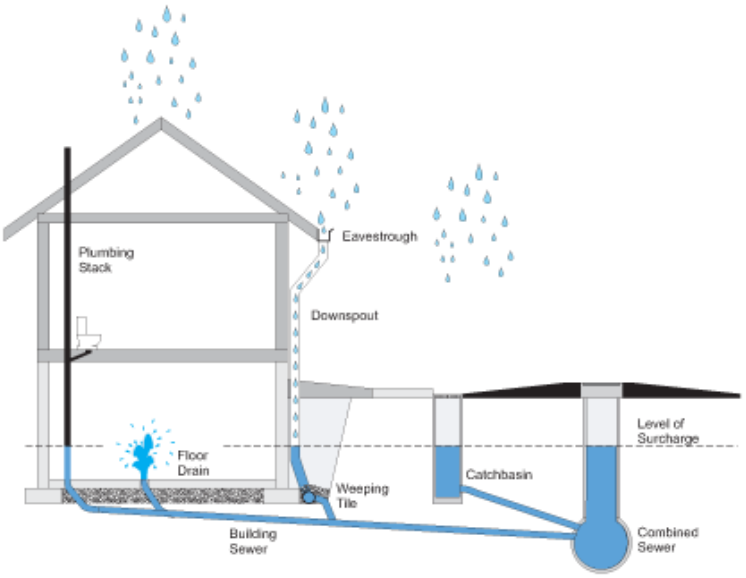
Riverside Flood Wall

Riverside Flap Gate

Homeowners

- Gravity Sewers
- Overhead Sewers / Sump Pumps / Drain Tiles
- Stand Pipes
- Flood Control

Why do homes get sewer backup?



BASEMENT FLOODING DUE TO COMBINED SEWER BACKUP
During periods of heavy rainfall, or snowmelt, the municipal sewer system becomes overloaded and the surcharge backs up and floods basements through low plumbing connections. It is essential to properly clean up the flooded area after the flooding subsides because the sewage may contain numerous harmful bacteria and contaminants.

What can homeowners do?

- Flood control systems, such as check valves and overhead sewers, eliminate sewer back-up
- Sump pumps, crack sealing, and grading help reduce seepage and overland flooding

Flood Permits Issued

- 2002 - 54
- 2003 - 22
- 2004 - 44
- 2005 - 20
- 2006 - 14
- 2007 - 40
- 2008 - 60
- 2009 - 268
- 2010 - 108
- 2011 - 201
- 2012 - 102
- 2013 (thru August – 349)
- **TOTAL - 1282**

Storm Detention

- Municipal Code –100 year storm (critical duration provides maximum storage)
- Relief Sewers & Restrictors
- Reservoirs
- Underground Vaults
- Open Basins (greenspace)
- Surface Storage

Urban Myths & Facts

- MYTH -Park Ridge "closed" the sewers &/or valves
- FACT – There are no valves in our sewer system, nor does the City have the ability to close off sewers or divert flow from one sewer to another
- MYTH - Park Ridge "opened" the sewers &/or valves
- FACT –The City does not have the ability to open capacity in any sewers, as they all flow by gravity
- MYTH - Park Ridge didn't "flip a switch in time"
- FACT – There are no switches in our sewer system
- MYTH - Park Ridge "turned the sewers off in the Uptown area" so it wouldn't flood
- FACT – The City does not turn any sewer system on or off
- MYTH - Park Ridge "agreed to take flood waters" from Des Plaines so that Des Plaines wouldn't flood
- FACT – Park Ridge's and Des Plaines' sewer system are not even connected, in fact we are separated by the Des Plaines River. Des Plaines actually flooded much worse than Park Ridge in all of the last major storms.

Resident Request Form

- Information available on residential sewers
- Form available on City website under Flood Information

Historical – Cumberland & Crescent, 1961

Busse & Greenwood, September 2008