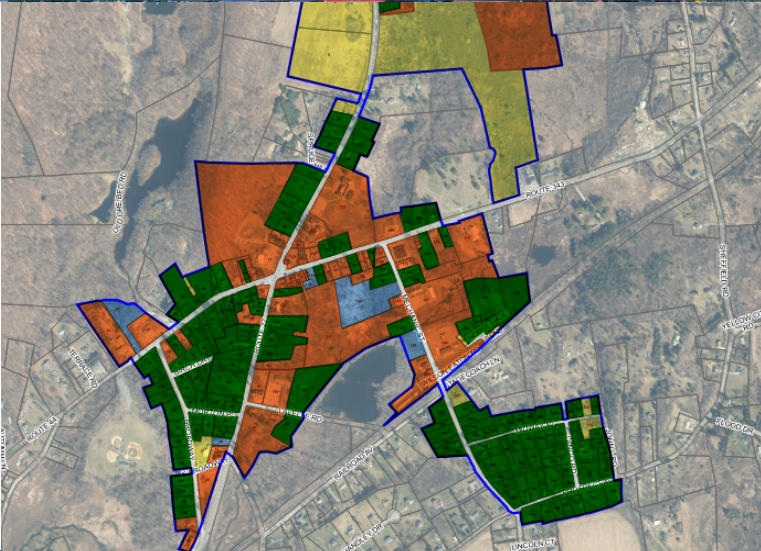




TOWN OF
AMENIA
est. 1788



Sewer Feasibility Study

Community Forum #5

October 18, 2022 – 7:00PM

Virtual – via Zoom

Housekeeping

- **This forum is being recorded**
- **Recording will be posted after the meeting**
- **After the presentation we will take questions:**
 - post your question in the chat
 - use the “raise hand function” to be unmuted

The Big Question: Why this project, now?

The Problem

- **Failing Amenia Hamlet septic systems**
- **Majority of lots are small with high ground water**
- **Limited businesses & services for locals**
- **No housing opportunities in Hamlet**
- **Hamlet growth is impossible**
- **Main Street continues to decline**
- **Environmental quality - surrounding water bodies suffer**

The Solution

- **Replace outdated & failing systems**
 - no upfront costs to homeowners & business owners
 - insurance against cost to maintain, repair or replace septic system
 - increase ability to refinance or sell property
 - protect the environment
- **Create a Downtown for residents**
 - allow existing businesses to reach their full capacity
 - create lively & thriving town center for us, not a tourist resort
 - housing for those who work here but have to live elsewhere
 - grow our economy so locals can prosper
 - attract businesses & jobs we need

The History

- **1995 Central Wastewater Facilities Feasibility Study**
- **2003 Alternative Methods & Technologies for Proposed Central Wastewater Facilities**
- **2009 Map, Plan, & Report for the Establishment of the Hamlet of Amenia Sewer District**
- **2012 Wastewater Collection & Treatment Feasibility Study**

The Money

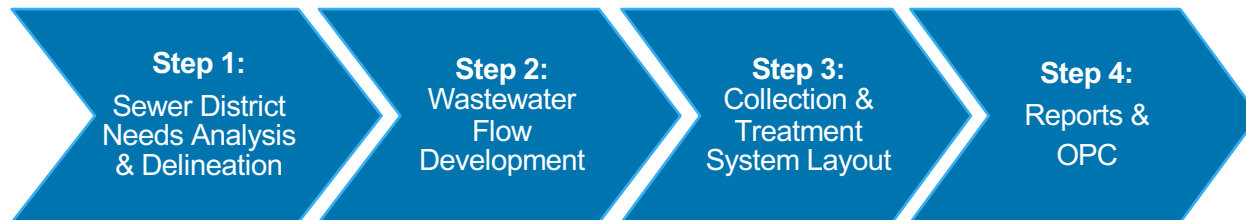
- **2021 Bipartisan Infrastructure Bill (BIL)**
 - \$12 billion for wastewater projects
 - 50% in the form of grants
 - disadvantaged communities are target
- **NYS Water Infrastructure Improvement Act (WIIA)**
 - 25% of project
 - disadvantaged communities are target

once-in-a-lifetime opportunity

**We determine
our future.**

Project Scope

- **Identify Need**
- **Recommend Approach**
- **Execute Scope of Work**
 - Step 1: sewer district needs analysis & delineation
 - Step 2: wastewater flow development
 - Step 3: collection & treatment system layout
 - Step 4: reports & opinion of probable costs



Project Questions

- **Why A Municipal Wastewater System?**

- replace outdated & failing septic systems - protect environment
- improve quality of life & community opportunities
- allow existing businesses to reach full capacity
- attract new small businesses & residential development

- **Why Amenia Hamlet?**

- high ground water, small lots, inability to sustain new businesses or housing
- we aren't alone: Millerton, Pine Plains, Copake, Red Hook, Pound Ridge

- **Why Now?**

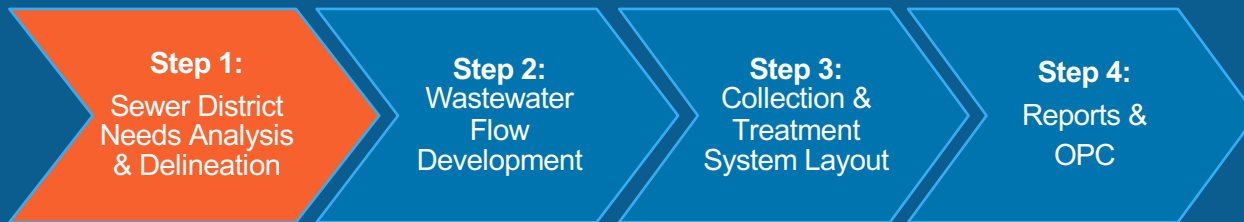
- Water Infrastructure Improvement Act (WIAA) Grants (up to 25% of budget)
- 2021 Bipartisan Infrastructure Law (BIL) Grants (up to 50% of budget)

- **Why Are We Here?**

- review report methodology & results
- community input

Step #1

Sewer District Needs Analysis & Delineation



Needs Analysis & Delineation

Step 1

- **Delineate Sewer District**

- what areas have issues?
- what areas would benefit the most from a central sewer?

- **Considerations**

- sewer survey responses
- soils & topography
- depth to water table & bedrock
- wetlands & 100-year flood zone
- parcel sizes & zoning districts
- contiguous area

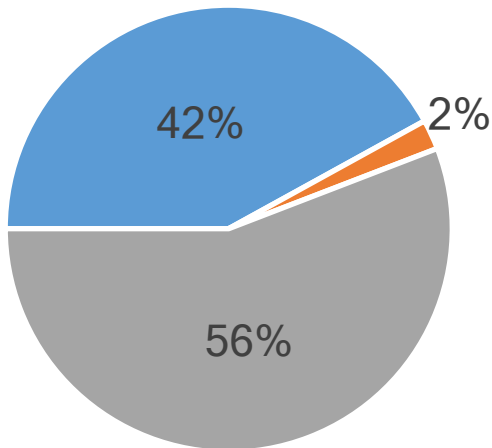
Needs Analysis & Delineation

Step 1

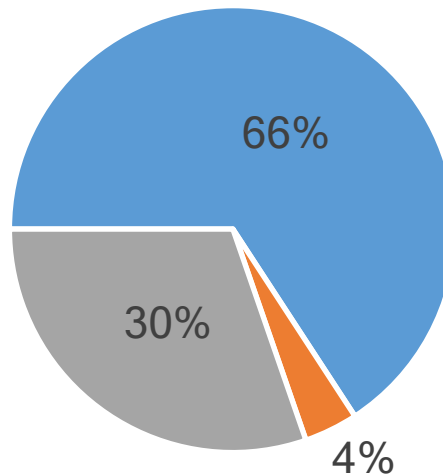
• Sewer Survey

- 231 survey responses
- reported issues: odors, slow draining & sewage backups
- 56% reported knowing of issues in Hamlet

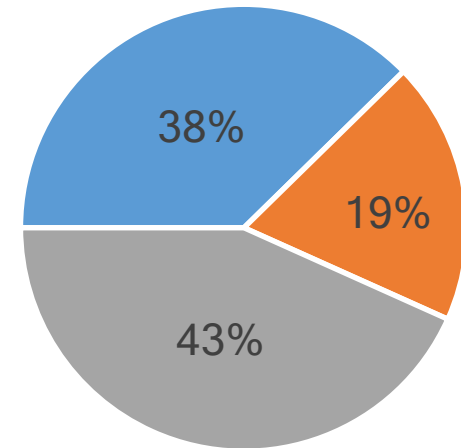
Septic problems somewhere in Hamlet?



Hamlet would benefit from central sewer system?



Would be interested in connecting to central sewer?

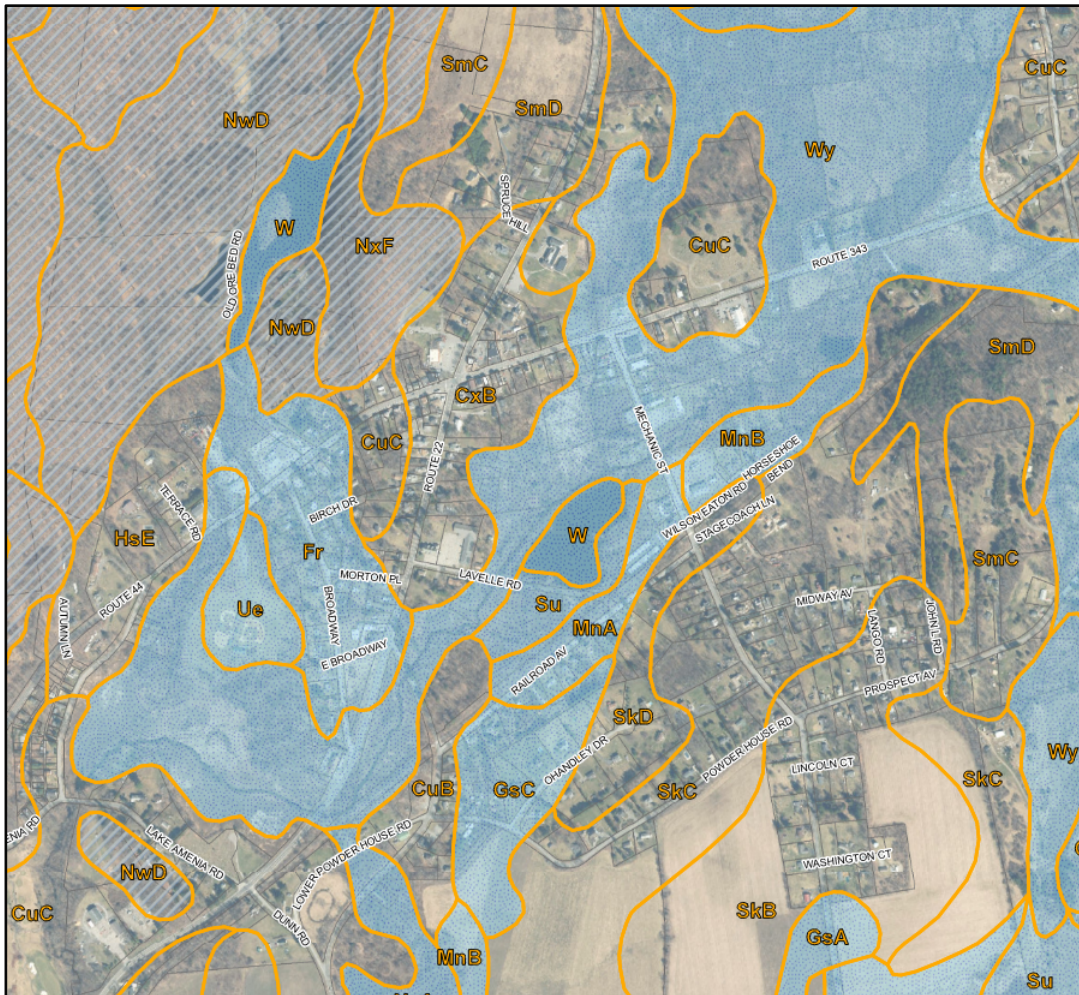


■ Yes ■ No ■ Not Sure/No Response

Needs Analysis & Delineation

Step 1

Soils & Restrictive Layers



- high groundwater & shallow depth to bedrock negatively impacts leachfield performance
- large portion of Hamlet likely has shallow depth to water table

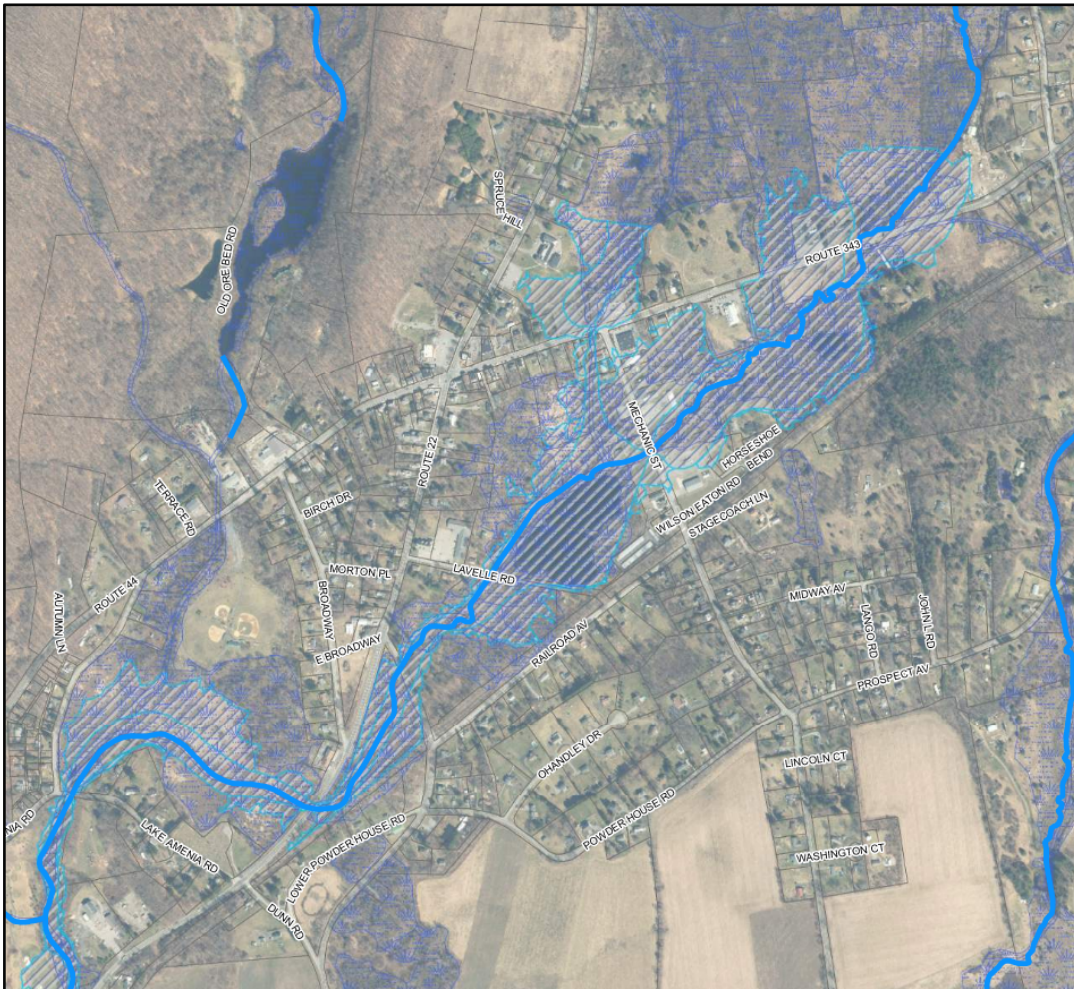
Legend

- Soil Group
- Potential Shallow Depth to Water
- Potential Shallow Depth to Bedrock

Needs Analysis & Delineation




Step 1

Flood Zone and Wetlands



- septic systems must meet setback requirements from water bodies and wetlands

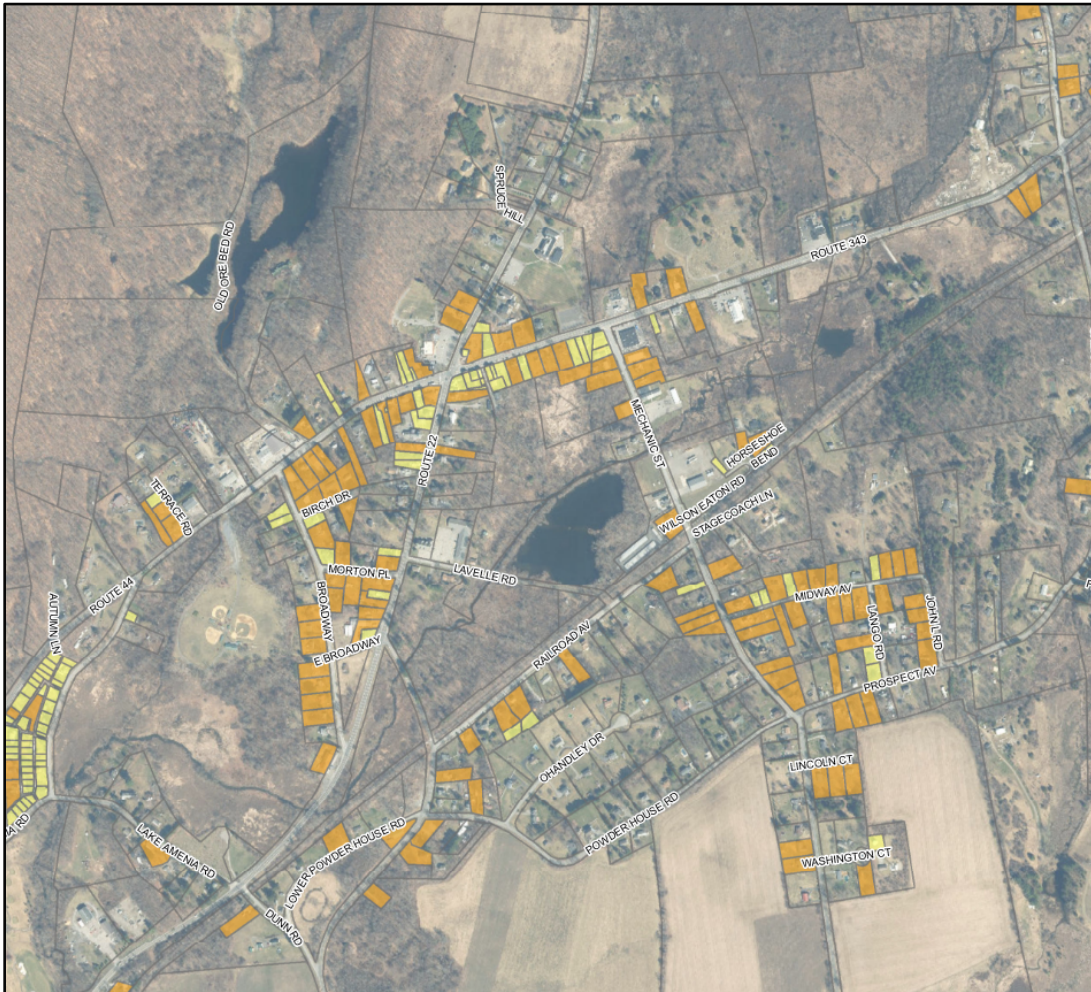
Legend

-  100-Year Flood Zone
-  Stream
-  NWI Wetlands

Needs Analysis & Delineation




Step 1

Parcel Sizes



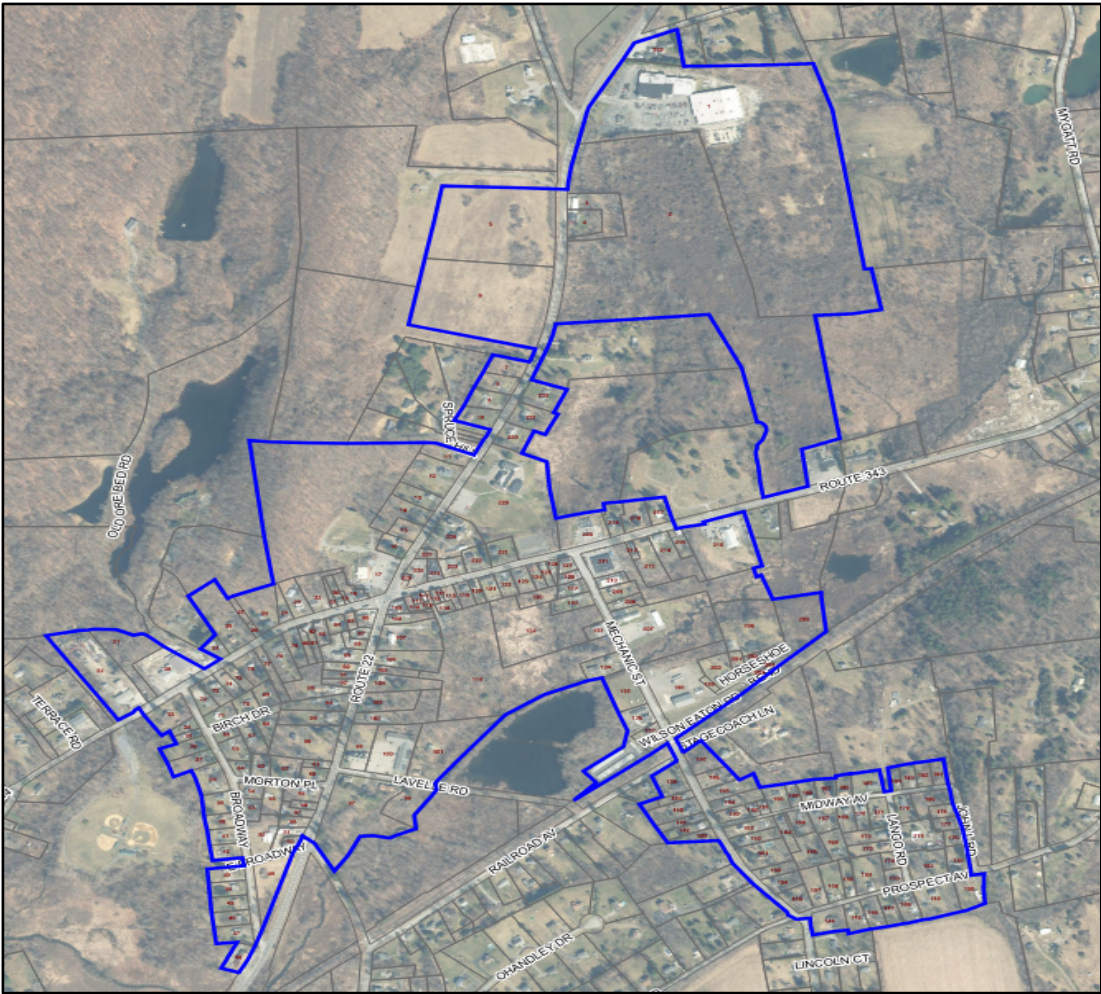
- small parcels have leach field and cesspool constraints
- must have room for 100% reserve area

Legend

-  Parcels < 0.25 Acres
-  Parcels 0.25 - 0.5 Acres
-  Parcels > 0.5 Acres

Needs Analysis & Delineation

Proposed Sewer District

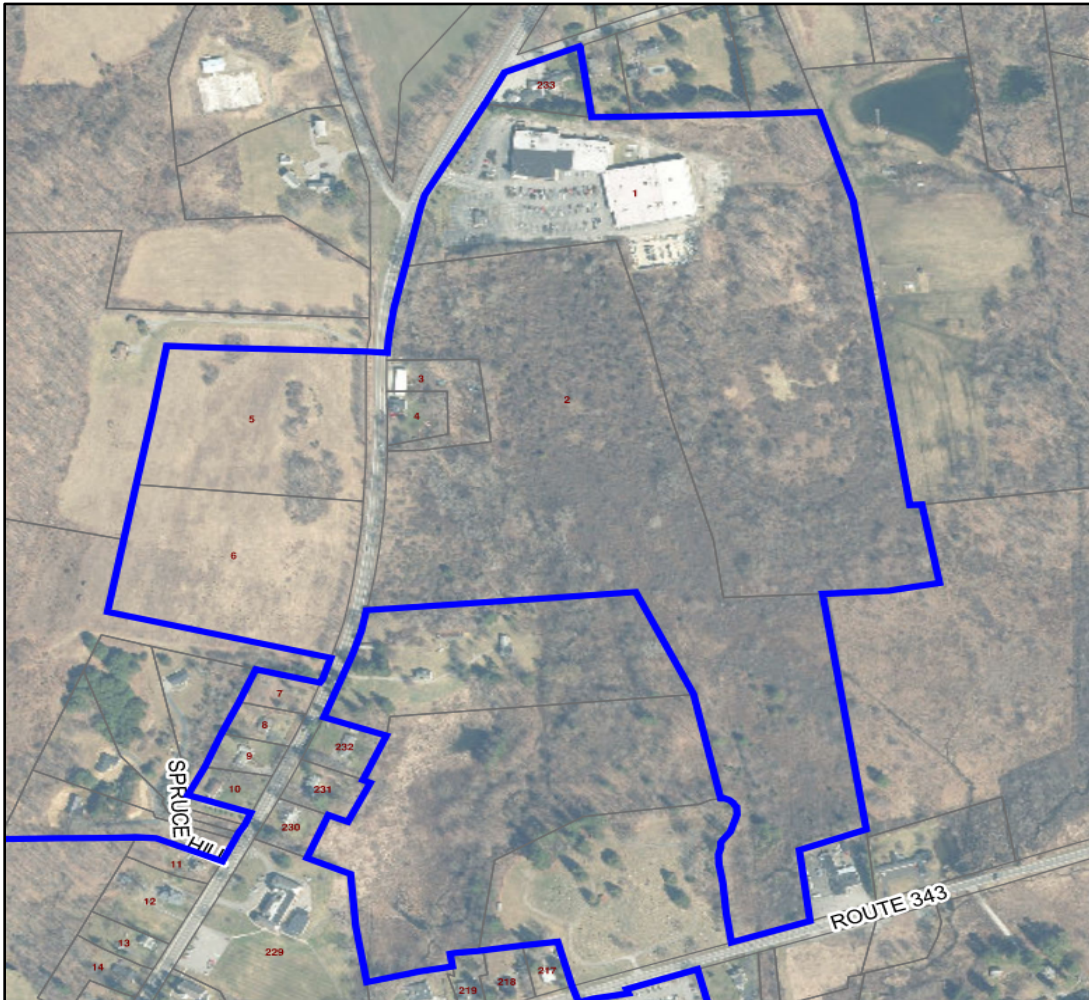


Legend
[Blue Outline] Sewer District

Needs Analysis & Delineation

Step 1

Proposed Sewer District - north

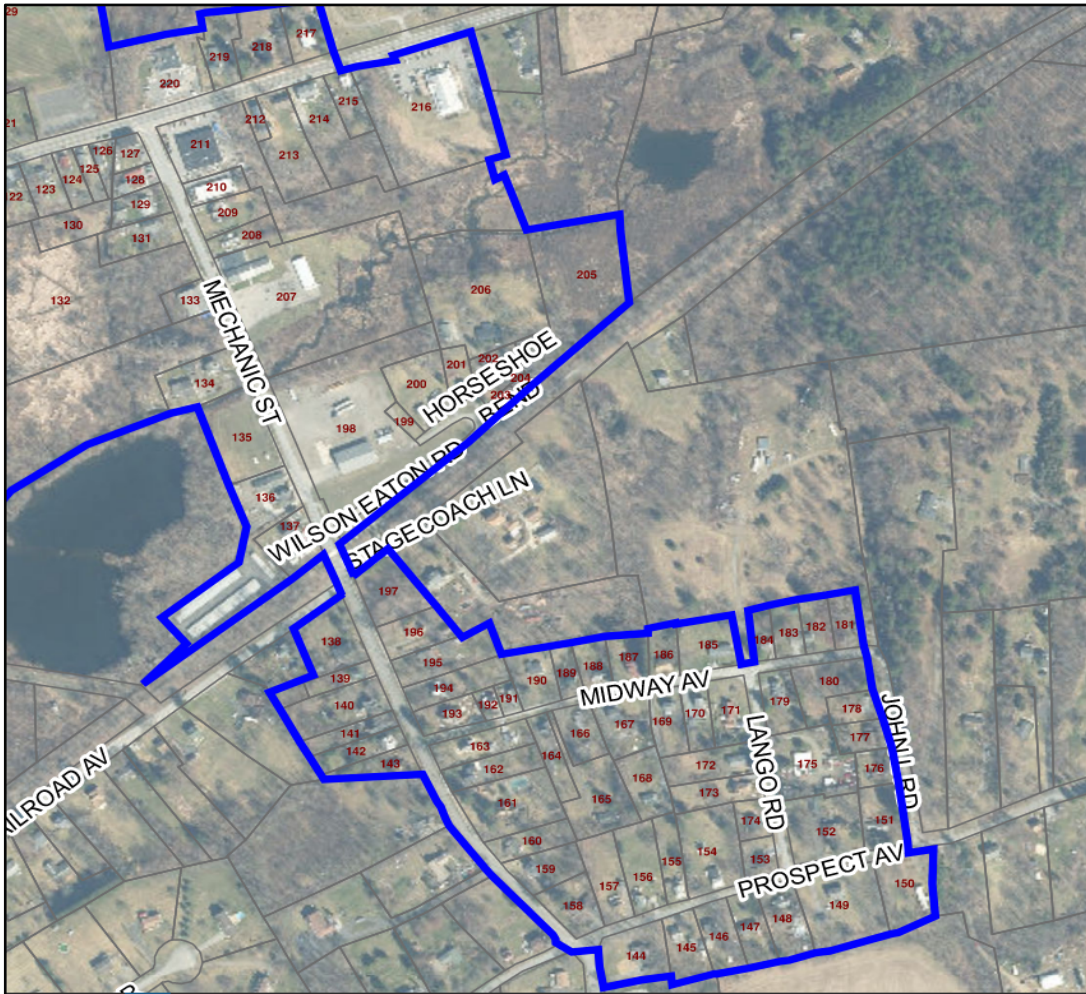


- northern extent includes Cascade Country Corner & Freshtown Plaza

Needs Analysis & Delineation

Step 1

Proposed Sewer District - east



- East to Sun River Health Center
- South to residential neighborhood around Midway Ave, Lango Rd, and Prospect Ave

Needs Analysis & Delineation

Step 1

Proposed Sewer District – west



- west to Welsh Sanitation
- includes Broadway & south to Fudgy's

Needs Analysis & Delineation

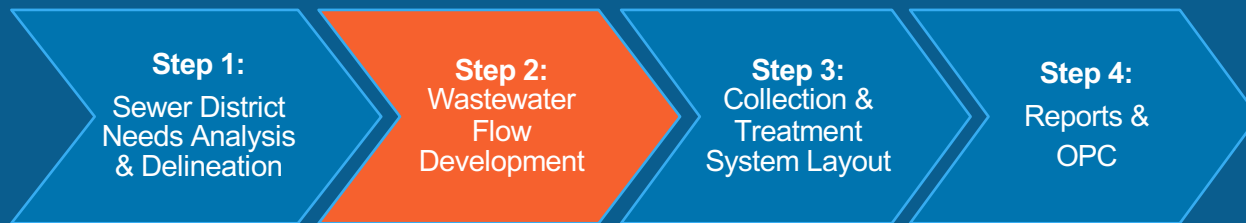
Step 1

- **Summary of Proposed District**

- centered around main intersection of 22 & 343
- smallest parcels are in the Hamlet Center
- most businesses are in the Hamlet Center
- supports comprehensive plan goals
- environmental justice area (NYSDEC)
- disadvantaged community (NYS hardship financing available)
- district must be contiguous
- 233 total parcels
 - 168 Residential (13 vacant)
 - 65 Commercial (6 vacant)

Step #2

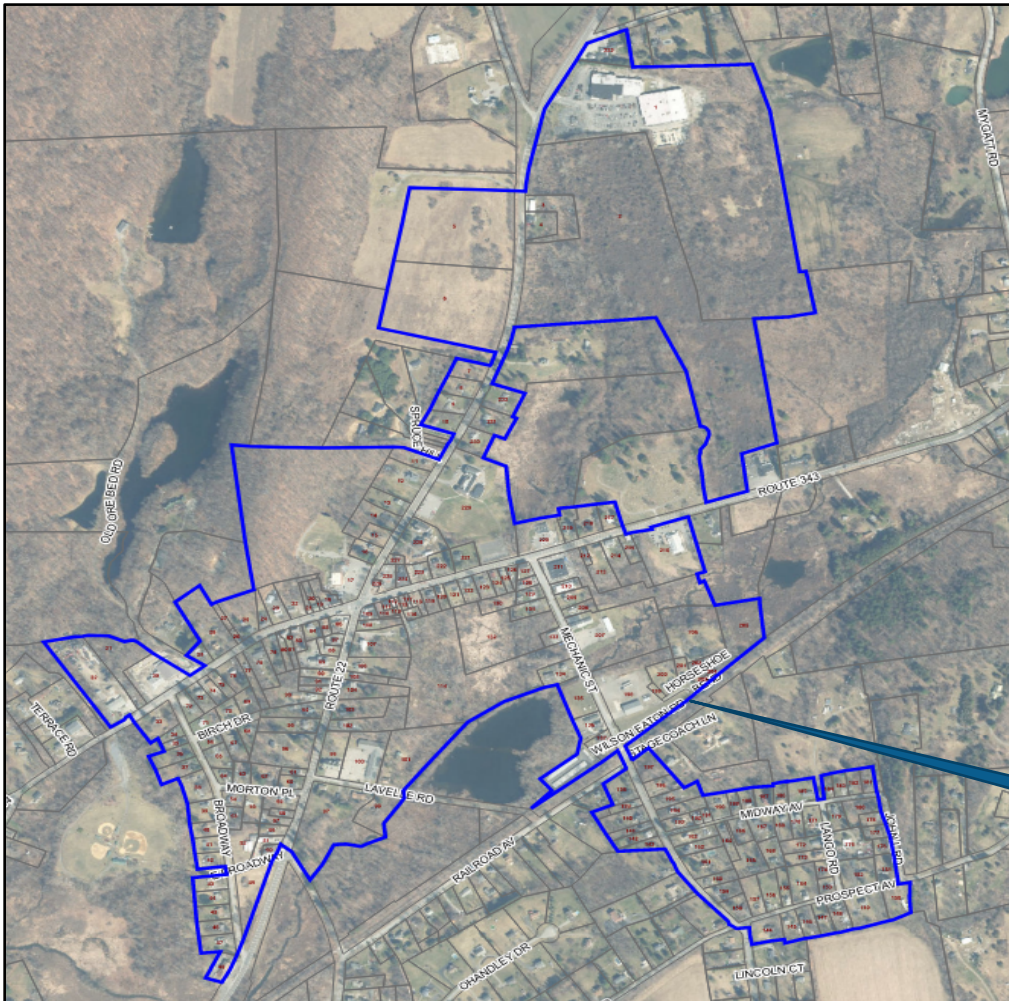
Wastewater Flow Development



Wastewater Flow Development

Step 2

Flow Methodology & Estimates

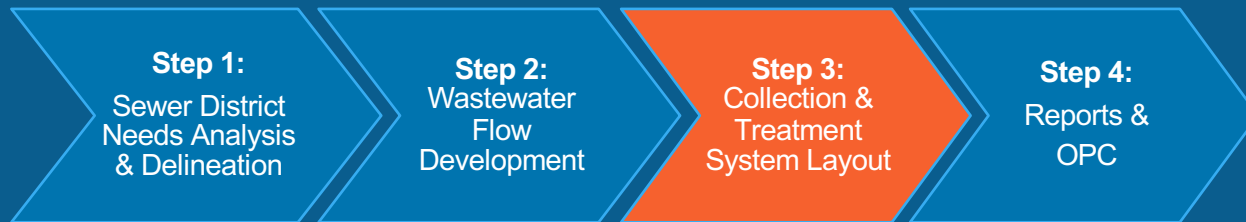


- average water meter data 4Q20 – 3Q21
- if no meter data available, assumptions based on parcel use & NYS DEC methodology
- flow estimate for proposed district = 75,000 gallons per day
- includes 10% factor of safety and 25% future expansion factor

75,000 gpd

Step #3

Collection & Treatment System Layout



Collection & Treatment Layout

Step 3

- **Collection Systems Considered**

- Conventional Gravity & Pumped
- Alternative: Septic Tank Effluent
 - Septic Tank Effluent Gravity (STEG)
 - Septic Tank Effluent Pumped (STEP)



Collection & Treatment Layout

Step 3

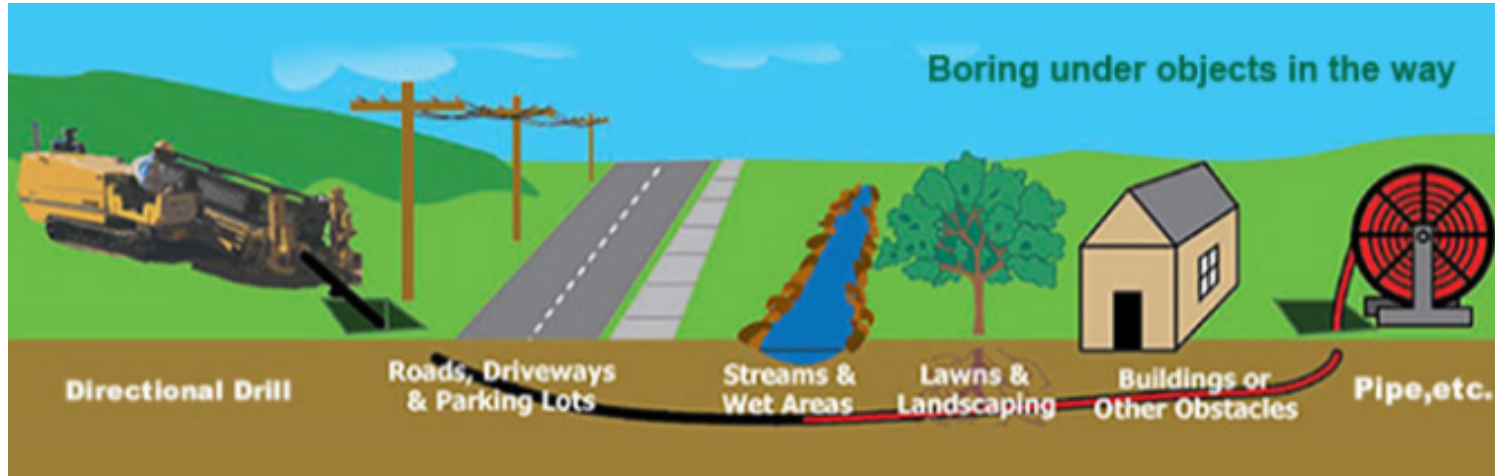
- **How STEP Systems Work**

- old septic tanks pumped out
- most parcels will get new tank with effluent pump
- parcels with newer tanks potentially can be re-used with credit to owner
- single tank may serve multiple parcels in certain locations
- solids remain in tanks and liquid wastewater is pumped to treatment site
- tanks are pumped every 3-7 years
- district responsible for maintenance of tanks and pumps
- collection system piping is installed by horizontal directional boring
- easements for tanks and piping

Collection & Treatment Layout

Step 3

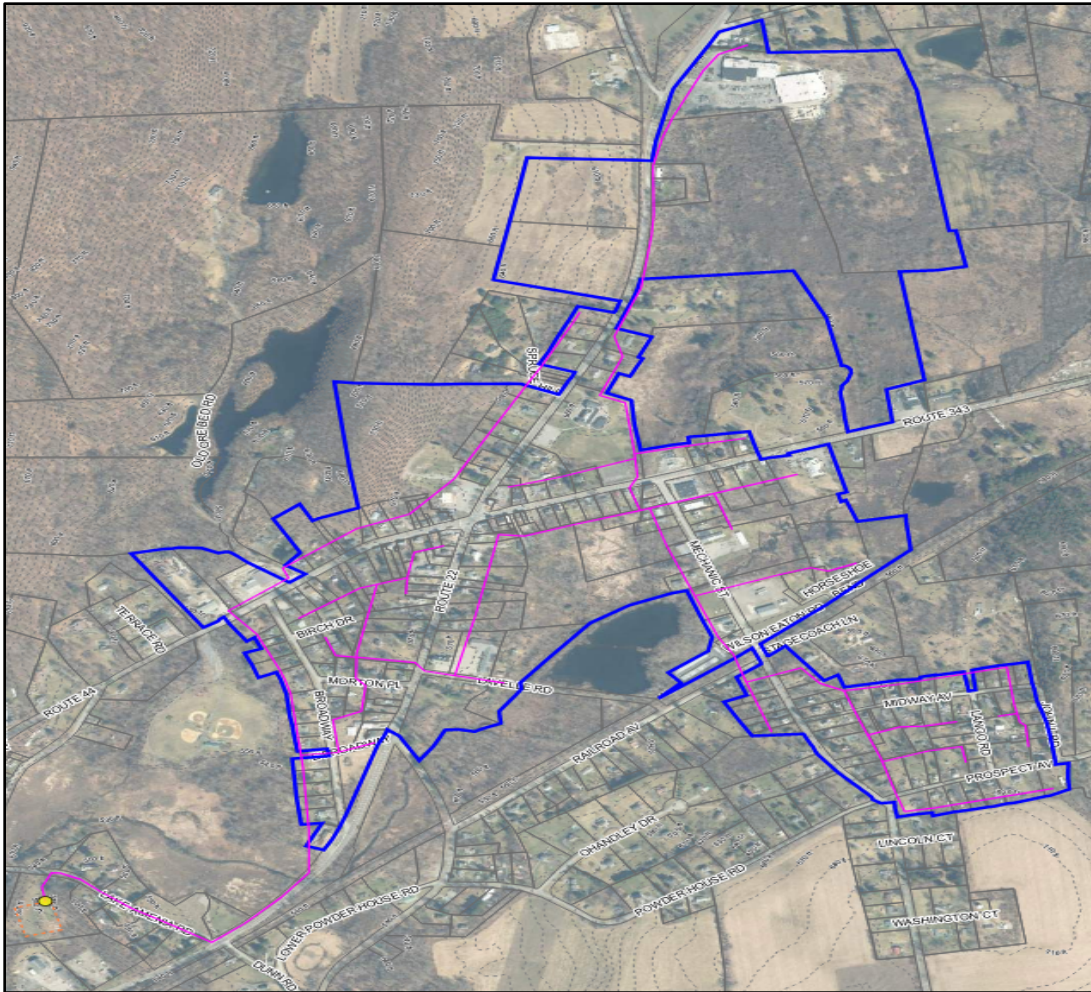
- Horizontal Directional Boring



Collection & Treatment Layout

Step 3

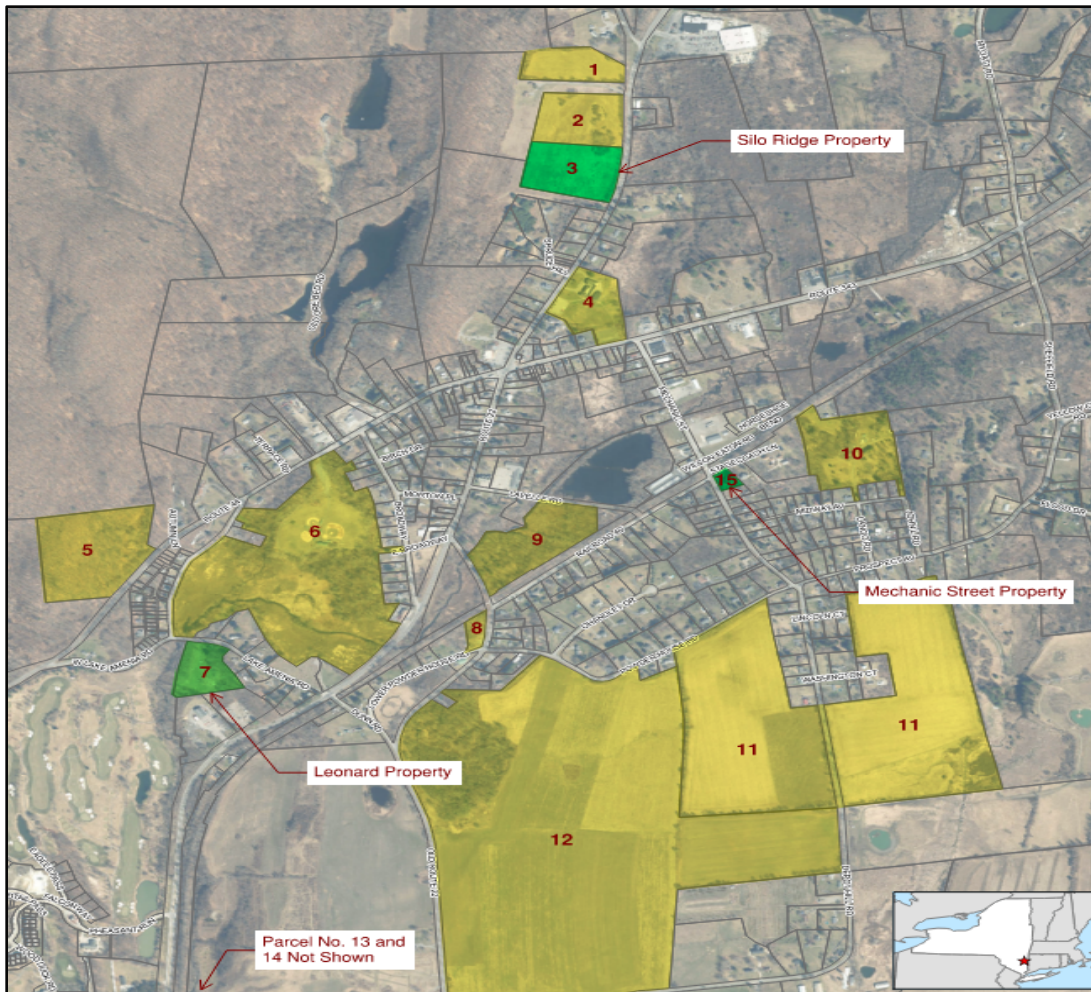
STEP System



Collection & Treatment Layout



Step 3

Treatment Sites Explored



- 15 potential locations
- 12 eliminated in due diligence process
- 3 sites considered in alternatives analysis

Legend

-  Potential Location - Eliminated
-  Potential Location - Considered

Collection & Treatment Layout

Step 3

Treatment Sites Explored

Parcel	Name	Status - Reason	Tax Parcel ID No.
1	Mondrian Property	Eliminated - not authorized, distance	7167-00-001874
2	Gregory Property	Eliminated - not authorized	7167-00-191723
3	Silo Ridge Property	Considered	7167-00-186672
4	Town Hall	Eliminated - flooding, size	7167-00-196542
5	JLN Property	Eliminated - topography	7067-00-840297
6	Beekman Park	Eliminated - park, wetlands	7067-00-974260
7	Leonard Property	Considered	7067-20-917181
8	NYS Property	Eliminated - size, better options	7167-17-113214
9	Church Property	Eliminated - wetlands	7167-13-154303
10	Midway Holdings Property	Eliminated - bedrock, topography	7167-14-391384
11	Syms Property	Eliminated - cost, distance	7167-00-430145 & 315135
12	Clare Michael Property	Eliminated - planned development	7167-00-212034
13	County Organic Recycling Property	Eliminated - cost, distance	7166-00-051601
14	Amenia Landfill	Eliminated - landfill, distance	7066-00-882575
15	Mechanic Street Property	Considered	7167-14-297367

- Silo Ridge (Kornicki) 8.47 acres, perc tested
- Leonard 3.9 acres, secluded, abuts stream
- Mechanic 0.7 acres, town-owned

Collection & Treatment Layout

Step 3

- **Treatment Systems Considered**

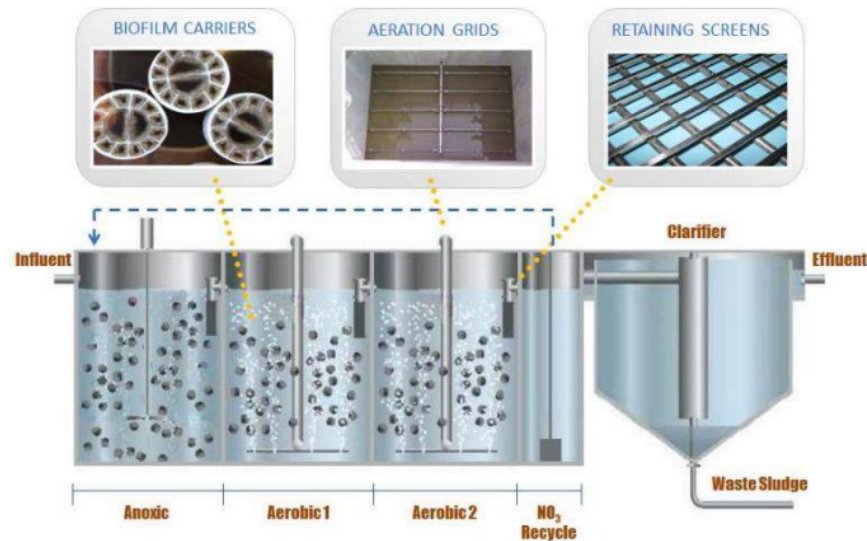
- did not consider conventional activated sludge treatment plant
 - does not fit the aesthetic of Amenia
 - high cost and complex operation & maintenance
- packaged alternative wastewater treatment systems
- compared four technologies:
 - Membrane Bioreactors (MBR)
 - Moving Bed Biofilm Reactors (MBBR)
 - Packed Bed Media Filters (PBF)
 - KleanTU NitROE System

Collection & Treatment Layout

Step 3

- **Moving Bed Biofilm Reactors (MBBR)**

- series of buried fiberglass tanks, no open tanks
- workhorse: plastic media
- tanks are aerated
- building for filters, blowers, & controls
- ultraviolet disinfection



Collection & Treatment Layout

Step 3

- **Why this system?**

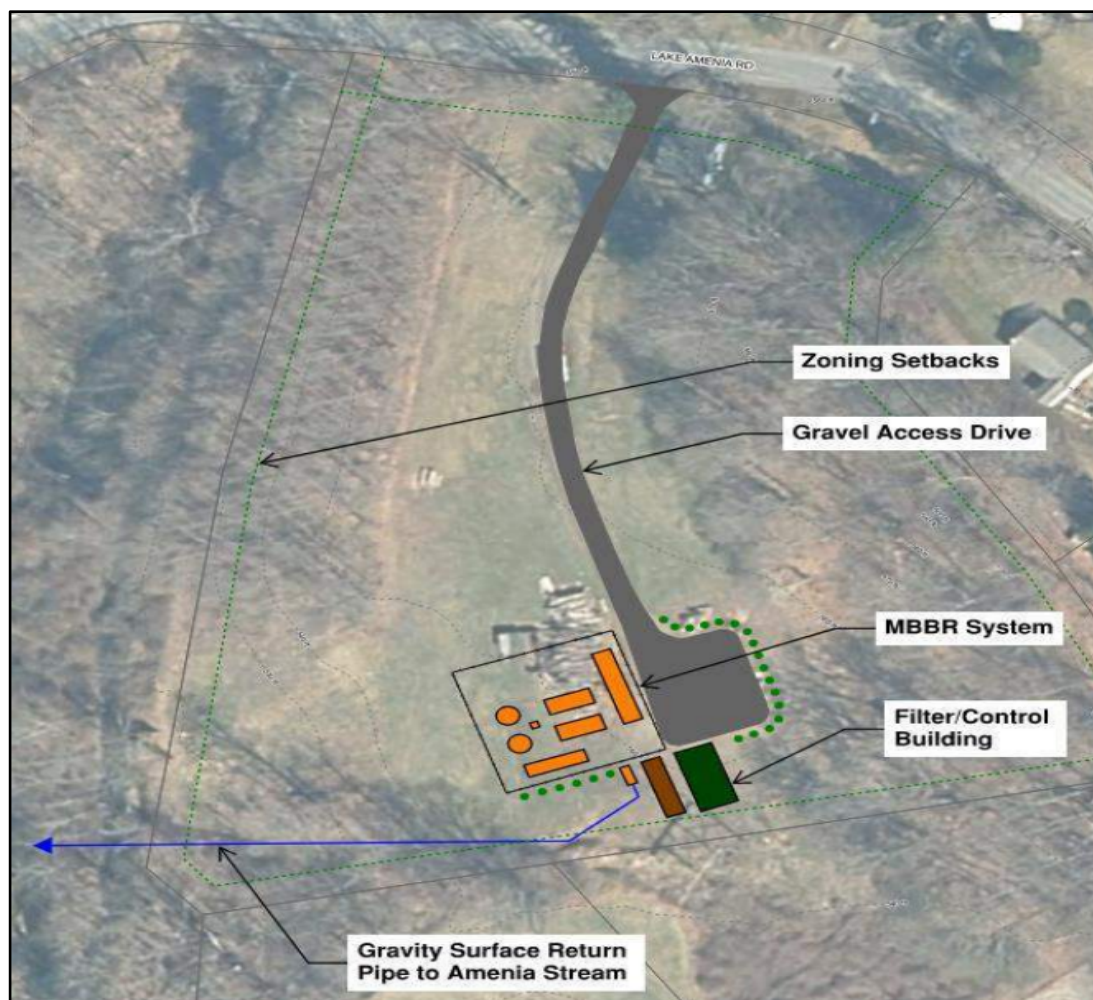
- low visual impact, meets community goals, aesthetics
- expandable in the future
- simple operation & maintenance
- regulators are familiar with this technology



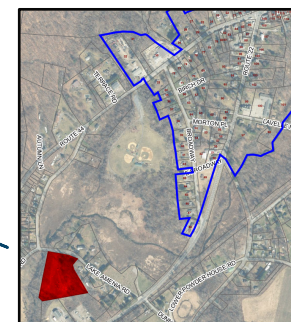
Collection & Treatment Layout

Step 3

MBBR System Layout



- Leonard Property behind Dutchess County Sheriff Station
- isolated from residential properties
- room for expansion (min. flow could be doubled)
- close to stream



Collection & Treatment Layout

Step 3

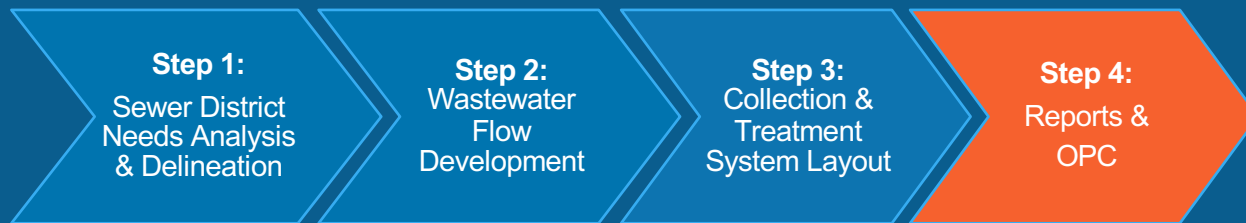
- **Return systems considered**

- subsurface vs surface
- compared four different subsurface technologies
- Leonard property is not large enough for subsurface
- proposed return system is surface return to Amenia stream

COMPARISON ITEM	SUBSURFACE	SURFACE
Treatment	Lower Degree of Treatment Required	Higher Degree of Treatment Required
Footprint	Large Area Required, including reserve area	Smaller Area Required
Capital Cost	Less Expensive Treatment System but upfront Cost for Return Field	More expensive Treatment System
Operation & Maintenance	Less O&M	More O&M
Life Cycle Cost	Lower Life Cycle Cost	Higher Life Cycle Cost

Step #4

Reports & Opinion of Probable Cost



Reports & OPC

Step 4

- **Sewer Feasibility Report**

- available at [facebook.com/AmeniaWC](https://www.facebook.com/AmeniaWC) & <https://bit.ly/amenia-sewer>

- **Cost Estimate Methodology**

- cost estimate based on a AACE Class 4 Estimate (see Section 6.4.1)
- multiple components contribute to total project cost:
 - capital construction costs
 - engineering costs
 - contingency (30%)
 - administrative costs
 - financing costs
- cost estimates based on:
 - completed projects
 - quotes from manufacturers and vendors
 - RSMeans cost data (industry standard cost data source)

Reports & OPC

Step 4

Anticipated Total Project Cost

ITEM	COST
Capital Construction Costs	\$12,687,000
Engineering Costs	\$2,509,000
Administrative Costs	\$254,000
Project Contingency (30%)	\$3,806,000
Financing Costs	\$567,000
TOTAL PROJECT COST	\$19,823,000

Anticipated Annual O&M

ITEM	COST
Collection System	\$54,500
Treatment & Return System	\$72,500
Administrative Costs	\$15,000
Contingency (30%)	\$39,000
ANNUAL O&M COST	\$181,000

- **What are Affordable User Costs?**

- EPA says a household shouldn't spend more than 2% of median household income (AMI) on sewer cost.
- Amenia's median household income is \$54,243.

ITEM	COST
Amenia AMI	\$54,243
EPA Affordability Rate (% of MHI)	2%
MAX SINGLE-FAMILY MONTHLY FEE	\$90

- what's affordable for Amenia single-family households?
- user fee analysis holding single-family cost at \$63 per month.

Reports & OPC

- **Annual Costs**

ITEM	COST
Annual Debt Service Cost	\$660,767
Annual O&M Costs	\$181,000
Total Annual Cost	\$841,767
TOTAL MONTHLY COST	\$70,147

- **Potential Billing Method**

- single-family monthly cost per EDU: \$63
- small business monthly cost per EDU: \$314

- **How's the Project Funded?**

Reports & OPC

Step 4

- **Funding Strategies/Opportunities**

- hardship financing (0% for 30 years) assumed - no grants (CWSRF)
- grants can significantly lower cost
- grant sources:
 - Water Infrastructure Improvement Act (WIIA) – 25% of project up to \$5M
 - Clean Water State Revolving Fund (CWSRF) – 50% of project
 - Dutchess County Community Development Block Grant (CDBG)
 - USDA Rural Development Program (WEP)
- 2023 Annual IUP CWSRF application submitted June 2022
- Water Quality Improvement Project (WQIP)



Reports & OPC

- **How Would Grants Impact User Rates?**

- residential rates (\$63 / mo EDU) are subsidized by commercial users
- commercial rates would first be reduced by any grant funding

GRANT % OF TOTAL PROJECT COST	SINGLE-FAMILY RESIDENTIAL MONTHLY COST PER EDU	COMMERCIAL MONTHLY COST EDU
0%	\$63	\$314
45%	\$63	\$172
50%	\$63	\$157
55%	\$63	\$141

Case Study

Hillsdale, NY

2008 vs. 2014

Case Study: Hillsdale, NY

Before



After



Case Study: Hillsdale, NY

Before



After



Case Study: Hillsdale, NY

- **Keys to Success**

- dedicated, hands-on Wastewater Committee
- committed business leaders & Town Supervisor
- took political risk – asked for consent order
- problems & limitations well understood
- opportunities outweighed status quo
- strong community buy-in
- grant funding

Next Steps

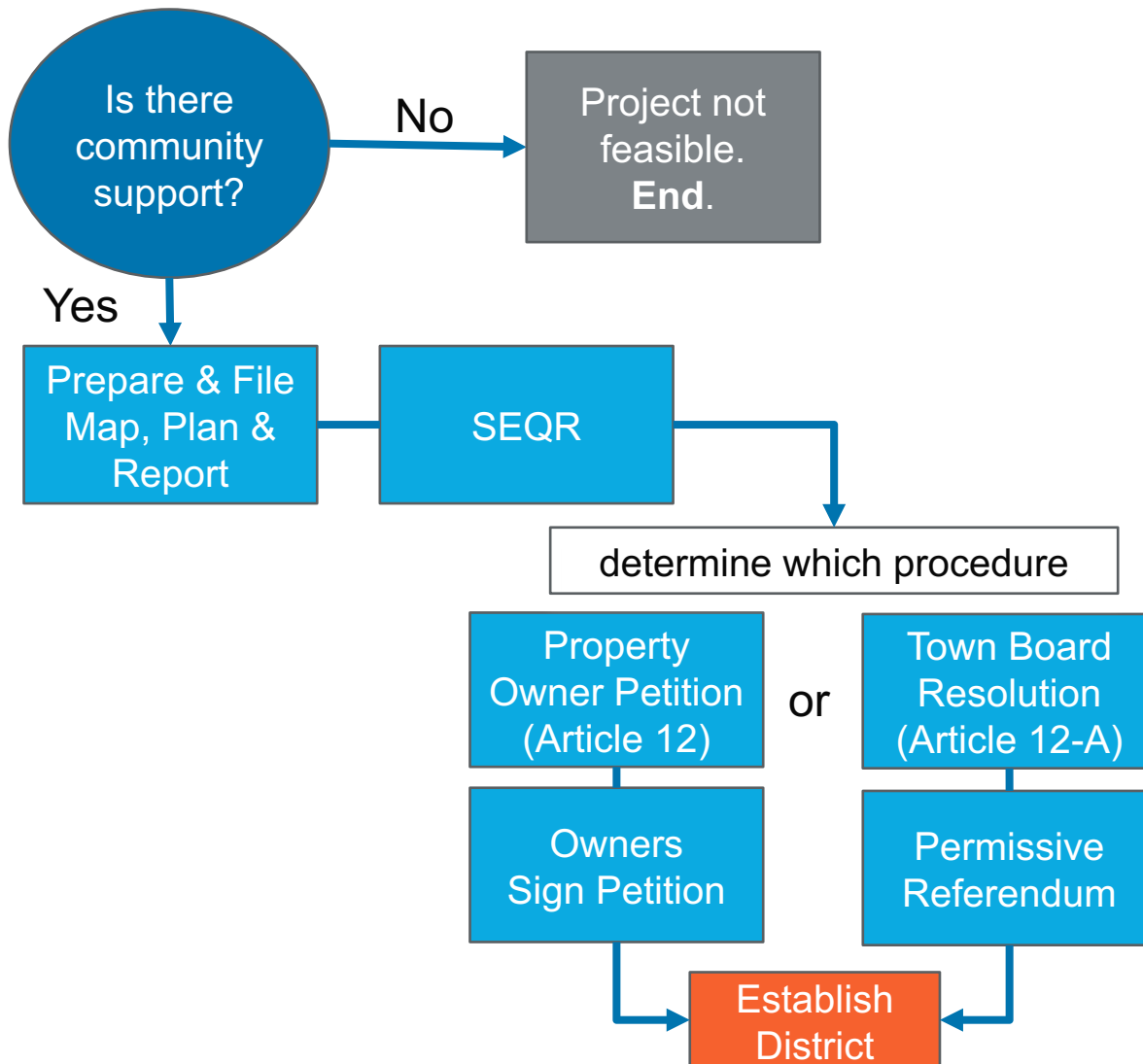
Next Steps

- **Stakeholder Engagement**

- mailing to all residential owners in district ✓ done
- calls and emails to business and residential owners in district ✓ done
- presentation of report by engineer to Town Board & the public ✓ done
- discussions with owners in proposed district
- forums with owners in proposed district
- quantify community support

- **Decision Point**

Next Steps



Questions & Discussion

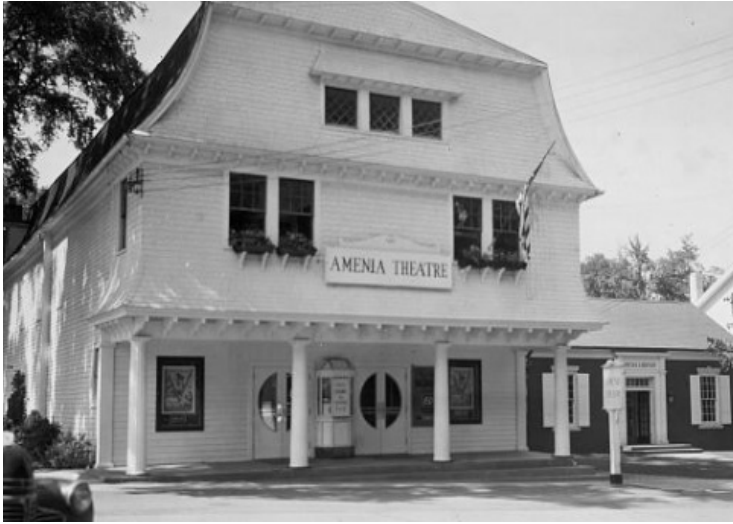
cleanwater@ameniany.gov

Amenia: Then & Now

Fountain Square



Amenia: Then & Now



East Main Street

Amenia movie theater opened in 1937, destroyed by fire 1974



Amenia: Then & Now



Amenia Inn

Depot Hill
Road

