



**TOWN OF HARTFORD  
SELECTBOARD AGENDA**

Monday, November 2, 2020

6:00pm Hartford Town Hall

171 Bridge Street

White River Junction, VT 05001

**This meeting will be conducted in compliance with  
Vermont Open Meeting Law with electronic participation.**

<https://zoom.us/j/84653083772>- Please mute your microphone.

[youtube.com/catv810](https://www.youtube.com/catv810) – click “live now”.

If you're calling in from phone dial:

(415) 762-9988 Type in the Room ID: 549-799-933 followed by #

Press # a second time

Press \*9 to raise your hand for public comment

**I. Call to Order the Selectboard Meeting**

**II. Pledge of Allegiance**

**III. Local Liquor Control Board: N/A**

**IV. Order of Agenda**

**V. Selectboard**

**1. Public, Selectboard Comments and Announcements**

**2. Appointments: N/A**

**3. Town Manager's Report:**

**4. Board Reports, Motions & Ordinances:**

a. Budget Presentation:

- IT (10-181)
- Parks & Rec (Fund 10: 511, 512, 514, 515, 516, 521, 524, 527, 528, 530, 531)

- Planning & Development (Fund 10: 611, 621, 622, 623, 624, 625, 626, 627)
  - Town Manager (FUND 10: 111, 115, 121, 141, 161, 175, 831, 912, 341, 411, 412, 413, 423, 424, 425, 421, 712)
- b. Town Forest Management Plan – Discussion and Action.
  - c. VCDP Program Income Plan for New Town Revolving Loan Fund – Discussion and Action
  - d. Reconsideration of authorizing the Town Manager to execute the contract for the Sherman Manning Pool
  - e. Consider of waiving procurement policy to hire firm for National Town Manager search.
  - f. Authorization to approve a change order to original contract executed 5/5/2020 for Town Manager Regional Search Services.

**VI. Commission Meeting Reports**

**VII. Consent Agenda (motion required)**

Approve Payroll Ending: 10/31/2020

Approve Meeting Minutes of: 10/20/2020

Approve A/P Manifest of: 10/30/2020 & 11/2/2020

Selectboard Meeting Dates of:

- Already Approved:
  - 11/5/2020 Thursday - Budget Meeting
  - 11/17/2020 Tuesday – Regular & Budget Meeting
  - 11/19/2020 Thursday - Budget Meeting

**VIII. Executive Session:** Discussion of the appointment of a town manager under the provisions of Title 1, Section 313(a)(3) of the Vermont Statutes.

**IX. Adjourn the Selectboard Meeting (motion required)**

**All Meetings of the Hartford Selectboard are open to the public. Persons who are seeking action by the Selectboard are asked to submit their request and/or materials to the Selectboard Chair or Town Manager’s office no later than noon on the Wednesday preceding the scheduled meeting date. Requests received after that date will be addressed at the discretion of the Chair. Citizens wishing to address the board should do so during the Citizen Comments period.**



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# Information Technology

(181)

FY 2021-2022



# Staff



- IT Director



# Salaries & Benefits

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## Wages & Benefits:

- 109,432



# Contracted Services



- **78,324.00**

Email (\$13,716)

Web Host (\$2,000)

Anti-Virus (\$6,500)

Data backup and support (\$6,000)

Domain Names/DDNS/SSL Cert/SMTP (\$500)

Zendesk Ticketing Software (\$600)

Darktrace Cyber AI (Email Gateway, Enterprise Immune System, PTN) (\$36,032)

ID Printer Maintenance agreement (\$500)

Pubworks Azure (\$500)

Firewall Support/Switch Monitoring (\$11,976)



# Ransomware & Phishing



- Biggest threat on the internet for Municipalities
  - Especially Police/Fire/911 Dispatch centers

Examples:

Norwich loses nearly \$250,000 to email scam (later recouped):

<https://tinyurl.com/y4lmgbzc>

Mass. town loses \$522K to spear phishing cyberattack:

<https://tinyurl.com/y28j67zc>

Baltimore transfers \$6 million to pay for ransomware attack;  
city considers insurance against hacks:

<https://tinyurl.com/yxeljy68>



# Phishing Cont'd



- Email Gateway (Part of Darktrace Partnership):
  - AI Machine Learning & Metrics
  - Higher catch % than Microsoft's

The screenshot displays a security dashboard with the following components:

- Search Bar:** "search for an email, person, domain or attachment"
- Filters:** "Sun Oct 25, 11:54:52" to "Wed Oct 28, 11:54:51"
- Summary Metrics:**
  - Inbound Mail: 5,897 ↓
  - Suspicious Link: 27 ↓
  - Suspicious Attachment: 10 ↑
  - Solicitation: 7 ↓
  - Spoofing: 1 ↑
- Risk Network:** "Risk Network 25 October - 28 October" with a progress bar from 0 to 100.
- 25 total Addresses ^**
- Network Graph:** A graph showing nodes (circles) connected by lines, representing relationships between addresses.
- Email List:**
  - Wed Oct 28 2020, 11:36:43:** From: Contact Support <Support@sendgrid.com> Subject: Your payment to SendGrid was successful To: health@hartford-vt.org. Labels: Suspicious Link, Spoofing. Risk: 100%.
  - Wed Oct 28 2020, 10:19:58:** From: ducthinh6250@gmail.com Subject: DPERRY, Ruth Bader Ginsburg Shirt To: dperry@hartford-vt.org. Label: Suspicious Link. Risk: 100%.
  - Wed Oct 28 2020, 10:19:47:** From: "Rebecca Kraus" <rebecca@apollosafety.com> Subject: The Prefense Difference To: bgodfrey@hartford-vt.org. Label: Spam. Risk: 100%.
  - Wed Oct 28 2020, 10:19:47:** From: "Rebecca Kraus" <rebecca@apollosafety.com> Subject: The Prefense Difference To: bgodfrey@hartford-vt.org. Label: Spam. Risk: 100%.
  - Wed Oct 28 2020, 10:17:37:** (Partial entry)



# Darktrace EIS (IDS)



- Ransomware is a form of malicious software installed by attackers to lock a network
- Hackers demand ransom money
- Many victims pay, hackers sometimes give them key, other times they'll up the price

Search for a device, subnet, IP or host...

Wed Oct 28 2020 / 12:15:00 -04:00

CURRENTLY ANALYZING

Incident Log

Beginning on Tuesday 20th October 19:03 UTC, the device [REDACTED] exhibited the following events worthy of investigation

- Possible HTTP Command and ...
- Possible SSL Command and C...
- Unusual Repeated Connections

Wed 21st 04:00 Thu 22nd 04:00 Fri 23rd 04:00 Sat 24th 04:00 Sun 25th 04:00 Mon 26th 04:00 Tue 27th 04:00

1. Possible HTTP Command and Control to Multiple Endp...
2. Possible SSL Command and Control to Multiple Endpoi...
3. Unusual Repeated Connections

**Summary**

The device [REDACTED] was observed making HTTP connections to a range of rare external endpoints with multiple user agent strings.

Moreover, this device only used these user agents to visit a limited set of endpoints - suggesting that the activity was initiated by standalone software processes as opposed to a web browser.

If such behaviour is unexpected, further investigation may be required to determine if this activity represents malicious command and control as opposed to legitimate telemetry of some form.

**Device Making Suspicious Connections**

- Antigena All
- Domain Authenticated
- High Risk
- Microsoft Windows

**Suspicious Application**

User agent Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/86.0.4240.111 Safari/537.36

**Suspicious Endpoints Contacted by Application**

Last 7 days Wed Oct 21, 12:15:09 Wed Oct 28, 12:15:09 Unacknowledged Only Unacknowledged and Acknowledged Show More Download Incidents



# Not Funded



- **148,044**

- Solutions II Server Alerts (\$11,000)
- Max Pro Software (\$2,000)
- Switch Refresh (\$20,000)
- Cloud Backup/Disaster Recovery/laaS (\$14,000)
- Knowb4 Security Awareness Training (\$1300)
- Antigena IPS Darktrace piece (\$9,744)
- Town Hall Server Refresh (\$90,000)



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**Questions ?**



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# Parks & Recreation

## WHCC&L / Town Cemeteries / Welcome Center

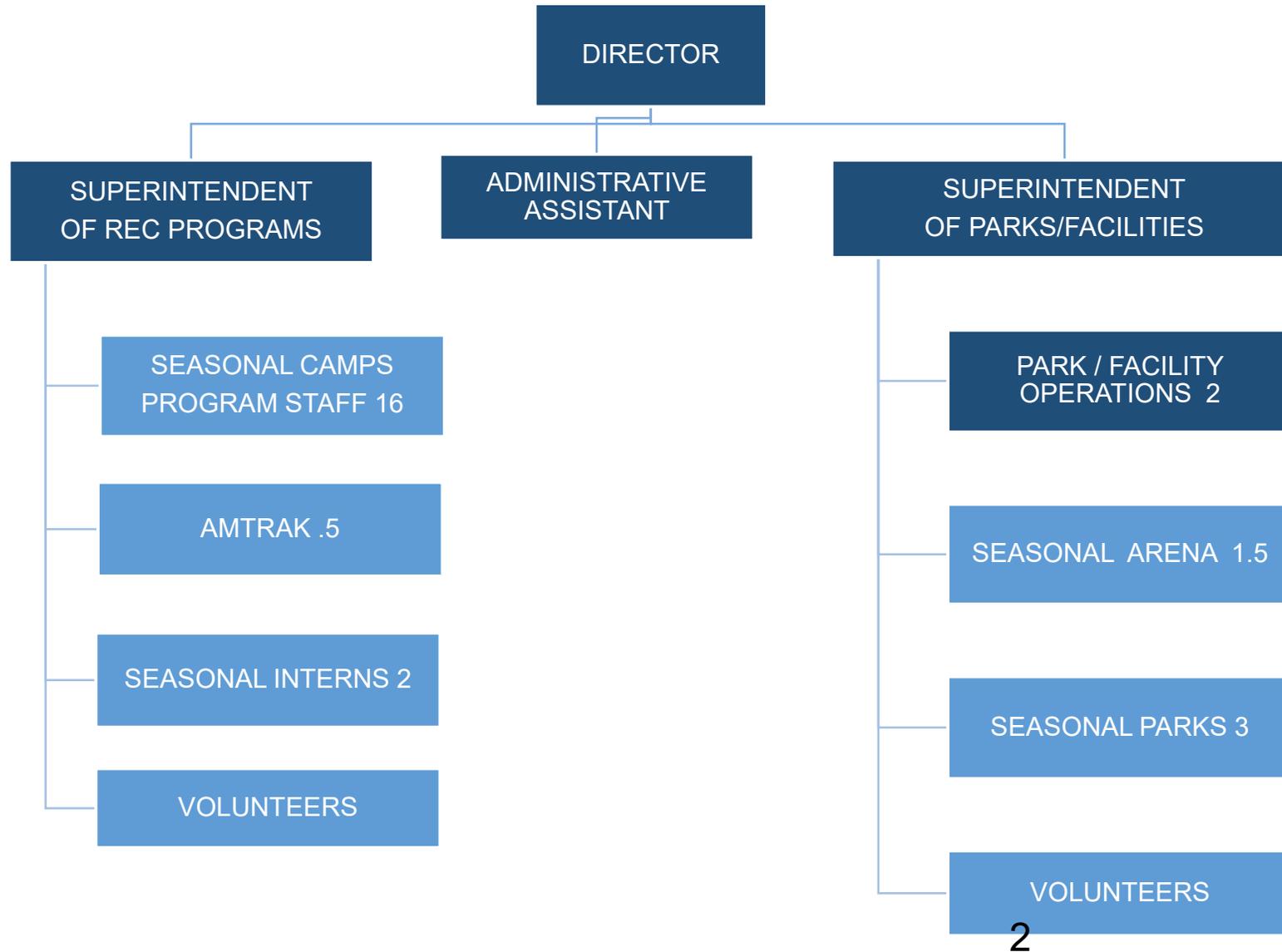
(511-516/521/524/527/528/530/531)

FY22 November 2, 2021





# Organizational Chart





# Parks, Facilities & Programs



## Past Fiscal Year

Total # of program registrations = **3,884**

First time registrations = **481**

Number of programs offered = **251**

The Brian Hanson Scholarship Fund provided **\$1,637** in program scholarships to children

Department transactions completed = **4001**

Total number of community events = **27**

Estimated number of community members engaged = **5,155**



# Parks, Facilities & Programs



## Past Fiscal Year

WABA sold **2,796** daily skate passes. Pass holders had **1,672** visits. **891** skate rentals, **147** skate sharpening's. The facility served **1,400 hours** of usage during the ice season.

Total number of park and facility reservations = **180**

Number of hours parks and facilities were reserved = **4758 hours or an average of 13 hours per-day.**

Reservation Head Count for park and facility reservations = **83,344**

Number of community volunteers = **269** performed estimated **3496** hours of volunteer work for Parks & Recreation

National volunteer per-hour estimated value in 2020 = \$27.20

**Total volunteer value to Town of Hartford = \$95,091.20**



# Parks & Recreation



## Public Facilities and Parks:

The Parks & Recreation Department oversees and maintains 19 recreational areas and facilities throughout the community.



### Main parks and facilities include:

Watson Park, Ratcliff Park, Clifford Park, Veterans Park, Lyman Point Park, Frost Park, Maxfield Sports & Recreation Complex and Wendell A. Barwood Arena

Kilowatt Park South & North are also maintained by the Town but the property itself is owned by Great River Hydro.

### Additional park areas and public resources include:

Fred Briggs Park & Engine 494, Hurricane Forest & Wildlife Refuge, Meeting House Common, Dewey's Landing, Quechee Bandstand, Quechee Falls Park and the Maanawaka & David Chang Conservation Areas.



# Parks & Recreation

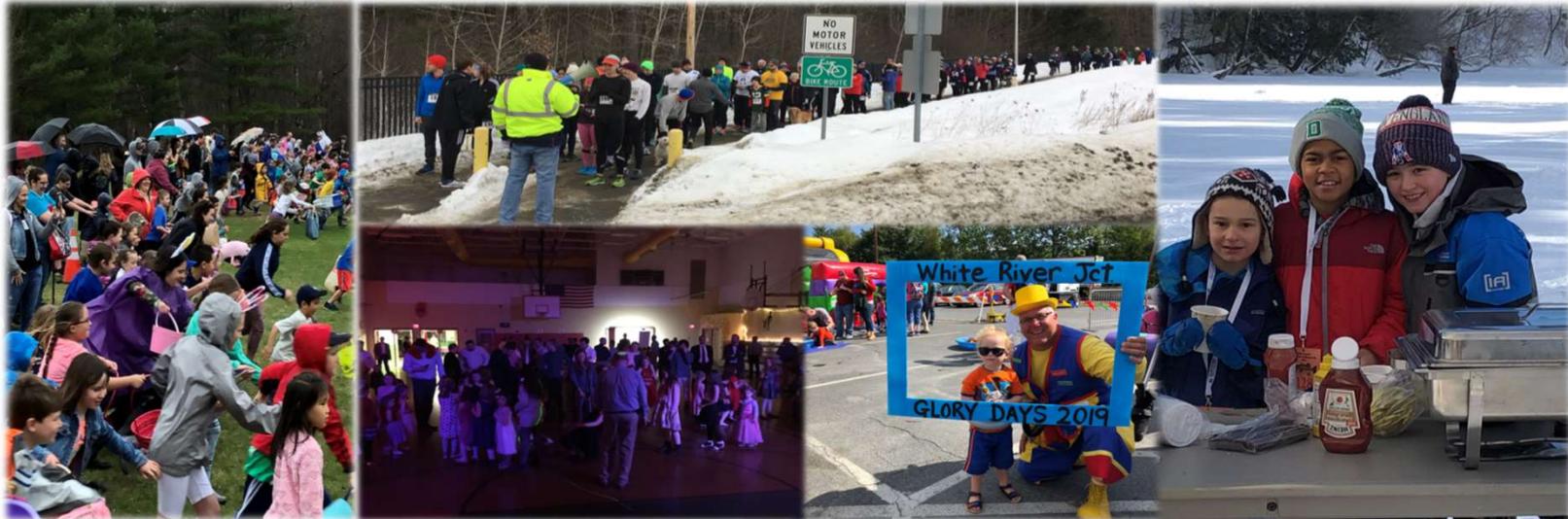


## Arts, Entertainment, Special Events:

The Department offers many seasonal special event programs throughout the year, strengthening community and enhancing the quality of life throughout the town and region.

### Events included:

- |                                     |  |
|-------------------------------------|--|
| 4 <sup>th</sup> of July Celebration | Hurricane Hill 5k/10k                          |
| Redzone 5k                          | Egg Scramble                                   |
| Movies in the Park                  | Skate with Santa                               |
| New Year's Eve Skate                | Youth Ice Fishing Derby                        |
| Valentine's Day Dance               | Polar Express                                  |
| February Family Entertainment       | Summer Concert Series (10)                     |
| Summer Entertainment Series (3)     | Family Stream Exploration Day                  |
| HCC Block Party (Participant)       | Trips and Tours – Red Sox / Boston Flower Show |





# Parks & Recreation



## Recreation Programs & Sports:

The Department offers a variety of recreation programs and youth and adult leagues. Such as: *Start Smart Sports, Baseball/Softball, Flag Football, Track & Field, Basketball, Karate, Tennis, Pickleball, Toddler Programs, Bus Trips, Arts & Crafts, Learn to Swim, Skating Programs, Splash Nights at UVAC, Teen Getaways, STEM Programs and much more.*

- 251 programs offered by the Department throughout the course of a year





# Flat Budget Highlights



Acct.	Description	Amount
10-921-530	Reserve Transfer to WABA	\$35,000
10-921-521	Reserve Transfer to Parks	\$30,000
10-527	Replace Gator Groomer (FY21 Freeze)	\$5,000
10-516	Community Events (See Revenue)	\$38,000
10-511	Cubical Workstation (FY21 Freeze)	\$5,000
10-521	Turf Treatment and Playground Safety	\$12,000
10-515	Field Storage Containers	\$2,500
10-512	1-Month of Pool Operation	\$20,500
10-531	Amtrak Train Station (See Revenue)	\$22,113
	<b>What's Not Included</b>	
10-531	Vermont Welcome Center Operation	\$34,116
10-528	Little League Mounds (FY21 Freeze)	\$6,000
10-527	Maxfield Netting (FY21 Freeze)	\$38,000
10-521	Equipment Replacement Mower	\$13,000



# By The Numbers



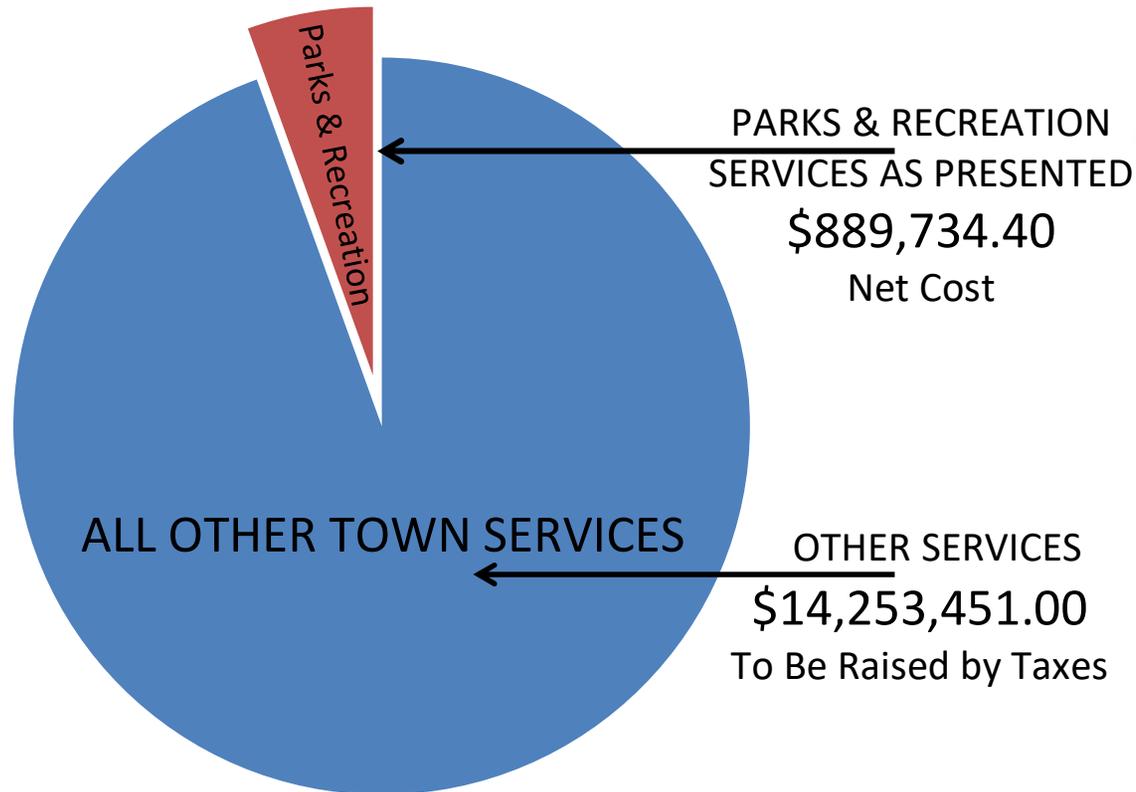
## FY22 Operating Budget Flat Budget Shown

**Flat = \$12,213.00 Less Than FY21**

Program Dept. Administration	18.13%	242,843.70
Outdoor Pool Operation	1.53%	20,500.00
Youth Programs	21.40%	286,531.80
Adult Programs	1.23%	16,500.00
Community Activities	3.84%	51,532.00
West Hartford Community Center Library Building	0.89%	11,982.00
Parks Maintenance	17.31%	231,785.90
Maxfield Grounds & Buildings	10.63%	142,350.90
Barwood Arena	23.11%	309,443.50
Welcome Center - Amtrak	1.89%	25,335.60
<b>Total P&amp;R Expenses</b>	<b>100%</b>	<b>1,338,805.40</b>
<b>Total P&amp;R Revenues</b>	<b>34%</b>	<b>449,071.00</b>



# Questions ?



**Flat Budget of \$1,338,805.60 Revenue of \$449,071.00  
= Net Cost to Taxpayers \$889,734.60  
5.87 % of Proposed \$15,143,185.00 to be Raised By Taxes**



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# **Department of Planning and Development FY 2021-2022 Proposed Budget (Funds 611–627, 921)**

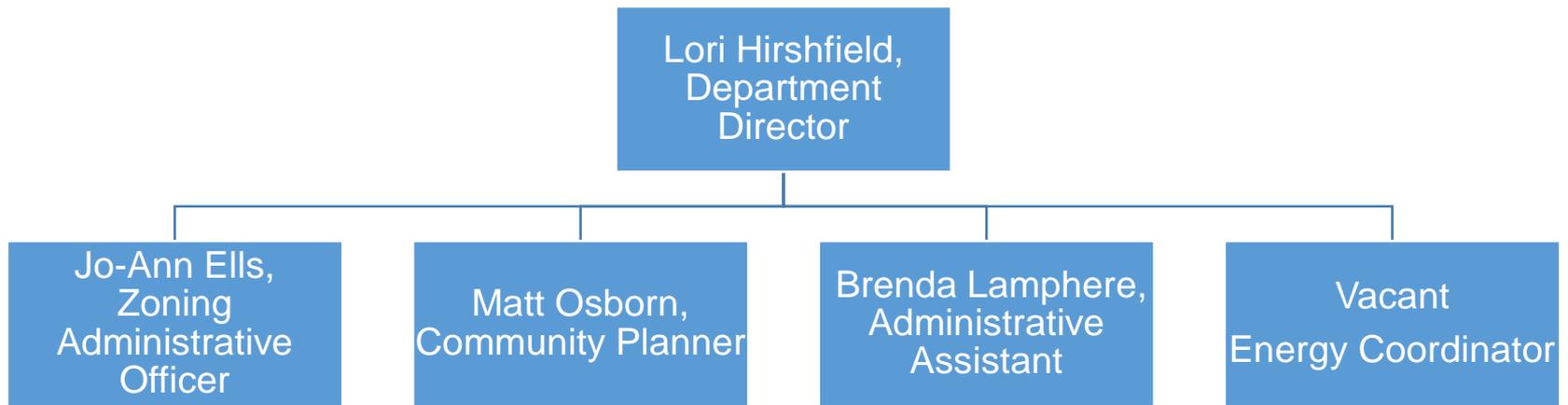
## **Presentation to Selectboard November 2, 2020**



# Who We Are and What We Do



We are a service-oriented Department covering a broad range of community-based program areas to meet and plan for the current and future needs and interests of town residents, property owners and businesses, while being stewards of town lands, and natural, historic, and energy resources.





# Program Areas & Proposed Dept Budgets



Acct.	Description
611	<b>Conservation:</b> Natural resource identification and management, public outreach, education and conservation projects; Commission training - Budget = \$2,805
621	<b>Zoning:</b> Technical assistance to public and review of property land use & development applications, related permits & reports; Compliance with state, regional and federal Regulations. Zoning, Subdivision and Flood Regulations; Staff to 2 quasi judicial boards - Zoning Brd of Adjustments & Planning Commission - Budget = \$120,498
622	<b>Planning:</b> Development, implementation, oversight and community engagement on Town Plan, Land Use Planning, Housing, Transportation Planning, Energy, Community Resilience, Economic Development, TIF, Grants, Downtown/Village Center Program, HBRLF, Design Review, Public Art, Designated Growth Center, CIP, Hazard Mitigation Plan; Project Implementation; Energy planning, technical assistance & project implementation for Town departments; information & technical assistance to public. Staff support and technical assistance to 7 SB Appointed Commissions, Committees and 2- 4 Ad-Hoc Committees – Budget = \$440,392 (TM budget \$433,637)
623	<b>Housing &amp; Community Development:</b> Project planning, oversight and implementation related to VT Housing & Community Development Program and other state programs - Budget = \$4,500



# Program Areas & Proposed Dept Budgets



Acct	Description
624	<b>Forestry:</b> Annual maintenance for Town Forest - Budget = \$650 Capital improvement project implementation - funded from Conservation Reserve Fund
625	<b>Historic Preservation:</b> Outreach/public education regarding Historic properties, districts/resources identification, education and preservation; Commission training - Budget = \$3,265
626	<b>Energy:</b> Strategic planning, education and outreach to residents, businesses and property owners on energy conservation, weatherization, renewable energy, climate change; Commission training - Budget = \$6,205
627	<b>Community Resilience:</b> Outreach/public educational programs to build self & community resilience capacity to respond to changing environment; some Town Hazard Mitigation Plan implementation; Committee training - Budget = \$1,760
921	<b>WRJ/Town Development Reserve Fund:</b> Project development-planning, housing, economic development activities from marketing & branding plan – Budget = \$5,000.



# Total Department Budget



## Budget Goals

- Support social and economic recovery from COVID Pandemic.
- Maintain existing services to Hartford community.
- Maintain program resources for 9 SB appointed committees/boards/commissions supported by the department.

2020-2021 Approved	2021-2022 Proposed	Difference
\$ 598,217	\$ 579,355 Dept Proposed to Meet Flat	-\$18,852 More than Required for Flat
	\$572,600 Town Manager Proposed	-\$25,617 More than Required for Flat



# Budget Highlights

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- Response to social & economic impact of COVID Pandemic.
- Comprehensive Town-Wide Marketing, Promotion and Branding Project with focus on WRJ and Village Centers.
- Vehicle parking, bike routes/parking areas.
- Compliance with State, regional, & Federal regulations.
- Grants to enhance Town resources.
- TIF project implementation and compliance
- Housing development
- Sidewalk & bike lane project implementation
- Town Plan; update Housing & Economic Development
- Town Flood Regulations update
- Town Forest Management Plan Implementation
- Community education and outreach in all program areas.



# Impact of Budget Cuts



## To Achieve Requested Flat Budget Dept Proposed Budget

- Reduces vacant energy coordinator position to 34 hrs/wk; 20 hrs in P&D Dept - reinstate in FY 2023 budget
- Maintains as many hours as possible without benefits which is necessary to achieve a flat budget without drastically affecting the entire department work program, services to the community and staffing and technical support to the other 8 Boards/Commissions and Committees that the Department supports.



# Impact of Budget Cuts



## Additional Cuts in Town Manager Flat Budget Proposal

- Eliminates \$5000 for planning studies related to updating regulations, sections of the Town Plan , etc. Will delay department work program.
- Office equipment reduced to \$1,300 from \$1,600 for new laptop computer to support remote working for department and Emergency Management Operations activities. Purchase already deferred from current FY.
- Eliminates Vital Communities Transportation Management Assoc (TMA) annual dues (\$3,455) which supports bike, pedestrian, mass transit and vehicle planning initiatives, and reduction in fossil fuel consumption in Hartford.
- Marketing reduced by \$1,000 to \$4,000 for Town promotions, outreach and marketing/economic development activities to community, businesses during COVID recovery, such as a buy local program with "Hartford Dollars"



# Budget Guidance Adherence



- ✓ Recognizes and limits environmental impact.
- ✓ Promotes conditions which support Grand List growth.
- ✓ Maintains long term focus - 15, 20, 50 years out.
- ✓ Prepares for minor and major environmental challenges.
- ✓ Funds diversity awareness and multi-cultural events.
- ✓ Funds the work of committees and commissions, within reason.
- ✓ Plans and saves for emergencies.
- ✓ Plans with statistics, executes with data.



# Budget Guidance Adherence

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- ✓ Prioritizes infrastructure improvements that support Grand List growth.
- ✓ Reduces carbon impact.
- ✓ Investments that reduce debt.
- ✓ Flood preparedness.
- ✓ Increases parking capacity in WRJ.
- ✓ Implements town branding and marketing plan.
- ✓ Supports equity and inclusion education and strategic planning.
- ✓ Pursues grants to offset costs for items included in the budget.



# Town Manager Budget Divisions

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Selectboard (111)

Boards & Commissions (115)

Manager (121)

Legal (141)

Municipal Offices/Building (161)

Tax Collection (175)

County Judicial Services (831)

Bond (912)

**FY 2021-2022**



# Selectboard (111) page 1



<u>2020-2021</u>	<u>2021-2022</u>	<u>Change</u>
\$69,109	\$68,701	-\$408

- Selectboard Compensation (\$41,276) = 60% of budget division
- Other operating expenditures:
  - Legal Ads (\$5,000)
  - Insurance (\$12,425)
- ✓ a -5% or -10% reduction = decrease in selectboard compensation



# Boards and Commissions (115)

pages 1-2



2020-2021  
\$58,745

2021-2022  
\$31,248

Change  
-\$27,497

	FY21	FY22 Town Mgr
◆ Sister City	\$ 6,000	\$ 6,000
◆ Homelessness	15,000	15,000
◆ Tree Board	200	200
◆ Tree Warden	5,000	5,000
◆ Town Meeting	2,500	5,000

➤ Removed Climate Action Committee

✓ a -5% or -10% reduction = decrease committee member compensation



# Town Manager (121) pages 2-4



2020-2021	2021-2022	Change
\$466,752	\$466,703	-\$49.00

- Personnel Costs = 68% of budget division:
  - Town Manager (70% in GF; 30% in enterprise funds)
  - Exec. Assistant/Human Resources Dir.
  - Admin. Assistant (65% in TM; 35% in Delq. Tax)
  - Wellness Coordinator
- Contracted Services
  - Parking Space Rent – Briggs triangle lot (\$4,800)
  - Railroad R/O/W Crossing rent (\$20,715)
    - ◇ change recommended should be \$22,000
    - ◇ (121-318) should be \$6,000 to include copier lease, and necessary software annual fees
  - Employee recognition / banquet reduced from \$19,225 to \$2,825
  - ✓ a -5% or -10% reduction = decrease in personnel



# Legal Services (141) page 5



<u>2020-2021</u>	<u>2021-2022</u>	<u>Change</u>
\$50,000	\$45,000	-\$4,500

Union Negotiations  
Personnel  
Public Records  
Property Disputes  
Financing Miscellaneous

- ✧ based on history - change recommended to increase to \$50,000 a minimum



# Municipal Offices (161) page 9



<u>2020-2021</u>	<u>2021-2022</u>	<u>Change</u>
\$89,917	\$106,698	+\$16,781

- Town Hall Building:
  - 19% increase over FY21
  - Cleaning & maintenance contracts
  - Utilities
  - Includes \$20,000 for parking lot lighting
- ✧ recommend increasing contracted services to \$70,000
- ✓ a -5% or -10% reduction = 1)cancel custodial contract requiring staff to perform custodial duties 2) cancel trash contract - staff brings trash/ recycling to Solid Waste Facility 3) remove parking lot lighting



# Tax Collection (175) page 15



<u>2020-2021</u>	<u>2021-2022</u>	<u>Change</u>
\$37,908	\$38,157	+\$249

- Personnel Costs = 59% of budget division:  
Admin. Assistant (65% in TM; 35% in Delq. Tax)
- Contracted Services  
Tax Sale
  - ✓ a -5% or -10% reduction = decrease in personnel



<u>2020-2021</u>	<u>2021-2022</u>	<u>Change</u>
\$104,043	\$107,165	+\$3,122

Actual Amount Received in June for payment in July

Budget	Actual
2019 = \$102,000	\$101,474
2020 = \$102,000	\$104,043
2021 = \$104,043	\$107,641

**STATE OF VERMONT**  
**COUNTY OF WINDSOR**

\*\*\*\*\*

**To the Treasurer in the Town of Hartford in the County of Windsor**  
**GREETING:**

**WHEREAS**, Assistant Judges of the County Court in and for the County of Windsor, on the 30th day of January, 2020, made and delivered an order, in writing, to the Treasurer of said County, directing her on or before the first day of March, A.D., 2020, to issue warrants to the Treasurers of the several towns in said County, for the collection of a tax of 0.00486552 cents on the dollar on the equalized list of the polls and ratable estate of the inhabitants of the County of Windsor, which is to be collected and paid into the treasury of said County on or before the fifth day of July next, or pursuant to Act 81 can be paid "in two equal annual installments, on or before July 5 and on or before November 5," in money, as provided by Vermont Statutes Annotated, Title 24, § 133-135 and the amendments thereto:

Therefore;

**BY THE AUTHORITY OF THE STATE OF VERMONT**, you are hereby commanded to present this warrant to the Selectmen of the Town of Hartford aforesaid who are directed to draw an order on you as Treasurer of your said town for 0.00486552 cents on the dollar on the equalized list of the polls and ratable estate of said inhabitants for the Year Two Thousand Twenty, to be paid in money, amounting in the whole to the sum of: \$70,396.00  
Seventy Thousand Three Hundred Ninety Six dollars and No cents, and pay the same into the Treasury of said County on or before the fifth day of July, 2020, or in two equal installments on or before the fifth day of July, 2020, and on or before the fifth day of November, 2020. There will not be a second warrant issued if the latter option is chosen.

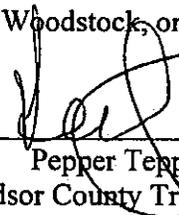
Windsor County Court House Renovation Bond

Year Seven Payment: \$37,218.00, Thirty Seven Thousand Two Hundred Eighteen Dollars no Cents  
This payment may be paid in two (2) equal installments with the tax payment.

Given under my hand at the County Treasurer's office in Woodstock, on the 04th day of February, in the year of our Lord Two Thousand Twenty.

Equalized Grand List:

\$ 14,468,270

  
\_\_\_\_\_  
Pepper Tepperman  
Windsor County Treasurer

Tax: \$70,396.00  
2020 Bond Payment: 37,218.00

Amount to pay to Treasurer: \$ 107,614.00

*MAKE CHECKS PAYABLE TO:* WINDSOR COUNTY TREASURER  
*MAIL TO:* 62 PLEASANT STREET, WOODSTOCK, VERMONT 05091



# Bond Redemption (912) page 90



Payments budgeted per amortization schedule:  
Total Payments : \$909,053.67

Quechee Bridge

Interest: \$23,335.68

Principal: \$56,762

Maxfield/WH Library

Interest: \$94,911.17

Principal: \$182,750

Municipal Building

Interest: \$116,376.09

Principal: \$245,000

Barwood Arena

Interest: \$64,918.73

Principal: \$125,000



# Questions ?



# Appropriations:

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Cemeteries (341)

Health Inspection (411)

Service Organizations (412, 413, 423, 424, 425)

Bugbee Senior Center (421)

Libraries (712)

**FYE 2021-2022**



# Cemeteries (341) pages 47-48



2020-2021	2021-2022	Change
\$102,800	\$32,400	- \$70,400

	<u>FY21</u>	<u>FY22 Request</u>	<u>FY22 Town Mgr</u>
• Christian Street*	\$ 4,400	\$0	\$14,400
• Hartford	72,500	0**	7,500
• Mt. Olivet/St. Anthony	10,200	17,800	3,800
• Quechee	12,000	14,500	3,000
• W. Hartford	3,700	0**	3,700

\* Will become fully Town Managed on 7/1/2021

Amount entered is only an estimate for managing, no agreement in place

\*\*Not requested as of the date the presentation was provided for board packet  
Deadline to submit request is 10/31/2020

## TOWN OF HARTFORD APPROPRIATION REQUEST FORM

Name of Organization Christian Street Cemetery

Address c/o Hazen, 2573 Christian Street, White River Jct, VT 05001

Phone \_\_\_\_\_

Email Address bsfarm1@comcast.net

Amount being requested from Town in 2021 \$ see selectboard  
 (For 2021 – 2022 Budget Year)

Amount requested from Town in 2020 \$ \_\_\_\_\_  
 (For 2020 - 2021 Budget Year)

### SUMMARY OF RECEIPTS AND EXPENDITURES

	<u>Actual 2020-2021</u>	<u>Budgeted 2021-2022</u>
<b><u>Receipts (or Revenues)</u></b>		
Town of Hartford	\$ _____	\$ _____
All Other Sources	\$ _____	\$ _____
TOTAL	\$ _____	\$ _____
<b><u>Expenditures (or Expenses)</u></b>		
Total	\$ _____	\$ _____

Henry Hazen \_\_\_\_\_  
 Authorized Officer of Organization (Print)      Signature

Notes: (if any) as per our conversation last year with the selectboard, I am not making an appropriation request as I will be turning the cemetery over to the town on July 1, 2021. The selectboard will need to set a budget for this cemetery.

# TOWN OF HARTFORD APPROPRIATION REQUEST FORM

Name of Organization: Mount Olivet Cemetery & Saint Anthony Cemetery

Address: 15 Church Street  
White River Jct., VT 05001

Phone: 802-295-2225

Email Address: info@saintanthonychurchwrj.org

Amount being Requested from Town in 2021 \$ 17,800.00  
(For 2021-2022 Budget Year)

Amount Requested from Town in 2020 \$ 14,000.00  
(For 2020-2021 Budget Year)

## SUMMARY OF RECEIPTS AND EXPENDITURES

	<u>Actual (2020-2021)</u>	<u>Budgeted 2021-2022</u>
<b><u>Receipts (or Revenues)</u></b>		
Town of Hartford	\$ <u>10,200.00</u>	\$ <u>17,800.00</u>
All Other Sources	\$ <u>6,900.00</u>	\$ <u>6,900.00</u>
Total	\$ <u>20,900.00</u>	\$ <u>24,700.00</u>
<b><u>Expenditures (or Expenses)</u></b>		
Total	\$ <u>20,900.00</u>	\$ <u>24,700.00</u>
<b><u>Surplus/Deficit</u></b>		
Total Deficit	\$ <u>0</u>	\$ <u>0</u>

**Rev. Charles R. Danielson**  
 Authorized Officer of Organization (Print) Signature

Notes: (if any) See attached letter.



# Health Inspection (411) page 48



2020-2021	2021-2022	Change
\$1,641	\$16,823	+\$15,182

Services provided have increased due to COVID-19



# Service Organizations – Community Health (412) page 48



2020-2021	2021-2022	Change
\$69,532	\$144,532	+\$75,000

	FY 21	FY 22 Req	FY 22 Town Mgr
• <b>VNH VT NH</b>	<b>\$51,000</b>	<b>\$0**</b>	<b>\$51,000</b>
• <b>VT Assoc. for the Blind</b>	<b>975</b>	<b>0**</b>	<b>975</b>
• <b>Good Neighbor Clinic</b>	<b>7,500</b>	<b>0**</b>	<b>7,500</b>
• <b>Good Beginnings of UV</b>	<b>4,550</b>	<b>4,500</b>	<b>4,550</b>
• <b>Special Needs Support Ctr. UV</b>	<b>4,530</b>	<b>4,530</b>	<b>4,530</b>
• <b>Public Health Council</b>	<b>977</b>	<b>0**</b>	<b>977</b>
• <b>Homelessness Goals (board req*)</b>	<b>0</b>	<b>75,000</b>	<b>75,000</b>
<b>(Where should this live in the budget?)</b>			

\*\*Not requested as of the date the presentation was provided for board packet  
**For all Service Organization Appropriations (400s): Renewals deadline is Nov. 15.**  
**By policy, organizations may still petition with signatures of 5% of the voters up to**  
**January 14, 2021.**



# Service Organizations – Mental Health (413) page 49



2020-2021	2021-2022	Change
\$7,000	\$7,000	\$-0-

	FY 21	FY22 Req	FY 22 Town Mgr
• <b>Headrest</b>	<b>\$7,000</b>	<b>\$0**</b>	<b>\$7,000</b>

\*\*Not requested as of the date the presentation provided for board packet  
 For all Service Organization Appropriations (400s): Renewals deadline is Nov. 15.  
 By policy, organizations may still petition with signatures of 5% of the voters up to  
 January 14, 2021.



# Service Organizations – Low Income (423) page 49



2020-2021	2021-2022	Change
\$9,000	\$9,000	\$-0-

	FY 21	FY 22 Req	FY 22 Town Mgr
• SEVCA	\$9,000	\$0**	\$9,000

\*\*Not requested as of the date the presentation provided for board packet  
 For all Service Organization Appropriations (400s): Renewals deadline is Nov. 15.  
 By policy, organizations may still petition with signatures of 5% of  
 the voters up to January 14, 2021.



# Service Organizations – Youth & Adult (424) pages 49-50



2020-2021	2021-2022	Change
\$17,645	\$17,645	\$-0-

	FY 21	FY 22 Req	FY 22 Town Mgr
• Family Place	\$9,500	\$9,500	\$9,500
• Windsor County Mentors	4,500	4,500	4,500
• Vt. Center Independent Living	845	0**	845
• Women’s Info. Service (WISE)	2,000	0**	2,000
• GM Retired Sr. Vol. Prog. (RSVP)	800	0**	800

\*\*Not requested as of the date the presentation provided for board packet  
 For all Service Organization Appropriations (400s): Renewals deadline is Nov. 15.  
 By policy, organizations may still petition with signatures of 5% of  
 the voters up to January 14, 2021.



# Service Organizations – General (425) page 50



2020-2021	2021-2022	Change
\$128,550	\$128,550	\$-0-

	FY21	FY 22 Req	FY 22 Town Mgr
• <b>Advance Transit</b>	<b>\$81,752</b>	<b>\$0**</b>	<b>\$81,750</b>
• <b>CATV</b>	<b>5,000</b>	<b>0**</b>	<b>5,000</b>
• <b>Stagecoach</b>	<b>6,800</b>	<b>6,800</b>	<b>6,800</b>
• <b>Hartford Historical Society</b>	<b>10,000</b>	<b>0**</b>	<b>10,000</b>
• <b>Hartford Community Coalition</b>	<b>25,000</b>	<b>0**</b>	<b>25,000</b>

\*\*Not requested as of the date the presentation provided for board packet  
 For all Service Organization Appropriations (400s): Renewals deadline is Nov. 15.  
 By policy, organizations may still petition with signatures of 5% of  
 the voters up to January 14, 2021.



# Bugbee Senior Center (421) page 49



2020-2021	2021-2022	Change
\$152,702	\$152,830	+\$128

	FY21	FY22 Req	FY22 Town Mgr
• Bugbee Senior Ctr. Operations	\$152,702	\$0**	\$152,830

\*\*Not requested as of the date the presentation provided for board packet



# Libraries



2020-2021	2021-2022	Change
\$363,670	\$363,670	\$-0-

	FY 21	FY 22 Req	FY 22 Town Mgr
• <b>W. Hartford (FICA)</b>	\$ 1,929	\$0	\$ 1,929
• <b>Hartford</b>	\$104,500	\$104,500	\$104,500
• <b>Quechee</b>	\$181,400	\$181,400	\$181,400
• <b>Wilder</b>	\$ 29,500	\$0**	\$ 29,500
• <b>W. Hartford</b>	\$ 46,341	\$43,825	\$ 46,341

\*\*Not requested as of the date the presentation provided for board agendaDeadline to submit request is 10/31/2020

## TOWN OF HARTFORD APPROPRIATION REQUEST FORM

Name of Organization Quechee Library

Address Box 384 1957 Quechee Main St.

Quechee VT 05059-0384 Phone 802-295-1232

Email Address director@quecheelibrary.org

Amount being requested from Town in 2021 \$181,400  
(For 2021 – 2022 Budget Year)

Amount requested from Town in 2020 \$181,400  
(For 2020 - 2021 Budget Year)

### SUMMARY OF RECEIPTS AND EXPENDITURES

	<u>Actual 2020-2021</u>	<u>Budgeted 2021-2022</u>
<b><u>Receipts (or Revenues)</u></b>		
Town of Hartford	\$181,400	\$181,400
All Other Sources ( <b>actual thru Sept 2020</b> )	\$3,426	\$14,850
<b>TOTAL</b>	<b>\$184,856</b>	<b>\$196,250</b>
<b><u>Expenditures (or Expenses)</u></b>		
<b>Total (actual thru Sept 2020)</b>	<b>\$44,842</b>	<b>\$196,250</b>

David Izzo, Treasurer  
Authorized Officer of Organization (Print)

Signature 

Notes: We are requesting a 0 percent increase in our 2021-2022 appropriation for delivering library services to the Town of Hartford through the Quechee/Wilder Libraries. We do so aware of the complicated time we are all in with the pandemic. Please note that we never stopped delivering library services throughout this time, following all state protocols, and being one of the first Vermont libraries to re-open to the public (beyond curbside) on June 1. Deep gratitude has been frequently expressed for what is considered by many to be an essential service. We have had to absorb the cost of filtration units for the coming cold months and have lost several of our means of fundraising due to avoiding gatherings. Our circulation stats are, amazingly even or up from last year. Please let us know if any further information is helpful.

## TOWN OF HARTFORD APPROPRIATION REQUEST FORM

Name of Organization WEST HARTFORD LIBRARY

Address 5133 RT 14, WEST HARTFORD, VT

Phone 295-7992

Email Address WESTHARTFORDLIBRARYVT@gmail.com

Amount being requested from Town in 2021  
(For 2021 - 2022 Budget Year) \$ 43,825.00

Amount requested from Town in 2020  
(For 2020 - 2021 Budget Year) \$ 46,341.00

### SUMMARY OF RECEIPTS AND EXPENDITURES

<u>Receipts (or Revenues)</u>	<u>Actual 2020-2021</u>	<u>Budgeted 2021-2022</u>
Town of Hartford	\$ <u>46,341.00</u>	\$ <u>43,825.00</u>
All Other Sources	\$ <u>ϕ</u>	\$ <u>ϕ</u>
TOTAL	\$ <u>46,341.00</u>	\$ <u>43,825.00</u>
<u>Expenditures (or Expenses)</u>	\$ <u>7,607.00</u> <small>as of 8/31/20</small>	
Total	\$ <u>46,341.00</u>	\$ <u>43,825.00</u>

GERDA GOLFBERG, Treasurer Gerda Golfberg  
 Authorized Officer of Organization (Print)      Signature

Notes: (if any) \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



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# Questions ?

**Mount Olivet Cemetery**  
1139 Hartford Avenue  
White River Jct., Vermont



**Saint Anthony Cemetery**  
469 South Main Street  
White River Jct., Vermont

**Saint Anthony Church**  
15 Church St.  
White River Jct., VT 05001

Telephone: 802-295-2225  
Fax: 802-296-6008  
E-Mail: [Info@SaintAnthonyChurchWRJ.org](mailto:Info@SaintAnthonyChurchWRJ.org)  
Web: [www.stanthonyvt.org](http://www.stanthonyvt.org)

October 19, 2020

Paula Nulty  
Executive Assistant to the Hartford Town Manager  
171 Bridge Street  
White River Jct., VT 05001

Dear Paula:

This letter is in reference to the Town of Hartford Appropriation Request for Mount Olivet Cemetery, 1139 Hartford Ave., White River Jct., VT 05001 and Saint Anthony Cemetery, 469 South Main St., White River Jct., VT 05001 for the 2021-2022 budget year.

The figures we have included in the Summary of Receipts and Expenditures under Actual 2020-2021 are estimated based on what we are scheduled to pay for maintenance and the expected income.

Actual receipts or revenues include the Town of Hartford appropriation and all other sources of income. Those include interest income from the Cemetery Perpetual Care Fund, income from the sale of burial rights, and additional fees. Interest rates on our cemetery investment funds have declined significantly over the past few years, and the sale of burial rights and fees varies from year to year. The appropriation of \$14,000 we received from the town for fiscal year 2019-2020, in addition to the other sources of income, made it possible to cover the cost of mowing and additional long overdue maintenance that we would not have been able to complete without these additional funds.

In June of 2019 we did a comprehensive review of the maintenance needs at Mount Olivet Cemetery. This did not include anything other than mowing for Saint Anthony Cemetery because we wanted to concentrate on the currently active cemetery first. The total estimated cost to complete long overdue tree removal and pruning was \$16,650.00. It is our plan to spread this work out over time to bring it to completion.

The first step in this process was the pruning of the crabapple and other ornamental trees along Hartford Avenue in late fall of 2019. This had not been done for several years. The trees were

shaped and low hanging branches were removed that were covering grave markers on the cemetery side and overhanging parts of the sidewalk on the street side. In addition, many branches were pruned away from the utility lines along that side of the highway. The cost of this work was \$3,000.00.

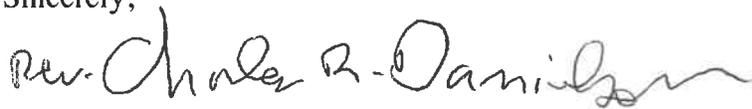
The next phase of the plan was to begin the process of pruning large dead and overhanging branches along the back of the cemetery. These have the potential to fall and damage grave markers. Our intention was to begin some of this work in the spring of 2020. Due to the pandemic, we were unable to do this work before the end of the fiscal year. We carried a surplus of \$2,111.56 at the close of 2019-2020. We are now in the process of planning the next phase of this work. We currently have a proposal of \$4,240.00 to complete the most critical portion of the project. We had requested the same amount of appropriation for 2020-2021, but due to the reduction in the amount funded to \$10,200.00, we will use the surplus from last year and whatever small amount remains after other expenses are covered to do what we can. There is also some additional necessary work at Saint Anthony Cemetery that will need to be done in the very near future.

We are submitting a request for \$17,800.00 for 2021-2022 that reflects what is needed at this point in time to continue to complete necessary work in both of these cemeteries. Whatever assistance the town will provide going forward plus other income amounts will determine a schedule of priorities for future work over and above regular annual maintenance. Our goal is to reach a point where the costliest backlog of work would be completed, and we would be able to go forward with regular maintenance each year with a reduced request from the town.

I am aware that other Cemetery Associations in the community are facing many of the same financial challenges we are in keeping these properties attractive and well maintained. The Town Appropriation continues to be an important source of income for this purpose and we are grateful for it.

Thank you for your help with this matter.

Sincerely,



Rev. Charles R. Danielson, Pastor

Enclosures:

Town of Hartford Appropriation Form for 2021-2022 Budget Year  
Cemetery Statement of Income & Expense 2019-2020  
Cemetery Profit & Loss Detail 2019-2020  
2020-2021 Budget – Mount Olivet & Saint Anthony Cemeteries  
Amended 2020-2021 Budget (Oct. 1, 2020) – Mount Olivet & Saint Anthony Cemeteries  
2021-2022 Budget – Mount Olivet & Saint Anthony Cemeteries  
Proposal for Comprehensive Tree Maintenance – Mount Olivet Cemetery  
Proposal & Invoice Tree Pruning Fall 2019 – Mount Olivet Cemetery  
Proposal for Tree Maintenance Fall 2020 – Mount Olivet Cemetery

# TOWN OF HARTFORD APPROPRIATION REQUEST FORM

Name of Organization: Mount Olivet Cemetery & Saint Anthony Cemetery

Address: 15 Church Street  
White River Jct., VT 05001

Phone: 802-295-2225

Email Address: info@saintanthonychurchwrj.org

Amount being Requested from Town in 2021 \$ 17,800.00  
(For 2021-2022 Budget Year)

Amount Requested from Town in 2020 \$ 14,000.00  
(For 2020-2021 Budget Year)

## SUMMARY OF RECEIPTS AND EXPENDITURES

	<u>Actual (2020-2021)</u>	<u>Budgeted 2021-2022</u>
<b><u>Receipts (or Revenues)</u></b>		
Town of Hartford	<u>\$ 10,200.00</u>	<u>\$ 17,800.00</u>
All Other Sources	<u>\$ 6,900.00</u>	<u>\$ 6,900.00</u>
Total	<u>\$ 20,900.00</u>	<u>\$ 24,700.00</u>
<b><u>Expenditures (or Expenses)</u></b>		
Total	<u>\$ 20,900.00</u>	<u>\$ 24,700.00</u>
<b><u>Surplus/Deficit</u></b>		
Total Deficit	<u>\$ 0</u>	<u>\$ 0</u>

**Rev. Charles R. Danielson**

Authorized Officer of Organization (Print)

Signature

Notes: (if any) See attached letter.

St. Anthony's Parish Charitable Trust  
Cemetery Statement of Income & Expense  
July 2019 through June 2020

	<u>Jul '19 - Jun 20</u>
<b>Ordinary Income/Expense</b>	
<b>Income</b>	
4200 · Other Regular Income	
4280 · Cemeteries	
4281 · Sale of Lots & Foundations	4,000.00
4283 · Interest Income - Cemeteries	1,758.20
4285 · Other Cemetary Income	16,000.00
	<u>21,758.20</u>
<b>Total 4280 · Cemeteries</b>	<b>21,758.20</b>
<b>Total 4200 · Other Regular Income</b>	<b>21,758.20</b>
<b>Total Income</b>	<b>21,758.20</b>
<b>Expense</b>	
5200 · Services, Prof. Fees & Insuranc	
5270 · Insurance	
5273 · Property/Casualty Insurance	147.98
	<u>147.98</u>
<b>Total 5270 · Insurance</b>	<b>147.98</b>
<b>Total 5200 · Services, Prof. Fees &amp; Insuranc</b>	<b>147.98</b>
5300 · Supplies, Repairs & Maintenance	
5310 · Supplies/Equipment under \$5,000	
5317 · Janitorial/Office & Misc Supply	500.00
	<u>500.00</u>
<b>Total 5310 · Supplies/Equipment under \$5,000</b>	<b>500.00</b>
5330 · Repairs & Maintenance	
5337 · Lawn Care	18,964.98
	<u>18,964.98</u>
<b>Total 5330 · Repairs &amp; Maintenance</b>	<b>18,964.98</b>
<b>Total 5300 · Supplies, Repairs &amp; Maintenance</b>	<b>19,464.98</b>
5400 · Utilities	
5470 · Power & Water	
5474 · Water & Sewer	33.68
	<u>33.68</u>
<b>Total 5470 · Power &amp; Water</b>	<b>33.68</b>
<b>Total 5400 · Utilities</b>	<b>33.68</b>
<b>Total Expense</b>	<b>19,646.64</b>
<b>Net Ordinary Income</b>	<b>2,111.56</b>
<b>Net Income</b>	<b>2,111.56</b>

**St. Anthony's Parish Charitable Trust**  
**Cemetery Profit & Loss Detail**  
 July 2019 through June 2020

Type	Date	Num	Name	Memo	Split	Amount
<b>Ordinary Income/Expense</b>						
<b>Income</b>						
4200 - Other Regular Income						
4280 - Cemeteries						
4281 - Sale of Lots & Foundations						
Deposit	08/02/2019			Lot Sale - Varnese, Gary	10011 - Parish...	1,000.00
Deposit	11/25/2019			SE RG G57	10011 - Parish...	500.00
Deposit	01/21/2020			Leavitt	10011 - Parish...	1,000.00
Deposit	04/30/2020			Sec J Row B 19 & 20 Rullo	10011 - Parish...	1,000.00
Deposit	06/08/2020			LaPlaca purchase	10011 - Parish...	500.00
Total 4281 - Sale of Lots & Foundations						4,000.00
4283 - Interest Income - Cemeteries						
Deposit	07/31/2019			Interest	10022-2 - CD ...	73.48
Deposit	07/31/2019			Interest	10022-3 - CD ...	69.32
Deposit	08/31/2019			Interest	10022-2 - CD ...	76.00
Deposit	08/31/2019			Interest	10022-3 - CD ...	71.71
Deposit	09/30/2019			Interest	10022-2 - CD ...	76.06
Deposit	09/30/2019			Interest	10022-3 - CD ...	71.79
Deposit	10/31/2019			Interest	10022-2 - CD ...	73.66
Deposit	10/31/2019			Interest	10022-3 - CD ...	69.54
Deposit	10/31/2019			Interest	10022-4 - Cem...	0.20
Deposit	11/30/2019			Interest	10022-2 - CD ...	76.19
Deposit	11/30/2019			Interest	10022-3 - CD ...	71.93
Deposit	11/30/2019			Interest	10022-4 - Cem...	0.86
Deposit	12/31/2019			Interest	10022-2 - CD ...	73.79
Deposit	12/31/2019			Interest	10022-3 - CD ...	69.69
Deposit	12/31/2019			Interest	10022-4 - Cem...	0.84
Deposit	01/31/2020			Interest	10022-2 - CD ...	76.32
Deposit	01/31/2020			Interest	10022-3 - CD ...	72.08
Deposit	01/31/2020			Interest	10022-4 - Cem...	0.92
Deposit	02/29/2020			Interest	10022-2 - CD ...	76.37
Deposit	02/29/2020			Interest	10022-3 - CD ...	72.16
Deposit	02/29/2020			Interest	10022-4 - Cem...	0.78
Deposit	03/31/2020			Interest	10022-2 - CD ...	71.51
Deposit	03/31/2020			Interest	10022-3 - CD ...	67.58
Deposit	03/31/2020			Interest	10022-4 - Cem...	0.84
Deposit	04/30/2020			Interest	10022-2 - CD ...	76.50
Deposit	04/30/2020			Interest	10022-3 - CD ...	72.30
Deposit	04/30/2020			Interest	10022-4 - Cem...	0.83
Deposit	05/31/2020			Interest	10022-2 - CD ...	74.10
Deposit	05/31/2020			Interest	10022-3 - CD ...	70.05
Deposit	05/31/2020			Interest	10022-4 - Cem...	0.87
Deposit	06/30/2020			Interest	10022-2 - CD ...	76.63
Deposit	06/30/2020			Interest	10022-3 - CD ...	72.46
Deposit	06/30/2020			Interest	10022-4 - Cem...	0.84
Total 4283 - Interest Income - Cemeteries						1,758.20
4285 - Other Cemetary Income						
Deposit	08/02/2019			Grave Opening - Reed	10011 - Parish...	100.00
Deposit	09/03/2019			Meheu Grave Opening	10011 - Parish...	200.00
Deposit	09/16/2019			Deposit	10011 - Parish...	200.00
Deposit	10/15/2019			Appropriation FY20	10011 - Parish...	1,900.00
Deposit	10/15/2019			Appropriation FY20	10011 - Parish...	5,100.00
Deposit	10/28/2019			Grave Opening	10011 - Parish...	200.00
Deposit	11/12/2019			Norton	10011 - Parish...	100.00
Deposit	11/12/2019			Hamel	10011 - Parish...	100.00
Deposit	11/12/2019			Rocheleau	10011 - Parish...	100.00
Deposit	11/25/2019			P Nostrant Grave Opening	10011 - Parish...	100.00
Deposit	12/09/2019			Maurer	10011 - Parish...	200.00
Deposit	12/09/2019			Coutermarsh	10011 - Parish...	100.00
Deposit	03/16/2020			town allotment	10011 - Parish...	1,900.00
Deposit	03/18/2020			town allotment	10011 - Parish...	5,100.00
Deposit	03/25/2020			grave opening	10011 - Parish...	200.00
Deposit	05/06/2020			grave opening	10011 - Parish...	200.00
Deposit	06/08/2020			Laskey Grave Opening	10011 - Parish...	200.00
Total 4285 - Other Cemetary Income						16,000.00
Total 4280 - Cemeteries						21,758.20
Total 4200 - Other Regular Income						21,758.20
Total Income						21,758.20
<b>Expense</b>						
5200 - Services, Prof. Fees & Insuranc						

**St. Anthony's Parish Charitable Trust**  
**Cemetery Profit & Loss Detail**  
 July 2019 through June 2020

Type	Date	Num	Name	Memo	Split	Amount
<b>5270 · Insurance</b>						
<b>5273 · Property/Casualty Insurance</b>						
Bill	09/01/2019	INV22...	Roman Catholic Diocese of B...	Account 00211	2000 · Payables	71.54
Bill	09/01/2019	INV22...	Roman Catholic Diocese of B...	Account 00211	2000 · Payables	76.44
Total 5273 · Property/Casualty Insurance						147.98
Total 5270 · Insurance						147.98
Total 5200 · Services, Prof. Fees & Insuranc						147.98
<b>5300 · Supplies, Repairs &amp; Maintenance</b>						
<b>5310 · Supplies/Equipment under \$5,000</b>						
<b>5317 · Janitorial/Office &amp; Misc Supply</b>						
Bill	09/16/2019	19-0473	Red Door Signs	Cemetery Rules Sign	2000 · Payables	500.00
Total 5317 · Janitorial/Office & Misc Supply						500.00
Total 5310 · Supplies/Equipment under \$5,000						500.00
<b>5330 · Repairs &amp; Maintenance</b>						
<b>5337 · Lawn Care</b>						
Bill	07/10/2019	916	Hitchcock Construction	Installment 3	2000 Payables	2,660.83
Bill	08/10/2019	968	Hitchcock Construction	Installment 4	2000 Payables	2,660.83
Bill	09/10/2019	1025	Hitchcock Construction	Installment 5	2000 Payables	2,660.83
Bill	10/10/2019	1074	Hitchcock Construction	Installment 6	2000 Payables	2,660.83
Bill	12/13/2019	81476	Henderson's Tree Service LL...	Crabapple Pruning	2000 Payables	3,000.00
Bill	05/10/2020	1282	Hitchcock Construction	Installment 1	2000 Payables	2,660.83
Bill	06/10/2020	1340	Hitchcock Construction	Installment 2	2000 · Payables	2,660.83
Total 5337 · Lawn Care						18,964.98
Total 5330 · Repairs & Maintenance						18,964.98
Total 5300 · Supplies, Repairs & Maintenance						19,464.98
<b>5400 · Utilities</b>						
<b>5470 · Power &amp; Water</b>						
<b>5474 · Water &amp; Sewer</b>						
Bill	06/30/2020	336072	Town of Hartford		2000 Payables	33.68
Total 5474 · Water & Sewer						33.68
Total 5470 · Power & Water						33.68
Total 5400 · Utilities						33.68
Total Expense						19,646.64
Net Ordinary Income						2,111.56
Net Income						2,111.56

Actual (2019-2020)

**Receipts (or Revenues)**

Town of Hartford	\$ <b><u>14,000.00</u></b>
All Other Sources	\$ <b><u>7,758.20</u></b>
Total	\$ <b><u>21,758.20</u></b>

**Expenditures (or Expenses)**

Total	\$ <b><u>19,646.64</u></b>
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**Surplus/Deficit**

Total Surplus	\$ <b><u>2,111.56</u></b>
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Mount Olivet Cemetery  
1139 Hartford Avenue  
White River Jct., Vermont



Saint Anthony Cemetery  
469 South Main Street  
White River Jct., Vermont

**Saint Anthony Church**  
15 Church St.  
White River Jct., VT 05001

Telephone: 802-295-2225  
Fax: 802-296-6008  
E-Mail: [info@saintanthonychurchwrj.org](mailto:info@saintanthonychurchwrj.org)  
Web: [stanthony.vermontcatholic.org](http://stanthony.vermontcatholic.org)

### **Budget FY 2020-2021**

#### **Income**

Sale of Lots & Foundations	\$3,000.00
Additional Fees	\$2,000.00
Interest	\$1,900.00
Town of Hartford Appropriation	\$14,000.00
<b>Total Income</b>	<b>\$20,900.00</b>

#### **Expense**

Property/Casualty Insurance	\$150.00
Repairs & Maintenance	
Lawn Mowing & Trimming	\$16,000.00
Tree Removal & Pruning	\$4,650.00
Water	\$100.00
<b>Total Expense</b>	<b>\$20,900.00</b>

#### **Balance**

**\$0.00**

Mount Olivet Cemetery  
1139 Hartford Avenue  
White River Jct., Vermont



Saint Anthony Cemetery  
469 South Main Street  
White River Jct., Vermont

**Saint Anthony Church**  
15 Church St.  
White River Jct., VT 05001

Telephone: 802-295-2225  
Fax: 802-296-6008  
E-Mail: [info@saintanthonychurchwrj.org](mailto:info@saintanthonychurchwrj.org)  
Web: [stanthony.vermontcatholic.org](http://stanthony.vermontcatholic.org)

**Budget FY 2020-2021 (Amended 10-1-20)**

**Income**

Sale of Lots & Foundations	\$3,000.00
Additional Fees	\$2,000.00
Interest	\$1,900.00
Town of Hartford Appropriation	\$10,200.00
<b>Total Income</b>	<b>\$17,100.00</b>

**Expense**

Property/Casualty Insurance	\$150.00
Repairs & Maintenance	
Lawn Mowing & Trimming	\$16,000.00
Tree Removal & Pruning	\$850.00
Water	\$100.00
<b>Total Expense</b>	<b>\$17,100.00</b>

**Balance** **\$0.00**

Mount Olivet Cemetery  
1139 Hartford Avenue  
White River Jct., Vermont



Saint Anthony Cemetery  
469 South Main Street  
White River Jct., Vermont

**Saint Anthony Church**  
15 Church St.  
White River Jct., VT 05001

Telephone: 802-295-2225  
Fax: 802-296-6008  
E-Mail: [info@saintanthonychurchwrj.org](mailto:info@saintanthonychurchwrj.org)  
Web: [stanthony.vermontcatholic.org](http://stanthony.vermontcatholic.org)

### **Budget FY 2021-2022**

#### **Income**

Sale of Lots & Foundations	\$3,000.00
Additional Fees	\$2,000.00
Interest	\$1,900.00
Town of Hartford Appropriation	\$17,800.00
<b>Total Income</b>	<b>\$24,700.00</b>

#### **Expense**

Property/Casualty Insurance	\$175.00
Repairs & Maintenance	
Lawn Mowing & Trimming	\$17,000.00
Tree Removal & Pruning	\$7,425.00
Water	\$100.00
<b>Total Expense</b>	<b>\$24,700.00</b>

**Balance** **\$0.00**



Henderson's Tree & Garden  
 1542 Route 14  
 White River Junction, VT 05001

Proposal #81476  
 Created: 06/26/2019  
 From: JIM

**Proposal For**

**St. Anthony's Church**

St. Anthony's Church  
 15 Church Street  
 White River Jct., VT 05001

main: (802) 295-2225  
 mobile:  
[info@saintanthonychurchwrj.org](mailto:info@saintanthonychurchwrj.org)

**Location**

US-5 Hartford, VT 05001

**Terms**

50% deposit required job over \$3000.00

St. Anthony's - Mt. Olivet Cemetery Work

ITEM DESCRIPTION	QUANTITY	UNIT PRICE	AMOUNT
<b>1) Pruning</b> Pruning of approximately twelve (12) Crabapples for the visually impaired along Rte. 5. Remove low limbs, thin out, shape tops, prune away from wires.	1	\$3,000.00	\$3,000.00
<b>2) Limb Removal</b> Removal of limbs on large Oakes along back of cemetery Chip all debris	1	\$3,200.00	\$3,200.00
<b>3) Tree Removal - Take Wood</b> Removal of two (2) large White Pines Cut stump as close to soil level as possible. Chip brush - Remove wood.	2	\$2,400.00	\$4,800.00
<b>4) Tree Removal - Take Wood</b> Removal of large Oak Cut stump as close to soil level as possible. Chip brush - Remove wood.	1	\$2,400.00	\$2,400.00
<b>5) Tree Removal - Take Wood</b> Removal of large Oak Cut stump as close to soil level as possible. Chip brush - Remove wood.	1	\$1,600.00	\$1,600.00
<b>6) Tree Removal - Take Wood</b> Removal of small Oak Cut stump as close to soil level as possible. Chip brush - Remove wood.	1	\$450.00	\$450.00
<b>7) Tree Removal - Take Wood</b>	1	\$800.00	\$800.00





# Henderson's Tree & Garden

1542 Route 14  
White River Junction, VT 05001

Proposal #81476

Created: 06/26/2019

From: JIM

Removal of medium Oak  
Cut stump as close to soil level as possible.  
Chip brush -  
Remove wood.

8) Tree Removal - Take Wood	1	\$400.00	\$400.00
Removal of two (2) small Oakes			
Cut stump as close to soil level as possible.			
Chip brush -			
Remove wood.			

*All work will be completed in accordance with these plans unless subsequent changes are agreed upon in writing. Balances not paid by the due date are subject to late fees.*

SUBTOTAL \$16,650.00

SALES TAX \$0.00

**TOTAL \$16,650.00**

DEPOSIT REQUIRED \$\$8325.00

Signature

x

Please sign here to accept the terms and conditions

## Assigned To

JIM  
Office: 802-296-3771  
Mobile: 802-291-3274  
[jim@hendersonstreeservice.com](mailto:jim@hendersonstreeservice.com)





Henderson's Tree & Garden  
 1542 Route 14  
 White River Junction, VT 05001

Proposal #81476  
 Created: 06/26/2019  
 From: JIM

**Proposal For**

**St. Anthony's Church**

St. Anthony's Church  
 15 Church Street  
 White River Jct., VT 05001

main: (802) 295-2225  
[info@saintanthonychurchwrj.org](mailto:info@saintanthonychurchwrj.org); [jpguarino05088@yahoo.com](mailto:jpguarino05088@yahoo.com)

**Location**

US-5  
 Hartford, VT 05001

**Terms**

50% deposit required job over \$3000.00

St. Anthony's - Mt. Olivet Cemetery Work

ITEM DESCRIPTION	QUANTITY	UNIT PRICE	AMOUNT
1) Pruning Pruning of approximately twelve (12) Crabapples for the visually impaired along Rte. 5. Remove low limbs, thin out, shape tops, prune away from wires.	1	\$ 3,000.00	\$ 3,000.00

- Tags #085 GMC 5500 ('08) Tractor Truck and John Deere #087 F750 ('08) #115 F550 ('11)(chipper) #131 Bucket Truck  
Crane Job

*All work will be completed in accordance with these plans unless subsequent changes are agreed upon in writing. Balances not paid by the due date are subject to late fees. You can process this invoice payment by simply clicking, "PAY INVOICE" at no additional fee.*

SUBTOTAL	\$ 3,000.00
SALES TAX	\$ 0.00
<b>TOTAL</b>	<b>\$ 3,000.00</b>

**Signature**

x \_\_\_\_\_ Date:

Please sign here to accept the terms and conditions

**Assigned To**

JIM  
 Office: 802-296-3771  
 Mobile: 802-291-3274  
[jim@hendersonstreeservice.com](mailto:jim@hendersonstreeservice.com)





**Henderson's Tree & Garden**

1542 Route 14  
White River Junction, VT 05001

**Invoice #81476**

Date: 12/13/2019  
From: JIM

**Bill For**

**St. Anthony's Church**

St. Anthony's Church  
15 Church Street  
White River Jct., VT 05001

main: (802) 295-2225

mobile:

info@saintanthonychurchwrj.org; jpguarino05088@yahoo.com

**Location**

US-5  
Hartford, VT 05001

**Terms**

50% deposit required job over \$3000.00

St. Anthony's - Mt. Olivet Cemetery Work

ITEM DESCRIPTION	QUANTITY	UNIT PRICE	AMOUNT
1) Pruning Pruning of approximately twelve (12) Crabapples for the visually impaired along Rte. 5. Remove low limbs, thin out, shape tops, prune away from wires.	1	\$3,000.00	\$3,000.00

*All balances not paid by the due date are subject to late fees. You can process this invoice payment by simply clicking, "PAY INVOICE" at no additional fee.  
Please mail checks to the above address with your INVOICE number included.*

SUBTOTAL	\$3,000.00
SALES TAX	\$0.00
<b>TOTAL</b>	<b>\$3,000.00</b>
DUE DATE	12/13/2019

**Assigned To**

JIM  
ST. ANTHONY'S CHURCH

Date: December 20, 2019

15301

Date	Type	Reference	Original Amt.	Balance Due	12/23/2019 Discount	Payment
12/13/2019	Bill	81476	3,000.00	3,000.00		3,000.00
					Check Amount	3,000.00

**PAYMENT  
RECORD**

Parish Checking(4120 Acct 2882

3,000.00



**HENDERSON'S TREE & GARDEN**  
 1542 Route 14  
 White River Junction, VT 05001

**PROPOSAL #02307**  
 Created: 08/07/2020  
 From: JIM

**Proposal For**

**St. Anthony's Church**  
 15 Church Street  
 White River Jct., VT 05001

main: (802) 295-2225  
 mobile: 802-356-6475 Mr. Guarino Cell  
[info@saintanthonychurchwrj.org](mailto:info@saintanthonychurchwrj.org); [jpguarino05088@yahoo.com](mailto:jpguarino05088@yahoo.com)

**Location**

**US-5**  
 Hartford, VT 05001

St. Anthony's Church

**Terms**  
 Net 10 Days

ITEM DESCRIPTION	QUANTITY	UNIT PRICE	AMOUNT
1) Location information Cemetery on Tafts Flat Rd	1	\$ 0.00	\$ 0.00
2) Pruning Pruning of numerous trees in the cemetery. All trees are marked with a BLUE RIBBON	1	\$ 4,240.00	\$ 4,240.00

**Tags** #115 F550 ('11)(chipper) #131 Bucket Truck Tree Crew 1

*All work will be completed in accordance with these plans unless subsequent changes are agreed upon in writing. Balances not paid by the due date are subject to late fees. You can process this invoice payment by simply clicking, "PAY INVOICE" at no additional fee.*

<b>SUBTOTAL</b>	<b>\$ 4,240.00</b>
<b>SALES TAX</b>	<b>\$ 0.00</b>
<b>TOTAL</b>	<b>\$ 4,240.00</b>

**Signature**

x

Date:

Please sign here to accept the terms and conditions

**Assigned To**

JIM  
 Office: 802-296-3771  
 Mobile: 802-291-3274  
[jim@hendersonstreeservice.com](mailto:jim@hendersonstreeservice.com)

**Sales Reps**

JIM  
 Office: 802-296-3771  
 Mobile: 802-291-3274  
[jim@hendersonstreeservice.com](mailto:jim@hendersonstreeservice.com)





## AGENDA MEMORANDUM

November 2, 2020

### Town Selectboard Meeting Item: 4.b.

**Submitted by: Matt Osborn, Planner, Department of Planning & Development  
Jon Bouton, Conservation Commission Member & Former County Forester**

**Subject: Town Forest Resource Assessment and Forest Management Plan**

**Background:** The Town Forest is a 423-acre parcel, managed by the Hartford Conservation Commission (HCC) and one of two parcels in the Town's Hurricane Watershed. The other parcel is the 142-acre Hurricane Forest Wildlife Refuge managed by the Parks and Recreation Department.

The Town Forest, site of the former Hurricane reservoirs, served as the Town's municipal water supply until the 1950s when the Wilder Well was developed. A Forest Management Plan (FMP) was first developed for the Town Forest in 1984 and was later updated in 1998 and again in 2011. It has guided several timber harvests in the Town Forest in the past. Since 2000, two small, selection timber harvests occurred in 2005 and 2008.

A major goal of the FMP is to be aware of and balance natural resource management with recreational use. To support this goal, the HCC has undertaken separate but complementary initiatives. These include a Recreation Management Plan in 2002, which is currently being updated. In addition, the HCC commissioned the following studies: Biological Inventory of Amphibians, 2010; Forest Bird Habitat Assessment, 2010; and a Wildlife Habitat Assessment and Bat Inventory, 2011.

The HCC has been working with Windsor/Orange County Forester A.J. Follensbee on the FMP update in the past year and attended the 5/5/20 Selectboard meeting to discuss the FMP. On 7/15/20, the HCC also sponsored a community meeting to discuss the FMP and receive feedback.

**Discussion:** The purpose of this agenda item is to present the revised FMP to the Selectboard and ask the Selectboard to consider adopting it. The Plan breaks the Town Forest into five timber stands, includes a detailed inventory of each stand and has goals and a schedule of management activities. The HCC is planning a small selection timber harvest in the winter of 2022. The reasons for the timber harvest include: increase diversity of trees species and habitat to improve resilience, improve wildlife and bird habitat, serve as a public demonstration of sustainable forestry and local renewable forest products and generate income for conservation projects.

**Financial Impact:** None.

**Action Requested:** Adopt the 2020 Hartford Town Forest Resource Assessment and Forest Management Plan as presented.

**Attachments:** PowerPoint Presentation & Town Forest Resource Assessment and Forest Management Plan



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# Hartford Town Forest Resource Assessment and Forest Management Plan

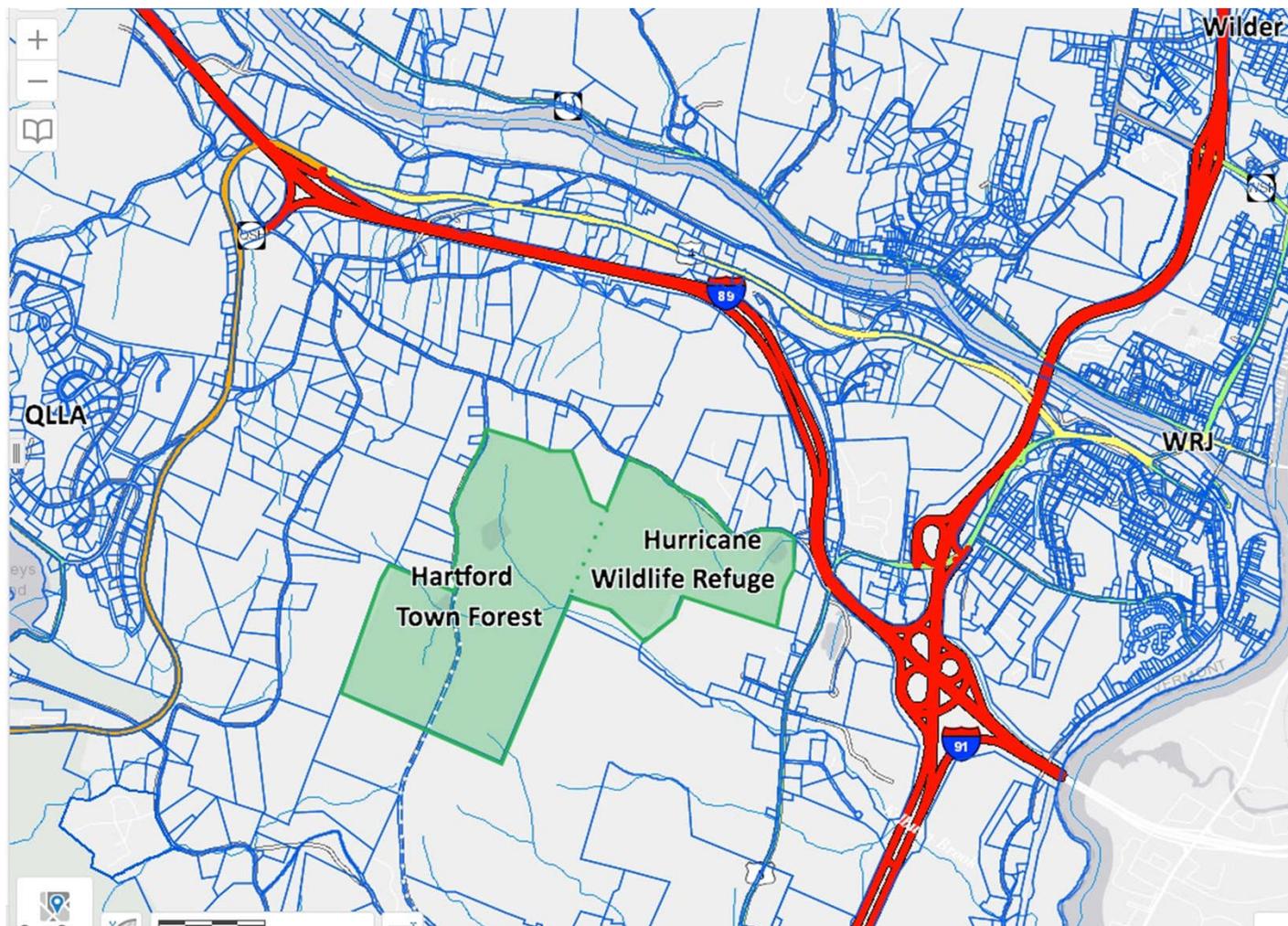
Planner Matt Osborn

Conservation Commission Member & former Windsor  
County Forester Jon Bouton

Windsor/Orange County Forester A.J. Follensbee



# Town Forest Location



Town Forest:  
423 Acres  
(Conservation  
Commission)

Hurricane Forest  
Wildlife Refuge:  
142 Acres  
(Parks & Rec.  
Dept.)

Total: 565 Ac.



# Background

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- A Forest Management Plan was first developed in 1984.
- The Conservation Commission has managed the Hartford Town Forest (HTF) since 1997.
- The Forest Management Plan was updated in 1998.
- Two small-scale selective timber harvests were held in the winters of 2005 and 2008.



# Background

---



Conservation Commission sponsored inventories and plans for the HTF include:

- Amphibian Inventory (2010),
- Bird Habitat Assessment (2010)
- Wildlife Habitat Assessment & Bat Inventory (2011)
- The Forest Management Plan was last updated in 2011



# Recreation Management

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- In 2002, the HCC developed the first Recreation Management Plan (RMP) for the HTF.
- In 2018, Hartford was one of ten Vermont communities to be part of a pilot project to develop a process for managing recreation in Town Forests that can be replicated in other Vermont communities.
- The Plan was developed by consultant SE Group and included several community meetings.
- The HCC has incorporated elements from the 2002 RMP with the 2018 Plan. A public forum was held on October 21, 2020 and public comments will be accepted through November 30<sup>th</sup>.
- The RMP will go before the Selectboard in early 2021.



# Recreation Management

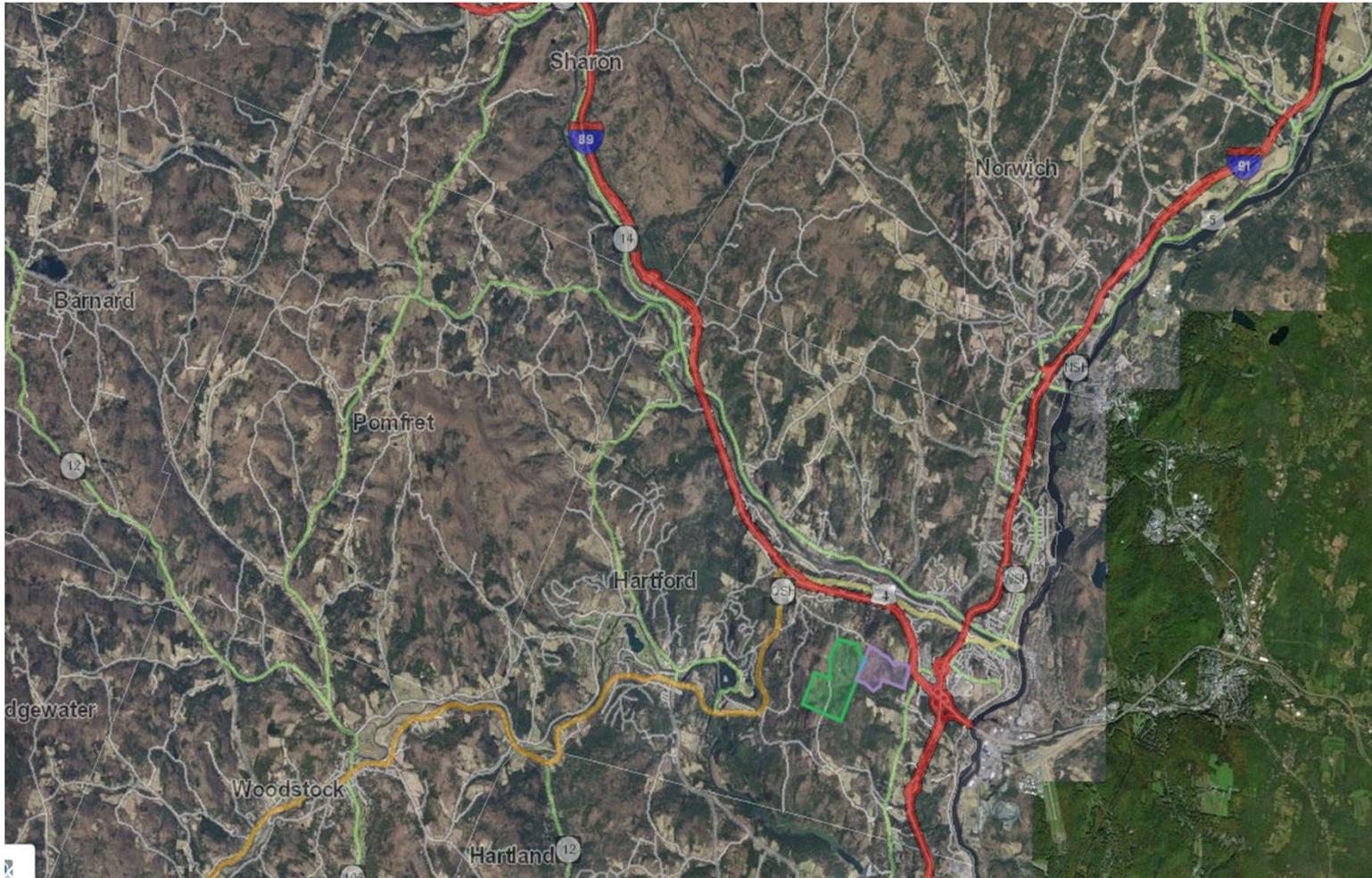
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- The Upper Valley Trails Alliance conducted a trails assessment in the HTF in 2018.
- The assessment is guiding trail management to ensure sustainable trails.
- This summer, a Vermont Youth Conservation Corps work crew spent two weeks relocating one trail & made improvements to another.



# Part of a Larger Forest



HTF: 423 Acres  
(Cons. Comm.)

HFWR: 142 Acres  
(Rec. Dept.)

Total: 565 Acres

Part of 5,200 Acre  
Habitat Block

Wildlife  
Connector  
Overlay District  
runs through HTF



# Forest Management Goals

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- Increase Site-appropriate Diversity: Tree Species, Forest Structure (patchiness), Vertical Structure, Age & Size
  - Wildlife: Maintain Diverse Habitat Features
  - Carbon: Sequestration and Storage
  - Climate Change: Resilience
- Education: Demonstrate Sustainable Forestry and Locally-grown and Processed Forest Products
- Income: to Hartford Conservation Fund for Maintaining Town Forests, Natural Areas and Conserving Parcels with Important Natural Resource Attributes



# FMP Public Outreach

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- 5/5/20 Presentation to the Selectboard
- 7/15/20 Community Meeting
- Posted regularly on Hartford List Serve, town website, and letters to HTF adjacent property owners.
- Video of 7/15 Community Meeting, Draft Plan, 3-page summary and public comment form on town website since July 2020.



# LAND USE HISTORY OF THE TOWN FOREST

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- The HTF has been owned by the town since the 1890's.
- It is a combination of the 3 former farms.
- A long history of forest management dating back to the 1940's
- VT Department of Forests, Parks and Recreation was involved in management in the 1960's and 1970's.
- The 1980's saw heavier even-aged management harvests throughout HTF.
- Management changed in the late 1990's to uneven-aged ecological based forest management.
- The HTF was last harvested in 2005 & 2008.



# SUSTAINABLE ECOLOGICAL FOREST MANAGEMENT

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- Recognizes that forests are complex ecosystems and not just a collection of the valuable trees for timber production.
- Mimics natural disturbance and successional trends.
- Attempts to increase structural complexity and improve biological diversity.
- Grows and retains merchantable timber in every entry.

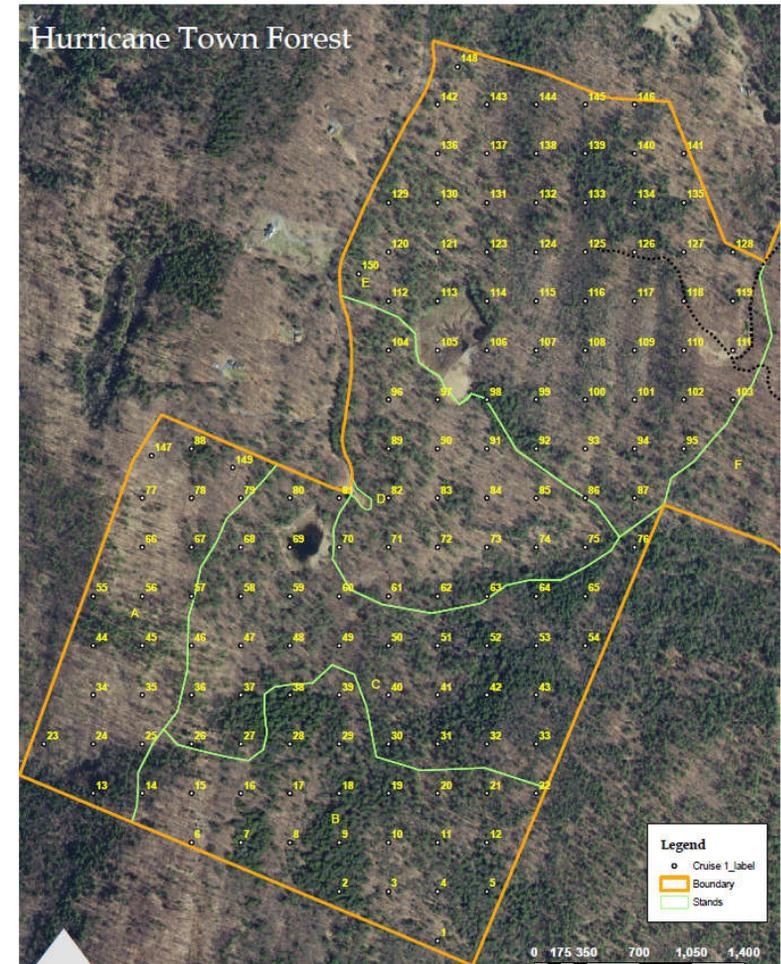




# DEVELOPING THE FOREST MANAGEMENT PLAN



- The forest was inventoried in the fall/winter of 2019-2020.
- 150 inventory points were taken using a 10-factor prism.
- Density, diameters, merchantable heights, tree regeneration coverage, tree species and coarse woody debris information was gathered at each point.





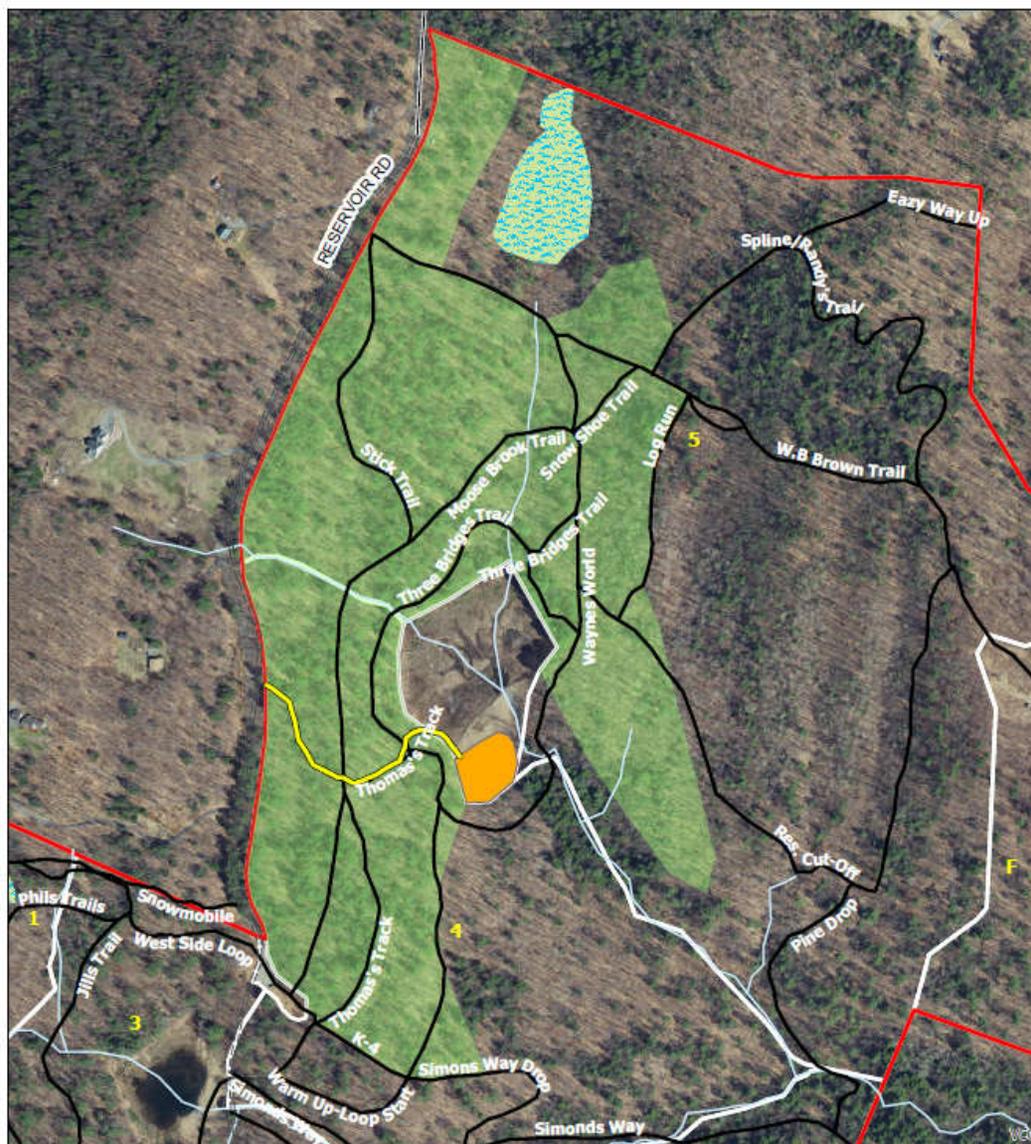
# SCHEDULE OF MANAGEMENT ACTIVITIES



Stand	Activity	Scheduled Year	Priority	Cost	Partner
All	Boundary line maintenance	2020 and every 10 years	High	\$120-\$150 for paint	Volunteers/ County Forester
All	Monitor for invasive plants	Annual	High	None	Volunteers, County Forester, Hartford Vo Tech
All	Invasive plant removal	ongoing	High	None (based on current low levels of plants)	Volunteers, Hartford Vo Tech
All	Trail maintenance	ongoing	High	Variable	Volunteers, VYCC, Trail user groups
Lower Reservoir meadow	Mow	Annual	Medium	\$100	
5	Thin western pine unit	2021-2024	Medium	None, revenue positive	County Forester
5	Patch Cut hardwood unit	2021-2024	Low	None, revenue positive	County Forester
4	Thin western pine unit	2021-2024	Medium	None, revenue positive	County Forester
4	Pre-commercial crop tree release eastern hardwood unit	2020-2030	Low	None	Hartford Vo Tech, VWA,
3	Single tree and group selection harvest western pine-oak unit	2023-2026	Medium	None, revenue positive	County Forester
5	Single tree and group selection harvest central hardwood unit & northern hemlock unit	2025-2030	Medium	None, revenue positive	County Forester
1	- Thin pine unit - Selection harvest red oak unit	2025-2028	Medium	None, revenue positive	County Forester
2	Single tree and group selection harvest all units	2030-2035	Medium	None, revenue positive	County Forester
All	Update forest management plan	2030	High		Vermont licensed forester



# Proposed Winter 2022 Timber Harvest





## STEPS GOING FORWARD

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- **Fall 2020/Early winter, 2021:** Plan approved.
- **Winter, 2020/2021:** Host a series of webinars about the HTF and the proposed work.
- **Winter/Spring, 2021:** Timber sale layout and marking begin.
- **June, 2021** (or sooner): Finish marking sale.
- **July, 2021:** Sale ready to go out to bid.
- **Late Summer/Fall 2021:** Logger chosen, and contract awarded.
- **Fall 2021:** Preparation for timber sale made by logger (truck road improved, landing improvements made, crossings installed etc.).
- **Winter 2021/2022:** Once ground conditions allow, the logger starts cutting.



# ACTION REQUESTED

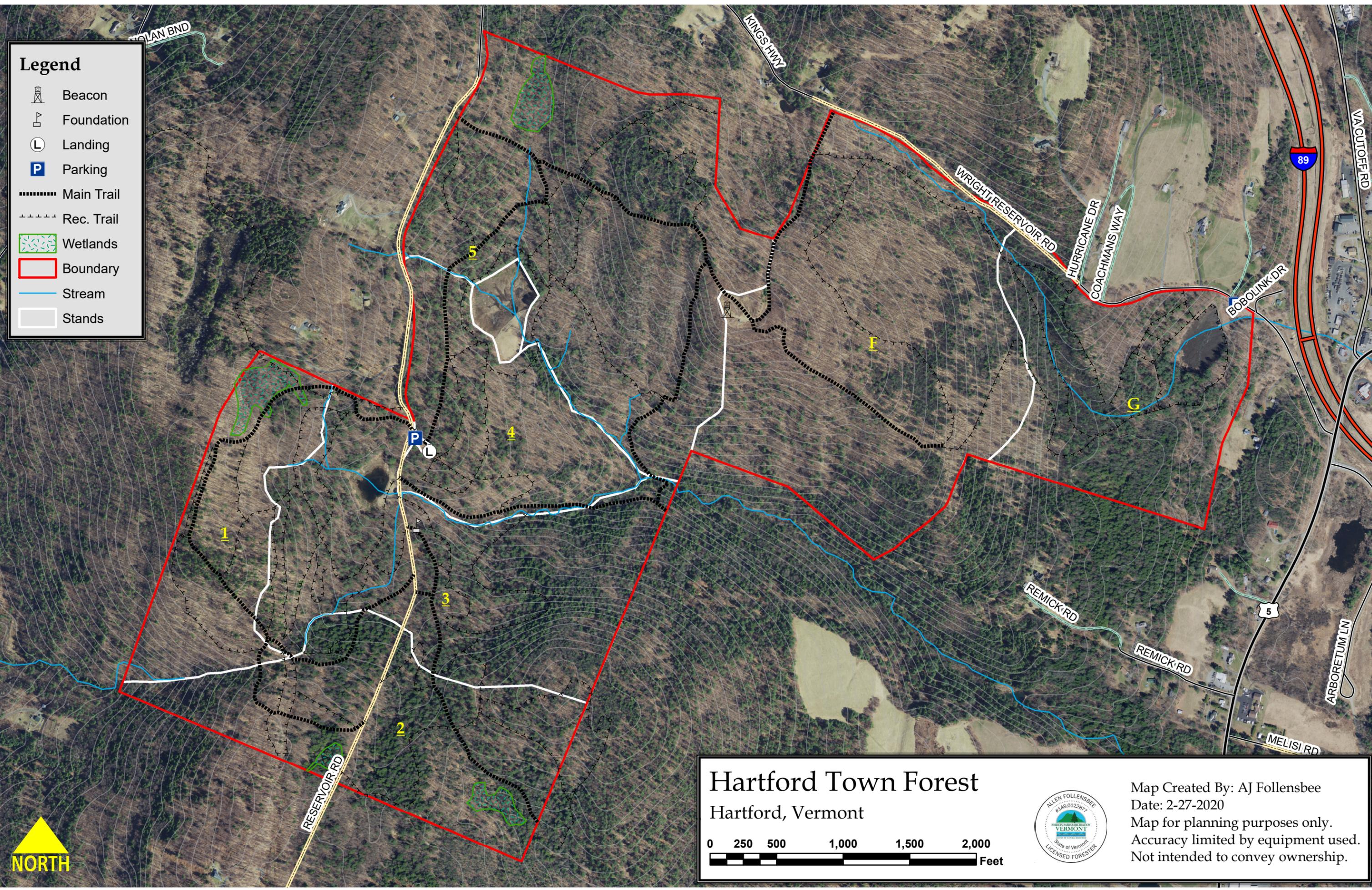
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- The HCC is asking the Selectboard to approve the Hartford Town Forest Resource Assessment and Forest Management Plan.

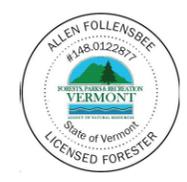
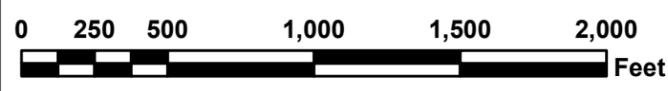
**Legend**

-  Beacon
-  Foundation
-  Landing
-  Parking
-  Main Trail
-  Rec. Trail
-  Wetlands
-  Boundary
-  Stream
-  Stands



# Hartford Town Forest

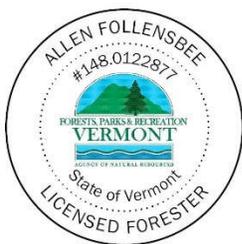
Hartford, Vermont



Map Created By: AJ Follensbee  
Date: 2-27-2020  
Map for planning purposes only.  
Accuracy limited by equipment used.  
Not intended to convey ownership.



# Hartford Town Forest Resource Assessment and Forest Management Plan Hartford, Vermont



Prepared By:  
AJ Follensbee  
Windsor/Orange County Forester  
10-13-2020

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Note: The Glossary at the end of this report defines Forestry Terms used in this report.

## **Introduction and Purpose**

This forest management plan was developed for the town of Hartford at the request of the Hartford Conservation Commission, by AJ Follensbee, the Windsor/Orange County Forester for the Vermont Department of Forests, Parks and Recreation. The intention of this plan is to describe the resources of the property, to inform and help residents, the Conservation Commission and the Selectboard make sound, science-based decisions about the forest management of the property. This assessment starts with a broad overview of the landscape level resources and then examines specific details about the property. The plan will also serve as a guide to forest management activities on the property. Before management is implemented, input from the community should be gathered. A Vermont licensed forester should be involved during forest management activities taking place on the property.

The Hartford Town Forest is part of the Town-owned Hurricane Watershed. The Hurricane Watershed is made up of the Hartford Town Forest and the Hurricane Forest Wildlife Refuge Park. Total acreage of the watershed is 565-acres. The 142-acre Hurricane Forest Wildlife Refuge Park, primarily dedicated to wildlife and recreation use, is managed by the Hartford Parks and Recreation Department. The Hartford Selectboard authorized the Hartford Conservation Commission to plan for and manage the 423-acre Hartford Town Forest. This assessment and forest management plan focuses on the Hartford Town Forest part of the Watershed.

Since the 1980's, forest management plans for the Hurricane Watershed included inventories and recommendations for the Town Forest and the HFWRP. The Hurricane Forest Wildlife Refuge Park (HFWRP) was largely a 1974 gift from Winsor C. and Bertha C. Brown. The Brown's donated the 118-acre lot that connects to the Town Forest and the Town parcel surrounding Wright Reservoir. However, since the 2011 Forest Management Plan, Hartford is no longer managing the HFWRP parcel for timber. The Upper Valley has few examples of old, lower-elevation forests. Much of the HFWRP is gradually developing old forest characteristics such as large trees, large dead and down and decaying tree stems and forest gaps with younger trees. Based on recommendations by wildlife and conservation biologists in 2010 and Hurricane Watershed habitat-related assessments, the Conservation Commission requested that the Hartford Parks and Recreation Department (HPARD) consider allowing the Hurricane Forest Wildlife Refuge to develop naturally, without timber management including timber harvesting. The HPARD accepted the request. The very long-term vision is a 100+ acre block of unique, old forest. The Hartford Conservation Commission and HPARD should collaborate on vegetation (invasive species control) and trail management (erosion, compaction and hazard tree control) to protect the integrity and resilience of this developing forest.

## Location

The Hartford Town Forest is located in the southeastern part of the Town of Hartford. It is located between Neals Hill and Hurricane Hill. The property can be accessed via Center of Town Road., King's Highway, and Reservoir Road. A parking lot is located in a former log landing at the end of the Class 3 section of Reservoir Rd. This parking lot is near the center of the property and is the main access for recreation and forest management.

This property is mostly forested. The most common forest type on the property is oak-pine-hemlock. The Hartford Town Forest is a working forest with a history of forest management. The latest management took place in 2005-2008. The forests of the property are assessed in greater detail later in the plan.

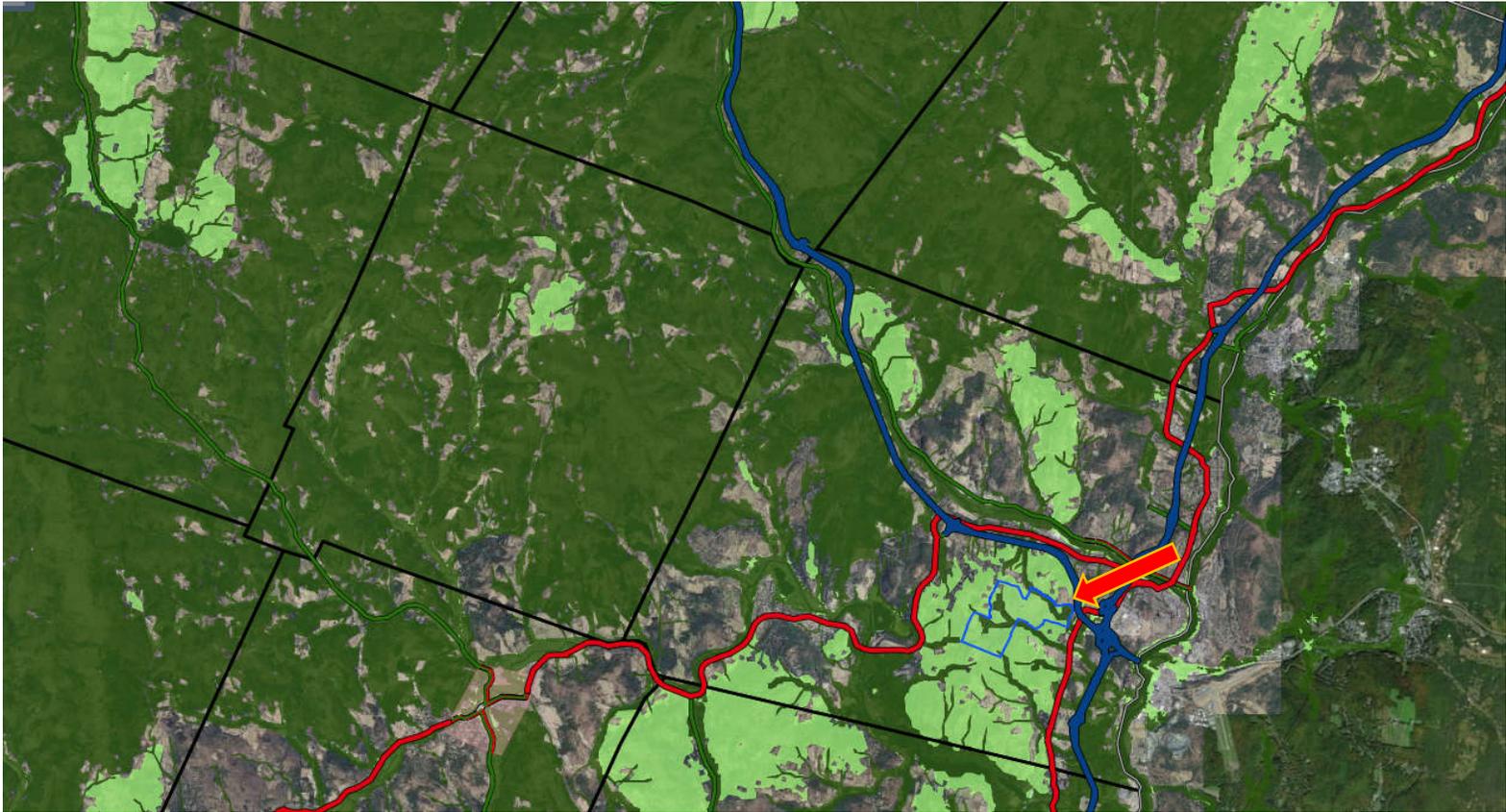
Two former reservoirs on the property are now drained. The former Upper Reservoir still has a shallow  $\frac{3}{4}$ -acre pond. The former Lower Reservoir is nearly completely drained and serves as a nice meadow and open space. There are two main streams that flow through the property and drain from the former reservoirs. They both flow east into Kilburn Brook which flows into the Connecticut River.

There are number of forested wetlands located throughout the forest. They vary in size and in species composition. Several are protected from development as a condition of an Act-250 permit for development of the Maxfield Sports Complex on Route 5 South where some wetlands were converted to recreational playing fields. All forested wetlands on the Town Forest should be protected and will be avoided during timber harvests. These wetlands have the potential to be great study projects for local school groups interested in wetland and forest ecology. Groups could monitor amphibian use and gather information about the plant composition in these wetlands.

This property is well loved by the community. The property is used for hiking, dog walking, mountain biking, snowmobiling, snowshoeing, cross country skiing and other recreational uses.. Due to these uses, there are many trails throughout the property. Some of the trails are small single-track trails and others are wider. Many of the main trails have been historically used as skid trails during logging operations. More information about recreational management of the property can be found in the 2002 Hurricane Town Forest Recreation Management Plan, and the 2020 Recreation Management Plan which is being finalized as of this writing. The latter includes the 2018 SE Group Hartford Town Forest Recreation Plan.

The Property is located in Vermont's Southern Piedmont Biophysical Region. This is an area described in Thompson, Sorensen and Zaino's "Wetland, Woodland, Wildland: A Guide to the Natural Communities of Vermont" as: *A region of low rolling foothills, streams and rivers. It is mostly forested, with small agricultural areas in the fertile river valleys and hills. The soils are generally rich and support northern hardwood forest, oak hickory in the river valleys and pine-oak forest on dryer sites. The Connecticut River is the most dramatic feature in this region. The climate is variable, warmer near the river valleys and colder in the hills. Common animals found in the northern hardwood forests of this region include white-tailed deer, eastern cottontail, porcupine, wild turkey, gray squirrels and forest songbirds.*

## Forest Block



(Map of forest blocks in the town of Hartford and surrounding towns. Light green blocks are priority blocks, dark green blocks are high priority)

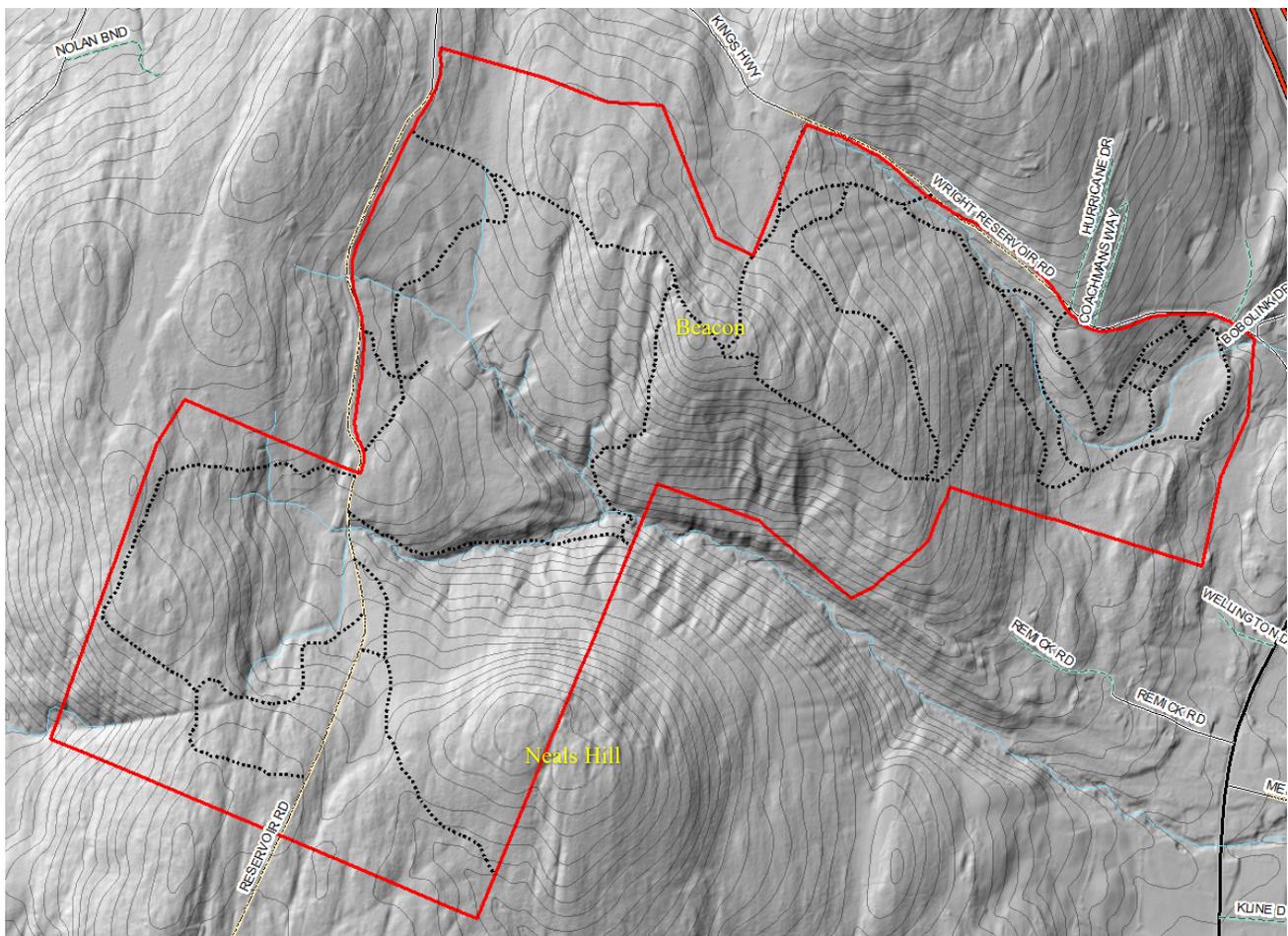
At 565 acres, the Hurricane Watershed consists of two large forested parcels. In the Town of Hartford, large parcels of intact forests are not common. These parcels on their own are providing great interior forest habitat. When zooming out and looking at how this parcel fits in with the surrounding landscape you will find this parcel is part of a 5200 acre contiguous forest block that runs from south of the Ottauquechee River and North Hartland Lake nearly to Route 4 by Exit 1 of I-89. The Vermont Department of Fish and Wildlife's Vermont Conservation Design project ranks this entire block of unfragmented forest as either "priority" or "high priority" for conservation to protect Vermont's ecological functions. This block contains interior forest enriched by water features such as vernal pools and streams. Interior forest habitat blocks provide suitable conditions to support a variety of native plants and animal species and ecological functions. It is important to keep these large blocks unfragmented. A road, house, agricultural fields, or other development splits these forest blocks up into smaller and smaller pieces. The smaller a block gets, the less beneficial they are. Every parcel in the forest block matters. The Hurricane Watershed is an important piece of a larger block.

## Terrain

The elevation of The Watershed ranges from 700' near Wright Reservoir in the Wildlife Refuge to 1,312' at the top of Neals Hill in the Town Forest. The second highest knob is 1,271' at "The Beacon", a decommissioned Federal Aviation Administration tower located on the border of the Town Forest and the Wildlife Refuge.

Although the terrain of the Town Forest is generally gentle to moderately sloping, about one fifth has slopes steeper than 25%. These steep areas are difficult to use sustainably because erosion potential increases dramatically as slopes increase. The area from The Beacon, southerly down to the stream and tributaries that drain the former reservoirs and up to the top of Neals Hill is the largest steep section. The southwest corner of the property is also steep on both sides of a small stream draining towards the Ottauquechee River. The aspect of most of the forest is southeasterly. The operability of the parcel overall is good and except for steep and wet sections will not hinder timber harvesting in a significant manner.

Below is a figure showing the elevation of the property with LIDAR imagery and contour lines. LIDAR imagery strips the ground of vegetation showing what the ground conditions look like.



## **Operations**

The Town Forest has a robust trail system. Many of the main trails were once used as logging skid trails. These trails could be used again in future logging operations as long as the damage to these trails is kept to a minimum. Logging requires the use of big equipment. Having this equipment on site is a great opportunity to build trails, maintain trails and to reroute problem trails. This should be considered during any logging operation.

Log landings are the essential central part of any logging operation. Landings are where harvested wood is usually processed, sorted, stored and loaded onto the trucks that take it to mills. Loggers also store their equipment here when not in the woods. Historically, the Town Forest main landing has been in the larger area where the parking lot and trailhead kiosk now exist. It is at a good (possibly the best on the property) location, centrally located on a good-sized, relatively level, well-drained site right on a town road. This landing can still be used in future operations if it is expanded to compensate for the area lost to parking. However, using this landing during logging operations will significantly disrupt the parking area. Large equipment will be using this area and log trucks will be entering and exiting here consistently. It makes sense to investigate the possibility of locating two new landing sites, one in the north of the property and one in the south. Having two new landings north and south of the parking lot will ensure there is minimal disturbance to recreation users during logging operations. It would make closing down trails and areas being actively logged easier. Installing new landings is something that will have to be investigated further before future logging begins.

## **Boundary Lines**

The boundary lines of the property are generally well marked, meaning there is some evidence marking the line. The boundary evidence includes survey markers, iron pins, blazes, stone walls and old wire fencing. All lines need to be remarked so that they can be easily seen. Former Windsor County Forester and current member of the Hartford Conservation Commission, Jon Bouton recently flagged most of the boundary. This work should be followed up by freshening up the blazes with boundary paint. Records indicate the last time blazes were painted was in 2001 by Harwood Forest Services.

## **History**

The Town Forest has been owned by the Town of Hartford since about 1890. It is the combination of 3 different farms, the Coutermarsh Farm, Marston Farm and the Pease Estate. The reservoirs were installed around 1900 by the Hartford Water Company. These reservoirs provided drinking water for the town until 1950, when a well was installed in Wilder. The last time these reservoirs provided drinking water was in 1971. In the mid 2010's, the dams were in disrepair, the reservoirs were drained and the dams deconstructed.

The Town Forest has a long history of forest management. The first evidence of cutting taking place in the forest is on a 1942 recon map of the property done by Bergstorm. He noted that much of the northern part of the forest, (stands 4 & 5) were "logged off" or "burned over". Southern parts of the property, mostly in stands 2 & 3, have areas marked as "recently cut" or "blowdown".

In 1959, Eugene E. Keenan, a Municipal Forester with the Vermont Department of Forests and Parks marked a timber sale in stands 4 and 5. This work focused on removing hardwood pulp and was intended to clean up areas of blow down from a wind event that occurred sometime in the 1950's. Records indicate this was a tough harvest to sell. The job was eventually contracted to Vermont Prison Industries in November of 1961. This sale removed 160MBF of logs and 93.5 cords. The stumpage paid to the town was \$2,260.

In the mid-1970s Keenan implemented another harvest, this time in stands 2 and 3. This sale was marked in April of 1973 and was targeting over mature and poorly formed white pine. It was sold to Smith Inc. They cut the sale during the winter of 73'-74'. A total of 518MBF of white pine was cut. The stumpage paid to the town was \$23,828

According to the Harwood Forest Services plan written in 1998, Continuous Forest Management of Lebanon NH was hired to write a plan in 1984. The plan indicated that much of the white pine was approaching maturity and should be regenerated with a multi-staged harvest. Continuous Forest Management implemented harvesting throughout most of the Town Forest. This cutting is described in the 1998 Harwood plan as "greatly effecting the amount and intensity of forest management activities in the future as well as the revenue which can be generated from the removal of forest products". From the limited records that could be found in the County Forester's office, 515MBF of saw logs and 1,144 cords were removed during these treatments in the 1980's. Most of the treatments implemented were even aged treatments designed to regenerate parts of the forest.

Butt scars from logging damage, main woods roads, rotting pulpwood hidden by younger trees near the parking lot and forest-wide cohort of 30-70-year-old deciduous trees are some of the evidence of this management history that visitors can be read in the forest.

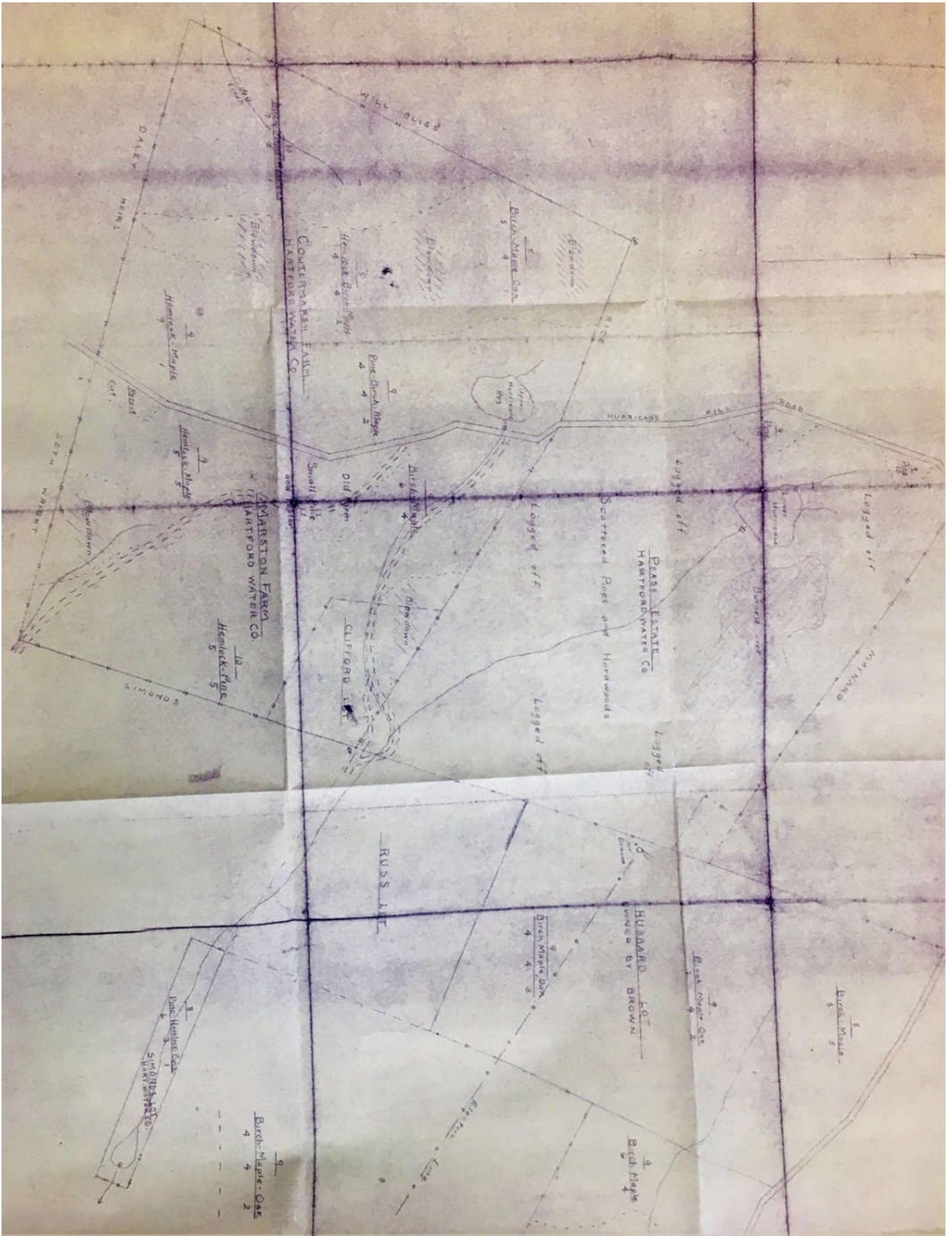
Harwood's 1998 Plan recommended a less dramatic and more natural uneven-aged management strategy. Instead of regenerating large areas of the forest with a single-aged stand of trees, management would keep more large, older trees onsite while creating enough openings to allow younger trees to flourish. Over decades (and perhaps centuries) of periodic partial cuts, the forest develops a more resilient, patchy all-aged character.

He also recommended using low-impact, cut-to-length, forwarder-based logging systems. With these harvesting systems, loggers fell and cut the trees into their final product in the woods. The logs, pulp or fuelwood are hauled to the landing on the back of a wheeled forwarder. Unusable or unmarketable parts of the trees are left in the woods, keeping that organic matter on site. Also, because whole trees or tree-length sections of the main stem are not dragged out behind a skidder, forwarder operations tend to cause less damage to the site and residual trees.

Harwood orchestrated the most recent cuttings done between 2005 and 2008. These two timber sales were cut by Calvin Johnson of Tunbridge, using a cut-to-length system. The cutting took place in stands 1 and 2. Harwood described these treatments as thinnings. The first cutting also salvaged red oak near the southwest corner of the property which blew over in a 2004 fall wind shear event. A total of 5.8MBF of saw logs were removed along with 365 cords. Gross stumpage for this sale was \$35,798.94

This map shows the forest cover of the Town Forest in June 1940. This photo shows areas of disturbance mostly in the central and northern parts of the forest. The grey colors in this map are hardwood trees, the whites and light greys are open fields or areas of disturbance and the dark greys are softwood cover.





(1942 recon draw by Bergstrom)

## Wildlife

Throughout the forest, there are mast bearing trees. Mast trees, such as red oak, beech, black cherry and hickory, grow nuts or fruit that are important food sources for birds and mammals. Maintaining a variety of mast bearing trees will increase the numbers and variety of wildlife on the property. In this forest the most common mast bearing tree is red oak.

There are several old, large trees on the property. Many of these older trees have holes and cracks. These cavity trees are very important to different species of birds and mammals. They serve as nesting sites, provide cover and varied structure. Northern Long Eared Bats (NLEB), a federally-listed threatened species rely on trees with cracks and cavities. These bats will roost in these trees during the summer months.

There are parts of the forest with thick softwood cover. Areas with dense softwood cover are often important winter deer habitat. Softwood stands help keep relatively warm air from radiating out on frigid nights and keep snow from falling to the ground. Deer wintering areas are so important to winter deer survival that The Vermont Fish and Wildlife Dept. has mapped deer wintering areas statewide. Although none of the Hartford Town Forest is mapped as critical deer wintering area. This does not mean the forest is not being used by deer. Deer use is prevalent throughout the property. Deer beds were found throughout and some areas of spring seeps get a lot of use by deer seeking water and nibbles of food where snow has melted back from the relatively warm water surfacing from underground.



(Example of winter deer beds)

Interior forest songbirds can be heard throughout the spring and summer. They are often neotropical migrants that rely on larger, diverse forest blocks in Vermont for their breeding habitat. Oven birds, red eyed vireos, scarlet tanagers and both black-throated green and black-throated blue warblers and are just some of the birds that use interior forest habitats in the Town Forest. Some of Vermont's forest songbird populations are declining due to development in their Caribbean and Central and South American winter habitats. Making sure their summer breeding habitat is the best it can be is an important way to help these species. Improvements to forest structure, including keeping tall older trees, providing mid-story and understory layers of vegetation and even creating patches of dense young trees are all activities that provide habitats for these often-very habitat-specific forest birds. Removing invasive plants and reducing forest fragmentation are also important ways to help our forest songbirds. More information on forest song birds can be found at [Vermont Audubon](#) website and in the Forest Bird Habitat Assessment for the Hartford Town Forest and Hurricane Forest Wildlife Refuge prepared by Steve Hagenbuch of Vermont Audubon in 2010.

## **Invasive Plants**

Non-native invasive plants are plants not native to the ecology of an ecosystem. They were generally brought into our region from Europe or Asia and used as ornamental plants. These plants do not have any of their native competitors or pathogens here, so they grow really well. They can quickly outcompete native plants species for sun light and nutrients. Some can even alter the soil chemistry of an area making it impossible for other plants to grow, creating a monoculture.

The Hartford Conservation Commission has put time, money and energy into keeping invasive plants under control. During the inventory, the only invasive plants noticed were at the Lower Reservoir. A few medium-sized honeysuckle were found near the new meadow. No plants were noticed in the interior forest. This does not mean there are no invasive plants within the forest. Plants could have been missed. The fact that no plants were noticed means that if any plants are present, they are at low levels. Efforts must be made to keep it this way. The property should be monitored annually for invasive plants. Any plants found should be dealt with promptly.

Harvesting done in the forest will increase the sunlight available to the understory. This will increase the likelihood of invasive plants becoming established. Any harvesting done in the forest will have to be mindful of this. Areas harvested should be monitored annually for invasive plants. If any plants are found, they should be dealt with immediately through hand pulling. It is very important to the health and ecology of the forest that invasive plant levels remain low.

## **Forest Health**

Overall, the forests of the Town Forest are healthy. There were some common forest health issues that are widespread throughout Vermont that are found in the Town Forest. The following is a list:

### **Beech Bark Disease**

Beech Bark Disease is unfortunately a common occurrence in the forests of Vermont. It was introduced in Nova Scotia in the early 1900's from Europe. It has worked its way west from there. The pathogen effects the vigor of beech and will eventually lead to mortality. Beech Bark Disease is an attack of a beech scale insect and a fungus in the *nectria* genus. Beech trees infected with Beech Bark Disease will have cankers on the bark. Some beech trees are resistant to this disease and should be protected and managed for. Genetic resistance is the best way to manage for this disease.

### **Ash Yellows and Ash Decline**

Ash trees in the region are experiencing decline. The decline is due to ash yellows and to some extent site and environmental issues. Ash yellows is a disease caused by *Candidatus Phytoplasma fraxini*, a microorganism. This disease can kill infected ash trees within 5-10 years, some trees can survive the disease with only their growth being affected. Decline in ash can also come from environmental factors such as drought, poor soils, fungus and other factors.

### **Red Rot**

Red rot is a fungal disease caused by *Phellinus pini*. Red rot is a common disease in temperate forests, affecting softwood trees. This disease leads to decay within the stem of a tree. The fungus is introduced through wounds or dead stems. It can greatly affect the quality of trees when they are sold for lumber. Highly stocked stands are more susceptible due to competition for resources. Reducing the density of softwood stands is one way to manage for this pathogen.

### **Sugar Maple Borer**

Sugar Maple Borer damage is caused by the larva of long-horned wood boring beetle, *Glycobius speciosus*. This beetle is 25mm in length and has yellow and black coloring, with a distinctive “W” design on the wing cover. Sugar Maple Borer is a native beetle. It rarely causes mortality on its own. The damage is done by the larva of the beetle once the eggs hatch. The larva bores its way through the cambium layer. This damage reduces the value of the tree as well as its structural integrity.

### **White Pine Needle Cast**

White pine needle cast is a relatively new pathogen. This disease was first noticed throughout the northeast in 2010 and has been affecting white pines year after year since. This is a fungal pathogen caused by three different fungi. These fungi effect the second-year needles of pine. Which turn the needles brown in June, then these needles are dropped. This leaves the infected trees with only one set of needles. A healthy white pine tree has 3 years’ worth of needles. This decreases the growth and vigor of trees affected.

### **White Pine Weevil**

White pine weevil is an insect, *Pissodes strobi* that attacks the top leaders of conifers. It lays its eggs in the previous year’s leader. Once the eggs hatch, the grubs tunnel inwards towards the center of the leader, feeding on it. The leader is eventually girdled by the feeding of the grubs, killing the leader. The response of the tree is to develop multiple leaders to replace the dead leader. This ruins the form and quality of the attacked tree and gives the tree a bush like appearance. A weevil infestation rarely results in mortality. Norway spruce, Colorado blue spruce, jack pine, red pine, Scotch pine, mugho pine and native spruces are susceptible to white pine weevil.

### **White Pine Blister Rust**

White pine blister rust is a fungal pathogen. It disrupts the flow of carbohydrates in the cambium layer of the trees it infects through the development of cankers. The fungus infects trees through dead branch stubs or in areas of stem damage. As the canker develops, it slowly girdles the tree, which will eventually lead to mortality. White pine blister rust requires *ribes* as part of its life cycle. *Ribes* eradication is a way to manage this pathogen.

### **Deer Browse**

Deer eating regenerating trees is prevalent throughout the forest. Beech regeneration seems to be being browsed the most. Beech is not a preferred species for deer to eat. They are most likely browsing on beech because other more preferred tree species, like sugar maple or red oak were browsed so much that they were removed from the regeneration. Beech is now the only available

browse left. Getting desirable hardwood regeneration will be a challenge with the current level of deer use found in the forest.

## Regional forest health problems

The following forest health issues are currently found in the state, but were **not** found in the Town Forest. These are significant issues that should be monitored for. If found in Town Forest, their impact will be significant.

### Emerald Ash Borer

Emerald ash borer (EAB) is a beetle native to northern Asia. This insect was first discovered in Detroit in 2002. It has spread rapidly east since then, mostly being moved by humans. EAB will kill infected ash trees by effectively girdling the tree. The larva of EAB feed over the winter in the cambium layer of ash trees. Infested trees will normally die within 5 years. EAB kills 95-99% of the trees it infects. Native ash trees have very little resistance. EAB was found in Vermont in February of 2018 in the town of Orange. It has been discovered in 8 counties as of 2019, Grand Isle, Washington, Windham, Orleans, Orange, Caledonia, Addison and Bennington Counties. On its own, EAB can move 2 miles a year. If it is not moved by humans through firewood or other contaminated wood, the town of Hartford has some time to prepare. In the spring of 2020, EAB was confirmed within 10 miles of the Hartford Town Forest in Plainfield, NH. Because early detection is very difficult, small rapidly-growing EAB populations are likely closer. Consider the devastating impact of this insect on ash trees in any forest planning.

### Hemlock Woolly Adelgid

Hemlock Woolly Adelgid (HWA) is an introduced insect from Asia. It was first found in the Pacific Northwest in the 1920's, then found in northern Virginia in the 1950's. It is currently in southern Vermont, slowly spreading north. HWA can be identified by the tiny wool-like egg masses at the base of hemlock needles. HWA feeds on young twigs causing needles to dry out and fall off the tree prematurely. If heavily infested, a hemlock tree can die within 4 to 6 years. Some trees can survive but have reduced live crowns making the tree less valuable to wildlife that depend on hemlock. Fortunately, frigid weather apparently tends to keep populations low enough to prevent much damage in Vermont. This is changing with warming winters and damaged hemlocks are now found ever further north.

### Oak Wilt

Oak Wilt is a fungal pathogen caused by *Bretziella fagacearum*. This fungus grows in the sap wood of an infected tree. This causes a reaction from the infected tree which clogs conductive tissue further. Eventually, the tree can no longer translocate water which causes the tree to wilt. This pathogen often leads to mortality. For a tree to become infected, the stem must first become damaged. Something as simple as a small saw cut or axe graze is enough for the fungus to enter the tree. Oak Wilt has become a major pest in the central and eastern United States. No known occurrence has been found in Vermont or New England; the closest infestation is in New York state.

## Goals

The objectives for the property are based on what was stated in the 2011 Forest Management Plan. These ownership objectives were the result of two-public meetings. They were developed by Harwood Forest Services by working with the Hartford Conservation Commission, the Hartford Parks and Recreation Director and the Town Planner. The goals and objectives as stated in the 2011 FMP read as follows:

- Maintain a healthy, viable forest resource using sustainable, socially responsible and environmentally sensitive methods.*
- Protect all water resources using acceptable management practices for the benefit of both water quality and riparian wildlife habitat protection.*
- Maintain and enhance wildlife habitat and habitat connectivity.*
- Develop and maintain a multiple use recreational network that respects the users and the related natural ecosystems.*
- Expand the educational uses of the property for youth and adults through cooperation with schools, outdoor groups and professional organizations. Activities within the Watershed should be exemplary and demonstrable.*
- Educational and recreational activities should be exemplary and follow “tread lightly” guidelines.*

The Conservation Commission is adding these goals

- Enhance carbon storage and sequestration.*

The HCC also notes that maintaining wildlife habitat and connectivity is a strategy for a new goal of having a forest resilient to climate change.

## Resources

The forests on the property have been split up into stands. Stands are groups of trees. These trees normally have something in common. Things like species composition, age, topography and operability. Lumping groups of trees together makes it easier to assess the forest and make management decisions. The Town Forest has been split into 5 different forest stands. These stands were separated mostly based on the operability of an area. They are based on the stands that Harwood Forest Service proposed in their 2011 FMP.

A forest resource inventory was done during the winter of 2019-2020, by AJ Follensbee. A total of 150 randomly assigned points were taken using a 10-factor prism. Density, diameters, merchantable heights, tree regeneration coverage, species and coarse woody debris information were gathered at each point. The data was then processed using the State of Vermont’s FOREX forest inventory analysis program. Coarse Woody Debris information was gathered ocularly and given a rating based on the amount at each point, low 1-3 pieces, moderate 3-5 pieces and high 6 + pieces. Tree regeneration information was gathered qualitatively.

## Management Tactics & Objectives

Before each stand is described in detail and prescriptions for each stand are recommended, it is important to discuss what the overarching management philosophy and desired future conditions will be for the property. Any prescribed treatments will take the following into consideration.

### **Carbon Management**

Trees and plants sequester carbon from the atmosphere, storing it in biomass (wood and plant material). This carbon is found in both living and dead biomass in the forest, and a large portion of it can be found in forest soils. Globally, forests are a major carbon “sink,” absorbing and storing large amounts of carbon. Forests can be managed to maximize their carbon sequestration and storage by avoiding large-scale disturbances (such as clearcutting), encouraging the accumulation of dead biomass in the forest, and performing management activities that support the increased health and resilience of the forest, such as the encouragement of structural diversity.

The Town Forest should be managed to support and improve carbon sequestration and storage in the forest whenever possible. Carbon sequestration and storage priorities:

- Avoid creating large-scale disturbances (openings larger than 5 acres).
- Minimize soil disturbance in the course of forest management activities to an extent dictated by responsible silvicultural practices.
- Retain dead biomass in the form of dead-standing and fallen trees and as much coarse and fine woody debris as possible during forest management.
- Retain biological legacy trees of a variety of species throughout the forest.
- Employ uneven-aged and low-impact silvicultural techniques as much as possible to encourage a healthy, diverse, resilient forest.
- Encourage the development of large trees throughout the forest. Allow for some of these large trees to naturally live out their life cycle in the forest.

### **Species and age diversity**

Forests are complex. The forest management to be done in the Town Forest will embrace these complexities and enhance them. Not just one or a group of certain species will be managed for, instead all native plants species will be managed for and promoted where appropriate. This will make the forest more resilient.

A natural forest structure will be managed for. This will be done through uneven aged management. Uneven aged management has been the type of forest management done in the forest for nearly 30 years. Uneven aged management strives to have at least 3 or more ages of trees represented in a stand. The forest will be managed in a way that very old trees can be found in a stand along with very young trees. This will create complex structure throughout the forest.

## **Legacy Trees**

Legacy trees will be retained in any treatment done. These are trees that will be left to complete their life cycle naturally. Trees that will be retained for this purpose will be trees of any species that are healthy and vigorous. This will ensure large trees can be found in the future in Town Forest. There are areas of the forest that can be left more or less alone with no major human manipulation taking place. These areas can be left to naturally develop. Over time an old growth condition will develop. The northern part of stand 1 and the western part of stand 3 would be great places to allow to develop naturally and to leave alone. The forested wetlands on the property are also going to be left to develop naturally, with no forest management taking place in these areas

## **Wildlife Habitat**

Two different reports have been developed looking at the wildlife habitat conditions of the Town Forest. The recommendations from both reports will be incorporated into any forest management prescribed in this plan. The recommendations of each report are as follows.

Audubon Vermont did a Forest Bird Habitat Assessment in 2010. This was done by Steve Hagenbuch. The [report](#) in its entirety can be found on the Hartford Conservation Commissions [website](#). This report listed the following italicized management recommendations to improve forest bird habitat (regular font style is added by HCC for clarity):

- 1) *Enhancement of vegetative structure in the mature interior forest of the Hartford Town Forest that covers approximately 66% of the total Hurricane Watershed acreage. A variety of silvicultural options that are complimentary with timber management objectives exist for doing so.*
- 2) *Maintenance of currently developing patches of early-successional habitat in Upper and Lower Reservoirs and the FAA tower clearing. There may be opportunities, if deemed silviculturally appropriate, in other areas of the Hartford Town Forest where the creation of an additional approximately 7 acres of early-successional habitat would benefit birds that require this condition for nesting and foraging. (These patches may be temporary, in which case new regeneration patches can be created when the old patches grow above the shrub-scrub or sapling stage.)*
- 3) *Protection of the high quality forested wetland Canada warbler habitat in the Hartford Town Forest.*
- 4) *Development of late-successional forest conditions on the Hurricane Forest Wildlife Refuge. This is an uncommon condition in the landscape that would provide ecological and social benefits.*

Alan Thompson of Northern Stewards did a wildlife habitat assessment of the forest in 2011. This [report](#) in its entirety can also be found on the Hartford Conservation Commissions [website](#). In his summary Alan list the following recommendations:

*Current habitat conditions support wildlife using mid-late successional red oak northern hardwoods, small streams and small wetlands. The forest resources are in*

*excellent condition and will continue to mature and develop into late successional conditions. Early successional habitat is lacking and the property does not have a diversity of food or cover resources available for species that prefer or depend on conditions found from early successional hardwoods. Recreational use of the property is likely reducing the use of available habitat as wildlife will avoid humans in all forms of recreation. Off trail excursion and recreation around wetlands are most detrimental. Recommendations for habitat management include:*

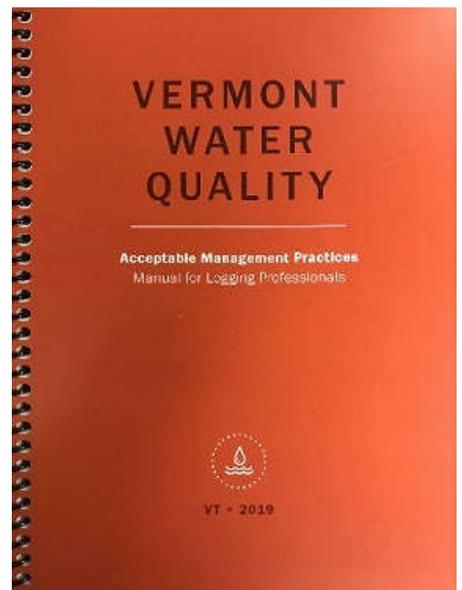
- careful designation for target habitat improvements*
- the creation of early successional habitat in patches >1 acre and at a minimum 5.5 acres in perpetual early successional growth.*
- The immediate implementation of recreational recommendations found within including but not limited to:*
  - Trail closures around Lower Reservoir and modifications at Wright Reservoir to prohibit trails encircling the wetland*
  - Discuss the temporal closing of trails in target habitat areas from March 1st-June 15th*
- Incorporation of recommendations into forest management plan and during every harvest including*
  - the designation of No-harvest management areas*
  - Red oak regeneration methods*
  - No foliar chemical application, if any*

### **Invasive Plant Management**

Prescribed forest management will be mindful of the risks of invasive plants. Following logging activities, areas treated will be monitored for new infestations of invasive plants. Any plants found will be dealt with promptly. In areas where established plants are present prior to harvest, invasive plant control must be part of any silvicultural treatment. In areas where herbicide treatment is necessary to achieve control a Vermont-licensed pesticide applicator must apply the herbicide

### **Water Quality**

There are many water resources on the property. These include wetlands, streams, vernal pools, seeps and the drained reservoirs. All the water resources on the property will be protected during logging activities. This will be done through logging in only frozen conditions, buffering water resources and following Vermont AMP's. The current Vermont Water Quality Acceptable Management Practices Manual for Logging Professionals (AMP'S) will be followed. All logging roads and trails used during logging operations will be closed out to the standard of the AMP manual.



Unless otherwise specified the following general guidelines will be used to achieve the long-term goals:

- The cutting cycle in areas managed will be 20 years.
- 4 cohorts or age classes will be managed for in each stand.
- Long rotations will allow for large trees to develop using the following diameter objectives for the most common species as a guide:
  - White pine 26-30", Red oak 24-28" Sugar maple, 24"-28", Hemlock 24"-28", red maple: 18-22", white ash 16".
- Snag retention and recruitment of snags through planning and girdling, with a goal of 1-3 current snags an acre.
- Coarse woody debris recruitment through deliberately felling trees and leaving them on the forest floor. Goal of 3 stems per acre.
- Leave tops of trees unlopped in groups to deter deer browse.
- Apply for deer fence grant through VT FPR
- Apply VT AMP's during any logging operations
- Increase the amount of early successional habitat overall, by 1-2% of the total public acreage or by 5-10ac

## Stand 1

42 acres

Points Sampled 16

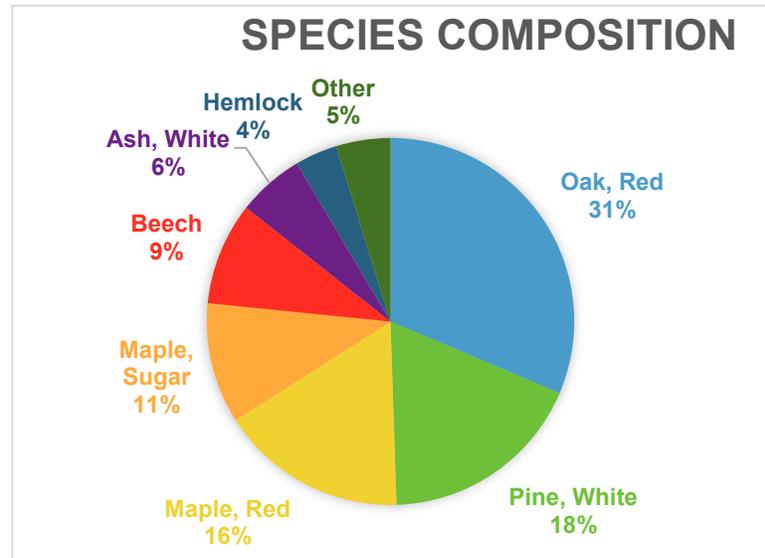
### **Description**

This stand is located in the southwestern portion of the property and is the only hardwood dominated stand. The most common trees found in this stand are red oak, white pine, red maple and sugar maple. The white pine are concentrated in the center of the stand. This area of pine is around 9 ac in size. These pines have been thinned nicely in the past. Overall, they are healthy and of good quality. The most common hardwood species is red oak. The red oak in this stand are impressive. They are large tall trees. Much of them are of saw log quality.

Throughout the stand red maple can be found.

Generally, they are small saw log sized and vary in quality. This stand has the highest concentration of sugar maple. The sugar maple

is mostly concentrated in the northern part of the stand. A forested wetland is also located in this part of the stand. This stand has evidence of past logging throughout.



### Stand Statistics

**Quadratic Mean Stand Diameter:** 14.0"

**Volume:** 6,749bf/ac 7.2 cords/ac

**Basal Area:** 118 ft<sup>2</sup>/ac

**AGS BA:** 72 ft<sup>2</sup>/ac

**UGS BA:** 46 ft<sup>2</sup>/ac

**Trees per Acre:** 179

### **Terrain**

The terrain in this stand tends to be on the steeper side with slopes running from west to east toward Reservoir Road. The steepest terrain is mostly found in the north and south of the stand. Operability is not affected by the terrain. A small stream runs to the southwestern corner of the stand and property. Near this stream the terrain tends to be steeper, sloping towards the stream. Where the stream exits the property the terrain slopes dramatically south and west. This area is the steepest area of the stand and for the most part is inoperable. right at the SW corner is a small micro-site supporting basswood and other plants indicating an enriched northern hardwood site.

One well established recreational trail is found in this stand, West Side Loop. This trail appears to have been used as a skid trail at some point. It still could be used as a skid trail if needed. There are other minor recreational trails throughout the stand, see recreation plan for more details.

## Regeneration

The regeneration in this stand is well established and is made up of beech sapling and seedlings. Other species found were striped maple and white pine.

The amount of coarse woody debris (CWD) found in this stand is low. Out of the 16 points sampled in this stand 7 points reported CWD. Most of the points with CWD reported low amounts. Efforts should be made to increase the amount of CWD found in this stand. This will occur naturally through stand succession.

## History

In looking at the 1940 aerial photo, the southern portion of the stand seems to be more or less intact. The northern portion of the stand appears to be reverting to agricultural fields. According to Paul Harwood's 2009 forest management plan, this stand was last logged in the 2005-2006. This treatment was a commercial thinning and a salvage of roughly 10 ac of damaged trees from a wind event that happened during the fall of 2004. This treatment removed 71,135bf and 109.32cords. The total stumpage of this sale was \$12,284.59. Before this treatment a thinning took place around 1988.

## Soils

There is one soil complex found within this stand. That complex is Glover-Vershire complex, 3-15% slopes very rocky. These are fairly-productive, relatively shallow and somewhat excessively drained soils. This soil complex gives this stand a forest site class of 2 out of 4, with 1 being the best and 4 being the poorest. (see soil report for more details)

## Forest Health

This stand is relatively healthy with few pathogens noticed. Beech bark disease is common in this stand. Some sugar maple have old sugar maple borer damage. Some ash is in decline.

## Invasive Plants

No invasive plants were found with in this stand.

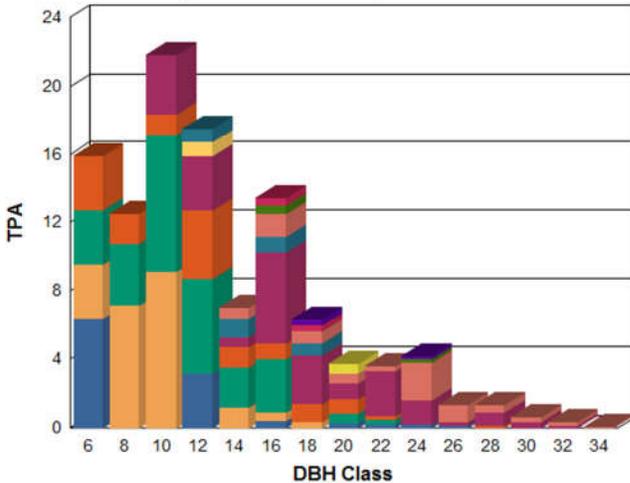
**Species Composition and Volume Table**

Species	Basal Area	%BA	TPA	QMD	RelDen	%AGS	Boardfoot Volume	Pulp Volume (Cords)
Oak, Red	36.88	31.39	21.66	17.67	31.79	89.83	3357.87	0.51
Pine, White	21.25	18.09	7.66	22.55	7.2	52.94	1932.8	3.22
Maple, Red	19.38	16.49	26.64	11.55	15.72	61.29	853.74	0.34
Maple, Sugar	12.5	10.64	14.47	12.59	9.99	45	291.52	0.95
Beech	10.63	9.05	21.49	9.52	8.9	23.53		0.51
Ash, White	6.88	5.86	10.89	10.76	5.58	81.82	200.02	0.24
Hemlock	4.38	3.73	3.57	15	2.07	14.29	48.06	0.69
Cherry, Black	1.25	1.06	0.8	16.93	0.97	50	12.16	0.08
Aspen, Trembling	1.25	1.06	0.65	18.78	0.56			0.24
Aspen, Spp.	1.25	1.06	0.55	20.41	0.56			0.21
Aspen, Big Tooth	1.25	1.06	0.57	20.05	0.56	50	53.29	0.24
Basswood	0.63	0.54	0.8	12.02	0.33			
<b>[ TOTAL ]</b>	<b>117.5</b>	<b>100</b>	<b>109.73</b>	<b>14.01</b>	<b>84.23</b>	<b>60.43</b>	<b>6749.46</b>	<b>7.24</b>

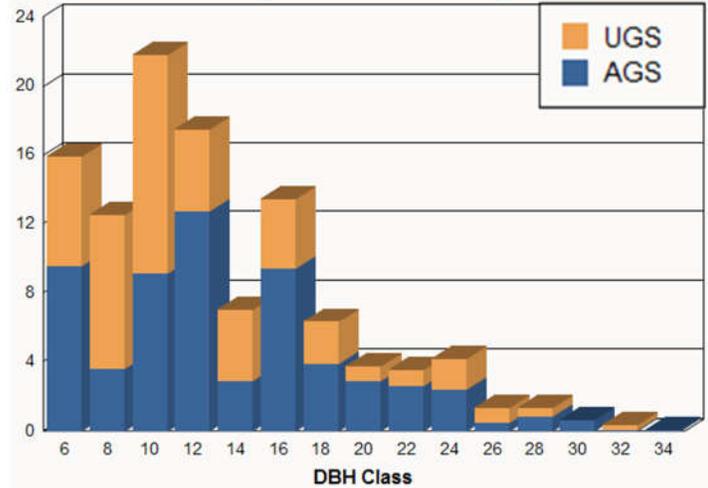
## Stand Structure

This stand is two aged. Meaning the stand has two distinct age classes. There are not quite enough smaller sized trees for this stand to be considered uneven aged. As this stand ages naturally, it will eventually move towards an uneven aged forest. This will happen as new tree regeneration becomes established as overstory trees fall out of the canopy.

Trees Per Acre by DBH Class & Species

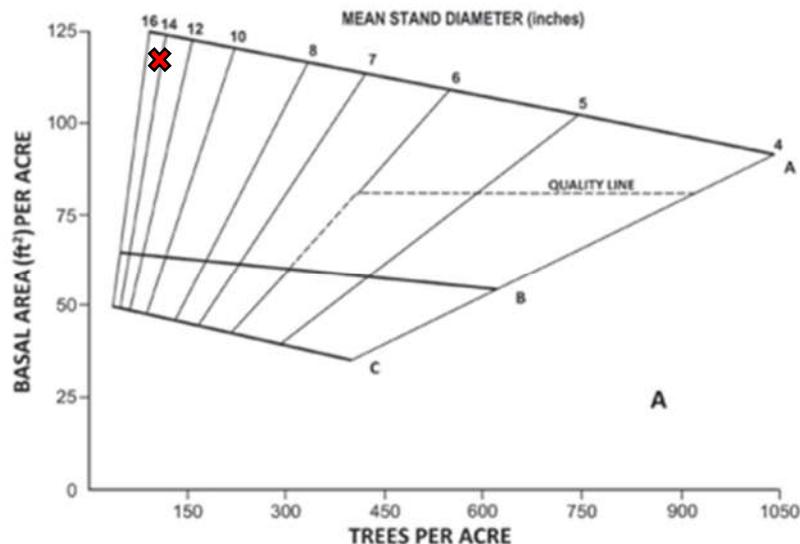


Trees Per Acre by DBH Class & Quality



## Stand Density

This stand is near the A-line of the hardwood stocking chart. This means the overstory of this forest is fully stocked. The trees growing in this stand could use more growing space. This would increase their vigor and growth rate.



The "X" show where the stand density charted out on the hardwood stocking guide according to Silvicultural Guide for Northern Hardwood Types in the Northeast.

## **Silvicultural Management**

This stand can be broken up into 3 different management units. The first unit is in the northern part of the stand. This is an area comprised mostly of northern hardwoods and is the only area on the property that most represents a northern hardwood community dominated with sugar maple. This area also has a forested wetland within it. This area needs little management and should be allowed to develop naturally.

The second management unit is in the center of the stand. This area is made up of white pine. These white pines are the nicest pine in the forest. This area has been actively managed throughout the town's ownership. These pines can continue to be actively managed. A light thinning will give the overstory pine more growing space and release some of the nicer hardwood poles established underneath the pine.

The final management unit is located in the southern part of the property. This area is made up mostly of red oak and has been actively managed in the past. The oaks in this stand would benefit from a light single tree and small group selection treatment. This treatment would give the residual oak more growing space, which would increase the vigor of these stems. The treatment will also release any established regeneration.

## **Treatment**

### **Northern hardwood unit:**

No treatment, allow to develop naturally.

### **Central pine unit: 2025-2028**

Thinning to reduce basal area to 115-100ft<sup>2</sup>/ac. Target white pine for removal that have old logging damage, weak crowns with >30% LCR or are poorly formed. Secondly, remove white pine if competing with desirable hardwoods such as red oak or red maple. Attempt to remove concentrations of beech regeneration through the felling of the overstory or by the location of skid trails. Treating the beech in the understory is not necessary currently.

### **Southern red oak unit: 2025-2028**

Congruent with the pine thinning, implement a single tree and group selection in the southern oak management unit. The single tree selection would be focused on releasing trees of good quality and form, with the main species targeted for release being red oak. The basal area should be reduced to 80-70ft<sup>2</sup>/ac Where well established desirable regeneration is present use small group selection to release. The size of the groups will be dictated by the regeneration being released but should be no bigger than .25 acres. This unit should not have more than 10% of its area in groups.



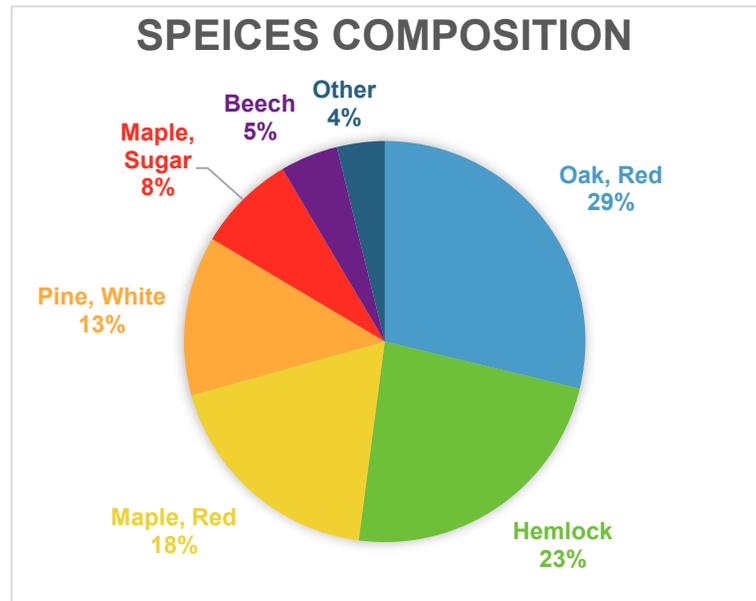
## Stand 2

68 acres

Points Sampled 29

### **Description**

This stand is in the south eastern part of the property. It is a mixed-wood stand made up of mostly hemlock and red oak. Other trees that can be found in this stand are white pine, red maple and sugar maple. The southeastern part of the stand has more of a mixed-wood cover type. In the rest of the stand the cover type is generally either only hardwoods or softwoods. The red oak found in this stand is generally large and of saw log quality. There are fewer white pines in this stand as compared to the other mixed wood stands. The pines that are here are generally large and super dominant. A forested wetland is in the south eastern corner of this stand. There are signs of older logging activities in many parts of this stand.



### **Stand Statistics**

**Quadratic Mean Stand Diameter:** 11.4"

**Volume:** 6,083bf/ac 8cords/ac

**Basal Area:** 126 ft<sup>2</sup>/ac

**AGS BA:** 67ft<sup>2</sup>/ac

**UGS BA:** 59ft<sup>2</sup>/ac

**Trees per Acre:** 179

### **Terrain**

The terrain in this stand is generally rolling and operable. A small stream runs along the north east boundary of the stand. The terrain gets a bit steeper near this stream.

Reservoir Road runs through this stand and exits the property. Three other well established recreational trails are also found with in this stand, Wrights Farm Trail, West Side Loop and South Side Trail. Wrights Farm Trail exits the property in this stand. All main trails appear to have been used as skid trails at some point. They all could still be used as skid trails if needed. There are other minor recreational trails throughout the stand, see recreation plan for more details.

### **Regeneration**

The regeneration in this stand is made up of mostly beech sapling and seedlings. Hemlock, red maple and red oak is also found in the regeneration. Red oak regeneration was found mostly in the southern part of the stand in areas cut during the 2007-2008 harvest. Hemlock was found throughout most of the stand and is generally sapling sized.

The amount of coarse woody debris (CWD) found in this stand is low. Out of the 29 points sampled in this stand 13 points reported CWD. Most of the points with CWD reported low amounts. Efforts should be made to increase the amount of CWD found in this stand. This will occur naturally through stand succession.

### History

This stand appears on the 1940 aerial photo to be more or less intact. With very little visual evidence of disturbance. According to Paul Harwood's 2009 forest management plan, this stand was logged in the early 1990's. The treatment done at that time was a thinning. The latest treatment done in this stand was in 2007-2008. This treatment was a commercial thinning. According to the 2009 management plan this sale produced 122,447bf and 252.73 cords, with a total stumpage receipt of \$23,514.94.

### Soils

There are two similar soil complexes found within this stand. They are Glover-Vershire complex, 3-15% slopes very rocky and Glover-Vershire complex, 15-35% slopes very rocky. Both are fairly productive, relatively shallow and somewhat excessively drained soils. These soil complexes give this stand a forest site class of 2 out of 4, with 1 being the best and 4 being the poorest. (see soil report for more details)

### Forest Health

The white pine in this stand is being affected by red rot and needle cast. The needle cast is not as severe as it is in other stands. Beech bark disease is affecting beech trees in this stand. Most beech trees were showing little resistance to the disease. Some of the sugar maple in the stand had old sugar maple borer damage.

### Invasive Plants

No invasive plants were found within this stand.

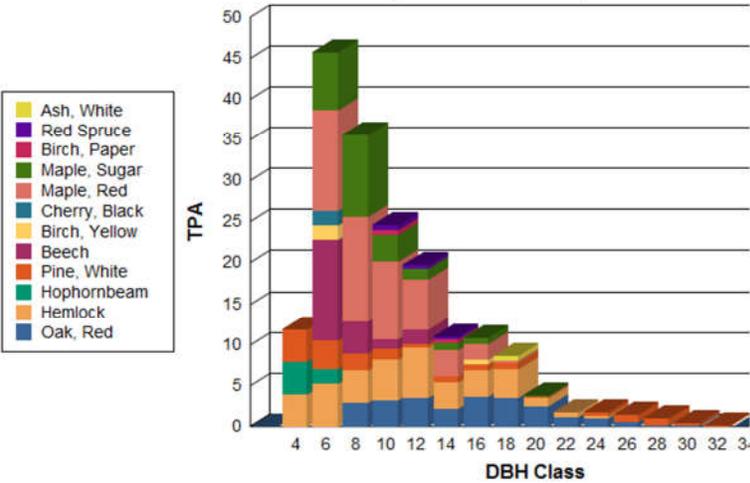
**Species Composition and Volume Table**

Species	Basal Area	%BA	TPA	QMD	RelDen	%AGS	Boardfoot Volume	Pulp Volume (Cords)
Oak, Red	36.21	28.77	24.92	16.32	31.38	54.29	3369.86	0.75
Hemlock	29.31	23.29	36.25	12.18	13.82	18.54	922.84	3.07
Maple, Red	23.45	18.63	46.25	9.64	19.56	19.86	259.82	1.47
Pine, White	16.21	12.88	15.96	13.65	6.15	13.33	1285.91	2
Maple, Sugar	10	7.95	23.25	8.88	8.47	12.28	69.35	0.31
Beech	5.86	4.66	19.27	7.47	5.16	2.94	26.52	0.13
Red Spruce	1.03	0.82	1.39	11.66	0.38	75	87.31	0
Birch, Yellow	1.03	0.82	2.25	9.16	0.86	7.69		0.14
Ash, White	1.03	0.82	0.59	17.89	0.8	12.5	62.02	0.12
Hophornbeam	0.69	0.55	5.71	4.71	0.7			
Birch, Paper	0.69	0.55	0.95	11.54	0.64			0.04
Cherry, Black	0.34	0.27	1.76	5.95	0.32	33.33		
<b>[ TOTAL ]</b>	<b>125.86</b>	<b>100</b>	<b>178.54</b>	<b>11.37</b>	<b>88.24</b>	<b>52.44</b>	<b>6083.62</b>	<b>8.03</b>

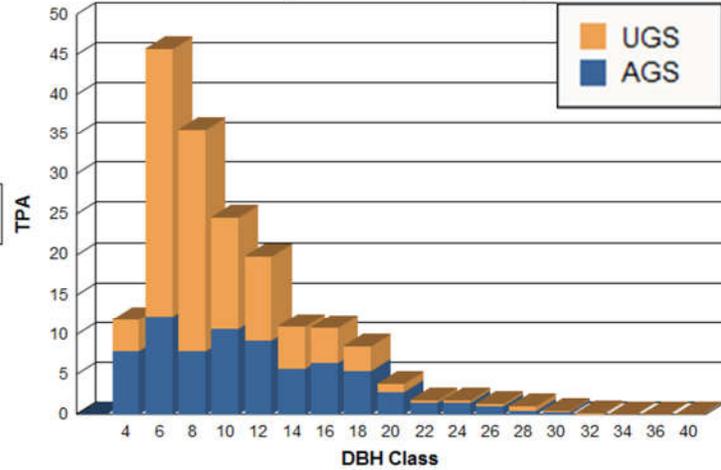
### Stand Structure

This stand is uneven aged. Meaning the stand has three distinct age classes. An uneven aged stand mimics a more natural forest condition.

Trees Per Acre by DBH Class & Species

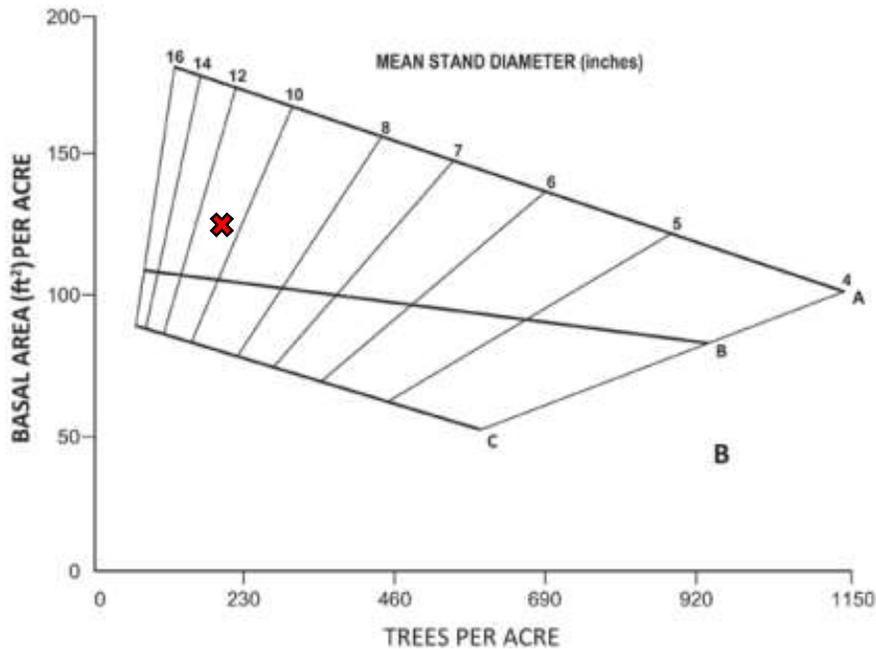


Trees Per Acre by DBH Class & Quality



### Stand Density

This stand is adequately stocked according to the mixed woods stocking chart. This means that trees in the stand have adequate growing space.



The "X" show where the stand density charted out on the mixed wood stocking guide according to Silvicultural Guide for Northern Hardwood Types in the Northeast.

## **Silvicultural Management**

This area was treated 12 years ago. Little work is needed immediately. In another 10 years this stand will be ready for treatment. This stand can be broken up into two management units.

One unit is west of Reservoir road. This unit is made up mostly of hardwoods, with the most common species being red oak, red maple, sugar maple and beech. The hardwoods in this unit would benefit from a single tree and group selection treatment. This treatment would release the quality hardwoods found in the overstory while also attempting to get a better mix of regeneration established.



The other unit in this stand is east of Reservoir Rd. This unit is made up mostly of hemlock and some white pine. This area of stand 2 is being heavily used by deer. Any treatment done in this unit will attempt to enhance the deer wintering functionality. This can be done through small group selection. This treatment will maintain at least 70% crown closer throughout areas treated.

## **Treatment**

### **Western hardwood unit: 2030-2035**

Implement a single tree and group selection. The groups will range from .25ac to 1ac in size with most groups being 0.5 ac. No more than 15% of the unit should be in groups. These groups should be in areas of poor quality or mature trees that have met their diameter objectives. In-between the groups, implement a selection harvest that will reduce the basal area to 80-70ft<sup>2</sup>/ac. Trees that will be targeted for release are red oak and red maple, though all species with good form will be promoted to maintain species diversity.

### **Eastern hemlock unit: 2030-2035**

Implement a light single tree and group selection harvest. Groups will be no larger than 5-6 trees and will make up no more than 10% of the unit. These groups will be in areas of poor quality or existing advance regeneration.

In between the groups, a light single tree selection treatment will be implemented. Reducing the basal area in between the groups to 130-140ft<sup>2</sup>/ac. Poor quality trees or trees that have met their diameter target will be targeted for removal. Mast bearing trees should be a priority for release. Other trees that should be managed for are quality hemlock, red spruce, red maple, though all species should be considered for retention to promote species diversity.

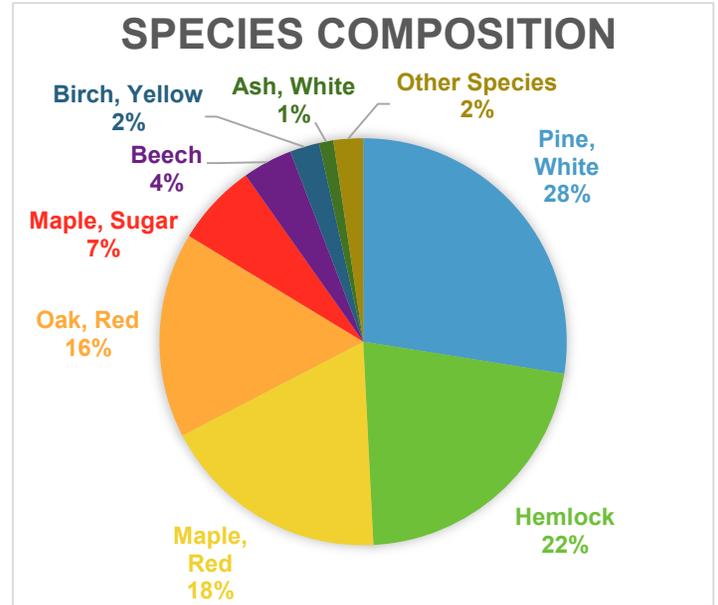
### Stand 3

88 acres

Points Sampled 32

#### **Description**

This stand is located south of the trailhead parking area. The former Upper Reservoir is in the north western part of the stand. Roughly half of this stand's composition is made up of white pine and hemlock. White pine is generally found in the central and western parts of the stand. The white pine in this stand are generally large, of good quality and have a super dominant canopy position. Hemlock in this stand is mostly concentrated in the east and along the stream. The hemlock in this stand is generally poorer in quality and small saw log sized. This hemlock is providing great winter cover for deer. Little evidence of cutting was noticed in the hemlock dominated areas. The most common hardwoods found in this stand are red maple and red oak. The red maple in this stand is generally poorer in quality and small saw log sized. Red oak is more concentrated in areas of pine. An old foundation can be found in the north central part of the stand. Signs of past management is prevalent in most parts of the stand.



#### **Stand Statistics**

**Quadratic Mean Stand Diameter:** 13.06"

**Volume:** 7,155bf/ac 9 cord/ac

**Basal Area:** 134ft<sup>2</sup>/ac

**AGS BA:** 76 ft<sup>2</sup>/ac

**UGS BA:** 58 ft<sup>2</sup>/ac

**Trees per Acre:** 144

#### **Terrain**

This stand borders a major stream in the north. This stream drains from the former reservoir located in this stand. The terrain in the north eastern part of this stand is steep and slopes northerly towards the stream. The rest of the stand is generally gently sloping and operable. This stand encompasses the western slopes of Neals hill, with the peak of Neals hill located in the very south eastern part of the stand.

Running through the center of the stand is Reservoir Road. Two other well established recreational trails are also found within this stand, Wrights Farm Trail and West Side Loop. Both trails appear to have been used as skid trails at some point. Both trails could still be used as skid trails if needed. There are other minor recreational trails throughout the stand, see recreation plan for more details.

## **Regeneration**

The regeneration found in the stand is mostly well established and made up of sapling or pole sized trees. Regeneration is lacking in the more hemlock dominated areas. Beech is the most common species found, but a good mix of other species are present as well. Where more sunlight is available, white pine is common. Other species that can be found are red maple, sugar maple, hemlock, striped maple, red oak and yellow birch. Deer browse is present throughout.

The amount of coarse woody debris (CWD) found in this stand is widespread, but at low amounts. Out of the 32 points sampled in this stand, 22 points reported CWD. Of those 5 reported moderate amounts, one point reported high levels and rest of the points reported low levels of CWD. Efforts should be made to increase the amount of CWD found in this stand. This will occur naturally through stand succession.

## **History**

This stand was last operated in the 1980's. This treatment appears to have been a pine shelterwood. It was concentrated in the south eastern part of the stand. This had mixed results with areas regenerating to beech, red maple and some oak. This regeneration is now sapling to pole sized in this area. There are indications this stand was cut during the harvest in the 60's. The western portion of the stand has a narrow skid trail that would likely have been used by equipment of that era. The 1940 photo shows a relatively large disturbance in the center of the stand. This area is now a mix of pine and hardwoods.

## **Soils**

There are three distinct soil complexes found with in this stand. The most common complex is Glover-Vershire complex, 15-35% slopes very rocky. This complex is fairly productive, relatively shallow and somewhat excessively drained. The next most common complex is found on the northern bank of Neals Hill, it is Vershire-Dummerston complex, 15-25% and 25-60% slopes, rocky. This complex is productive, moderately deep and well drained. Lastly the third complex found in this stand is Vershire-Buckland complex, 8-to 15%. This complex is common south of the reservoir. This complex is productive, moderately deep and well drained. These soil complexes give this stand a forest site class of 1-2 out of 4, with 1 being the best and 4 being the poorest. (see soil report for more details)

## **Forest Health**

Red rot was noticed in some of the pines in this stand. Some pines in this stand have weak crowns due to needle cast. White Pine Blister Rust is present in in this stand. Most beech in this stand have beech bark disease.

## **Invasive Plants**

No invasive plants were found with in this stand.

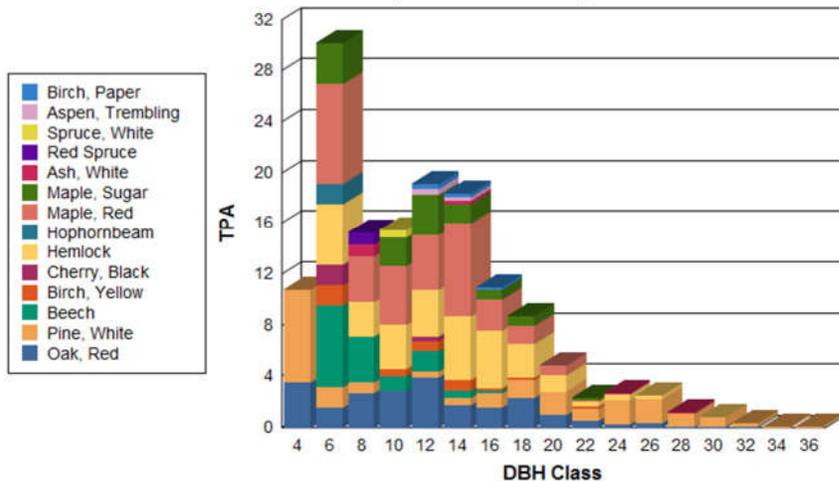
### Species Composition and Volume Table

Species	Basal Area	%BA	TPA	QMD	RelDen	%AGS	Boardfoot Volume	Pulp Volume (Cords)
Pine, White	36.88	27.51	22.02	17.52	12.98	42.07	3314.19	4.22
Hemlock	29.06	21.68	28.93	13.57	13.74	32.12	1394.72	2.05
Maple, Red	24.38	18.19	32.52	11.72	19.69	29.55	653.72	1.37
Oak, Red	21.88	16.32	22.89	13.24	19.21	36.31	1395.63	0.34
Maple, Sugar	8.75	6.53	11.73	11.69	7.07	36.36	257.17	0.31
Beech	5.31	3.96	13.49	8.5	4.54	3.13	6.17	0.14
Birch, Yellow	3.13	2.33	4.36	11.47	2.53	9.09	6.17	0.43
Ash, White	1.56	1.16	1.43	14.14	1.22	57.14	101.57	0.05
Birch, Paper	0.94	0.7	0.91	13.76	0.89	25	25.7	0.08
Cherry, Black	0.63	0.47	1.99	7.62	0.55			0.04
Aspen, Trembling	0.63	0.47	0.69	12.94	0.28	50		0
Spruce, White	0.31	0.23	0.57	9.99	0.13	100		0
Red Spruce	0.31	0.23	0.9	7.95	0.16	25		
Hophornbeam	0.31	0.23	1.59	5.98	0.29			
<b>[ TOTAL ]</b>	<b>134.06</b>	<b>100</b>	<b>144.03</b>	<b>13.06</b>	<b>83.27</b>	<b>56.69</b>	<b>7155.04</b>	<b>9.04</b>

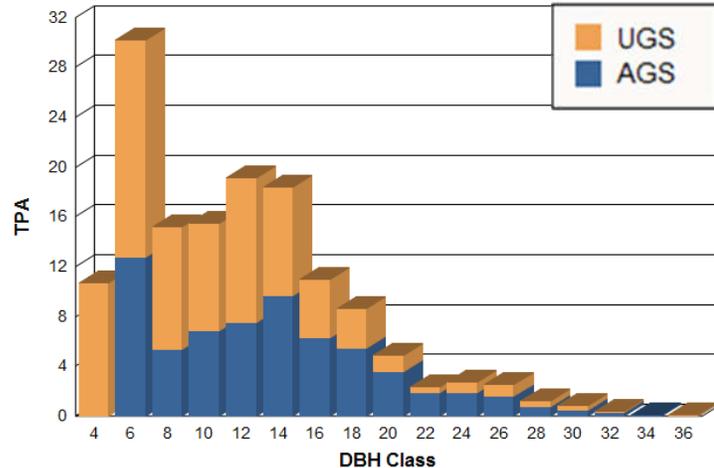
### Stand Structure

This stand is two aged. Meaning the stand has two distinct age classes. There are not quite enough smaller sized trees for this stand to be considered uneven aged. As this stand ages naturally, it will eventually move towards an uneven aged forest. This will happen as new tree regeneration becomes established as overstory trees fall out of the canopy.

Trees Per Acre by DBH Class & Species

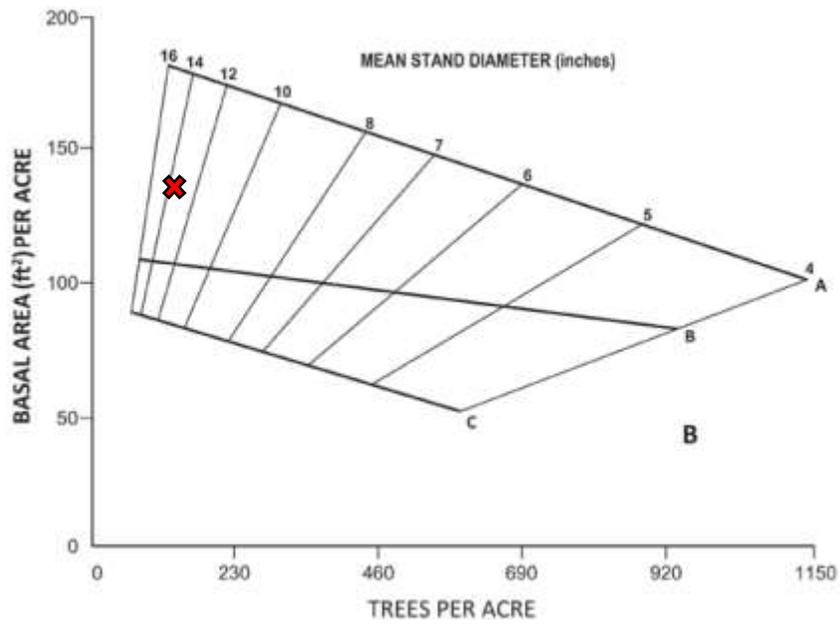


Trees Per Acre by DBH Class & Quality



### Stand Density

When comparing the density to the mixed wood stocking guideline the stand is in between the A-line and B-line. Which according to the chart means this stand is adequately stocked.

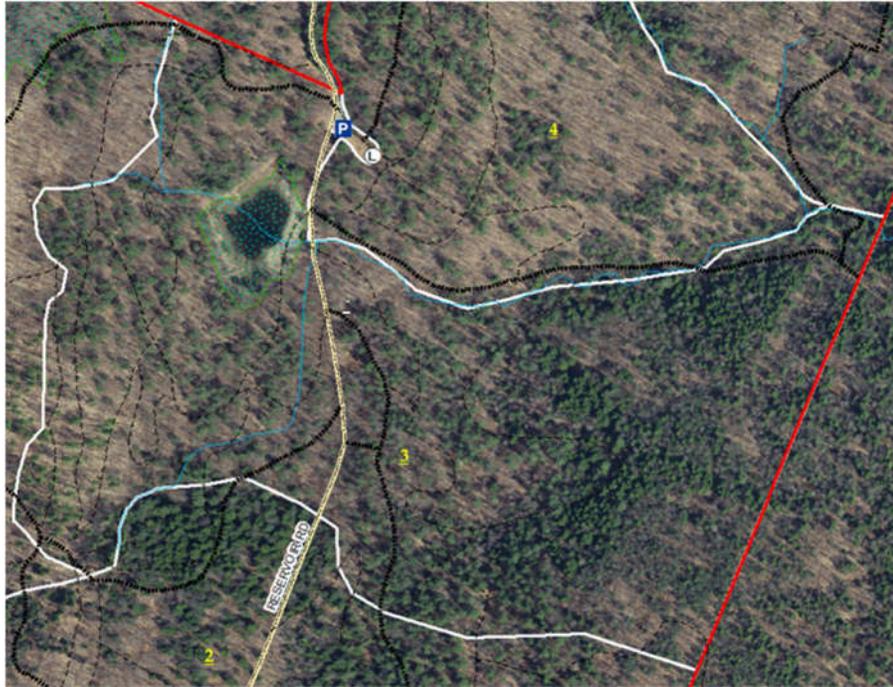


The “X” show where the stand density charted out on the mixed wood stocking guide according to Silvicultural Guide for Northern Hardwood Types in the Northeast.

## **Silvicultural Management**

This stand can be broken up into two different management units. One of the units is the hemlock dominated area in the east of the stand. This area is providing great deer winter habitat. It is also the most remote of any area in the Town Forest. Very few trails run through this area. It is also steep and would be tough to operate in. This area for many reasons is best left untreated.

The second management unit is the pine hardwood area in the west of the stand. Here the pines are being affected by red rot and needle cast. The regeneration although mixed is mostly made up of beech. It is also being browsed by deer. A third of the density in this stand is made up of



undesirable growing stock. A treatment focused on removing unhealthy white pine and poor-quality trees using a group selection treatment with single tree selection in between the groups would recruit a better mix of regeneration and give quality stems more growing space.

## **Treatment**

Western hemlock unit: No treatment

Eastern pine-hardwood unit:2023-2026

Implement a single tree and group selection. The groups will range from .5ac to 2ac in size with most groups being 0.5ac. No more than 15% of the unit should be in groups. These groups should be in areas of poor quality, mature trees that have met their diameter objective or in areas of established regeneration.

The larger groups will help to establish more early successional habitat within the forest. The larger groups should be on the eastern side of Reservoir road. Here the quality of the trees is poorer, and this area is closer to the eastern unit being managed for wildlife. These groups will provide food and cover for many different types of wildlife. Many of which will be using the remote, softwood dense Eastern unit. The target size for the larger groups should be between 1-2ac. Retention within the patch should consist of red oak or other mast bearing trees. Snag recruitment is encouraged within the patch to enhance wildlife habitat.

In-between the groups, implement a selection harvest that will reduce the basal area to 110-100ft<sup>2</sup>/ac. Trees targeted for release should be red oak, white pine and other hardwoods of good form and vigor. Trees targeted for removal will be those directly competing with trees chosen for release and trees of poor quality.

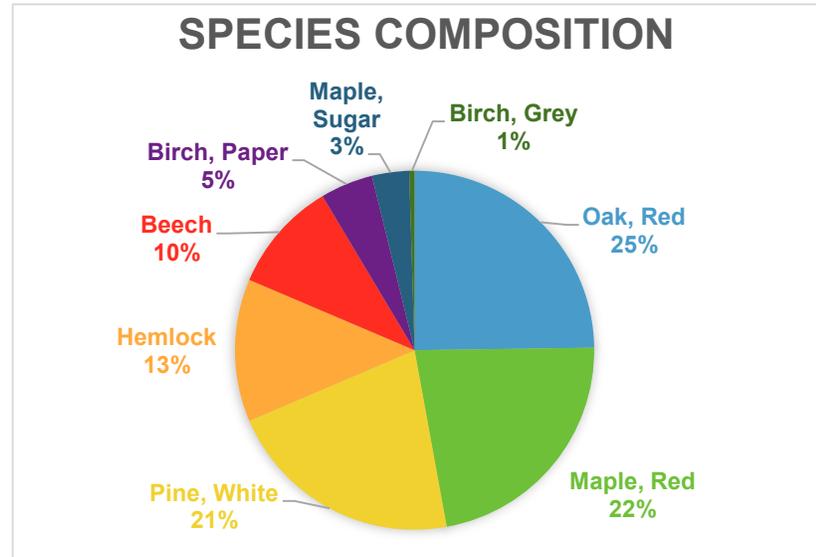
## Stand 4

46 acres

Points Sampled 16

### **Description**

This stand surrounds the parking area and landing. Red oak and red maple are the most common species found in this stand. The red oak varies in size from pole sized to saw logged sized. This stand has the highest amount of pole sized red oak within it. The red maple is generally smaller in size and of poorer quality than the red oak. There are nice saw log quality red maple scattered throughout the stand. White pine is found throughout. The western section of the stand tends to have more pine than the east. In these sections the pine is mixed with hemlock. It appears the last time this stand was harvested was in the 1980's.



### **Stand Statistics**

**Quadratic Mean Stand Diameter:** 12.04"

**Volume:** 4742bf/ac 6.6 cords/ac

**Basal Area:** 131ft<sup>2</sup>/ac

**AGS BA:** 74ft<sup>2</sup>/ac

**UGS BA:** 57 ft<sup>2</sup>/ac

**Trees per Acre:** 166

### **Terrain**

This stand is situated in between two streams, each draining east. Each of these streams drain the former reservoirs. These streams converge in the far eastern part of the stand. The center of the stand is gently rolling and operable. The terrain steepens and steeply falls away near either stream.

This stand has two well-established recreational trails within it, Simond's Way and Moose Brook, constructed in 2000. Simond's Way appears to have been used as a skid trail in the past. If needed Moose Brook could be used for skidding in the future. Simond's Way runs along a stream in the south of the stand. This trail could be used again for logging operations, but it would be best for maintaining water quality if another route for a main skid trail is found. There are other minor recreational trails through out, see recreation plan for more details.

### **Regeneration**

The regeneration in this stand is made up of mostly beech saplings and seedlings. Other species of regeneration found were hemlock and white pine. These were only found in small amounts. The pine regeneration is starting to fade due to a lack of sunlight. There was significant deer browse in parts of this stand in areas providing softwood cover.

The amount of coarse woody debris (CWD) found in this stand is low. Out of the 16 points sampled in this stand half had CWD. Of those 8 points that had CWD, 5 had low levels and 3 had either moderate or high levels of CWD. Efforts should be made to increase the amount of CWD found in this stand. This will occur naturally through stand succession.

### History

A large disturbance can be seen in the northern part of stand 4 on the 1940 aerial photo. This appears to be a large cut of some sort. This part of the stand has more early successional species like paper birch and red oak. These trees are roughly the 80 years old and would date back to this disturbance. It appears given the stumps remaining another cut took place sometime in the 1980's. Besides some more recent cutting around the parking area the stand has not been cut since the 1980's logging operation.

### Soils

There are two distinct soil complexes found with in this stand. The soil complex in the west of the stand near the parking lot Glover-Vershire complex, 3-15% slopes very rocky. This complex is fairly productive, relatively shallow and somewhat excessively drained soil. The second complex is found near the streams that surround this stand. This complex is Vershire-Dummerston complex, 8-15% and 25-60% slopes, rocky. This complex is productive, moderately deep and well drained. These soil complexes give this stand a forest site class of 1-2 out of 4, with 1 being the best and 4 being the poorest. (see soil report for more details)

### Forest Health

The white pine in this stand are being affected by red rot and needle cast. Pines throughout the stand can be found with thin crowns. Beech bark disease is affecting beech trees in this stand. Most beech trees were showing little resistance to the disease. Paper birch in this stand is beginning to decline due to age. Some of the sugar maple have old sugar maple borer damage.

### Invasive Plants

There is a small section of Japanese Knotweed along Reservoir Road that should be dealt with before it expands.

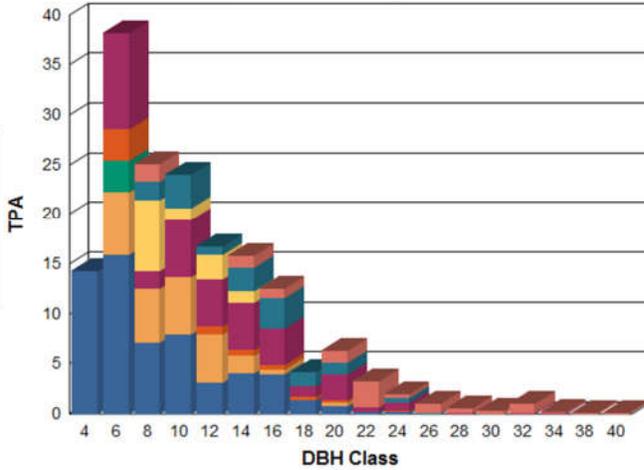
**Species Composition and Volume Table**

Species	Basal Area	%BA	TPA	QMD	RelDen	%AGS	Boardfoot Volume	Pulp Volume (Cords)
Oak, Red	32.5	24.76	35.36	12.98	28.65	94.23	1547.81	0.11
Maple, Red	29.38	22.38	59.44	9.52	24.33	40.43	411.93	1.38
Pine, White	28.13	21.43	10.9	21.75	9.55	66.67	2049.94	2.25
Hemlock	16.88	12.86	14.62	14.55	7.99	37.04	695.54	1.66
Beech	13.13	10	24.73	9.87	10.91	4.76		0.72
Birch, Paper	6.25	4.76	11.86	9.83	5.78	90	36.64	0.06
Maple, Sugar	4.38	3.34	5.85	11.72	3.51	14.29		0.47
Birch, Grey	0.63	0.48	3.18	6.03	0.57			
<b>TOTAL</b>	<b>131.25</b>	<b>100</b>	<b>165.95</b>	<b>12.04</b>	<b>91.29</b>	<b>56.38</b>	<b>4741.85</b>	<b>6.65</b>

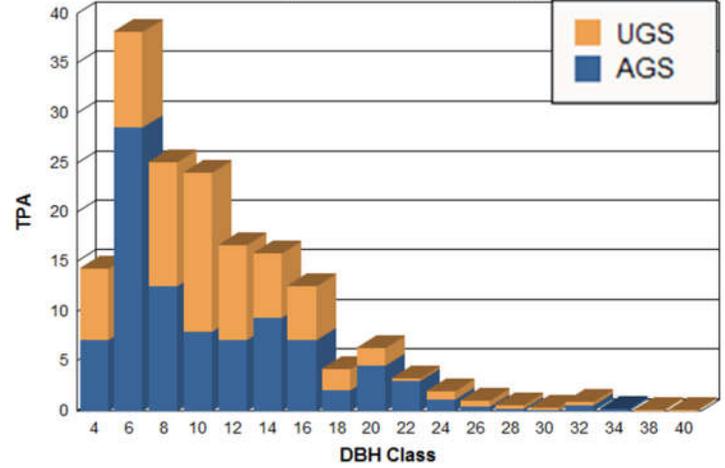
## Stand Structure

This stand is two aged. Meaning the stand has two distinct age classes. There are not quite enough smaller sized trees for this stand to be considered uneven aged. As this stand ages naturally, it will eventually move towards an uneven aged forest. This will happen as new tree regeneration becomes established as overstory trees fall out of the canopy.

Trees Per Acre by DBH Class & Species

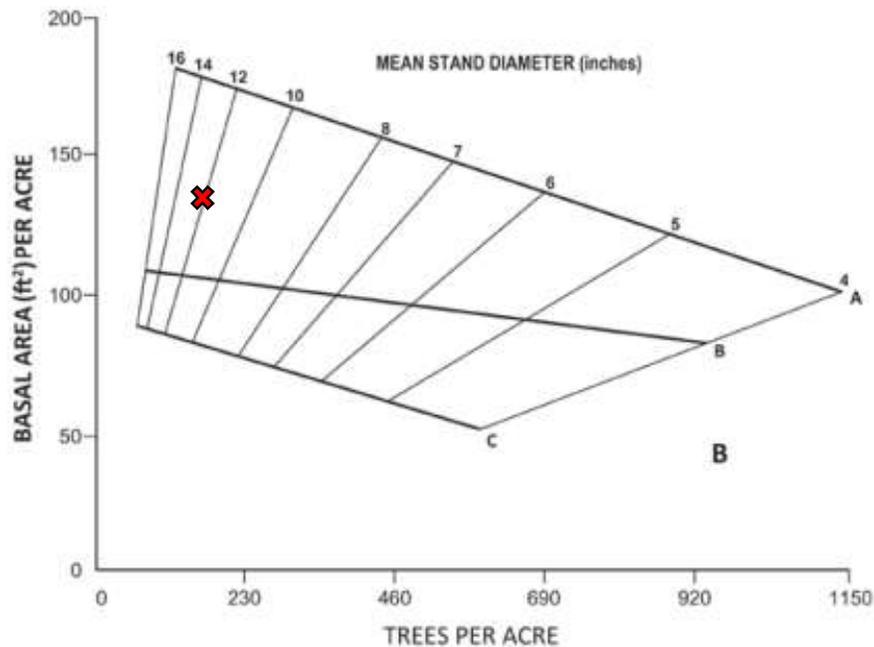


Trees Per Acre by DBH Class & Quality



## Stand Density

When comparing the density to the mixed wood stocking guideline the stand is in between the A-line and B-line. Which according to the chart means this stand is adequately stocked.



The "X" show where the stand density charted out on the mixed wood stocking guide according to Silvicultural Guide for Northern Hardwood Types in the Northeast.

## **Silvicultural Management**

This stand can be broken up into two different management units. One of the units is the hardwood area concentrated in the south eastern part of the stand. Here the soils are a bit wet. The size of the trees are pole to small saw log sized. The composition is made of mostly red oak and red maple. Some very large red oak can be in found this unit. This area would benefit from a light crop tree release. This work could be done pre-commercially by volunteers, the Hartford VOTECH or Game of Logging courses.

The second unit is in the western part of the stand. This unit is dominated by large white pine. Some of the pine are being affected by needle cast so much their growth and health are being affected. There are signs of red rot throughout. This unit lacks viable regeneration. Any treatment done in this stand should attempt to regenerate desirable regeneration. This will be a challenge due to the amount of deer browse in this stand. This unit also surrounds the parking lot and is heavily used by recreationalists. It will be important to keep the feel of this area and maintain the large pines throughout the unit, while attempting to get viable regeneration established.

## **Treatment**

### **Eastern hardwood unit 2020-2030**

Implement a pre-commercial crop tree release. The crop tree release will focus on releasing red oak and red maple. Other hardwoods of good form and quality should also be targeted for release. Attempt to release 30-50 trees an acre. The basal area should not be reduced below the B-line of the hardwood stocking guide.

### **Western pine unit 2021-2024**

Implement a thinning. This thinning should reduce the basal area to 100-120ft<sup>2</sup>/ac. The thinning should target white pine for removal with old logging damage, weak crowns with <30% Live Crown Ratio (LCR) or are poorly formed or declining in health. Secondly remove white pine if competing with desirable hardwoods such as red oak or red maple. Trees to be promoted and released during the thinning are white pine with strong crowns and desirable hardwood with good form.

Attempt to remove concentrations of beech regeneration. This regeneration will adversely affect attempts to regenerate more desirable tree species. This can be done through the felling of the overstory or by the location of skid trails. Treating the beech in the understory with herbicide should also be considered. A licensed pesticide applicator should be consulted when applying herbicides.



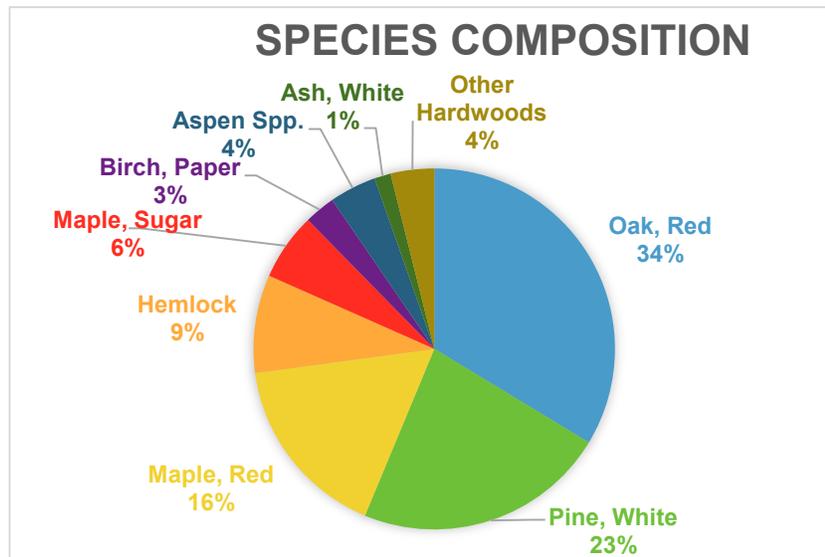
## Stand 5

117 acres

Points Sampled 51

### **Description**

This stand is in the northern part of the property. The former Lower Reservoir is located in the southern part of the stand. The composition here is a variable red oak-white pine-hemlock. White pine and red oak can be found throughout, but there are sections of the stand where one species is more dominant than another. Most of the pines in this stand are large and have a super dominant canopy position. The western part of the stand has denser concentrations of white pine. Red oak varies in size, most are at least small saw log size or larger. Red oak is more dominant in the east. The quality and size of red maple in stand 5 varies and it is found throughout. A concentration of large early successional species can be found in the center of the stand. In this area aspen dominates the overstory. The aspen trees are a mix of trembling and big tooth aspen. Most seem to be in decent health and are large. A forested wetland is in the north western corner of this stand. Some logging appears to have been done in this stand, mostly in the north.



### Stand Statistics

**Quadratic Mean Stand Diameter:** 12"

**Volume:** 5,655bf/ac 4 cords/ac

**Basal Area:** 118ft<sup>2</sup>/ac

**AGS BA:** 73ft<sup>2</sup>/ac

**UGS BA:** 45 ft<sup>2</sup>/ac

**Trees per Acre:** 140

### **Terrain**

The terrain in this stand is generally gently rolling and operable. Closer to the former communications tower the terrain is steeper. There are a series of dry swales in the center of the stand as the terrain steepens to the east.

This stand has three well established recreational trails within it, W.B Brown Trail, Pine Drop and Moose Brook Trail. Except for Pine Drop these main trails were old logging trails at one point. There are other minor recreational trails through out, see recreation plan for more details.

### **Regeneration**

Regeneration in this stand is made up mostly of scattered beech saplings and seedlings. There are pockets of white pine seedlings. Though, it is starting to fade due to a lack of sunlight. Other species that can be found in the understory are sugar maple, striped maple, hemlock, aspen and red oak. Deer browse was prevalent throughout but concentrated near areas of hemlock.

The amount of coarse woody debris (CWD) found in this stand is variable. Out of the 52 points sampled in this stand 32 had CWD. Most of the 32 points reported low amounts of CWD, with 7 points reporting moderate to high amounts of CWD. Efforts should be made to increase the amount of CWD found in this stand. This will occur naturally through stand succession.

### **History**

In the center of the stand, near the reservoir there is area of mature early successional species. This same area looks like it was either an open field or cut heavily based on the 1940 aerial photo. The northern section of the stand had harvesting done during the 1980's. This cut appears to have been an oak shelterwood treatment based on the residual stand. According to records this stand was treated in the 1960's. No recent work has been done in this stand.

### **Soils**

There are a few different soil complexes found in this stand. The most common is found throughout the eastern part of the stand, that complex is Glover-Vershire complex, 15-35% slopes, very rocky. This complex is fairly productive, relatively shallow and somewhat excessively drained soils. There are three different soil complexes found in the western part of the stand. The complex just north of the reservoir is Buckland loam, 8-15% slopes very stony. This complex is moderately productive, fairly deep and moderately well drained. The soil complex found along western boundary of the stand is Vershire-Dummerston complex, 8-15% and 25-60% slopes, rocky. This complex is productive, moderately deep and well drained. The last soil complex found in this stand is Cabot silt loam, 0-8% slopes very stony. This complex is fairly shallow, poorly drained and not very productive. These soil complexes give this stand a forest site class of 2 out of 4, with 1 being the best and 4 being the poorest. (see soil report for more details)

### **Forest Health**

The white pine in this stand is being affected by two different pathogens, white pine needle cast and red rot. Many white pine crowns were thin due to needle cast. Some pines were in severe decline due to needle cast. Fruiting bodies of red rot can be found on white pine trees throughout the stand. Most beech trees are showing little resistance to beech bark disease. Some of the aspen had signs of internal rot. This is not uncommon for aspen trees of the size and age of those found in this stand. Paper birch in this stand is beginning to decline due to age.

### **Invasive plants**

No invasive plants were found with in this stand.

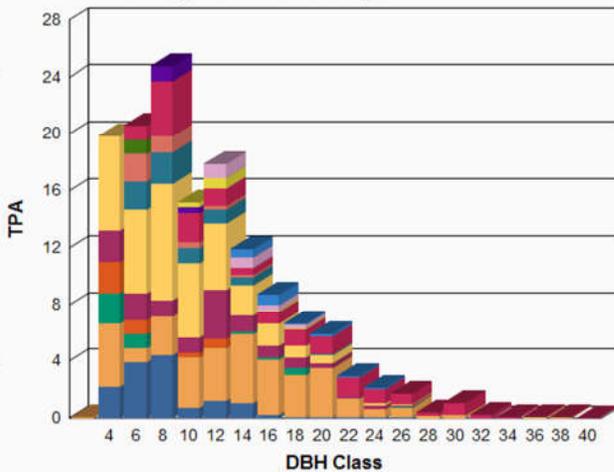
**Species Composition and Volume Table**

Species	Basal Area	%BA	TPA	QMD	RelDen	%AGS	Boardfoot Volume	Pulp Volume (Cords)
Oak, Red	39.81	33.66	33.54	14.75	34.68	87.44	2369.39	0.56
Pine, White	26.73	22.6	16.36	17.31	9.58	69.06	2785.61	1.15
Maple, Red	19.62	16.59	36.11	9.98	16.16	32.35	106.06	0.93
Hemlock	10.38	8.78	13.29	11.97	4.9	31.48	244.47	0.88
Maple, Sugar	7.12	6.02	14.37	9.53	5.89	29.73	51.57	0.28
Birch, Paper	3.27	2.76	6.83	9.37	3.03	64.71	37.68	0.01
Aspen, Trembling	2.5	2.11	2.33	14.03	1.13	46.15	34.9	0.11
Aspen, Big Tooth	2.5	2.11	1.65	16.67	1.13	61.54	42.83	0.14
Ash, White	1.73	1.46	3.99	8.92	1.43	55.56	68.78	0.04
Birch, Yellow	1.54	1.3	3.91	8.5	1.31	75	7.27	0.02
Beech	1.15	0.97	4.27	7.03	1.02			0.04
Aspen, Spp.	1.15	0.97	1.33	12.59	0.52	83.33	14.9	0.02
Cherry, Black	0.58	0.49	1.45	8.56	0.5			
Hophornbeam	0.19	0.16	0.98	5.96	0.18	100		
[ TOTAL ]	<b>118.27</b>	<b>100</b>	<b>140.41</b>	<b>12.43</b>	<b>81.45</b>	<b>61.72</b>	<b>5763.47</b>	<b>4.18</b>

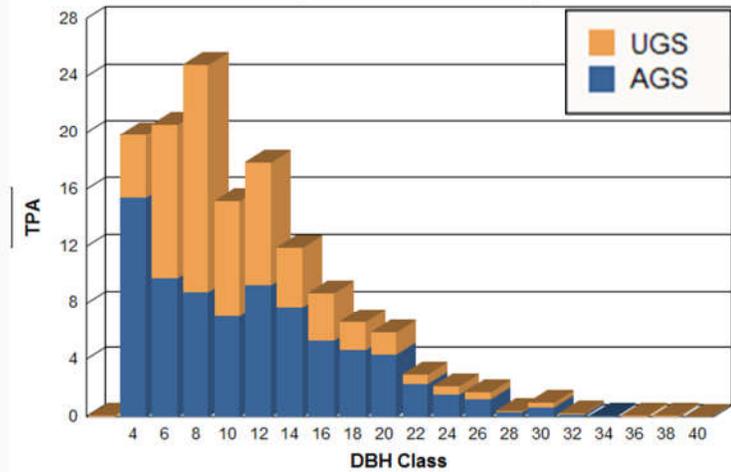
**Stand Structure**

This stand is two aged. Meaning the stand has two distinct age classes. There are not quite enough smaller sized trees for this stand to be considered uneven aged. As this stand ages naturally, it will eventually move towards an uneven aged forest. This will happen as new tree regeneration becomes established as overstory trees fall out of the canopy.

Trees Per Acre by DBH Class & Species

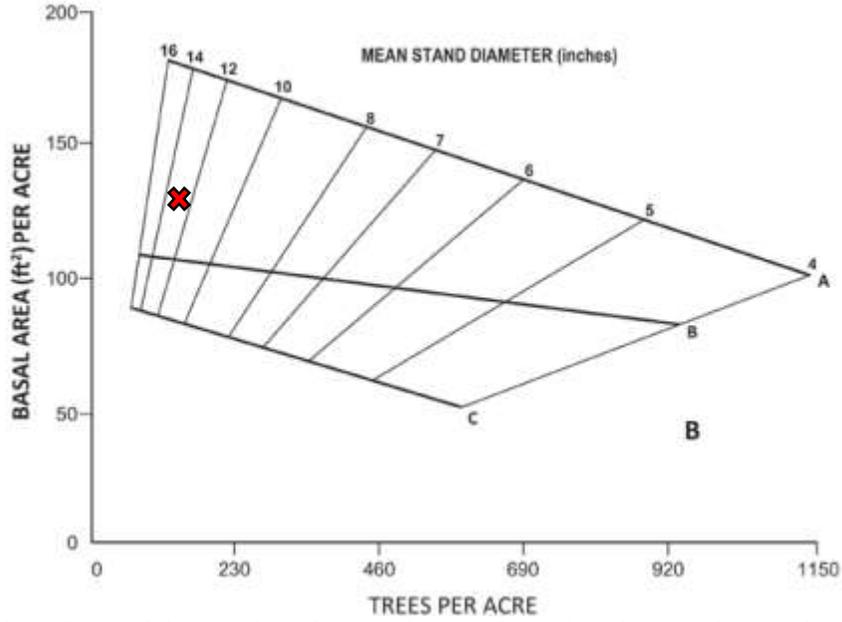


Trees Per Acre by DBH Class & Quality



### Stand Density

When comparing the density to the mixed wood stocking guideline the stand is near the B-line. Which according to the chart means this stand is adequately stocked.



The "X" show where the stand density charted out on the mixed wood stocking guide according to Silvicultural Guide for Northern Hardwood Types in the Northeast.

## **Silvicultural Management**

This stand can be split into three management units. The first unit is the western area of white pine. This area is very similar to the western unit of stand 4. It is essentially an extension of that management unit. Some of the pine in this unit are suffering from needle cast and signs of red rot can be found throughout. Desirable tree regeneration is lacking throughout the stand. This area should be treated in the same manner as stand 4's western unit.

The second management unit is the hardwood dominated areas in the central and southern parts of the stand. This area is a mix of older early successional species and red oak, red maple and sugar maple. The areas of declining early successional species would be a great area to place a patch cut. This patch cut would increase young forest habitat. The aspen found in these areas will sprout quickly achieving the desired habitat faster. The maple and oak areas would benefit from more growing space. A single tree selection would provide the residual stems more growing space. Which will increase their health and vigor.



The final management unit is the hemlock dominated area in the north eastern part of the stand. The overall basal area for the stand is 118ft<sup>2</sup>. The hemlock unit has a higher basal area than the rest of the stand. The tree points taken in this unit have an average basal area of 220ft<sup>2</sup>. This area of hemlock is growing densely and because of this it is currently providing cover for deer. This area should be enhanced and maintained. Any treatment done will maintain at least 70% crown closure throughout areas treated.

## **Treatment**

### **Western pine 2021-2024**

Implement a thinning. This thinning should reduce the basal area to 100-120ft<sup>2</sup>/ac. The thinning should target white pine for removal with old logging damage, weak crowns with <30% LCR or are poorly formed or declining in health. Secondly remove white pine if competing with desirable hardwoods such as red oak or red maple. Trees to be promoted and released during the thinning are white pine with strong crowns and desirable hardwood with good form.

Attempt to remove concentrations of beech regeneration. This regeneration will adversely affect attempts to regenerate more desirable tree species. This can be done through the felling of the overstory or by the location of skid trails. Treating the beech in the understory with herbicide should also be considered. A licensed pesticide applicator should be consulted when applying herbicides.

#### Central hardwood unit 2021-2024

Implement a 2-5ac patch cut in areas dominated with aspen and paper birch. Retention within the patch should consist of red oak or other mast bearing trees. Snag recruitment is encouraged within the patch to enhance wildlife habitat.

#### Central hardwood unit 2025-2030

Implement a single tree and group selection. This single tree selection treatment would be focused on releasing trees of good quality and form, with the main species chosen for release being red oak, red maple and sugar maple. The basal area should be reduced to 80-70ft<sup>2</sup>/ac. Where well-established, desirable regeneration is present use small group selection to release. The size of the groups will be dictated by the regeneration being released but should be no bigger than .25ac. This unit should not have more than 10% of its area in groups.

#### Northeastern hemlock unit: 2025-2030

Implement a light single tree and group selection harvest. Groups will be no larger than 5-6 trees and will make up no more than 10% of the unit. These groups will be in areas of poor quality or existing advance regeneration.

In between the groups a light single tree selection treatment will be implemented. Reducing the basal area in between the groups to 130-140ft<sup>2</sup>/ac. Poor quality trees or trees that have met their diameter target will be targeted for removal. Mast bearing trees should be a priority for release. Other trees that should be managed for are quality hemlock, red spruce, red maple, though all species should be considered for retention to promote species diversity.

## Schedule of Management Activities

(Timing of specific activities may be shifted)

Stand	Activity	Scheduled Year	Priority	Cost	Partner
All	Boundary line maintenance	2020 and every 10 years	High	\$120-\$150 for paint	Volunteers/ County Forester
All	Monitor for invasive plants	Annual	High	None	Volunteers, County Forester, Hartford Vo Tech
All	Invasive plant removal	Ongoing	High	None (based on current low levels of plants)	Volunteers, Hartford Vo Tech
All	Trail maintenance	Ongoing	High	Variable	Volunteers, VYCC, Trail user groups
Lower Reservoir meadow	Mow	Annual	Medium	\$100	
5	Thin western pine unit	2021-2024	Medium	None, revenue positive	County Forester
5	Patch Cut hardwood unit	2021-2024	Low	None, revenue positive	County Forester
4	Thin western pine unit	2021-2024	Medium	None, revenue positive	County Forester
4	Pre-commercial crop tree release eastern hardwood unit	2020-2030	Low	None	Hartford Vo Tech, VWA,
3	Single tree and group selection harvest western pine-oak unit	2023-2026	Medium	None, revenue positive	County Forester
5	Single tree and group selection harvest central hardwood unit & northern hemlock unit	2025-2030	Medium	None, revenue positive	County Forester
1	- Thin pine unit - Selection harvest red oak unit	2025-2028	Medium	None, revenue positive	County Forester
2	Single tree and group selection harvest all units	2030-2035	Medium	None, revenue positive	County Forester
All	Update forest management plan	2030	High		Vermont licensed forester

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## Glossary

**AGS:** Acceptable Growing Stock (AGS) is a classification given to trees in a stand which are considered healthy and capable of producing a saw log now or sometime in the future.

**Age Class:** See “Cohort.”

**Cable Skidder:** A skidder which uses a cable winch to drag trees out of the forest. These skidders are generally smaller and lighter than skidding equipment used by whole-tree logging crews.

**Cohort:** A group or generation of trees of generally the same age, often initiating from the same disturbance event.

**Composition:** The proportion of trees of different species present in a given forest or stand.

**Cover Type/Forest Type:** A classification given to a stand based on the dominant tree species present at a given moment in time.

**Cut to length system:** A method of logging where trees are processed at the stump into log lengths. Normally this system uses a forwarder to the haul logs to a landing.

**DBH:** Diameter at Breast Height – the diameter measurement of the trunk of a tree 4.5’ above the ground. DBH is the standard system for measuring tree diameter in forestry.

**Even-Aged:** A stand comprised of trees of a single age class (cohort), usually resulting from a single disturbance event.

**Forwarder:** Logging equipment used to haul logs to the landing. This equipment picks up logs, places them in its bunk and are carried instead of dragged to the log landing.

**Harvest:** The process of cutting trees to extract forest products from the woods.

**Intermediate:** The canopy position of trees who have been over-topped by other stems, but are still receiving some direct light from above. These stems are generally higher in quality than suppressed trees, and in the case of shade-tolerant species may be healthy, but overall, they are poor in condition.

**Group Selection:** This treatment system involves harvesting all stems in a small area, usually no greater than 1 acre in size. These areas in which all trees are harvested are called “groups,” and may be as small as 2-3 trees in size. The goal for these groups is to regenerate a new cohort of trees or to release existing regeneration. Usually, these groups will regenerate a portion of a stand in proportion to the frequency of cutting and the rotation age of the stand. For instance, in a stand with a cutting cycle (frequency) of 20 years and a target rotation age of 100 years, 20% of the stand would be regenerated using groups each time cutting is done. This way, by the time the full rotation age has passed, all areas have been regenerated and there are 5 age classes of trees in the forest. In reality, a fully-balanced age-class distribution would be next to impossible to achieve, but this is the general goal of this system.

**Landing:** A cleared area where logs are yarded or skidded to for loading onto trucks for transport to the mill.

**Midstory:** Trees with a canopy position below the overstory, but above the understory in a stand. The midstory of a forest usually consists of suppressed and intermediate stems and/or slow growing or shade tolerant species.

**Natural Community:** An assemblage of biotic/abiotic factors in an environment, and the processes that govern them. Natural communities consist of all levels of biota in a forest and consider how forest composition and structure changes over time.

**Overstory:** The highest canopy position of trees in a forest. Overstory trees are generally those whose crowns are exposed to full or nearly full light.

**Pole:** An immature tree generally 4"-10" DBH

**Prescription:** A silvicultural strategy for how to manage a stand to achieve a desired result. A prescription will detail exactly how to harvest a forest, including providing metrics for the residual stand, and a detailed description of trees to be cut and those to be retained.

**Release:** The process of removing competing trees, allowing released trees to grow more freely.

**Regeneration:** Young trees and plants (usually less than 4" DBH) in the forest, often growing in response to a human-caused or natural disturbance event.

**Sapling:** An immature tree generally 2-4" DBH.

**Stem:** A word used in forestry to refer to the main bole of a tree.

**Silviculture:** The art and science of tending a forested stand, generally using timber harvesting as a tool.

**Single Tree Selection:** This treatment harvests trees of all age classes in a stand to encourage the growth of higher quality stems and the establishment of regeneration of shade-tolerant tree species. This treatment can also be used to ensure that there is an even distribution of trees of different species throughout the stand. This treatment is often employed between groups as part of uneven-aged management.

**Skidder:** A tractor-like machine, used to drag or "skid" trees out of the forest.

**Stand:** An area of forest in a similar enough condition, with regards to structure, composition, history and other factors, to be managed as a single unit.

**Structure:** In a forestry context, structure describes the presence of different age classes and canopy heights within a stand. Vertical structure is comprised of trees of different heights interspersed throughout an area, whereas horizontal structure described the presence of pockets of trees of different ages. In uneven-aged management, single tree selection usually encourages the creation vertical structure, whereas group selection creates horizontal structure. Structure may also describe the arrangement of dead wood across in a forest.

**Succession:** The process by which trees in a forest move from one generation and condition to the next. "Early successional" stands are those that establish following a disturbance, stocked by shade-intolerant and pioneer species, while "late-successional" (sometimes used interchangeably with "old-growth") stands, occur when stands have developed into older forest types, often stocked by larger, older trees of shade-tolerant species and a more complex, uneven-aged structure.

**Suppressed:** Trees which have been completely overtopped by overstory stems, receiving little to no direct sunlight, are considered "suppressed." Except in the cases of very shade-tolerant species, suppressed trees are often stunted and poor in quality.

**Timber:** Timber is used to describe the forest products (saw logs, pulp, firewood, etc.) located inside the standing trees present in the forest. This word is sometimes also used to describe these products after the trees have been cut but before they have been processed or milled.

**Treatment:** A silviculturally planned and executed timber harvest.

**Two-aged:** A stand which is comprised of two distinct age classes. This is a common condition in managed forests, as the overstory is often targeted for logging, regenerating a new understory cohort while retaining some overstory trees.

**UGS:** Unacceptable Growing Stock (UGS) is a classification given to unhealthy or crooked trees unlikely to live long or to produce a saw log in the future.

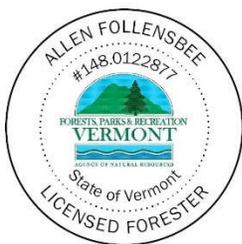
**Uneven-aged:** A stand comprised of three or more distinct age classes of trees. This forest type is common in undisturbed and “old-growth/late successional” forests.

**Uneven-age management:** This management system seeks to emulate natural disturbance regimes and natural forest growth patterns by establishing and maintaining multiple age classes of trees within a single stand.

**Understory:** Trees located at the lowest canopy positions in the forest, usually consisting of very young stems less than 10’ in height.

**Whole-Tree Logging:** A type of logging that utilizes large, mechanized machinery to process trees from the stump up. Whole trees are dragged from the stump to a log landing where they are processed into a variety of products, usually including wood chips from stems with little saw log value, tops and limbs.

# Hartford Town Forest Resource Assessment and Forest Management Plan Hartford, Vermont



Prepared By:  
AJ Follensbee  
Windsor/Orange County Forester  
10-13-2020



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Note: The Glossary at the end of this report defines Forestry Terms used in this report.

## **Introduction and Purpose**

This forest management plan was developed for the town of Hartford at the request of the Hartford Conservation Commission, by AJ Follensbee, the Windsor/Orange County Forester for the Vermont Department of Forests, Parks and Recreation. The intention of this plan is to describe the resources of the property, to inform and help residents, the Conservation Commission and the Selectboard make sound, science-based decisions about the forest management of the property. This assessment starts with a broad overview of the landscape level resources and then examines specific details about the property. The plan will also serve as a guide to forest management activities on the property. Before management is implemented, input from the community should be gathered. A Vermont licensed forester should be involved during forest management activities taking place on the property.

The Hartford Town Forest is part of the Town-owned Hurricane Watershed. The Hurricane Watershed is made up of the Hartford Town Forest and the Hurricane Forest Wildlife Refuge Park. Total acreage of the watershed is 565-acres. The 142-acre Hurricane Forest Wildlife Refuge Park, primarily dedicated to wildlife and recreation use, is managed by the Hartford Parks and Recreation Department. The Hartford Selectboard authorized the Hartford Conservation Commission to plan for and manage the 423-acre Hartford Town Forest. This assessment and forest management plan focuses on the Hartford Town Forest part of the Watershed.

Since the 1980's, forest management plans for the Hurricane Watershed included inventories and recommendations for the Town Forest and the HFWRP. The Hurricane Forest Wildlife Refuge Park (HFWRP) was largely a 1974 gift from Winsor C. and Bertha C. Brown. The Brown's donated the 118-acre lot that connects to the Town Forest and the Town parcel surrounding Wright Reservoir. However, since the 2011 Forest Management Plan, Hartford is no longer managing the HFWRP parcel for timber. The Upper Valley has few examples of old, lower-elevation forests. Much of the HFWRP is gradually developing old forest characteristics such as large trees, large dead and down and decaying tree stems and forest gaps with younger trees. Based on recommendations by wildlife and conservation biologists in 2010 and Hurricane Watershed habitat-related assessments, the Conservation Commission requested that the Hartford Parks and Recreation Department (HPARD) consider allowing the Hurricane Forest Wildlife Refuge to develop naturally, without timber management including timber harvesting. The HPARD accepted the request. The very long-term vision is a 100+ acre block of unique, old forest. The Hartford Conservation Commission and HPARD should collaborate on vegetation (invasive species control) and trail management (erosion, compaction and hazard tree control) to protect the integrity and resilience of this developing forest.

## Location

The Hartford Town Forest is located in the southeastern part of the Town of Hartford. It is located between Neals Hill and Hurricane Hill. The property can be accessed via Center of Town Road., King's Highway, and Reservoir Road. A parking lot is located in a former log landing at the end of the Class 3 section of Reservoir Rd. This parking lot is near the center of the property and is the main access for recreation and forest management.

This property is mostly forested. The most common forest type on the property is oak-pine-hemlock. The Hartford Town Forest is a working forest with a history of forest management. The latest management took place in 2005-2008. The forests of the property are assessed in greater detail later in the plan.

Two former reservoirs on the property are now drained. The former Upper Reservoir still has a shallow  $\frac{3}{4}$ -acre pond. The former Lower Reservoir is nearly completely drained and serves as a nice meadow and open space. There are two main streams that flow through the property and drain from the former reservoirs. They both flow east into Kilburn Brook which flows into the Connecticut River.

There are number of forested wetlands located throughout the forest. They vary in size and in species composition. Several are protected from development as a condition of an Act-250 permit for development of the Maxfield Sports Complex on Route 5 South where some wetlands were converted to recreational playing fields. All forested wetlands on the Town Forest should be protected and will be avoided during timber harvests. These wetlands have the potential to be great study projects for local school groups interested in wetland and forest ecology. Groups could monitor amphibian use and gather information about the plant composition in these wetlands.

This property is well loved by the community. The property is used for hiking, dog walking, mountain biking, snowmobiling, snowshoeing, cross country skiing and other recreational uses.. Due to these uses, there are many trails throughout the property. Some of the trails are small single-track trails and others are wider. Many of the main trails have been historically used as skid trails during logging operations. More information about recreational management of the property can be found in the 2002 Hurricane Town Forest Recreation Management Plan, and the 2020 Recreation Management Plan which is being finalized as of this writing. The latter includes the 2018 SE Group Hartford Town Forest Recreation Plan.

The Property is located in Vermont's Southern Piedmont Biophysical Region. This is an area described in Thompson, Sorensen and Zaino's "Wetland, Woodland, Wildland: A Guide to the Natural Communities of Vermont" as: *A region of low rolling foothills, streams and rivers. It is mostly forested, with small agricultural areas in the fertile river valleys and hills. The soils are generally rich and support northern hardwood forest, oak hickory in the river valleys and pine-oak forest on dryer sites. The Connecticut River is the most dramatic feature in this region. The climate is variable, warmer near the river valleys and colder in the hills. Common animals found in the northern hardwood forests of this region include white-tailed deer, eastern cottontail, porcupine, wild turkey, gray squirrels and forest songbirds.*

## Forest Block



(Map of forest blocks in the town of Hartford and surrounding towns. Light green blocks are priority blocks, dark green blocks are high priority)

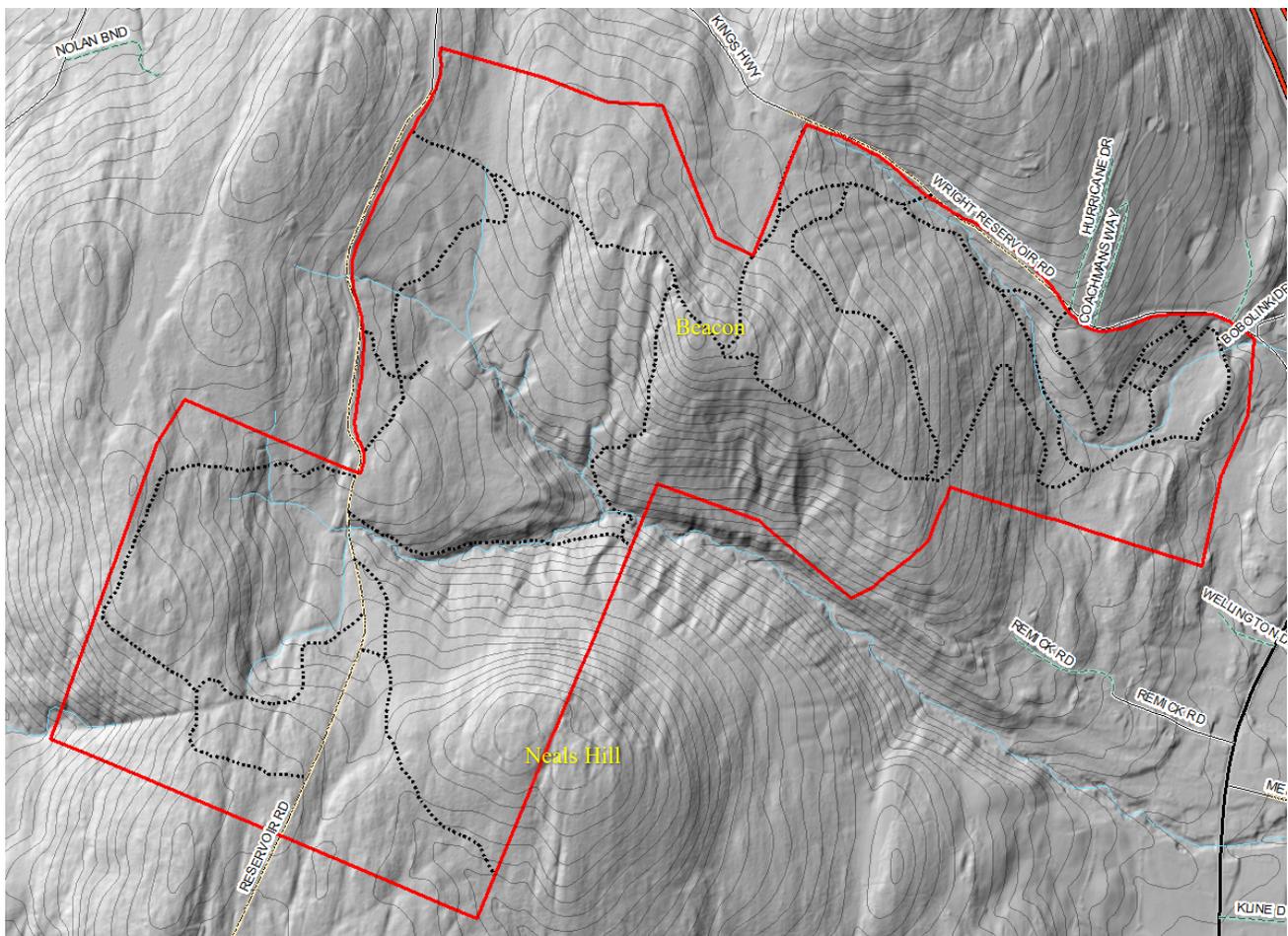
At 565 acres, the Hurricane Watershed consists of two large forested parcels. In the Town of Hartford, large parcels of intact forests are not common. These parcels on their own are providing great interior forest habitat. When zooming out and looking at how this parcel fits in with the surrounding landscape you will find this parcel is part of a 5200 acre contiguous forest block that runs from south of the Ottauquechee River and North Hartland Lake nearly to Route 4 by Exit 1 of I-89. The Vermont Department of Fish and Wildlife's Vermont Conservation Design project ranks this entire block of unfragmented forest as either "priority" or "high priority" for conservation to protect Vermont's ecological functions. This block contains interior forest enriched by water features such as vernal pools and streams. Interior forest habitat blocks provide suitable conditions to support a variety of native plants and animal species and ecological functions. It is important to keep these large blocks unfragmented. A road, house, agricultural fields, or other development splits these forest blocks up into smaller and smaller pieces. The smaller a block gets, the less beneficial they are. Every parcel in the forest block matters. The Hurricane Watershed is an important piece of a larger block.

## Terrain

The elevation of The Watershed ranges from 700' near Wright Reservoir in the Wildlife Refuge to 1,312' at the top of Neals Hill in the Town Forest. The second highest knob is 1,271' at "The Beacon", a decommissioned Federal Aviation Administration tower located on the border of the Town Forest and the Wildlife Refuge.

Although the terrain of the Town Forest is generally gentle to moderately sloping, about one fifth has slopes steeper than 25%. These steep areas are difficult to use sustainably because erosion potential increases dramatically as slopes increase. The area from The Beacon, southerly down to the stream and tributaries that drain the former reservoirs and up to the top of Neals Hill is the largest steep section. The southwest corner of the property is also steep on both sides of a small stream draining towards the Ottauquechee River. The aspect of most of the forest is southeasterly. The operability of the parcel overall is good and except for steep and wet sections will not hinder timber harvesting in a significant manner.

Below is a figure showing the elevation of the property with LIDAR imagery and contour lines. LIDAR imagery strips the ground of vegetation showing what the ground conditions look like.



## **Operations**

The Town Forest has a robust trail system. Many of the main trails were once used as logging skid trails. These trails could be used again in future logging operations as long as the damage to these trails is kept to a minimum. Logging requires the use of big equipment. Having this equipment on site is a great opportunity to build trails, maintain trails and to reroute problem trails. This should be considered during any logging operation.

Log landings are the essential central part of any logging operation. Landings are where harvested wood is usually processed, sorted, stored and loaded onto the trucks that take it to mills. Loggers also store their equipment here when not in the woods. Historically, the Town Forest main landing has been in the larger area where the parking lot and trailhead kiosk now exist. It is at a good (possibly the best on the property) location, centrally located on a good-sized, relatively level, well-drained site right on a town road. This landing can still be used in future operations if it is expanded to compensate for the area lost to parking. However, using this landing during logging operations will significantly disrupt the parking area. Large equipment will be using this area and log trucks will be entering and exiting here consistently. It makes sense to investigate the possibility of locating two new landing sites, one in the north of the property and one in the south. Having two new landings north and south of the parking lot will ensure there is minimal disturbance to recreation users during logging operations. It would make closing down trails and areas being actively logged easier. Installing new landings is something that will have to be investigated further before future logging begins.

## **Boundary Lines**

The boundary lines of the property are generally well marked, meaning there is some evidence marking the line. The boundary evidence includes survey markers, iron pins, blazes, stone walls and old wire fencing. All lines need to be remarked so that they can be easily seen. Former Windsor County Forester and current member of the Hartford Conservation Commission, Jon Bouton recently flagged most of the boundary. This work should be followed up by freshening up the blazes with boundary paint. Records indicate the last time blazes were painted was in 2001 by Harwood Forest Services.

## **History**

The Town Forest has been owned by the Town of Hartford since about 1890. It is the combination of 3 different farms, the Coutermarsh Farm, Marston Farm and the Pease Estate. The reservoirs were installed around 1900 by the Hartford Water Company. These reservoirs provided drinking water for the town until 1950, when a well was installed in Wilder. The last time these reservoirs provided drinking water was in 1971. In the mid 2010's, the dams were in disrepair, the reservoirs were drained and the dams deconstructed.

The Town Forest has a long history of forest management. The first evidence of cutting taking place in the forest is on a 1942 recon map of the property done by Bergstorm. He noted that much of the northern part of the forest, (stands 4 & 5) were "logged off" or "burned over". Southern parts of the property, mostly in stands 2 & 3, have areas marked as "recently cut" or "blowdown".

In 1959, Eugene E. Keenan, a Municipal Forester with the Vermont Department of Forests and Parks marked a timber sale in stands 4 and 5. This work focused on removing hardwood pulp and was intended to clean up areas of blow down from a wind event that occurred sometime in the 1950's. Records indicate this was a tough harvest to sell. The job was eventually contracted to Vermont Prison Industries in November of 1961. This sale removed 160MBF of logs and 93.5 cords. The stumpage paid to the town was \$2,260.

In the mid-1970s Keenan implemented another harvest, this time in stands 2 and 3. This sale was marked in April of 1973 and was targeting over mature and poorly formed white pine. It was sold to Smith Inc. They cut the sale during the winter of 73'-74'. A total of 518MBF of white pine was cut. The stumpage paid to the town was \$23,828

According to the Harwood Forest Services plan written in 1998, Continuous Forest Management of Lebanon NH was hired to write a plan in 1984. The plan indicated that much of the white pine was approaching maturity and should be regenerated with a multi-staged harvest. Continuous Forest Management implemented harvesting throughout most of the Town Forest. This cutting is described in the 1998 Harwood plan as "greatly effecting the amount and intensity of forest management activities in the future as well as the revenue which can be generated from the removal of forest products". From the limited records that could be found in the County Forester's office, 515MBF of saw logs and 1,144 cords were removed during these treatments in the 1980's. Most of the treatments implemented were even aged treatments designed to regenerate parts of the forest.

Butt scars from logging damage, main woods roads, rotting pulpwood hidden by younger trees near the parking lot and forest-wide cohort of 30-70-year-old deciduous trees are some of the evidence of this management history that visitors can be read in the forest.

Harwood's 1998 Plan recommended a less dramatic and more natural uneven-aged management strategy. Instead of regenerating large areas of the forest with a single-aged stand of trees, management would keep more large, older trees onsite while creating enough openings to allow younger trees to flourish. Over decades (and perhaps centuries) of periodic partial cuts, the forest develops a more resilient, patchy all-aged character.

He also recommended using low-impact, cut-to-length, forwarder-based logging systems. With these harvesting systems, loggers fell and cut the trees into their final product in the woods. The logs, pulp or fuelwood are hauled to the landing on the back of a wheeled forwarder. Unusable or unmarketable parts of the trees are left in the woods, keeping that organic matter on site. Also, because whole trees or tree-length sections of the main stem are not dragged out behind a skidder, forwarder operations tend to cause less damage to the site and residual trees.

Harwood orchestrated the most recent cuttings done between 2005 and 2008. These two timber sales were cut by Calvin Johnson of Tunbridge, using a cut-to-length system. The cutting took place in stands 1 and 2. Harwood described these treatments as thinnings. The first cutting also salvaged red oak near the southwest corner of the property which blew over in a 2004 fall wind shear event. A total of 5.8MBF of saw logs were removed along with 365 cords. Gross stumpage for this sale was \$35,798.94

This map shows the forest cover of the Town Forest in June 1940. This photo shows areas of disturbance mostly in the central and northern parts of the forest. The grey colors in this map are hardwood trees, the whites and light greys are open fields or areas of disturbance and the dark greys are softwood cover.





## Wildlife

Throughout the forest, there are mast bearing trees. Mast trees, such as red oak, beech, black cherry and hickory, grow nuts or fruit that are important food sources for birds and mammals. Maintaining a variety of mast bearing trees will increase the numbers and variety of wildlife on the property. In this forest the most common mast bearing tree is red oak.

There are several old, large trees on the property. Many of these older trees have holes and cracks. These cavity trees are very important to different species of birds and mammals. They serve as nesting sites, provide cover and varied structure. Northern Long Eared Bats (NLEB), a federally-listed threatened species rely on trees with cracks and cavities. These bats will roost in these trees during the summer months.

There are parts of the forest with thick softwood cover. Areas with dense softwood cover are often important winter deer habitat. Softwood stands help keep relatively warm air from radiating out on frigid nights and keep snow from falling to the ground. Deer wintering areas are so important to winter deer survival that The Vermont Fish and Wildlife Dept. has mapped deer wintering areas statewide. Although none of the Hartford Town Forest is mapped as critical deer wintering area. This does not mean the forest is not being used by deer. Deer use is prevalent throughout the property. Deer beds were found throughout and some areas of spring seeps get a lot of use by deer seeking water and nibbles of food where snow has melted back from the relatively warm water surfacing from underground.



(Example of winter deer beds)

Interior forest songbirds can be heard throughout the spring and summer. They are often neotropical migrants that rely on larger, diverse forest blocks in Vermont for their breeding habitat. Oven birds, red eyed vireos, scarlet tanagers and both black-throated green and black-throated blue warblers and are just some of the birds that use interior forest habitats in the Town Forest. Some of Vermont's forest songbird populations are declining due to development in their Caribbean and Central and South American winter habitats. Making sure their summer breeding habitat is the best it can be is an important way to help these species. Improvements to forest structure, including keeping tall older trees, providing mid-story and understory layers of vegetation and even creating patches of dense young trees are all activities that provide habitats for these often-very habitat-specific forest birds. Removing invasive plants and reducing forest fragmentation are also important ways to help our forest songbirds. More information on forest song birds can be found at [Vermont Audubon](#) website and in the Forest Bird Habitat Assessment for the Hartford Town Forest and Hurricane Forest Wildlife Refuge prepared by Steve Hagenbuch of Vermont Audubon in 2010.

## **Invasive Plants**

Non-native invasive plants are plants not native to the ecology of an ecosystem. They were generally brought into our region from Europe or Asia and used as ornamental plants. These plants do not have any of their native competitors or pathogens here, so they grow really well. They can quickly outcompete native plants species for sun light and nutrients. Some can even alter the soil chemistry of an area making it impossible for other plants to grow, creating a monoculture.

The Hartford Conservation Commission has put time, money and energy into keeping invasive plants under control. During the inventory, the only invasive plants noticed were at the Lower Reservoir. A few medium-sized honeysuckle were found near the new meadow. No plants were noticed in the interior forest. This does not mean there are no invasive plants within the forest. Plants could have been missed. The fact that no plants were noticed means that if any plants are present, they are at low levels. Efforts must be made to keep it this way. The property should be monitored annually for invasive plants. Any plants found should be dealt with promptly.

Harvesting done in the forest will increase the sunlight available to the understory. This will increase the likelihood of invasive plants becoming established. Any harvesting done in the forest will have to be mindful of this. Areas harvested should be monitored annually for invasive plants. If any plants are found, they should be dealt with immediately through hand pulling. It is very important to the health and ecology of the forest that invasive plant levels remain low.

## **Forest Health**

Overall, the forests of the Town Forest are healthy. There were some common forest health issues that are widespread throughout Vermont that are found in the Town Forest. The following is a list:

### **Beech Bark Disease**

Beech Bark Disease is unfortunately a common occurrence in the forests of Vermont. It was introduced in Nova Scotia in the early 1900's from Europe. It has worked its way west from there. The pathogen effects the vigor of beech and will eventually lead to mortality. Beech Bark Disease is an attack of a beech scale insect and a fungus in the *nectria* genus. Beech trees infected with Beech Bark Disease will have cankers on the bark. Some beech trees are resistant to this disease and should be protected and managed for. Genetic resistance is the best way to manage for this disease.

### **Ash Yellows and Ash Decline**

Ash trees in the region are experiencing decline. The decline is due to ash yellows and to some extent site and environmental issues. Ash yellows is a disease caused by *Candidatus Phytoplasma fraxini*, a microorganism. This disease can kill infected ash trees within 5-10 years, some trees can survive the disease with only their growth being affected. Decline in ash can also come from environmental factors such as drought, poor soils, fungus and other factors.

### **Red Rot**

Red rot is a fungal disease caused by *Phellinus pini*. Red rot is a common disease in temperate forests, affecting softwood trees. This disease leads to decay within the stem of a tree. The fungus is introduced through wounds or dead stems. It can greatly affect the quality of trees when they are sold for lumber. Highly stocked stands are more susceptible due to competition for resources. Reducing the density of softwood stands is one way to manage for this pathogen.

### **Sugar Maple Borer**

Sugar Maple Borer damage is caused by the larva of long-horned wood boring beetle, *Glycobius speciosus*. This beetle is 25mm in length and has yellow and black coloring, with a distinctive “W” design on the wing cover. Sugar Maple Borer is a native beetle. It rarely causes mortality on its own. The damage is done by the larva of the beetle once the eggs hatch. The larva bores its way through the cambium layer. This damage reduces the value of the tree as well as its structural integrity.

### **White Pine Needle Cast**

White pine needle cast is a relatively new pathogen. This disease was first noticed throughout the northeast in 2010 and has been affecting white pines year after year since. This is a fungal pathogen caused by three different fungi. These fungi effect the second-year needles of pine. Which turn the needles brown in June, then these needles are dropped. This leaves the infected trees with only one set of needles. A healthy white pine tree has 3 years’ worth of needles. This decreases the growth and vigor of trees affected.

### **White Pine Weevil**

White pine weevil is an insect, *Pissodes strobi* that attacks the top leaders of conifers. It lays its eggs in the previous year’s leader. Once the eggs hatch, the grubs tunnel inwards towards the center of the leader, feeding on it. The leader is eventually girdled by the feeding of the grubs, killing the leader. The response of the tree is to develop multiple leaders to replace the dead leader. This ruins the form and quality of the attacked tree and gives the tree a bush like appearance. A weevil infestation rarely results in mortality. Norway spruce, Colorado blue spruce, jack pine, red pine, Scotch pine, mugho pine and native spruces are susceptible to white pine weevil.

### **White Pine Blister Rust**

White pine blister rust is a fungal pathogen. It disrupts the flow of carbohydrates in the cambium layer of the trees it infects through the development of cankers. The fungus infects trees through dead branch stubs or in areas of stem damage. As the canker develops, it slowly girdles the tree, which will eventually lead to mortality. White pine blister rust requires *ribes* as part of its life cycle. *Ribes* eradication is a way to manage this pathogen.

### **Deer Browse**

Deer eating regenerating trees is prevalent throughout the forest. Beech regeneration seems to be being browsed the most. Beech is not a preferred species for deer to eat. They are most likely browsing on beech because other more preferred tree species, like sugar maple or red oak were browsed so much that they were removed from the regeneration. Beech is now the only available

browse left. Getting desirable hardwood regeneration will be a challenge with the current level of deer use found in the forest.

## Regional forest health problems

The following forest health issues are currently found in the state, but were **not** found in the Town Forest. These are significant issues that should be monitored for. If found in Town Forest, their impact will be significant.

### Emerald Ash Borer

Emerald ash borer (EAB) is a beetle native to northern Asia. This insect was first discovered in Detroit in 2002. It has spread rapidly east since then, mostly being moved by humans. EAB will kill infected ash trees by effectively girdling the tree. The larva of EAB feed over the winter in the cambium layer of ash trees. Infested trees will normally die within 5 years. EAB kills 95-99% of the trees it infects. Native ash trees have very little resistance. EAB was found in Vermont in February of 2018 in the town of Orange. It has been discovered in 8 counties as of 2019, Grand Isle, Washington, Windham, Orleans, Orange, Caledonia, Addison and Bennington Counties. On its own, EAB can move 2 miles a year. If it is not moved by humans through firewood or other contaminated wood, the town of Hartford has some time to prepare. In the spring of 2020, EAB was confirmed within 10 miles of the Hartford Town Forest in Plainfield, NH. Because early detection is very difficult, small rapidly-growing EAB populations are likely closer. Consider the devastating impact of this insect on ash trees in any forest planning.

### Hemlock Woolly Adelgid

Hemlock Woolly Adelgid (HWA) is an introduced insect from Asia. It was first found in the Pacific Northwest in the 1920's, then found in northern Virginia in the 1950's. It is currently in southern Vermont, slowly spreading north. HWA can be identified by the tiny wool-like egg masses at the base of hemlock needles. HWA feeds on young twigs causing needles to dry out and fall off the tree prematurely. If heavily infested, a hemlock tree can die within 4 to 6 years. Some trees can survive but have reduced live crowns making the tree less valuable to wildlife that depend on hemlock. Fortunately, frigid weather apparently tends to keep populations low enough to prevent much damage in Vermont. This is changing with warming winters and damaged hemlocks are now found ever further north.

### Oak Wilt

Oak Wilt is a fungal pathogen caused by *Bretziella fagacearum*. This fungus grows in the sap wood of an infected tree. This causes a reaction from the infected tree which clogs conductive tissue further. Eventually, the tree can no longer translocate water which causes the tree to wilt. This pathogen often leads to mortality. For a tree to become infected, the stem must first become damaged. Something as simple as a small saw cut or axe graze is enough for the fungus to enter the tree. Oak Wilt has become a major pest in the central and eastern United States. No known occurrence has been found in Vermont or New England; the closest infestation is in New York state.

## Goals

The objectives for the property are based on what was stated in the 2011 Forest Management Plan. These ownership objectives were the result of two-public meetings. They were developed by Harwood Forest Services by working with the Hartford Conservation Commission, the Hartford Parks and Recreation Director and the Town Planner. The goals and objectives as stated in the 2011 FMP read as follows:

- Maintain a healthy, viable forest resource using sustainable, socially responsible and environmentally sensitive methods.*
- Protect all water resources using acceptable management practices for the benefit of both water quality and riparian wildlife habitat protection.*
- Maintain and enhance wildlife habitat and habitat connectivity.*
- Develop and maintain a multiple use recreational network that respects the users and the related natural ecosystems.*
- Expand the educational uses of the property for youth and adults through cooperation with schools, outdoor groups and professional organizations. Activities within the Watershed should be exemplary and demonstrable.*
- Educational and recreational activities should be exemplary and follow “tread lightly” guidelines.*

The Conservation Commission is adding these goals

- Enhance carbon storage and sequestration.*

The HCC also notes that maintaining wildlife habitat and connectivity is a strategy for a new goal of having a forest resilient to climate change.

## Resources

The forests on the property have been split up into stands. Stands are groups of trees. These trees normally have something in common. Things like species composition, age, topography and operability. Lumping groups of trees together makes it easier to assess the forest and make management decisions. The Town Forest has been split into 5 different forest stands. These stands were separated mostly based on the operability of an area. They are based on the stands that Harwood Forest Service proposed in their 2011 FMP.

A forest resource inventory was done during the winter of 2019-2020, by AJ Follensbee. A total of 150 randomly assigned points were taken using a 10-factor prism. Density, diameters, merchantable heights, tree regeneration coverage, species and coarse woody debris information were gathered at each point. The data was then processed using the State of Vermont’s FOREX forest inventory analysis program. Coarse Woody Debris information was gathered ocularly and given a rating based on the amount at each point, low 1-3 pieces, moderate 3-5 pieces and high 6 + pieces. Tree regeneration information was gathered qualitatively.

## Management Tactics & Objectives

Before each stand is described in detail and prescriptions for each stand are recommended, it is important to discuss what the overarching management philosophy and desired future conditions will be for the property. Any prescribed treatments will take the following into consideration.

### **Carbon Management**

Trees and plants sequester carbon from the atmosphere, storing it in biomass (wood and plant material). This carbon is found in both living and dead biomass in the forest, and a large portion of it can be found in forest soils. Globally, forests are a major carbon “sink,” absorbing and storing large amounts of carbon. Forests can be managed to maximize their carbon sequestration and storage by avoiding large-scale disturbances (such as clearcutting), encouraging the accumulation of dead biomass in the forest, and performing management activities that support the increased health and resilience of the forest, such as the encouragement of structural diversity.

The Town Forest should be managed to support and improve carbon sequestration and storage in the forest whenever possible. Carbon sequestration and storage priorities:

- Avoid creating large-scale disturbances (openings larger than 5 acres).
- Minimize soil disturbance in the course of forest management activities to an extent dictated by responsible silvicultural practices.
- Retain dead biomass in the form of dead-standing and fallen trees and as much coarse and fine woody debris as possible during forest management.
- Retain biological legacy trees of a variety of species throughout the forest.
- Employ uneven-aged and low-impact silvicultural techniques as much as possible to encourage a healthy, diverse, resilient forest.
- Encourage the development of large trees throughout the forest. Allow for some of these large trees to naturally live out their life cycle in the forest.

### **Species and age diversity**

Forests are complex. The forest management to be done in the Town Forest will embrace these complexities and enhance them. Not just one or a group of certain species will be managed for, instead all native plants species will be managed for and promoted where appropriate. This will make the forest more resilient.

A natural forest structure will be managed for. This will be done through uneven aged management. Uneven aged management has been the type of forest management done in the forest for nearly 30 years. Uneven aged management strives to have at least 3 or more ages of trees represented in a stand. The forest will be managed in a way that very old trees can be found in a stand along with very young trees. This will create complex structure throughout the forest.

## **Legacy Trees**

Legacy trees will be retained in any treatment done. These are trees that will be left to complete their life cycle naturally. Trees that will be retained for this purpose will be trees of any species that are healthy and vigorous. This will ensure large trees can be found in the future in Town Forest. There are areas of the forest that can be left more or less alone with no major human manipulation taking place. These areas can be left to naturally develop. Over time an old growth condition will develop. The northern part of stand 1 and the western part of stand 3 would be great places to allow to develop naturally and to leave alone. The forested wetlands on the property are also going to be left to develop naturally, with no forest management taking place in these areas

## **Wildlife Habitat**

Two different reports have been developed looking at the wildlife habitat conditions of the Town Forest. The recommendations from both reports will be incorporated into any forest management prescribed in this plan. The recommendations of each report are as follows.

Audubon Vermont did a Forest Bird Habitat Assessment in 2010. This was done by Steve Hagenbuch. The [report](#) in its entirety can be found on the Hartford Conservation Commissions [website](#). This report listed the following italicized management recommendations to improve forest bird habitat (regular font style is added by HCC for clarity):

- 1) *Enhancement of vegetative structure in the mature interior forest of the Hartford Town Forest that covers approximately 66% of the total Hurricane Watershed acreage. A variety of silvicultural options that are complimentary with timber management objectives exist for doing so.*
- 2) *Maintenance of currently developing patches of early-successional habitat in Upper and Lower Reservoirs and the FAA tower clearing. There may be opportunities, if deemed silviculturally appropriate, in other areas of the Hartford Town Forest where the creation of an additional approximately 7 acres of early-successional habitat would benefit birds that require this condition for nesting and foraging. (These patches may be temporary, in which case new regeneration patches can be created when the old patches grow above the shrub-scrub or sapling stage.)*
- 3) *Protection of the high quality forested wetland Canada warbler habitat in the Hartford Town Forest.*
- 4) *Development of late-successional forest conditions on the Hurricane Forest Wildlife Refuge. This is an uncommon condition in the landscape that would provide ecological and social benefits.*

Alan Thompson of Northern Stewards did a wildlife habitat assessment of the forest in 2011. This [report](#) in its entirety can also be found on the Hartford Conservation Commissions [website](#). In his summary Alan list the following recommendations:

*Current habitat conditions support wildlife using mid-late successional red oak northern hardwoods, small streams and small wetlands. The forest resources are in*

*excellent condition and will continue to mature and develop into late successional conditions. Early successional habitat is lacking and the property does not have a diversity of food or cover resources available for species that prefer or depend on conditions found from early successional hardwoods. Recreational use of the property is likely reducing the use of available habitat as wildlife will avoid humans in all forms of recreation. Off trail excursion and recreation around wetlands are most detrimental. Recommendations for habitat management include:*

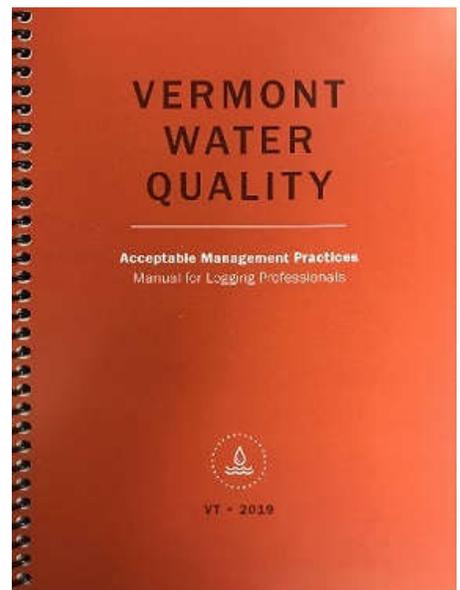
- careful designation for target habitat improvements*
- the creation of early successional habitat in patches >1 acre and at a minimum 5.5 acres in perpetual early successional growth.*
- The immediate implementation of recreational recommendations found within including but not limited to:*
  - Trail closures around Lower Reservoir and modifications at Wright Reservoir to prohibit trails encircling the wetland*
  - Discuss the temporal closing of trails in target habitat areas from March 1st-June 15th*
- Incorporation of recommendations into forest management plan and during every harvest including*
  - the designation of No-harvest management areas*
  - Red oak regeneration methods*
  - No foliar chemical application, if any*

### **Invasive Plant Management**

Prescribed forest management will be mindful of the risks of invasive plants. Following logging activities, areas treated will be monitored for new infestations of invasive plants. Any plants found will be dealt with promptly. In areas where established plants are present prior to harvest, invasive plant control must be part of any silvicultural treatment. In areas where herbicide treatment is necessary to achieve control a Vermont-licensed pesticide applicator must apply the herbicide

### **Water Quality**

There are many water resources on the property. These include wetlands, streams, vernal pools, seeps and the drained reservoirs. All the water resources on the property will be protected during logging activities. This will be done through logging in only frozen conditions, buffering water resources and following Vermont AMP's. The current Vermont Water Quality Acceptable Management Practices Manual for Logging Professionals (AMP'S) will be followed. All logging roads and trails used during logging operations will be closed out to the standard of the AMP manual.



Unless otherwise specified the following general guidelines will be used to achieve the long-term goals:

- The cutting cycle in areas managed will be 20 years.
- 4 cohorts or age classes will be managed for in each stand.
- Long rotations will allow for large trees to develop using the following diameter objectives for the most common species as a guide:
  - White pine 26-30", Red oak 24-28" Sugar maple, 24"-28", Hemlock 24"-28", red maple: 18-22", white ash 16".
- Snag retention and recruitment of snags through planning and girdling, with a goal of 1-3 current snags an acre.
- Coarse woody debris recruitment through deliberately felling trees and leaving them on the forest floor. Goal of 3 stems per acre.
- Leave tops of trees unlopped in groups to deter deer browse.
- Apply for deer fence grant through VT FPR
- Apply VT AMP's during any logging operations
- Increase the amount of early successional habitat overall, by 1-2% of the total public acreage or by 5-10ac

## Stand 1

42 acres

Points Sampled 16

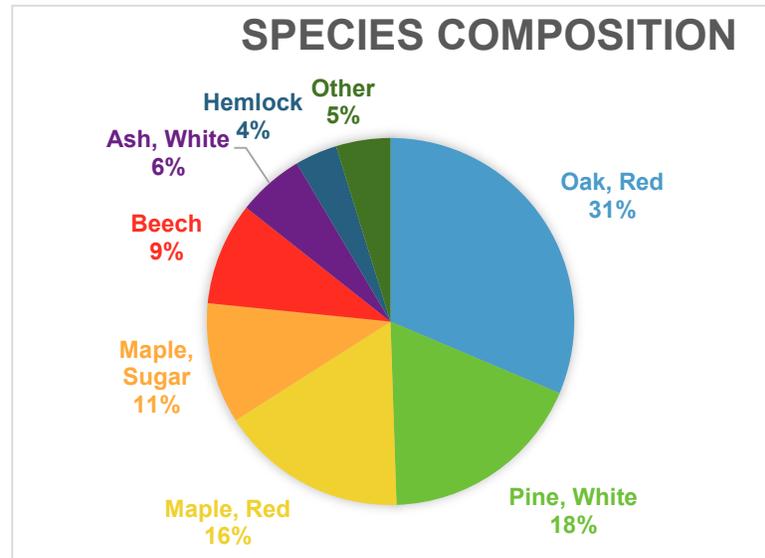
### **Description**

This stand is located in the southwestern portion of the property and is the only hardwood dominated stand. The most common trees found in this stand are red oak, white pine, red maple and sugar maple. The white pine are concentrated in the center of the stand. This area of pine is around 9 ac in size. These pines have been thinned nicely in the past. Overall, they are healthy and of good quality. The most common hardwood species is red oak. The red oak in this stand are impressive. They are large tall trees. Much of them are of saw log quality.

Throughout the stand red maple can be found.

Generally, they are small saw log sized and vary in quality. This stand has the highest concentration of sugar maple. The sugar maple

is mostly concentrated in the northern part of the stand. A forested wetland is also located in this part of the stand. This stand has evidence of past logging throughout.



### Stand Statistics

**Quadratic Mean Stand Diameter:** 14.0"

**Volume:** 6,749bf/ac 7.2 cords/ac

**Basal Area:** 118 ft<sup>2</sup>/ac

**AGS BA:** 72 ft<sup>2</sup>/ac

**UGS BA:** 46 ft<sup>2</sup>/ac

**Trees per Acre:** 179

### **Terrain**

The terrain in this stand tends to be on the steeper side with slopes running from west to east toward Reservoir Road. The steepest terrain is mostly found in the north and south of the stand. Operability is not affected by the terrain. A small stream runs to the southwestern corner of the stand and property. Near this stream the terrain tends to be steeper, sloping towards the stream. Where the stream exits the property the terrain slopes dramatically south and west. This area is the steepest area of the stand and for the most part is inoperable. right at the SW corner is a small micro-site supporting basswood and other plants indicating an enriched northern hardwood site.

One well established recreational trail is found in this stand, West Side Loop. This trail appears to have been used as a skid trail at some point. It still could be used as a skid trail if needed. There are other minor recreational trails throughout the stand, see recreation plan for more details.

## Regeneration

The regeneration in this stand is well established and is made up of beech sapling and seedlings. Other species found were striped maple and white pine.

The amount of coarse woody debris (CWD) found in this stand is low. Out of the 16 points sampled in this stand 7 points reported CWD. Most of the points with CWD reported low amounts. Efforts should be made to increase the amount of CWD found in this stand. This will occur naturally through stand succession.

## History

In looking at the 1940 aerial photo, the southern portion of the stand seems to be more or less intact. The northern portion of the stand appears to be reverting to agricultural fields. According to Paul Harwood's 2009 forest management plan, this stand was last logged in the 2005-2006. This treatment was a commercial thinning and a salvage of roughly 10 ac of damaged trees from a wind event that happened during the fall of 2004. This treatment removed 71,135bf and 109.32cords. The total stumpage of this sale was \$12,284.59. Before this treatment a thinning took place around 1988.

## Soils

There is one soil complex found within this stand. That complex is Glover-Vershire complex, 3-15% slopes very rocky. These are fairly-productive, relatively shallow and somewhat excessively drained soils. This soil complex gives this stand a forest site class of 2 out of 4, with 1 being the best and 4 being the poorest. (see soil report for more details)

## Forest Health

This stand is relatively healthy with few pathogens noticed. Beech bark disease is common in this stand. Some sugar maple have old sugar maple borer damage. Some ash is in decline.

## Invasive Plants

No invasive plants were found with in this stand.

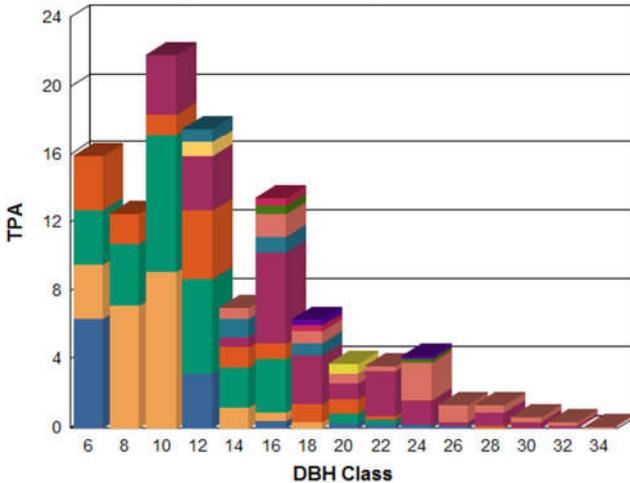
**Species Composition and Volume Table**

Species	Basal Area	%BA	TPA	QMD	RelDen	%AGS	Boardfoot Volume	Pulp Volume (Cords)
Oak, Red	36.88	31.39	21.66	17.67	31.79	89.83	3357.87	0.51
Pine, White	21.25	18.09	7.66	22.55	7.2	52.94	1932.8	3.22
Maple, Red	19.38	16.49	26.64	11.55	15.72	61.29	853.74	0.34
Maple, Sugar	12.5	10.64	14.47	12.59	9.99	45	291.52	0.95
Beech	10.63	9.05	21.49	9.52	8.9	23.53		0.51
Ash, White	6.88	5.86	10.89	10.76	5.58	81.82	200.02	0.24
Hemlock	4.38	3.73	3.57	15	2.07	14.29	48.06	0.69
Cherry, Black	1.25	1.06	0.8	16.93	0.97	50	12.16	0.08
Aspen, Trembling	1.25	1.06	0.65	18.78	0.56			0.24
Aspen, Spp.	1.25	1.06	0.55	20.41	0.56			0.21
Aspen, Big Tooth	1.25	1.06	0.57	20.05	0.56	50	53.29	0.24
Basswood	0.63	0.54	0.8	12.02	0.33			
<b>[ TOTAL ]</b>	<b>117.5</b>	<b>100</b>	<b>109.73</b>	<b>14.01</b>	<b>84.23</b>	<b>60.43</b>	<b>6749.46</b>	<b>7.24</b>

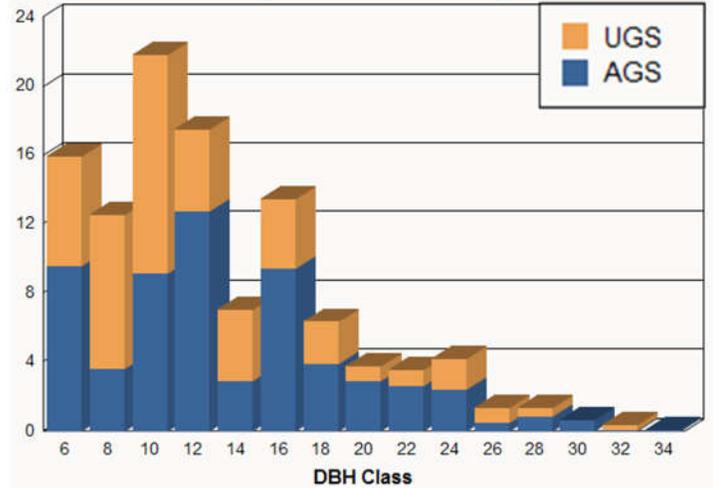
## Stand Structure

This stand is two aged. Meaning the stand has two distinct age classes. There are not quite enough smaller sized trees for this stand to be considered uneven aged. As this stand ages naturally, it will eventually move towards an uneven aged forest. This will happen as new tree regeneration becomes established as overstory trees fall out of the canopy.

Trees Per Acre by DBH Class & Species

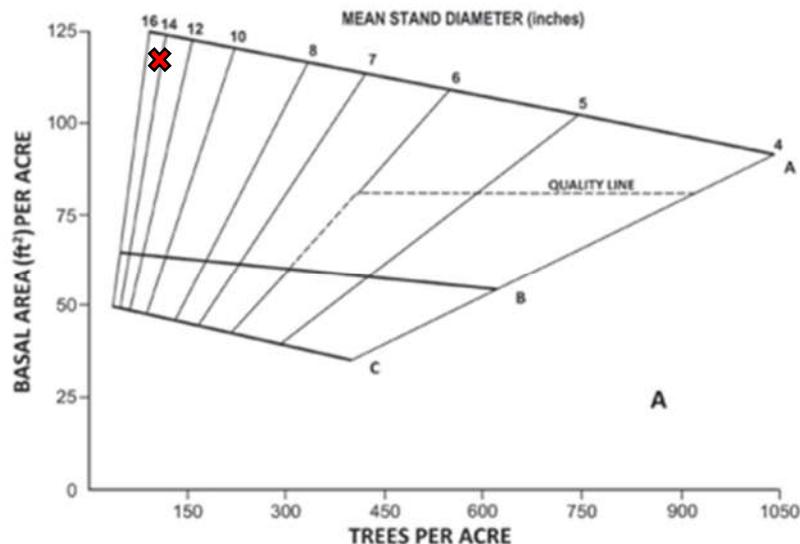


Trees Per Acre by DBH Class & Quality



## Stand Density

This stand is near the A-line of the hardwood stocking chart. This means the overstory of this forest is fully stocked. The trees growing in this stand could use more growing space. This would increase their vigor and growth rate.



The "X" show where the stand density charted out on the hardwood stocking guide according to Silvicultural Guide for Northern Hardwood Types in the Northeast.

## **Silvicultural Management**

This stand can be broken up into 3 different management units. The first unit is in the northern part of the stand. This is an area comprised mostly of northern hardwoods and is the only area on the property that most represents a northern hardwood community dominated with sugar maple. This area also has a forested wetland within it. This area needs little management and should be allowed to develop naturally.

The second management unit is in the center of the stand. This area is made up of white pine. These white pines are the nicest pine in the forest. This area has been actively managed throughout the town's ownership. These pines can continue to be actively managed. A light thinning will give the overstory pine more growing space and release some of the nicer hardwood poles established underneath the pine.

The final management unit is located in the southern part of the property. This area is made up mostly of red oak and has been actively managed in the past. The oaks in this stand would benefit from a light single tree and small group selection treatment. This treatment would give the residual oak more growing space, which would increase the vigor of these stems. The treatment will also release any established regeneration.

## **Treatment**

### **Northern hardwood unit:**

No treatment, allow to develop naturally.

### **Central pine unit: 2025-2028**

Thinning to reduce basal area to 115-100ft<sup>2</sup>/ac. Target white pine for removal that have old logging damage, weak crowns with >30% LCR or are poorly formed. Secondly, remove white pine if competing with desirable hardwoods such as red oak or red maple. Attempt to remove concentrations of beech regeneration through the felling of the overstory or by the location of skid trails. Treating the beech in the understory is not necessary currently.

### **Southern red oak unit: 2025-2028**

Congruent with the pine thinning, implement a single tree and group selection in the southern oak management unit. The single tree selection would be focused on releasing trees of good quality and form, with the main species targeted for release being red oak. The basal area should be reduced to 80-70ft<sup>2</sup>/ac. Where well established desirable regeneration is present use small group selection to release. The size of the groups will be dictated by the regeneration being released but should be no bigger than .25 acres. This unit should not have more than 10% of its area in groups.



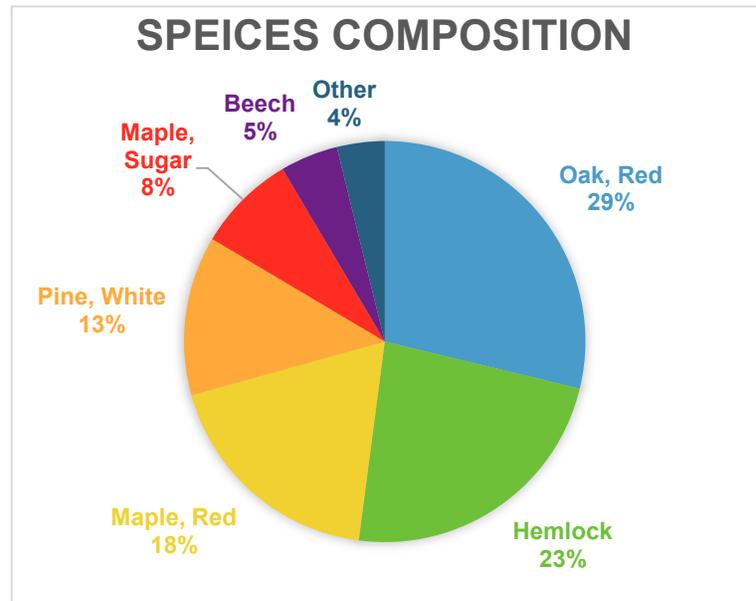
## Stand 2

68 acres

Points Sampled 29

### **Description**

This stand is in the south eastern part of the property. It is a mixed-wood stand made up of mostly hemlock and red oak. Other trees that can be found in this stand are white pine, red maple and sugar maple. The southeastern part of the stand has more of a mixed-wood cover type. In the rest of the stand the cover type is generally either only hardwoods or softwoods. The red oak found in this stand is generally large and of saw log quality. There are fewer white pines in this stand as compared to the other mixed wood stands. The pines that are here are generally large and super dominant. A forested wetland is in the south eastern corner of this stand. There are signs of older logging activities in many parts of this stand.



### **Stand Statistics**

**Quadratic Mean Stand Diameter:** 11.4"

**Volume:** 6,083bf/ac 8cords/ac

**Basal Area:** 126 ft<sup>2</sup>/ac

**AGS BA:** 67ft<sup>2</sup>/ac

**UGS BA:** 59ft<sup>2</sup>/ac

**Trees per Acre:** 179

### **Terrain**

The terrain in this stand is generally rolling and operable. A small stream runs along the north east boundary of the stand. The terrain gets a bit steeper near this stream.

Reservoir Road runs through this stand and exits the property. Three other well established recreational trails are also found with in this stand, Wrights Farm Trail, West Side Loop and South Side Trail. Wrights Farm Trail exits the property in this stand. All main trails appear to have been used as skid trails at some point. They all could still be used as skid trails if needed. There are other minor recreational trails throughout the stand, see recreation plan for more details.

### **Regeneration**

The regeneration in this stand is made up of mostly beech sapling and seedlings. Hemlock, red maple and red oak is also found in the regeneration. Red oak regeneration was found mostly in the southern part of the stand in areas cut during the 2007-2008 harvest. Hemlock was found throughout most of the stand and is generally sapling sized.

The amount of coarse woody debris (CWD) found in this stand is low. Out of the 29 points sampled in this stand 13 points reported CWD. Most of the points with CWD reported low amounts. Efforts should be made to increase the amount of CWD found in this stand. This will occur naturally through stand succession.

### History

This stand appears on the 1940 aerial photo to be more less intact. With very little visual evidence of disturbance. According to Paul Harwood's 2009 forest management plan, this stand was logged in the early 1990's. The treatment done at that time was a thinning. The latest treatment done in this stand was in 2007-2008. This treatment was a commercial thinning. According to the 2009 management plan this sale produced 122,447bf and 252.73 cords, with a total stumpage receipt of \$23,514.94.

### Soils

There are two similar soil complexes found with in this stand. They are Glover-Vershire complex, 3-15% slopes very rocky and Glover-Vershire complex, 15-35% slopes very rocky. Both are fairly productive, relatively shallow and somewhat excessively drained soils. These soil complexes give this stand a forest site class of 2 out of 4, with 1 being the best and 4 being the poorest. (see soil report for more details)

### Forest Health

The white pine in this stand is being affected by red rot and needle cast. The needle cast is not as severe as it is in other stands. Beech bark disease is affecting beech trees in this stand. Most beech trees were showing little resistance to the disease. Some of the sugar maple in the stand had old sugar maple borer damage.

### Invasive Plants

No invasive plants were found with in this stand.

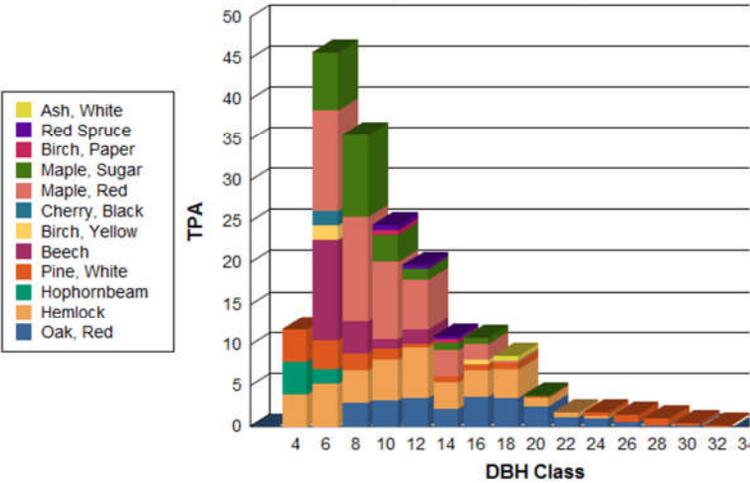
**Species Composition and Volume Table**

Species	Basal Area	%BA	TPA	QMD	RelDen	%AGS	Boardfoot Volume	Pulp Volume (Cords)
Oak, Red	36.21	28.77	24.92	16.32	31.38	54.29	3369.86	0.75
Hemlock	29.31	23.29	36.25	12.18	13.82	18.54	922.84	3.07
Maple, Red	23.45	18.63	46.25	9.64	19.56	19.86	259.82	1.47
Pine, White	16.21	12.88	15.96	13.65	6.15	13.33	1285.91	2
Maple, Sugar	10	7.95	23.25	8.88	8.47	12.28	69.35	0.31
Beech	5.86	4.66	19.27	7.47	5.16	2.94	26.52	0.13
Red Spruce	1.03	0.82	1.39	11.66	0.38	75	87.31	0
Birch, Yellow	1.03	0.82	2.25	9.16	0.86	7.69		0.14
Ash, White	1.03	0.82	0.59	17.89	0.8	12.5	62.02	0.12
Hophornbeam	0.69	0.55	5.71	4.71	0.7			
Birch, Paper	0.69	0.55	0.95	11.54	0.64			0.04
Cherry, Black	0.34	0.27	1.76	5.95	0.32	33.33		
<b>[ TOTAL ]</b>	<b>125.86</b>	<b>100</b>	<b>178.54</b>	<b>11.37</b>	<b>88.24</b>	<b>52.44</b>	<b>6083.62</b>	<b>8.03</b>

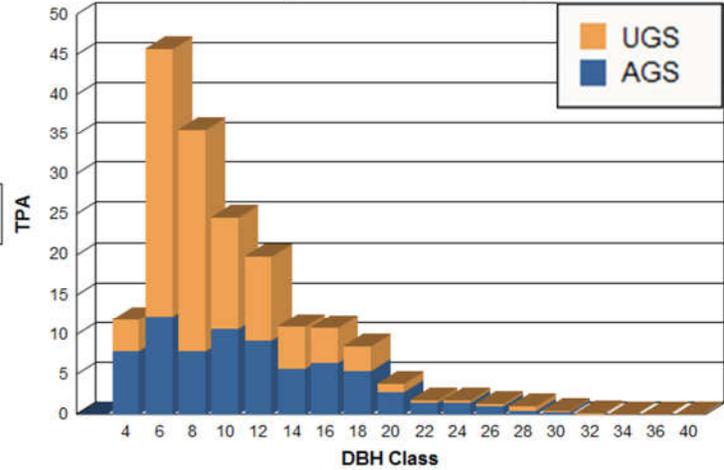
### Stand Structure

This stand is uneven aged. Meaning the stand has three distinct age classes. An uneven aged stand mimics a more natural forest condition.

Trees Per Acre by DBH Class & Species

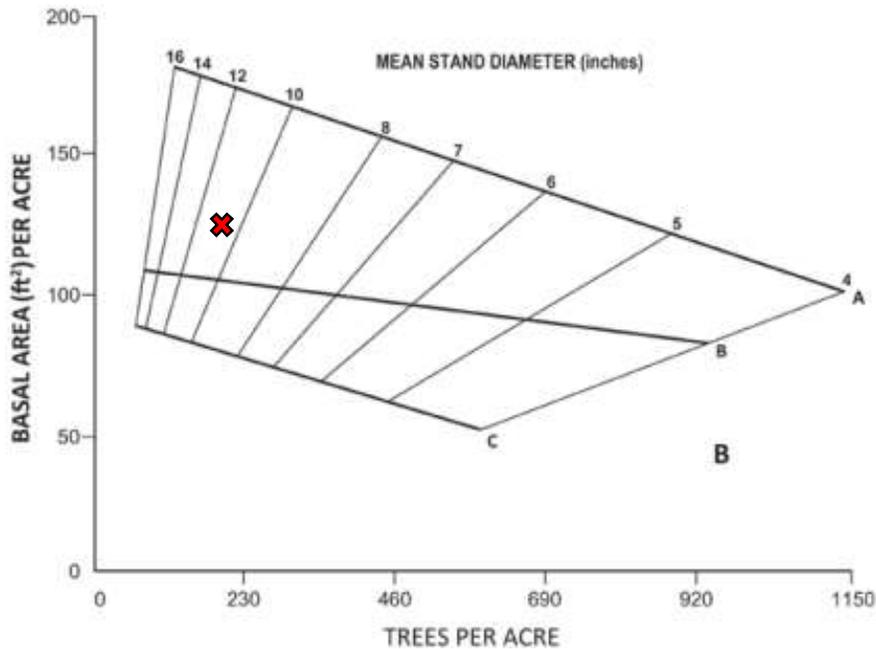


Trees Per Acre by DBH Class & Quality



### Stand Density

This stand is adequately stocked according to the mixed woods stocking chart. This means that trees in the stand have adequate growing space.



The “X” show where the stand density charted out on the mixed wood stocking guide according to Silvicultural Guide for Northern Hardwood Types in the Northeast.

## **Silvicultural Management**

This area was treated 12 years ago. Little work is needed immediately. In another 10 years this stand will be ready for treatment. This stand can be broken up into two management units.

One unit is west of Reservoir road. This unit is made up mostly of hardwoods, with the most common species being red oak, red maple, sugar maple and beech. The hardwoods in this unit would benefit from a single tree and group selection treatment. This treatment would release the quality hardwoods found in the overstory while also attempting to get a better mix of regeneration established.



The other unit in this stand is east of Reservoir Rd. This unit is made up mostly of hemlock and some white pine. This area of stand 2 is being heavily used by deer. Any treatment done in this unit will attempt to enhance the deer wintering functionality. This can be done through small group selection. This treatment will maintain at least 70% crown closer throughout areas treated.

## **Treatment**

### **Western hardwood unit: 2030-2035**

Implement a single tree and group selection. The groups will range from .25ac to 1ac in size with most groups being 0.5 ac. No more than 15% of the unit should be in groups. These groups should be in areas of poor quality or mature trees that have met their diameter objectives. In-between the groups, implement a selection harvest that will reduce the basal area to 80-70ft<sup>2</sup>/ac. Trees that will be targeted for release are red oak and red maple, though all species with good form will be promoted to maintain species diversity.

### **Eastern hemlock unit: 2030-2035**

Implement a light single tree and group selection harvest. Groups will be no larger than 5-6 trees and will make up no more than 10% of the unit. These groups will be in areas of poor quality or existing advance regeneration.

In between the groups, a light single tree selection treatment will be implemented. Reducing the basal area in between the groups to 130-140ft<sup>2</sup>/ac. Poor quality trees or trees that have met their diameter target will be targeted for removal. Mast bearing trees should be a priority for release. Other trees that should be managed for are quality hemlock, red spruce, red maple, though all species should be considered for retention to promote species diversity.

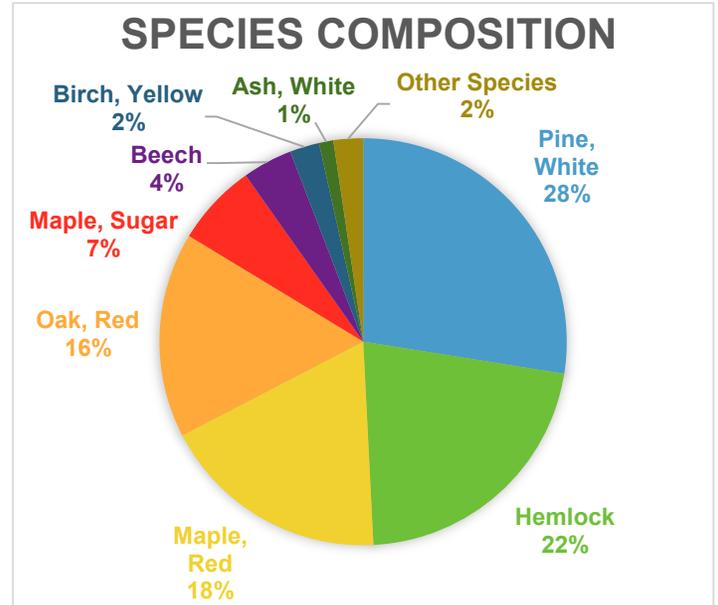
### Stand 3

88 acres

Points Sampled 32

#### **Description**

This stand is located south of the trailhead parking area. The former Upper Reservoir is in the north western part of the stand. Roughly half of this stand's composition is made up of white pine and hemlock. White pine is generally found in the central and western parts of the stand. The white pine in this stand are generally large, of good quality and have a super dominant canopy position. Hemlock in this stand is mostly concentrated in the east and along the stream. The hemlock in this stand is generally poorer in quality and small saw log sized. This hemlock is providing great winter cover for deer. Little evidence of cutting was noticed in the hemlock dominated areas. The most common hardwoods found in this stand are red maple and red oak. The red maple in this stand is generally poorer in quality and small saw log sized. Red oak is more concentrated in areas of pine. An old foundation can be found in the north central part of the stand. Signs of past management is prevalent in most parts of the stand.



#### **Stand Statistics**

**Quadratic Mean Stand Diameter:** 13.06"

**Volume:** 7,155bf/ac 9 cord/ac

**Basal Area:** 134ft<sup>2</sup>/ac

**AGS BA:** 76 ft<sup>2</sup>/ac

**UGS BA:** 58 ft<sup>2</sup>/ac

**Trees per Acre:** 144

#### **Terrain**

This stand borders a major stream in the north. This stream drains from the former reservoir located in this stand. The terrain in the north eastern part of this stand is steep and slopes northerly towards the stream. The rest of the stand is generally gently sloping and operable. This stand encompasses the western slopes of Neals hill, with the peak of Neals hill located in the very south eastern part of the stand.

Running through the center of the stand is Reservoir Road. Two other well established recreational trails are also found within this stand, Wrights Farm Trail and West Side Loop. Both trails appear to have been used as skid trails at some point. Both trails could still be used as skid trails if needed. There are other minor recreational trails throughout the stand, see recreation plan for more details.

## **Regeneration**

The regeneration found in the stand is mostly well established and made up of sapling or pole sized trees. Regeneration is lacking in the more hemlock dominated areas. Beech is the most common species found, but a good mix of other species are present as well. Where more sunlight is available, white pine is common. Other species that can be found are red maple, sugar maple, hemlock, striped maple, red oak and yellow birch. Deer browse is present throughout.

The amount of coarse woody debris (CWD) found in this stand is widespread, but at low amounts. Out of the 32 points sampled in this stand, 22 points reported CWD. Of those 5 reported moderate amounts, one point reported high levels and rest of the points reported low levels of CWD. Efforts should be made to increase the amount of CWD found in this stand. This will occur naturally through stand succession.

## **History**

This stand was last operated in the 1980's. This treatment appears to have been a pine shelterwood. It was concentrated in the south eastern part of the stand. This had mixed results with areas regenerating to beech, red maple and some oak. This regeneration is now sapling to pole sized in this area. There are indications this stand was cut during the harvest in the 60's. The western portion of the stand has a narrow skid trail that would likely have been used by equipment of that era. The 1940 photo shows a relatively large disturbance in the center of the stand. This area is now a mix of pine and hardwoods.

## **Soils**

There are three distinct soil complexes found with in this stand. The most common complex is Glover-Vershire complex, 15-35% slopes very rocky. This complex is fairly productive, relatively shallow and somewhat excessively drained. The next most common complex is found on the northern bank of Neals Hill, it is Vershire-Dummerston complex, 15-25% and 25-60% slopes, rocky. This complex is productive, moderately deep and well drained. Lastly the third complex found in this stand is Vershire-Buckland complex, 8-to 15%. This complex is common south of the reservoir. This complex is productive, moderately deep and well drained. These soil complexes give this stand a forest site class of 1-2 out of 4, with 1 being the best and 4 being the poorest. (see soil report for more details)

## **Forest Health**

Red rot was noticed in some of the pines in this stand. Some pines in this stand have weak crowns due to needle cast. White Pine Blister Rust is present in in this stand. Most beech in this stand have beech bark disease.

## **Invasive Plants**

No invasive plants were found with in this stand.

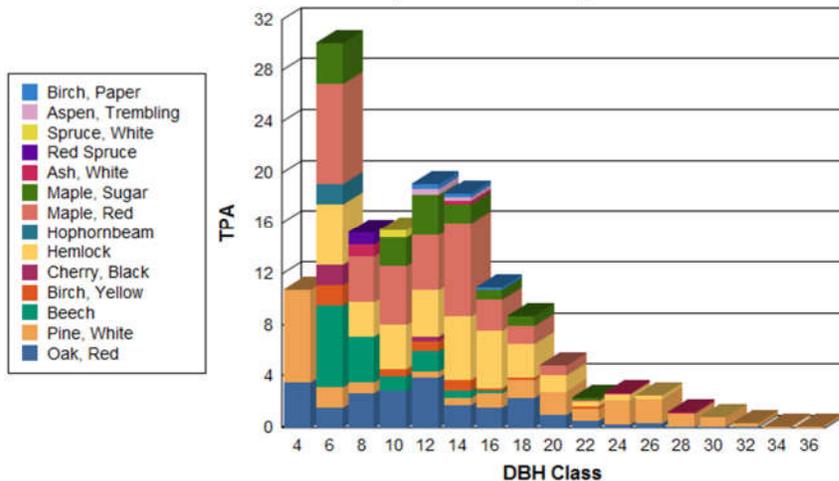
### Species Composition and Volume Table

Species	Basal Area	%BA	TPA	QMD	RelDen	%AGS	Boardfoot Volume	Pulp Volume (Cords)
Pine, White	36.88	27.51	22.02	17.52	12.98	42.07	3314.19	4.22
Hemlock	29.06	21.68	28.93	13.57	13.74	32.12	1394.72	2.05
Maple, Red	24.38	18.19	32.52	11.72	19.69	29.55	653.72	1.37
Oak, Red	21.88	16.32	22.89	13.24	19.21	36.31	1395.63	0.34
Maple, Sugar	8.75	6.53	11.73	11.69	7.07	36.36	257.17	0.31
Beech	5.31	3.96	13.49	8.5	4.54	3.13	6.17	0.14
Birch, Yellow	3.13	2.33	4.36	11.47	2.53	9.09	6.17	0.43
Ash, White	1.56	1.16	1.43	14.14	1.22	57.14	101.57	0.05
Birch, Paper	0.94	0.7	0.91	13.76	0.89	25	25.7	0.08
Cherry, Black	0.63	0.47	1.99	7.62	0.55			0.04
Aspen, Trembling	0.63	0.47	0.69	12.94	0.28	50		0
Spruce, White	0.31	0.23	0.57	9.99	0.13	100		0
Red Spruce	0.31	0.23	0.9	7.95	0.16	25		
Hophornbeam	0.31	0.23	1.59	5.98	0.29			
<b>[ TOTAL ]</b>	<b>134.06</b>	<b>100</b>	<b>144.03</b>	<b>13.06</b>	<b>83.27</b>	<b>56.69</b>	<b>7155.04</b>	<b>9.04</b>

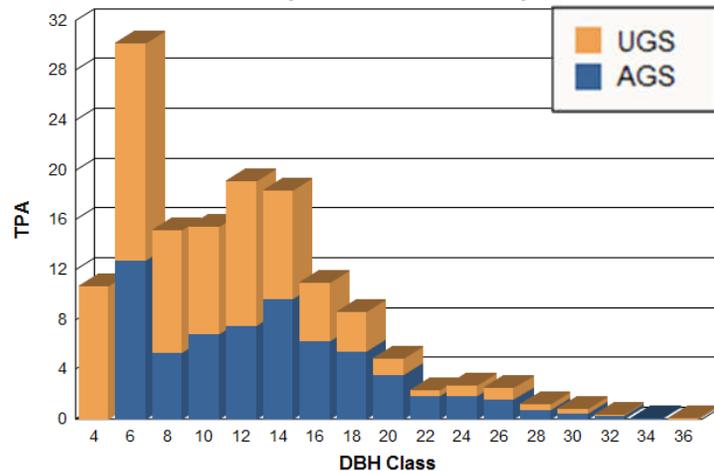
### Stand Structure

This stand is two aged. Meaning the stand has two distinct age classes. There are not quite enough smaller sized trees for this stand to be considered uneven aged. As this stand ages naturally, it will eventually move towards an uneven aged forest. This will happen as new tree regeneration becomes established as overstory trees fall out of the canopy.

Trees Per Acre by DBH Class & Species

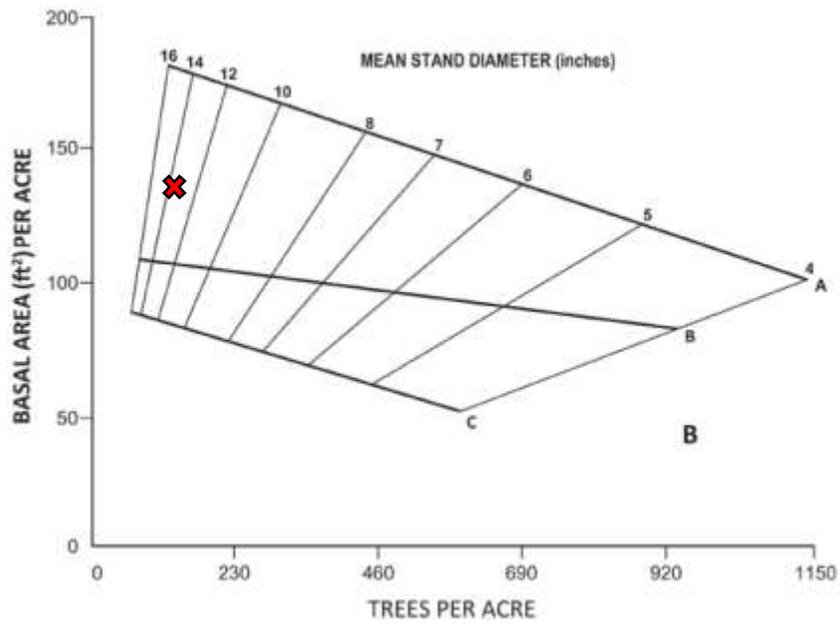


Trees Per Acre by DBH Class & Quality



### Stand Density

When comparing the density to the mixed wood stocking guideline the stand is in between the A-line and B-line. Which according to the chart means this stand is adequately stocked.



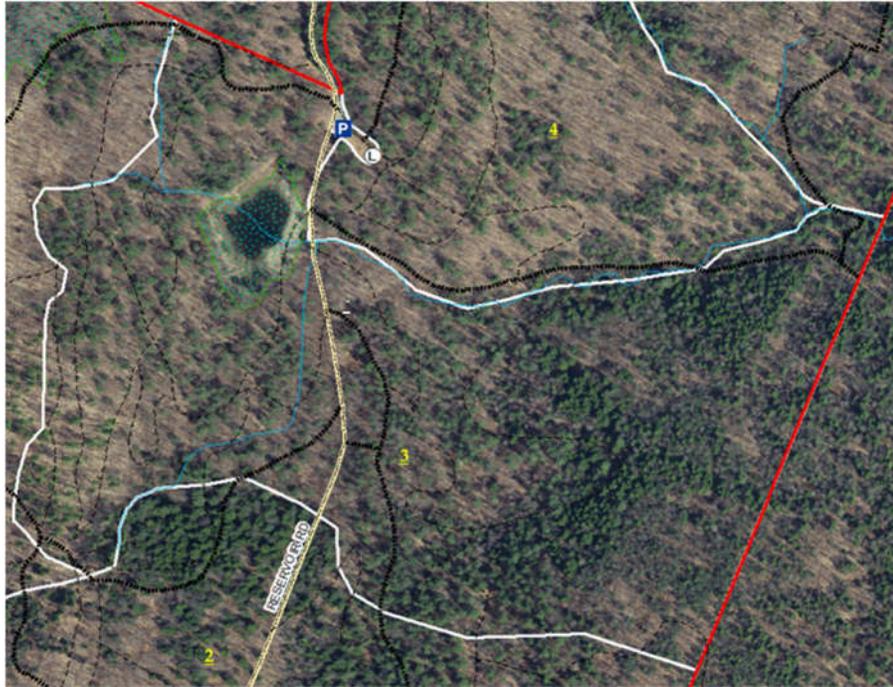
The “X” show where the stand density charted out on the mixed wood stocking guide according to Silvicultural Guide for Northern Hardwood Types in the Northeast.

## **Silvicultural Management**

This stand can be broken up into two different management units. One of the units is the hemlock dominated area in the east of the stand. This area is providing great deer winter habitat. It is also the most remote of any area in the Town Forest. Very few trails run through this area. It is also steep and would be tough to operate in. This area for many reasons is best left untreated.

The second management unit is the pine hardwood area in the west of the stand. Here the pines are being affected by red rot and needle cast. The regeneration although mixed is mostly made up of beech. It is also being browsed by deer. A third of the density in this stand is made up of

undesirable growing stock. A treatment focused on removing unhealthy white pine and poor-quality trees using a group selection treatment with single tree selection in between the groups would recruit a better mix of regeneration and give quality stems more growing space.



## **Treatment**

Western hemlock unit: No treatment

Eastern pine-hardwood unit:2023-2026

Implement a single tree and group selection. The groups will range from .5ac to 2ac in size with most groups being 0.5ac. No more than 15% of the unit should be in groups. These groups should be in areas of poor quality, mature trees that have met their diameter objective or in areas of established regeneration.

The larger groups will help to establish more early successional habitat within the forest. The larger groups should be on the eastern side of Reservoir road. Here the quality of the trees is poorer, and this area is closer to the eastern unit being managed for wildlife. These groups will provide food and cover for many different types of wildlife. Many of which will be using the remote, softwood dense Eastern unit. The target size for the larger groups should be between 1-2ac. Retention within the patch should consist of red oak or other mast bearing trees. Snag recruitment is encouraged within the patch to enhance wildlife habitat.

In-between the groups, implement a selection harvest that will reduce the basal area to 110-100ft<sup>2</sup>/ac. Trees targeted for release should be red oak, white pine and other hardwoods of good form and vigor. Trees targeted for removal will be those directly competing with trees chosen for release and trees of poor quality.

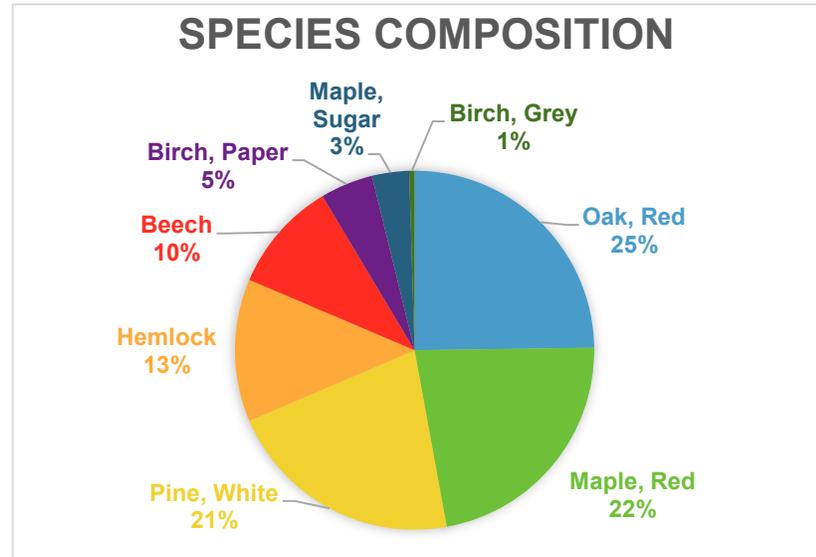
## Stand 4

46 acres

Points Sampled 16

### **Description**

This stand surrounds the parking area and landing. Red oak and red maple are the most common species found in this stand. The red oak varies in size from pole sized to saw logged sized. This stand has the highest amount of pole sized red oak within it. The red maple is generally smaller in size and of poorer quality than the red oak. There are nice saw log quality red maple scattered throughout the stand. White pine is found throughout. The western section of the stand tends to have more pine than the east. In these sections the pine is mixed with hemlock. It appears the last time this stand was harvested was in the 1980's.



### **Stand Statistics**

**Quadratic Mean Stand Diameter:** 12.04"

**Volume:** 4742bf/ac 6.6 cords/ac

**Basal Area:** 131ft<sup>2</sup>/ac

**AGS BA:** 74ft<sup>2</sup>/ac

**UGS BA:** 57 ft<sup>2</sup>/ac

**Trees per Acre:** 166

### **Terrain**

This stand is situated in between two streams, each draining east. Each of these streams drain the former reservoirs. These streams converge in the far eastern part of the stand. The center of the stand is gently rolling and operable. The terrain steepens and steeply falls away near either stream.

This stand has two well-established recreational trails within it, Simond's Way and Moose Brook, constructed in 2000. Simond's Way appears to have been used as a skid trail in the past. If needed Moose Brook could be used for skidding in the future. Simond's Way runs along a stream in the south of the stand. This trail could be used again for logging operations, but it would be best for maintaining water quality if another route for a main skid trail is found. There are other minor recreational trails through out, see recreation plan for more details.

### **Regeneration**

The regeneration in this stand is made up of mostly beech saplings and seedlings. Other species of regeneration found were hemlock and white pine. These were only found in small amounts. The pine regeneration is starting to fade due to a lack of sunlight. There was significant deer browse in parts of this stand in areas providing softwood cover.

The amount of coarse woody debris (CWD) found in this stand is low. Out of the 16 points sampled in this stand half had CWD. Of those 8 points that had CWD, 5 had low levels and 3 had either moderate or high levels of CWD. Efforts should be made to increase the amount of CWD found in this stand. This will occur naturally through stand succession.

### History

A large disturbance can be seen in the northern part of stand 4 on the 1940 aerial photo. This appears to be a large cut of some sort. This part of the stand has more early successional species like paper birch and red oak. These trees are roughly the 80 years old and would date back to this disturbance. It appears given the stumps remaining another cut took place sometime in the 1980's. Besides some more recent cutting around the parking area the stand has not been cut since the 1980's logging operation.

### Soils

There are two distinct soil complexes found within this stand. The soil complex in the west of the stand near the parking lot Glover-Vershire complex, 3-15% slopes very rocky. This complex is fairly productive, relatively shallow and somewhat excessively drained soil. The second complex is found near the streams that surround this stand. This complex is Vershire-Dummerston complex, 8-15% and 25-60% slopes, rocky. This complex is productive, moderately deep and well drained. These soil complexes give this stand a forest site class of 1-2 out of 4, with 1 being the best and 4 being the poorest. (see soil report for more details)

### Forest Health

The white pine in this stand are being affected by red rot and needle cast. Pines throughout the stand can be found with thin crowns. Beech bark disease is affecting beech trees in this stand. Most beech trees were showing little resistance to the disease. Paper birch in this stand is beginning to decline due to age. Some of the sugar maple have old sugar maple borer damage.

### Invasive Plants

There is a small section of Japanese Knotweed along Reservoir Road that should be dealt with before it expands.

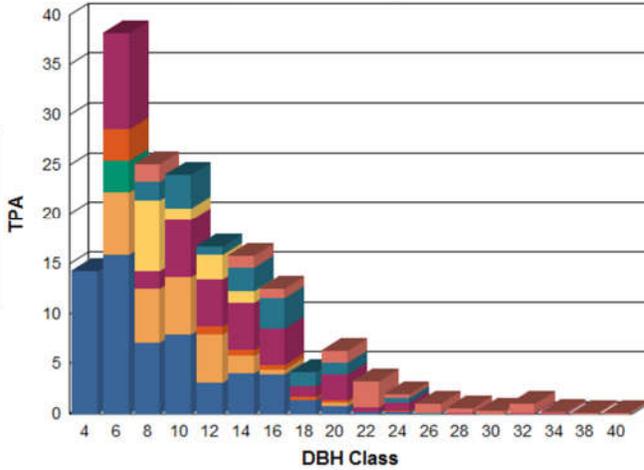
**Species Composition and Volume Table**

Species	Basal Area	%BA	TPA	QMD	RelDen	%AGS	Boardfoot Volume	Pulp Volume (Cords)
Oak, Red	32.5	24.76	35.36	12.98	28.65	94.23	1547.81	0.11
Maple, Red	29.38	22.38	59.44	9.52	24.33	40.43	411.93	1.38
Pine, White	28.13	21.43	10.9	21.75	9.55	66.67	2049.94	2.25
Hemlock	16.88	12.86	14.62	14.55	7.99	37.04	695.54	1.66
Beech	13.13	10	24.73	9.87	10.91	4.76		0.72
Birch, Paper	6.25	4.76	11.86	9.83	5.78	90	36.64	0.06
Maple, Sugar	4.38	3.34	5.85	11.72	3.51	14.29		0.47
Birch, Grey	0.63	0.48	3.18	6.03	0.57			
<b>TOTAL</b>	<b>131.25</b>	<b>100</b>	<b>165.95</b>	<b>12.04</b>	<b>91.29</b>	<b>56.38</b>	<b>4741.85</b>	<b>6.65</b>

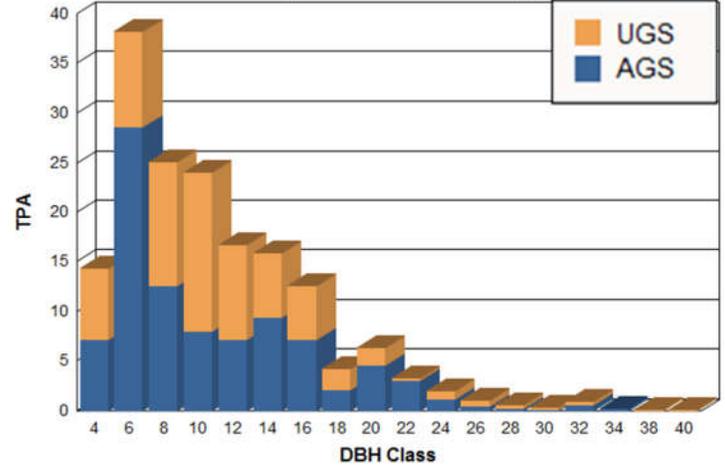
## Stand Structure

This stand is two aged. Meaning the stand has two distinct age classes. There are not quite enough smaller sized trees for this stand to be considered uneven aged. As this stand ages naturally, it will eventually move towards an uneven aged forest. This will happen as new tree regeneration becomes established as overstory trees fall out of the canopy.

Trees Per Acre by DBH Class & Species

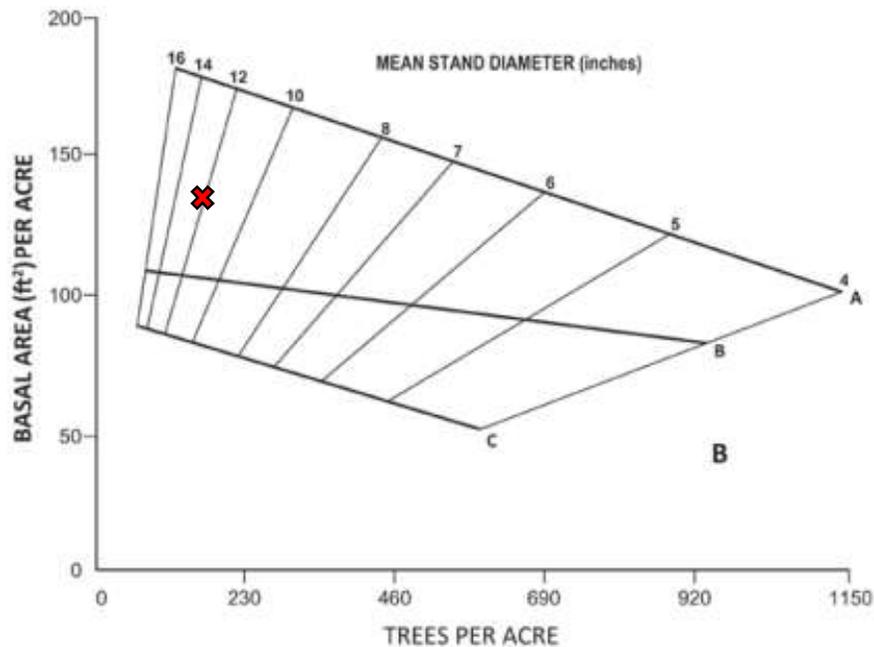


Trees Per Acre by DBH Class & Quality



## Stand Density

When comparing the density to the mixed wood stocking guideline the stand is in between the A-line and B-line. Which according to the chart means this stand is adequately stocked.



The "X" show where the stand density charted out on the mixed wood stocking guide according to Silvicultural Guide for Northern Hardwood Types in the Northeast.

## **Silvicultural Management**

This stand can be broken up into two different management units. One of the units is the hardwood area concentrated in the south eastern part of the stand. Here the soils are a bit wet. The size of the trees are pole to small saw log sized. The composition is made of mostly red oak and red maple. Some very large red oak can be in found this unit. This area would benefit from a light crop tree release. This work could be done pre-commercially by volunteers, the Hartford VOTECH or Game of Logging courses.

The second unit is in the western part of the stand. This unit is dominated by large white pine. Some of the pine are being affected by needle cast so much their growth and health are being affected. There are signs of red rot throughout. This unit lacks viable regeneration. Any treatment done in this stand should attempt to regenerate desirable regeneration. This will be a challenge due to the amount of deer browse in this stand. This unit also surrounds the parking lot and is heavily used by recreationalists. It will be important to keep the feel of this area and maintain the large pines throughout the unit, while attempting to get viable regeneration established.

## **Treatment**

### **Eastern hardwood unit 2020-2030**

Implement a pre-commercial crop tree release. The crop tree release will focus on releasing red oak and red maple. Other hardwoods of good form and quality should also be targeted for release. Attempt to release 30-50 trees an acre. The basal area should not be reduced below the B-line of the hardwood stocking guide.

### **Western pine unit 2021-2024**

Implement a thinning. This thinning should reduce the basal area to 100-120ft<sup>2</sup>/ac. The thinning should target white pine for removal with old logging damage, weak crowns with <30% Live Crown Ratio (LCR) or are poorly formed or declining in health. Secondly remove white pine if competing with desirable hardwoods such as red oak or red maple. Trees to be promoted and released during the thinning are white pine with strong crowns and desirable hardwood with good form.

Attempt to remove concentrations of beech regeneration. This regeneration will adversely affect attempts to regenerate more desirable tree species. This can be done through the felling of the overstory or by the location of skid trails. Treating the beech in the understory with herbicide should also be considered. A licensed pesticide applicator should be consulted when applying herbicides.



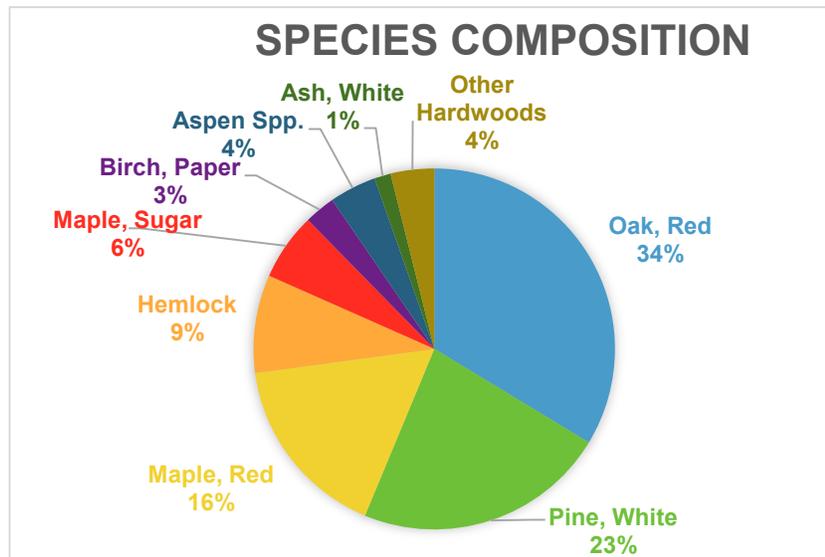
## Stand 5

117 acres

Points Sampled 51

### **Description**

This stand is in the northern part of the property. The former Lower Reservoir is located in the southern part of the stand. The composition here is a variable red oak-white pine-hemlock. White pine and red oak can be found throughout, but there are sections of the stand where one species is more dominant than another. Most of the pines in this stand are large and have a super dominant canopy position. The western part of the stand has denser concentrations of white pine. Red oak varies in size, most are at least small saw log size or larger. Red oak is more dominant in the east. The quality and size of red maple in stand 5 varies and it is found throughout. A concentration of large early successional species can be found in the center of the stand. In this area aspen dominates the overstory. The aspen trees are a mix of trembling and big tooth aspen. Most seem to be in decent health and are large. A forested wetland is in the north western corner of this stand. Some logging appears to have been done in this stand, mostly in the north.



### Stand Statistics

**Quadratic Mean Stand Diameter:** 12"

**Volume:** 5,655bf/ac 4 cords/ac

**Basal Area:** 118ft<sup>2</sup>/ac

**AGS BA:** 73ft<sup>2</sup>/ac

**UGS BA:** 45 ft<sup>2</sup>/ac

**Trees per Acre:** 140

### **Terrain**

The terrain in this stand is generally gently rolling and operable. Closer to the former communications tower the terrain is steeper. There are a series of dry swales in the center of the stand as the terrain steepens to the east.

This stand has three well established recreational trails within it, W.B Brown Trail, Pine Drop and Moose Brook Trail. Except for Pine Drop these main trails were old logging trails at one point. There are other minor recreational trails through out, see recreation plan for more details.

### **Regeneration**

Regeneration in this stand is made up mostly of scattered beech saplings and seedlings. There are pockets of white pine seedlings. Though, it is starting to fade due to a lack of sunlight. Other species that can be found in the understory are sugar maple, striped maple, hemlock, aspen and red oak. Deer browse was prevalent throughout but concentrated near areas of hemlock.

The amount of coarse woody debris (CWD) found in this stand is variable. Out of the 52 points sampled in this stand 32 had CWD. Most of the 32 points reported low amounts of CWD, with 7 points reporting moderate to high amounts of CWD. Efforts should be made to increase the amount of CWD found in this stand. This will occur naturally through stand succession.

### **History**

In the center of the stand, near the reservoir there is area of mature early successional species. This same area looks like it was either an open field or cut heavily based on the 1940 aerial photo. The northern section of the stand had harvesting done during the 1980's. This cut appears to have been an oak shelterwood treatment based on the residual stand. According to records this stand was treated in the 1960's. No recent work has been done in this stand.

### **Soils**

There are a few different soil complexes found in this stand. The most common is found throughout the eastern part of the stand, that complex is Glover-Vershire complex, 15-35% slopes, very rocky. This complex is fairly productive, relatively shallow and somewhat excessively drained soils. There are three different soil complexes found in the western part of the stand. The complex just north of the reservoir is Buckland loam, 8-15% slopes very stony. This complex is moderately productive, fairly deep and moderately well drained. The soil complex found along western boundary of the stand is Vershire-Dummerston complex, 8-15% and 25-60% slopes, rocky. This complex is productive, moderately deep and well drained. The last soil complex found in this stand is Cabot silt loam, 0-8% slopes very stony. This complex is fairly shallow, poorly drained and not very productive. These soil complexes give this stand a forest site class of 2 out of 4, with 1 being the best and 4 being the poorest. (see soil report for more details)

### **Forest Health**

The white pine in this stand is being affected by two different pathogens, white pine needle cast and red rot. Many white pine crowns were thin due to needle cast. Some pines were in severe decline due to needle cast. Fruiting bodies of red rot can be found on white pine trees throughout the stand. Most beech trees are showing little resistance to beech bark disease. Some of the aspen had signs of internal rot. This is not uncommon for aspen trees of the size and age of those found in this stand. Paper birch in this stand is beginning to decline due to age.

### **Invasive plants**

No invasive plants were found with in this stand.

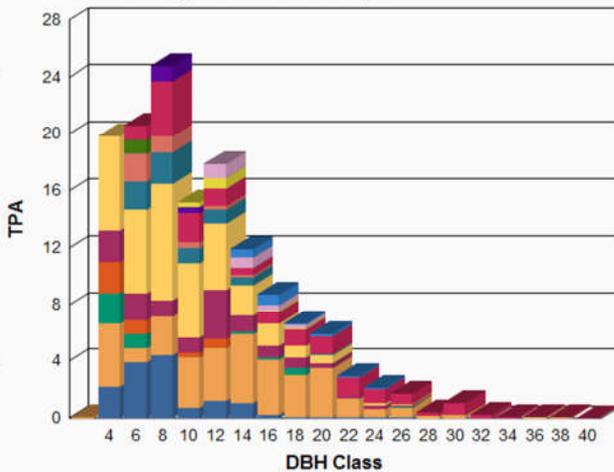
**Species Composition and Volume Table**

Species	Basal Area	%BA	TPA	QMD	RelDen	%AGS	Boardfoot Volume	Pulp Volume (Cords)
Oak, Red	39.81	33.66	33.54	14.75	34.68	87.44	2369.39	0.56
Pine, White	26.73	22.6	16.36	17.31	9.58	69.06	2785.61	1.15
Maple, Red	19.62	16.59	36.11	9.98	16.16	32.35	106.06	0.93
Hemlock	10.38	8.78	13.29	11.97	4.9	31.48	244.47	0.88
Maple, Sugar	7.12	6.02	14.37	9.53	5.89	29.73	51.57	0.28
Birch, Paper	3.27	2.76	6.83	9.37	3.03	64.71	37.68	0.01
Aspen, Trembling	2.5	2.11	2.33	14.03	1.13	46.15	34.9	0.11
Aspen, Big Tooth	2.5	2.11	1.65	16.67	1.13	61.54	42.83	0.14
Ash, White	1.73	1.46	3.99	8.92	1.43	55.56	68.78	0.04
Birch, Yellow	1.54	1.3	3.91	8.5	1.31	75	7.27	0.02
Beech	1.15	0.97	4.27	7.03	1.02			0.04
Aspen, Spp.	1.15	0.97	1.33	12.59	0.52	83.33	14.9	0.02
Cherry, Black	0.58	0.49	1.45	8.56	0.5			
Hophornbeam	0.19	0.16	0.98	5.96	0.18	100		
[ TOTAL ]	<b>118.27</b>	<b>100</b>	<b>140.41</b>	<b>12.43</b>	<b>81.45</b>	<b>61.72</b>	<b>5763.47</b>	<b>4.18</b>

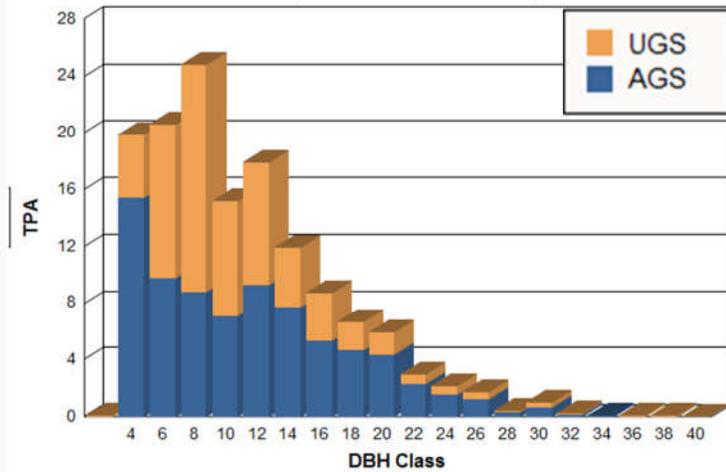
**Stand Structure**

This stand is two aged. Meaning the stand has two distinct age classes. There are not quite enough smaller sized trees for this stand to be considered uneven aged. As this stand ages naturally, it will eventually move towards an uneven aged forest. This will happen as new tree regeneration becomes established as overstory trees fall out of the canopy.

Trees Per Acre by DBH Class & Species

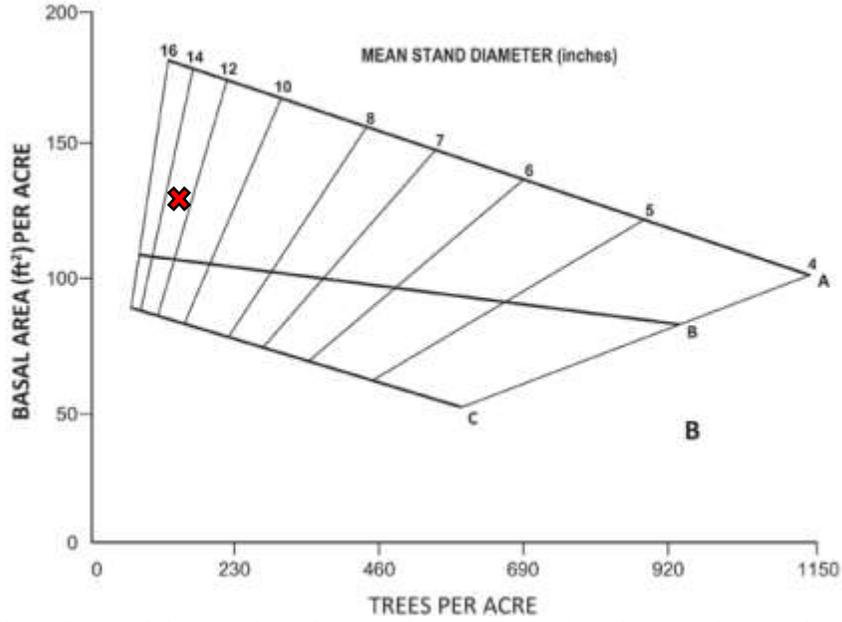


Trees Per Acre by DBH Class & Quality



## Stand Density

When comparing the density to the mixed wood stocking guideline the stand is near the B-line. Which according to the chart means this stand is adequately stocked.



The "X" show where the stand density charted out on the mixed wood stocking guide according to Silvicultural Guide for Northern Hardwood Types in the Northeast.

## **Silvicultural Management**

This stand can be split into three management units. The first unit is the western area of white pine. This area is very similar to the western unit of stand 4. It is essentially an extension of that management unit. Some of the pine in this unit are suffering from needle cast and signs of red rot can be found throughout. Desirable tree regeneration is lacking throughout the stand. This area should be treated in the same manner as stand 4's western unit.

The second management unit is the hardwood dominated areas in the central and southern parts of the stand. This area is a mix of older early successional species and red oak, red maple and sugar maple. The areas of declining early successional species would be a great area to place a patch cut. This patch cut would increase young forest habitat. The aspen found in these areas will sprout quickly achieving the desired habitat faster. The maple and oak areas would benefit from more growing space. A single tree selection would provide the residual stems more growing space. Which will increase their health and vigor.

The final management unit is the hemlock dominated area in the north eastern part of the stand. The overall basal area for the stand is 118ft<sup>2</sup>. The hemlock unit has a higher basal area than the rest of the stand. The tree points taken in this unit have an average basal area of 220ft<sup>2</sup>. This area of hemlock is growing densely and because of this it is currently providing cover for deer. This area should be enhanced and maintained. Any treatment done will maintain at least 70% crown closure throughout areas treated.

## **Treatment**

### **Western pine 2021-2024**

Implement a thinning. This thinning should reduce the basal area to 100-120ft<sup>2</sup>/ac. The thinning should target white pine for removal with old logging damage, weak crowns with <30% LCR or are poorly formed or declining in health. Secondly remove white pine if competing with desirable hardwoods such as red oak or red maple. Trees to be promoted and released during the thinning are white pine with strong crowns and desirable hardwood with good form.

Attempt to remove concentrations of beech regeneration. This regeneration will adversely affect attempts to regenerate more desirable tree species. This can be done through the felling of the overstory or by the location of skid trails. Treating the beech in the understory with herbicide should also be considered. A licensed pesticide applicator should be consulted when applying herbicides.



#### Central hardwood unit 2021-2024

Implement a 2-5ac patch cut in areas dominated with aspen and paper birch. Retention within the patch should consist of red oak or other mast bearing trees. Snag recruitment is encouraged within the patch to enhance wildlife habitat.

#### Central hardwood unit 2025-2030

Implement a single tree and group selection. This single tree selection treatment would be focused on releasing trees of good quality and form, with the main species chosen for release being red oak, red maple and sugar maple. The basal area should be reduced to 80-70ft<sup>2</sup>/ac. Where well-established, desirable regeneration is present use small group selection to release. The size of the groups will be dictated by the regeneration being released but should be no bigger than .25ac. This unit should not have more than 10% of its area in groups.

#### Northeastern hemlock unit: 2025-2030

Implement a light single tree and group selection harvest. Groups will be no larger than 5-6 trees and will make up no more than 10% of the unit. These groups will be in areas of poor quality or existing advance regeneration.

In between the groups a light single tree selection treatment will be implemented. Reducing the basal area in between the groups to 130-140ft<sup>2</sup>/ac. Poor quality trees or trees that have met their diameter target will be targeted for removal. Mast bearing trees should be a priority for release. Other trees that should be managed for are quality hemlock, red spruce, red maple, though all species should be considered for retention to promote species diversity.

## Schedule of Management Activities

(Timing of specific activities may be shifted)

Stand	Activity	Scheduled Year	Priority	Cost	Partner
All	Boundary line maintenance	2020 and every 10 years	High	\$120-\$150 for paint	Volunteers/ County Forester
All	Monitor for invasive plants	Annual	High	None	Volunteers, County Forester, Hartford Vo Tech
All	Invasive plant removal	Ongoing	High	None (based on current low levels of plants)	Volunteers, Hartford Vo Tech
All	Trail maintenance	Ongoing	High	Variable	Volunteers, VYCC, Trail user groups
Lower Reservoir meadow	Mow	Annual	Medium	\$100	
5	Thin western pine unit	2021-2024	Medium	None, revenue positive	County Forester
5	Patch Cut hardwood unit	2021-2024	Low	None, revenue positive	County Forester
4	Thin western pine unit	2021-2024	Medium	None, revenue positive	County Forester
4	Pre-commercial crop tree release eastern hardwood unit	2020-2030	Low	None	Hartford Vo Tech, VWA,
3	Single tree and group selection harvest western pine-oak unit	2023-2026	Medium	None, revenue positive	County Forester
5	Single tree and group selection harvest central hardwood unit & northern hemlock unit	2025-2030	Medium	None, revenue positive	County Forester
1	- Thin pine unit - Selection harvest red oak unit	2025-2028	Medium	None, revenue positive	County Forester
2	Single tree and group selection harvest all units	2030-2035	Medium	None, revenue positive	County Forester
All	Update forest management plan	2030	High		Vermont licensed forester

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## Glossary

**AGS:** Acceptable Growing Stock (AGS) is a classification given to trees in a stand which are considered healthy and capable of producing a saw log now or sometime in the future.

**Age Class:** See “Cohort.”

**Cable Skidder:** A skidder which uses a cable winch to drag trees out of the forest. These skidders are generally smaller and lighter than skidding equipment used by whole-tree logging crews.

**Cohort:** A group or generation of trees of generally the same age, often initiating from the same disturbance event.

**Composition:** The proportion of trees of different species present in a given forest or stand.

**Cover Type/Forest Type:** A classification given to a stand based on the dominant tree species present at a given moment in time.

**Cut to length system:** A method of logging where trees are processed at the stump into log lengths. Normally this system uses a forwarder to the haul logs to a landing.

**DBH:** Diameter at Breast Height – the diameter measurement of the trunk of a tree 4.5’ above the ground. DBH is the standard system for measuring tree diameter in forestry.

**Even-Aged:** A stand comprised of trees of a single age class (cohort), usually resulting from a single disturbance event.

**Forwarder:** Logging equipment used to haul logs to the landing. This equipment picks up logs, places them in its bunk and are carried instead of dragged to the log landing.

**Harvest:** The process of cutting trees to extract forest products from the woods.

**Intermediate:** The canopy position of trees who have been over-topped by other stems, but are still receiving some direct light from above. These stems are generally higher in quality than suppressed trees, and in the case of shade-tolerant species may be healthy, but overall, they are poor in condition.

**Group Selection:** This treatment system involves harvesting all stems in a small area, usually no greater than 1 acre in size. These areas in which all trees are harvested are called “groups,” and may be as small as 2-3 trees in size. The goal for these groups is to regenerate a new cohort of trees or to release existing regeneration. Usually, these groups will regenerate a portion of a stand in proportion to the frequency of cutting and the rotation age of the stand. For instance, in a stand with a cutting cycle (frequency) of 20 years and a target rotation age of 100 years, 20% of the stand would be regenerated using groups each time cutting is done. This way, by the time the full rotation age has passed, all areas have been regenerated and there are 5 age classes of trees in the forest. In reality, a fully-balanced age-class distribution would be next to impossible to achieve, but this is the general goal of this system.

**Landing:** A cleared area where logs are yarded or skidded to for loading onto trucks for transport to the mill.

**Midstory:** Trees with a canopy position below the overstory, but above the understory in a stand. The midstory of a forest usually consists of suppressed and intermediate stems and/or slow growing or shade tolerant species.

**Natural Community:** An assemblage of biotic/abiotic factors in an environment, and the processes that govern them. Natural communities consist of all levels of biota in a forest and consider how forest composition and structure changes over time.

**Overstory:** The highest canopy position of trees in a forest. Overstory trees are generally those whose crowns are exposed to full or nearly full light.

**Pole:** An immature tree generally 4"-10" DBH

**Prescription:** A silvicultural strategy for how to manage a stand to achieve a desired result. A prescription will detail exactly how to harvest a forest, including providing metrics for the residual stand, and a detailed description of trees to be cut and those to be retained.

**Release:** The process of removing competing trees, allowing released trees to grow more freely.

**Regeneration:** Young trees and plants (usually less than 4" DBH) in the forest, often growing in response to a human-caused or natural disturbance event.

**Sapling:** An immature tree generally 2-4" DBH.

**Stem:** A word used in forestry to refer to the main bole of a tree.

**Silviculture:** The art and science of tending a forested stand, generally using timber harvesting as a tool.

**Single Tree Selection:** This treatment harvests trees of all age classes in a stand to encourage the growth of higher quality stems and the establishment of regeneration of shade-tolerant tree species. This treatment can also be used to ensure that there is an even distribution of trees of different species throughout the stand. This treatment is often employed between groups as part of uneven-aged management.

**Skidder:** A tractor-like machine, used to drag or "skid" trees out of the forest.

**Stand:** An area of forest in a similar enough condition, with regards to structure, composition, history and other factors, to be managed as a single unit.

**Structure:** In a forestry context, structure describes the presence of different age classes and canopy heights within a stand. Vertical structure is comprised of trees of different heights interspersed throughout an area, whereas horizontal structure described the presence of pockets of trees of different ages. In uneven-aged management, single tree selection usually encourages the creation vertical structure, whereas group selection creates horizontal structure. Structure may also describe the arrangement of dead wood across in a forest.

**Succession:** The process by which trees in a forest move from one generation and condition to the next. "Early successional" stands are those that establish following a disturbance, stocked by shade-intolerant and pioneer species, while "late-successional" (sometimes used interchangeably with "old-growth") stands, occur when stands have developed into older forest types, often stocked by larger, older trees of shade-tolerant species and a more complex, uneven-aged structure.

**Suppressed:** Trees which have been completely overtopped by overstory stems, receiving little to no direct sunlight, are considered "suppressed." Except in the cases of very shade-tolerant species, suppressed trees are often stunted and poor in quality.

**Timber:** Timber is used to describe the forest products (saw logs, pulp, firewood, etc.) located inside the standing trees present in the forest. This word is sometimes also used to describe these products after the trees have been cut but before they have been processed or milled.

**Treatment:** A silviculturally planned and executed timber harvest.

**Two-aged:** A stand which is comprised of two distinct age classes. This is a common condition in managed forests, as the overstory is often targeted for logging, regenerating a new understory cohort while retaining some overstory trees.

**UGS:** Unacceptable Growing Stock (UGS) is a classification given to unhealthy or crooked trees unlikely to live long or to produce a saw log in the future.

**Uneven-aged:** A stand comprised of three or more distinct age classes of trees. This forest type is common in undisturbed and “old-growth/late successional” forests.

**Uneven-age management:** This management system seeks to emulate natural disturbance regimes and natural forest growth patterns by establishing and maintaining multiple age classes of trees within a single stand.

**Understory:** Trees located at the lowest canopy positions in the forest, usually consisting of very young stems less than 10’ in height.

**Whole-Tree Logging:** A type of logging that utilizes large, mechanized machinery to process trees from the stump up. Whole trees are dragged from the stump to a log landing where they are processed into a variety of products, usually including wood chips from stems with little saw log value, tops and limbs.



**TOWN OF HARTFORD  
SELECTBOARD MINUTES**

Tuesday, October 20, 2020  
6:00pm Hartford Town Hall  
171 Bridge Street  
White River Junction, VT 05001

**This meeting was conducted in compliance with  
Vermont Open Meeting Law with electronic participation.**

**Present at Town Hall:** Dan Fraser, Selectboard Chair; Patrick MacQueen, Interim Town Manager; Lana Livingston, Administrative Assistant; Simon Dennis, Selectboard Vice Chair.

**Present via ZOOM:** Alan Johnson, Selectboard Member; Joseph Major, Selectboard Member; Kim Souza, Selectboard Clerk; Emma Behrens, Selectboard Member; Alicia Barrow, Selectboard Member.

**Please Note:** Emma Behrens left the meeting at 10:00 PM.

**CATV LINK:** <http://catv.cablecast.tv/CablecastPublicSite/show/13116?channel=1>

**Selectboard Chair, Dan Fraser read the following:**

*As Chair of the Town of Hartford Selectboard I find that, due to the State of Emergency declared by Governor Scott as a result of the COVID-19 pandemic and pursuant to Addendum 6 to Executive Order 01-20 and Act 92, this public body is authorized to meet electronically. In accordance with Act 92, there is no physical location to observe and listen contemporaneously to this meeting. However, in accordance with the temporary amendments to the Open Meeting Law, I confirm that we are:*

*a) Providing public access to the meeting by [telephone/video/other electronic means], with additional access offered through telephone, zoom and youtube.com. We are using Zoom for this remote meeting. All members of the Board have the ability to communicate contemporaneously during this meeting through this platform and the public has access to contemporaneously listen and, if desired, participate in this meeting by If you're calling in from phone dial: (415) 762-9988 Type in the Room ID: 549-799- 933 followed by #. Press # a second time. Press \*9 to raise your hand for public comment.*

*b) Providing public notice of instructions for accessing the meeting. We previously gave notice to the public of the necessary information for accessing this meeting, including how to access the meeting using telephone, zoom and youtube.com in our posted meeting agenda. [Instructions have also been provided on the town website on the "Agendas and Minutes."]*

*c) Providing a mechanism for the public to alert the public body during the meeting if there are problems with access and*

*d) Continuing the meeting if necessary. In the event the public is unable to access this meeting, it will be continued to a time and place certain.*

*Please note that all votes taken during this meeting that are not unanimous will be done by roll call vote, in accordance with the law.*

*Let's start the meeting by taking a roll call attendance of all Selectboard members participating in the meeting.*

**I. Call to Order the Selectboard Meeting:** Selectboard Chair, Dan Fraser called the Hartford Selectboard meeting to order at 6:02 P.M.

**II. Pledge of Allegiance:** Interim Town Manager, Patrick MacQueen led the Pledge of Allegiance.

**III. Local Liquor Control Board: N/A**

**IV. Order of Agenda:** Pat MacQueen asked to add the Town's Health Insurance Plan that will change from BCBS to MVP. Selectboard Vice Chair, Simon Dennis asked to tabled item 4.h. The Town Manager Profile.

**V. Selectboard**

**1. Public, Selectboard Comments and Announcements**

Public comments: Lannie Collins from Quechee called in to congratulate the Hartford Police Department on the significant drug bust on Fairview Terrace.

Mike Morris asked if the discussion about the pool could stay away from saying that the public was not informed. Through the months preceding the vote, there were a multitude of informational meetings and a lot of public forums and information on the pool where the public was well informed about what they were voting about.

Selectboard comments: Joe Major recognized the passing of Bonnie Briggs and condolences to her family Betsy, Jack and David. She was a long-time resident of Hartford and her legacy will live on in this community.

Kim Souza thanked Pat for his help to shepherd the town through this time and we were lucky to have him here.

Dan Fraser also said a thank you to Pat.

Alan Johnson gave his resignation from the Selectboard to be effective November 5<sup>th</sup>.

Alicia Barrow thanked Alan for his time serving on the Board.

2. **Appointments: N/A**

3. **Town Manager's Report:**

Significant Activity Report Link:

<https://www.hartford-vt.org/ArchiveCenter/ViewFile/Item/196>

4. **Board Reports, Motions & Ordinances:**

a. VTRANS VA Cutoff Bridge Presentation

Hannah Tyler introduced Josh Olund who gave the presentation on the VA Cutoff Bridge replacement.

• Highlights:

- Project Overview
- Project Status and Estimated Schedule
- Specific Discussion Points
  - Revegetating Impervious Areas
  - Bus Stop Improvements
  - Intersection Stop Control
  - VT-14 Traffic Control during Construction
  - Questions

Link to Presentation: <https://www.hartford-vt.org/DocumentCenter/View/4686/Hartford-Bridge-7-Selectboard-Meeting>

b. 2022 Budget for Consideration

Pat MacQueen presented the draft proposal of the FY22 Budget. The budget included Zero Increase, 5% decrease and 10% decrease from this year's budget as well as the suggested budget from the Interim Town Manager.

Draft Budget Link: <https://www.hartford-vt.org/DocumentCenter/View/4654/DRAFT-2020-Budget-Complete>

A discussion on the Wellness Coordinator was held. At the end of the discussion it was decided to have Kim Souza and Emma Behrens draft a new job description for a new position of the Wellness Coordinator. They will also be touching base with Chiefs Cooney and Kasten.

c. Quechee Fire Presentation (Information Only)

Fire Chief Scott Cooney presented a proposal addressing Service Gaps. The focus of the presentation is to add temporary and then permanent living space to the Hartford Station #2 on Willard Road in Quechee. It is clear that response times will decrease with manning this station which is seeing increases in population and calls for service. Chief Cooney can do this without expanding his staffing.

**Selectboard Chair, Kim Souza made the motion to authorize the Interim Town Manager to enter into a leasing agreement for a temporary building at the Quechee Station. Further, to authorize the Interim Town Manager to use previously encumbered funds to support this project through the remaining FY 21 fiscal year. Selectboard Member, Joe Major seconded the motion. All were in favor and the motion passed.**

d. Pool Bond Town Vote

**Selectboard Member, Alan Johnson made the motion that the Selectboard delay the pool project until the March 2021 election with the intent of asking the Bond question. Selectboard Vice Chair Simon Dennis seconded the motion. 4 were in favor (Johnson, Dennis, Barrow & Behrens), 3 were opposed (Souza, Major & Fraser). The motion passed.**

The Pool Bond question will be asked again on the March 2021 Ballot.

**Kim Souza moved that the Selectboard request the interim Town Manager send a letter of intent to Breadloaf Construction indicating that, if the Pool Bond is approved by voters in March 2021, that we would use their services and request that they maintain a bid as close to the original amount as possible. 2nd by Emma Behrens. All in favor. Passed unanimously.**

e. Award Hartford Well #2 Clean and Redevelop Contract.

**Selectboard Clerk, Kim Souza made the motion to accept the proposal from Maher Services, Inc. to perform the Well #2 cleaning and redevelopment. Selectboard Member, Joe Major seconded the motion. All were in favor and the motion passed.**

f. Cargill Salt Contract Award

**Selectboard Vice Chair, Simon Dennis made the motion to Authorize the purchase of winter deicing salt from Cargill. Selectboard Member, Emma Behrens seconded the motion. All were in favor and the motion passed.**

g. Round #2 of Special \$2K COVID RECOVERY GRANTS

**Selectboard Member, Alan Johnson made the motion that the Selectboard direct the Town Manager to pursue the next round of Hartford Business Economic Recovery grants to the remaining applicants that meet the new RLF income requirements. Selectboard Clerk, Kim Souza seconded the motion. All were in favor and the motion passed.**

**Selectboard Clerk, Kim Souza made the motion to direct the Town Manager using the current Hartford Business Revolving Loan Fund structure develop guidelines for the new revolving loan fund incorporating requirements for meeting VCDP benefit and consider predominate use of the fund for economic development. Selectboard Vice Chair seconded the motion. All were in favor and the motion passed.**

h. Town Manger Profile – tabled until a later date.

*Note: Emma Behrens left the meeting at this time.*

i. Mask on Hartford Campaign.

The COVID committee has asked for up to \$2000 for the signage in the villages.

**Selectboard Member, Alan Johnson made the motion to allocate up to \$2000 to promote mask wearing around town banners and other publicity.**

**Selectboard Member, Joe Major seconded the motion. All (6) were in favor and the motion passed.**

j. Health Insurance for Town employees

Interim Town Manager, Pat MacQueen presented the proposed changed from BCBS to MVP Health Insurance for the Town employees. This will save the town of approximately \$112,000.

**Selectboard Chair, Dan Fraser made the motion to authorize the Interim Town Manager to sign the sidebar agreements with the unions. Selectboard Clerk, Kim Souza seconded the motion. All (6) were in favor and the motion passed.**

## VI. Commission Meeting Reports

Joe Major reported from the Parks & Rec Commission and reminded all the Trunk or Treat will be a drive through event this year at Hartford High School. At the end the children will be given bags of goodies.

Kim Souza reported from the Planning Commission. In a past meeting subdivisions were discussed. There are no applications in the que currently. There is also a land use workshop coming up.

Alicia Barrow reported from the Sister City Committee. They are currently working on placing signage in eight locations around town.

Dan Fraser reported from the Chamber of Commerce that the Hartford Dollars program sold out quickly. This is good news for the local merchants.

## VII. Consent Agenda (motion required)

**Selectboard Member, Joe Major made the motion to accept the Consent agenda. Selectboard Clerk, Kim Souza seconded the motion. All (6) were in favor and the motion passed.**

Approve Payroll Ending: 10/17/2020

Approve Meeting Minutes of: 10/6/2020

Approve A/P Manifest of: 10/16/2020 & 10/20/2020

Selectboard Meeting Dates of:

- Already Approved:

11/2/2020 Monday – Regular & Budget Meeting

11/5/2020 Thursday - Budget Meeting

11/17/2020 Tuesday – Regular & Budget Meeting

11/19/2020 Thursday - Budget Meeting

## VIII. Executive Session:

**Selectboard Clerk, Kim Souza made the motion at 10:30PM to enter in to Executive Session for Discussion of the appointment of a town manager under the provisions of Title 1, Section 313(a)(3) of the Vermont Statutes. Selectboard Vice Cahir, Sion Dennis seconded the motion. All were in favor and the motion passed.**

**Selectboard member, Alan Johnson made the motion to close the Executive Session at 10:50PM. Selectboard member, Joe Major seconded the motion. All were in favor and the motion passed.**

## IX. Adjourn the Selectboard Meeting (motion required)

**Selectboard Member, Joe Major made the motion to close the meeting at 10:50pm. Selectboard Member, Alicia Barrow seconded the motion. All were in favor and the motion passed.**

All Meetings of the Hartford Selectboard are open to the public. Persons who are seeking action by the Selectboard are asked to submit their request and/or materials to the Selectboard Chair or Town Manager's office no later than noon on the Wednesday preceding the scheduled meeting date. Requests received after that date will be addressed at the discretion of the Chair. Citizens wishing to address the board should do so during the Citizen Comments period.

Report Date: 10/29/20  
10:53PM

**Payment Manifest  
by Vendor ID**

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**Town of Hartford**

ReportAPINHDD\_PmtByDate

Check Date: 10/30/2020 - 10/30/2020

Bank ID	Bank Name	Payee Name	Check Date	Check No.	
Vendor ID	Vendor Name				
<b>Detail:</b> Invoice No.	Invoice Description	Cross Fund	Invoice Amt	Disc. Amt	Net Amt.
<b>25-8055</b>	<b>PARKS - REC RESTRICTED</b>				
011906	CREATIVE LIVES, INC.		10/30/2020		1033
1	Summer Camp Enrichment Programming	0.00	\$540.00	0.00	540.00
	Desc: Summer Camp Enrichment Programming	Acct: 25-985-514-0001	State of VT COVID Restart Stipend		
	Vendor Total:		540.00	0.00	540.00
<b>25-8055</b>	<b>Dog Park</b>	<b>Bank Total:</b>			<b>540.00</b>
<b>73-7302</b>	<b>Dog Park</b>				
502156	SMITH, WENDY ANN	WENDY ANN SMITH	10/30/2020		1051
PO#7526	REIMBURSEMENT	0.00	\$221.50	0.00	221.50
	Desc: REIMBURSEMENT - Dog Park Expense	Acct: 73-511-318-7302	CONTRACTED SERVICES(DOG PARK		
	Vendor Total:		221.50	0.00	221.50
<b>73-7302</b>	<b>GENERAL FUND - MASCOMA</b>	<b>Bank Total:</b>			<b>221.50</b>
<b>FUND 1 0</b>	<b>GENERAL FUND - MASCOMA</b>				
001170	AIRGAS, INC.	AIRGAS USA, LLC	10/30/2020		70879
9106106159	Gas and wire spools for welder	0.00	\$26.78	0.00	26.78
	Desc: Gas and wire spools for welder	Acct: 10-321-323-0000	MATERIAL & SUPPLIES		
9106106158	Gas and wire spools for welder	0.00	\$432.44	0.00	432.44
	Desc: Gas and wire spools for welder	Acct: 10-321-323-0000	MATERIAL & SUPPLIES		
	Vendor Total:		459.22	0.00	459.22
001650	ALLEN ENGINEERING POOLS AND SPAS		10/30/2020		70880
111-520248-01	LIQUID CHLORINE	1,435.50	\$1,435.50	0.00	1,435.50
	Desc: LIQUID CHLORINE	Acct: 50-952-340-0000	CHEMICALS		
	Vendor Total:		1,435.50	0.00	1,435.50
002065	AMERICAN FAMILY LIFE ASSURANCE	AFLAC - AMERICAN FAMILY LIFE	10/30/2020		70881
894576	Additional ad&d insurance OCT'20	0.00	\$1,767.12	0.00	1,767.12
	Desc: Additional ad&d insurance OCT'20	Acct: 10-012-300-0270	ACCRUED AD&D PAYABLE		
	Vendor Total:		1,767.12	0.00	1,767.12
002962	AT&T MOBILITY	AT&T MOBILITY	10/30/2020		70882
OCT'20	I-PAD INTERNET	42.00	\$42.00	0.00	42.00
	Desc: I-PAD INTERNET	Acct: 50-952-324-0000	TELEPHONE		
	Desc: I-PAD INTERNET	Acct: 55-954-324-0000	TELEPHONE		
	Vendor Total:		42.00	0.00	42.00
003450	AUTOZONE		10/30/2020		70883
5120423788	AMB PARTS	0.00	\$82.18	0.00	82.18
	Desc: AMB PARTS	Acct: 10-221-321-0200	REPAIRS & MAINT EMS VEHICLES		
5120492435	PARTS WS-110	49.13	\$49.13	0.00	49.13
	Desc: PARTS WS-110	Acct: 60-964-321-0000	REPAIRS & MAINT-VEHICLES		
5120493201	PARTS W-4-2016	210.25	\$210.25	0.00	210.25
	Desc: PARTS W-4-2016	Acct: 50-954-321-0000	REPAIRS & MAINT-VEHICLES		

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Check Date: 10/30/2020 - 10/30/2020

Bank ID	Bank Name	Payee Name	Check Date	Check No.	
Vendor ID	Vendor Name				
<b>Detail:</b> Invoice No.	Invoice Description	Cross Fund	Invoice Amt	Disc. Amt	Net Amt.
Vendor Total:			341.56	0.00	341.56
004854	BENISTAR/HARTFORD		10/30/2020	70884	
11012020	RETIREES EXPRESS SCRIPTS	0.00	\$2,032.95	0.00	2,032.95
	Desc: Retirees Express Scripts	Acct: 10-211-418-0100	RETIREE HEALTH INSURANCE		
	Desc: Retirees Express Scripts	Acct: 10-271-418-0100	RETIREE HEALTH INSURANCE		
	Desc: Retirees Express Scripts	Acct: 10-325-418-0100	RETIREE HEALTH INSURANCE		
Vendor Total:			2,032.95	0.00	2,032.95
005040	BERGERON PROTECTIVE CLOTHING,		10/30/2020	70885	
222564	SNELLING PPE BOOTS	0.00	\$435.00	0.00	435.00
	Desc: SNELLING PPE BOOTS	Acct: 10-221-331-0100	FIRE SUPPRESSION EQUIPMENT		
224026	SNELLING PPE	0.00	\$3,997.92	0.00	3,997.92
	Desc: SNELLING PPE	Acct: 10-221-331-0100	FIRE SUPPRESSION EQUIPMENT		
Vendor Total:			4,432.92	0.00	4,432.92
005800	BLAKTOP INC.		10/30/2020	70886	
27923	MATERIALS 2020 PAVING&POTHOLES	0.00	\$2,886.59	0.00	2,886.59
	Desc: 2020 PAVING	Acct: 10-311-318-0000	CONTRACTED SERVICES		
	Desc: MATERIALS POTHOLES	Acct: 10-311-323-0000	MATERIAL & SUPPLIES		
Vendor Total:			2,886.59	0.00	2,886.59
005951	BLUE CROSS BLUE SHIELD VT	BC/BS OF VERMONT	10/30/2020	70888	
PO#7552	2020-000598 REFUND	0.00	\$515.12	0.00	515.12
	Desc: 2020-000598 REFUND	Acct: 10-221-325-0000	REFUNDS		
005951	BLUE CROSS BLUE SHIELD VT	BC/BS OF VERMONT	10/30/2020	70887	
NOV'20	HEALTH INSURANCE NOV'20	17,743.13	\$109,856.42	0.00	109,856.42
	Desc: Health Insurence	Acct: 10-121-220-0000	BC/BS		
	Desc: Health Insurence	Acct: 10-121-418-0100	RETIREE HEALTH INSURANCE		
	Desc: Health Insurence	Acct: 10-151-220-0000	BC/BS		
	Desc: Health Insurence	Acct: 10-171-220-0000	BC/BS		
	Desc: Health Insurence	Acct: 10-171-418-0100	RETIREE HEALTH INSURANCE		
	Desc: Health Insurence	Acct: 10-174-220-0000	BC/BS		
	Desc: Health Insurence	Acct: 10-175-220-0000	BC/BS		
	Desc: Health Insurence	Acct: 10-181-220-0000	BC/BS		
	Desc: Health Insurence	Acct: 10-211-220-0000	BC/BS		
	Desc: Health Insurence	Acct: 10-211-418-0100	RETIREE HEALTH INSURANCE		
	Desc: Health Insurence	Acct: 10-221-220-0000	BC/BS		
	Desc: Health Insurence	Acct: 10-221-418-0100	RETIREE HEALTH INSURANCE		
	Desc: Health Insurence	Acct: 10-271-220-0000	BC/BS		
	Desc: Health Insurence	Acct: 10-312-220-0000	BC/BS		
	Desc: Health Insurence	Acct: 10-321-220-0000	BC/BS		
	Desc: Health Insurence	Acct: 10-325-220-0000	BC/BS		
	Desc: Health Insurence	Acct: 10-325-418-0100	RETIREE HEALTH INSURANCE		
	Desc: Health Insurence	Acct: 10-511-220-0000	Medical		
	Desc: Health Insurence	Acct: 10-530-220-0000	BC/BS		
	Desc: Health Insurence	Acct: 10-530-418-0100	RETIREE HEALTH INSURANCE		
	Desc: Health Insurence	Acct: 10-622-220-0000	BC/BS		
	Desc: Health Insurence	Acct: 30-975-220-0000	BC/BS		

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Check Date: 10/30/2020 - 10/30/2020

Bank ID	Bank Name	Payee Name	Check Date	Check No.	
Vendor ID	Vendor Name				
<b>Detail:</b> Invoice No.	Invoice Description	Cross Fund	Invoice Amt	Disc. Amt	Net Amt.
	Desc: Health Insurance	Acct: 30-975-418-0100	RETIREE HEALTH INSURANCE		
	Desc: Health Insurance	Acct: 50-954-220-0000	BC/BS		
	Desc: Health Insurance	Acct: 50-955-220-0000	BC/BS		
	Desc: Health Insurance	Acct: 50-955-418-0100	RETIREE HEALTH INSURANCE		
	Desc: Health Insurance	Acct: 55-955-220-0000	BC/BS		
	Desc: Health Insurance	Acct: 55-955-418-0100	RETIREE HEALTH INSURANCE		
	Desc: Health Insurance	Acct: 60-961-220-0000	BC/BS		
	Desc: Health Insurance	Acct: 60-961-418-0100	RETIREE HEALTH INSURANCE		
	Desc: Health Insurance	Acct: 60-965-220-0000	BC/BS		
	Desc: Health Insurance	Acct: 60-965-418-0100	RETIREE HEALTH INSURANCE		
	Desc: Health Insurance	Acct: 65-963-220-0000	BC/BS		
	Desc: Health Insurance	Acct: 65-965-220-0000	BC/BS		
	Desc: Health Insurance	Acct: 65-965-418-0100	RETIREE HEALTH INSURANCE		
	<b>Vendor Total:</b>		110,371.54	0.00	110,371.54
006100	BMO FINANCIAL GROUP		10/30/2020		70889
	Kreis 10/01-15/20-2 Kreis, Dylan - REC	0.00	\$212.97	0.00	212.97
	Desc: Amazon - Dog Bags	Acct: 10-521-323-0000	MATERIAL & SUPPLIES		
	Desc: Amazon-Refund	Acct: 10-530-323-0000	MATERIAL & SUPPLIES		
	Kreis 10/01-15/20-3 Kreis, Dylan - REC	0.00	\$505.92	0.00	505.92
	Desc: Amazon - Cleaning supplies COVID	Acct: 10-530-417-0017	EXTRAORDINARY EXP : COVID-19		
	Desc: Amazon - Cleaning supplies COVID	Acct: 10-530-417-0017	EXTRAORDINARY EXP : COVID-19		
	Cooney 09/28-30/20 Cooney, Scott - FD	0.00	\$26.54	0.00	26.54
	Desc: KNOX BOX BATTERIES	Acct: 10-221-323-0000	MATERIAL & SUPPLIES		
	Kreis 10/01-15/20-4 Kreis, Dylan - REC	0.00	\$87.84	0.00	87.84
	Desc: Container purchase	Acct: 10-531-318-0510	Welcome Center Inventory		
	Lana 09/28-30/20 Livingston, Lana - Admin	0.00	\$293.70	0.00	293.70
	Desc: Hotel Coolidge - Interim Room	Acct: 10-111-315-0000	RECRUITMENT & TRAINING		
	Cooney 10/01-15/20 Cooney, Scott - FD	0.00	\$25.25	0.00	25.25
	Desc: Amazon-Dishwasher Detergent	Acct: 10-221-323-0000	MATERIAL & SUPPLIES		
	Lana 10/01-15/20 Livingston, Lana - Admin	0.00	\$293.70	0.00	293.70
	Desc: HotelCoolidge-Interim Lodging	Acct: 10-111-315-0000	RECRUITMENT & TRAINING		
	Lana 10/16-27/20 Livingston, Lana - Admin	0.00	\$97.90	0.00	97.90
	Desc: Hotel Coolidge - Lodging Interim I	Acct: 10-111-315-0000	RECRUITMENT & TRAINING		
	Delisle 10/01-15/20 Delisle, Jeremy - DPW	46.79	\$46.79	0.00	46.79
	Desc: VRWA-Training Fee	Acct: 60-961-315-0000	RECRUITMENT & TRAINING		
	Desc: Amazon-Cable	Acct: 30-974-323-0000	MATERIAL & SUPPLIES		
	O'Neil 09/28-30/20 O'Neil, Lisa - TC	0.00	\$27.80	0.00	27.80
	Desc: USPS - Postage	Acct: 10-151-322-0000	POSTAGE		
	O'Neil 10/01-15/20 O'Neil, Lisa - TC	0.00	\$7.10	0.00	7.10
	Desc: USPS-Postage	Acct: 10-151-322-0000	POSTAGE		
	Delisle09/28-30/20-1 Delisle, Jeremy - DPW	0.00	\$99.94	0.00	99.94
	Desc: AmazonKit to diagnose coolant leaks	Acct: 10-321-323-0000	MATERIAL & SUPPLIES		
	Ostrout 09/28-30/20 Ostrout, Gail - FIN	0.00	\$135.16	0.00	135.16
	Desc: BestWestern-Lodging COVID	Acct: 10-171-417-0017	EXTRAORDINARY EXP : COVID-19		
	Ostrout 10/01-15/20 Ostrout, Gail -FIN	0.00	\$295.29	0.00	295.29
	Desc: Best Western&McD - Lodging COVID	Acct: 10-171-417-0017	EXTRAORDINARY EXP : COVID-19		
	Delisle09/28-30/20-2 Delisle, Jeremy - DPW	700.00	\$1,400.00	0.00	1,400.00
	Desc: Special cement for man hole repairs	Acct: 65-964-321-0200	REPAIRS & MAINT-MAINS & APPUR		

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Check Date: 10/30/2020 - 10/30/2020

Bank ID	Bank Name	Payee Name	Check Date	Check No.	
Vendor ID	Vendor Name				
<b>Detail:</b> Invoice No.	Invoice Description	Cross Fund	Invoice Amt	Disc. Amt	Net Amt.
	Desc: Special cement for sidewalk repair	Acct: 10-316-321-0000	REPAIRS & MAINT		
Perry 10/01-15/20 -1	Perry, Diane - PD	0.00	\$81.31	0.00	81.31
	Desc: Amazon - Filters	Acct: 10-211-323-0000	MATERIAL & SUPPLIES		
Perry 10/01-15/20 -2	Perry, Diane - PD	0.00	\$44.02	0.00	44.02
	Desc: Amazon - Face Mask return	Acct: 10-211-326-0000	PURCHASE UNIFORMS & CLEANING		
	Desc: VT DMV-Car Registration	Acct: 10-211-321-0000	REPAIRS & MAINT-VEHICLES		
Delisle09/28-30/20-3	Delisle, Jeremy - DPW	81.98	\$81.98	0.00	81.98
	Desc: printer ink for White River Wastewa	Acct: 60-965-323-0000	MATERIAL & SUPPLIES		
	Desc: Printer ink for Quechee Wastewater	Acct: 65-965-323-0000	MATERIALS & SUPPLIES		
	Desc: printer ink for Water Department	Acct: 50-955-323-0000	MATERIAL & SUPPLIES		
Perry 10/01-15/20 -3	Perry, Diane - PD	0.00	\$232.74	0.00	232.74
	Desc: Amazon-Gloves COVID	Acct: 10-211-417-0017	EXTRAORDINARY EXP - COVID-19		
Rowlee 09/28-30/20	Rowlee, David - FD	0.00	\$30.81	0.00	30.81
	Desc: UPS-Postage	Acct: 10-221-322-0000	POSTAGE		
Dube 10/01-15/20	Dube, Chris - FD	0.00	\$40.40	0.00	40.40
	Desc: USPS-Postage	Acct: 10-221-322-0000	POSTAGE		
Sund 09/28-30/20	Sund, Jeremiah - VAL	0.00	\$9.90	0.00	9.90
	Desc: USPS-Postage	Acct: 10-174-322-0000	POSTAGE		
Sund 10/01-15/20	Sund, Jeremiah - VAL	0.00	\$10.50	0.00	10.50
	Desc: USPS-Postage	Acct: 10-174-322-0000	POSTAGE		
Hausler10/01-15/20-1	Hausler, Scott - REC	0.00	\$295.00	0.00	295.00
	Desc: CAPRA Hearing and NRPA Congress	Acct: 10-511-311-0000	TRAVEL & MEETINGS		
Walsh 10/01-15/20	Walsh, Dillon - IT	0.00	\$8.75	0.00	8.75
	Desc: SMTP2GO-EMAIL SMTP	Acct: 10-181-318-0000	CONTRACTED SERVICES		
Hausler10/01-15/20-2	Hausler, Scott - REC	0.00	\$84.84	0.00	84.84
	Desc: Postage for Lease Documents Priorit	Acct: 10-511-322-0000	POSTAGE		
	Desc: Decals for Van	Acct: 10-511-331-0000	Department Equipment		
Hausler10/01-15/20-3	Hausler, Scott - REC	0.00	\$931.11	0.00	931.11
	Desc: equipment replace of mobile tiltabl	Acct: 10-530-323-0000	MATERIAL & SUPPLIES		
Hedges 10/01-15/20	Hedges, Charles - FD	0.00	\$250.00	0.00	250.00
	Desc: NREMT-Paramedic Application Fees	Acct: 10-221-315-0000	RECRUITMENT & TRAINING		
Jay 09/28-30/20 - 1	McDonough, Jay - REC	0.00	\$99.95	0.00	99.95
	Desc: Sports Scheduling Website Annual Fe	Acct: 10-514-318-0000	CONTRACTED SERVICES		
Jay 09/28-30/20 - 2	McDonough, Jay - REC	0.00	\$262.27	0.00	262.27
	Desc: Walmart-Program Supplies	Acct: 10-514-323-0000	MATERIAL & SUPPLIES		
Kasten 10/01-15/20	Kasten, Phil - PD	0.00	\$1,303.20	0.00	1,303.20
	Desc: DETECTIVES CAR - MOODY	Acct: 10-211-331-0000	DEPARTMENT EQUIPMENT		
	Desc: DETECTIVES CAR - HOWELL	Acct: 10-211-331-0000	DEPARTMENT EQUIPMENT		
Kreis 10/01-15/20-1	Kreis, Dylan - REC	0.00	\$74.78	0.00	74.78
	Desc: Fogg's-Supplies	Acct: 10-530-321-0100	REPAIRS & MAINT-BUILD & GROUND		
Vendor Total:			7,397.46	0.00	7,397.46
006700	BOUND TREE MEDICAL, LLC	BOUND TREE MEDICAL, LLC	10/30/2020		70890
83783324	MEDICAL SUPPLIES	0.00	\$202.29	0.00	202.29
	Desc: MEDICAL SUPPLIES	Acct: 10-221-331-0500	MEDICAL EQUIPMENT & SUPPLIES		
83814206	MEDICAL SUPPLIES	0.00	\$557.63	0.00	557.63
	Desc: MEDICAL SUPPLIES	Acct: 10-221-331-0500	MEDICAL EQUIPMENT & SUPPLIES		
Vendor Total:			759.92	0.00	759.92

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006950	N. A. MANOSH		10/30/2020	70891	
14052	Sewer line cleaning 2020 Quechee	21,735.00	\$21,735.00	0.00	21,735.00
	Desc: Sewer line cleaning 2020 Quechee	Acct: 65-964-318-0000	CONTRACTED SERVICES		
14371	Sewer line cleaning in WRJ	11,000.00	\$11,000.00	0.00	11,000.00
	Desc: Sewer line cleaning in WRJ	Acct: 60-964-321-0200	REPAIRS & MAINT-MAINS		
14574	Sewer line cleaning in WRJ	1,500.00	\$1,500.00	0.00	1,500.00
	Desc: Sewer line cleaning in WRJ	Acct: 60-964-321-0200	REPAIRS & MAINT-MAINS		
	Vendor Total:		34,235.00	0.00	34,235.00
007201	BRODART CO.		10/30/2020	70892	
B5984126	BOOKS	0.00	\$7.79	0.00	7.79
	Desc: BOOKS	Acct: 10-712-316-0500	APPROP - W. HARTFORD LIBRARY		
B5988713	BOOKS	0.00	\$11.99	0.00	11.99
	Desc: BOOKS	Acct: 10-712-316-0500	APPROP - W. HARTFORD LIBRARY		
B5989052	BOOKS	0.00	\$25.20	0.00	25.20
	Desc: BOOKS	Acct: 10-712-316-0500	APPROP - W. HARTFORD LIBRARY		
	Vendor Total:		44.98	0.00	44.98
009140	CENTRAL VERMONT PROPERTIES		10/30/2020	70893	
9500217331	RENT - PIPE CROSSING 243 SHERBRC	50.00	\$50.00	0.00	50.00
	Desc: RENT - PIPE CROSSING 243 SHERBROOKE	Acct: 50-955-317-0000	PERMITS & LICENSES		
	Vendor Total:		50.00	0.00	50.00
009460	CHAMPLAIN VALLEY EQUIPMENT INC		10/30/2020	70894	
CB40295	PARTS - CHIPPER	0.00	\$798.68	0.00	798.68
	Desc: PARTS - CHIPPER	Acct: 10-321-321-0000	REPAIRS & MAINT-VEHICLES		
	Vendor Total:		798.68	0.00	798.68
009818	CINTAS CORPORATION NO. 2	CINTAS LOC. #68M, 71M	10/30/2020	70895	
4064643269	MATS - WABA	0.00	\$46.56	0.00	46.56
	Desc: MATS - WABA	Acct: 10-530-318-0000	CONTRACTED SERVICES		
4065059526	UNIFORMS	80.20	\$80.20	0.00	80.20
	Desc: UNIFORMS	Acct: 50-954-326-0000	UNIFORMS-PURCHASE/LEASE/CLEAN		
4065059562	UNIFORMS	103.06	\$103.06	0.00	103.06
	Desc: UNIFORMS	Acct: 60-961-326-0000	UNIFORMS-PURCHASE/LEASE/CLEAN		
4065059616	UNIFORMS	0.00	\$221.31	0.00	221.31
	Desc: UNIFORMS	Acct: 10-325-326-0000	UNIFORMS		
4065301689	UNIFORMS	67.79	\$67.79	0.00	67.79
	Desc: UNIFORMS	Acct: 65-963-326-0000	UNIFORMS PURCHASE/LEASE		
4063949450	UNIFORMS	67.79	\$67.79	0.00	67.79
	Desc: UNIFORMS	Acct: 65-963-326-0000	UNIFORMS PURCHASE/LEASE		
4064389120	UNIFORMS	80.20	\$80.20	0.00	80.20
	Desc: UNIFORMS	Acct: 50-954-326-0000	UNIFORMS-PURCHASE/LEASE/CLEAN		
4064389152	UNIFORMS	103.06	\$103.06	0.00	103.06
	Desc: UNIFORMS	Acct: 60-961-326-0000	UNIFORMS-PURCHASE/LEASE/CLEAN		
4064389173	UNIFORMS	0.00	\$221.31	0.00	221.31
	Desc: UNIFORMS	Acct: 10-325-326-0000	UNIFORMS		

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4064642987	UNIFORMS	67.79	\$67.79	0.00	67.79
Desc: UNIFORMS		Acct: 65-963-326-0000	UNIFORMS PURCHASE/LEASE		
Vendor Total:			1,059.07	0.00	1,059.07
010009	CLARK'S TRUCK CENTER	CLARK'S TRUCK CENTER	10/30/2020	70896	
438616	PARTS - WW TRUCK	376.88	\$376.88	0.00	376.88
Desc: PARTS - WW TRUCK		Acct: 60-961-321-0000	REPAIRS & MAINT-VEHICLES		
438732	PARTS - WW TRUCK	106.72	\$106.72	0.00	106.72
Desc: PARTS - WW TRUCK		Acct: 60-961-321-0000	REPAIRS & MAINT-VEHICLES		
Vendor Total:			483.60	0.00	483.60
010375	CMC RESCUE INC		10/30/2020	70897	
498188	TRENCH RESCUE TRAINING	0.00	\$10,600.00	0.00	10,600.00
Desc: TRENCH RESCUE TRAINING		Acct: 10-221-315-0000	RECRUITMENT & TRAINING		
Vendor Total:			10,600.00	0.00	10,600.00
011200	CED-TWIN STATE-WHITE RIVER JCT	CED-TWIN STATE-WHITE RIVER JCT	10/30/2020	70898	
9433-420947	ELECTRIC MATERIALS	170.55	\$174.03	3.48	170.55
Desc: ELECTRIC MATERIALS		Acct: 65-964-321-0200	REPAIRS & MAINT-MAINS & APPUR		
9433-421058	ELECTRIC MATERIALS	137.03	\$137.03	0.00	137.03
Desc: ELECTRIC MATERIALS		Acct: 65-964-321-0200	REPAIRS & MAINT-MAINS & APPUR		
Vendor Total:			311.06	3.48	307.58
013680	GARTH BROOKS	DESORCIE EMERGENCY PRODUCTS LLC	10/30/2020	70899	
16403	COOLANT WIRE	0.00	\$70.13	0.00	70.13
Desc: COOLANT WIRE		Acct: 10-221-321-0000	REPAIRS & MAINT-VEHICLES		
Vendor Total:			70.13	0.00	70.13
013840	DIG SAFE SYSTEM, INC		10/30/2020	70900	
32218	EXCAVATION REQ JUL-SEP 2020	188.00	\$188.00	0.00	188.00
Desc: EXCAVATION REQ JUL-SEP 2020		Acct: 50-955-318-0000	CONTRACTED SERVICES		
Desc: EXCAVATION REQ JUL-SEP 2020		Acct: 60-965-313-0000	MEMBERSHIP DUES		
Vendor Total:			188.00	0.00	188.00
015190	ECCHER, EVAN	EVAN ECCHER	10/30/2020	70901	
PO#7542	Reimbursement	150.00	\$150.00	0.00	150.00
Desc: Reimbursement		Acct: 50-954-326-0000	UNIFORMS-PURCHASE/LEASE/CLEAN		
Vendor Total:			150.00	0.00	150.00
015500	ENDYNE, INC		10/30/2020	70902	
349464	QUECHEE WW	180.00	\$180.00	0.00	180.00
Desc: QUECHEE WW		Acct: 55-954-318-0000	CONTRACTED SERVICES		
349716	WRJ MONTHLY ANALYSIS	220.00	\$220.00	0.00	220.00
Desc: WRJ MONTHLY ANALYSIS		Acct: 60-961-318-0000	CONTRACTED SERVICES		
350335	WRJ WEEKLY ANALYSIS	90.00	\$90.00	0.00	90.00
Desc: WRJ WEEKLY ANALYSIS		Acct: 60-961-318-0000	CONTRACTED SERVICES		
350540	QUE WW	220.00	\$220.00	0.00	220.00

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	Desc: QUE WW	Acct: 65-963-318-0000	CONTRACTED SERVICES		
	Vendor Total:		710.00	0.00	710.00
016080	CONSOLIDATED COMMUNICATIONS		10/30/2020		70903
111020181918OCT'20	QUECHEE WW PLANT	52.96	\$52.96	0.00	52.96
	Desc: QUECHEE WW PLANT	Acct: 65-963-324-0000	TELEPHONE		
11833807752SEP'20	WRJ WATER TANKS	323.02	\$323.02	0.00	323.02
	Desc: WRJ WATER TANKS	Acct: 50-954-324-0000	TELEPHONE		
12615510982SEP'20	QUECHEE WATER	86.46	\$86.46	0.00	86.46
	Desc: QUECHEE WATER	Acct: 55-953-324-0000	TELEPHONE		
14091736024OCT'20	WABA - TELEPHONE	0.00	\$164.05	0.00	164.05
	Desc: WABA - TELEPHONE	Acct: 10-530-324-0000	Telephone		
14362366935OCT'20	HEMLOCK RIDGE	62.62	\$62.62	0.00	62.62
	Desc: HEMLOCK RIDGE	Acct: 50-954-324-0000	TELEPHONE		
8022957049639OCT'20	SPORTS PARK PUMP STATION	104.04	\$104.04	0.00	104.04
	Desc: SPORTS PARK PUMP STATION	Acct: 60-964-324-0000	TELEPHONE		
8022959708618OCT'20	MAXFIELD PUMP HOUSE	53.58	\$53.58	0.00	53.58
	Desc: MAXFIELD PUMP HOUSE	Acct: 60-964-324-0000	TELEPHONE		
	Vendor Total:		846.73	0.00	846.73
016540	FERGUSON ENTERPRISES, INC	FERGUSON WATERWORKS #591 #576	10/30/2020		70904
0973370	2020 PAVING-PAINT	0.00	\$114.72	0.00	114.72
	Desc: 2020 PAVING-PAINT	Acct: 10-311-318-0000	CONTRACTED SERVICES		
0974803	2020 PAVING	0.00	\$362.82	0.00	362.82
	Desc: 2020 PAVING	Acct: 10-311-318-0000	CONTRACTED SERVICES		
0975516	2020 PAVING	0.00	\$206.40	0.00	206.40
	Desc: 2020 PAVING	Acct: 10-311-318-0000	CONTRACTED SERVICES		
0978299	2020 PAVING	0.00	\$191.40	0.00	191.40
	Desc: 2020 PAVING	Acct: 10-311-318-0000	CONTRACTED SERVICES		
0979239	2020 PAVING	0.00	\$2,071.20	0.00	2,071.20
	Desc: 2020 PAVING	Acct: 10-311-318-0000	CONTRACTED SERVICES		
0979265	2020 PAVING	0.00	\$128.60	0.00	128.60
	Desc: 2020 PAVING	Acct: 10-311-318-0000	CONTRACTED SERVICES		
0979503	2020 PAVING	0.00	\$128.60	0.00	128.60
	Desc: 2020 PAVING	Acct: 10-311-318-0000	CONTRACTED SERVICES		
0988673	MATERIALS	148.92	\$148.92	0.00	148.92
	Desc: MATERIALS	Acct: 65-964-321-0200	REPAIRS & MAINT-MAINS & APPUR		
SC99952	SERVICE CHARGE	0.00	\$6.84	0.00	6.84
	Desc: SERVICE CHARGE	Acct: 10-311-318-0000	CONTRACTED SERVICES		
	Vendor Total:		3,359.50	0.00	3,359.50
016900	FIRE TECH & SAFETY		10/30/2020		70905
190765	SCOTT SENSOR	0.00	\$123.70	0.00	123.70
	Desc: SCOTT SENSOR	Acct: 10-221-331-0100	FIRE SUPPRESSION EQUIPMENT		
	Vendor Total:		123.70	0.00	123.70
017110	FISHER AUTO PARTS, INC		10/30/2020		70906
301-053501	ENG 1 PARTS	0.00	\$382.80	0.00	382.80

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	Desc: ENG 1 PARTS	Acct: 10-221-321-0000	REPAIRS & MAINT-VEHICLES		
301-054597	PARTS FOR EXCAVATOR BUCKETS	0.00	\$290.14	0.00	290.14
	Desc: PARTS FOR EXCAVATOR BUCKETS	Acct: 10-321-321-0000	REPAIRS & MAINT-VEHICLES		
301-054788	PARTS W 11	75.69	\$75.69	0.00	75.69
	Desc: PARTS W 11	Acct: 60-964-321-0000	REPAIRS & MAINT-VEHICLES		
301-055157	RETURN - PARTS W 11	-35.75	\$-35.75	0.00	-35.75
	Desc: RETURN - PARTS W 11	Acct: 60-964-321-0000	REPAIRS & MAINT-VEHICLES		
301-055671	OIL	0.00	\$7.14	0.00	7.14
	Desc: OIL	Acct: 10-221-321-0000	REPAIRS & MAINT-VEHICLES		
Vendor Total:			720.02	0.00	720.02
017135	DAVID FITZGERALD	FITZGERALD, DAVID	10/30/2020		70907
PO#7523	REIMBURSEMENT	0.00	\$119.99	0.00	119.99
	Desc: Reimbursement for safety equipment	Acct: 10-521-326-0000	UNIFORMS-PURCHASE/LEASE/CLEAN		
Vendor Total:			119.99	0.00	119.99
017300	FOGG'S HARDWARE & BUILDING		10/30/2020		70908
5785/6	CULTIVATOR WOOD	19.99	\$19.99	0.00	19.99
	Desc: CULTIVATOR WOOD	Acct: 60-961-323-0000	MATERIAL & SUPPLIES		
5904/6	MATERIALS	27.80	\$27.80	0.00	27.80
	Desc: MATERIALS	Acct: 60-961-323-0000	MATERIAL & SUPPLIES		
6629/6	PART	0.00	\$6.99	0.00	6.99
	Desc: Part	Acct: 10-530-323-0000	MATERIAL & SUPPLIES		
6641/6	PARTS - HWY	0.00	\$6.00	0.00	6.00
	Desc: PARTS - HWY	Acct: 10-311-323-0000	MATERIAL & SUPPLIES		
Vendor Total:			60.78	0.00	60.78
017930	PEALE, ARTHUR S.	GARDENS OF STONE, LLC	10/30/2020		70909
10.14.2020	Cleaning @ Potters Field Cemetery	0.00	\$303.00	0.00	303.00
	Desc: Cleaning @ Potters Field Cemetery	Acct: 10-341-318-0000	CONTRACTED SERVICES		
Vendor Total:			303.00	0.00	303.00
019390	GRAINGER		10/30/2020		70910
9687963901	PAINT	40.25	\$40.25	0.00	40.25
	Desc: PAINT	Acct: 65-964-323-0000	MATERIALS & SUPPLIES		
Vendor Total:			40.25	0.00	40.25
019850	GREEN MOUNTAIN POWER CORP	GREEN MOUNTAIN POWER CORP	10/30/2020		70911
38035000009OCT'20	OLCOTT COMMERCE PARK - WW	141.04	\$141.04	0.00	141.04
	Desc: OLCOTT COMMERCE PARK - WW	Acct: 60-964-329-0000	ELECTRICITY		
41082200001OCT'20	291 SUGAR HILL LN W PUMP	139.86	\$139.86	0.00	139.86
	Desc: 291 SUGAR HILL LN W PUMP	Acct: 55-954-329-0000	ELECTRICITY		
43382200004OCT'20	EASTMAN HILL PUMP	306.54	\$306.54	0.00	306.54
	Desc: EASTMAN HILL PUMP	Acct: 55-954-329-0000	ELECTRICITY		
43833000003OCT'20	BRIDGE ST TRAFFIC LGT	0.00	\$47.44	0.00	47.44
	Desc: BRIDGE ST TRAFFIC LGT	Acct: 10-314-329-0000	ELECTRICITY		
44390000006SEP'20	BILLINGS FARM RD LIGHTS	0.00	\$62.52	0.00	62.52
	Desc: BILLINGS FARM RD LIGHTS	Acct: 10-314-329-0000	ELECTRICITY		

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44926000009OCT'20	STREET LIGHTS - HWY	0.00	\$2,241.43	0.00	2,241.43
	Desc: STREET LIGHTS - HWY	Acct: 10-314-329-0000	ELECTRICITY		
48832000003OCT'20	ARBORETUM LN SPORTS PK	124.78	\$124.78	0.00	124.78
	Desc: ARBORETUM LN SPORTS PK	Acct: 60-964-329-0000	ELECTRICITY		
49424000005OCT'20	VA CUTOFF WTR STOR	26.76	\$26.76	0.00	26.76
	Desc: VA CUTOFF WTR STOR	Acct: 50-954-329-0000	ELECTRICITY		
49672200000OCT'20	RTE WEST HTFD & QUE ST LT	0.00	\$510.80	0.00	510.80
	Desc: RTE WEST HTFD & QUE ST LT	Acct: 10-314-329-0000	ELECTRICITY		
49762000005SEP'20	BRIDGE ST PUMP STN -WW	126.79	\$126.79	0.00	126.79
	Desc: BRIDGE ST PUMP STN -WW	Acct: 60-964-329-0000	ELECTRICITY		
59511000008SEP'20	CAMPBELL ST - PUMP STN	38.01	\$38.01	0.00	38.01
	Desc: CAMPBELL ST - PUMP STN	Acct: 50-954-329-0000	ELECTRICITY		
62592200000OCT'20	WOODSTOCK RD QUECHEE SALT SHED	0.00	\$21.77	0.00	21.77
	Desc: WOODSTOCK RD QUECHEE SALT SHED	Acct: 10-314-329-0000	ELECTRICITY		
62713200004OCT'20	WOODSTOCK RD HEAT TAPE	21.77	\$21.77	0.00	21.77
	Desc: WOODSTOCK RD HEAT TAPE	Acct: 55-954-329-0000	ELECTRICITY		
67003200002OCT'20	WILLARD RD QUECHEE FIRE STATION	0.00	\$75.53	0.00	75.53
	Desc: WILLARD RD QUECHEE FIRE STATION	Acct: 10-221-329-0000	ELECTRICITY		
67303200009OCT'20	78 MURPHYS RD PUMP	145.22	\$145.22	0.00	145.22
	Desc: 78 MURPHYS RD PUMP	Acct: 65-964-329-0000	ELECTRICITY		
67700100000SEP'20	RT 5 POLE 95 - HWY	0.00	\$30.38	0.00	30.38
	Desc: RT 5 POLE 95 - HWY	Acct: 10-314-329-0000	ELECTRICITY		
68053200009OCT'20	RT 14 W HTFD LIB	0.00	\$111.59	0.00	111.59
	Desc: RT 14 W HTFD LIB	Acct: 10-524-329-0000	ELECTRICITY		
71013200002OCT'20	WHITMAN BROOK PUMP WW	256.10	\$256.10	0.00	256.10
	Desc: WHITMAN BROOK PUMP WW	Acct: 65-964-329-0000	ELECTRICITY		
74713200009OCT'20	WOODSTOCK RD ST LGTS	0.00	\$37.01	0.00	37.01
	Desc: WOODSTOCK RD ST LGTS	Acct: 10-314-329-0000	ELECTRICITY		
74856156851SEP'20	97 S MAIN ST CHARGING STN	0.00	\$77.77	0.00	77.77
	Desc: 97 S MAIN ST CHARGING STN	Acct: 10-314-329-0100	ELECTRICITY - CHARGING STATION		
91624000005OCT'20	SOLID WASTE ADMIN BLDG	26.58	\$26.58	0.00	26.58
	Desc: SOLID WASTE ADMIN BLDG	Acct: 30-975-329-0000	ELECTRICITY		
74972200005OCT'20	WHEELOCK RD SEC 2	21.59	\$21.59	0.00	21.59
	Desc: WHEELOCK RD SEC 2	Acct: 55-954-329-0000	ELECTRICITY		
77303200008OCT'20	LAKE PINNEO WW PUMP	39.07	\$39.07	0.00	39.07
	Desc: LAKE PINNEO WW PUMP	Acct: 65-964-329-0000	ELECTRICITY		
77700100009SEP'20	POLE 1 PLEASANTVIEW TERR	0.00	\$47.26	0.00	47.26
	Desc: POLE 1 PLEASANTVIEW TERR	Acct: 10-314-329-0000	ELECTRICITY		
78840100008SEP'20	RAILRD ROW - ENGINE 494	0.00	\$59.61	0.00	59.61
	Desc: RAILRD ROW - ENGINE 494	Acct: 10-521-329-0000	ELECTRICITY		
80082200009OCT'20	NOYES LN KINGSWOOD RESV POLE	104.37	\$104.37	0.00	104.37
	Desc: NOYES LN KINGSWOOD RESV POLE	Acct: 55-954-329-0000	ELECTRICITY		
82948328248OCT'20	PROSPECT ST	0.00	\$117.53	0.00	117.53
	Desc: PROSPECT ST	Acct: 10-314-329-0000	ELECTRICITY		
84443200005OCT'20	WATERMAN HL COVERED BRIDGE	0.00	\$39.68	0.00	39.68
	Desc: WATERMAN HL COVERED BRIDGE	Acct: 10-314-329-0000	ELECTRICITY		
87303200007OCT'20	QUECHEE HARTLAND RD	59.64	\$59.64	0.00	59.64
	Desc: QUECHEE HARTLAND RD	Acct: 65-964-329-0000	ELECTRICITY		

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Vendor ID	Vendor Name				
<b>Detail:</b> Invoice No.	Invoice Description	Cross Fund	Invoice Amt	Disc. Amt	Net Amt.
87833000000	OCT'20 MAPLE ST TRAFFIC LIGHTS	0.00	\$51.43	0.00	51.43
	Desc: MAPLE ST TRAFFIC LIGHTS	Acct: 10-314-329-0000	ELECTRICITY		
89290000002	SEP'20 HEMLOCK RIDGE VAULT	46.17	\$46.17	0.00	46.17
	Desc: HEMLOCK RIDGE VAULT	Acct: 50-954-329-0000	ELECTRICITY		
91611000000	SEP'20 FERRY RD - SEWER PUMP	114.08	\$114.08	0.00	114.08
	Desc: FERRY RD - SEWER PUMP	Acct: 60-964-329-0000	ELECTRICITY		
97303200006	OCT'20 NOYES LN PUMP	26.14	\$26.14	0.00	26.14
	Desc: NOYES LN PUMP	Acct: 65-964-329-0000	ELECTRICITY		
97762000004	SEP'20 N MAIN ST LIGHTS	0.00	\$54.90	0.00	54.90
	Desc: N MAIN ST LIGHTS	Acct: 10-314-329-0000	ELECTRICITY		
98490000001	SEP'20 ELM/GILLETTE ST	41.64	\$41.64	0.00	41.64
	Desc: ELM/GILLETTE ST	Acct: 60-964-329-0000	ELECTRICITY		
01013200009	OCT'20 1299 QUECHEE MAIN ST PUMP	131.00	\$131.00	0.00	131.00
	Desc: 1299 QUECHEE MAIN ST PUMP	Acct: 65-964-329-0000	ELECTRICITY		
04013200003	OCT'20 BENTLEY RD PUMP	65.12	\$65.12	0.00	65.12
	Desc: BENTLEY RD PUMP	Acct: 65-964-329-0000	ELECTRICITY		
04832000006	SEP'20 S MAIN ST PUMP	26.80	\$26.80	0.00	26.80
	Desc: S MAIN ST PUMP	Acct: 60-964-329-0000	ELECTRICITY		
08303200003	OCT'20 DEWEY FAMILY RD	71.89	\$71.89	0.00	71.89
	Desc: DEWEY FAMILY RD	Acct: 65-964-329-0000	ELECTRICITY		
09732000006	OCT'20 319 LATHAM WKS LN TRMT PL	8,525.01	\$8,525.01	0.00	8,525.01
	Desc: 319 LATHAM WKS LN TRMT PL	Acct: 60-961-329-0000	ELECTRICITY		
09732000006	SEP'20 319 LATHAM WKS LN TRMT PL	8,114.61	\$8,114.61	0.00	8,114.61
	Desc: 319 LATHAM WKS LN TRMT PL	Acct: 60-961-329-0000	ELECTRICITY		
09832000005	SEP'20 BRIGGS PARK - MAIN ST - REC	0.00	\$22.21	0.00	22.21
	Desc: BRIGGS PARK - MAIN ST - REC	Acct: 10-521-329-0000	ELECTRICITY		
11013200008	OCT'20 HENDEE WAY - WW	21.40	\$21.40	0.00	21.40
	Desc: HENDEE WAY - WW	Acct: 65-964-329-0000	ELECTRICITY		
13611000004	SEP'20 HARTFORD VILLAGE STLGT - HWY	0.00	\$63.24	0.00	63.24
	Desc: HARTFORD VILLAGE STLGT - HWY	Acct: 10-314-329-0000	ELECTRICITY		
13833000006	OCT'20 LYMAN POINT PARK - REC	0.00	\$21.84	0.00	21.84
	Desc: LYMAN POINT PARK - REC	Acct: 10-521-329-0000	ELECTRICITY		
20822960512	SEP'20 1732 QUECHEE MAIN ST	0.00	\$34.75	0.00	34.75
	Desc: 1732 QUECHEE MAIN ST	Acct: 10-521-329-0000	ELECTRICITY		
23490000009	OCT'20 WILDER WELL - WATER	1,589.51	\$1,589.51	0.00	1,589.51
	Desc: WILDER WELL - WATER	Acct: 50-952-329-0000	ELECTRICITY		
23833000005	OCT'20 RT 5 HIGHLAND AVE	0.00	\$76.67	0.00	76.67
	Desc: RT 5 HIGHLAND AVE	Acct: 10-314-329-0000	ELECTRICITY		
27333200007	OCT'20 ALDEN PARTRIDGE RD PUMP	36.29	\$36.29	0.00	36.29
	Desc: ALDEN PARTRIDGE RD PUMP	Acct: 65-964-329-0000	ELECTRICITY		
28933000003	OCT'20 MAPLE ST SEWER PUMP	155.46	\$155.46	0.00	155.46
	Desc: MAPLE ST SEWER PUMP	Acct: 60-964-329-0000	ELECTRICITY		
33490000008	SEP'20 DEPOT ST SIDEWALK	0.00	\$57.26	0.00	57.26
	Desc: DEPOT ST SIDEWALK	Acct: 10-314-329-0000	ELECTRICITY		
34926000000	SEP'20 PARK/LEHMAN BRIDGE LGTS-HWY	0.00	\$111.19	0.00	111.19
	Desc: PARK/LEHMAN BRIDGE LGTS-HWY	Acct: 10-314-329-0000	ELECTRICITY		
37762000000	SEP'20 N MAIN ST TRAFFIC LIGHTS	0.00	\$41.28	0.00	41.28
	Desc: N MAIN ST TRAFFIC LIGHTS	Acct: 10-314-329-0000	ELECTRICITY		

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Vendor ID	Vendor Name					
<b>Detail:</b> Invoice No.	Invoice Description	Cross Fund	Invoice Amt	Disc. Amt	Net Amt.	
Vendor Total:			24,558.33	0.00	24,558.33	
019901	GREEN MOUNTAIN POWER CORP	GREEN MOUNTAIN POWER CORP	10/30/2020		70912	
	TE2468-POLE SHIFT	POLE SHIFT-S. MAIN STREET	1,727.66	\$1,727.66	0.00	1,727.66
	Desc: POLE SHIFT-S. MAIN STREET	Acct: 13-921-360-0100		S. Main St Infrastructure-		Construction
Vendor Total:			1,727.66	0.00	1,727.66	
020400	HACH COMPANY		10/30/2020		70913	
	12149210	REAGENT	192.00	\$192.00	0.00	192.00
	Desc: REAGENT	Acct: 60-961-323-0000		MATERIAL & SUPPLIES		
	12150367	PH BUFFER SOLUTION KIT	97.35	\$97.35	0.00	97.35
	Desc: PH BUFFER SOLUTION KIT	Acct: 60-961-323-0000		MATERIAL & SUPPLIES		
	12151460	CHLORINE DISPENSER	71.85	\$71.85	0.00	71.85
	Desc: CHLORINE DISPENSER	Acct: 60-961-323-0000		MATERIAL & SUPPLIES		
Vendor Total:			361.20	0.00	361.20	
020701	HANOVER, TOWN OF	TOWN OF HANOVER	10/30/2020		70914	
	00477	ELAN FEES AUG 30 - SEPT 29	0.00	\$224.87	0.00	224.87
	Desc: ELAN FEES AUG 30 - SEPT 29	Acct: 10-271-320-0100		EQUIP OPERATION-COMMUNICATION		
Vendor Total:			224.87	0.00	224.87	
021940	HD SUPPLY CONSTRUCTION &		10/30/2020		70915	
	10013170728	MATERIALS FOR SIDEWALK REPAIRS	0.00	\$93.56	0.00	93.56
	Desc: MATERIALS FOR SIDEWALK REPAIRS	Acct: 10-316-323-0000		MATERIALS AND SUPPLIES		
Vendor Total:			93.56	0.00	93.56	
022025	HEALTHEQUITY, INC.		10/30/2020		70916	
	HXPV0Q7	HCRS 2020	0.00	\$670.62	0.00	670.62
	Desc: RA Replenish HCRA 2020	Acct: 10-012-200-0510		SECTION 125 HEALTH CARE ACCT		
	5ASMYHK	HRA 2020	0.00	\$130.04	0.00	130.04
	Desc: HRA 2020	Acct: 10-174-225-0000		HRA/CHOICECARE CARD		
	Desc: HRA 2020	Acct: 10-121-225-0000		HRA/CHOICECARE CARD		
	Desc: HRA 2020	Acct: 10-211-418-0100		RETIREE HEALTH INSURANCE		
	Desc: HRA 2020	Acct: 10-325-418-0100		RETIREE HEALTH INSURANCE		
	8H5I9B7	DCRA 2020	0.00	\$185.18	0.00	185.18
	Desc: DCRA 2020 - KM	Acct: 10-012-200-0520		SECTION 125 DEPENDENT CARE ACC		
	I4IJ5NX	HCRA 2020	0.00	\$86.64	0.00	86.64
	Desc: HCRA 2020	Acct: 10-012-200-0510		SECTION 125 HEALTH CARE ACCT		
	WHE7AYT	HRA 2020	271.92	\$1,248.70	0.00	1,248.70
	Desc: RA Replenish HRA 2020	Acct: 10-121-418-0100		RETIREE HEALTH INSURANCE		
	Desc: RA Replenish HRA 2020	Acct: 10-171-418-0100		RETIREE HEALTH INSURANCE		
	Desc: RA Replenish HRA 2020	Acct: 10-174-225-0000		HRA/CHOICECARE CARD		
	Desc: RA Replenish HRA 2020	Acct: 10-211-225-0000		HRA/CHOICECARE CARD		
	Desc: RA Replenish HRA 2020	Acct: 10-221-418-0100		RETIREE HEALTH INSURANCE		
	Desc: RA Replenish HRA 2020	Acct: 10-311-225-0000		HRA/CHOICECARE CARD		
	Desc: RA Replenish HRA 2020	Acct: 10-325-418-0100		RETIREE HEALTH INSURANCE		
	Desc: RA Replenish HRA 2020	Acct: 30-975-418-0100		RETIREE HEALTH INSURANCE		
	Desc: RA Replenish HRA 2020	Acct: 50-955-418-0100		RETIREE HEALTH INSURANCE		

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Desc: RA Replenish HRA 2020		Acct: 55-955-418-0100	RETIREE HEALTH INSURANCE		
Desc: RA Replenish HRA 2020		Acct: 60-965-418-0100	RETIREE HEALTH INSURANCE		
Desc: RA Replenish HRA 2020		Acct: 65-963-225-0000	HRA/CHOICECARE CARD		
Desc: RA Replenish HRA 2020		Acct: 65-965-418-0100	RETIREE HEALTH INSURANCE		
Vendor Total:			2,321.18	0.00	2,321.18
022600	HICKOK & BOARDMAN		10/30/2020		70917
20201023	MANAGEMENT FEE JUL-SEP'20	659.40	\$3,780.00	0.00	3,780.00
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 10-121-220-0000	BC/BS		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 10-121-418-0100	RETIREE HEALTH INSURANCE		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 10-151-220-0000	BC/BS		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 10-171-220-0000	BC/BS		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 10-171-418-0100	RETIREE HEALTH INSURANCE		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 10-174-220-0000	BC/BS		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 10-175-220-0000	BC/BS		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 10-181-220-0000	BC/BS		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 10-211-220-0000	BC/BS		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 10-211-418-0100	RETIREE HEALTH INSURANCE		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 10-221-220-0000	BC/BS		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 10-221-418-0100	RETIREE HEALTH INSURANCE		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 10-271-220-0000	BC/BS		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 10-311-220-0000	BC/BS		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 10-321-220-0000	BC/BS		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 10-325-220-0000	BC/BS		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 10-325-418-0100	RETIREE HEALTH INSURANCE		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 10-511-220-0000	Medical		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 10-521-220-0000	BC/BS		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 10-521-418-0100	RETIREE HEALTH INSURANCE		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 10-622-220-0000	BC/BS		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 30-971-220-0000	BC/BS		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 30-975-220-0000	BC/BS		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 30-975-418-0100	RETIREE HEALTH INSURANCE		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 50-954-220-0000	BC/BS		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 50-955-220-0000	BC/BS		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 50-955-418-0100	RETIREE HEALTH INSURANCE		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 55-955-220-0000	BC/BS		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 55-955-418-0100	RETIREE HEALTH INSURANCE		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 60-961-220-0000	BC/BS		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 60-961-418-0100	RETIREE HEALTH INSURANCE		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 60-965-220-0000	BC/BS		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 60-965-418-0100	RETIREE HEALTH INSURANCE		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 65-963-220-0000	BC/BS		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 65-965-220-0000	BC/BS		
Desc: MANAGEMENT FEE JUL-SEP'20		Acct: 65-965-418-0100	RETIREE HEALTH INSURANCE		
Vendor Total:			3,780.00	0.00	3,780.00
023250	HUBERT'S OF WEST LEBANON INC		10/30/2020		70918
499134	Kurt Dermody Boot allowance	150.00	\$150.00	0.00	150.00
Desc: Kurt Dermody Boot allowance		Acct: 60-961-326-0000	UNIFORMS-PURCHASE/LEASE/CLEAN		
Vendor Total:			150.00	0.00	150.00

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023473	INGRAM LIBRARY SERVICES LLC		10/30/2020	70919	
48654036	BOOKS	0.00	\$18.52	0.00	18.52
	Desc: BOOKS	Acct: 10-712-316-0500	APPROP - W. HARTFORD LIBRARY		
48654037	BOOKS	0.00	\$14.81	0.00	14.81
	Desc: BOOKS	Acct: 10-712-316-0500	APPROP - W. HARTFORD LIBRARY		
48654038	BOOKS	0.00	\$48.27	0.00	48.27
	Desc: BOOKS	Acct: 10-712-316-0500	APPROP - W. HARTFORD LIBRARY		
48673745	BOOKS	0.00	\$194.40	0.00	194.40
	Desc: BOOKS	Acct: 10-712-316-0500	APPROP - W. HARTFORD LIBRARY		
48733348	BOOKS	0.00	\$72.43	0.00	72.43
	Desc: BOOKS	Acct: 10-712-316-0500	APPROP - W. HARTFORD LIBRARY		
48770290	BOOKS	0.00	\$6.87	0.00	6.87
	Desc: BOOKS	Acct: 10-712-316-0500	APPROP - W. HARTFORD LIBRARY		
48770291	BOOKS	0.00	\$40.59	0.00	40.59
	Desc: BOOKS	Acct: 10-712-316-0500	APPROP - W. HARTFORD LIBRARY		
	Vendor Total:		395.89	0.00	395.89
024582	JB PORTABLE TOILETS		10/30/2020	70920	
778	TECH RESCUE TRAINING TOILET REN	0.00	\$125.00	0.00	125.00
	Desc: TECH RESCUE TRAINING TOILET RENTAL	Acct: 10-221-315-0000	RECRUITMENT & TRAINING		
	Vendor Total:		125.00	0.00	125.00
024800	JOE'S EQUIPMENT SERVICE		10/30/2020	70921	
1-702769-01	STRING TRIMMER & CHAINSAW CHAIN	0.00	\$217.99	0.00	217.99
	Desc: STRING TRIMMER & CHAINSAW CHAIN	Acct: 10-521-323-0000	MATERIAL & SUPPLIES		
	Desc: STRING TRIMMER & CHAINSAW CHAIN	Acct: 10-527-323-0000	MATERIAL & SUPPLIES		
37743-01	SAW REPAIR AND PARTS	0.00	\$253.50	0.00	253.50
	Desc: SAW REPAIR AND PARTS	Acct: 10-221-331-0100	FIRE SUPPRESSION EQUIPMENT		
	Vendor Total:		471.49	0.00	471.49
025175	SANEL NAPA WEST LEBANON	SANEL NAPA - WEST LEBANON	10/30/2020	70922	
55412,071505	BATTERY - PD1	0.00	\$201.94	0.00	201.94
	Desc: BATTERY - PD1	Acct: 10-211-321-0000	REPAIRS & MAINT-VEHICLES		
55473,070717	Oil Speedy Dry for maintenance	0.00	\$10.49	0.00	10.49
	Desc: Oil Speedy Dry for maintenance	Acct: 10-521-320-0000	EQUIP OPERATION & MAINT		
55412,071650	RETURN - BATTERY - PD1	0.00	\$-201.94	0.00	-201.94
	Desc: RETURN - BATTERY - PD1	Acct: 10-211-321-0000	REPAIRS & MAINT-VEHICLES		
	Vendor Total:		10.49	0.00	10.49
027700	DE LAGE LANDEN	DE LAGE LANDEN	10/30/2020	70923	
69917189	LEASE-COPIER NOV'20	0.00	\$67.17	0.00	67.17
	Desc: LEASE-COPIER NOV'20	Acct: 10-211-318-0000	CONTRACTED SERVICES		
	Desc: LEASE-COPIER NOV'20	Acct: 10-271-320-0000	EQUIP OPERATION/MAINT-OFFICE		
69917191	LEASE COPIER - NOV'20 REC	0.00	\$63.11	0.00	63.11
	Desc: LEASE COPIER - NOV'20 REC	Acct: 10-511-318-0000	CONTRACTED SERVICES		
69917195	LEASE-COPIER OCT'20-LF	37.81	\$37.81	0.00	37.81
	Desc: LEASE-COPIER OCT'20-LF	Acct: 30-975-318-0000	CONTRACTED SERVICES		
69917866	LEASE-COPIER NOV'20-ADMIN	0.00	\$200.02	0.00	200.02

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	Desc: LEASE-COPIER NOV'20-ADMIN	Acct: 10-121-320-0000	EQUIP OPERATION/MAINT-OFFICE		
69917868	LEASE-COPIER NOV'20-FIN	0.00	\$173.42	0.00	173.42
	Desc: LEASE-COPIER NOV'20-FIN	Acct: 10-171-318-0000	CONTRACTED SERVICES		
69917194	LEASE COPIER - NOV'20 VAL/P&D	0.00	\$63.11	0.00	63.11
	Desc: LEASE COPIER - NOV'20	Acct: 10-174-320-0000	EQUIP OPERATION/MAINT-OFFICE		
	Desc: LEASE COPIER - NOV'20 VAL/P&D	Acct: 10-622-320-0000	EQUIP OPERATION/MAINT-OFFICE		
	Vendor Total:		604.64	0.00	604.64
027750	DEAD RIVER COMPANY	DEAD RIVER COMPANY	10/30/2020		70924
4333626,48350	#2 OIL 146.7G@\$2.2719 BUGBEE	0.00	\$337.69	0.00	337.69
	Desc: #2 OIL 146.7G@\$2.2719 BUGBEE	Acct: 10-421-327-0000	BUILDING HEAT		
4935943,39880	PROPANE 2.9G@\$1.278 DEPOT ST	3.77	\$3.77	0.00	3.77
	Desc: PROPANE 2.9G@\$1.278 DEPOT ST	Acct: 60-962-327-0000	BUILDING HEAT		
4935943,61505	PROPANE 28G@\$1.2805 CRANBERY L	36.41	\$36.41	0.00	36.41
	Desc: PROPANE 28G@\$1.2805 CRANBERY LN	Acct: 50-952-327-0000	BUILDING HEAT		
	Vendor Total:		377.87	0.00	377.87
027850	LEWIS, WILLIAM J	WILLIAM LEWIS ELECTRICAL LLC	10/30/2020		70925
20/97	SWITCH REPLACE - TM OFFICE	0.00	\$151.00	0.00	151.00
	Desc: SWITCH REPLACE - TM OFFICE	Acct: 10-161-318-0000	CONTRACTED SERVICES		
	Vendor Total:		151.00	0.00	151.00
029096	MANBY, C ROBERT JR, PC	C. ROBERT MANBY JR., PC	10/30/2020		70926
4687	LEGAL SERVICES: Musco Lease	0.00	\$100.00	0.00	100.00
	Desc: LEGAL SERVICES: Musco Lease	Acct: 10-527-318-0000	CONTRACTED SERVICES		
	Vendor Total:		100.00	0.00	100.00
029745	MARY HITCHCOCK MEMORIAL HOSPITAL	MARY HITCHCOCK MEMORIAL HOSPITAL	10/30/2020		70927
20200910	MEDICAL SUPPLIES - SEP'20	0.00	\$363.98	0.00	363.98
	Desc: MEDICAL SUPPLIES - SEP'20	Acct: 10-221-331-0500	MEDICAL EQUIPMENT & SUPPLIES		
	Vendor Total:		363.98	0.00	363.98
029746	DARTMOUTH-HITCHCOCK MEDICAL CTR	DARTMOUTH - HITCHCOCK	10/30/2020		70928
700005551SEP'20	DOT PHYSICAL/PRE EMPLOYMENT EX	397.00	\$513.00	0.00	513.00
	Desc: DOTphysical for R.T.	Acct: 10-325-315-0000	RECRUITMENT & TRAINING		
	Desc: Pre employment physical T.S.	Acct: 30-971-315-0000	RECRUITMENT & TRAINING		
	Desc: DOT physical J.L.	Acct: 50-954-315-0000	RECRUITMENT & TRAINING		
	Desc: Pre employment physical G.M.	Acct: 60-961-315-0000	RECRUITMENT & TRAINING		
	Vendor Total:		513.00	0.00	513.00
029815	MASON, W.B. COMPANY, INC	W.B. MASON COMPANY, INC	10/30/2020		70929
214366380-4	CLEANING SUPPLIES - COVID	50.61	\$50.61	0.00	50.61
	Desc: CLEANING SUPPLIES - COVID	Acct: 55-955-417-0017	EXTRAORDINARY EXP : COVID-19		
214230656	OFFICE SUPPLIES	0.00	\$38.86	0.00	38.86
	Desc: OFFICE SUPPLIES	Acct: 10-121-323-0000	MATERIAL & SUPPLIES		
214285842	OFFICE SUPPLIES	0.00	\$5.04	0.00	5.04
	Desc: OFFICE SUPPLIES	Acct: 10-121-323-0000	MATERIAL & SUPPLIES		
214796368	PRINTER TONER - COVID	0.00	\$41.98	0.00	41.98

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214366380-6	Desc: PRINTER TONER - COVID CLEANING SUPPLIES - COVID	Acct: 10-171-417-0017 50.61	EXTRAORDINARY EXP : COVID-19 \$50.61	0.00	50.61
214711799	Desc: CLEANING SUPPLIES - COVID OFFICE SUPPLIES	Acct: 65-965-417-0017 0.00	EXTRAORDINARY EXP : COVID-19 \$167.94	0.00	167.94
214215761	Desc: OFFICE SUPPLIES 7500 WINDOW ENVELOPES	Acct: 10-221-320-0000 375.00	EQUIP OPERATION/MAINT-OFFICE \$375.00	0.00	375.00
	Desc: 7500 WINDOW ENVELOPES	Acct: 50-955-323-0000	MATERIAL & SUPPLIES		
	Desc: 7500 WINDOW ENVELOPES	Acct: 55-955-323-0000	MATERIALS & SUPPLIES		
	Desc: 7500 WINDOW ENVELOPES	Acct: 60-965-323-0000	MATERIAL & SUPPLIES		
	Desc: 7500 WINDOW ENVELOPES	Acct: 65-965-323-0000	MATERIALS & SUPPLIES		
213113420	OFFICE SUPPLIES	0.00	\$6.80	0.00	6.80
212101313	Desc: OFFICE SUPPLIES THERMOMETER - COVID	Acct: 10-121-323-0000 0.00	MATERIAL & SUPPLIES \$49.99	0.00	49.99
214366380-1	Desc: THERMOMETER - COVID CLEANING SUPPLIES - COVID	Acct: 10-121-417-0017 50.63	EXTRAORDINARY EXP : COVID-19 \$50.63	0.00	50.63
214366380-2	Desc: CLEANING SUPPLIES - COVID CLEANING SUPPLIES - COVID	Acct: 30-975-417-0017 0.00	EXTRAORDINARY EXP : COVID-19 \$50.62	0.00	50.62
214366380-3	Desc: CLEANING SUPPLIES - COVID CLEANING SUPPLIES - COVID	Acct: 10-311-417-0017 50.61	EXTRAORDINARY EXP : COVID-19 \$50.61	0.00	50.61
214366380-5	Desc: CLEANING SUPPLIES - COVID CLEANING SUPPLIES - COVID	Acct: 50-955-417-0017 50.61	EXTRAORDINARY EXP : COVID-19 \$50.61	0.00	50.61
212258658	Desc: CLEANING SUPPLIES - COVID OFFICE SUPPLIES	Acct: 60-965-417-0017 0.00	EXTRAORDINARY EXP : COVID-19 \$5.82	0.00	5.82
	Desc: OFFICE SUPPLIES	Acct: 10-121-323-0000	MATERIAL & SUPPLIES		
Vendor Total:			995.12	0.00	995.12
030037	MCDERMOTT CO, J F	J F MCDERMOTT CO		10/30/2020	70930
73441	PARTS - JETTER	262.00	\$262.00	0.00	262.00
	Desc: PARTS - JETTER	Acct: 60-961-321-0000	REPAIRS & MAINT-VEHICLES		
Vendor Total:			262.00	0.00	262.00
030200	MCMaster-CARR SUPPLY COMPANY	MCMaster-CARR SUPPLY CO		10/30/2020	70931
46689996	Electrical connectors	51.26	\$51.26	0.00	51.26
	Desc: Electrical connectors	Acct: 65-963-323-0000	MATERIALS & SUPPLIES		
Vendor Total:			51.26	0.00	51.26
030240	MCNALL, GLENN A	GLENN A MCNALL		10/30/2020	70932
PO#7591	REIMBURSEMENT	192.49	\$192.49	0.00	192.49
	Desc: Reimbursment for CDL permit	Acct: 60-961-315-0000	RECRUITMENT & TRAINING		
	Desc: Reimbursement for boots	Acct: 60-961-326-0000	UNIFORMS-PURCHASE/LEASE/CLEAN		
Vendor Total:			192.49	0.00	192.49
030250	MCNALL, KAREN	KAREN MCNALL		10/30/2020	70933
2020-8	Card Making Workshops	0.00	\$192.00	0.00	192.00
	Desc: Card Making Workshops	Acct: 10-515-318-0000	CONTRACTED SERVICES		
Vendor Total:			192.00	0.00	192.00
031370	MOCK, DILLON	DILLON MOCK		10/30/2020	70934

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PO#7590	FF TRAINING HOTEL/MILEAGE	0.00	\$555.36	0.00	555.36	
Desc: FF TRAINING HOTEL/MILEAGE		Acct: 10-221-311-0000	TRAVEL & MEETINGS			
Vendor Total:			555.36	0.00	555.36	
031390	MODERN CLEANERS & TAILORS, INC			10/30/2020	70935	
1610	MONTHLY DRYCLEANING	0.00	\$607.75	0.00	607.75	
Desc: MONTHLY DRYCLEANING		Acct: 10-211-326-0000	PURCHASE UNIFORMS & CLEANING			
Desc: MONTHLY DRYCLEANING		Acct: 10-221-326-0000	PURCHASE/RENTAL UNIFORMS			
Vendor Total:			607.75	0.00	607.75	
031443	MONTAGE ENTERPRISES, INC			10/30/2020	70936	
82324	PARTS	0.00	\$34.62	0.00	34.62	
Desc: PARTS		Acct: 10-321-321-0000	REPAIRS & MAINT-VEHICLES			
Vendor Total:			34.62	0.00	34.62	
031875	MOTOROLA SOLUTIONS, INC	MOTOROLA SOLUTIONS, INC		10/30/2020	70937	
1187042107	FLEX APPLICATION MANAGED SERVIC	0.00	\$11,196.00	0.00	11,196.00	
Desc: FLEX APPLICATION MANAGED SERVICES		Acct: 10-271-320-0200	EQUIPMENT MAINT - COMPUTER			
Vendor Total:			11,196.00	0.00	11,196.00	
031976	MUNSON EARTH MOVING CORP			10/30/2020	70938	
20-029-5	S MAIN STR UTILITY&ROADWAY	10.09	180,757.56	\$180,757.56	0.00	180,757.56
Desc: S MAIN STR UTILITY&ROADWAY	10.09.20	Acct: 60-965-544-0010	CAPITAL OUTLAY - RF1-222-3.0			
Desc: S MAIN STR UTILITY&ROADWAY	10.09.20	Acct: 50-954-543-0010	CAPITAL -PRE RF3-390-3.0			
Desc: S MAIN STR UTILITY&ROADWAY	10.09.20	Acct: 13-921-360-0100	S. Main St Infrastructure- Construction			
Vendor Total:			180,757.56	0.00	180,757.56	
032101	MVP HEALTH CARE, INC	MVP HEALTH CARE, INC		10/30/2020	70939	
NOV'20	HEALTH INSURANCE RETIREES OVER	3,013.15	\$10,257.30	0.00	10,257.30	
Desc: Reitreers over 65		Acct: 10-121-418-0100	RETIREE HEALTH INSURANCE			
Desc: Reitreers over 65		Acct: 10-171-418-0100	RETIREE HEALTH INSURANCE			
Desc: Reitreers over 65		Acct: 10-174-418-0100	RETIREE HEALTH INSURANCE			
Desc: Reitreers over 65		Acct: 10-211-418-0100	RETIREE HEALTH INSURANCE			
Desc: Reitreers over 65		Acct: 10-221-418-0100	RETIREE HEALTH INSURANCE			
Desc: Reitreers over 65		Acct: 10-325-418-0100	RETIREE HEALTH INSURANCE			
Desc: Reitreers over 65		Acct: 50-954-418-0100	RETIREE HEALTH INSURANCE			
Desc: Reitreers over 65		Acct: 60-961-418-0100	RETIREE HEALTH INSURANCE			
Vendor Total:			10,257.30	0.00	10,257.30	
034800	NORTHEAST DELTA DENTAL			10/30/2020	70940	
NOV'20	DENTAL INS - NOV'20	1,426.02	\$8,601.37	0.00	8,601.37	
Desc: Dental		Acct: 10-121-230-0000	DENTAL			
Desc: Dental		Acct: 10-151-230-0000	DENTAL			
Desc: Dental		Acct: 10-171-230-0000	DENTAL			
Desc: Dental		Acct: 10-174-230-0000	DENTAL			
Desc: Dental		Acct: 10-175-230-0000	DENTAL			
Desc: Dental		Acct: 10-181-230-0000	DENTAL			
Desc: Dental		Acct: 10-211-230-0000	DENTAL			
Desc: Dental		Acct: 10-221-230-0000	DENTAL			

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	Desc: Dental	Acct: 10-271-230-0000	DENTAL		
	Desc: Dental	Acct: 10-312-230-0000	DENTAL		
	Desc: Dental	Acct: 10-321-230-0000	DENTAL		
	Desc: Dental	Acct: 10-325-230-0000	DENTAL		
	Desc: Dental	Acct: 10-325-418-0100	RETIREE HEALTH INSURANCE		
	Desc: Dental	Acct: 10-511-230-0000	DENTAL		
	Desc: Dental	Acct: 10-514-230-0000	DENTAL		
	Desc: Dental	Acct: 10-530-230-0000	DENTAL		
	Desc: Dental	Acct: 10-621-230-0000	DENTAL		
	Desc: Dental	Acct: 10-622-230-0000	DENTAL		
	Desc: Dental	Acct: 30-975-230-0000	DENTAL		
	Desc: Dental	Acct: 50-954-230-0000	DENTAL		
	Desc: Dental	Acct: 50-955-230-0000	DENTAL		
	Desc: Dental	Acct: 55-955-230-0000	DENTAL		
	Desc: Dental	Acct: 60-961-230-0000	DENTAL		
	Desc: Dental	Acct: 60-965-230-0000	DENTAL		
	Desc: Dental	Acct: 65-963-230-0000	DENTAL		
	Desc: Dental	Acct: 65-965-230-0000	DENTAL		
	Vendor Total:		8,601.37	0.00	8,601.37
034925	NORTHEAST RESOURCE RECOVERY ASSC		10/30/2020		70941
75907	Clean Glass & Hauling Fees - LF	338.40	\$338.40	0.00	338.40
	Desc: Clean Glass & Hauling Fees - LF	Acct: 30-971-318-0000	CONTRACTED SERVICES		
	Vendor Total:		338.40	0.00	338.40
035002	CASELLA WASTE MANAGEMENT, INC	CASELLA WASTE SERVICES	10/30/2020		70942
9600004148SEP'20	TRASH PICK-UP - SEP'20 BUGBEE	0.00	\$176.57	0.00	176.57
	Desc: TRASH PICK-UP - SEP'20 BUGBEE	Acct: 10-421-318-0000	CONTRACTED SERVICES		
9600004148AUG'20	TRASH PICK-UP - AUG'20 BUGBEE	0.00	\$176.57	0.00	176.57
	Desc: TRASH PICK-UP - AUG'20 BUGBEE	Acct: 10-421-318-0000	CONTRACTED SERVICES		
	Vendor Total:		353.14	0.00	353.14
036230	OVERHEAD DOOR OF RUTLAND, INC		10/30/2020		70943
33970	SERVICE CALL - WABA GARAGE DOOI	0.00	\$237.00	0.00	237.00
	Desc: SERVICE CALL - WABA GARAGE DOORS	Acct: 10-530-318-0000	CONTRACTED SERVICES		
	Vendor Total:		237.00	0.00	237.00
037276	PETE'S TIRE BARNS, INC		10/30/2020		70944
264756	E4 TIRES	0.00	\$1,384.00	0.00	1,384.00
	Desc: E4 TIRES	Acct: 10-221-321-0000	REPAIRS & MAINT-VEHICLES		
264085	RESCUE TIRES	0.00	\$2,226.00	0.00	2,226.00
	Desc: RESCUE TIRES	Acct: 10-221-321-0000	REPAIRS & MAINT-VEHICLES		
	Vendor Total:		3,610.00	0.00	3,610.00
037751	PONZONI, JOAN	JOAN PONZONI	10/30/2020		70945
OCT'20	Retire Reimburse Oct 2020	248.12	\$310.14	0.00	310.14
	Desc: Retire Reimburse Oct 2020	Acct: 50-955-418-0100	RETIREE HEALTH INSURANCE		
	Desc: Retire Reimburse Oct 2020	Acct: 60-965-418-0100	RETIREE HEALTH INSURANCE		
	Desc: Retire Reimburse Oct 2020	Acct: 55-955-418-0100	RETIREE HEALTH INSURANCE		

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	Desc: Retire Reimburse Oct 2020	Acct: 65-965-418-0100	RETIREE HEALTH INSURANCE		
	Desc: Retire Reimburse Oct 2020	Acct: 10-325-418-0100	RETIREE HEALTH INSURANCE		
	Vendor Total:		310.14	0.00	310.14
038495	PRIORITY EXPRESS, INC.			10/30/2020	70946
81722043	INTERLIBRARY LOAN PROGRAM	0.00	\$20.00	0.00	20.00
	Desc: INTERLIBRARY LOAN PROGRAM	Acct: 10-712-316-0500	APPROP - W. HARTFORD LIBRARY		
	Vendor Total:		20.00	0.00	20.00
039250	RADIO NORTH GROUP INC			10/30/2020	70947
24142528	MATERIALS & SUPPLIES	0.00	\$213.00	0.00	213.00
	Desc: MATERIALS & SUPPLIES	Acct: 10-211-323-0000	MATERIAL & SUPPLIES		
	Vendor Total:		213.00	0.00	213.00
040110	RESOURCE MANAGEMENT INC.			10/30/2020	70948
107990	Removal of winter collected grit	14,862.95	\$14,862.95	0.00	14,862.95
	Desc: Removal of winter collected grit	Acct: 60-961-318-0000	CONTRACTED SERVICES		
	Desc: Removal of winter collected grit	Acct: 65-963-318-0000	CONTRACTED SERVICES		
	Vendor Total:		14,862.95	0.00	14,862.95
040389	RITLAND, DIANE	DIANE RITLAND		10/30/2020	70949
OCT'20	Retire Reimburse Oct 2020	0.00	\$352.37	0.00	352.37
	Desc: Retire Reimburse Oct 2020	Acct: 10-221-418-0100	RETIREE HEALTH INSURANCE		
	Vendor Total:		352.37	0.00	352.37
040460	RINK SERVICES GROUP LLC			10/30/2020	70950
1123	PAINTING - ICE RINK	0.00	\$2,900.00	0.00	2,900.00
	Desc: PAINTING - ICE RINK	Acct: 10-530-318-0000	CONTRACTED SERVICES		
	Vendor Total:		2,900.00	0.00	2,900.00
041649	SCHAAL, ANNA	ANNA SCHAAL		10/30/2020	70951
2	Women's Mt. Biking Clinic	0.00	\$204.00	0.00	204.00
	Desc: Women's Mt. Biking Clinic	Acct: 10-515-318-0000	CONTRACTED SERVICES		
	Vendor Total:		204.00	0.00	204.00
041933	SETCOM CORPORATION			10/30/2020	70952
43461	HEADSET REPAIRS	0.00	\$316.40	0.00	316.40
	Desc: HEADSET REPAIRS	Acct: 10-221-320-0100	EQUIP OPERATION-COMMUNICATION		
	Vendor Total:		316.40	0.00	316.40
042720	SIRCHIE	SIRCHIE FINGER PRINT LABS, INC		10/30/2020	70953
0465172-IN	MATERIALS & SUPPLIES	0.00	\$287.92	0.00	287.92
	Desc: MATERIALS & SUPPLIES	Acct: 10-211-323-0000	MATERIAL & SUPPLIES		
	Vendor Total:		287.92	0.00	287.92
043426	FIRSTLIGHT FIBER	SOVERNET COMMUNICATIONS		10/30/2020	70954
8016079	TELEPHONES	266.82	\$3,477.84	0.00	3,477.84

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	Desc: Phones	Acct: 10-211-324-0000	TELEPHONE		
	Desc: Phones	Acct: 10-221-324-0000	TELEPHONE		
	Desc: Phones	Acct: 10-271-324-0000	TELEPHONE		
	Desc: Phones	Acct: 10-121-324-0000	TELEPHONE		
	Desc: Phones	Acct: 10-151-324-0000	TELEPHONE		
	Desc: Phones	Acct: 10-171-324-0000	TELEPHONE		
	Desc: Phones	Acct: 10-174-324-0000	TELEPHONE		
	Desc: Phones	Acct: 10-181-324-0000	TELEPHONE		
	Desc: Phones	Acct: 10-511-324-0000	TELEPHONE		
	Desc: Phones	Acct: 10-622-324-0000	TELEPHONE		
	Desc: Phones	Acct: 10-530-324-0000	Telephone		
	Desc: Phones	Acct: 50-952-324-0000	TELEPHONE		
	Desc: Phones	Acct: 60-961-324-0000	TELEPHONE		
	Desc: Phones	Acct: 30-971-324-0000	TELEPHONE		
	Desc: Phones	Acct: 65-963-324-0000	TELEPHONE		
	Desc: Phones	Acct: 60-962-324-0000	TELEPHONE		
	Desc: Phones	Acct: 10-321-324-0000	TELEPHONE		
	Desc: Phones	Acct: 10-325-324-0000	TELEPHONE		
	Vendor Total:		3,477.84	0.00	3,477.84
044204	STEARNS SEPTIC SERVICE, LLC		10/30/2020		70955
2020-498	Sludge hauling	1,560.00	\$1,560.00	0.00	1,560.00
	Desc: Sludge hauling	Acct: 65-963-318-0000	CONTRACTED SERVICES		
2020-499	VAC TRUCK #23	235.00	\$235.00	0.00	235.00
	Desc: VAC TRUCK #23	Acct: 65-963-318-0000	CONTRACTED SERVICES		
	Vendor Total:		1,795.00	0.00	1,795.00
044220	STERICYCLE, INC		10/30/2020		70956
1010258482	MED SUPPLY DISPOSAL	0.00	\$27.50	0.00	27.50
	Desc: MED SUPPLY DISPOSAL	Acct: 10-221-331-0500	MEDICAL EQUIPMENT & SUPPLIES		
	Vendor Total:		27.50	0.00	27.50
045520	TEXAS CAPITAL BANK	TEXAS CAPITAL BANK	10/30/2020		70957
145647	LEASE - 2020 NISSAN LEAF NOV'20	0.00	\$663.79	0.00	663.79
	Desc: LEASE - 2020 NISSAN LEAF NOV'20	Acct: 10-161-331-0000	DEPARTMENT EQUIPMENT		
	Vendor Total:		663.79	0.00	663.79
046000	TI-SALES INC		10/30/2020		70958
INV0124134	Chlorinator pump for Wilder Well	1,954.15	\$1,954.15	0.00	1,954.15
	Desc: Chlorinator pump for Wilder Well	Acct: 50-952-331-0000	DEPARTMENT EQUIPMENT		
	Vendor Total:		1,954.15	0.00	1,954.15
046950	TWIN STATE SAND AND GRAVEL CO		10/30/2020		70959
96233-1	Materials to replace culverts	0.00	\$3,656.12	0.00	3,656.12
	Desc: Materials to replace culverts	Acct: 10-311-318-0000	CONTRACTED SERVICES		
96233-2	Winter Sand	0.00	\$3,148.17	0.00	3,148.17
	Desc: Winter Sand	Acct: 10-312-323-0000	MATERIAL & SUPPLIES		
	Vendor Total:		6,804.29	0.00	6,804.29

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047190	USA BLUEBOOK	USA BLUEBOOK	10/30/2020	70960	
380358	GLOVES - COVID	55.08	\$55.08	0.00	55.08
	Desc: GLOVES - COVID	Acct: 65-965-417-0017	EXTRAORDINARY EXP : COVID-19		
393201	CHART PAPER	305.80	\$305.80	0.00	305.80
	Desc: CHART PAPER	Acct: 65-963-323-0000	MATERIALS & SUPPLIES		
	Vendor Total:		360.88	0.00	360.88
047297	UNITED STATES POSTAL SERVICE		10/30/2020	70961	
10.14.2020	POSTAGE REFILL	0.00	\$195.00	0.00	195.00
	Desc: POSTAGE	Acct: 10-221-322-0000	POSTAGE		
	Desc: POSTAGE	Acct: 10-211-322-0000	POSTAGE		
	Vendor Total:		195.00	0.00	195.00
048185	VALLEY IMAGING & AWARDS		10/30/2020	70962	
20911	3000 TOH Single Coupons - LF	236.07	\$236.07	0.00	236.07
	Desc: 3000 TOH Single Coupons - LF	Acct: 30-974-323-0000	MATERIAL & SUPPLIES		
	Vendor Total:		236.07	0.00	236.07
048300	VALLEY NEWS	VALLEY NEWS	10/30/2020	70963	
125978,73360	VALLEY NEWS ADS	177.80	\$177.80	0.00	177.80
	Desc: AD#73360 FT SOLID WASTE FACILITY	Acct: 30-971-315-0000	RECRUITMENT & TRAINING		
125978,84312	VALLEY NEWS ADS	0.00	\$193.40	0.00	193.40
	Desc: AD#84312 HWY EQUIPMENT OP	Acct: 10-325-315-0000	RECRUITMENT & TRAINING		
125977,84303	VALLEY NEWS ADS-OCT'20	0.00	\$187.00	0.00	187.00
	Desc: AD#84303 HTFD ZBA AGENDA	Acct: 10-621-312-0000	ADVERTISING		
125977,76363	VALLEY NEWS ADS	0.00	\$30.60	0.00	30.60
	Desc: AD#76363HTFD DEMOLITION RFP	Acct: 10-625-312-0000	ADVERTISING		
125911,74406	VALLEY NEWS ADS	0.00	\$204.00	0.00	204.00
	Desc: AD#74406 SB AGENDA 10.06.2020	Acct: 10-111-312-0000	ADVERTISING		
125977,73439	VALLEY NEWS ADS	0.00	\$207.40	0.00	207.40
	Desc: AD#73439 PLANNING COMMISSION 10.19.	Acct: 10-621-312-0000	ADVERTISING		
125911,81924	VALLEY NEWS ADS	0.00	\$181.90	0.00	181.90
	Desc: AD#81924 SB AGENDA 10.20.2020	Acct: 10-111-312-0000	ADVERTISING		
	Vendor Total:		1,182.10	0.00	1,182.10
049800	VERMONT DEPARTMENT OF TAXES	VERMONT DEPARTMENT OF TAXES	10/30/2020	70964	
2020 Q3	JULY/AUG/SEPT 3RD QTR FRANCHISE	1,602.61	\$1,602.61	0.00	1,602.61
	Desc: JULY/AUG/SEPT 3RD QTR FRANCHISE TAX	Acct: 30-974-316-0000	GRANTS/APPROP/ST.TAXES		
	Vendor Total:		1,602.61	0.00	1,602.61
050250	VERMONT LEAGUE OF CITIES AND TOWNS		10/30/2020	70965	
P2852020 E10	CREDIT INS 1994 PIERCE LADDER TRI	0.00	\$-180.00	0.00	-180.00
	Desc: CREDIT INS 1994 PIERCE LADDER TRUCK	Acct: 10-221-418-0000	PROPERTY & LIABILITY INSURANCE		
P2852020 E9	INS:NEW 2020 E-ONE LADDER TRUCK	0.00	\$201.00	0.00	201.00
	Desc: INS:2020 E-ONE LADDER TRUCK	Acct: 10-221-418-0000	PROPERTY & LIABILITY INSURANCE		
	Desc: INS:NEW 2020 E-ONE LADDER TRUCK	Acct: 10-221-418-0000	PROPERTY & LIABILITY INSURANCE		
	Vendor Total:		21.00	0.00	21.00

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Bank ID	Bank Name	Payee Name	Check Date	Check No.	
Vendor ID	Vendor Name				
<b>Detail:</b> Invoice No.	Invoice Description	Cross Fund	Invoice Amt	Disc. Amt	Net Amt.
050455	VERMONT LIFE SAFETY LLC		10/30/2020	70966	
39955	Service on Fire Extinguishers	0.00	\$93.75	0.00	93.75
	Desc: Service on Fire Extinguishers	Acct: 10-530-318-0000	CONTRACTED SERVICES		
	Vendor Total:		93.75	0.00	93.75
051943	VISION SERVICE PLAN	VISION SERVICE PLAN	10/30/2020	70967	
NOV'20	VISION INSURANCE NOV'20	0.00	\$1,842.25	0.00	1,842.25
	Desc: VISION INSURANCE NOV'20	Acct: 10-012-300-0225	ACCRUED VISION INSURANCE PAYAI		
	Vendor Total:		1,842.25	0.00	1,842.25
052165	WALSH, DILLON	CHRISTOPHER DILLON WALSH	10/30/2020	70968	
BEST BUY 102120	REIMBURSEMENT-OFFICE EQUIP	0.00	\$329.99	0.00	329.99
	Desc: REIMBURSEMENT-OFFICE EQUIP	Acct: 10-171-323-0000	MATERIAL & SUPPLIES		
	Vendor Total:		329.99	0.00	329.99
052300	WEBB, F W COMPANY	F.W. WEBB COMPANY	10/30/2020	70969	
68968540	Parts to repair toilet	169.65	\$169.65	0.00	169.65
	Desc: Parts to repair toilet	Acct: 60-961-321-0100	REPAIRS & MAINT-BUILDING		
	Vendor Total:		169.65	0.00	169.65
053150	SWISH WHITE RIVER LTD		10/30/2020	70970	
W402454	CLEANING SUPPLIES	0.00	\$24.36	0.00	24.36
	Desc: CLEANING SUPPLIES	Acct: 10-161-323-0000	MATERIAL & SUPPLIES		
W402751	CLEANING SUPPLIES	0.00	\$86.65	0.00	86.65
	Desc: CLEANING SUPPLIES	Acct: 10-161-323-0000	MATERIAL & SUPPLIES		
W402188	CLEANING MATERIALS	0.00	\$168.22	0.00	168.22
	Desc: CLEANING MATERIALS	Acct: 10-211-323-0000	MATERIAL & SUPPLIES		
	Vendor Total:		279.23	0.00	279.23
054150	WISDOM & POWER LLC		10/30/2020	70971	
JUL-SEP'20	SOLAR ARRAY FEE - JUL-SEP'20	5,895.33	\$5,895.33	0.00	5,895.33
	Desc: SOLAR ARRAY FEE - JUL-SEP'20	Acct: 50-952-329-0000	ELECTRICITY		
OCT'20	SOLAR ARRAY FEE - OCT'20	1,965.11	\$1,965.11	0.00	1,965.11
	Desc: SOLAR ARRAY FEE - OCT'20	Acct: 50-952-329-0000	ELECTRICITY		
	Vendor Total:		7,860.44	0.00	7,860.44
059737	MUNICIPAL RESOURCES, INC.		10/30/2020	70972	
21618	Town Manager Recruitment I-Partial	0.00	\$11,100.00	0.00	11,100.00
	Desc: Town Manager Recruitment I-Partial	Acct: 10-111-315-0000	RECRUITMENT & TRAINING		
	Desc: Town Manager Recruitment I-Partial	Acct: 10-111-315-0000	RECRUITMENT & TRAINING		
	Vendor Total:		11,100.00	0.00	11,100.00
059743	HOWELL, THOMAS	THOMAS HOWELL	10/30/2020	70973	
PO#7584	REIMBURSE - CLOTHING ALLOWANCE	0.00	\$75.97	0.00	75.97
	Desc: REIMBURSE - CLOTHING ALLOWANCE	Acct: 10-211-326-0000	PURCHASE UNIFORMS & CLEANING		
	Vendor Total:		75.97	0.00	75.97

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Check Date: 10/30/2020 - 10/30/2020

Bank ID	Bank Name	Payee Name	Check Date	Check No.	
Vendor ID	Vendor Name				
<b>Detail:</b> Invoice No.	Invoice Description	Cross Fund	Invoice Amt	Disc. Amt	Net Amt.
059941	ROY REFRIGERATION, LLC		10/30/2020	70974	
6464	Repairs & Maint HVAC @ WRJ WW PLA	330.06	\$330.06	0.00	330.06
	Desc: Repairs & Maint HVAC @ WRJ WW PLANT	Acct: 60-961-318-0000	CONTRACTED SERVICES		
	Vendor Total:		330.06	0.00	330.06
060110	NATIONAL BUSSINESS TECHNOLOGIES LL		10/30/2020	70975	
IN388281	METER COPIER - SEP'20 - DPW	34.72	\$43.41	0.00	43.41
	Desc: METER COPIER - SEP'20 - DPW	Acct: 10-325-330-0000	OFFICE EQUIPMENT		
	Desc: METER COPIER - SEP'20 - DPW	Acct: 50-955-330-0000	OFFICE EQUIPMENT		
	Desc: METER COPIER - SEP'20 - DPW	Acct: 55-955-330-0000	OFFICE EQUIPMENT		
	Desc: METER COPIER - SEP'20 - DPW	Acct: 60-965-330-0000	OFFICE EQUIPMENT		
	Desc: METER COPIER - SEP'20 - DPW	Acct: 65-965-330-0000	OFFICE EQUIPMENT		
IN387762	METER COPIER - SEP'20 - FD	0.00	\$52.10	0.00	52.10
	Desc: METER COPIER - SEP'20 -FD	Acct: 10-221-320-0000	EQUIP OPERATION/MAINT-OFFICE		
	Vendor Total:		95.51	0.00	95.51
060124	GREEN MAPLE, LLC	GREEN MAPLE, LLC	10/30/2020	70976	
645052	SOLAR ARRAY - OCT 2020	2,460.22	\$10,469.00	0.00	10,469.00
	Desc: SOLAR ARRAY - OCT 2020	Acct: 10-530-329-0000	ELECTRICITY		
	Desc: SOLAR ARRAY - OCT 20 TH 16%	Acct: 10-161-329-0000	ELECTRICITY		
	Desc: SOLAR ARRAY - OCT 2020	Acct: 10-221-329-0000	ELECTRICITY		
	Desc: SOLAR ARRAY - OCT 2020	Acct: 10-211-329-0000	ELECTRICITY		
	Desc: SOLAR ARRAY - OCT 2020	Acct: 10-271-329-0000	ELECTRICITY		
	Desc: SOLAR ARRAY - OCT 2020	Acct: 55-953-329-0000	ELECTRICITY		
	Desc: SOLAR ARRAY - OCT 2020	Acct: 60-962-329-0000	ELECTRICITY		
	Desc: SOLAR ARRAY - OCT 2020	Acct: 10-421-329-0000	ELECTRICITY / GAS		
	Desc: SOLAR ARRAY - OCT 2020	Acct: 30-971-329-0000	ELECTRICITY		
	Desc: SOLAR ARRAY - OCT 2020	Acct: 65-964-329-0000	ELECTRICITY		
	Vendor Total:		10,469.00	0.00	10,469.00
060293	US DIGITAL DESIGNS, INC.		10/30/2020	70977	
9533	G2 FSA ANNUAL SERVICE FEE	0.00	\$4,973.32	0.00	4,973.32
	Desc: G2 FSA ANNUAL SERVICE FEE	Acct: 10-221-318-0000	CONTRACTED SERVICES		
	Vendor Total:		4,973.32	0.00	4,973.32
500387	EXECUSUITE, LLC		10/30/2020	70978	
12819	RENT - NOV'20	0.00	\$400.00	0.00	400.00
	Desc: RENT - NOV'20	Acct: 10-121-318-0600	CONTRACT SERVICES - PARKING RE		
	Vendor Total:		400.00	0.00	400.00
500660	JP PEST SERVICE		10/30/2020	70979	
2730924	PEST SERVICES - AUG'20	0.00	\$81.50	0.00	81.50
	Desc: PEST SERVICES - AUG'20	Acct: 10-161-318-0000	CONTRACTED SERVICES		
2779866	PEST SERVICES - OCT'20	0.00	\$81.50	0.00	81.50
	Desc: PEST SERVICES - OCT'20	Acct: 10-161-318-0000	CONTRACTED SERVICES		
	Vendor Total:		163.00	0.00	163.00
500894	SECURSHRED	SECURSHRED	10/30/2020	70980	

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Check Date: 10/30/2020 - 10/30/2020

Bank ID	Bank Name	Payee Name	Check Date	Check No.	
Vendor ID	Vendor Name				
<b>Detail:</b> Invoice No.	Invoice Description	Cross Fund	Invoice Amt	Disc. Amt	Net Amt.
346784	Shredding services	0.00	\$22.00	0.00	22.00
Desc: Shredding services		Acct: 10-161-318-0000	CONTRACTED SERVICES		
346731	MONTHLY SHREDDING	0.00	\$22.00	0.00	22.00
Desc: MONTHLY SHREDDING		Acct: 10-211-318-0000	CONTRACTED SERVICES		
Vendor Total:			44.00	0.00	44.00
502180	KREIS, DYLAN	DYLAN KREIS	10/30/2020	70981	
10.12.2020	Reimbursement-Fee Survey Monkey	99.00	\$99.00	0.00	99.00
Desc: Fee to set-up Survey Monkey account		Acct: 70-627-318-1000	CROs Community Sufficiency Grant		
Vendor Total:			99.00	0.00	99.00
502406	INTERNATIONAL ASSOC OF ARSON	INTERNATIONAL ASSOC OF ARSON	10/30/2020	70982	
39978	DUBE MEMBERSHIP FEE	0.00	\$100.00	0.00	100.00
Desc: DUBE MEMBERSHIP FEE		Acct: 10-221-313-0000	MEMBERSHIP DUES		
Vendor Total:			100.00	0.00	100.00
502687	PERAZA, JONATHAN	JONATHAN PERAZA	10/30/2020	70983	
10.29.2020	REIMBURSEMENT	0.00	\$1,249.99	0.00	1,249.99
Desc: REIMBURSEMENT		Acct: 10-211-323-0000	MATERIAL & SUPPLIES		
Vendor Total:			1,249.99	0.00	1,249.99

**FUND 1 0**

**Bank Total: 518,231.49**

	Holdback Total			518,992.99
<b>Batch Totals:</b>	0.00	301,278.28	3.48	820,274.75

\_\_\_\_\_ DANIEL FRASER  
 \_\_\_\_\_ SIMON DENNIS  
 \_\_\_\_\_ ALICIA BARROW  
 \_\_\_\_\_ ALAN JOHNSON  
 \_\_\_\_\_ EMMA BEHRENS  
 \_\_\_\_\_ JOSEPH MAJOR  
 \_\_\_\_\_ KIM SOUZA  
 \_\_\_\_\_ JOHN MACLEAN  
 \_\_\_\_\_ GAIL OSTROUT  
 \_\_\_\_\_ JOHN J. CLERKIN