

FIVE TOWNS DRAINAGE IMPROVEMENTS: LAWRENCE PIPE IMPROVEMENTS PUBLIC INFORMATION MEETING

February 2019

New York State Governor's Office of Storm Recovery (GOSR) – Funded
Disaster Recovery



Governor's Office of
Storm Recovery

Project Team:



GEDEON GRC CONSULTING
ENGINEERS • PLANNERS • CONSTRUCTION MANAGERS



PROJECT TEAM

- **Nassau County, Department of Public Works will be overseeing the design and construction of this project.**
 - **Sean E. Sallie AICP, Deputy Commissioner of Public Works**
 - **Joseph Cuomo, Project Manager – Planning Division**

- **This project is funded by a CDBG-DR Grant through the Governor’s Office of Storm Recovery.**

- **L.K. McLean Associates, PC is the lead firm tasked with the completing the design of these drainage improvements.**
 - **Robert Steele, PE – Project Officer, L.K. McLean Associates, P.C.**
 - **Gilbert Anderson, PE – Project Manager, L.K. McLean Associates, P.C.**

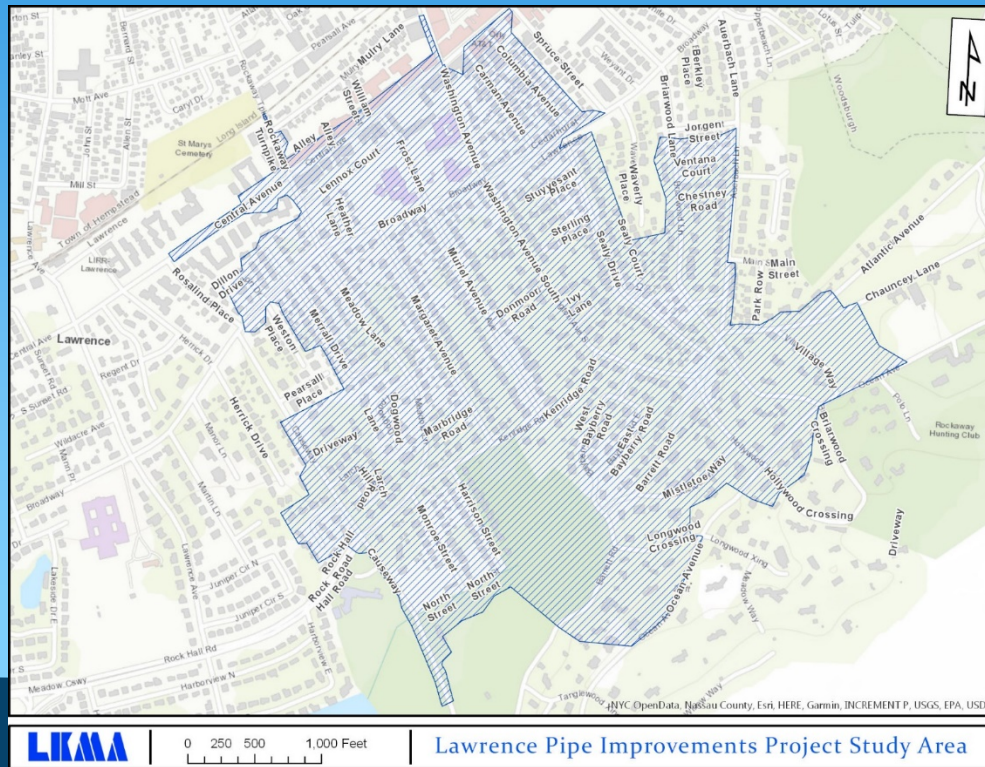
- **The Lawrence Pipe Improvements Project was derived from the Five Towns Drainage Study, which was conceptualized in the Five Towns Community Reconstruction Plan. This study was published on December 22, 2017. Procurement for the Design Phase began in April, 2018 and began in November 2018.**



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PROJECT PURPOSE AND GOALS

- Implement Priority Project, as identified and recommended in the Five Towns Drainage Study.
- Priority Project includes improvements within the Meadow Lane/Barret Road Watershed.



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PROJECT STUDY AREA

PROJECT PURPOSE AND GOALS Cont.

- **Identify Potential Design Solutions to Mitigate Flooding Issues to the Maximum Extent Feasible Within the Available Funding. (Funding = \$8.776 Million Overall; including design, construction, construction management and contingency)**
- **Identify Potential Design Solutions that will Minimize Flooding as well as Improve Water Quality**
- **Prioritize Project's Feasible Design Alternative Components from High Priority to Low Priority**
- **Prepare Design Plans and Construction Documentation for Selected Priority Project**



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WORK TO DATE

- **TOPOGRAPHIC SURVEY HAS STARTED AND IS CURRENTLY PROGRESSING IN THE PROJECT AREA. INITIAL FOCUS WAS ON DRAINAGE AND UTILITIES.**
- **A GIS BASED DRAINAGE INVENTORY HAS BEEN DEVELOPED THAT IDENTIFIES THE DRAINAGE STRUCTURES AND PIPES WITHIN THE WATERSHED AREA.**
- **THE EXISTING WATERSHED AND SUB-WATERSHED AREAS HAVE BEEN DELINEATED.**
- **THE EXISTING CONDITIONS DRAINAGE MODEL HAS BEEN DEVELOPED AND IDENTIFICATION OF THE DEFICIENCIES UNDER VARIOUS STORM CONDITIONS IS BEING ANALYZED.**
- **A CONCEPTUAL DESIGN ALTERNATIVE HAS BEEN CREATED TO ADDRESS THE IDENTIFIED DEFICIENCIES AND CONTINUES TO BE PROGRESSED.**
- **THE TECHNICAL DESIGN REPORT IS CURRENTLY BEING DRAFTED WHICH WILL DOCUMENT THE FINDINGS AND RECOMMENDATION OF THE DRAINAGE STUDY.**



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EXISTING DRAINAGE NETWORK



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OBSERVED FLOODING

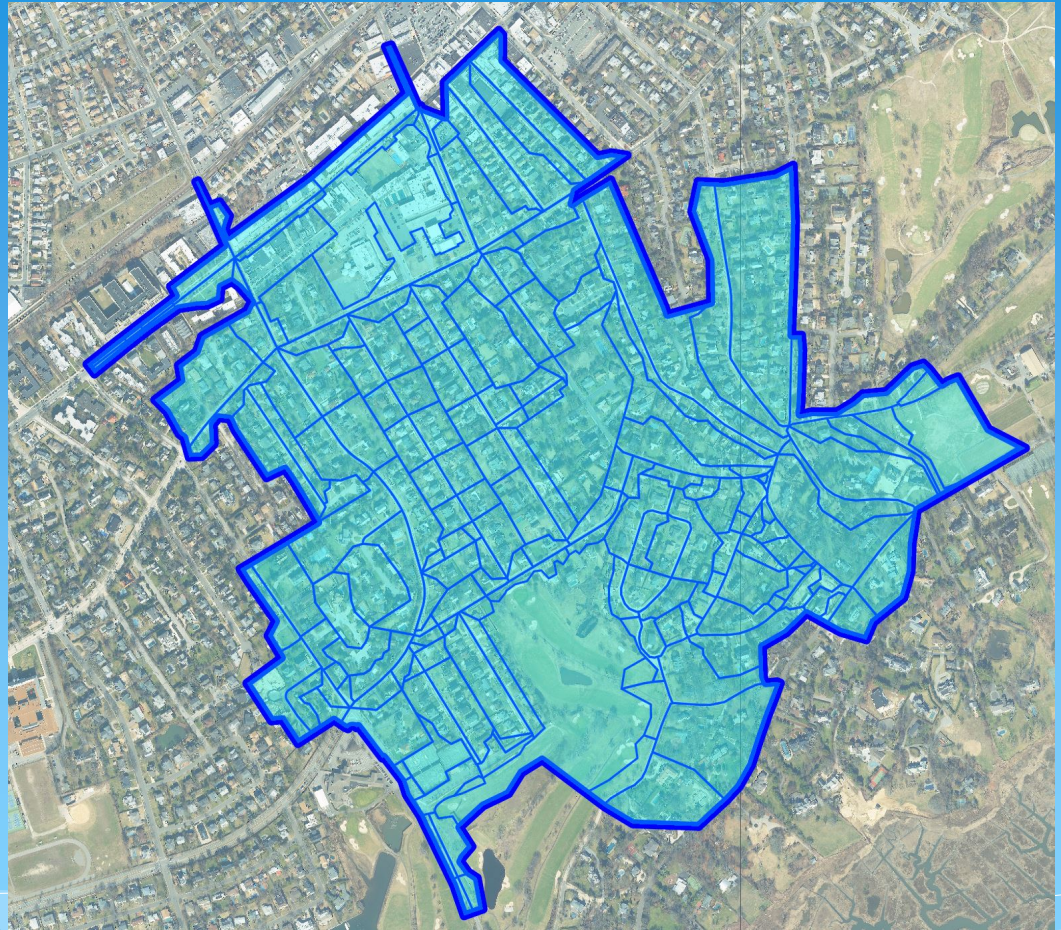
- DURING STUDY PERIOD, SIGNIFICANT FLOODING WAS OBSERVED ON January 24, 2019. THIS WAS A 2.13" IN 24 HR. RAINFALL COMBINED WITH A TIDAL SURGE THAT REACHED EL. 3.52' (NAVD88) IN BANNISTER BAY
- MINOR FLOODING WAS ALSO OBSERVED ON JANUARY 25, 2019. NO RAIN BUT A ELEVATED TIDE OF 3.29' (NAVD88) OCCURRED.



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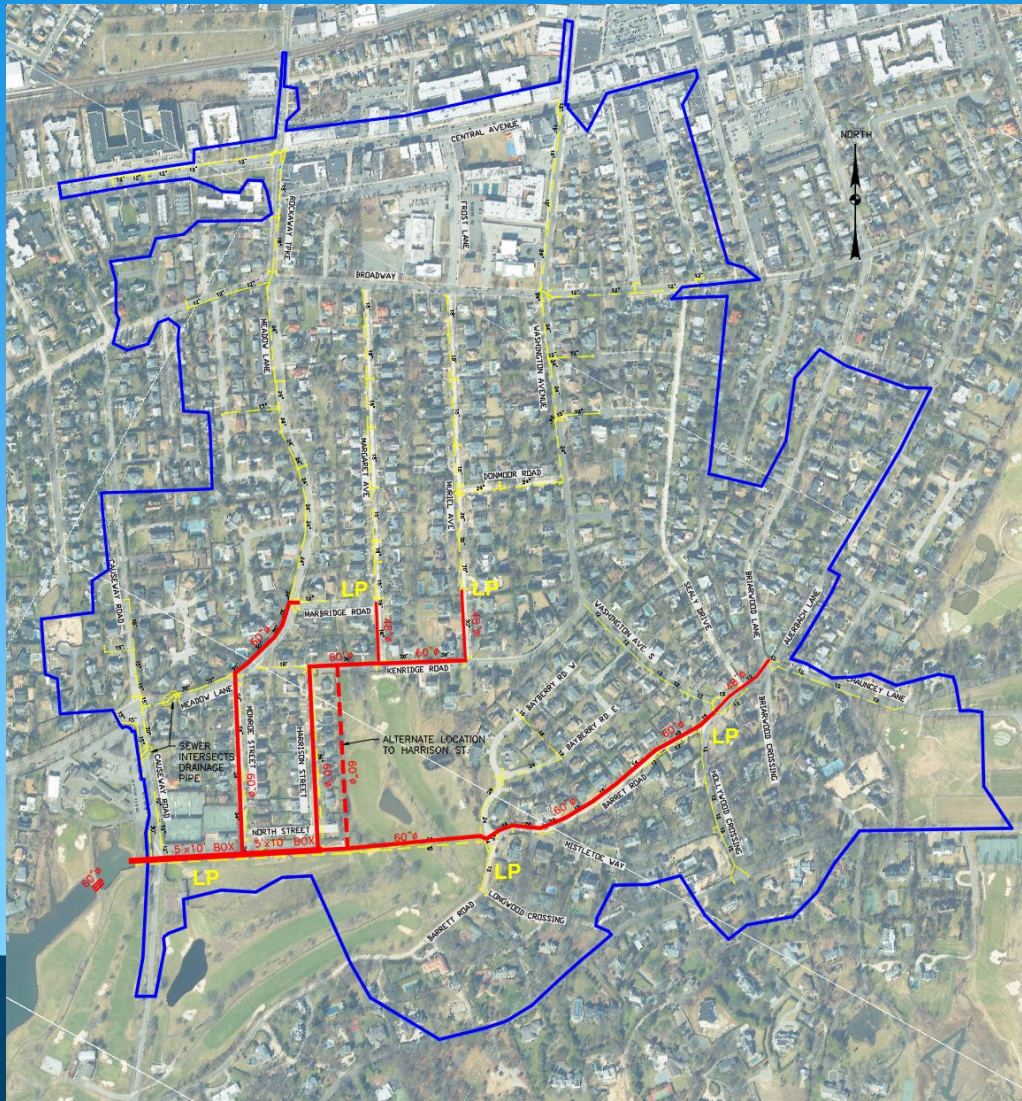
LAWRENCE PIPE WATERSHED

- **Watershed is 287 Acres**
- **With 185 identified Sub-Watersheds**
- **Extends from LIRR to Bannister Bay**



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CONCEPTUAL PLAN



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PROPOSED DESIGN COMPONENT 1

INSTALL NEW LARGER STORM DRAINAGE PIPING AND CULVERTS TO COLLECT, AND IN SOME CASES, REDIRECT AND DISTRIBUTE STORM WATER AWAY FROM PROBLEM AREAS.

BENEFITS: PROVIDE INCREASED CAPACITY FOR STORM WATER DISTRIBUTION AND STORAGE.



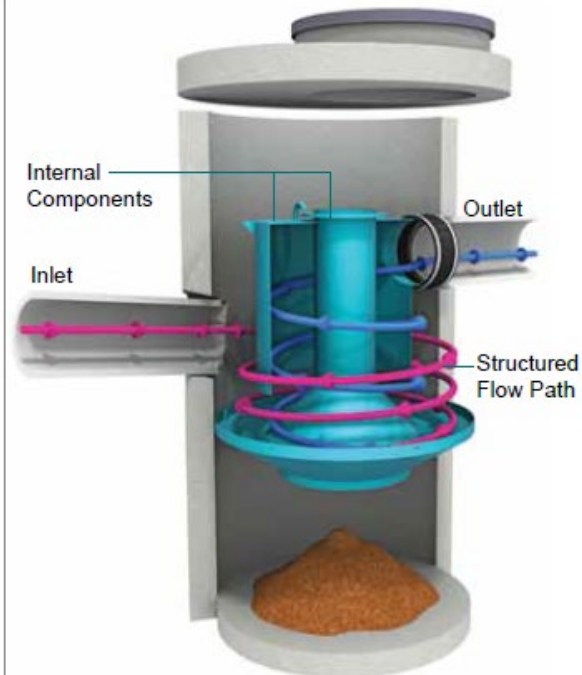
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PROPOSED DESIGN COMPONENT 2

INSTALL STORMWATER TREATMENT DEVICES PRIOR TO OUTFALLING TO BANNISTER BAY

BENEFITS: REMOVES FLOATABLES, SEDIMENT AND OILS FROM RUNOFF BEFORE IT ENTERS BANNISTER BAY.

Fig.1 Downstream Defender® Advanced Vortex Separator



Gross pollutants



Coarse sediments



Oil & grease



Finer sediments



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PROPOSED DESIGN COMPONENT 3

INSTALL NEW CHECK VALVE / TIDE GATE AT OUTFALL TO BANNISTER BAY.

BENEFITS: MINIMIZES BAY WATERS TO ENTER SYSTEM PROVIDING ADDITIONAL CAPACITY WITHIN SYSTEM FOR STORAGE DURING MINOR RAIN EVENTS.

**Sample*



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BENEFITS OF DESIGN ALTERNATIVES

- ❑ The installation of Storm Water Treatment Systems will remove floatables, sediments and oils from runoff before it enters Bannister Bay.
- ❑ The design of the drainage improvements will account for 2 different types of weather events, a tidal event and a rain event.
 - ❑ **Tidal** - The design alternative will look to mitigate flooding for a weather event that includes a 1-year rainfall (2.7” 24-hour storm) peak intensity occurring simultaneously with a 1-year tailwater elevation (Elevation 4.42’ NAVD88). **Note that this is a more severe storm that recently occurred on January 24, 2019, which had a 2.13” rainfall and a tailwater elevation of 3.52’ (NAVD88)**
 - ❑ **Rain** - The design alternative will look to mitigate flooding for a weather event that includes a 10-year rainfall (5.17” 24-hour storm) peak intensity combined with a normal high tide of 2.62’ (NAVD88). **Note that this design scenario has the probability of occurring approximately 1 time every 10 years.**



BENEFITS OF DESIGN ALTERNATIVES cont.

- ❑ The design will analyze the benefits of new tide gates / check valves to determine if they have the potential to reduce the occurrence of flooding from tidal surges during dry weather or low intensity rainfalls (waiting on survey elevations to complete our analysis).



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