



# SALEM MUNICIPAL SERVICES

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ENGINEERING   PUBLIC WORKS   UTILITIES

# MUNICIPAL SERVICES

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Combining those relative resources and departments into an organizational structure that consolidates and enhances services that residents of the Town expect to be provided in an appropriate manner via the distribution of their taxes.



## SALEM MUNICIPAL SERVICES



# MISSION STATEMENT

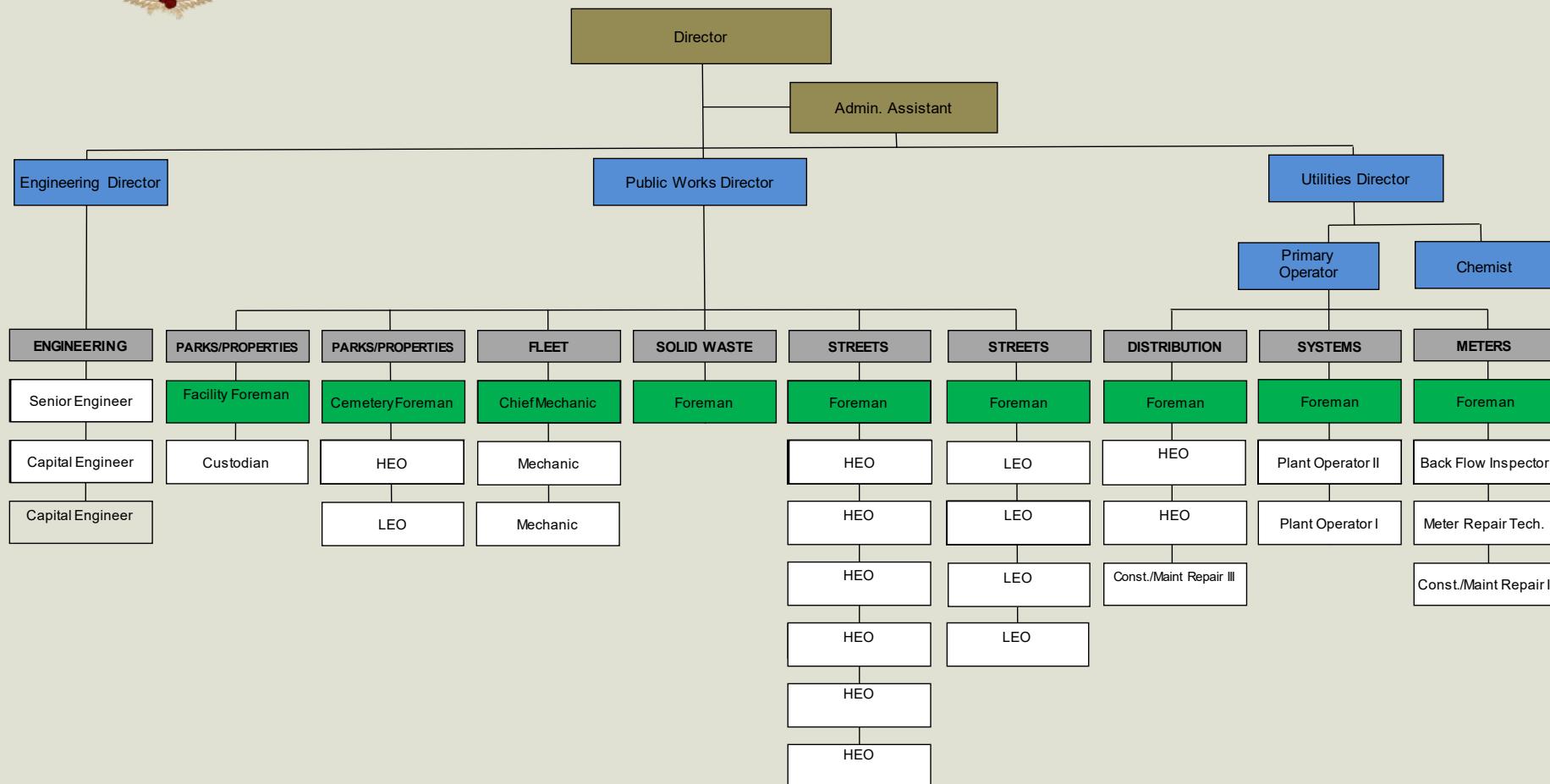
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To provide high quality essential municipal services to the residents, businesses, and visitors to Salem in a professional, efficient, and cost-effective manner.



## SALEM MUNICIPAL SERVICES

ENGINEERING ♦ PUBLIC WORKS ♦ UTILITIES



# COMMON OBJECTIVES

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- Direction and communication are consistent and collaborative
- Reduces duplication and improves efficiency
- Allows for establishing a dynamic and responsible capital improvement program

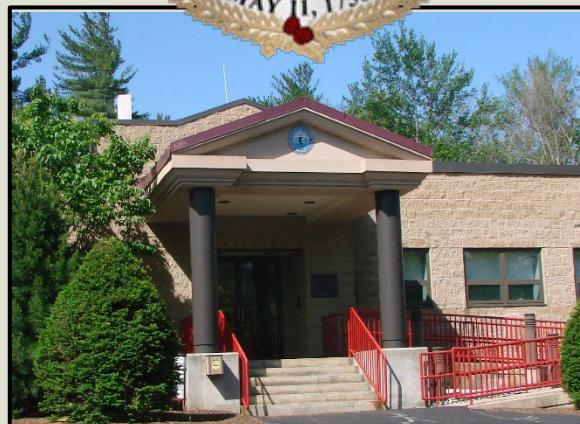
# PRIMARY OPERATIONS

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## ENGINEERING



## PUBLIC WORKS



## UTILITIES

# DIRECTION

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## MISSION STATEMENTS

What is our core purpose and focus, where do we want to go

## DESCRIPTIONS

Who are we and what is our responsibility

## GOALS

General benchmark; what do we want to achieve for the betterment of the Town

## OBJECTIVES

How are we going to reach that goal; specific, timely, and measurable

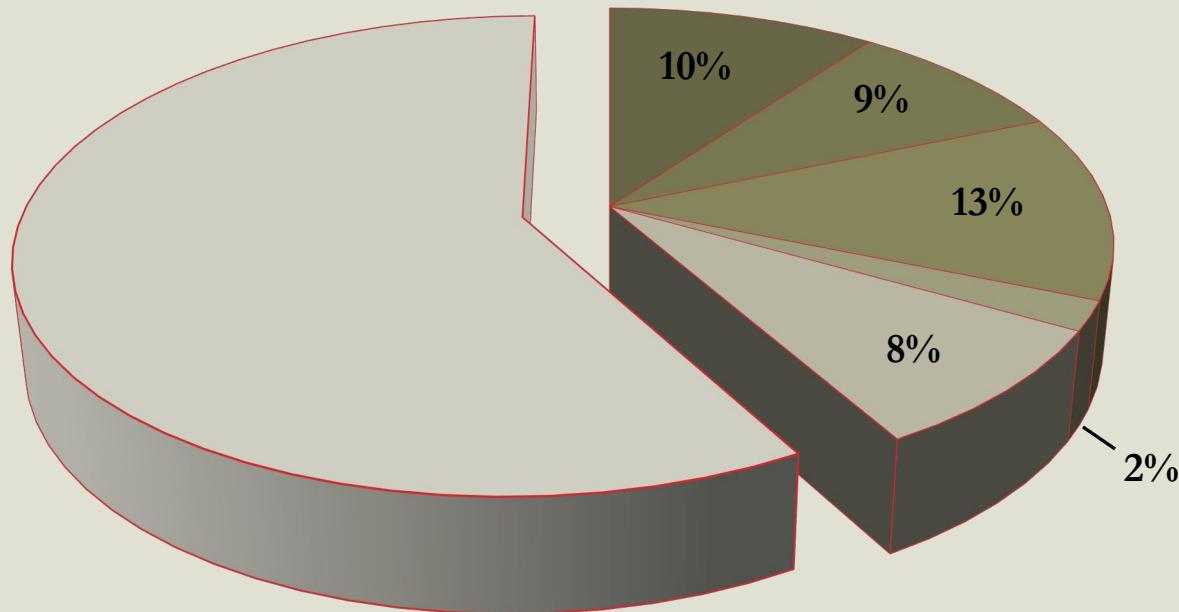
# ASSET MANAGEMENT

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- 187 miles of roads
- 34 miles of sidewalks
- 18 municipal bridges
- 136 miles of water pipe
- Canobie Lake WTP
- 3 water tanks
- 3 water booster stations
- 5 Dams
- 1000 plus fire hydrants
- 8500 plus water meters
- 79 miles of sewer pipe
- 75 Traffic Signals
- 10 sewer pump stations
- 1968 plus sewer manholes
- 131 miles of drainpipe
- 5500 plus catch basins
- 600 plus drain manholes
- 750 plus drain outfalls
- 5 cemeteries
- 50 plus acres of property
- 15 Town buildings
- Transfer Station
- 150 plus vehicles and equipment

# BUDGET SNAPSHOT

**\$28,952,193 - 42% OF OVERALL TOWN BUDGET**



■ MUNICIPAL SERVICES

■ SEWER

■ WARRANT ARTICLES

■ WATER

■ CAPITAL IMPROVEMENTS

# PROJECTS & PROGRAMS

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- Bridge / Culvert Reconstruction
- Road Program
- Water System Improvements – Exit 2
- Old Rockingham Road Water Line
- Sewer Master Plan
- Water Master Plan
- WWTP
- Howard Street Water Tank
- Municipal Separate Storm Sewer System (MS4)
- Vehicle Replacement Plan
- Facility Needs
- Dams
- Grants
- District Court
- Cemetery Expansion
- South Broadway Infrastructure Project
- Depot Intersection Project
- Area Road Improvements
- Ring Roads
- Rail Trail
- Transfer Station
- Regional Water Line
- Old Town Hall
- DPW Operations
- Utility Operations
- Engineering Operations
- Traffic Signals
- Tuscan Village

# DEPARTMENT DEVELOPMENT

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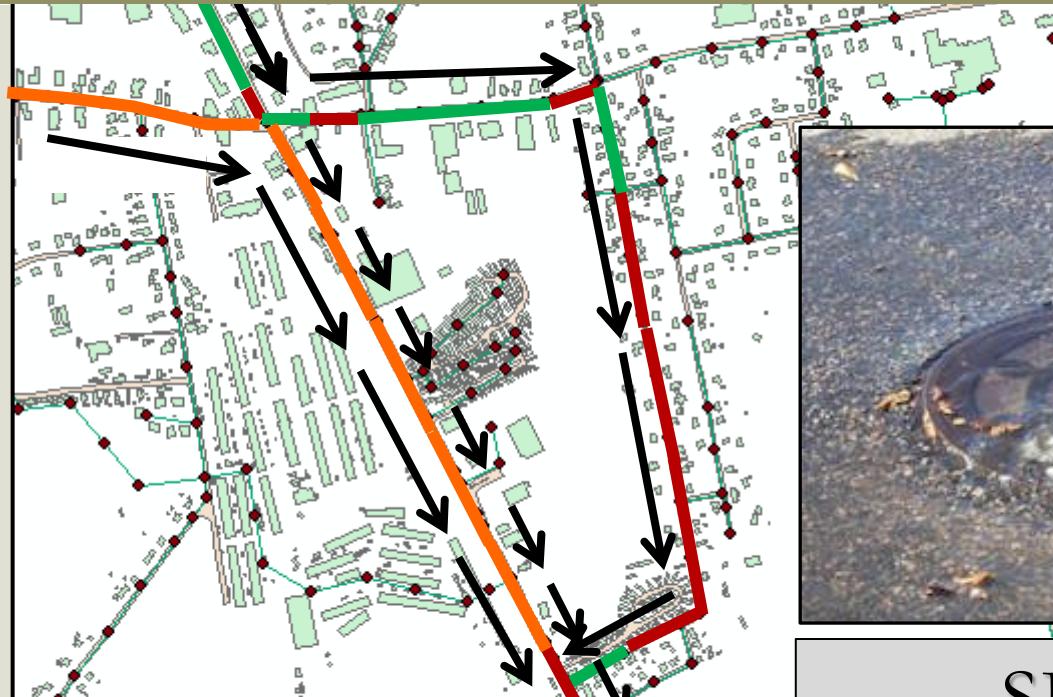
- Strategic Planning
- Master Planning
- Capital Improvement Plan
- Capital Expenditure Plan
- Asset Management
- Technology
- Department Structure

# COMMITTEE INVOLVEMENT

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- Road Stabilization
- Municipal Buildings Advisory
- Depot Village Advisory
- SNHRW Partners

# SOUTH BROADWAY INFRASTRUCTURE PROJECT



## SEWER IMPROVEMENTS

- Underwood Engineers
- Sanitary Sewer Overflows
- Flow Restrictions
- Undersized Sewer Mains
- Main Street
- South Broadway
- Granite Ave
- Westchester Street

# SOUTH BROADWAY INFRASTRUCTURE PROJECT

- CDM Smith
- Master Plan
- 2016 Pipe Integrity Study: Redlined
- Depot and South Broadway
- Pipe – 100 years old
- Over 25 Breaks since 1987



## WATER IMPROVEMENTS

# SOUTH BROADWAY INFRASTRUCTURE PROJECT

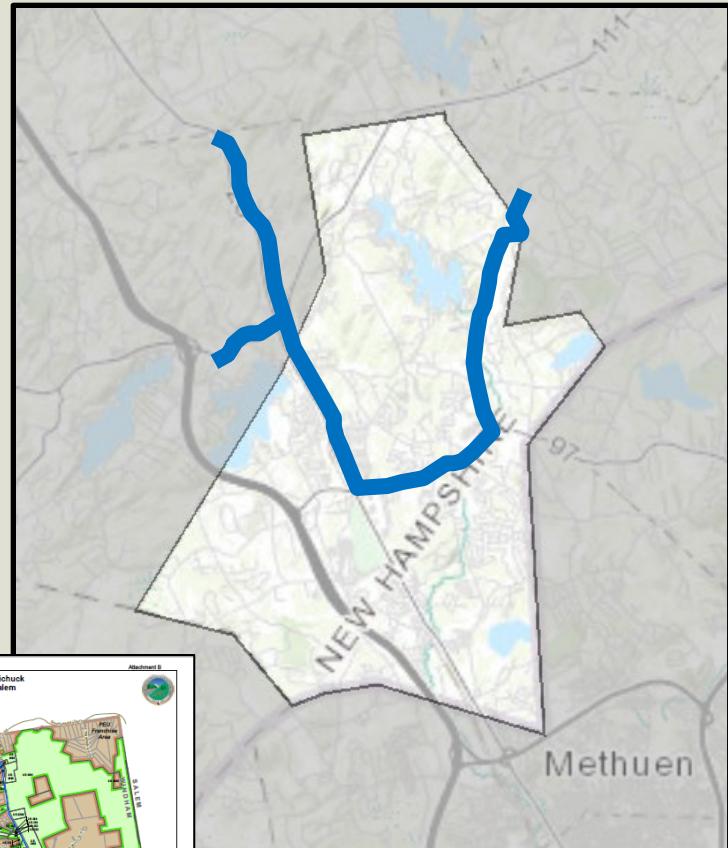
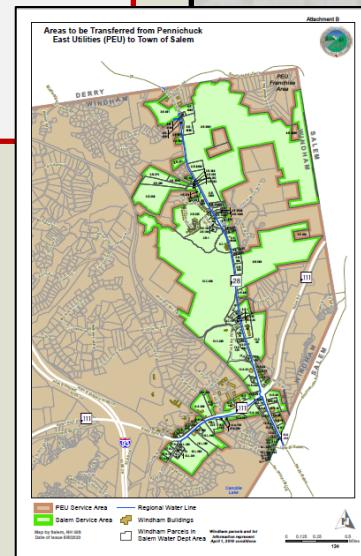
- Underwood Engineers
- Hoyle & Tanner
- Flow Restrictions
- Undersized Culvert
- Main Street
- South Broadway
- Granite Ave
- Westchester Street



## CULVERT IMPROVEMENTS

# SOUTHERN NH REGIONAL WATER LINE

- Address MtBE contamination issues – Plaistow, Salem, and Windham
- Construction funded by NHDES - ~\$27,000,000
- Salem Work Complete
- Windham Franchise Area
- Phase I – 300,000 GPD
- Phase II – 1,200,000 GPD

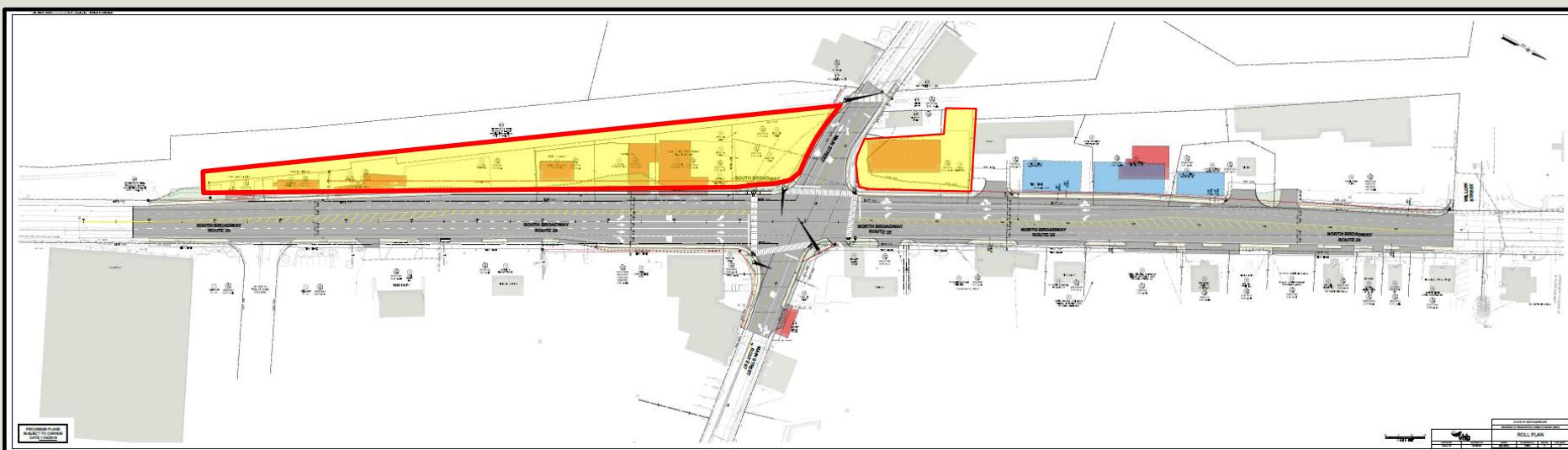


# SOUTHERN NH REGIONAL WATER LINE INTERCONNECTION AGREEMENT

Water System	Phase 1 Max. Day Demand (MGD)	Phase 2 Max. Day Demand (MGD)	Total Max. Day Demand (MGD)
Windham	<b>200,000</b>	<b>110,000</b>	<b>310,000</b>
Salem	<b>300,000</b>	<b>1,200,000</b>	<b>1,500,000</b>
HAWC	<b>250,000</b>	<b>500,000</b>	<b>750,000</b>
Plaistow	<b>250,000</b>	<b>320,000</b>	<b>570,000</b>
<b>TOTAL</b>	<b>1,000,000</b>	<b>2,130,000</b>	<b>3,130,000</b>

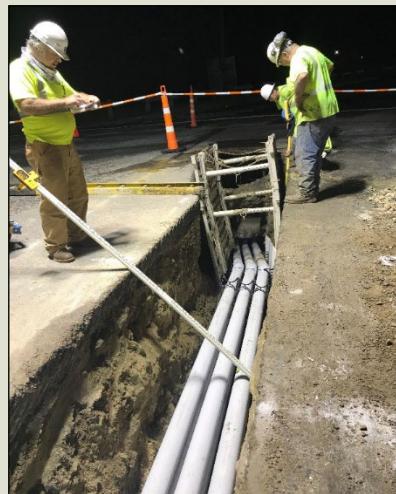
# ROAD PROJECTS

- High Level of Congestion and Delay
- Highest Crash Rate in Salem
- Rte28 Shared Thru/Left Turn Lanes
- Overlapping Left Turns Lead to Risk Taking
- 35 Curb Cuts on Route 28
- 220 Crashes in 3 Year Period
- Seven properties acquired
- Widen Route 28 to include exclusive left turn lanes and striped median
- Replace traffic signals
- Rehabilitate roadway pavement and reconstruct sidewalks
- Signalize the future rail trail crossing of Main Street



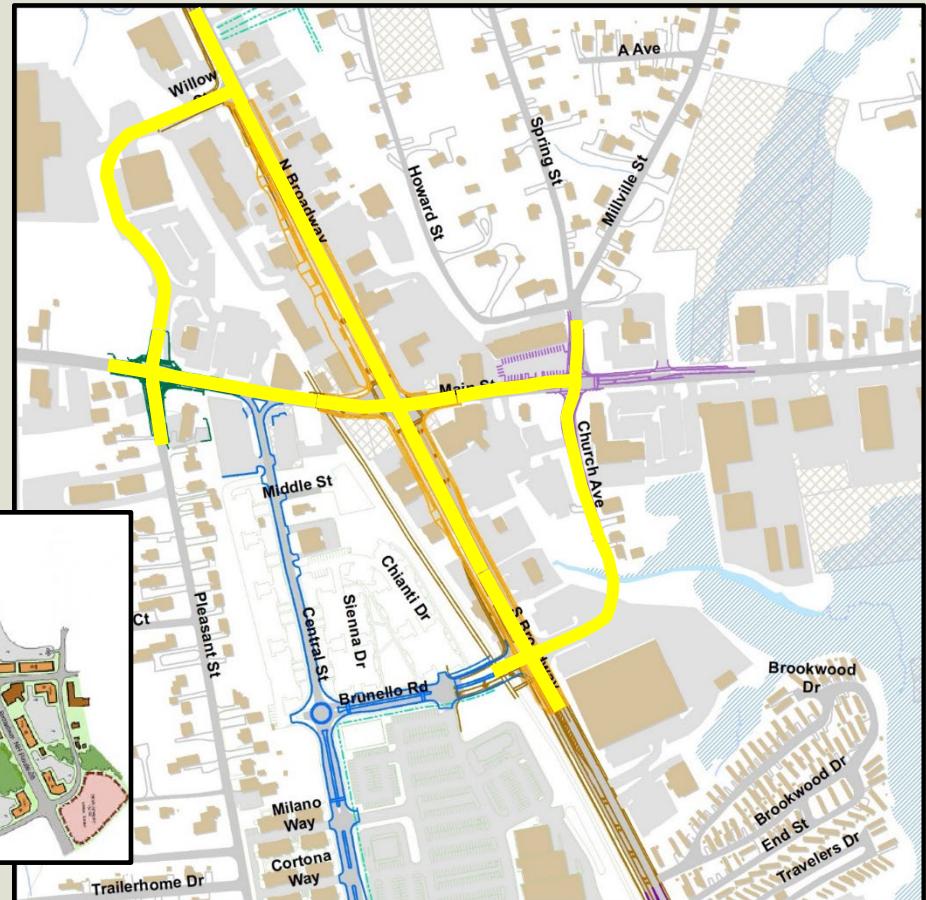
## DEPOT INTERSECTION





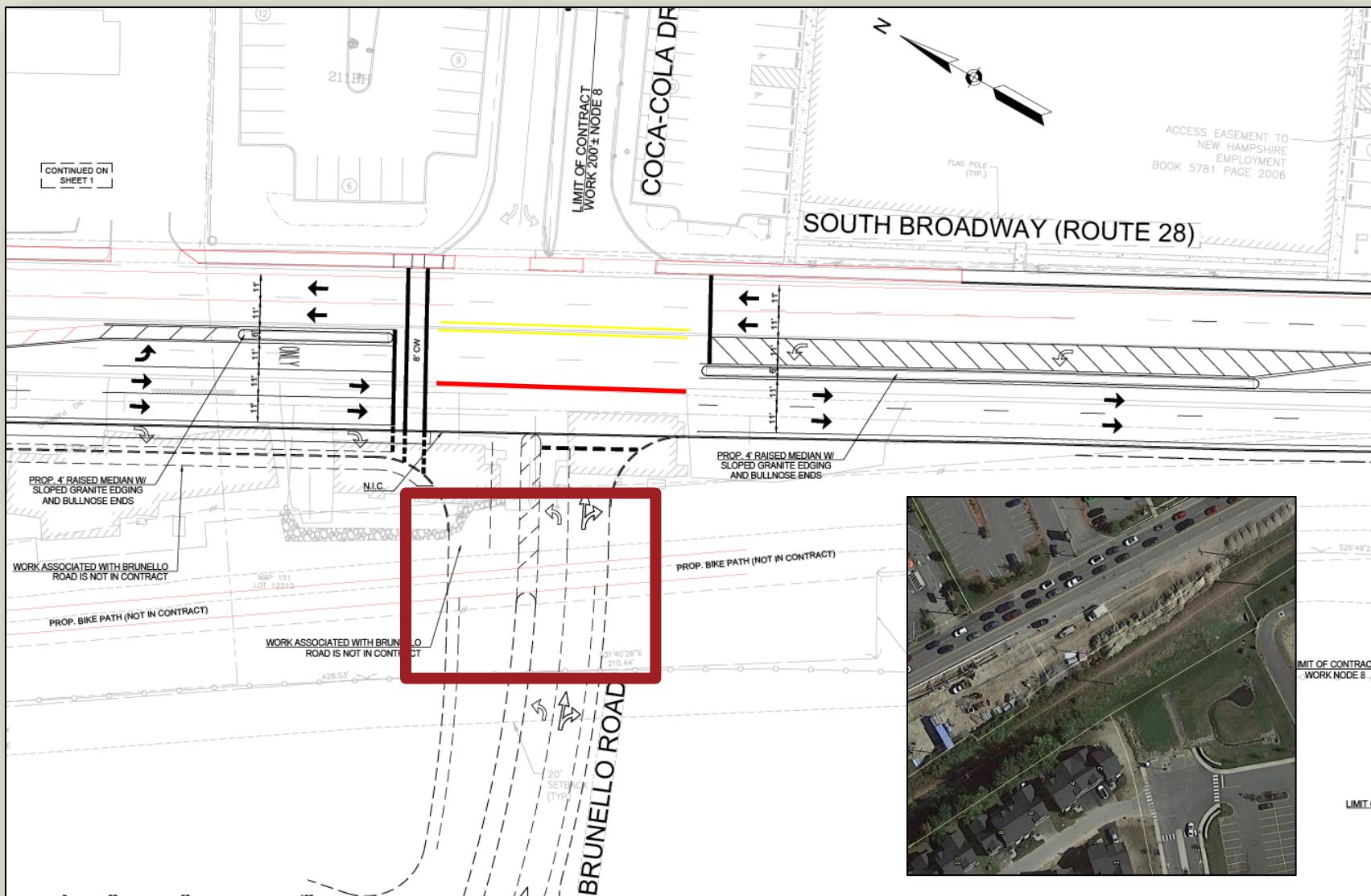
# ROAD PROJECTS

- 2011 Depot Master Plan
- Pleasant/Main
- Depot Intersection (Broadway/Main)
- Northwest Ring Road (Willow Street)
- Southeast Ring Road (Church Avenue)
- Broadway Gaps



## AREA ROAD IMPROVEMENTS

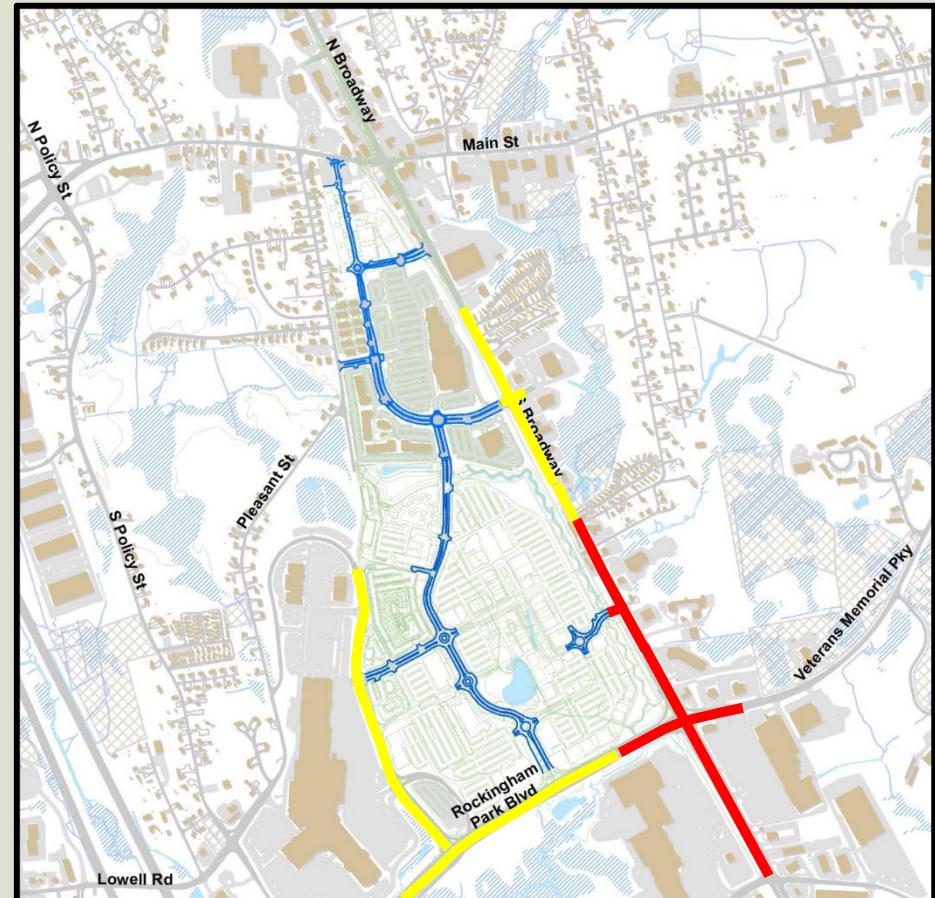
# ROAD PROJECTS



BRUNELLO ROAD INTERSECTION / S. BROADWAY WIDENING

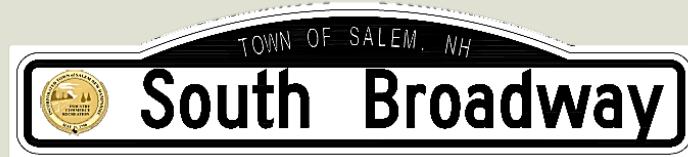
# ROAD PROJECTS

- Mall Road
- Rockingham Park Boulevard
- Broadway/RPB/Veterans
- Broadway/ Via Toscana
- Broadway/Central St/ Post Office
- Broadway Gaps

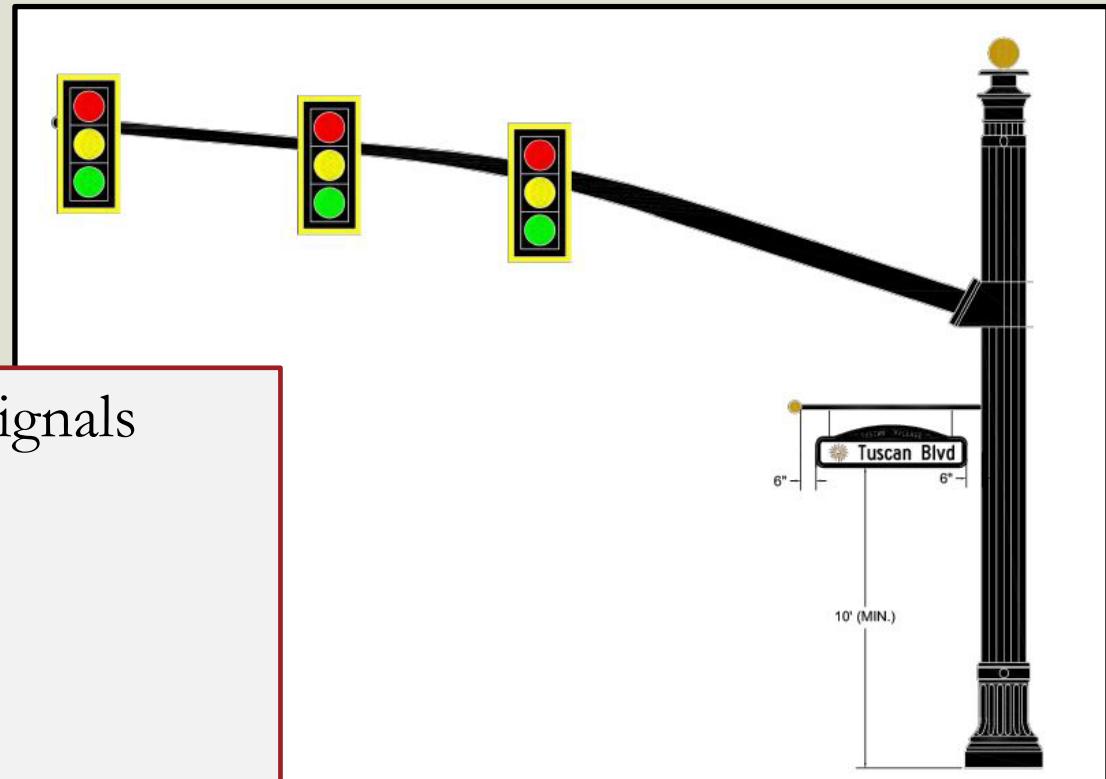


AREA ROAD IMPROVEMENTS BY TUSCAN

# ROAD PROJECTS



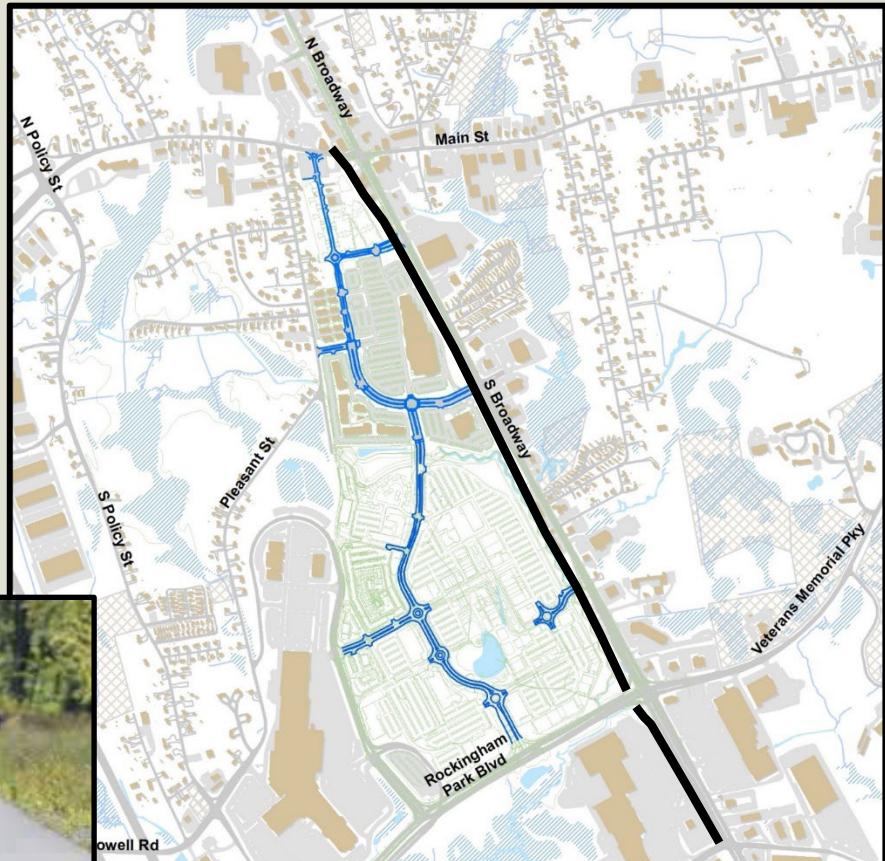
- Ornamental Traffic Signals
- Interconnection
- Granite Curbing
- Concrete Sidewalks
- Signing Theme
- Lighting



## STREETSCAPE

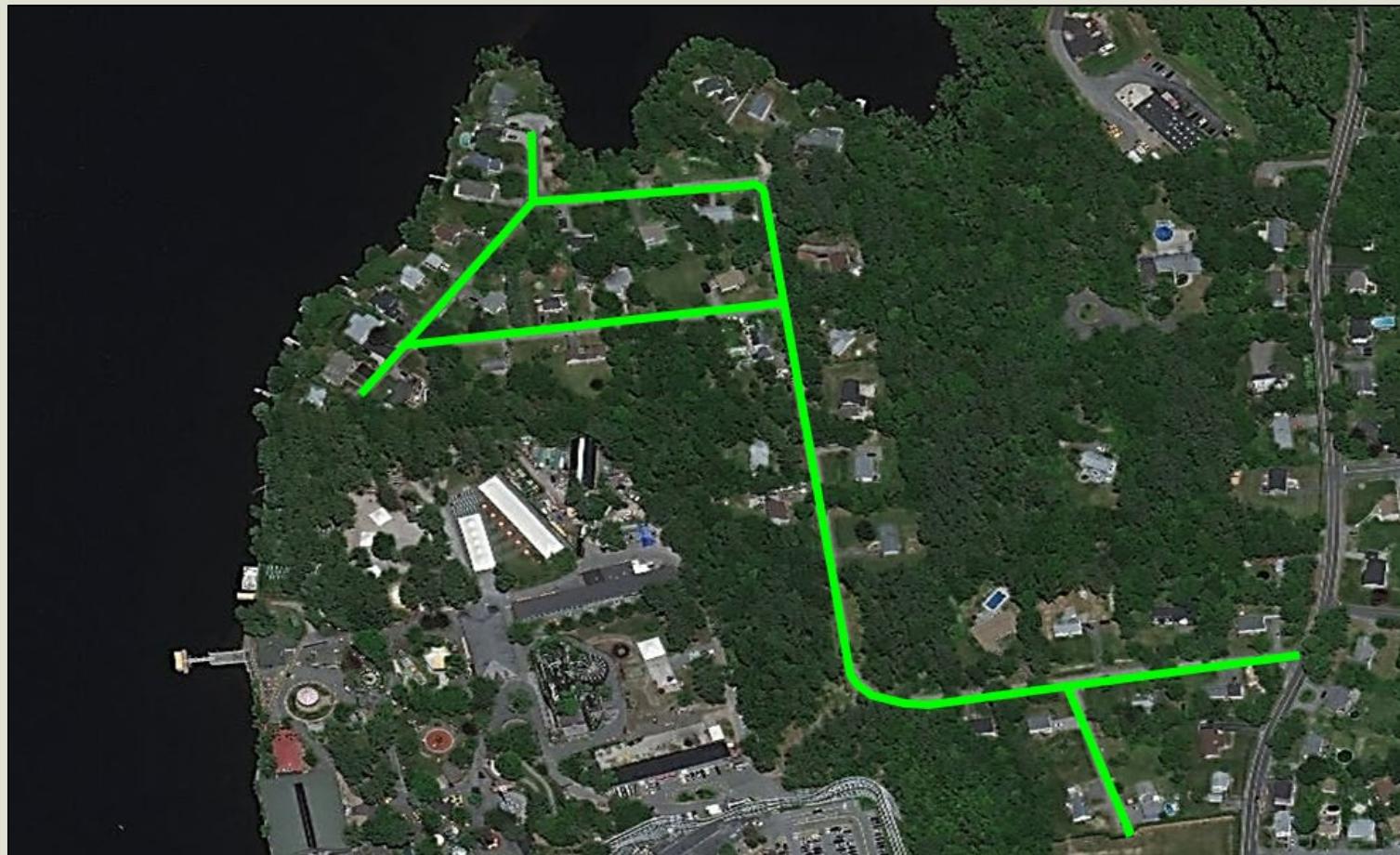
# RAIL TRAIL IMPROVEMENTS

- Phases 1-3: Windham TL to Main Street (Constructed)
- Phases 4-6: Main St to Cluff Crossing (in Design)
- Future Phases to State Line





# DYNAMIC CAPITAL IMPROVEMENTS



## WEST DUSTON ROAD NEIGHBORHOOD IMPROVEMENTS

- Water
- Sewer
- Drainage
- Road Reconstruction

# FORMER WASTEWATER TREATMENT FACILITY

2016



# FORMER WASTEWATER TREATMENT FACILITY

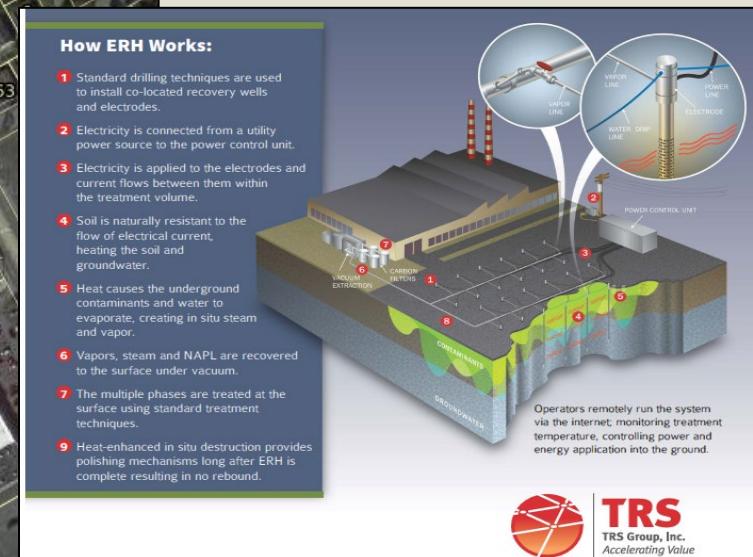
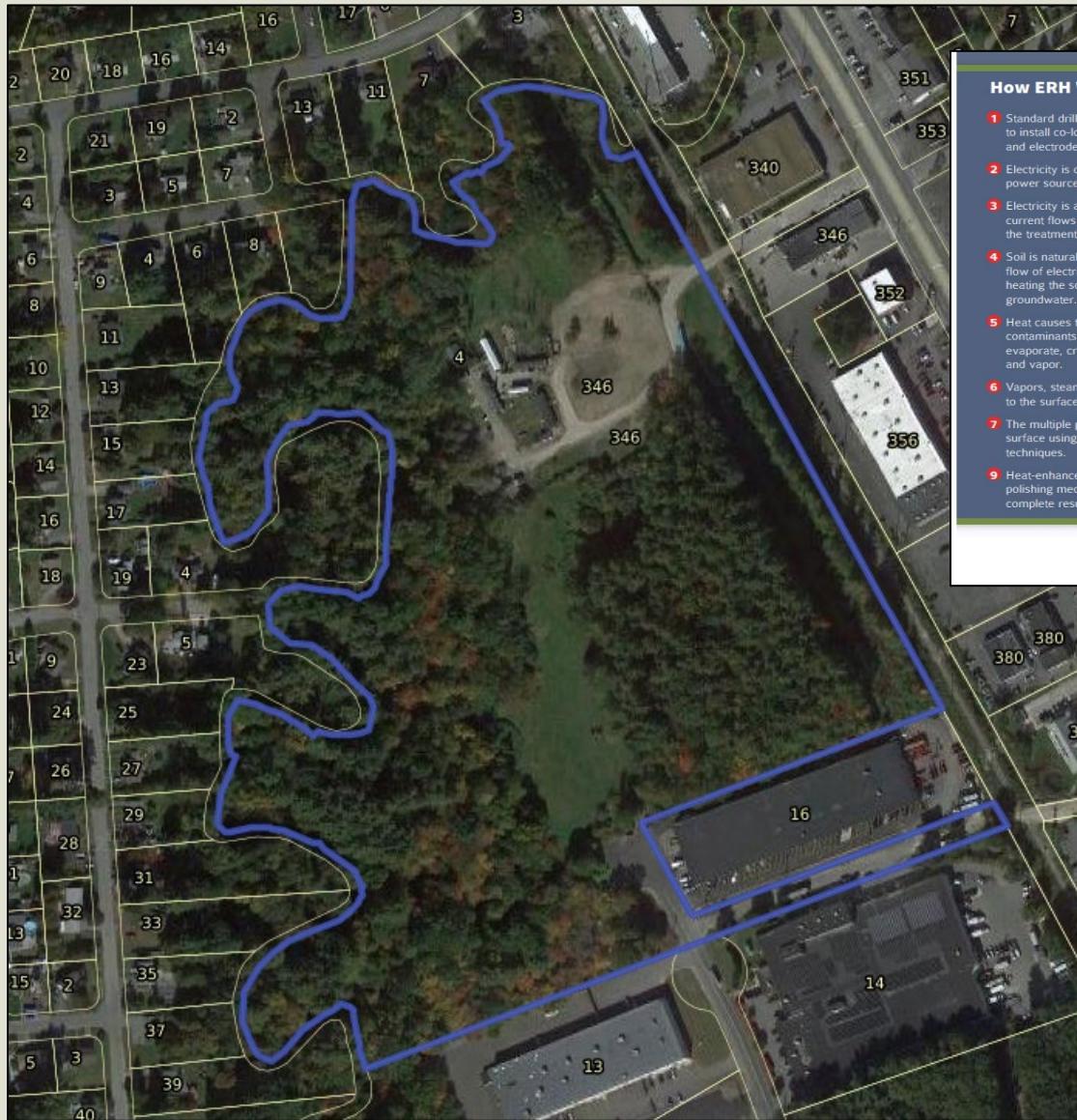
2021



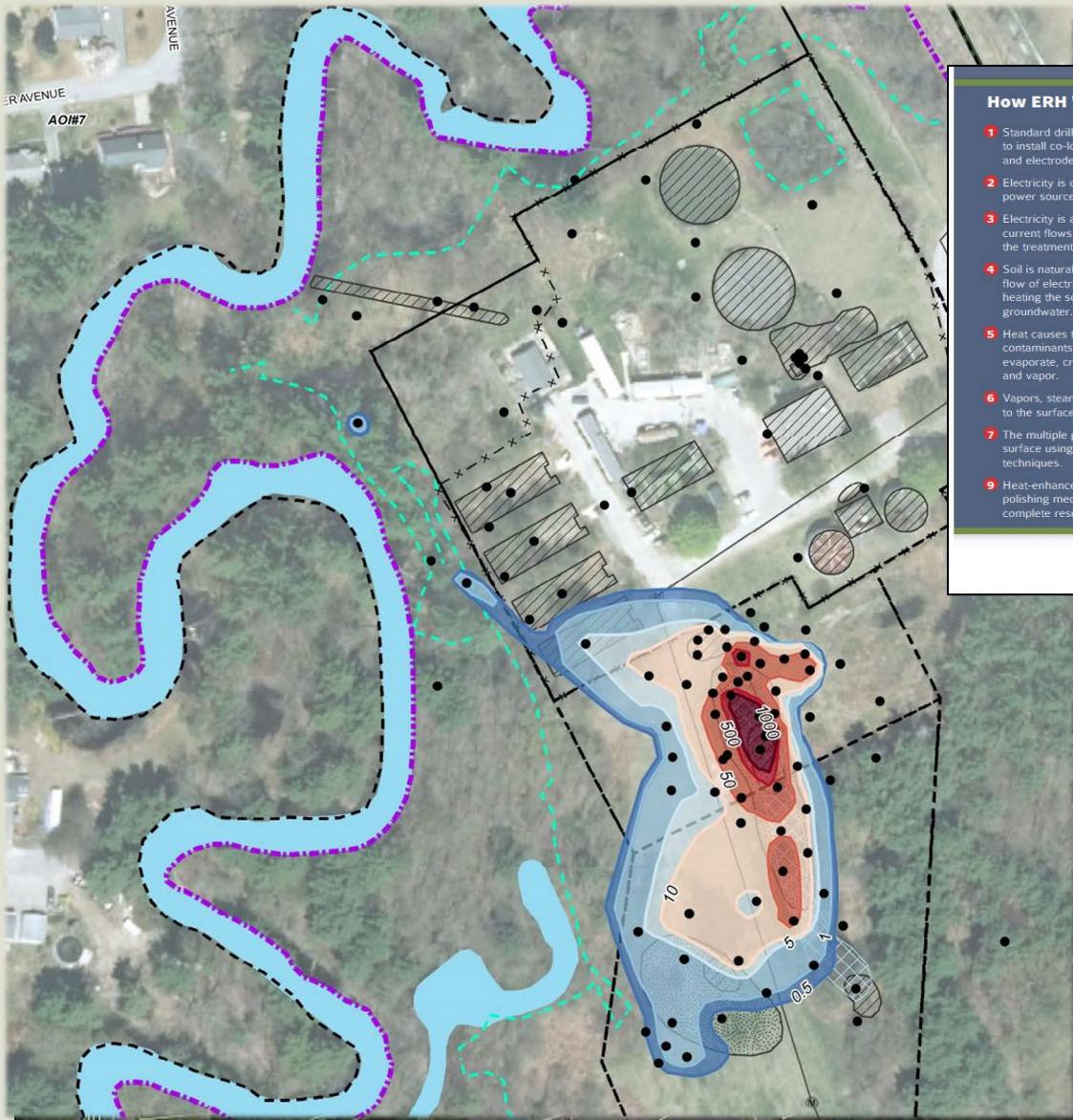
# FORMER WASTEWATER TREATMENT FACILITY



# FORMER WASTEWATER TREATMENT FACILITY

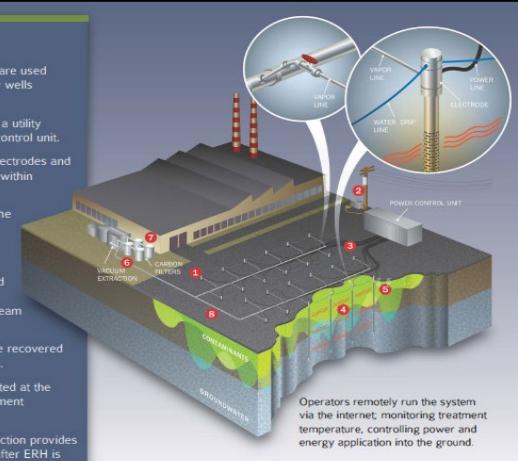


# FORMER WASTEWATER TREATMENT FACILITY



## How ERH Works:

- 1 Standard drilling techniques are used to install co-located recovery wells and electrodes.
- 2 Electricity is connected from a utility power source to the power control unit.
- 3 Electricity is applied to the electrodes and current flows between them within the treatment volume.
- 4 Soil is naturally resistant to the flow of electrical current, heating the soil and groundwater.
- 5 Heat causes the underground contaminants and water to evaporate, creating in situ steam and vapor.
- 6 Vapors, steam and NAPL are recovered to the surface under vacuum.
- 7 The multiple phases are treated at the surface using standard treatment techniques.
- 8 Heat-enhanced in situ destruction provides polishing mechanisms long after ERH is complete resulting in no rebound.



# OLD TOWN HALL PRESERVATION PROJECT

- New Hampshire Preservation Alliance: \$3,587.50 Historic Building Assessment
- LCHIP: \$46,640.00 Window Restoration



 **LCHIP**  
Land & Community Heritage  
Investment Program



**OLD TOWN HALL PROJECT**

<b>PROJECT DESCRIPTION:</b> The purpose of the project described herein is to protect and enhance the historic character and preservation values of the 1738 Salem Old Town Hall (the "Resource") located at 310 Main St, Salem, NH 03079, by undertaking the following work: <i>Window Restoration</i>	<b>Recipient:</b> Town of Salem <b>Project Manager:</b> Municipal Services Department <b>Project Name:</b> Salem Old Town Hall <b>Project Type:</b> Rehabilitation <b>Grant Award:</b> up to \$46,640.00 <b>Grant Expiration Date:</b> December 31, 2023
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## *SALEM HISTORICAL SOCIETY FUNDRAISING*

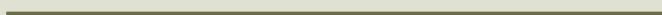
- *Siding Replacement*
- *Painting*
- *Interior Carpentry*
- *Electrical*
- *Walkway*
- *Landscape*
- *Various Masonry Repairs*

# MUNICIPAL BUILDINGS ADVISORY COMMITTEE

M  
B  
A  
C



- Window Restoration On-Going, LCHIP Grant
- Siding Replacement Complete
- ICON – Finalizing Building Program and
- Setting date for Conceptual Deliverables to BOS
- RFQ 2022-037 – Facility Assessment
- Weston and Sampson – Finalizing Feasibility Study
- Next Steps - Due Diligence Structural Building Evaluation, Site Geotechnical
- MBAC reviewed and discussed August 2019 Harriman Report
- Police Internal Working Group reviewed locations and building size
- MBAC reviewed and discussed Harriman and HL Turner Reports
- Fire Internal Working Group developed Facilities Plan



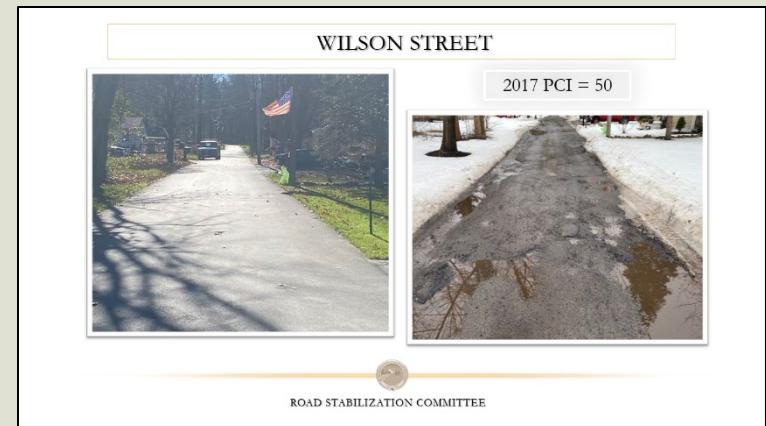
# ENGINEERING DIVISION



## ROAD PROGRAM

The largest and perhaps most important asset of municipal infrastructure are the roads. Simply put paved roads are used as a primary mode of transportation and preserving the condition should be a top priority. Municipalities are best served implementing a Pavement Management Plan that uses geographic information system technology to measure and evaluate the road conditions creating comprehensive data. This process allows a municipality to maximize its reinvestment in a feasible manner while maintaining a sound road network.

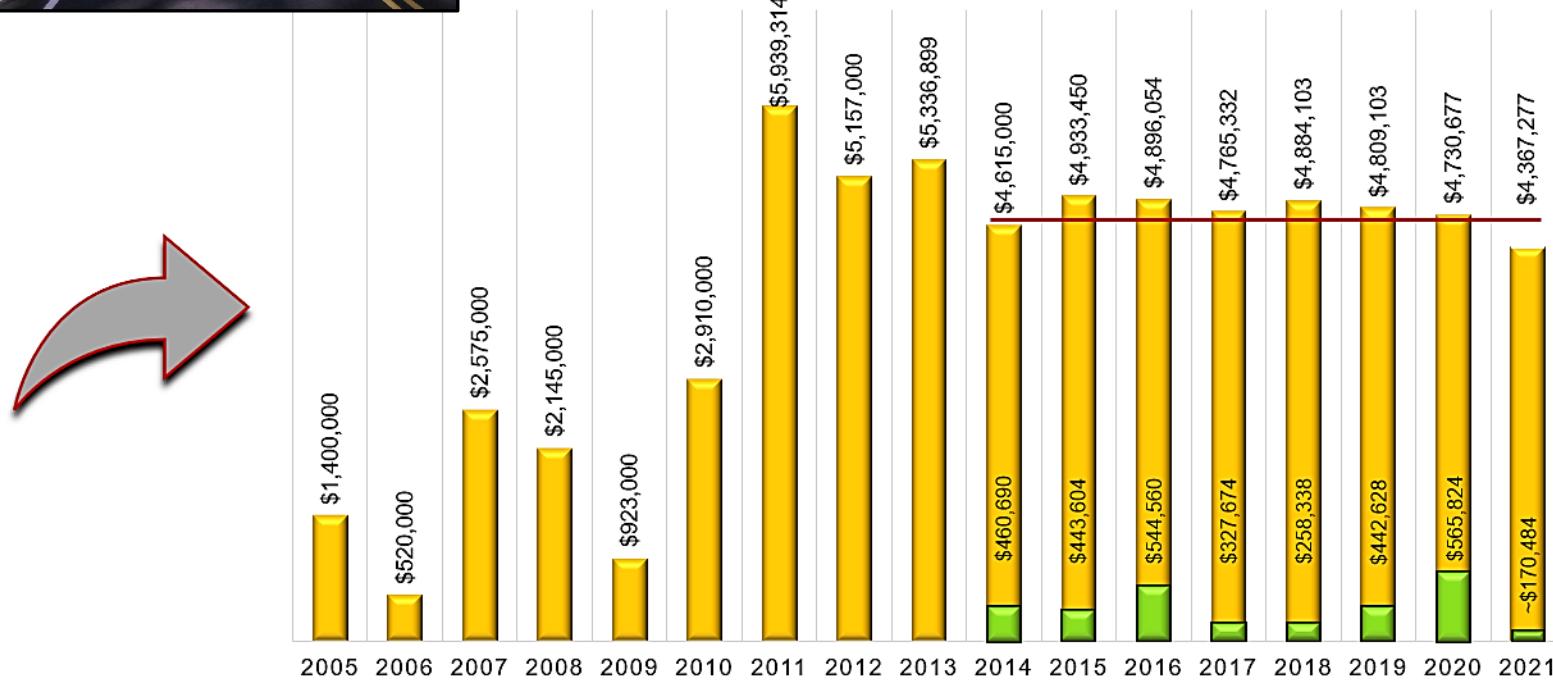
- Pavement Condition Index (PCI)
- PCI derived from established measurements of pavement surface condition distresses and deficiencies
- 0 to 100 scale, 100 being excellent
- PCI is one of the principal factors in treatment and scheduling
- Town wide assessment underway in 2022
- Report to BOS in early 2023



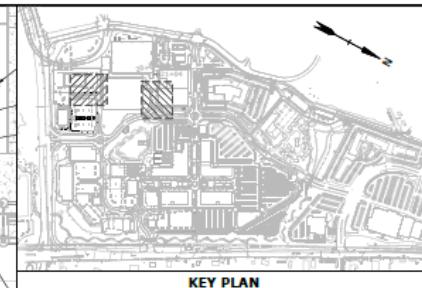
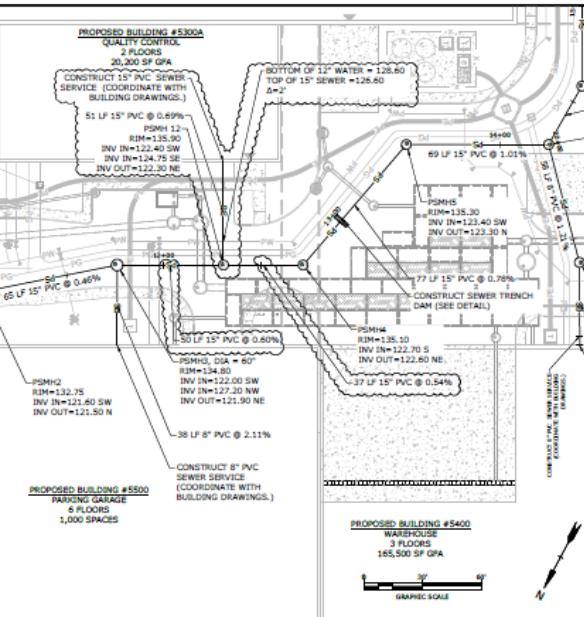
# ROAD PROGRAM



## HISTORICAL FUNDING



# PLAN REVIEW



**KEY PLAN**  
SCALE: 1" = 600'

LEGE

PROPOSED DRAIN LINE  
PROPOSED GAS MAIN  
PROPOSED SEWER LINE  
PROPOSED CONC. ENCASED ELEC. DUCTBANK  
PROPOSED LIGHTING CONDUIT  
PROPOSED WATER LINE  
PROPOSED TELECOMMUNICATIONS LINE  
PROPOSED PERFORATED UNDERDRAIN  
PROPOSED SEWER MANHOLE  
BOTTOM OF PIPE  
INVERT  
STATION  
PROPOSED SEWER MANHOLE  
DIAMETER

PERMIT SET - NOT FOR CONSTRUCTION

1	07/12/2022	REVISED PER INHES COMMENTS
MARK	DATE	DESCRIPTION

## SEWER PLAN & PROFILE

**TUSCAN VILLAGE - LIFE SCIENCE CAMPUS  
SEWER CONNECTION PLANS**

MAP 107 LOT 11003  
**Tighe & Bon**  
[www.tigheandbon.com](http://www.tigheandbon.com)

[www.tighebond.com](http://www.tighebond.com)  
177 Corporate Dr.  
Portsmouth, NH 03801  
(603) 433-8811

(800) 455-4222

DATE: JUNE 10, 2022

**TUSCAN VILLAGE MASTERS**

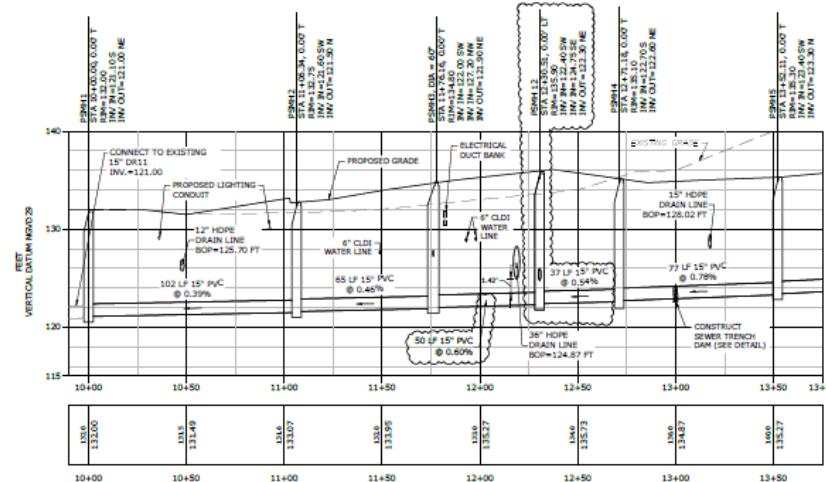
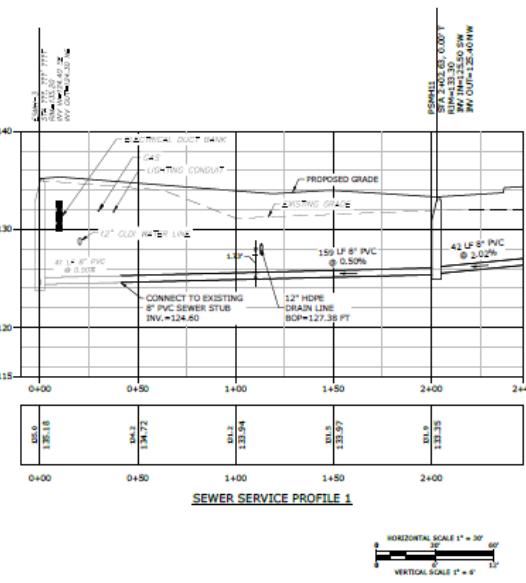
DEVELOPMENT, LLC  
63 MAIN STREET

SALEM, NH 03074

100

DRAWN BY: CH

PUTL<sub>avg</sub> MAF AFA



## SEWER SERVICE PROFILE 2

HORIZONTAL SCALE 1" = 30'  
 30'  
 VERTICAL SCALE 1" = 5'  
 5'

# STORMWATER – MS4

MS4 is short for Municipal Separate Storm Sewer System. The Town must follow Federal Guidelines for the stormwater or drainage system. This system is a collection of structures, including retention basins, ditches, roadside inlets, and underground pipes, designed to gather stormwater from built-up areas and discharge it, without treatment, into local streams and rivers.

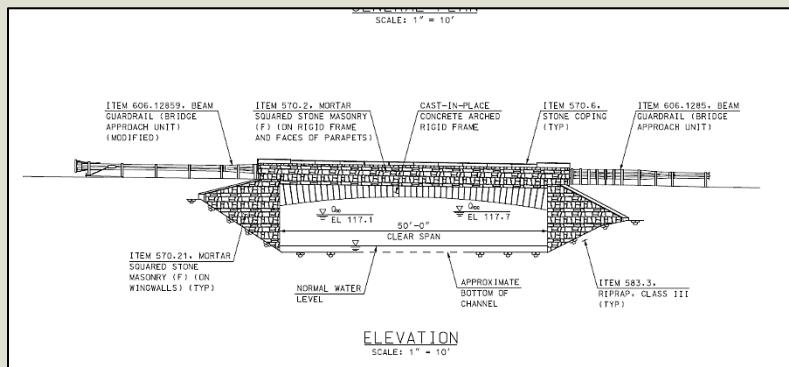


## Management and Controls

- Illicit Discharges
- LID Site Planning and Design
- BMP Design Guidance
- Retention/Treatment Requirements
- As-Builts/Long-Term O&M
- Phosphorus/Chloride/Metals Impairments
- Drinking Water Supply Sources

- 4,967 Catch Basins
- 741 Drain Manholes
- 1,101 Outfalls
- 465 Culverts
- 85 miles of Drainage Pipe

# BRIDGES



## Bridge Street Bridge

- Program Red List
- Historic District
- Engineering Complete
- Bid 2021
- Rebid once funds are available

## NHDOT BRIDGE PROGRAM

The State Bridge Aid program under RSA 234 provides that funding for construction or reconstruction of municipally owned bridges shall be borne 80% by the state and 20% by the municipality, subject to the available level of funding each year.

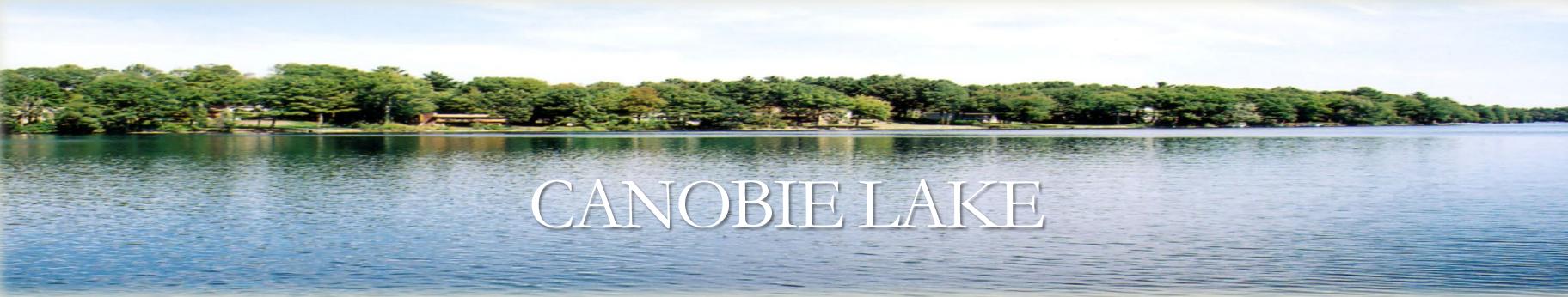
<b>2016</b>	Town Farm Road
<b>2010</b>	Lawrence Road
<b>2008</b>	Haverhill Road
<b>2013</b>	Providence Hill Road
<b>2010</b>	Emerson Road
<b>2014</b>	Teague Road
<b>2010</b>	Cluff Crossing Road
<b>2010</b>	North Main Street
<b>2009</b>	Pelham Road
<b>2011</b>	South Policy Street
<b>2013</b>	Bluff Street
<b>2014</b>	Shannon Road
<b>2017</b>	Braemor Woods
<b>2019</b>	Bluff Street Extension
<b>2020</b>	RT 28 (Friendship Drive)
<b>2019</b>	Pleasant Street Box

# UTILITIES DIVISION



DISTRIBUTION ♦ SYSTEMS ♦ METERS

## WATER SUPPLY SOURCES – RESERVOIRS



CANOBIE LAKE



ARLINGTON POND



LAKE MASSABESIC

Emergency interconnection with Methuen

# **WATER DEMAND**

## **REGIONAL LINE**

2020 - 2022: .5 MGD

## **CANOBIE LAKE**

MAY 1 – OCTOBER 10

1999-2020: 2.82 MGD

## **ARLINGTON POND**

OCTOBER 11 – APRIL 30

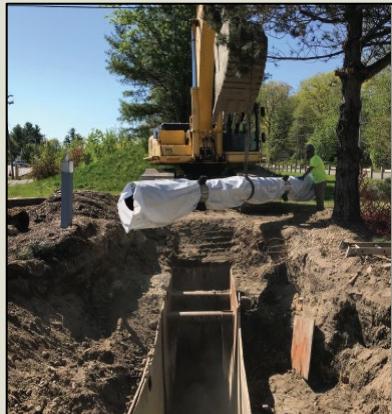
1999-2020: 1.94 MGD

# WATER TREATMENT



The plant, which has been maintained in operations since 1995, utilizes a Trident Microfloc® upflow clarification treatment system and was designed with three 2-mgd modules for a peak treatment flow rate of 6.0 mgd. The “firm capacity” (the capacity with the largest unit out of service) is 4 mgd. The disinfection used is Chloramines.

# WATER SYSTEM



This Water System services over 8,400 homes and businesses in Salem. Over 2.4 million gallons of drinking water per day, on average, flow from the water treatment plant and is distributed through the town in its vast network of pipes. The infrastructure must be always operative as it serves potable water to a significant portion of the town and provides water for public safety and firefighting. The current infrastructure varies in pipe material and age which can cause emergency breaks that will need to be fixed when needed and throughout its life. Major improvements have been identified through a master plan that improves the network alleviating water age, regulating pressure, and creating redundancy. Staff is responsible for the maintenance, repair, and inspections of 136 miles of water main, 8,500 plus water meters, 3,000 backflow devices, 1,750 valves, 3 water tanks, 1,000 plus fire hydrants and numerous other water systems.

# SEWER SYSTEM



Sewer System responsibilities include the maintenance and repair of the collections system which is approximately 79 miles of piping, 1,968 manholes, and 10 pumping stations located throughout the community. The Sewer system delivers 5 million gallons of flow on an average daily basis with peak capacity of 14.5 million gallons to the Greater Lawrence Sanitary District (GLSD). The collection system is maintained in the most practical manner to ensure service and reliability and is monitored to identify illicit flows. There is a significant cost and reserved capacity for flow to the GLSD so it is important that any and all deficiencies including inflow and infiltration (I/I) are determined so a budget number for repair can be incorporated into capital planning. The Board of Selectmen adopted the Sewer Master Plan Update by Underwood Engineers in June 2017.

# PUBLIC WORKS DIVISION



STREETS ♦ PARKS/PROPERTIES ♦ SOLID WASTE ♦ FLEET

# ROUTINE OPERATIONS

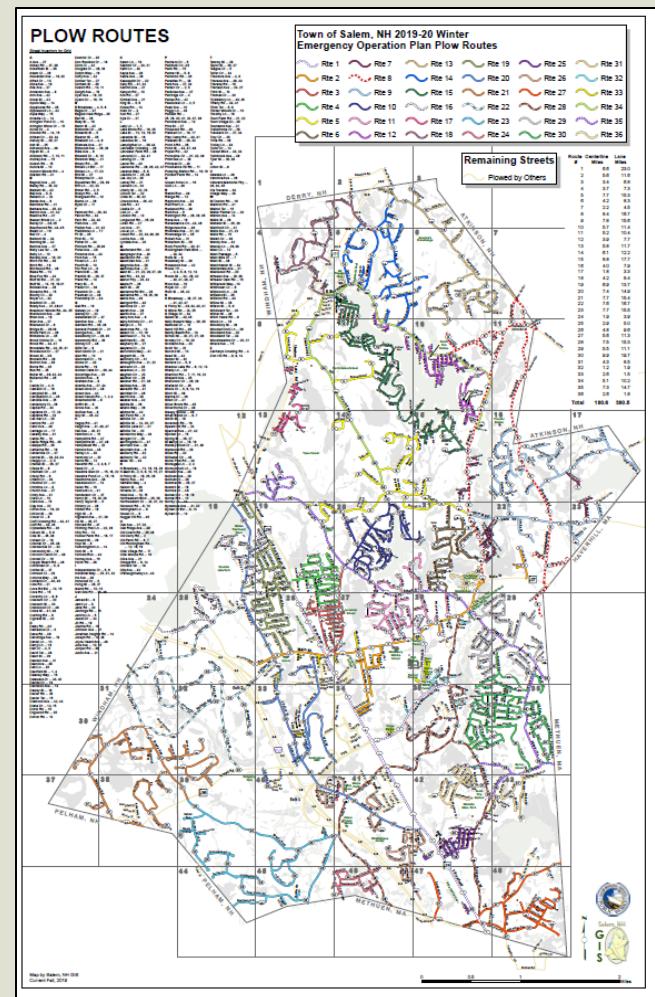


The Public Works Division is located at 21 Cross Street and is divided into four sections Fleet, Parks/Properties, Solid Waste, and Streets. The Division's primary functions are to provide municipal services including but not limited to snow and ice removal, transfer station, storm water drainage, vehicle fleet maintenance, facility management, improvement and maintenance of roads, sidewalks, public properties, town parks, Rail Trail, and cemeteries. Staff also provides labor and assistance to the other Town Departments including Police, Fire, Community Services, and Town Clerk for elections.

# WINTER OPERATIONS

Snow Emergencies are handled by the Public Works Division of Municipal Services. During a snow emergency every able-bodied employee from Public Works and Utilities are required to work from the beginning of the storm to the end -- until the roads in Salem are safe for travel. No two storms are alike. The time it takes to complete an operation is solely at the will of the weather. During a snowstorm it is important that residents understand that main roads are plowed, salted, and sanded first; then the secondary roads, and lastly the cul-de-sacs and back roads.

- 75 Pieces of Equipment
- 64 Available personnel
- 36 Plow routes
- 16 Primary routes
- 17 Secondary routes
- 35 Miles of sidewalk
- 4 Sidewalk routes
- 30 Buildings & parking areas
- 22 Utility Division Buildings



## SPECIAL PROJECTS



## RAIL TRAIL PARKING LOT



# RAIL TRAIL PRV STA TION



# PINE GROVE CEMETERY EXPANSION



# DEPOT STATION BEAUTIFICATION



## TRANSFER STATION ROAD

# MUNICIPAL SERVICES ADMINISTRATION

## 603-890-2150

**Contact Municipal Services**

- Engineering
- Engineering Projects
- Municipal Buildings Advisory Committee
- Pine Grove Cemetery Expansion Project
- Public Works
- Regional Water Line Users Including Windham
- Report a Problem
- Road Committee
- Southern NH Regional Water
- Utilities
- Wastewater/Sewer System Master Plan
- Water System Master Plan
- Weekly Water Levels
- Winter Emergency Operation Plan

**Contact Info**

**Phone:**  
603-890-2150

**Address:**  
21 Cross Street  
Salem, NH 03079  
United States

### 2022 Neighborhood Road Reconstruction Project - Bannister Road Reconstruction

JULY 29, 2022 - 2:28PM  
The 2022 Road Reconstruction is beginning on Bannister Road. The Contractor is scheduled to mobilize to Bannister Road on Monday August... [more >>](#)



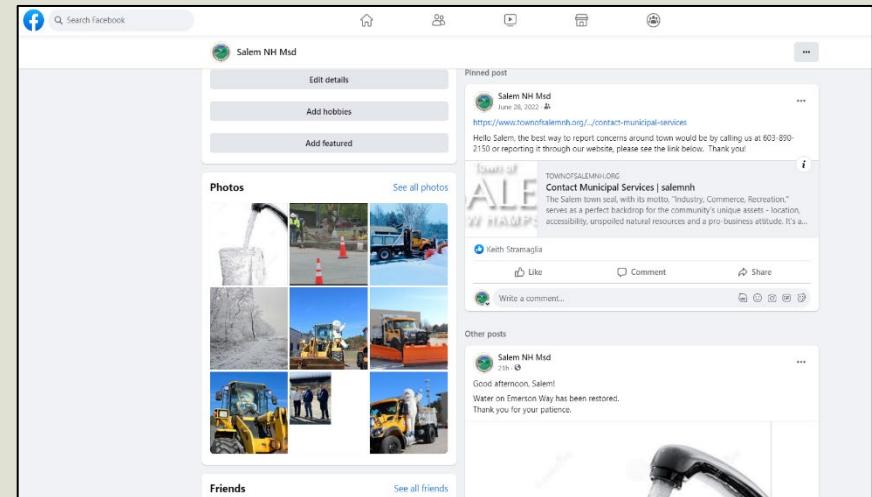
### Treatment of Aquatic Weeds

JULY 18, 2022 - 1:41PM  
Portions of Arlington Pond and all of Taylor Reservoir will be treated with an herbicide to control the growth of nuisance aquatic... [more >>](#)



### RT.28 ROAD CLOSURE - JULY 10TH AT 5:00 PM TO JULY 13TH AT 5:00 AM

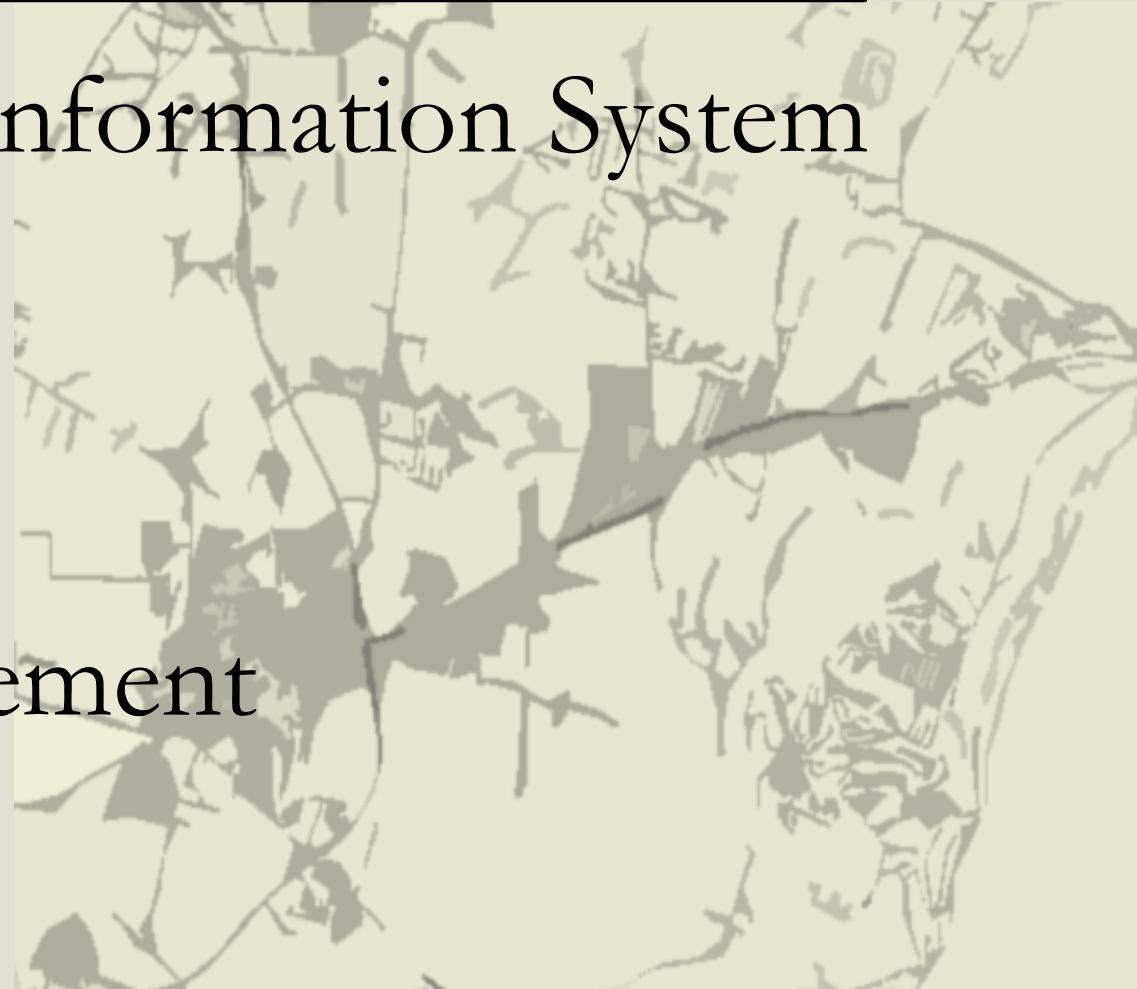
JULY 6, 2022 - 11:14AM  
The RT 28 (South Broadway) road closure is associated with the construction of a sewer connection as part of the adjacent Tuscan Village... [more >>](#)





# GIS

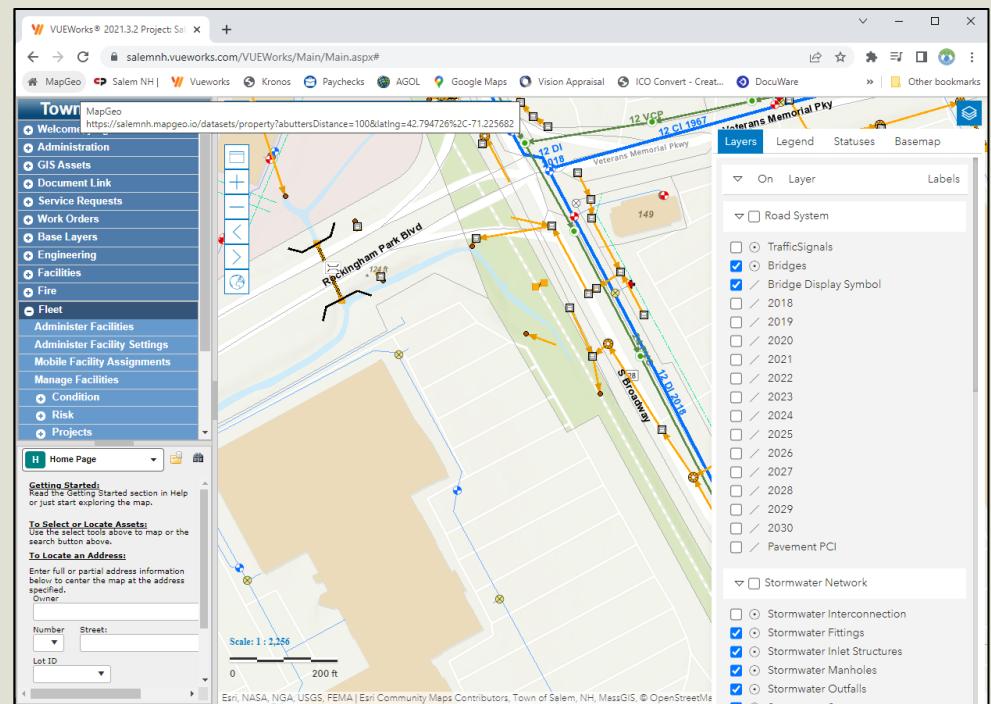
- Geographic Information System
- Mapping
- Planning
- Assessing
- Asset Management
- Budgeting



# VUEWorks

## Asset Management Software

Software makes asset data accessible to Foremen and provides tools for work order tracking, asset condition assessments and capital planning.



## Town

## MapGeo

<https://salemnh.mapgeo.io/datasets/property?abuttersDistance=100&latlng=42.794726%2C-71.225682>

## Welcome

## Administration

## GIS Assets

## Document Link

## Service Requests

## Work Orders

## Base Layers

## Engineering

## Facilities

## Fire

## Fleet

## Administer Facilities

## Administer Facility Settings

## Mobile Facility Assignments

## Manage Facilities

## Condition

## Risk

## Projects

## Home Page

## Getting Started:

Read the Getting Started section in Help or just start exploring the map.

## To Select or Locate Assets:

Use the select tools above to map or the search button above.

## To Locate an Address:

Enter full or partial address information below to center the map at the address specified.

Owner

Number

Street:

Lot ID



## Layers

## Legend Statuses Basemap

## On Layer

## Road System

- Traffic Signals
- Bridges
- / Bridge Display Symbol
- / 2018
- / 2019
- / 2020
- / 2021
- / 2022
- / 2023
- / 2024
- / 2025
- / 2026
- / 2027
- / 2028
- / 2029
- / 2030
- / Pavement PCI

## Stormwater Network

- Stormwater Interconnection
- Stormwater Fittings
- Stormwater Inlet Structures
- Stormwater Manholes
- Stormwater Outfalls

# Fleet Records

Vehicle Condition Index	
Exterior Body Rust	25
Frame Rust	50
Plow Frame	25
Drive Train	25
Exterior Damage	50
Noise/Vibration	25
Interior	50
Operational Usage	50

Manage Facilities

Filter is OFF - 3 of 3 Facilities in Asset Class

Facility Table Filter Reports

Views

Primary View View 1 View 2 View 3

+

Salem MS Fleet

- Type of Vehicle
  - Trailer
  - Retired or Traded
  - Message Boards
  - 6 Wheeler J Hook
  - Heavy Equipment
  - 6 Wheeler Salter
  - 6 Wheeler Dump
    - D-13 Dera
    - D12
    - D14
    - D17
    - D18
    - D19
    - D21
    - D78 Utilities

Details

A Attributes GIS: Not Linked Link to GIS

Save Cancel

Field Name	Value
Asset ID	406
Fleet Type	Light Equipment
Department	Public Works
Division	Highway /Streets & Shops
Description	Large 6 Wheel Dump Truck
Vehicle ID	D18
Fuel Type	Diesel
Year	2022
Make	International
Model	HV 507
Vin	1HTEDTAR8NH260795
Purchase Date	07/20/2022
Replacement Cost	195000
Primary Function	Construction
Secondary Function	Winter Ops

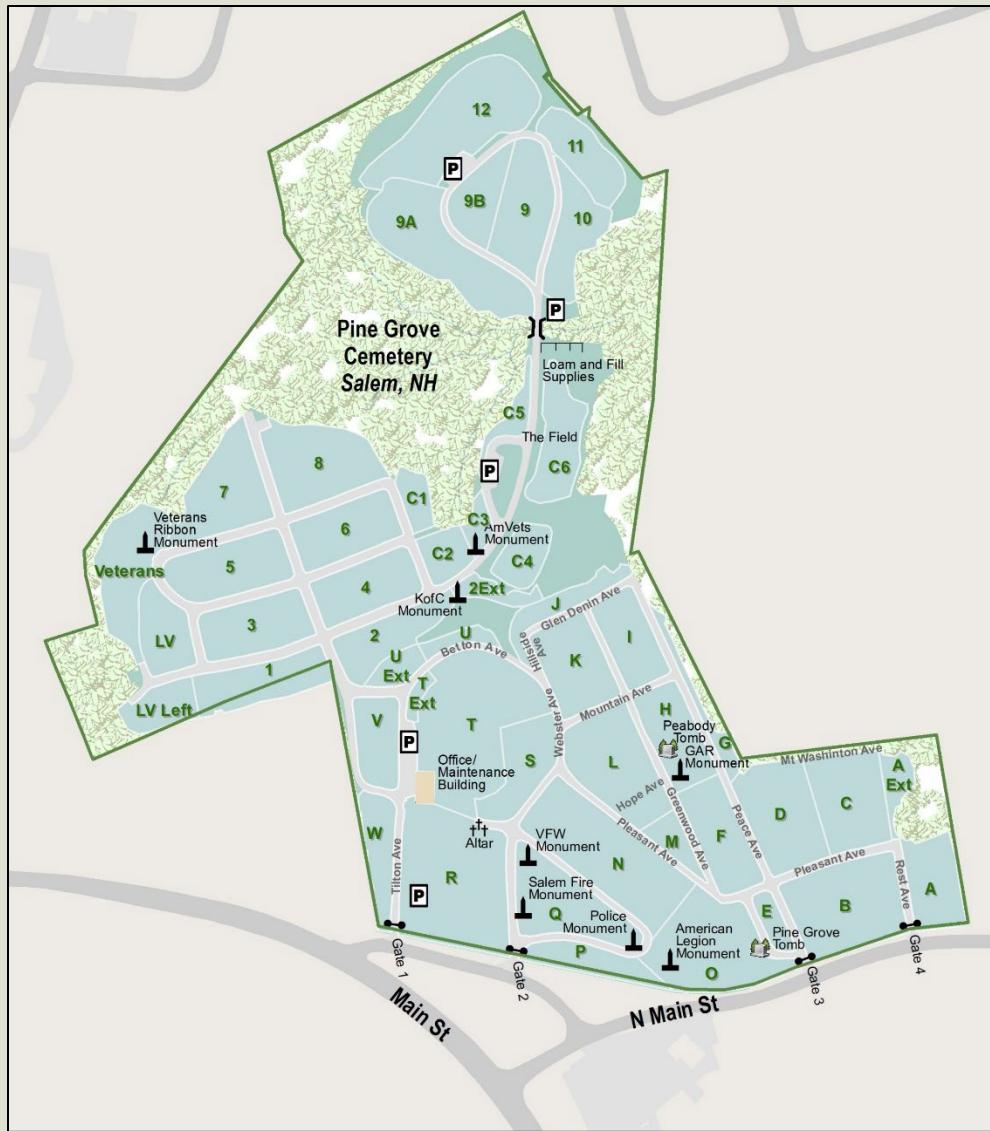
Facility Type: Municipal Services Fleet

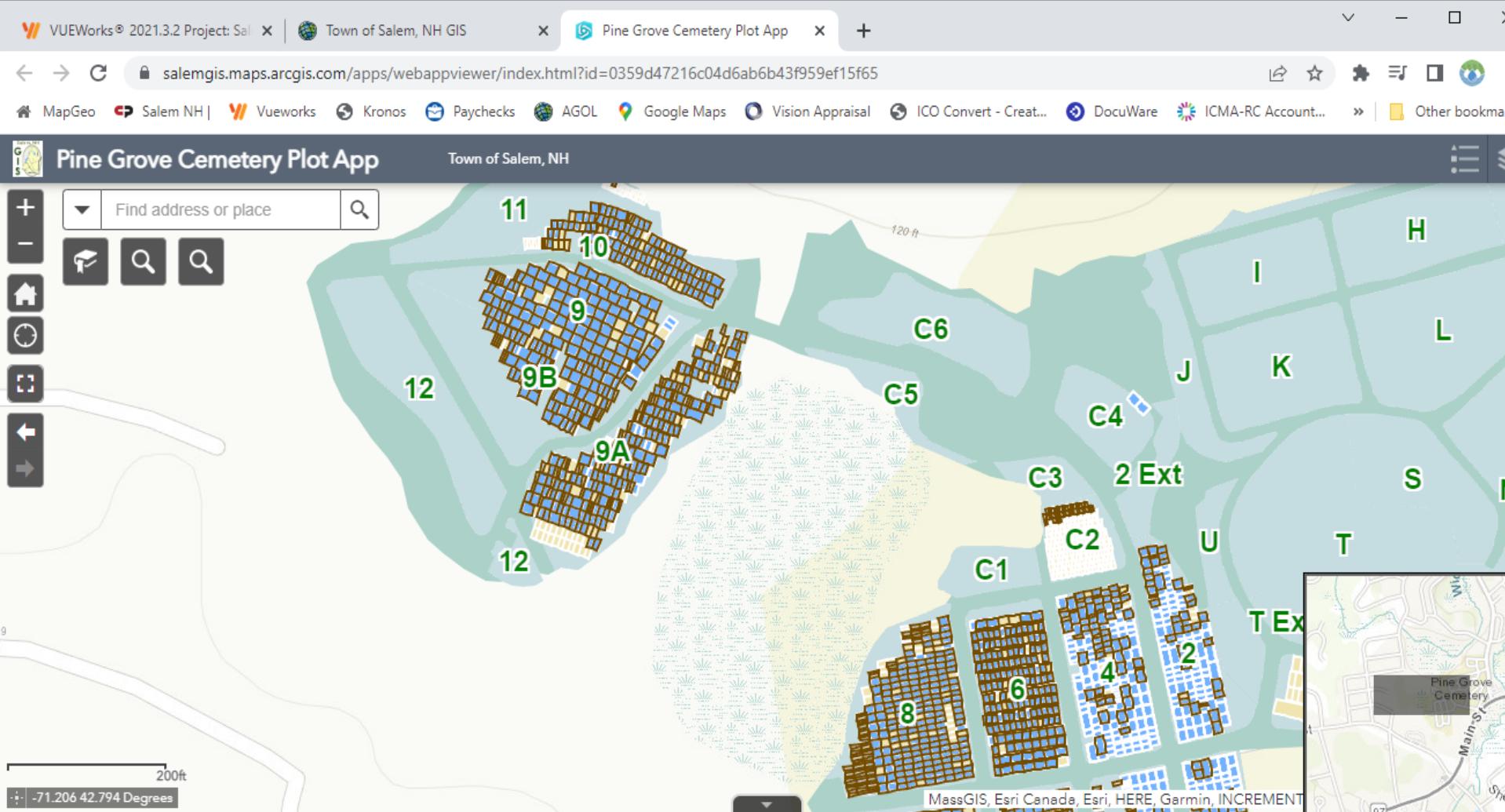
Delete Facility New Facility Close

1 of 3

# Cemetery Records

Mapping completed for numbered sections of Pine Grove Cemetery; burial and ownership cards being entered into GIS to enable public search and access.





Plot\_Owner\_Records | Pine Grove Owner Entry Form | Plot\_Burial\_Records | PineGroveCemeteryLayout - CemeteryRoads | PineGroveCemeteryLayout - Cemetery Plots | PineGroveCemeteryLayout - Cemetery Sections | PineG...

Options | Filter by map extent | Zoom to | Clear selection | Refresh

Cemetery	Cemetery Section	Plot ID	Owner Last Name	Owner First Name	Amount Paid	Year Sold	Deed Date	Number of Graves	Type of Graves	Owner Address	City	State
Pine Grove	9B	9B-A-21	LAI	KING		2011	4/2/2011	4	Full Burial	44 MILLVILLE ST B-2A-06	SALEM	NH
Pine Grove	9B	9B-C-14	CARO	BEVERLY J	800	2013	12/23/2013	2	Full Burial	8 JOANNA RD.	SALEM	NH
Pine Grove	9B	9B-B-16	WIELAND	CARRIE A & MATTHEW C		2011	12/20/2011	4	Full Burial	49A SANDY BEACH RD	SALEM	NH
Pine Grove	9B	9B-A-10	DEAMICIS	JUDY K		2014	2/21/2014	1	Full Burial	44 MILLVILLE ST	SALEM	NH

1092 features 0 selected