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Village of Winnetka

**STORMWATER  
SEMINAR**

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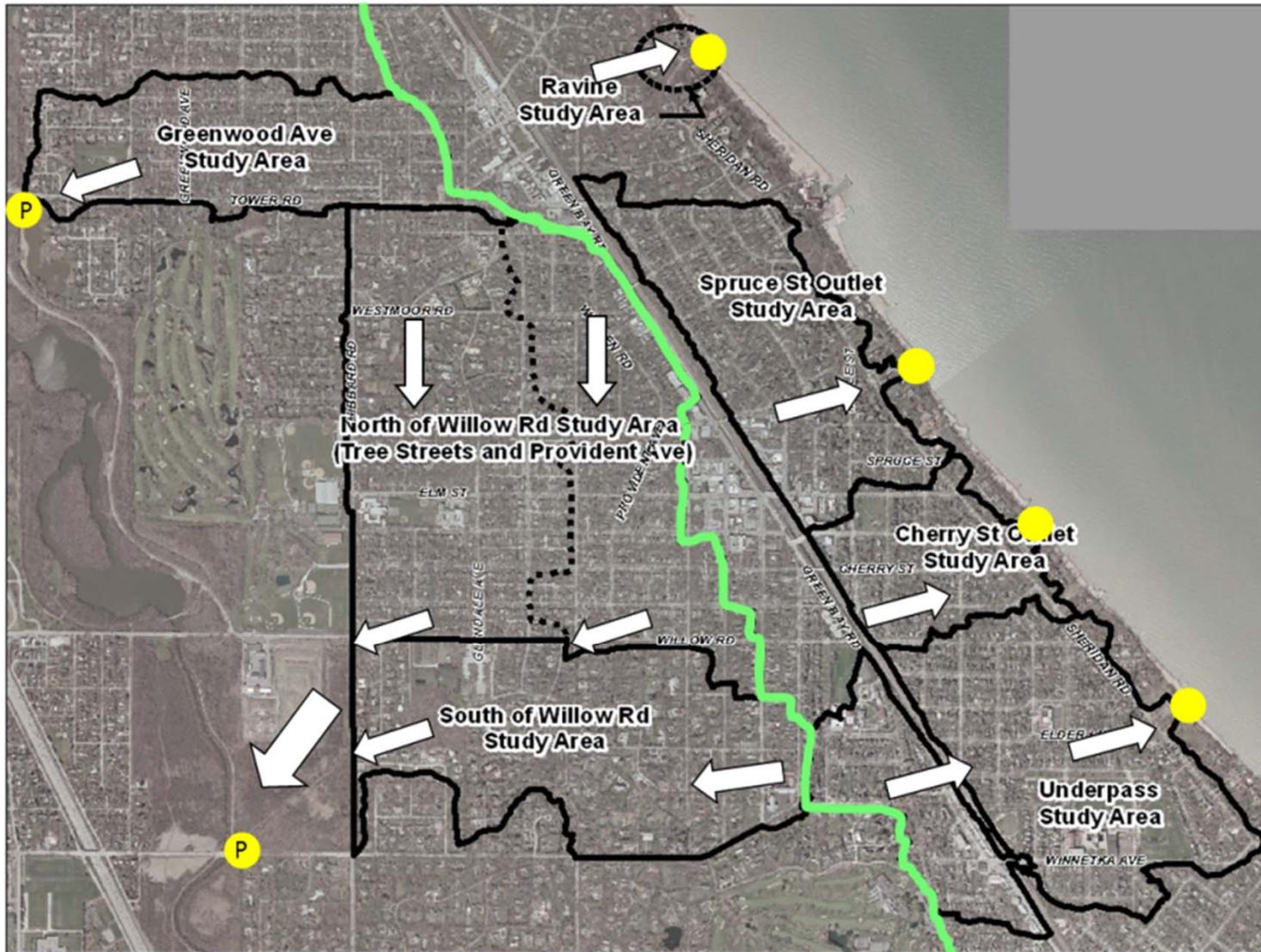
September 19 and 22, 2012

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# Introductions

- Robert Bahan
    - Village Manager
  - Steve Saunders, PE
    - PW Director/Village Engineer
  - Megan Pierce
    - Assistant to the Village Manager
  - Jim Johnson, PE
    - ATG-Stormwater Program Manager
  - Dave Buckley, PE, CFM
    - CBBEL-Water Resources Engineer
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# Winnetka Storm Sewer System

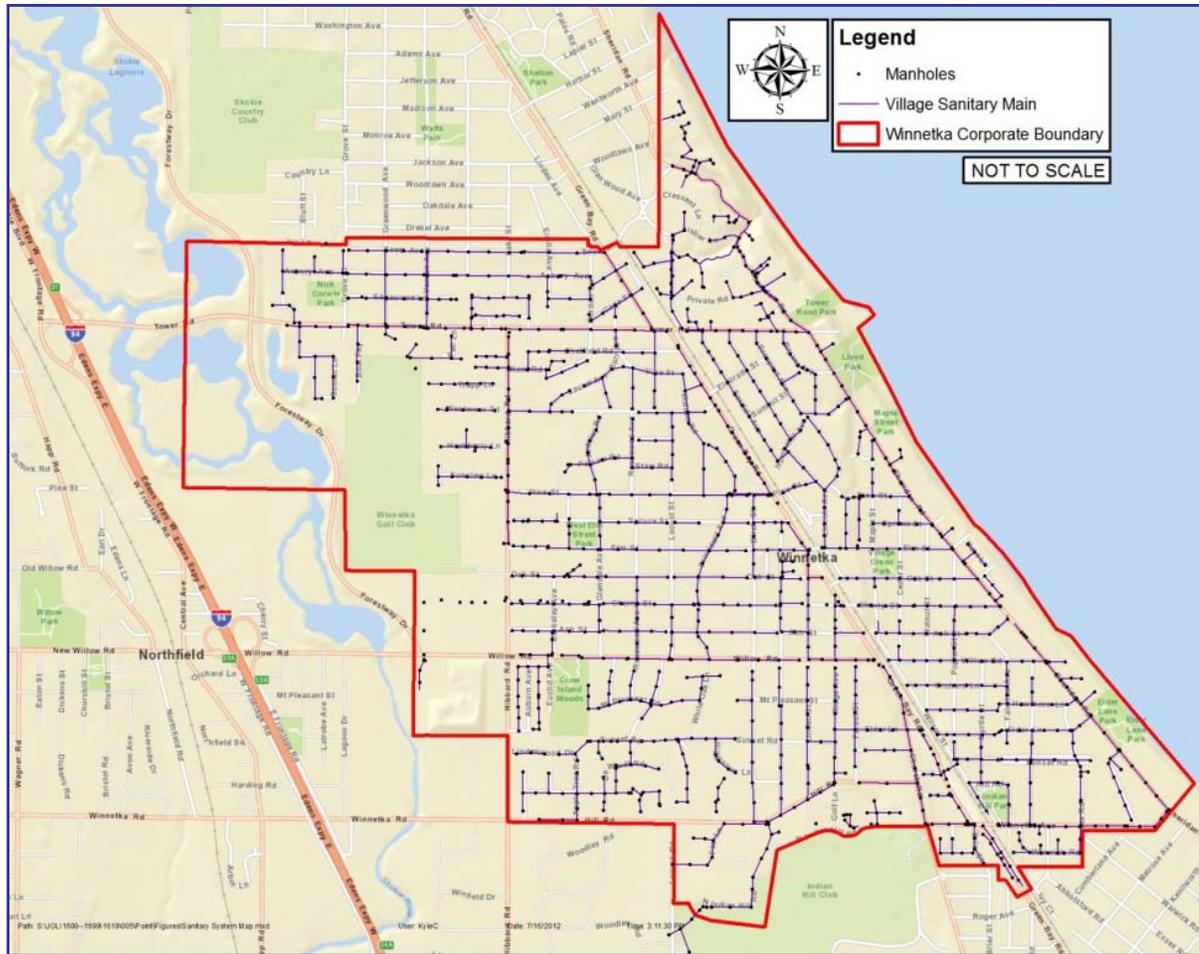


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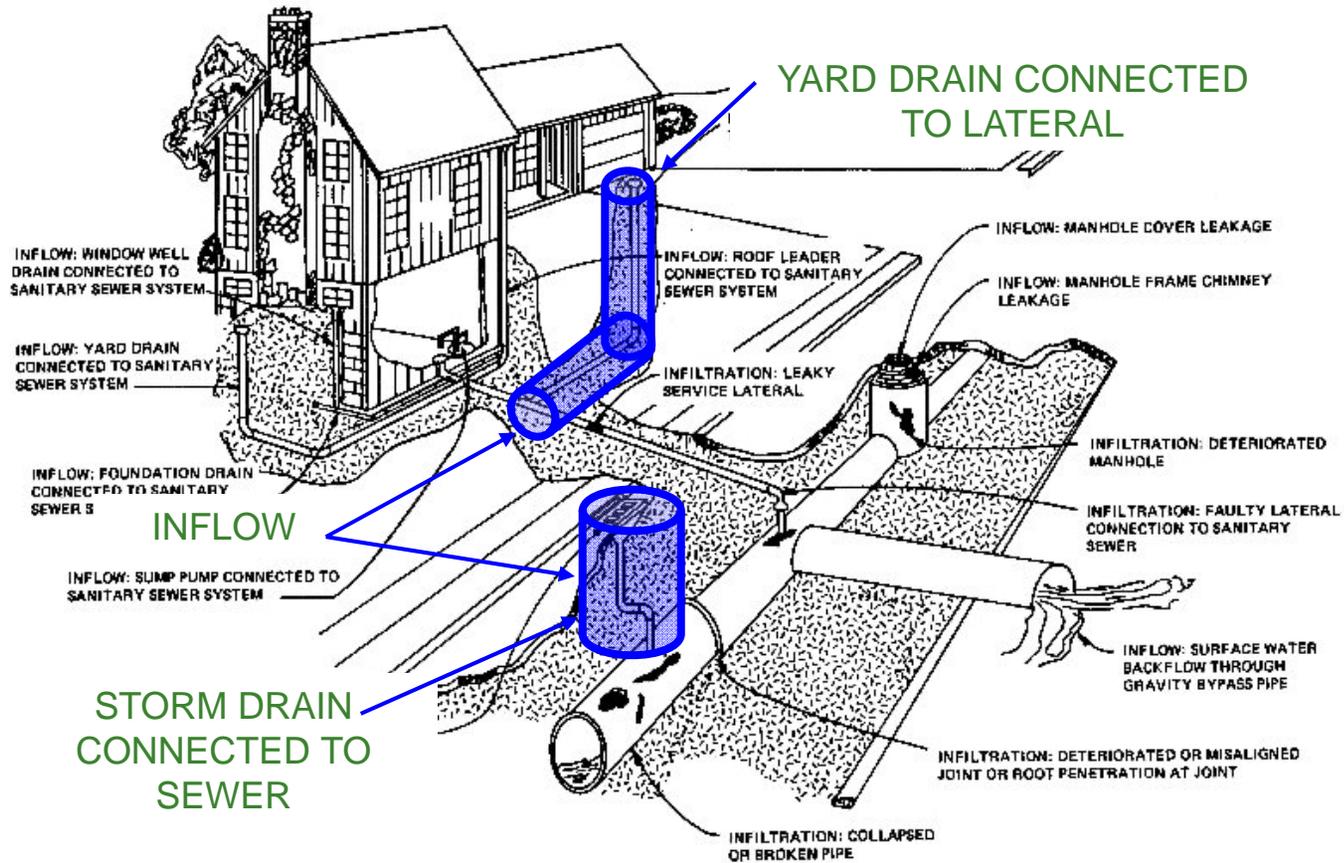
# Rain Events, or What is a 100-year storm?

- 100-year storm
  - 1% statistical chance of happening in any given year
  - “Bulletin 70”
- September 12-14, 2008
  - 8.39 inches in 72 hrs. (100-yr, 72 hr. = 8.78 in.)
- July 22-23, 2011
  - 7.71 inches over 48 hrs. (100-yr, 48 hr. = 8.16 in.)
  - 6.49 inches in 3.5 hrs. (100-yr, 3 hr. = 4.47 in.)

# Winnetka Sanitary Sewer System

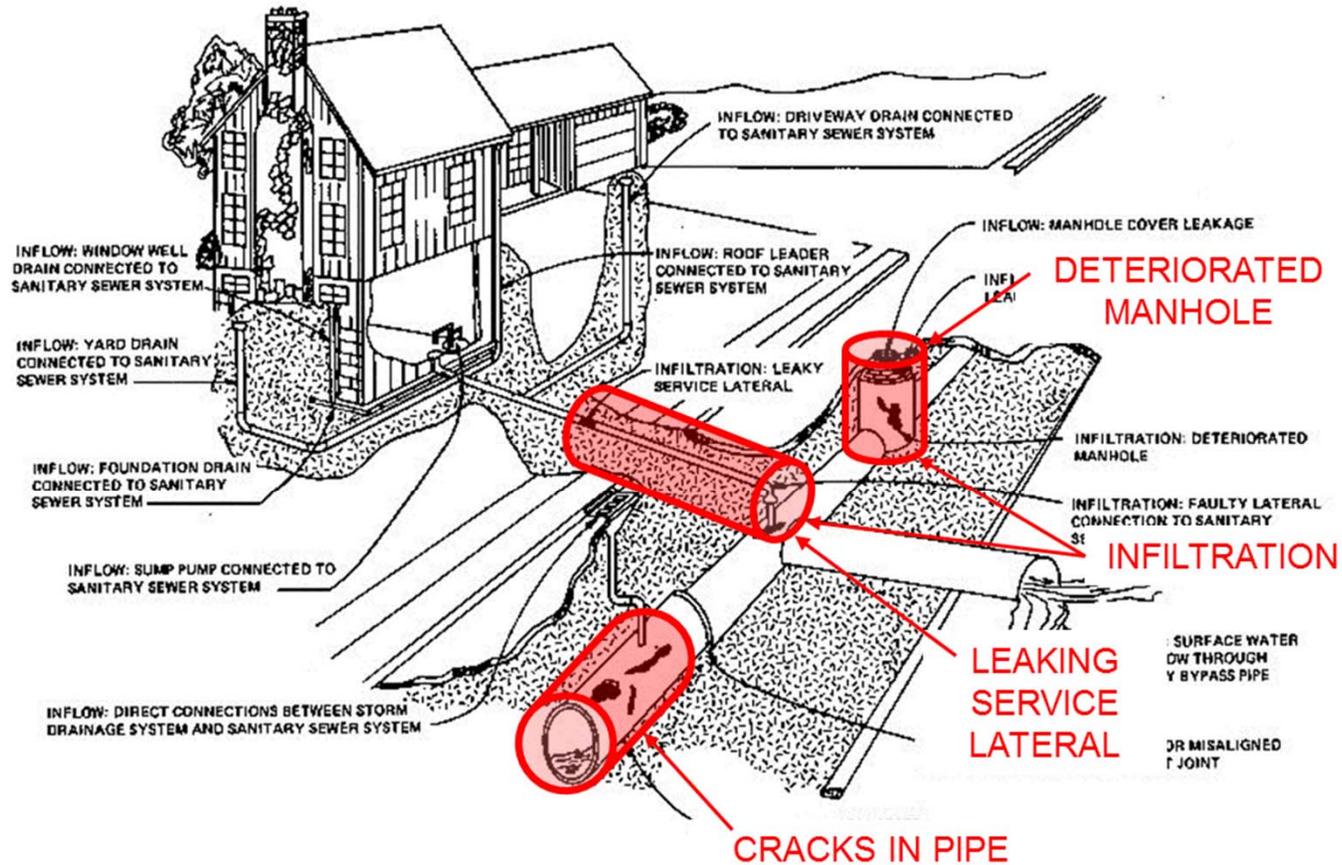


# Inflow



TYPICAL SOURCES OF INFILTRATION AND INFLOW

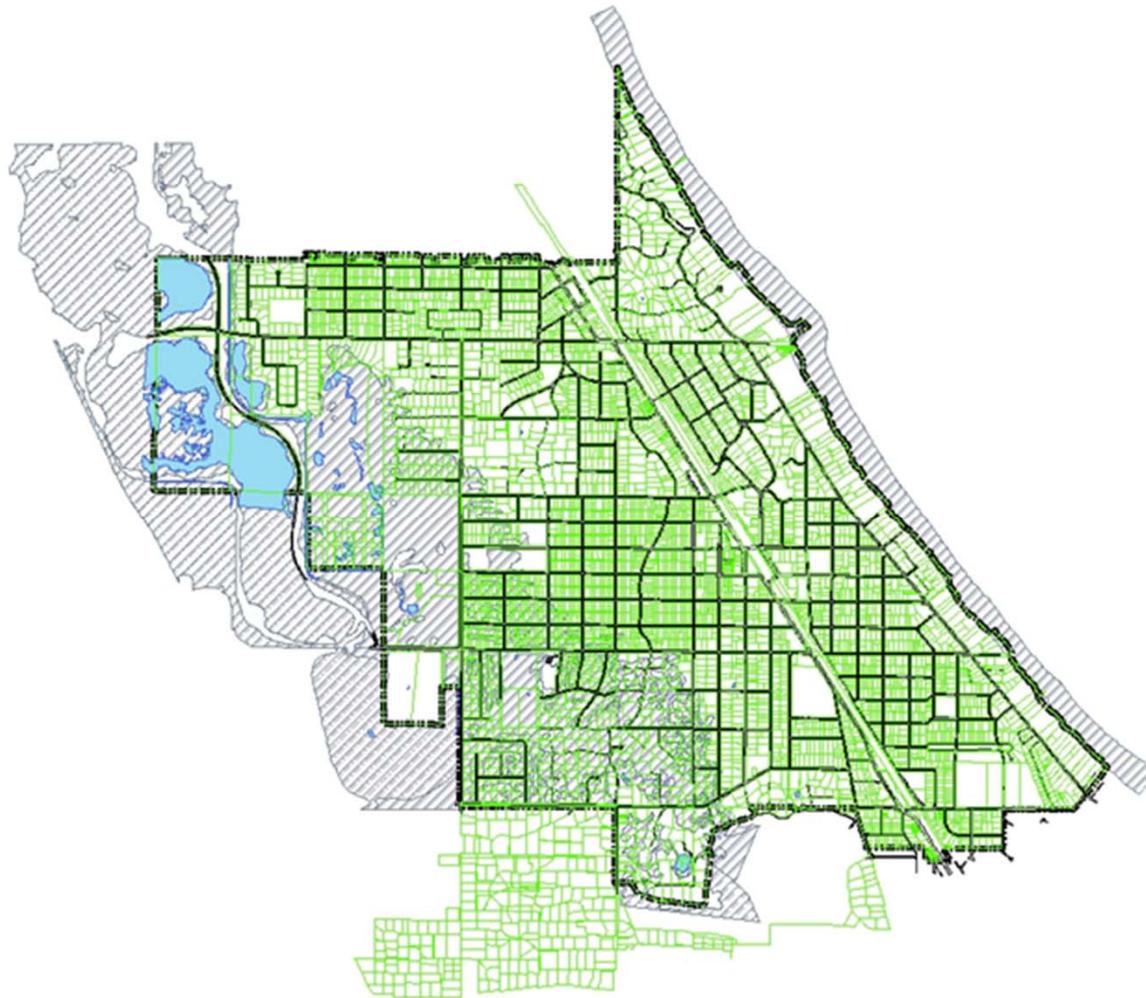
# Infiltration



TYPICAL SOURCES OF INFILTRATION AND INFLOW

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# Skokie River Floodplain



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# Floodplain Impacts

- Floodplain vs Floodway
- Regulatory Impacts
- Sewer System Impacts
- River vs. Flash Flooding

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# Homes and Property

- Types of Flooding
    - Structure Flooding
      - Overland Flooding
      - Seepage, Sump Failure
    - Sewer Backups
    - Yard Flooding
    - Street Flooding
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# Flood Safety

- What to do/Who to call
    - 911 or non-emergency?
  - Turn Around, Don't Drown
    - Flooded roads and viaducts
    - Manholes
    - Flood-borne illness
  - Utilities
    - Downed power lines
    - Flooded basements
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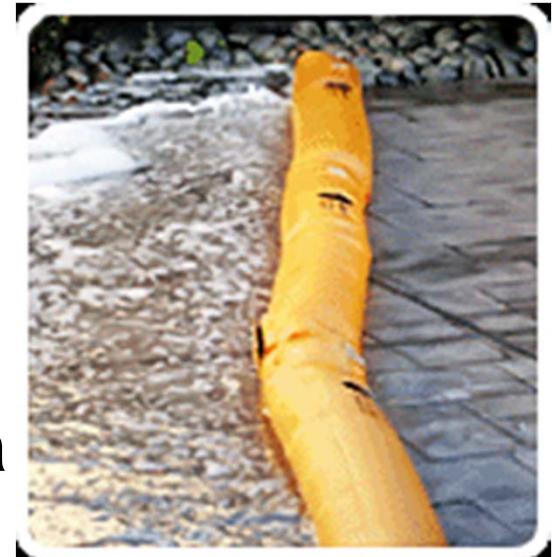
# Pre-Planning

- Safeguard your possessions
  - Keep irreplaceables out of the basement
  - Maintain a household inventory
- Prepare your house
  - Sump pumps
  - Clear gutters, downspouts, and window wells
  - Stockpile supplies
- Develop an emergency plan
  - Prepare a safety kit (flashlights, radio, batteries, water, blankets)
  - Have an evacuation route and gathering point
  - Plan for your pets

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# Response - During a Flood

- ❑ Generators and Pumps
  - Have sources beforehand
- ❑ Sandbags
  - Village does not provide or deliver
  - Potting soil bags as an alternative
- ❑ Hydrabarrier
- ❑ Protect the smallest possible area



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# Recovery

- ❑ Debris disposal
  - Remove wet debris as soon as possible
  - Bleach or Pine-sol to prevent mold
- ❑ Documentation
  - Take photographs of water in and around house
  - Document damaged or destroyed items
- ❑ Utilities
  - Do not turn on gas or electric unless instructed to do so
- ❑ Personal protection
  - Gloves, boots, masks, goggles
- ❑ Permits

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# Property Protection

- How to protect your property from flood damage
    - Elevate
    - Wet Floodproof
    - Dry Floodproof (barrier)
    - Relocate/Demolish
    - Household Plumbing
    - Window Wells
    - Drainage and Grading
    - Culvert/Drain Maintenance
    - Rain Gardens/Rain Barrels/Bioswales
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# Calculations for Rain Barrels or Gardens

## **Rain Barrels to Capture a 1-inch rainfall**

	Garage	House
Area	440 Sq. Feet	1,800 Sq. Feet
Depth	1 inch	1 inch
Volume	36.7 Cu. Ft.	150 Cu. Ft.
Volume	274.3 Gal.	1,122 Gal.
Volume	5 rain barrels @ 55 gallons	20 rain barrels @ 55 gallons

## **Rain Garden needed to capture a 1-inch rainfall**

Source: Rain Garden Alliance calculator (<http://raingardenalliance.org/right/calculator>)

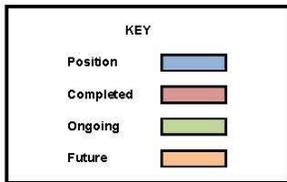
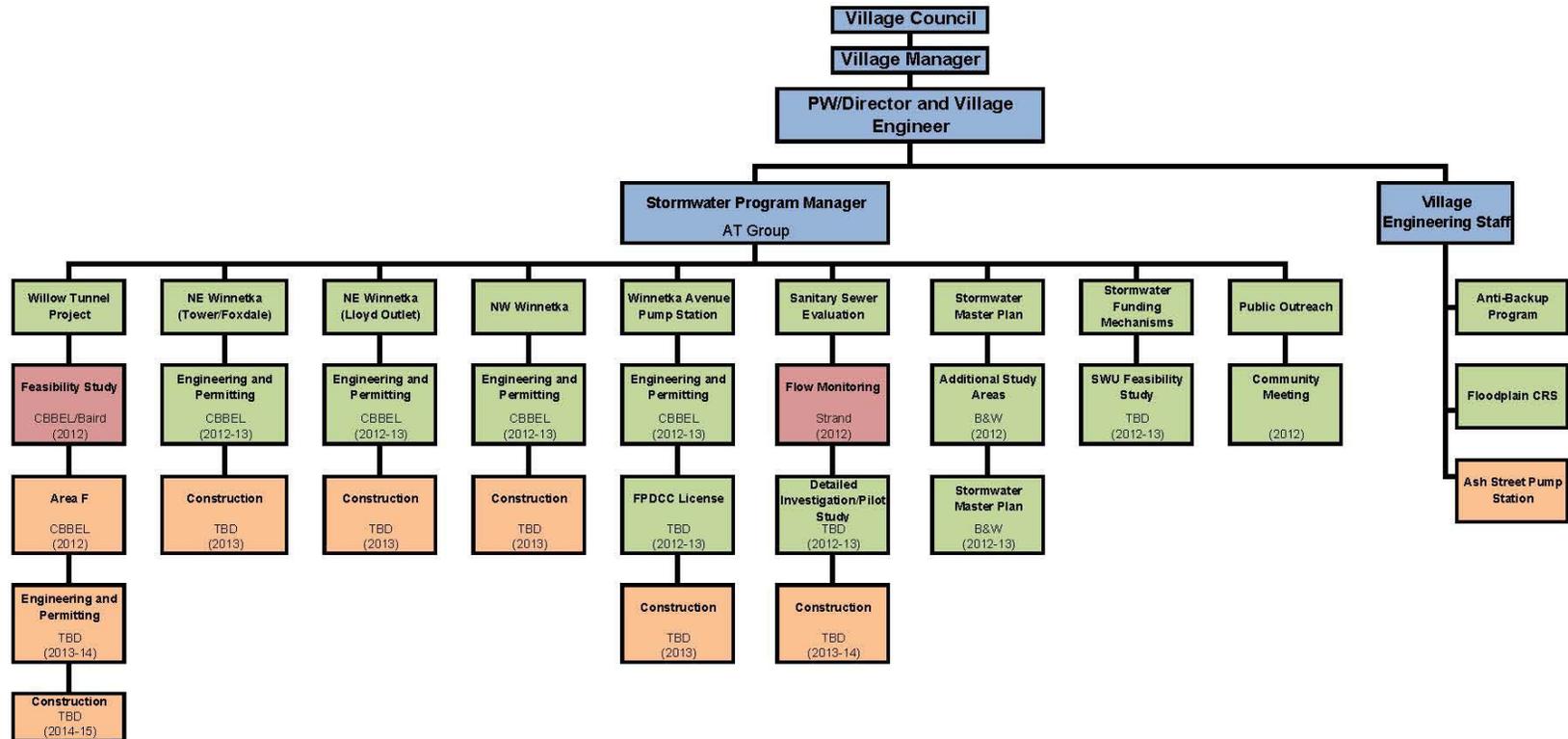
(Clayey soil, low slope property - less than 4%)

	Garage	House
Area	440 Sq. Feet	1,800 Sq. Feet
Depth	1 inch	1 inch
Volume	36.7 Cu. Ft.	150 Cu. Ft.
Size	220 Sq. Ft. of rain garden	900 Sq. Ft. of rain garden

(<http://raingardenalliance.org/right/calculator>)

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# Winnetka Stormwater Management Plan





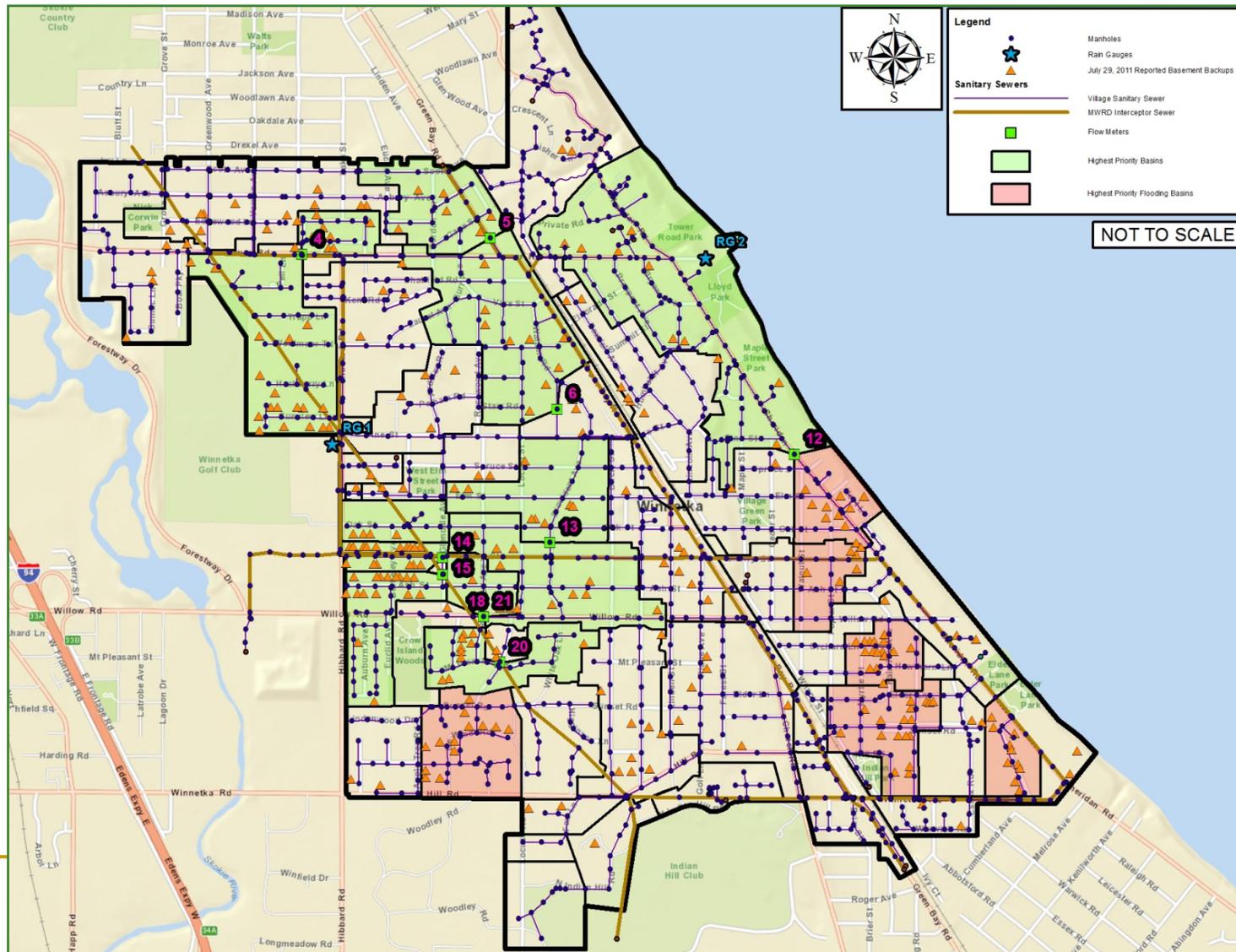




# Winnetka Avenue Pump Station



# Sanitary Sewer Evaluation



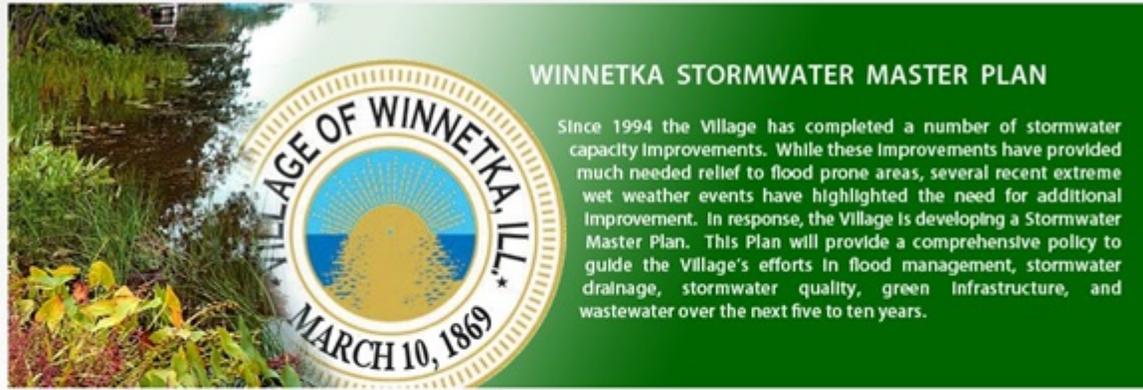
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# Stormwater Management Plan

- Stormwater Master Plan
    - Remaining Drainage Areas
    - NPDES
  - Stormwater Funding Mechanisms
  - Community Outreach
    - E-Winnetka
    - Community Meetings
    - Website
      - [www.winnetkastormwaterplan.com](http://www.winnetkastormwaterplan.com)
      - [www.villageofwinnetka.org](http://www.villageofwinnetka.org)
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# Stormwater Management Plan

## Winnetka Stormwater Master Plan

[HOME](#)[PROJECT OVERVIEW](#)[RESIDENTIAL FLOOD MITIGATION](#)[FREQUENTLY ASKED QUESTIONS](#)[CONTACT US](#)

**WINNETKA STORMWATER MASTER PLAN**

Since 1994 the Village has completed a number of stormwater capacity improvements. While these improvements have provided much needed relief to flood prone areas, several recent extreme wet weather events have highlighted the need for additional improvement. In response, the Village is developing a Stormwater Master Plan. This Plan will provide a comprehensive policy to guide the Village's efforts in flood management, stormwater drainage, stormwater quality, green infrastructure, and wastewater over the next five to ten years.

### Schedule

View the Stormwater Master Plan Schedule and a Public Information Calendar.

[SCHEDULE](#)

### Videos

View meetings, informational videos, and powerpoints on the Stormwater Master Plan.

[VIEW OUR VIDEOS](#)

### Photos

Visit our Photo Gallery to view Photos.

[VIEW OUR PHOTOS](#)[HOME](#)[VILLAGE OF WINNETKA](#)[DISCLAIMER](#)[BAXTER & WOODMAN, INC.](#)

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# Stormwater Management Plan

- Village Staff
    - Anti-Backup Program
    - Floodplain/CRS
    - Ash Street Pump Station
    - Skokie Ditch
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# Questions and Answers

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