OFFICE OF THE
VILLAGE MANAGER
VILLAGE HALL
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Village Board of Trustees Work Session Agenda

May 28, 2026
6:00 PM

Meeting Information

A Work Session of the Scarsdale Village Board of Trustees is scheduled for 6:00 PM on Thursday, May 28, 2026. The meeting will be held in Village Hall. Members of the public wishing to attend the meeting remotely can do so via online link at https://zoom.us/j/93183703358, or call into the meeting using 1-929-436-2866 and entering the Meeting ID 931 8370 3358.*

Agenda

- Discussion of Stormwater Grant Applications

SCARSDALE
1701
NEW YORK

To: Alexandra Marshall, Village Manager

From: Stephen Shallo, Dep. Village Manager

Date: Wednesday, May 27, 2026

RE: Westchester County Flood Mitigation Grant Updates

MEMORANDUM
Village Manager's Office

In 2024, the Village had commissioned engineering reports with H2M Architects and Mott McDonald to study several areas within the Village that experience flooding and drainage issues. These reports identified improvements to be made in four different areas which included adding new storm water piping, upsizing existing piping, adding surface inlets, replacing damaged piping, removal of sediment, and other improvements. Based on the findings, the project costs were estimated as follows:

- Brite Avenue: $3,380,000
- Cushman Road: $7,339,280
- George Field: $8,473,360
- Griffen Avenue: $747,500

These projects, among others, were presented at the Village Board Work Session on July 15, 2025. The project description for Brite Avenue can be found on slides 2-5 of the Mott MacDonald Presentation. George Field and Cushman Road projects are contained in the H2M presentation.

On September 25, 2025, the Village of Scarsdale submitted three applications to Westchester County Planning Department as part of their Flood Mitigation Grant program: Cushman Road, George Field, and Griffen Avenue. The fourth – Brite Avenue – proposed new drainage systems and, as such, Westchester County required us to submit SEQRA documentation before any submission could be accepted. On November 20, DPW Superintendent Jeff Coleman, Village Engineer David Goessl, and Deputy Village Manger Stephen Shallo, and the consulting engineers met with the County Stormwater Advisory Board to provide an overview of the proposed projects and answer technical questions.

On December 2, 2025, Westchester County Planning Department reviewed the applications and recommended George Field, Cushman, and Griffen Ave for consideration by the Westchester County Board of Legislators. The Brite Avenue project has also been submitted and is currently working its way through the application process. In March 2026, the Planning Department asked the Village to submit a resolution from the governing board of the municipality demonstrating its financial commitment to the projects, including authorization of its representatives to execute the necessary documents to undertake the project. Additionally, the County Planning Department requested a resolution from the governing board of the municipality demonstrating its commitment to work cooperatively with the County and other municipalities within its watershed to reduce flooding, flood risk and flood damages.

Prior to these submissions, it had been the intention of the Village to wait on approving funding until the County had reached a decision on the grant funding amounts that would be made available for these projects. On March 25, 2026, staff shared the FY2027 Tentative Budget with the County to demonstrate the Village's commitment to addressing stormwater improvements. The County was informed that the Village of Scarsdale had earmarked debt for stormwater improvements as well as identified fund balance to be potentially allocated towards these projects including:

- Assigned fund balance in the amount of $1,800,000 for FY27
- Debt issuance in the amount of $4,140,000 for FY27
- Debt issuance in the amount of $4,140,000 for FY28

The final adopted budget was shared with the County demonstrating the same. On April 29, 2026, the County Planning Department informed the Village that approved debt authorization would be required prior to June 19th in order for the applications to be considered for funding by the County Board of Legislators. The Village Board will need to consider this debt authorization at the June 9 Village Board meeting in order for these projects to move forward with Westchester County. It is anticipated that the Village would be awarded 50% of the project costs by Westchester County.

Please let me know if you have any questions.

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George Field Park/Rugby Road - Background

A Village-wide flood study from May 2022, highlighted flood-prone areas, including the **George Field Park bio-retention pond and downstream drainage infrastructure** on Rugby Lane and Cambridge Road.

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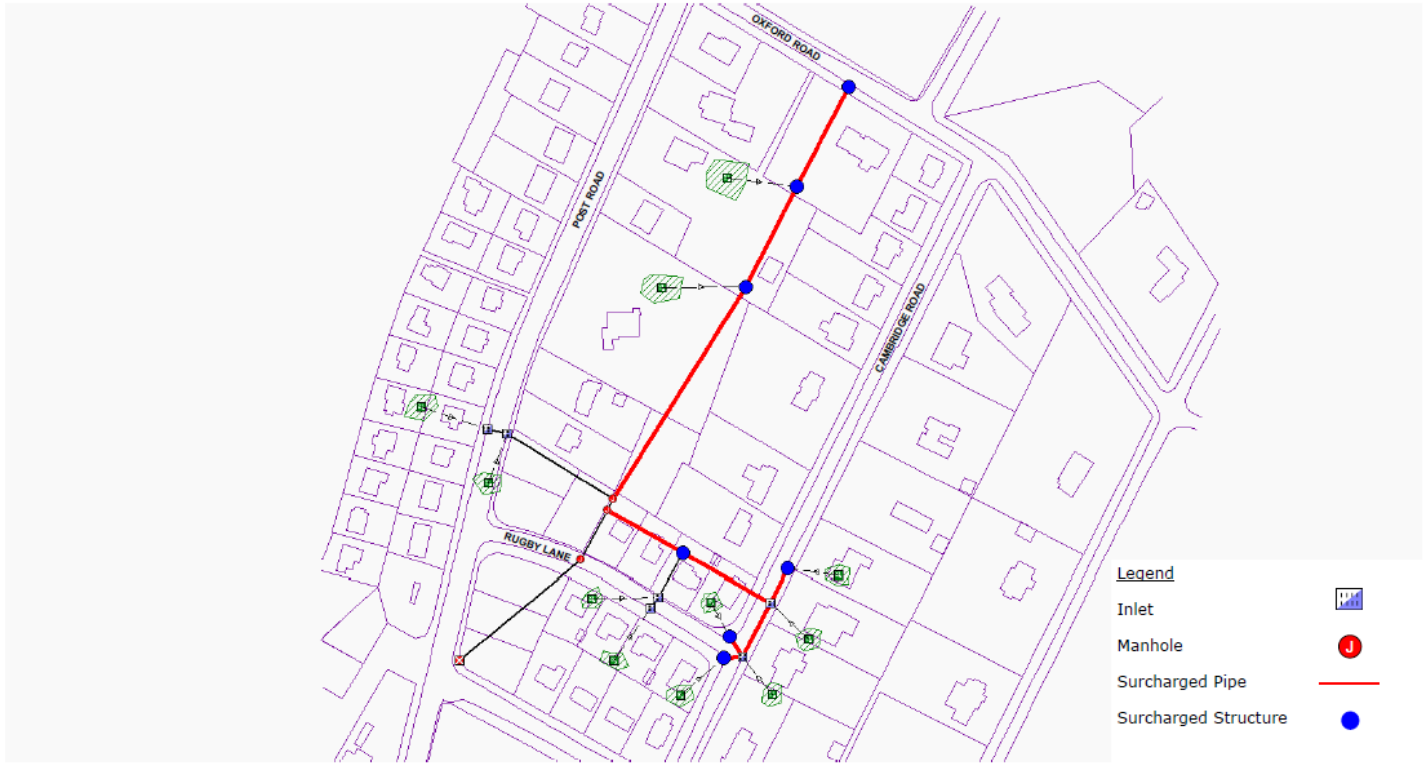
Benefit Cost Analysis (BCA)

Federal Emergency Management Agency (FEMA), BCA is a method that determines the future risk reduction benefits of a hazard mitigation project and compares those benefits to its costs.

The BCA was based on data the village was able to collect from previous storm events. This included village direct costs such as storm and sanitary sewer heavy cleaning, system backups, roadway cleanings, repairs and information received from private property owners' damages.

10 YEAR Storm Plan Plot
Cambridge Rd, Rugby Lane, Post Rd & Oxford Rd

10 Year Storm Plan Plot
Cambridge Road, Rugby Lane, Post Road & Oxford Road



Autodesk Storm and Sanitary Analysis

EXISTING CONDITION

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George Field Park /Rugby Road – Proposed Downstream Piping Improvements

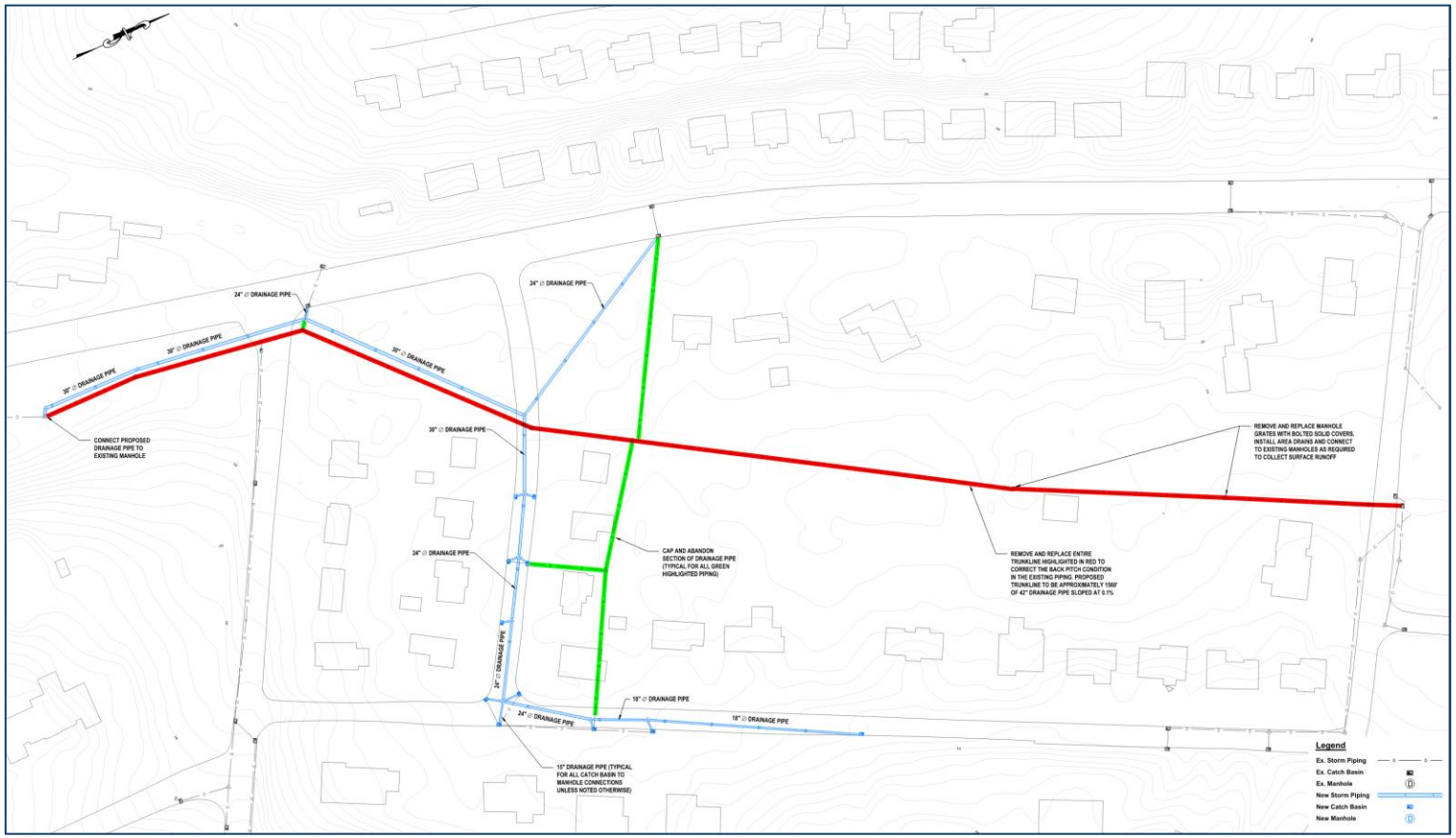
Opinion of Probable Cost: $2,251,600

Proposed Improvements:

- Cap and abandon sections of existing piping. (highlighted in green)
- Install 1,645’ of piping, 10 manholes, and 4 catch basins. (highlighted in blue)
- Routes highlighted in green and blue will be rerouted to Cooper Green.
- Remove and replace catch basins and trunkline between George Field Park and Cooper Green. (highlighted in red)

Impact:

- **Decrease runoff** entering the trunkline between George Field Park and Cooper Green.
- Significantly **reduces** flooding frequency and severity during **10-year design storms.**
- Provides substantial **benefits for 25-year design storms.**



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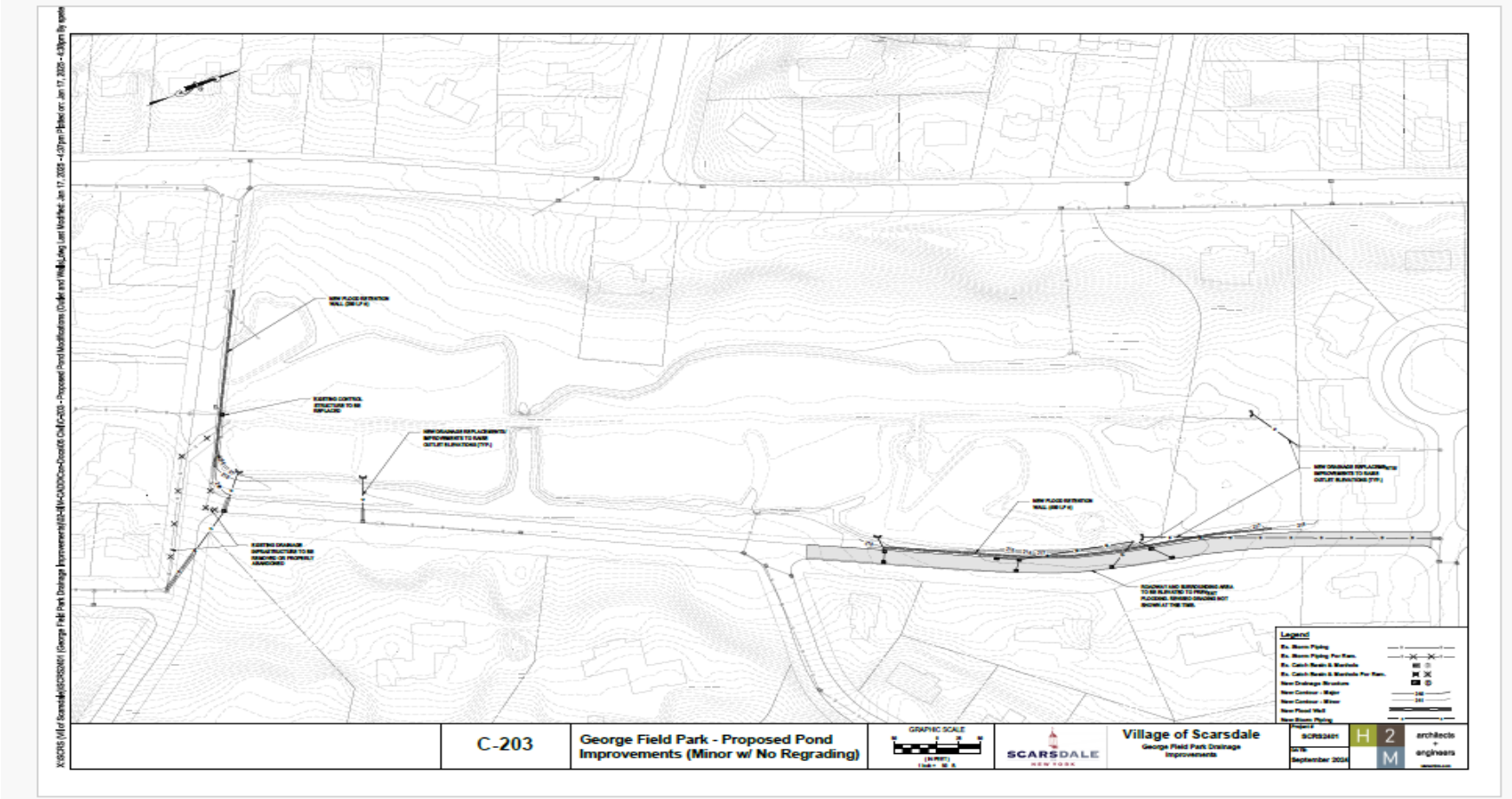
Calculations for BCA Calculator-Piping Improvements

CALCULATIONS FOR BCA CALCULATOR - Piping Improvements						
Improvement Item Description	**Unit**	**Quantity**		**Unit Price**		**Total**
Annual Maintenance - Inspect and Clean Drainage Structures	EA	21	$	18.00	$	378.00
Damages Before Mitigation - 100 year						
Property Damages - Hurrican Ida (2021) - 100 year	EA	33	$	100,000.00	$	3,300,000
DPW	/100 LF	550	$	15,000.00	$	82,500.00
Pavement and Drainage Repairs	/100 LF	3100	$	800.00	$	24,800.00
Police Cost	EA Location	4	$	3,100.00	$	12,400.00
Heavy Cleaning - Drainage	/750 LF	1400	$	4,500.00	$	8,400.00
				Total	$	3,428,100.00
Damages Before Mitigation - 10-year						
Property Damages from Major Rain Events - 10 year	EA	33	$	5,500.00	$	181,500
DPW	/100 LF	550	$	15,000.00	$	82,500.00
Pavement and Drainage Repairs	/100 LF	3100	$	800.00	$	24,800.00
Police Cost	EA Location	4	$	3,100.00	$	12,400.00
Heavy Cleaning - Drainage	/750 LF	1400	$	4,500.00	$	8,400.00
Sanitary Backups, Maintenance, and Repairs	LF	1500	$	3.50	$	5,250.00
				Total	$	314,850.00
Damages After Mitigation - Property, Roadway and Drainage (100-year)						
Property Damages	EA	16	$	75,000.00	$	1,200,000
DPW	/100 LF	750	$	15,000.00	$	112,500
Pavement and Drainage Repairs	/100 LF	3100	$	800.00	$	24,800
Police Cost	EA Location	4	$	3,100.00	$	12,400
Heavy Cleaning - Drainage	/750 LF	800	$	4,500.00	$	4,800.00
				Total	$	1,354,500.00
Damages After Mitigation - Property, Roadway and Drainage (10-year)						
Property Damages	EA	0	$	-	$	-
DPW	/100 LF	0	$	15,000.00	$	-
Pavement and Drainage Repairs	/100 LF	3100	$	800.00	$	24,800
Police Cost	EA Location	3	$	3,100.00	$	9,300
Heavy Cleaning - Drainage	/750 LF	390	$	4,500.00	$	2,340.00
Sanitary Backups, Maintenance, and Repairs	LF	350	$	3.50	$	1,225.00
				Total	$	37,665.00

George Field Park-Minor Pond Improvements w/ No Regrading

Minor Pond Improvements w/ No Regrading – George Field Park	
Opinion of Probable Cost: $1,924,600 (see Appendix E)	
Drainage Issue: Insufficient pond capacity and downstream conveyance, suboptimal outlet control structure design.	**Concept Drawing Location:** Appendix C, C-203
Proposed Improvements: - Install new outlet control structure to reduce discharge for small storm events and reduce risk of surcharge in downstream pipe network. - Elevate section of Greendale Road to prevent local flooding, increase pond detention elevation, and raise elevations of drainage outlets to prevent surcharge and drainage issues upgrade. - Install two new retaining walls (700 LF±) along southern and eastern portions of pond to prevent pond overtopping for up to 10-year storm event. **Flood Mitigation:** As discussed, the existing pond is not optimized to best store runoff for design storms and as modeled would overtop the roadway on Oxford Road prior to the 10-year storm event. The proposed improvements will allow for the storage of the 10-year storm without overtopping the roadway or needing to regrade the pond as indicated in the first alternative.	
Downstream Impact: The existing outlet control structure allowed for significant flows to continue downstream with little attenuation and storage within the pond. The proposed new outlet control structure would reduce smaller storm events and store more runoff volume within the pond which would alleviate some of the downstream pipe capacity issues the drainage system currently experiences. These improvements would lessen the chance of pipe surcharge.	

George Field Park- Proposed Pond Improvements (Minor w/ No Regrading)



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George Field Calculations for BCA Calculator- Piping & Minor Improvements (No Regrading)

CALCULATIONS FOR BCA CALCULATOR - Piping & Minor Pond Improvements (No Regrading)						
Improvement Item Description	**Unit**	**Quantity**		**Unit Price**		**Total**
Annual Maintenance - Inspect and Clean Drainage Structures	EA	36	$	18.00	$	648.00
Damages Before Mitigation - 100 year						
Property Damages - Hurrican Ida (2021) - 100 year	EA	36	$	100,000.00	$	3,600,000
DPW	/100 LF	4000	$	15,000.00	$	600,000.00
Pavement and Drainage Repairs	/100 LF	4000	$	800.00	$	32,000.00
Police Cost	EA Location	6	$	3,100.00	$	18,600.00
Heavy Cleaning - Drainage	/750 LF	1400	$	4,500.00	$	8,400.00
				Total	$	4,259,000.00
Damages Before Mitigation - 10-year						
Property Damages from Major Rain Events - 10 year	EA	33	$	4,000.00	$	132,000
DPW	/100 LF	4000	$	15,000.00	$	600,000.00
Pavement and Drainage Repairs	/100 LF	4000	$	800.00	$	32,000.00
Police Cost	EA Location	6	$	3,100.00	$	18,600.00
Heavy Cleaning - Drainage	/750 LF	1400	$	4,500.00	$	8,400.00
Sanitary Backups, Maintenance, and Repairs	LF	1750	$	3.50	$	6,125.00
				Total	$	797,125.00
Damages After Mitigation - Property, Roadway and Drainage (100-year)						
Property Damages	EA	19	$	60,000.00	$	1,140,000
DPW	/100 LF	4000	$	15,000.00	$	600,000
Pavement and Drainage Repairs	/100 LF	2200	$	800.00	$	17,600
Police Cost	EA Location	6	$	3,100.00	$	18,600
Heavy Cleaning - Drainage	/750 LF	1000	$	4,500.00	$	6,000.00
				Total	$	1,782,200.00
Damages After Mitigation - Property, Roadway and Drainage (10-year)						
Property Damages	EA	12	$	4,000.00	$	48,000
DPW	/100 LF	500	$	15,000.00	$	75,000
Pavement and Drainage Repairs	/100 LF	500	$	800.00	$	4,000
Police Cost	EA Location	3	$	3,100.00	$	9,300
Heavy Cleaning - Drainage	/750 LF	500	$	4,500.00	$	3,000.00
Sanitary Backups, Maintenance, and Repairs	LF	600	$	3.50	$	2,100.00
				Total	$	141,400.00

George Field Park

The BCA explored 3 alternatives based on the H/H analysis

- Proposed piping improvements
- Proposed minor pond improvements with no regrading
- Combination of piping improvements and minor pond improvements (w/ no regrading)

The other alternatives (minor improvements w/ regrading and major pond improvements) was not further explored as they resulted in additional cost with minimal additional benefits.

BCA is shown below:

Proposed Improvement Option	BCR
Piping Improvement	0.52
Minor Pond Improvements w/ no regrading	0.12
Combined Improvements	0.32

Cushman, Willow, and Sheldrake - Background

- A Village-wide flood study from May 2022, highlighted flood-prone areas, including Cushman Road, Garden Road, Willow Lane, and Sheldrake Road.
- The Village has historically received complaints from residents in these neighborhoods.
- Primary concerns involve drainage issues affecting both private properties and public areas.

Cushman, Willow, and Sheldrake – Projected Costs & BCA Based On 4 Alternatives

Projected costs an BCA was generated based on 4 alternatives. The existing drainage system does not have sufficient capacity to convey a 2 year storm event.

The alternatives are listed as:

Drainage Improvements Area 1- Cushman West
Drainage Improvements Area 2- Cushman North
Drainage Improvements Area 3- Cushman East/Immediate
Drainage Improvements Area 3- Cushman East/ Future

2 Year Storm Plan Plot
Cushman Rd, Garden Rd, Willow Lane & Sheldrake Rd.

Cushman, Willow, and Sheldrake – Drainage Area 1 (Cushman West)

Opinion of Probable Cost: $1,447,000

Proposed Improvements:

- Install approximately 2,040’ of new drainage infrastructure within Cushman Road.
- It is recommended that 7 existing structures should be removed and replaced with NYSDOT standard catch basins.
- Install an additional 8 catch basins within Cushman Road to assist in runoff capture.

Impact:

- Provide a higher level of collection and conveyance to reduce runoff bypassing the existing infrastructure.

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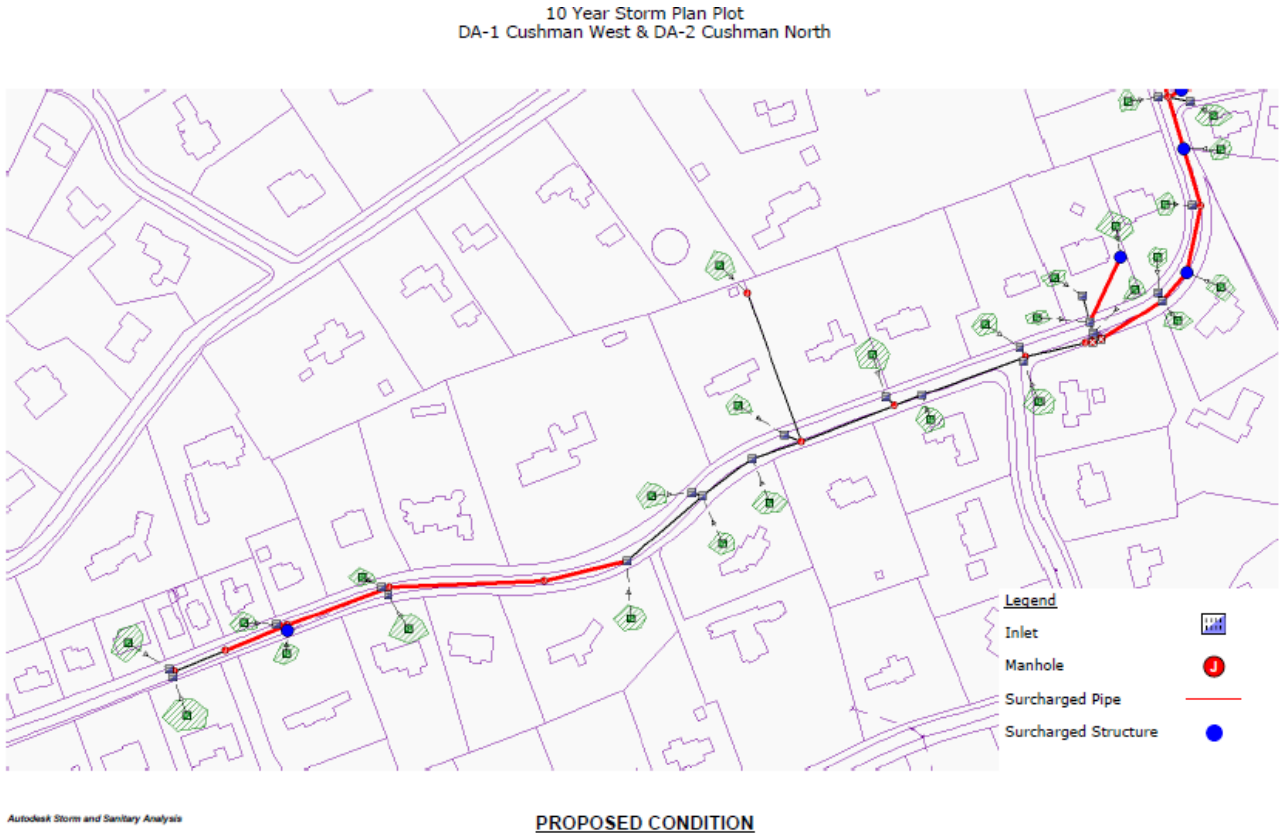
10 Year Storm Plan Plot
DA-1 Cushman Rd West & DA-2 Cushman North



25 Year Storm Plan Plot
DA-1 Cushman Rd West & DA-2 Cushman North

25 Year Storm Plan Plot
DA-1 Cushman West & DA-2 Cushman North

Autodesk Storm and Sanitary Analysis

PROPOSED CONDITION

Cushman, Willow, and Sheldrake – Drainage Area 2 (Cushman North)

Opinion of Probable Cost: $91,200

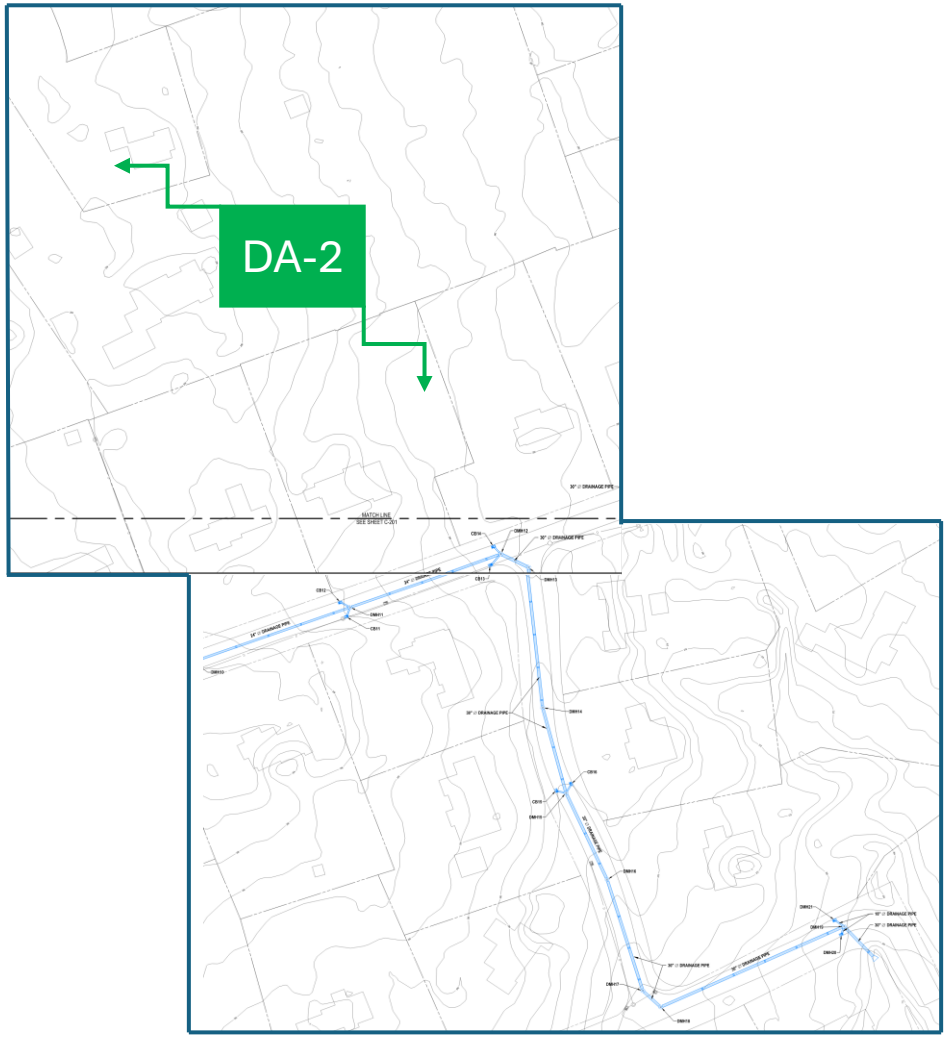
Proposed Improvements:

- Remove and replace the existing, damaged 18” pipe on 105 Cushman Road with a 24” pipe.
- Remove and replace 1 catch basin with a NYSDOT standard catch basin.

*The Village may need to obtain an easement to perform this work if no existing easement is in place.

Impact:

- Improve flow capacity and reduce stormwater backups.
- Reduced ponding and flooding impacts during heavy rain events.
- Address damaged pipe requiring repair or replacement in 5-10 years.



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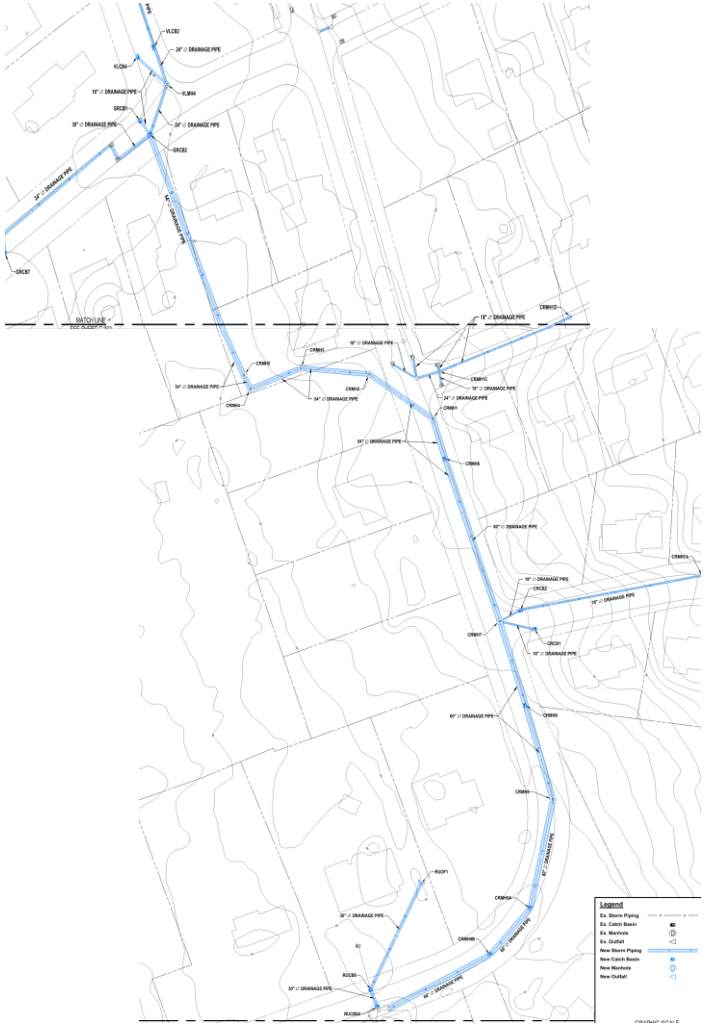
Cushman, Willow, and Sheldrake – Drainage Area 3 (Cushman East – Immediate Improvements)

Opinion of Probable Cost: $759,700
<u>Proposed Improvements:</u> - Remove and replace damaged piping along Cushman Road, Garden Road, and Varian Lane. - Remove and replace 4 existing catch basins with NYSDOT standard catch basins. - Install a total of 6 new catch basins and 1 manhole. - Immediate improvements based on CCTV & defective condition rating (NASSCO rating system) - Additional basins are proposed where ponding was observed. <u>Impact:</u> - Replace damaged piping that will likely require repair or replacement within 10 years.



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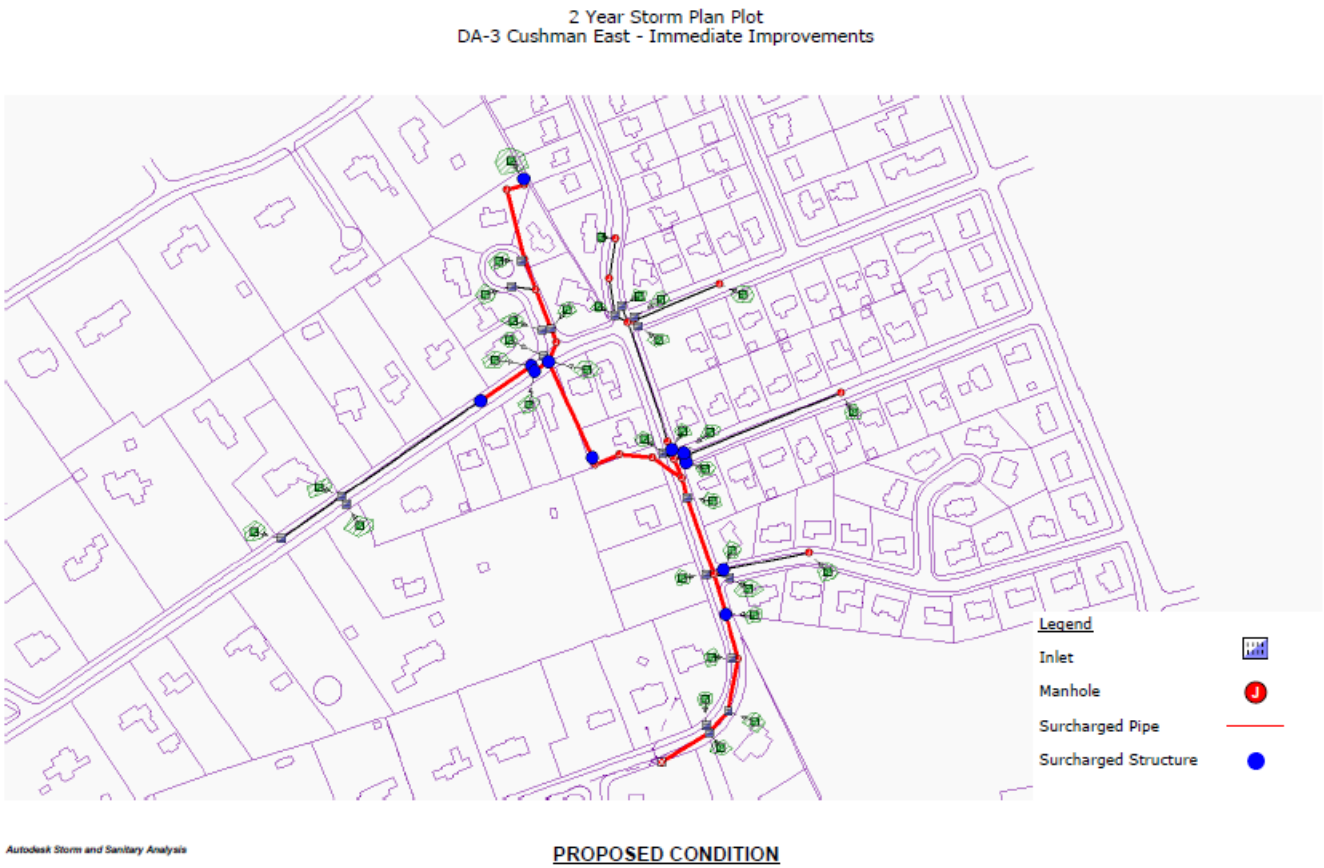
2 Year Storm Plan Plot
DA-3 Cushman East- Immediate Improvements



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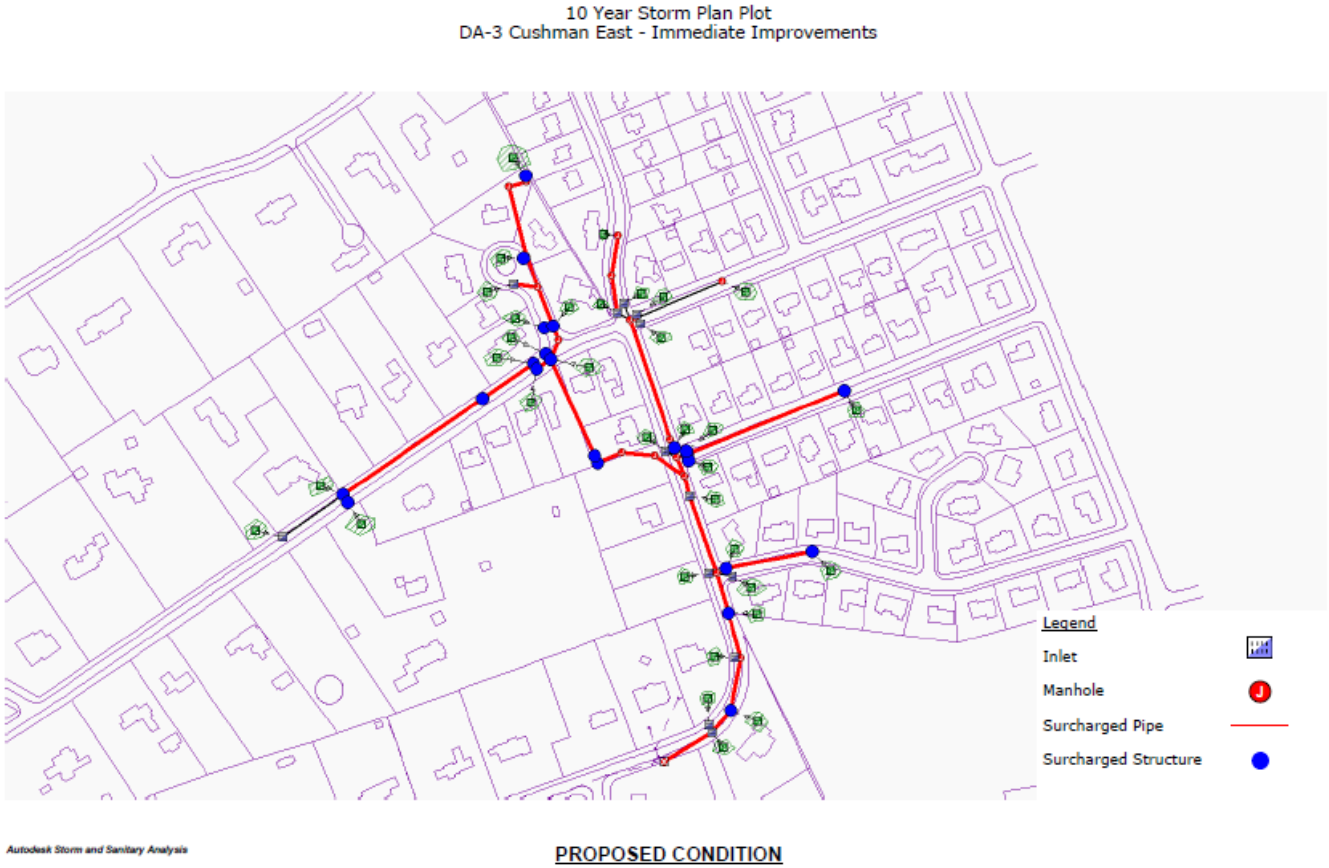
10 Year Storm Plan Plot
DA-3 Cushman East- Immediate Improvements



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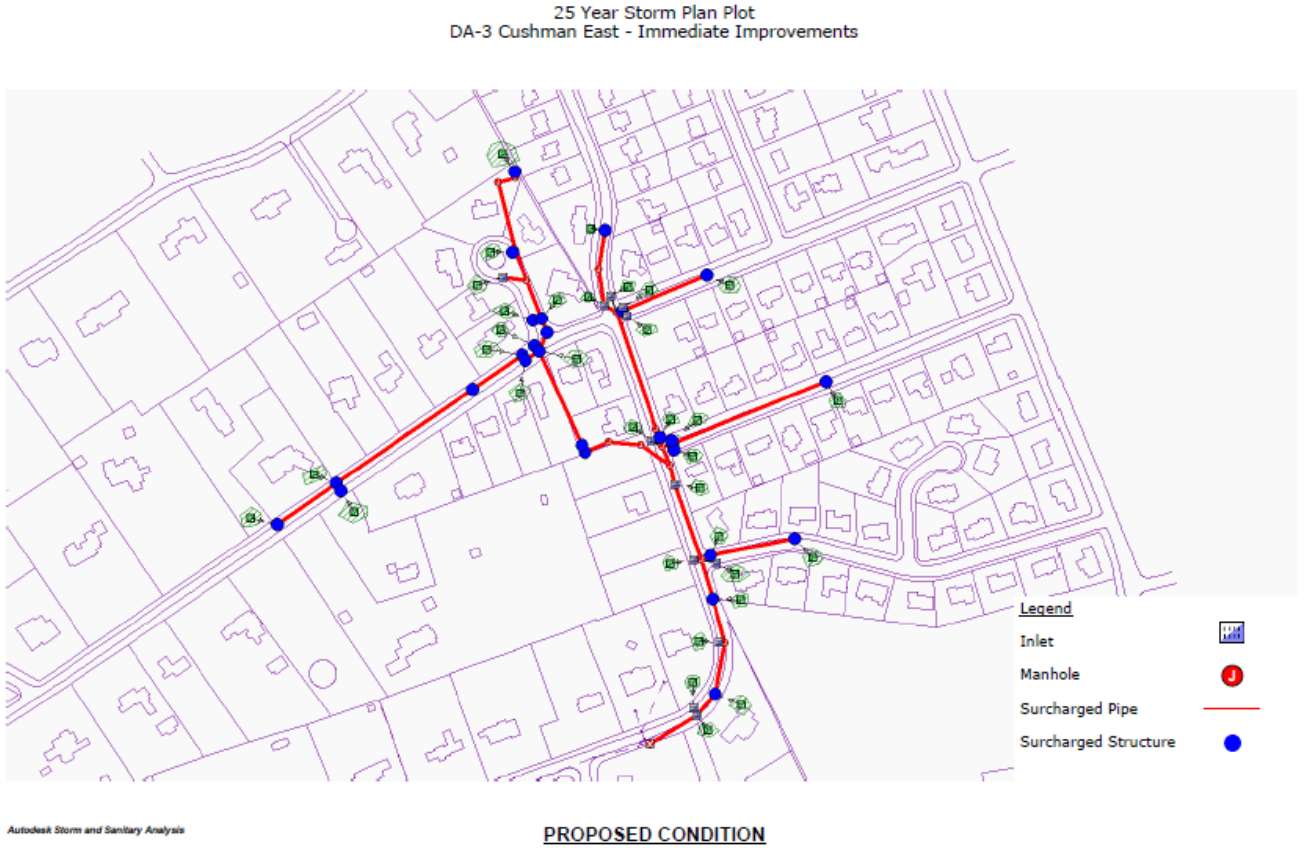
25 Year Storm Plan Plot
DA-3 Cushman East- Immediate Improvements



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Cushman, Willow, and Sheldrake – Drainage Area 3 (Cushman East – Future Improvements)

Opinion of Probable Cost: $3,347,700

Proposed Improvements:

- Increase the existing 35” pipe capacity from the intersection of Garden Road and Cushman Road to the intersection of Earlwoode Drive and Cushman Road to 54”, approximately 515’.
- Increase the existing 35”-42” pipe capacity from the intersection of Earlwoode Drive to the existing sedimentation chamber to 60”, approximately 800’.
- Increase the existing 12” capacity within Garden Road to 24”, approximately 620’.
- Increase the existing 12” capacity within Varian Lane to 24”, approximately 440’.

Impact:

- The existing storm network cannot manage the peak discharge rates generated by the 2, 10, and 25-year storms.
- The proposed improvements will increase flow capacity in the storm network and mitigate surface flooding during heavy rainfall.

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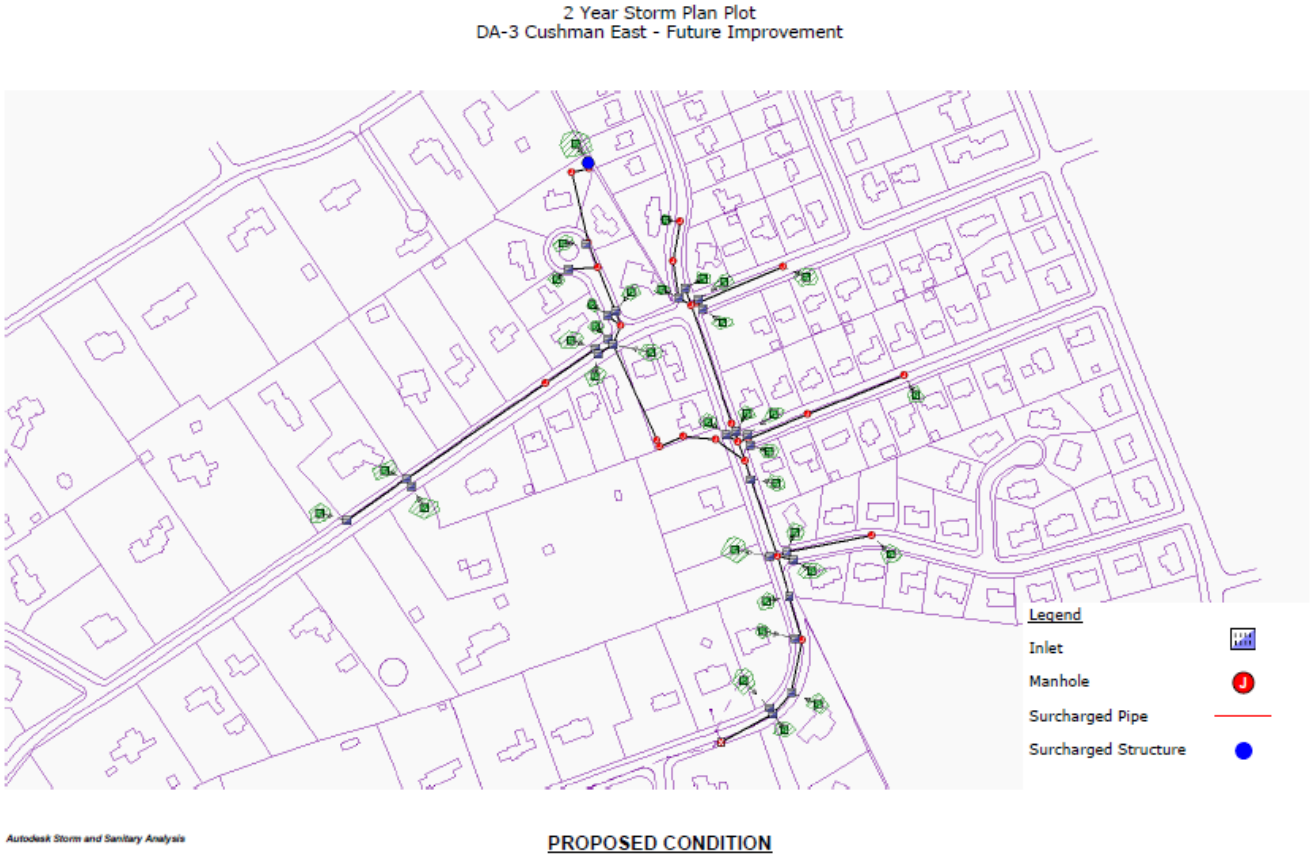
2 Year Storm Plan Plot
DA-3 Cushman East- Future Improvement



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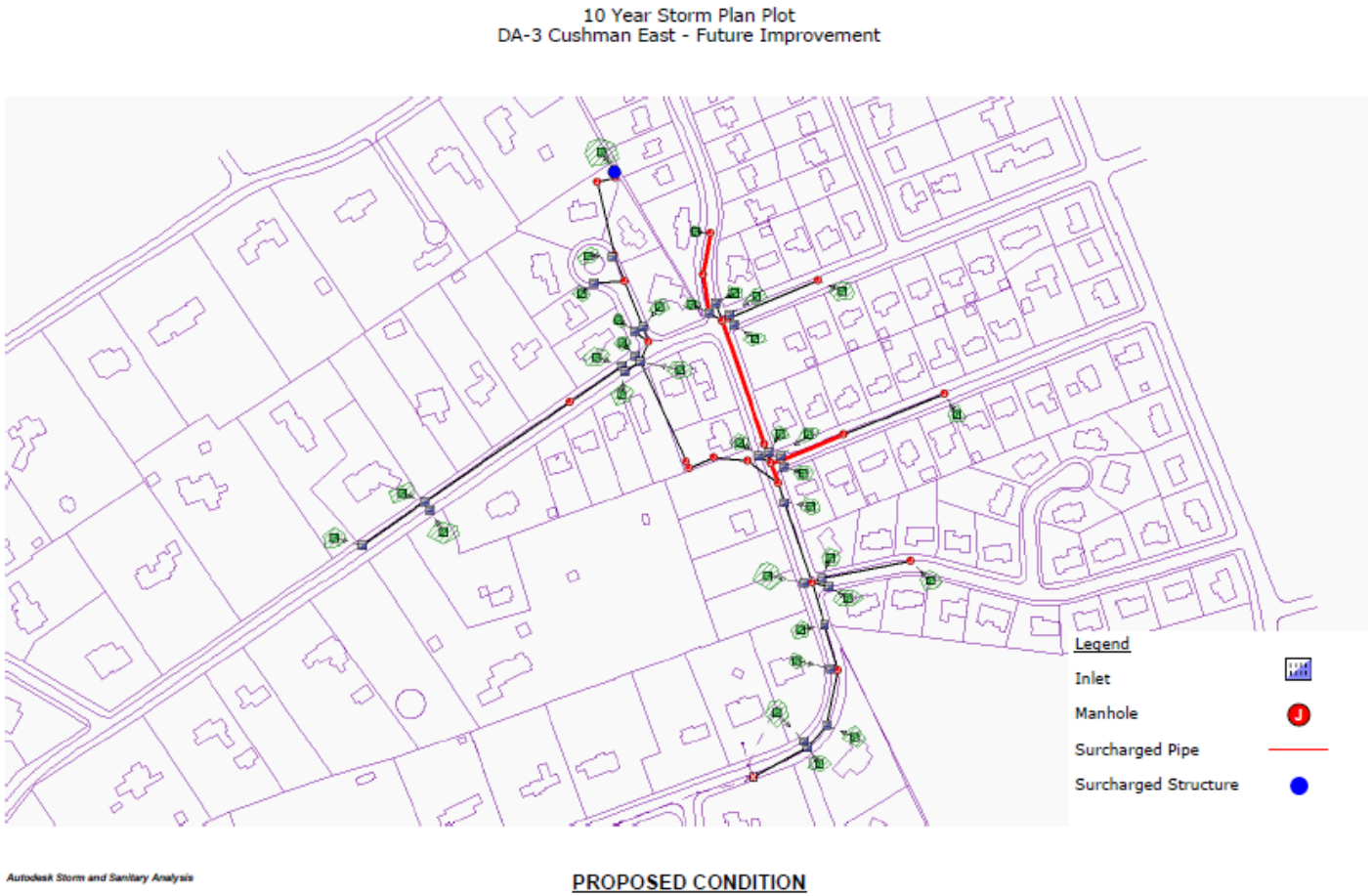
10 Year Storm Plan Plot
DA-3 Cushman East- Future Improvement



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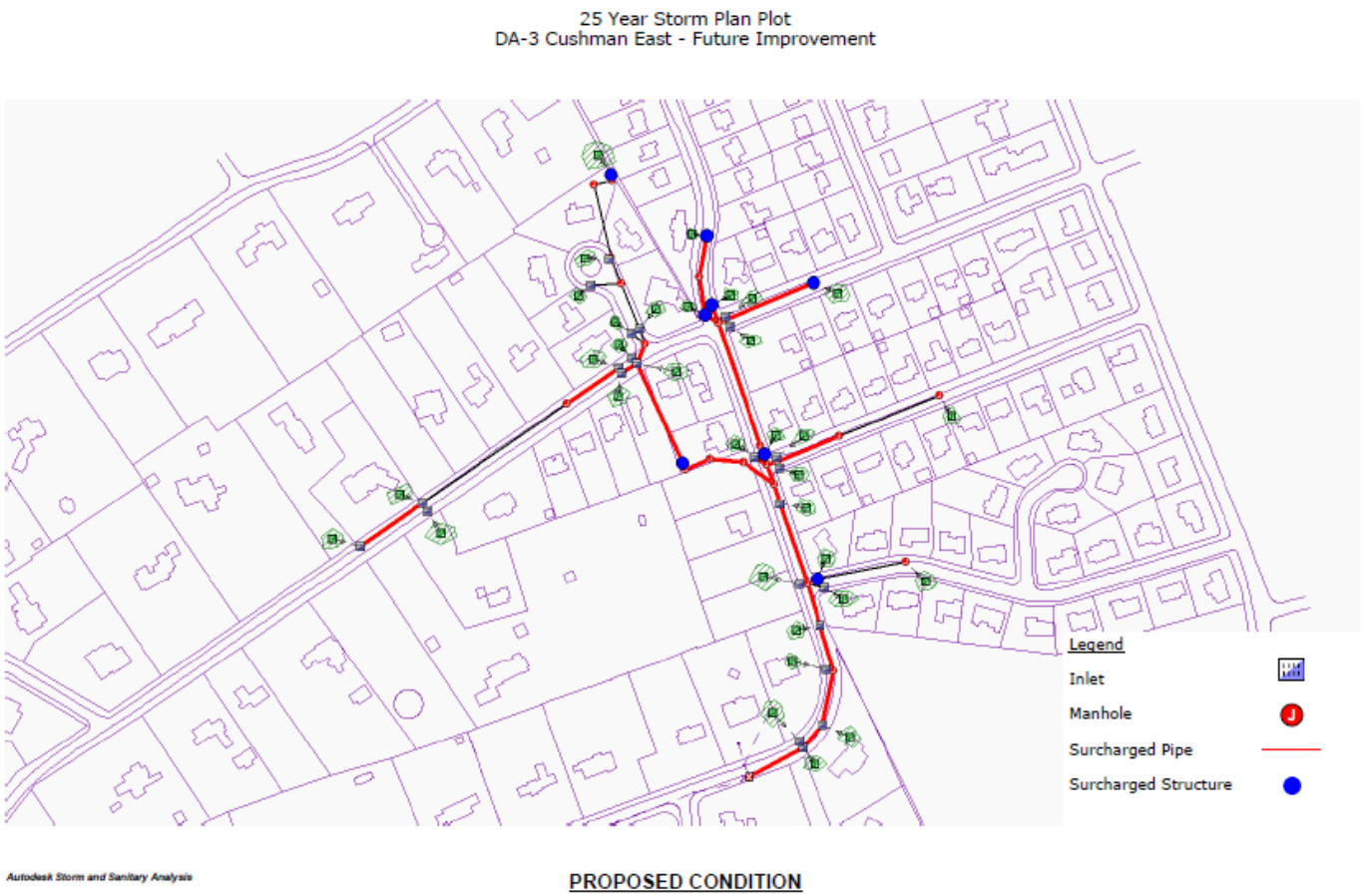
25 Year Storm Plan Plot
DA-3 Cushman East- Future Improvement



PROPOSED CONDITION

Cushman Drainage Improvement BCA Summary

Proposed Improvement Option	Benefit Cost Ratio
Drainage Area1/Cushman West	0.34
Drainage Area2/Cushman North	0.18
Drainage Area3/East- Immediate	0.20
Drainage Area3/East- Future	0.21

Based on the BCA, the greatest benefit in flood reduction and future costs are the improvements to Cushman West and North. Improvements to Drainage Area East (both immediate and future) while beneficial will still experience surcharges in pipe segments for the 10 and 25 year storm events. Downstream storm network capacity will limit these improvements.

MOTT MACDONALD

Village of Scarsdale Flood Mitigation Projects

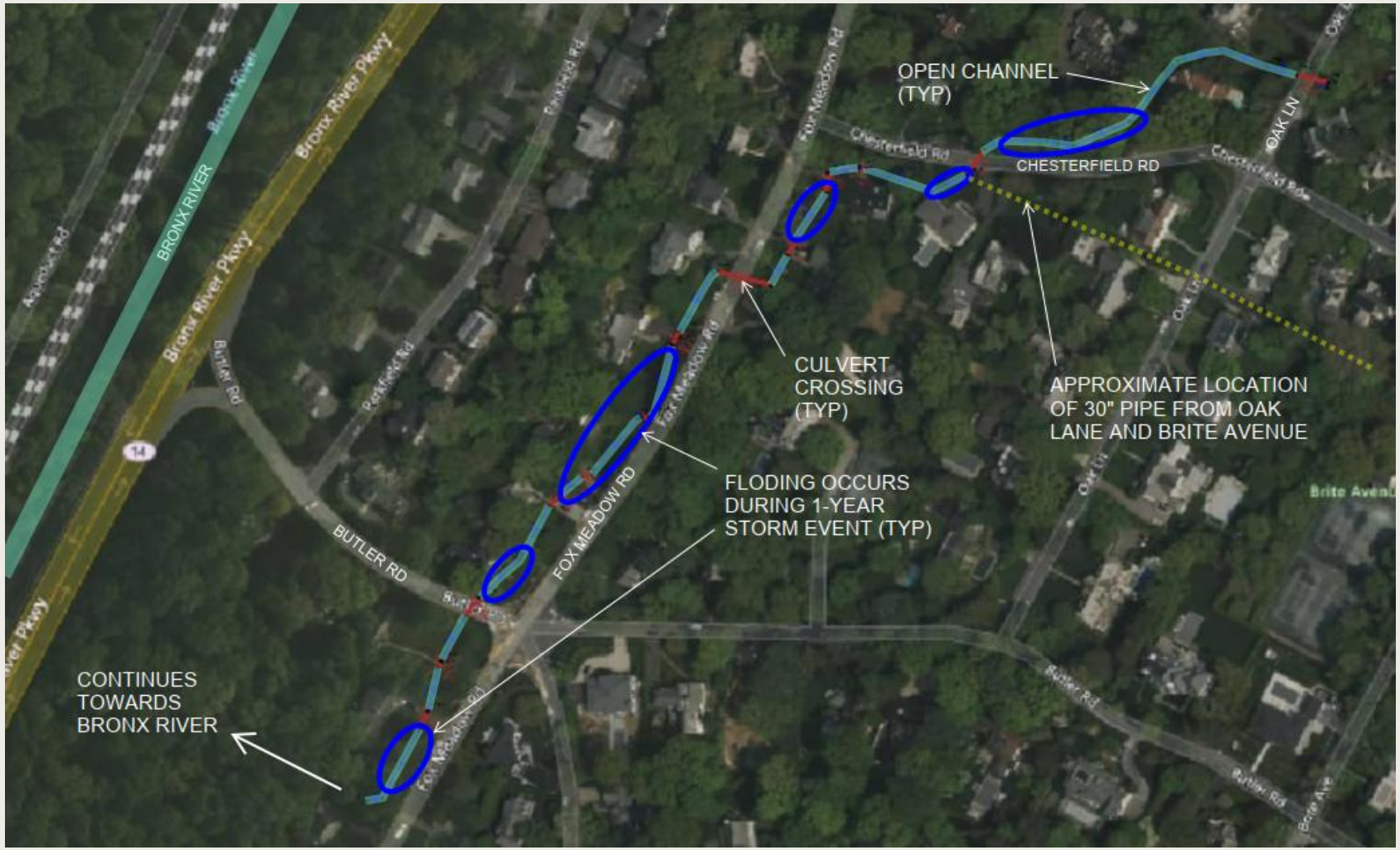
By: John Ruschke, PE

July 9, 2025

Brite Avenue/Fox Meadow Road Project Area

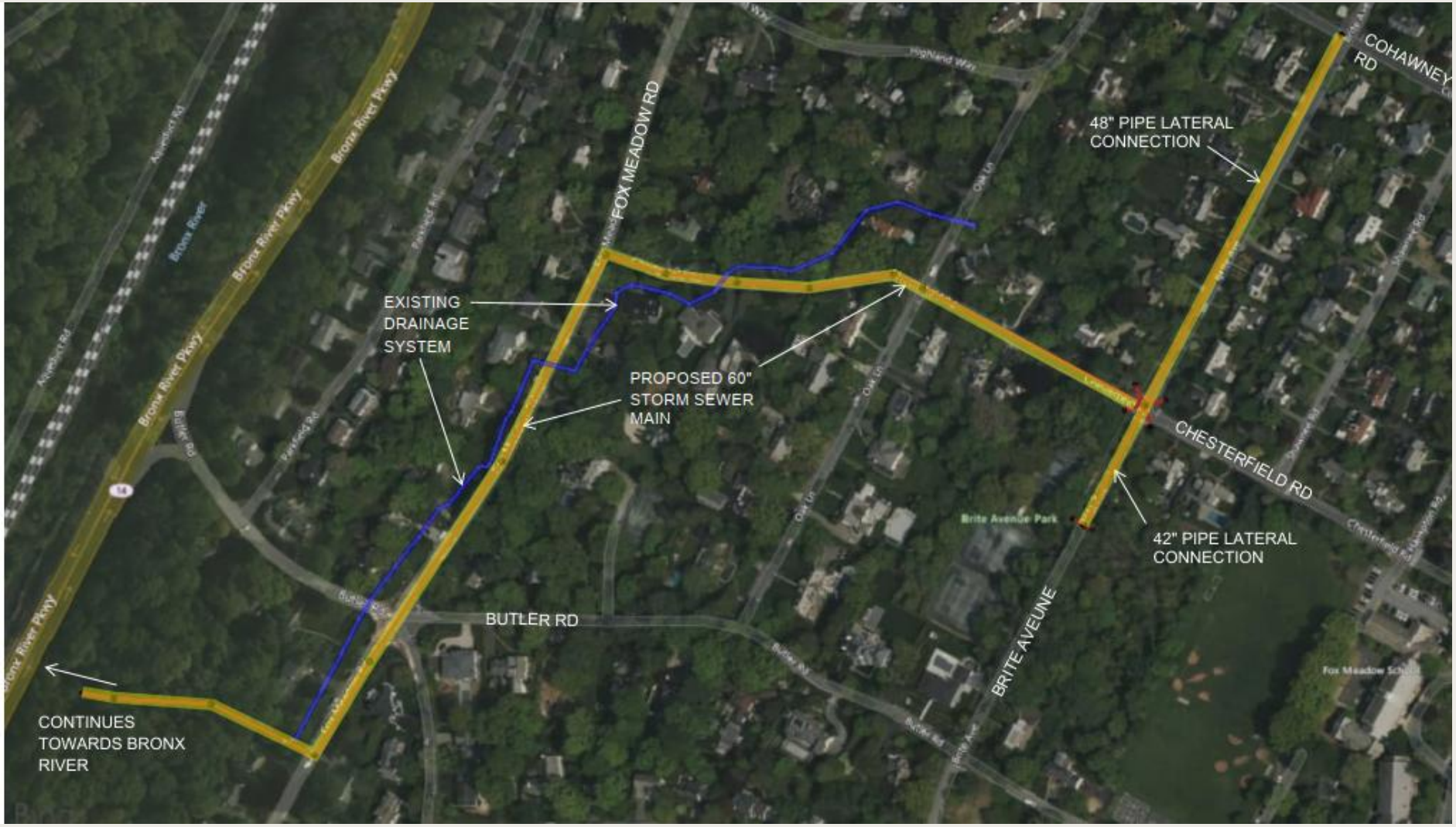
- Total drainage basin for the project site is approximately 155 acres.
- Existing drainage system has less than a 2-year storm capacity.

Brite Avenue/Fox Meadow Road Project Area



- Existing drainage system consists of a combination of open channel and culverts that meander through residential properties.
- Existing drainage system has less than a 2-year storm capacity with flooding occurring at several locations diring the 1-year storm event.
- Existing drainage system has less than a 2-year storm capacity.

Brite Avenue/Fox Meadow Road Project Area



Improvements:

- Construct new supplemental storm drainage system along Fox Meadow Road, Chesterfield Road and Brite Avenue.
- New drainage system will consist of pipes ranging in size from 42-inch to 60-inch diameter.
- New drainage system will have 100-year storm capacity.
- Existing open channel will remain active.

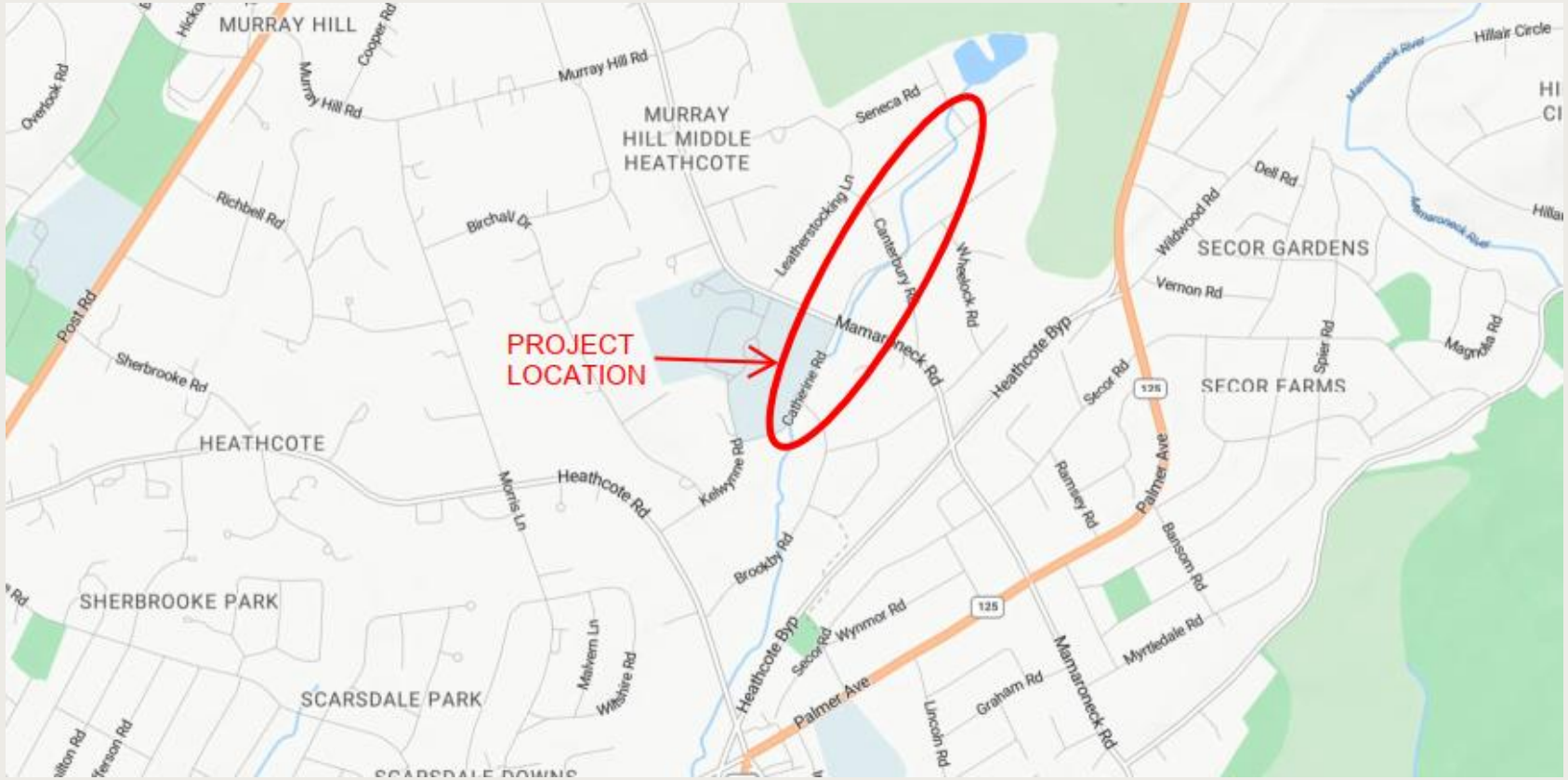
Brite Avenue/Fox Meadow Road Project Area

Positive Impacts	Negative Impacts
• **Provides flood protection to portions of Brite Avenue, Fox Meadow Road, and surrounding areas up to and including the 100-year storm.** • **Reduces the volume of water that discharges to the existing open channel within private properties.** • **The majority of the proposed improvements are within the right-a-way of Brite Avenue, Chesterfield Road and Fox Meadow Road.**	• Easements may be required for the last 500 feet of pipe downstream of Fox Meadow Road. • Some sections of the 60” main may require deep excavations for installation. Potential utility impacts. • Possible concerns associated with increased flow rates downstream to the Bronx River. • Backflow Preventor required on portion of Brite Avenue (near Tennis Courts). Reduced capacity to 25-year storm.

Approximate Cost Estimate: $2,600,000

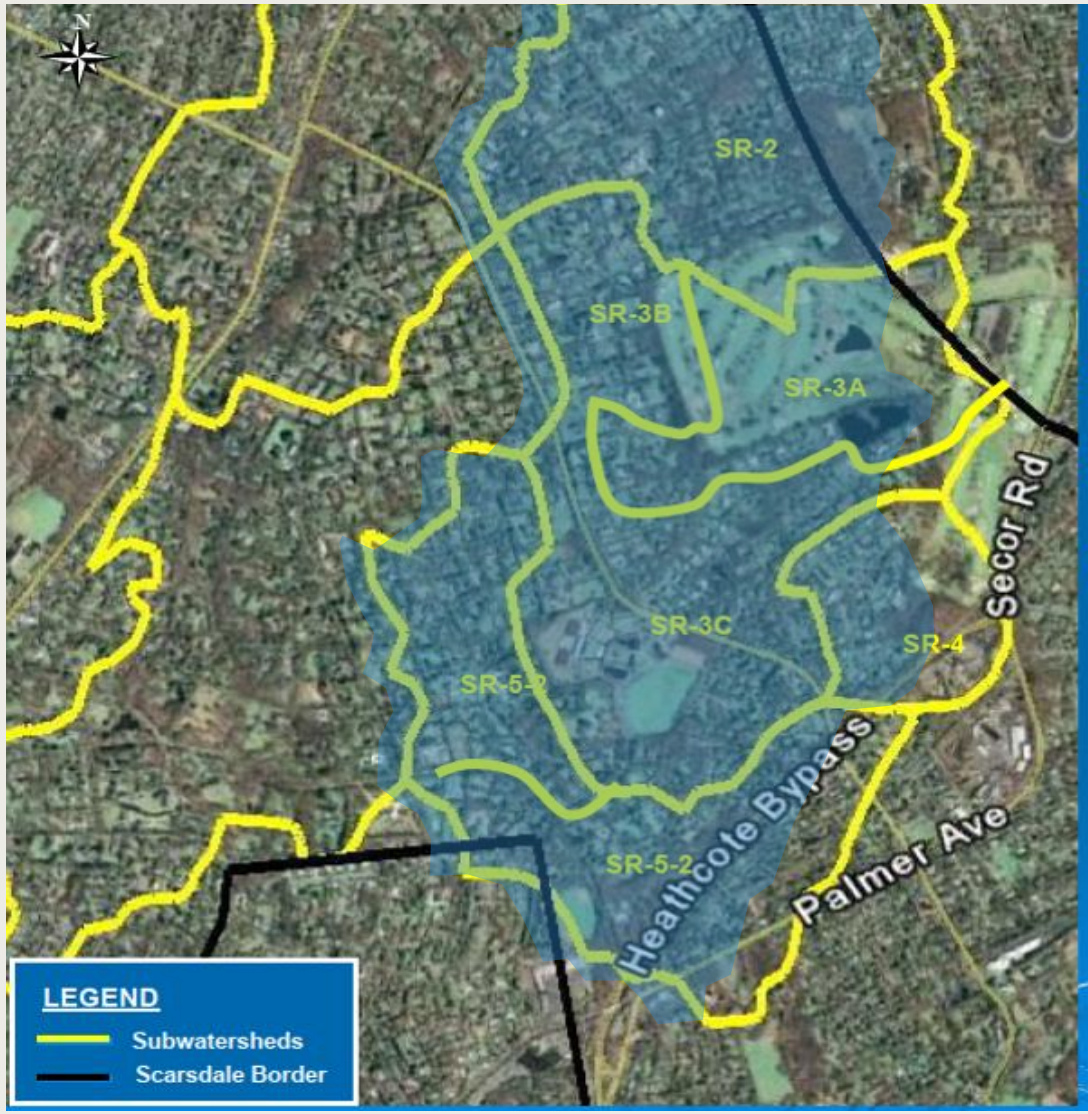
Benefit Cost Ratio: BCR of 1.1

Sheldrake River Flood Mitigation Project



Mitigation Area: Oneida Road to Middle School/Catherine Road

Sheldrake River Drainage Area



Watershed Metrics

SR- 2 – 199 acre watershed

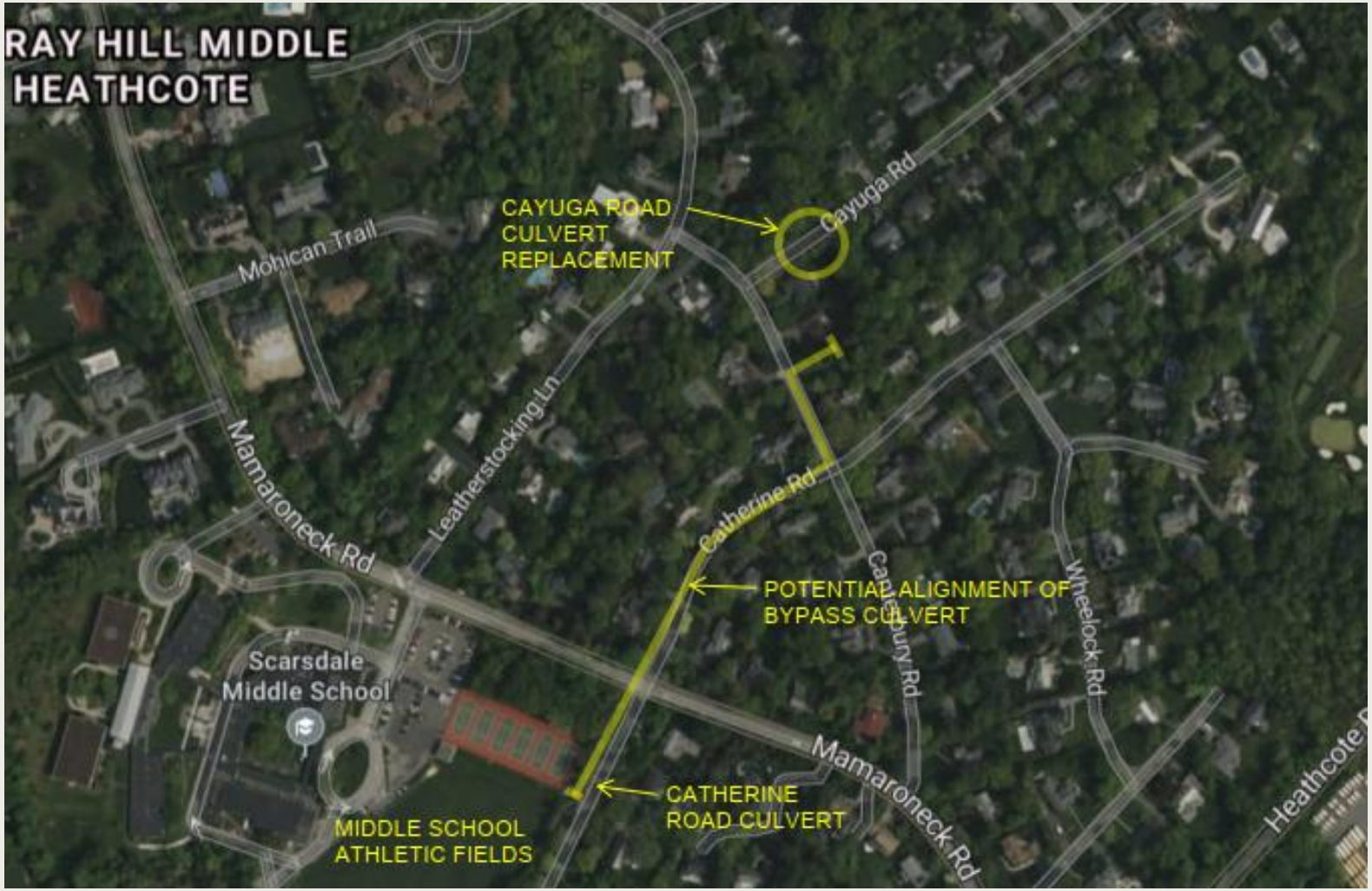
SR-3 – 271 acre watershed

SR-4 – 50 acre watershed

SR-5 – 173 acre watershed

Total - about 700 acres

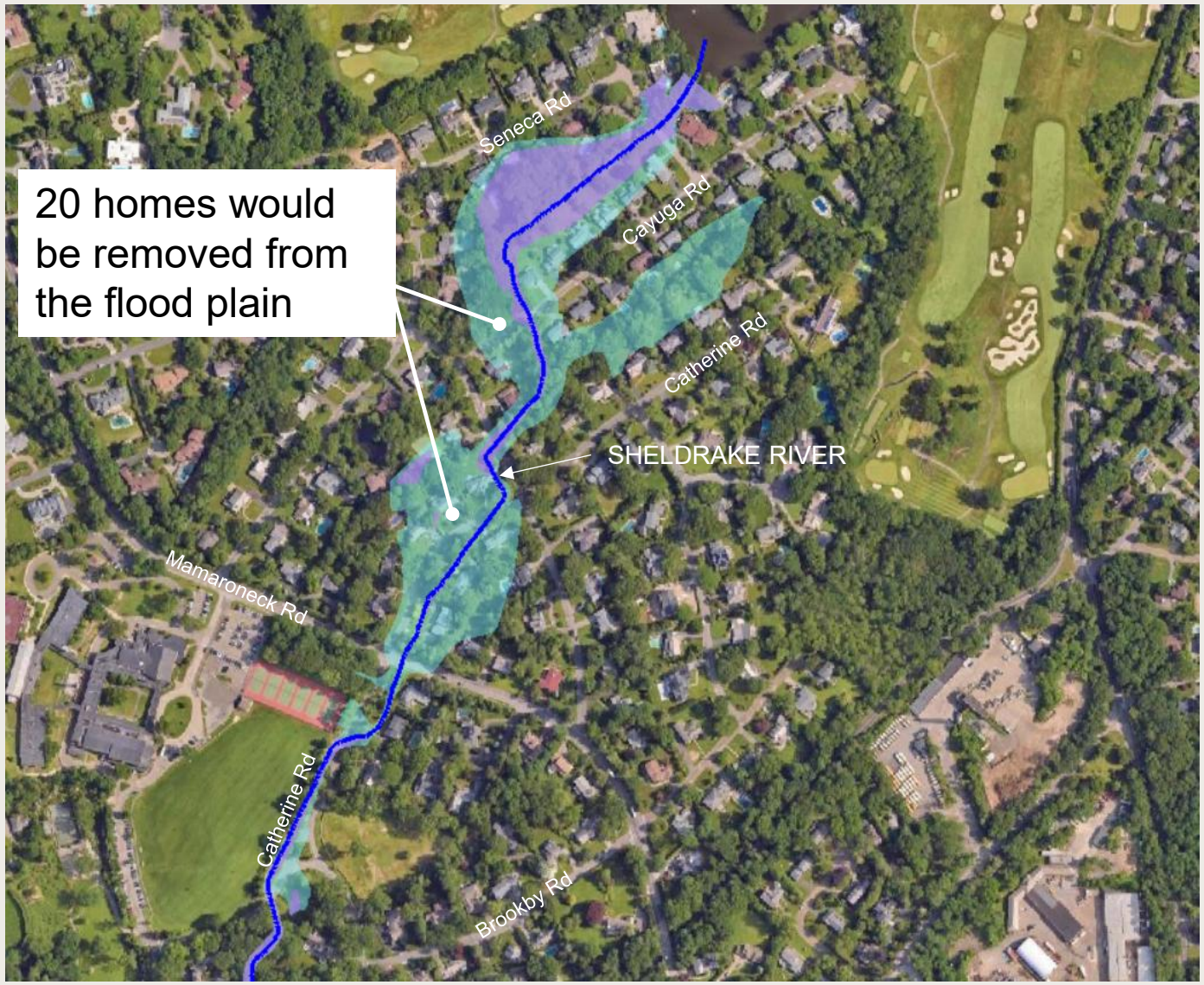
Sheldrake River Flood Mitigation Project



Proposed Improvements:

- Catherine Road Culvert Replacement: Replacement of the two Catherine Road culverts adjacent to the Scarsdale Middle School athletic fields.
- Cayuga Road Culvert Replacement: Enlarge Cayuga Road culvert to increase flow capacity.
- Bypass Culvert: Installation of approximately 1,400 feet of 10’x 4’ box culvert to bypass flows from Cayuga Road area downstream to the Scarsdale Middle School athletic fields area.
- Middle School Detention Facility: Large underground detention structure below athletic field. Diversion structure in channel to control flow into detention structure and pumps required to regulate flow from detention structure.

Sheldrake River - Bypass Culvert and Cayuga Road Culvert



Storm Event	Existing Conditions WSEL (ft)	Proposed Improvements WSEL (ft)	Diff (ft)
Oneida Road			
100-Year	241.08	240.92	-0.16
Cayuga Road			
100-Year	240.9	238.37	-2.53
Canterbury Road			
100-Year	240.83	237.54	-3.29
Catherine Road			
100-Year	240	236.41	-3.59
Mamaroneck Road			
100-Year	239.95	234.06	-5.89
Catherine Road			
100-Year	234.54	232.74	-1.8
Catherine Road			
100-Year	231.86	230.78	-1.08

- Similar benefits for all storm events

Existing 100-Year Flood

Proposed 100-Year Flood

Questions?

MOTT MACDONALD

Thank you