



WEST
HARTFORD

Town of West Hartford Drainage System Evaluation

November 30, 2020



**CDM
Smith**

Public Meeting
Drainage Study Update – Phase 1 – Area 3

Introductions

Contacts:

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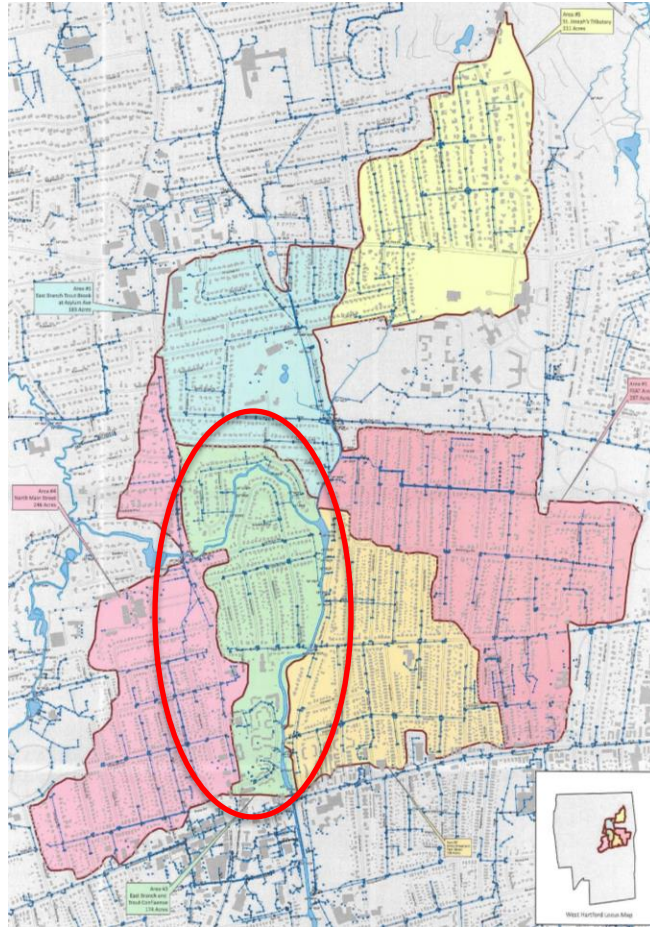
Ground Rules

- Moderator – Matthew Hart
- Please turn off your video
- Questions will be fielded by the moderator
- Public comments will take turns – one speaker at a time
- Presentation is for Area 3



Agenda

- Project Overview
- Existing Conditions
- Recommendations
- Costs
- Funding Options
- Project Timeline

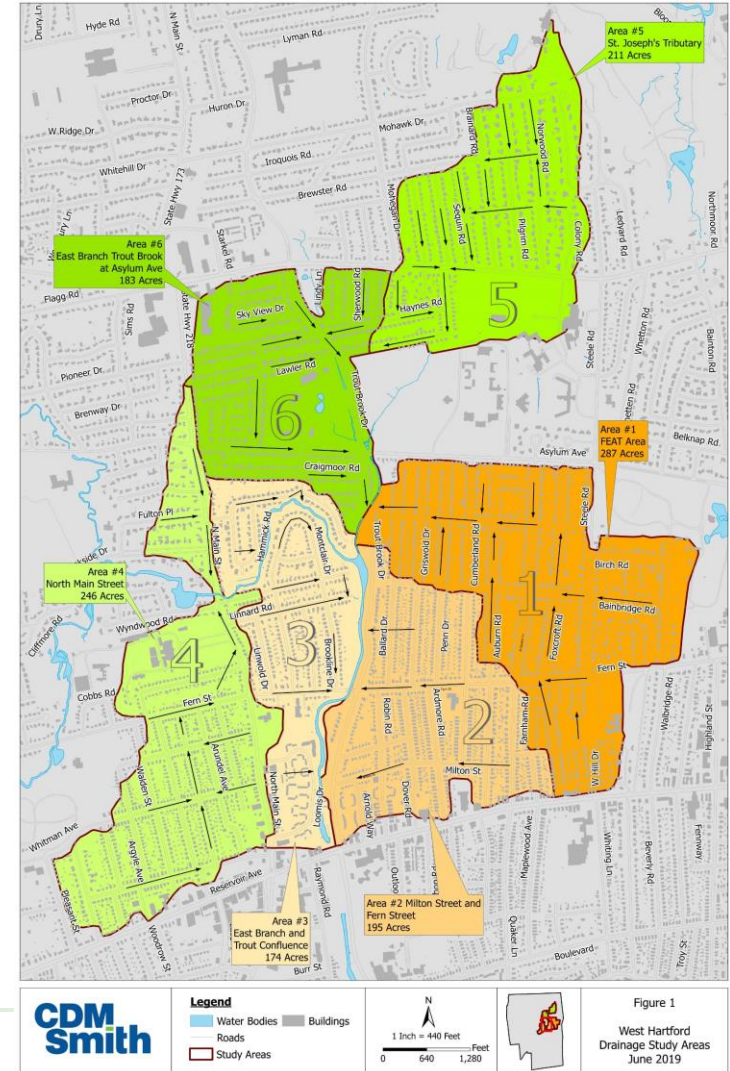




Project Overview

Project Area History

- Town project includes six drainage areas
- Significant flooding within the six areas
- Recent significant storm events
 - April and September 2018
 - August 2019
- First Public Meeting – June 2019
- Completed Phase 1 Study (Areas 1 to 3)
- Second Public Meetings – November 2020
- Working on Phase 2 Study (Areas 4 to 6)

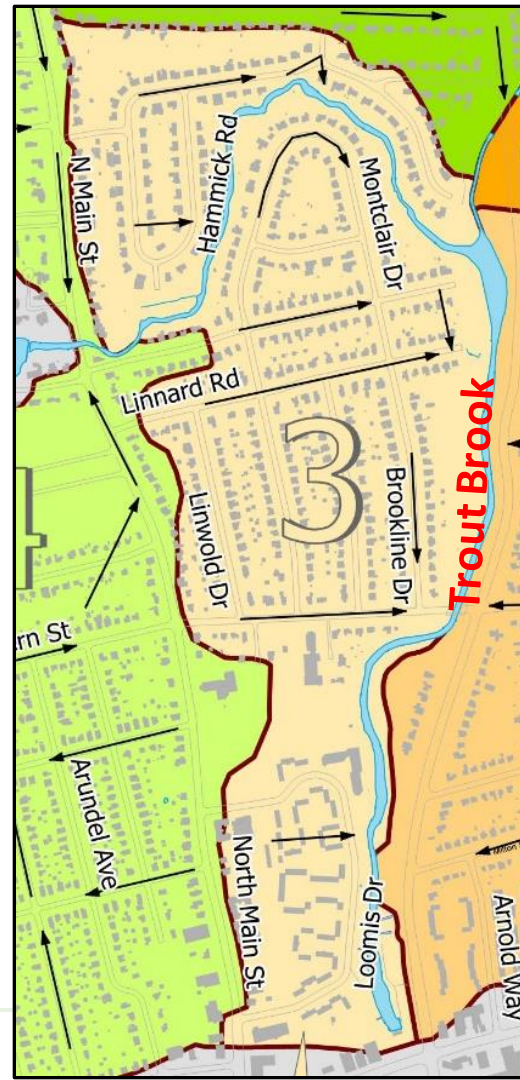


Drainage Project Scope

Phase 1 Study completed

- Collect and review data
- Survey, field work, and flow metering
- Stormwater system modeling
- Alternatives analysis
- Recommendations

	Acre (acres)	Number of Properties	% Area of Town
Area 3 - Linbrook	174	400	1.2%



Project Status

Completed:

- Public Kick Off Meeting
- Phase 1 Drainage Study
- Prioritization of Improvements

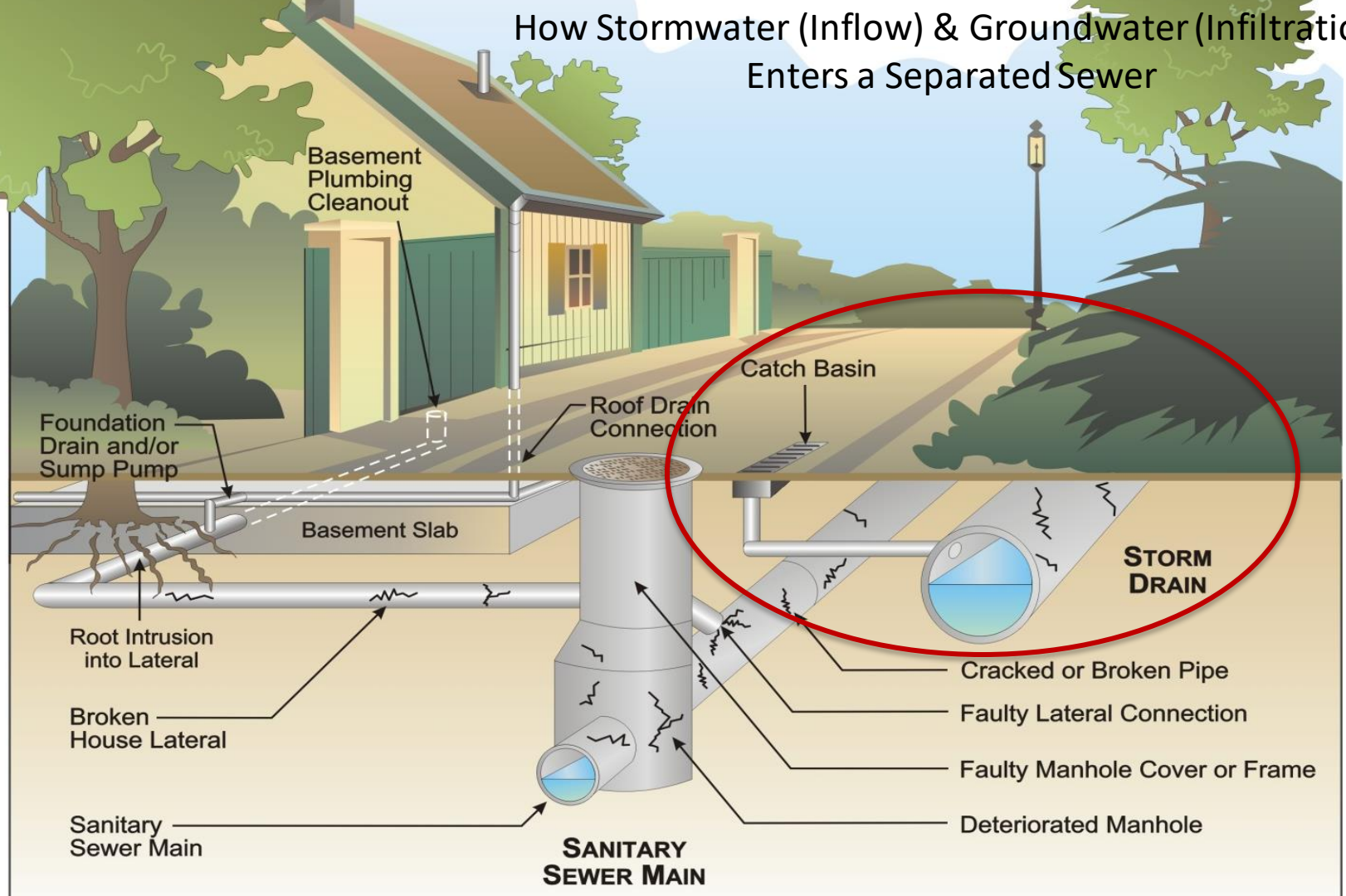
Continued Work:

- Funding Sources
- MDC Involvement
- Phase 2 Drainage Study



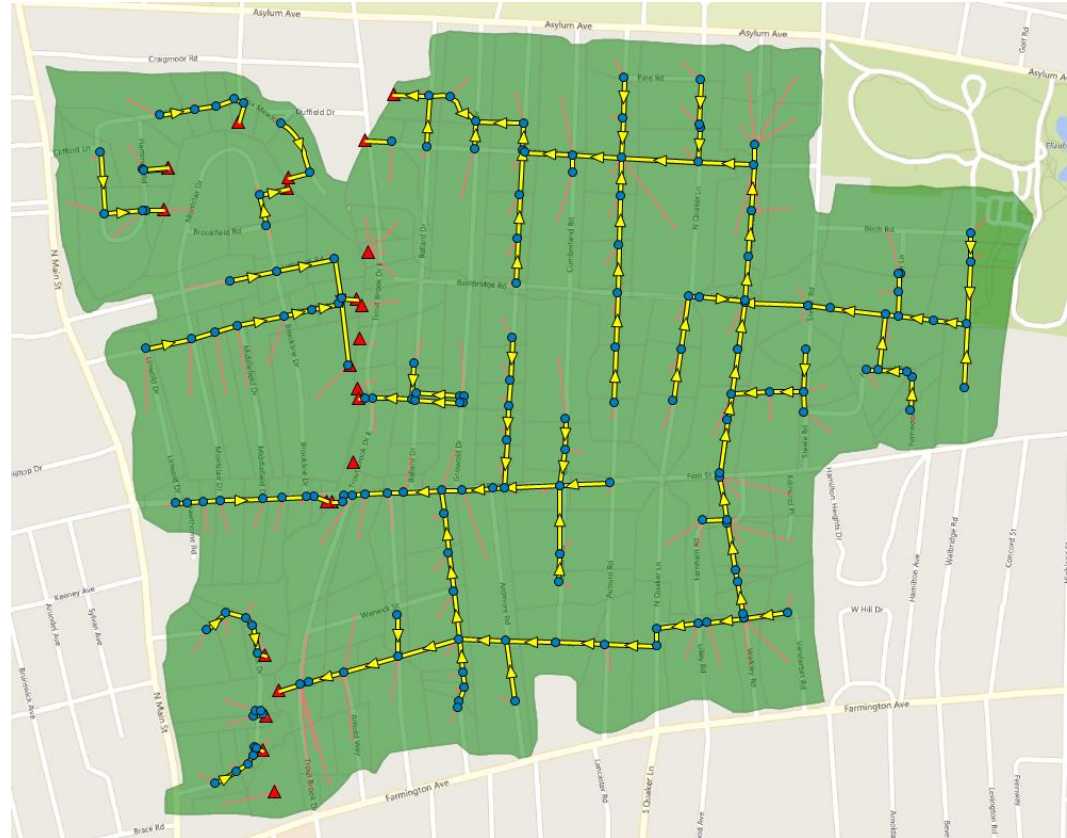
Existing Conditions

How Stormwater (Inflow) & Groundwater (Infiltration) Enters a Separated Sewer



Drainage Model Development

- Field survey
- Evaluated 21 systems
- Installed 5 flow meters
- Conducted calibration and validation of drainage models
- Modeled 10-year design storm (10% chance of occurring in a given year)

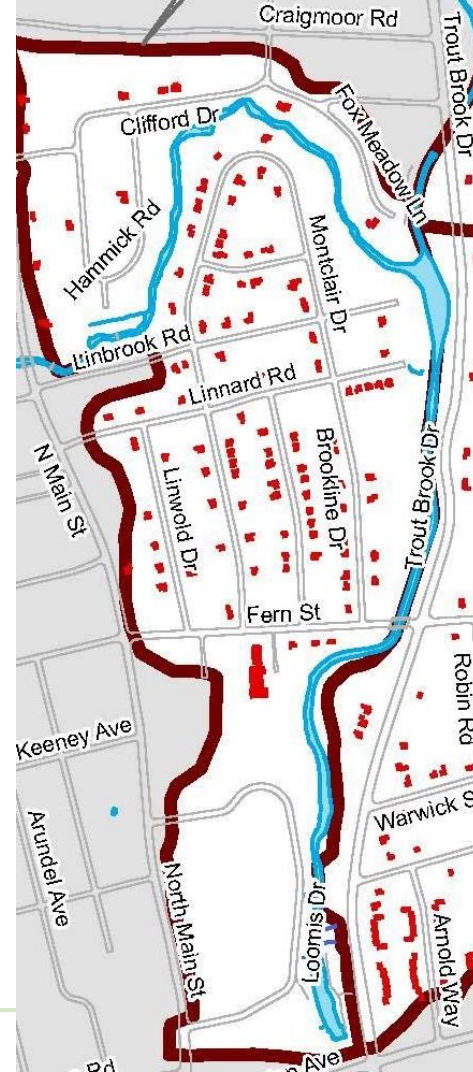


Drainage Systems with Modeled Flooding

Area	Outfall	Location	Number of Storm Exceedances
1	5641-022	FEAT – Trunk line	4
1	5641-017	Middlebrook Road	
2	5641-007	Fern Street East	4
2	5641-001	Milton Street	4
2	5641-16	Trout Brook Drive East of Linbrook Road	
2	5641-14	Trout Brook Drive East of Linnard Road	
2	5641-13	Trout Brook Drive Central	
2	5641-11	Trout Brook Drive South	
2	5641-12	Ballard Drive	1
3	1091-001	Clifford Drive North	1
3	0731-001	Linbrook Road	1
3	3261-001	Linnard Road	4
3	1981-009	Fern Street West	4
3	3681-001	Montclair Drive	4
3	2171-001	Fox Meadow Lane	
3	3321-002	Loomis North	1
3	3321-001	Loomis South	1
3	2547-002	Hammick Road North	
3	2547-003	Hammick Road South	
3	3321-003	Loomis Central	1
3	2547-001	Clifford Drive Cross-County	4

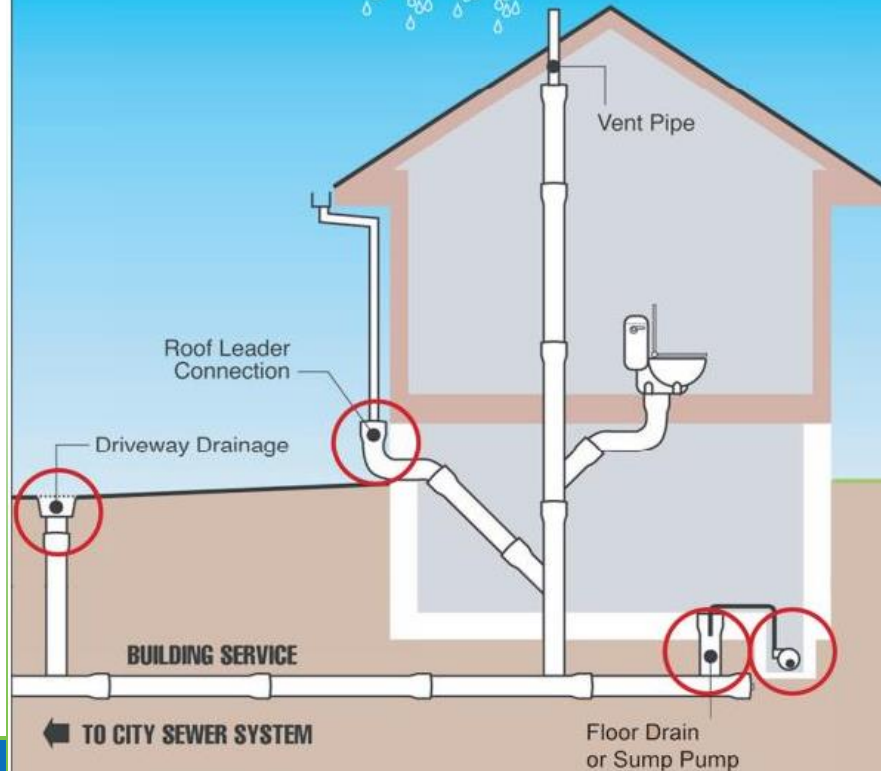
Private Inflow Removal

- 1,747 total buildings
- 661 (38%) known private inflow removal buildings (shown in red)
- Could be additional buildings that have not been inspected



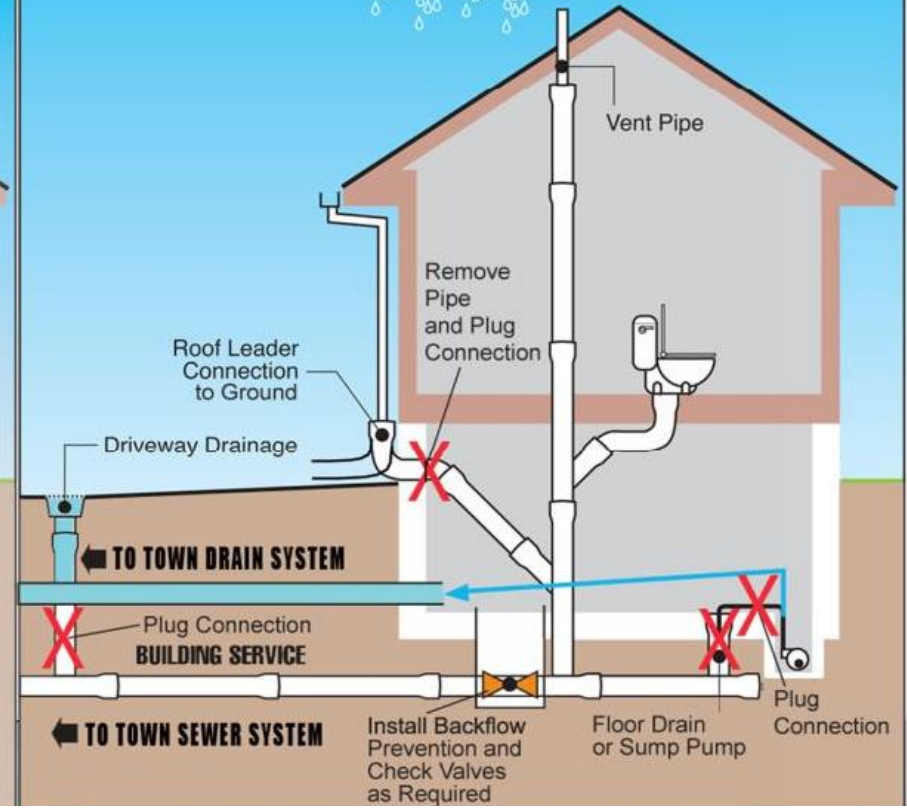
Typical Existing Household

Rain



Typical Proposed Household

Rain



Groundwater Assessment

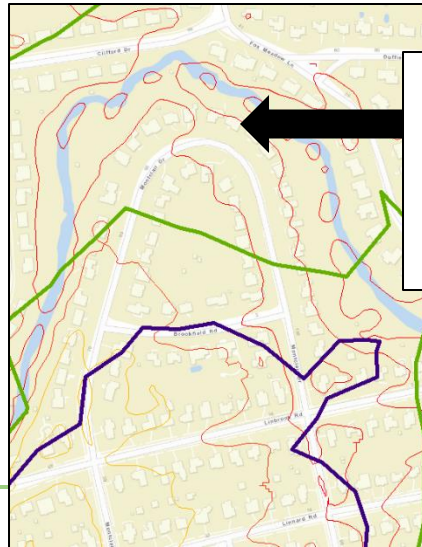
- Assess the project area to provide guidance on groundwater infiltration



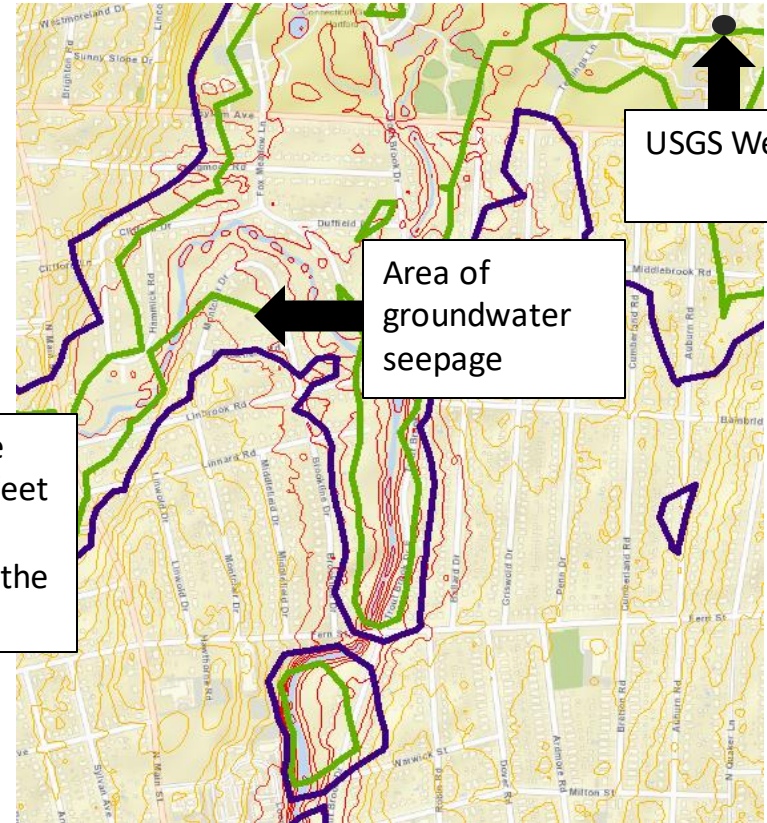
Screening Level Groundwater Model

Simulated depth to groundwater

- **Green** = depth to groundwater within 5 feet below ground surface
- **Purple** = depth to groundwater within 10 feet below ground surface



Homes have less than 5 feet between ground and the water table



USGS Well

Area of groundwater seepage

Collector Drainage Systems

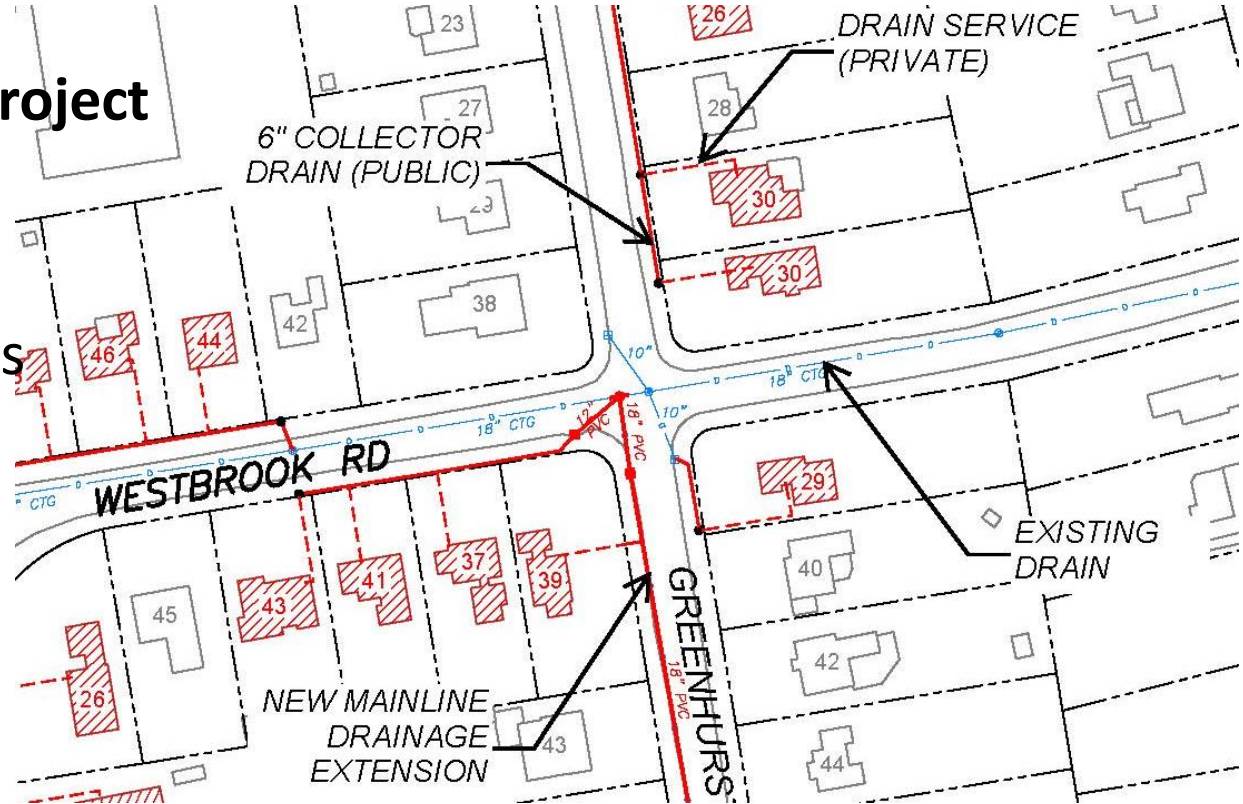
Greenhurst Road Project

Existing Drains

Drainage Extensions

Collector Drains

Drain Services

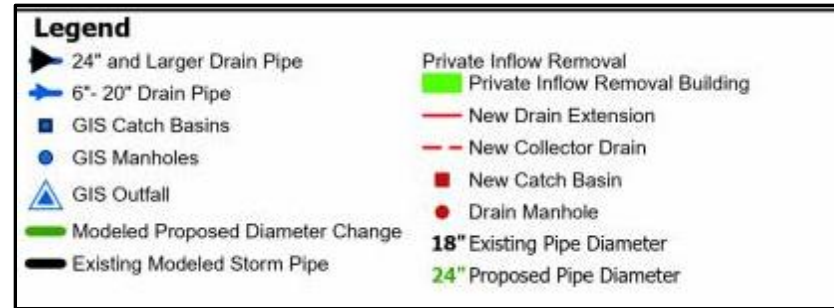




Recommendations

Recommendations

- Drainage system improvements
- Collector drains



Drainage System Prioritization

Tier 1 – High Priority

- Areas with **documented and modeled flooding**
 - Tier 1A – modeled flooding coincides with Town reported flooding
 - Tier 1B – modeled flooding is also related to groundwater
 - Tier 1C – modeled flooding during all historical events

Tier 2 – Moderate Priority

- Modeled flooding only during historical and 10-year design storm

Tier 3 – Low Priority

- Modeled flooding only during 10-year design storm event

Prioritization Recommendation Summary

Area	Outfall	Location	Outfall Drainage Area	Tier
1	5641-022	FEAT Trunk Line	Bainbridge Road Area	
			Bainbridge Road and Walbridge Road	1A
			Birch Road and Chelsea Lane	1C
			Fernwood Road and Cross County	2
			Dorset Road	1A
			Fern Street - Middlebrook Road Area	1C
2	5641-007	Fern Street East	Penn Drive	1C
			Bretton Road	1C
2	5641-001	Milton Street	Milton Street	2
2	5641-12	Ballard Drive	Ballard Drive	3
3	3681-001	Montclair Drive	Montclair Drive	1B
3	0731-001	Linbrook Road	Linbrook Road	3
3	1981-009	Fern Street West	Fern Street	2
3	2547-001	Clifford Drive/Cross Country	Clifford Drive/Cross-Country	2
3	3261-001	Linnard Road	Linnard Road	2
3	1091-001	Clifford Drive	Clifford Drive	3
3	3321-002	Loomis North	Loomis Drive North	3
3	3321-003	Loomis Central	Loomis Drive Central	3
3	3321-001	Loomis South	Loomis Drive South	3

Collector Drainage System Recommendations

Requires MDC Coordination to Proceed

Area 3

- 114 buildings (green)
- 2,500 linear feet drain extensions (red)
- 6,200 linear feet collector drains (red dash)





Costs

Drainage System - Conceptual Design Costs

Area	Outfall	Location	Recommendations	Tier
1	5641-022	FEAT Trunk Line	\$23,800,000	1A, 1C, 2
2	5641-007	Fern Street East	\$4,200,000	1C
2	5641-001	Milton Street	\$7,800,000	2
2	5641-12	Ballard Drive	\$300,000	3
3	3681-001	Montclair Drive	\$300,000	1B
3	0731-001	Linbrook Road	\$1,100,000	3
3	3261-001	Linnard Road	\$2,300,000	2
3	2547-001	Clifford Cross Country	\$600,000	2
3	1981-009	Fern Street West	\$800,000	2
3	1091-001	Clifford Drive	\$300,000	3
3	3321-002	Loomis North	\$271,000	3
3	3321-003	Loomis Central	\$60,000	3
3	3321-001	Loomis South	\$277,000	3
		TOTAL COST	\$42,108,000	

Collector Drain System- Conceptual Design Costs

Outfall	Location	Private I/I Removal Buildings	Collector Drain (Lf)	Drain Extensions (Lf)	Drain Structure (Each)	Total Costs ¹
5641-022	FEAT - Trunk line	292	15,281	3,303	21	\$5,392,000
5641-007	Fern Street East	87	5,615	1,789	12	\$2,346,000
5641-001	Milton Street	129	7,872	1,614	15	\$2,758,000
5641-12	Cross Country System Area 2	35	2,106	641	3	\$853,000
3681-001	Montclair Drive	9	350	0	0	\$77,000
0731-001	Linbrook Road	8	645	0	0	\$141,000
3261-001	Linnard Road	45	2,489	1,700	8	\$1,586,000
2547-001	Clifford Drive Cross Country	4	256	0	0	\$56,000
1981-009	Fern Street West	26	1,440	332	2	\$521,000
1091-001	Clifford Drive	4	256	0	0	\$56,000
3321-002	Loomis North	0	0	0	0	\$0
3321-003	Loomis Central	0	0	0	0	\$0
3321-001	Loomis South	0	0	0	0	\$0
Totals		639	36,309	9,379	61	\$13.786,000



Funding Options

Funding Opportunities

All Funding Options Require Town Capital Improvements Bonding

State/Federal Grants and Loans

- Building Resilient Infrastructure Communities (BRIC)
- Flood Mitigation Assistance (FMA)
- Water Infrastructure Finance and Innovation Act (WIFIA)
- CT DEEP Clean Water Fund (CWF) and State Revolving Funds (SRF)

Stormwater Utility

- Equitable funding program
- Fee contributions based on impervious area



Next Steps

Project Timeline

CDM Smith Drainage Study – Phase 1

- June 2020: Final Report
- October 2020: Town Council Workshop
- November 23rd & 30th 2020: Public Information Meetings
- Grant Submissions: January 2021
- MDC Coordination: Ongoing
- Support Stormwater Utility Legislation

CDM Smith Drainage Study – Phase 2

- October 2020 – February 2021: Drainage Study
- February 2021: Draft Report
- Spring 2021: Town Council and Public Information Meetings

Contacts

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Project webpage:

<https://www.westhartfordct.gov/town-departments/engineering/storm-water-management>

Questions

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