



# Sanitary Sewer Rehabilitation & Water Quality Initiatives

Village of Mamaroneck

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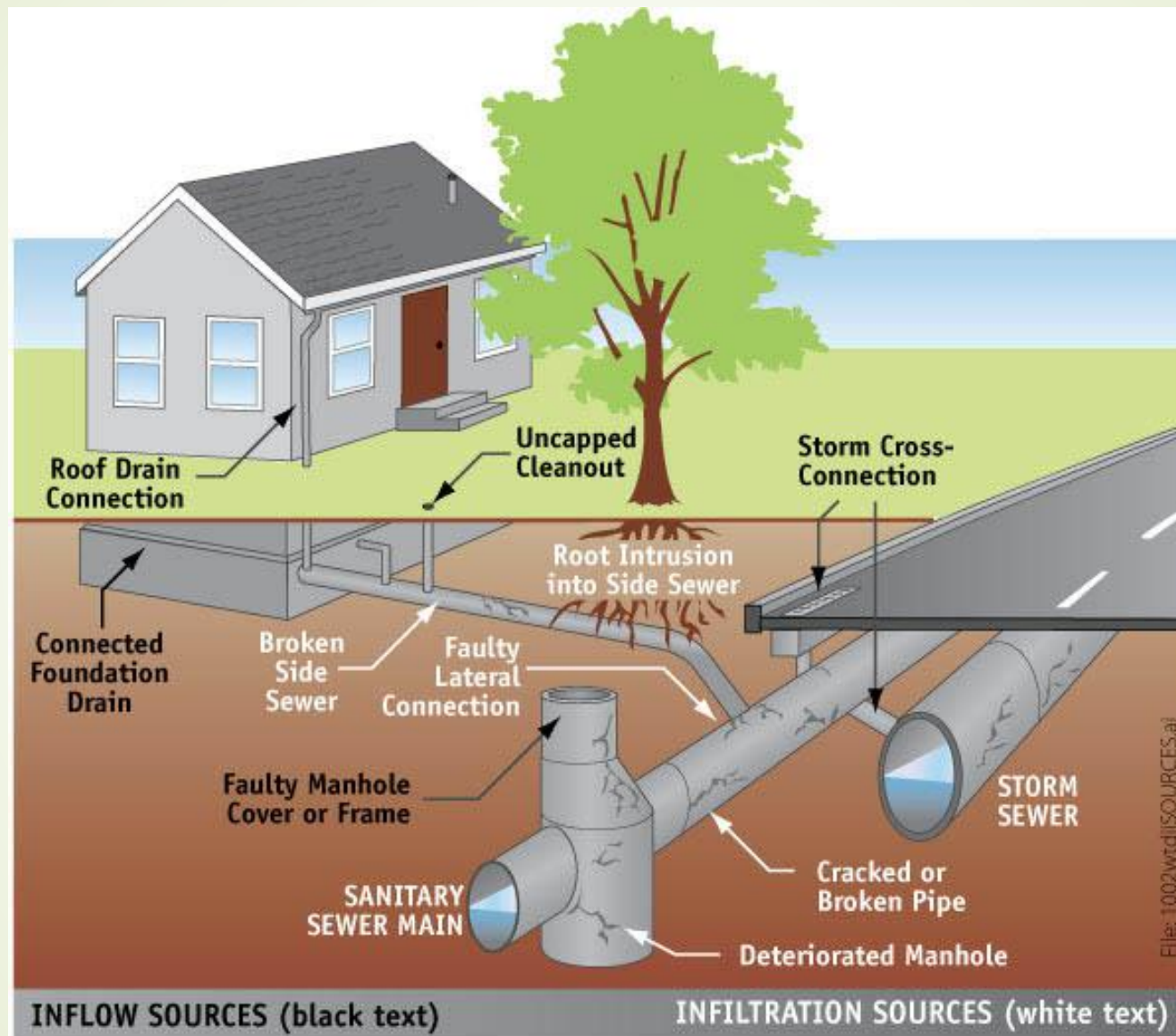
# Agenda



- ▶ Background- what is I/I, sliplining, and GIS?
- ▶ History of Sanitary Sewer Initiatives in the Village
- ▶ Who is responsible?
- ▶ Recent findings & remediation
- ▶ Current Village initiatives
- ▶ Future Village Initiatives
- ▶ GIS Demonstration

# Background- Definitions

- ▶ I/I - Inflow and Infiltration
  - ▶ Inflow- water that enters the sewer system from roof leaders, sump pumps, cellar drains, etc.
  - ▶ Infiltration- storm water or groundwater that enters the sewer system through defective pipes, pipe joints, laterals, or manholes.
- ▶ CIPP (cured in place pipe) Sliplining- method of trenchless rehabilitation of existing pipes. A new pipe is formed within the pipe.
- ▶ IDDE- Illicit discharge detection and elimination. Detection and elimination of any pollutant discharge into waterways.
- ▶ GIS- Geographic information system- spatial database and mapping systems.



# Inflow and Infiltration- the problem

I/I Leads to:

- ▶ Sanitary sewer overflows- the release of untreated effluent into waterways.
- ▶ Higher volumes of water with bacteria.
- ▶ Overloading of wastewater treatment plants.
  - ▶ 10-15 million gallons/day on average at Mamaroneck treatment plant.
  - ▶ 100 million gallons/day during Hurricane Irene.
- ▶ Beach closures.
- ▶ Ecological consequences- harm to wildlife.
- ▶ Public health concerns.

# History of Sewers in Mamaroneck

- ▶ The Village of Mamaroneck has a separate stormwater and sanitary sewer system.
- ▶ Many of the sewer pipes in the Village exceed 100 years in age.
- ▶ Mayor's advisory water committee spurred new investigations~ 2003-2004
- ▶ Recent rehabilitation and investigation efforts:
  - ▶ Westchester County Sanitary Sewer Evaluation Survey- 1992-1994
  - ▶ Savin Report- 2007 - Inspected sewers, lined sewers, 195 homes inspected, 26 illicit sources identified.
  - ▶ Arcadis - 2011- Present
  - ▶ EPA Administrative Order 2011- for IDDE.
  - ▶ DEC Consent Order 2014- for I/I.
  - ▶ Annual Sliplining
  - ▶ GIS technology

# Who is responsible?

*Three parties makeup the sewer system:*

**Property Owners**- Laterals that run from the building to the Village sewer line.

**Village of Mamaroneck**- Sewer lines that run from the lateral connections to Westchester County line. Within the village coordination on sewer initiatives is shared between:

- ▶ Department of Public Works- Maintenance & oversight of Village sewers.
- ▶ Village Manager- Oversight of all operations.
- ▶ Consulting Engineer (Arcadis)- performs investigations, and recommendations.
- ▶ Building Department- Issues orders to remedy to properties with illicit connections.
- ▶ Planning Office- GIS management & coordination with potential land use impacts on infrastructure.

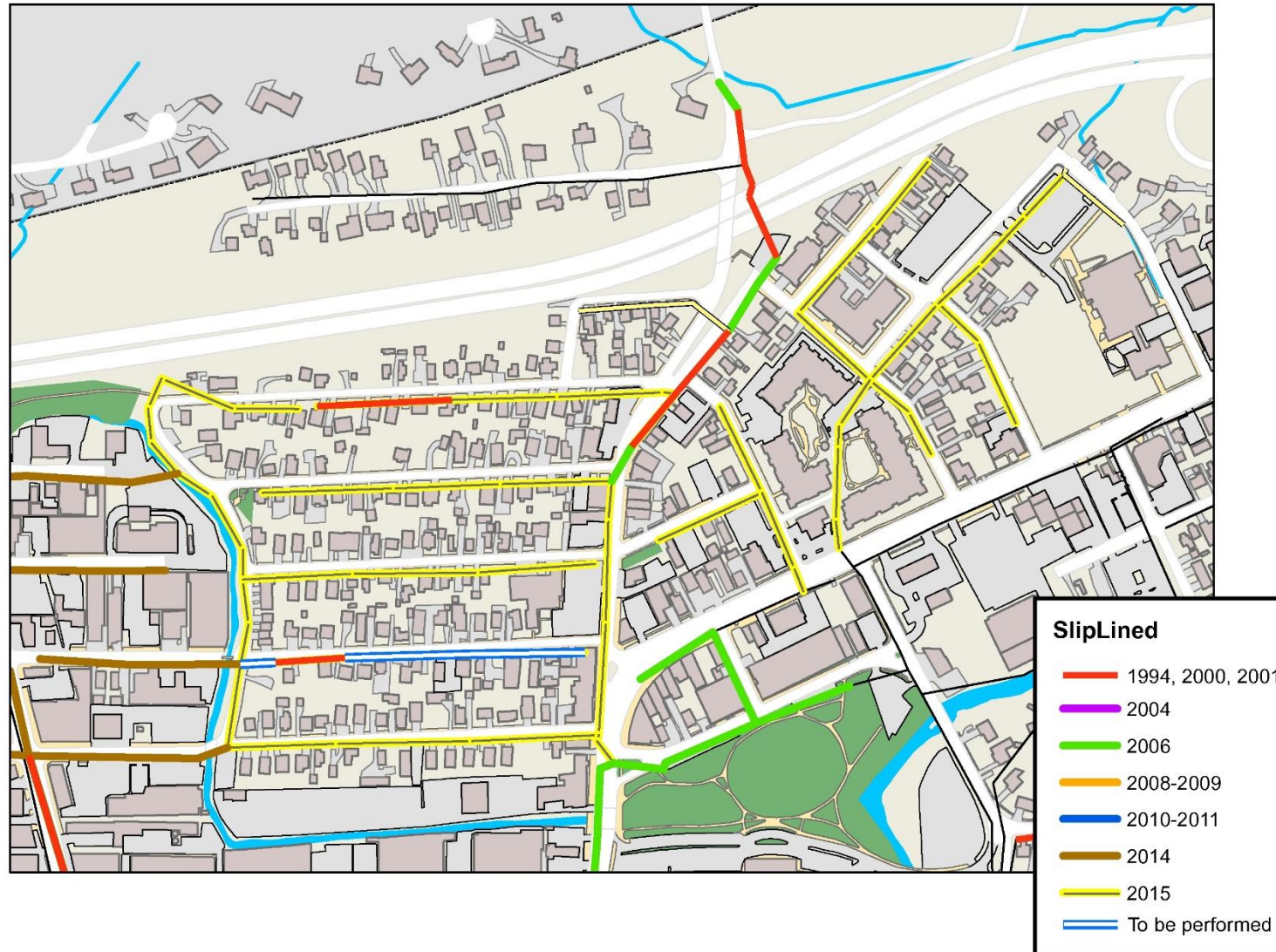
**Westchester County**- Trunk lines that run from Village sewer lines to county sewage treatment plant.

# Recent Work – IDDE, I/I, Water Quality 2013- present

- ▶ Illicit discharge discovered and remediated at stream crossing by Harmon Avenue.
- ▶ Broken lateral discovered along otter creek.
- ▶ Missing lateral discovered on Union Avenue near Mamaroneck River.
- ▶ Leaching garbage container identified in downtown.
- ▶ Field vacuum efforts at Harbor Island Park to reduce animal fecal coliform being washed into Long Island Sound.
- ▶ Cleaning and inspection of Orienta Sewer Lines. Since cleaning and inspection no new SSOs documented in neighborhood. Previous SSO's occurred on 4/30/2014.
- ▶ Replacement of catchbasin hoods with screens that remove floatable garbage.
- ▶ Sliplining of industrial area and Washingtonville neighborhood.
- ▶ 40+ catchbasins replaced on Boston Post Road.

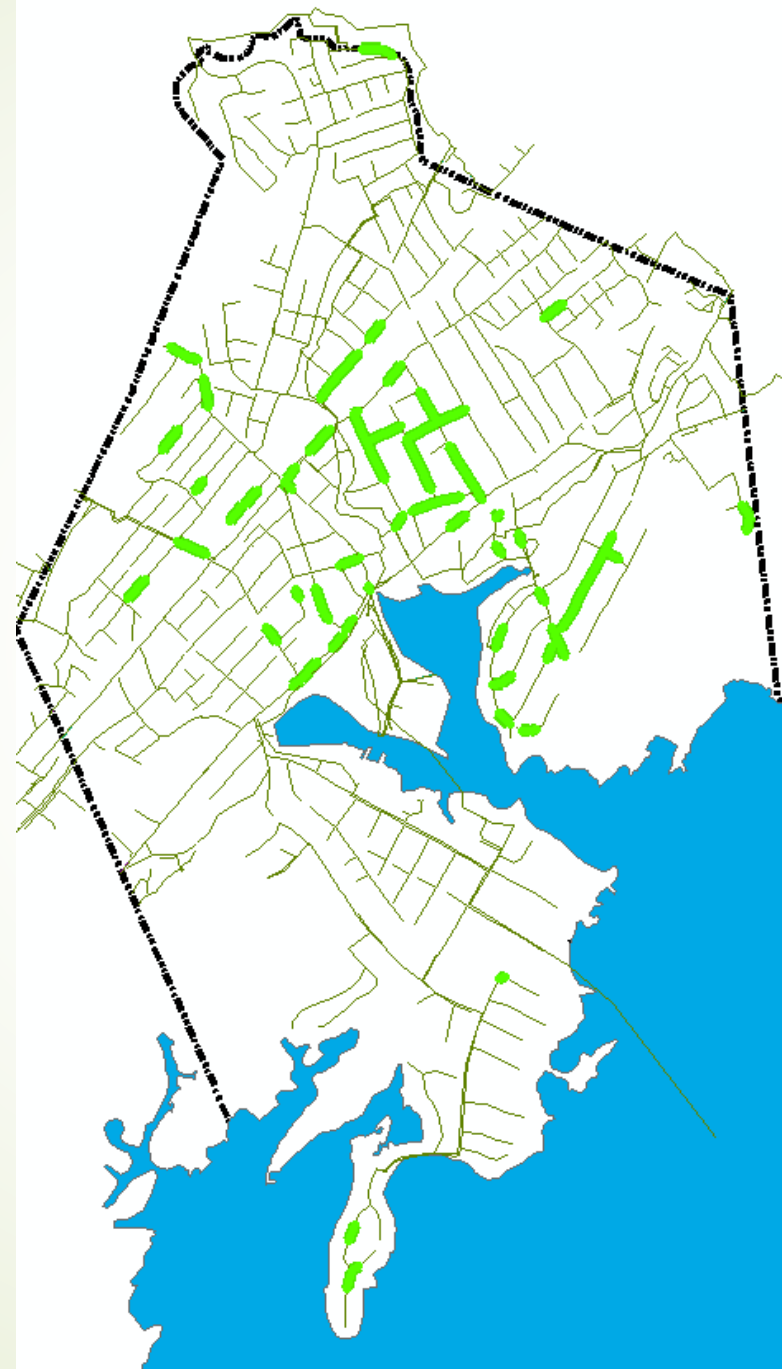


# Sliplining Washingtonville



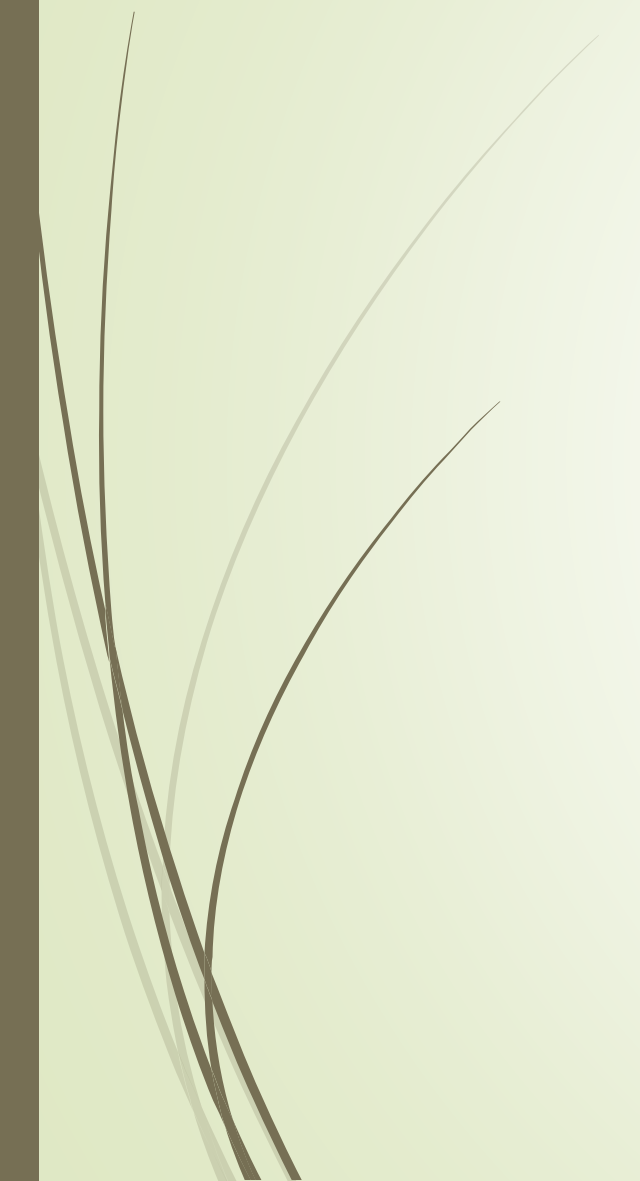
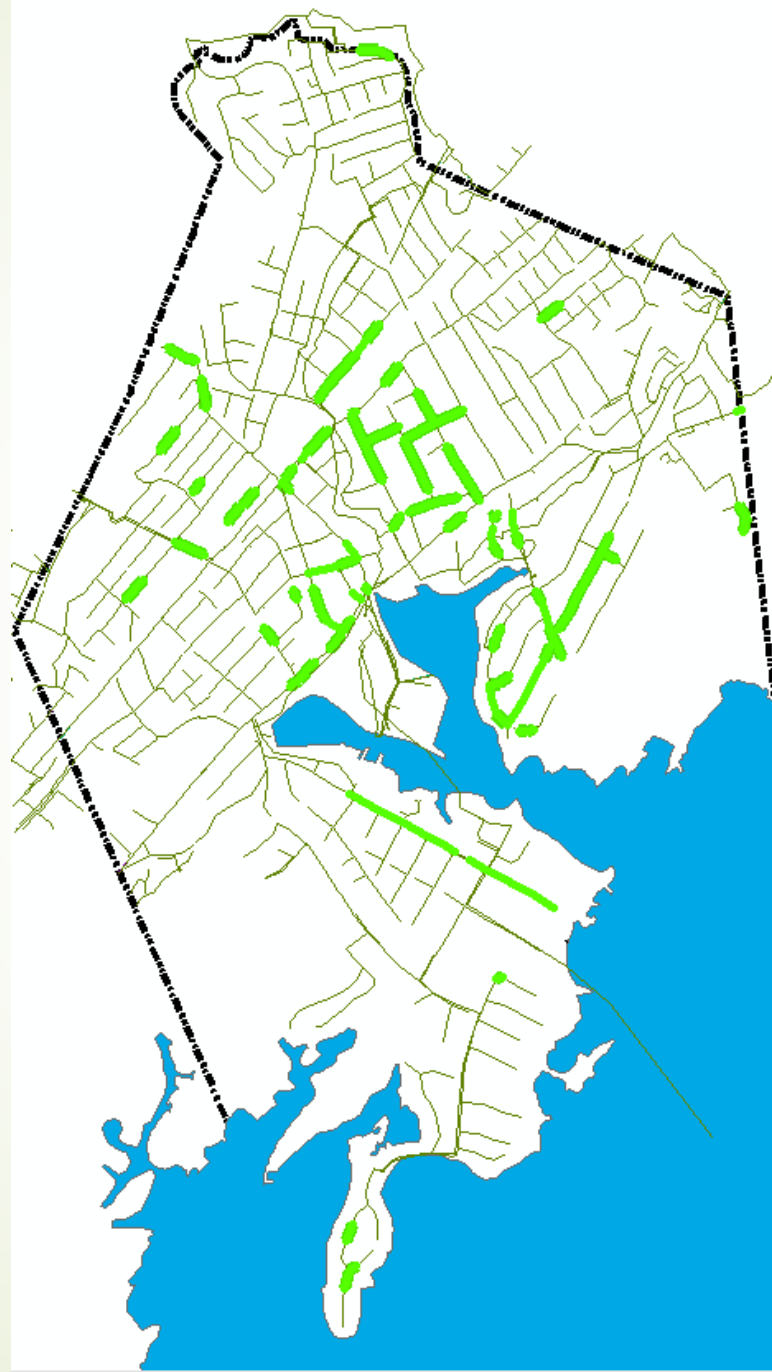
# Current Initiatives

- ▶ Arcadis I/I inspections & investigations
  - ▶ Multiple illicit connections identified and remediated.
  - ▶ Orders to remedy issued by building department.
  - ▶ Lateral grouting pilot. Limitations found on iron pipes.
- ▶ Annual Sliplining- program status after 20 years
  - ▶ 34% of the Village sewer system relined.
  - ▶ Prioritize areas utilizing information provided by various studies.
- ▶ Grants
  - ▶ The Village actively seeks opportunities to leverage State and Federal money.
  - ▶ More catchbasin retrofits with water quality hoods.



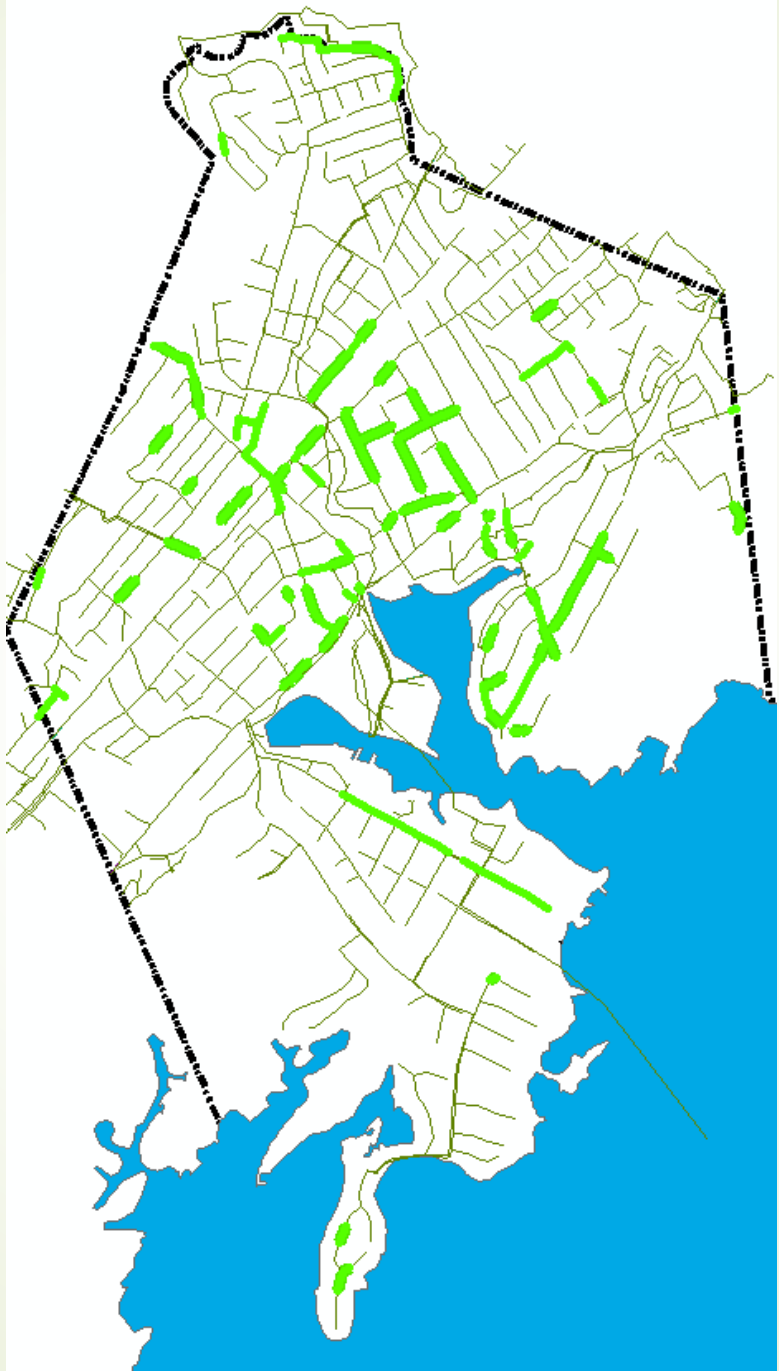
1994,  
2000,  
2001

2004

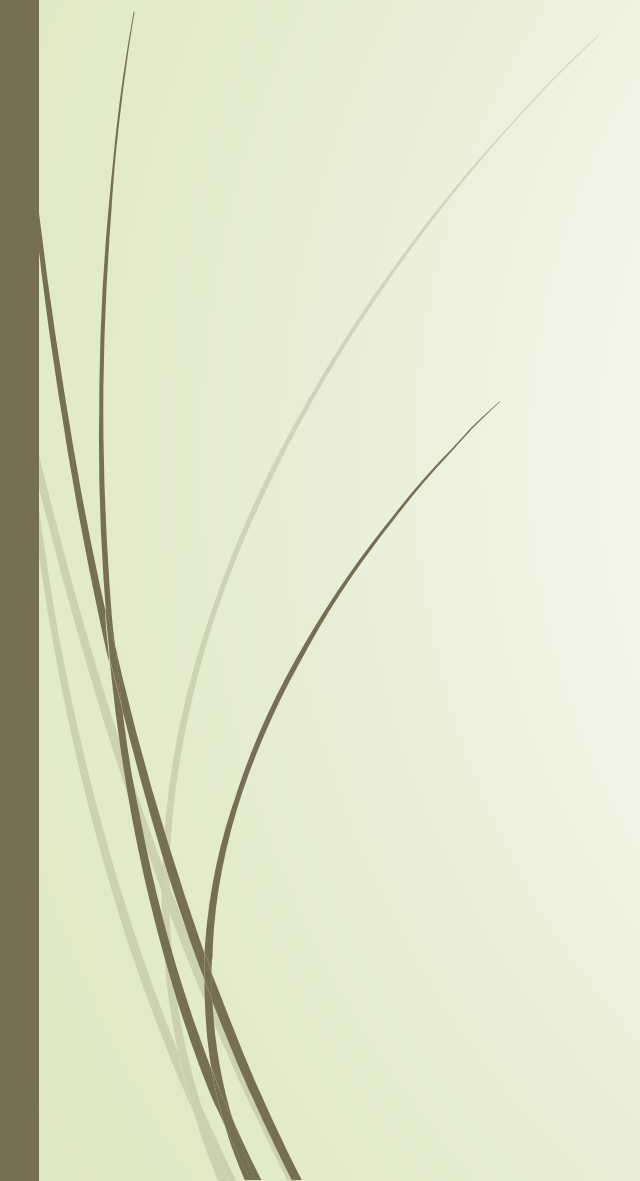
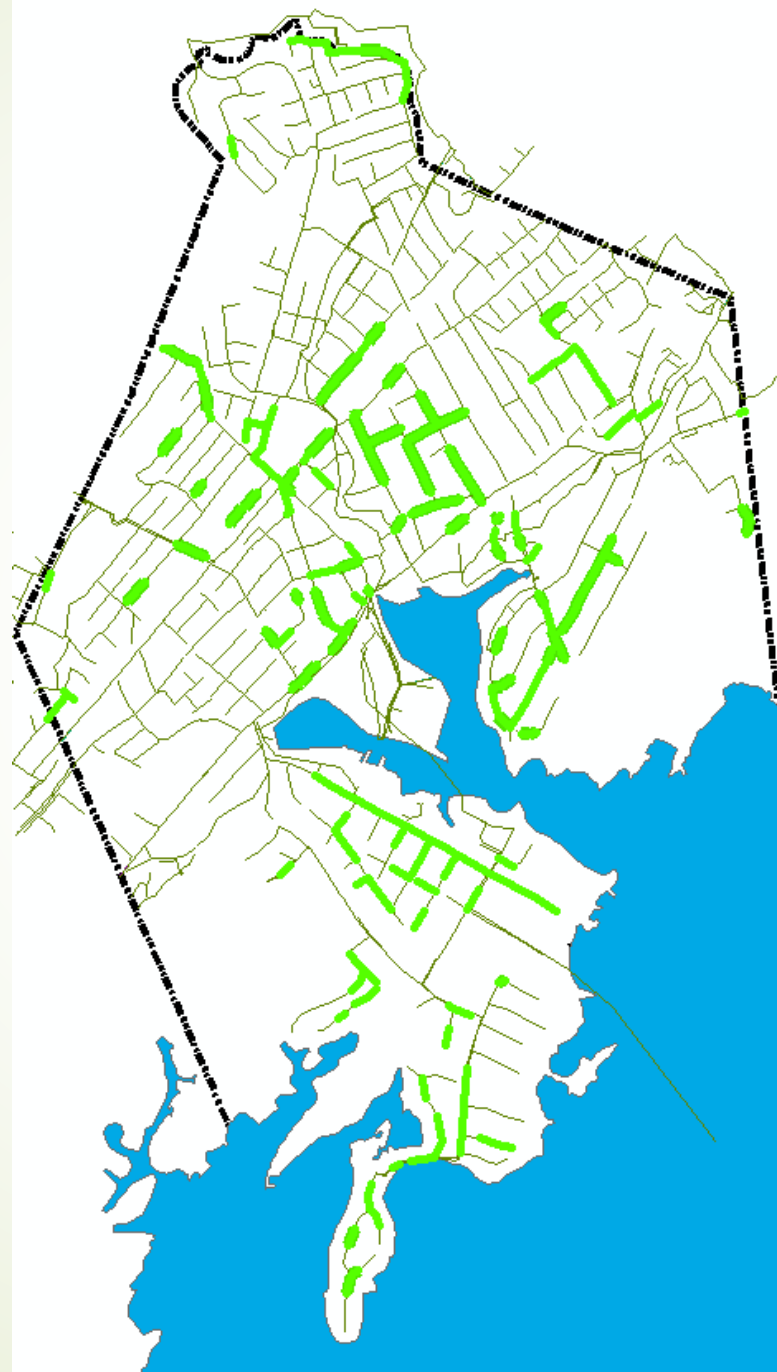




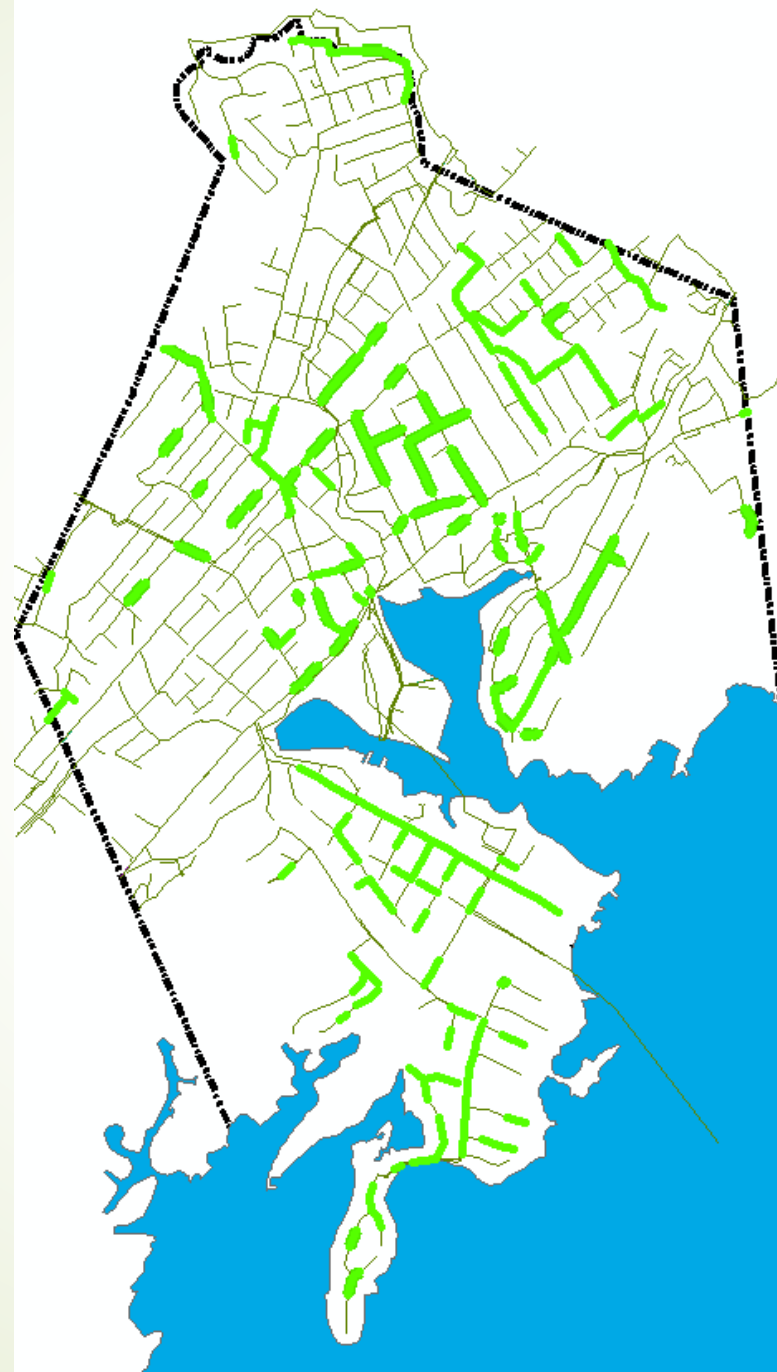
2006



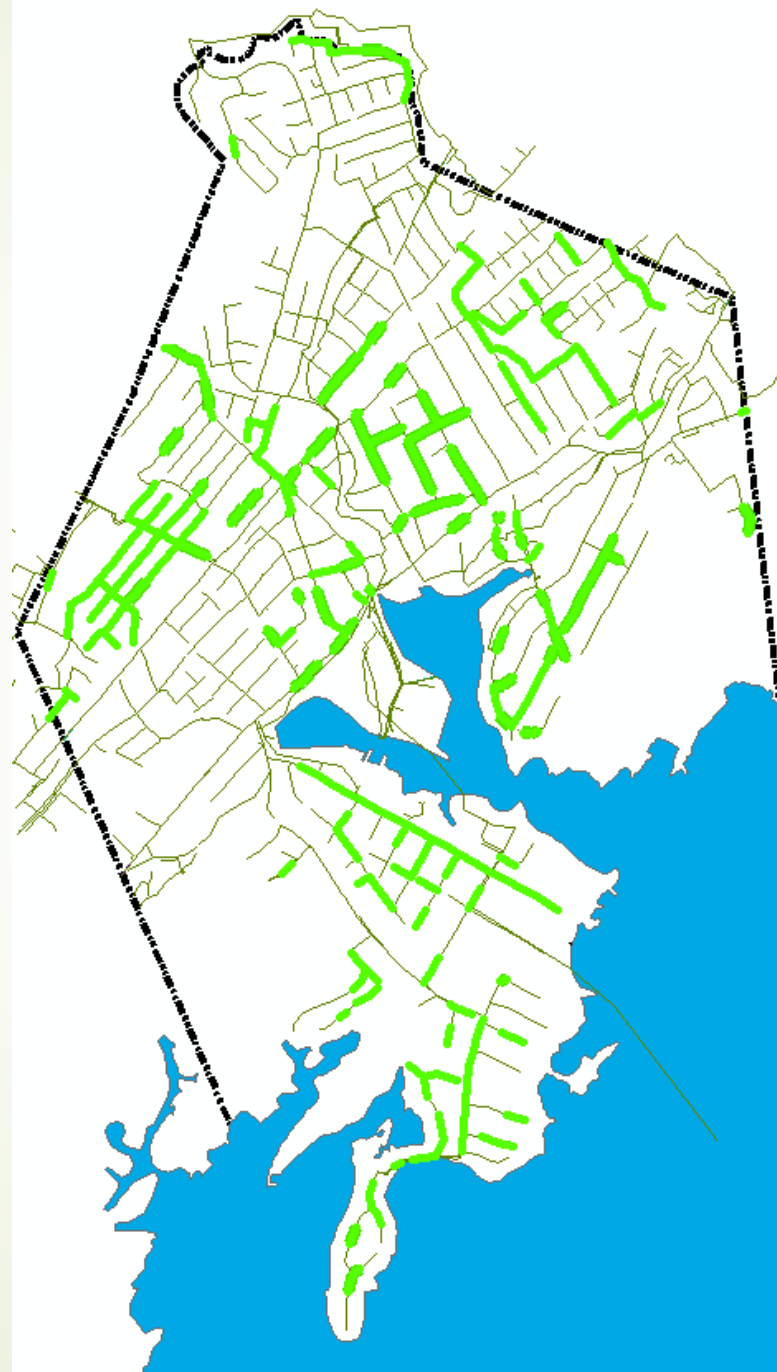
2008



2010

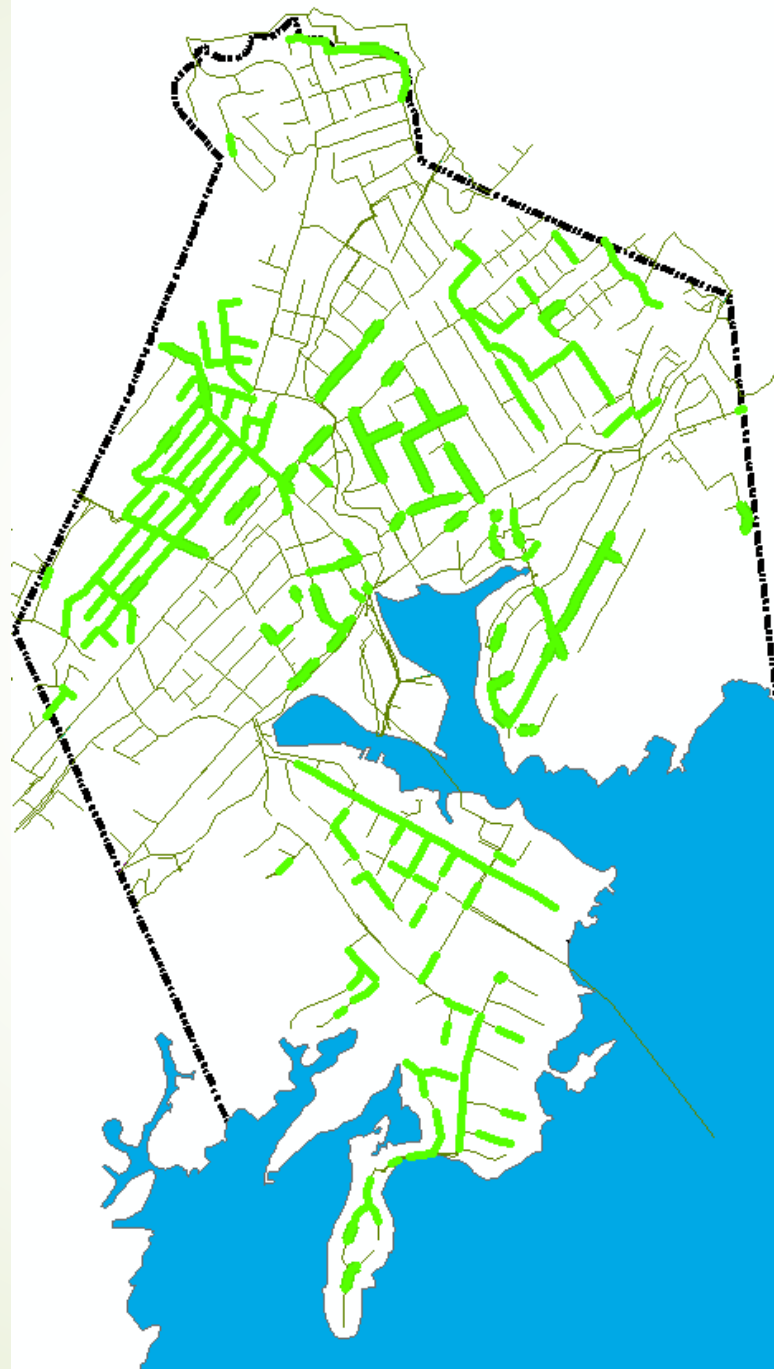


2014





2015



# Future Initiatives

- Sewer lateral program (still in research phase)
  - Program to effectuate inspection/replacement/repair of defective sewer laterals.
- Continued sliplining- if annual rate were to continue (4% last year) all village sewer lines could be rehabilitated by 2030.
- Continuous oversight of sewer rehabilitation initiatives through the use of GIS.
- Continued investigation
  - Flow meters installations to identify areas with higher rates of I/I.
  - Smoke testing & dye testing.
  - Manhole Inspections.
  - Sump pump and illicit connection inspections.
  - Video inspections.
- Outcomes oriented approach- identifying and rehabilitating areas that will result in lower bacteria levels in village waterways and the Long Island Sound.
  - 2016 Sliplining to include large line that runs ~~perpendicular~~ parallel to Mamaroneck River.



# Live GIS Demonstration

- SSES Comparison Map
  - Interactive Mapping- Infrastructure Portal
  - Rehabilitation Map
  - Water Quality Reporting
- [http://www.village.mamaroneck.ny.us/Pages/MamaroneckNY\\_WaterQuality/index](http://www.village.mamaroneck.ny.us/Pages/MamaroneckNY_WaterQuality/index)

# SSES Comparison Map

