

# Town of Plainfield, Vermont 2019 Ash Inventory Results and EAB Management Plan

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PREPARED BY:

THE VT URBAN & COMMUNITY FORESTRY PROGRAM

WITH ASSISTANCE FROM:

THE CENTRAL VERMONT REGIONAL PLANNING COMMISSION

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## I. INTRODUCTION

In 2019, the town of Plainfield partnered with the Vermont Urban & Community Forestry Program to inventory ash trees along 20 miles of its priority rural roads. Ash trees are currently threatened by emerald ash borer (EAB), a small, metallic-green beetle native to Southeast Asia that feeds on all North American species of ash trees (*Fraxinus* family). As of the writing of this report, Plainfield is located within the confirmed EAB infested area due to one confirmed infestation of EAB near Bean Road (see Figure 1: Map of Central Vermont EAB Infested Area). To plan for the spread of EAB and its detrimental effect on ash trees in or near the public right-of-way, the VT Urban & Community Forestry Program has inventoried publicly managed, privately managed, and utility right-of-way ash trees that may fall on the road when diseased or dead. In response to this information, the town of Plainfield has outlined the equipment and personnel needs it anticipates will be necessary to proactively or reactively manage ash trees in and near the public right-of-way.

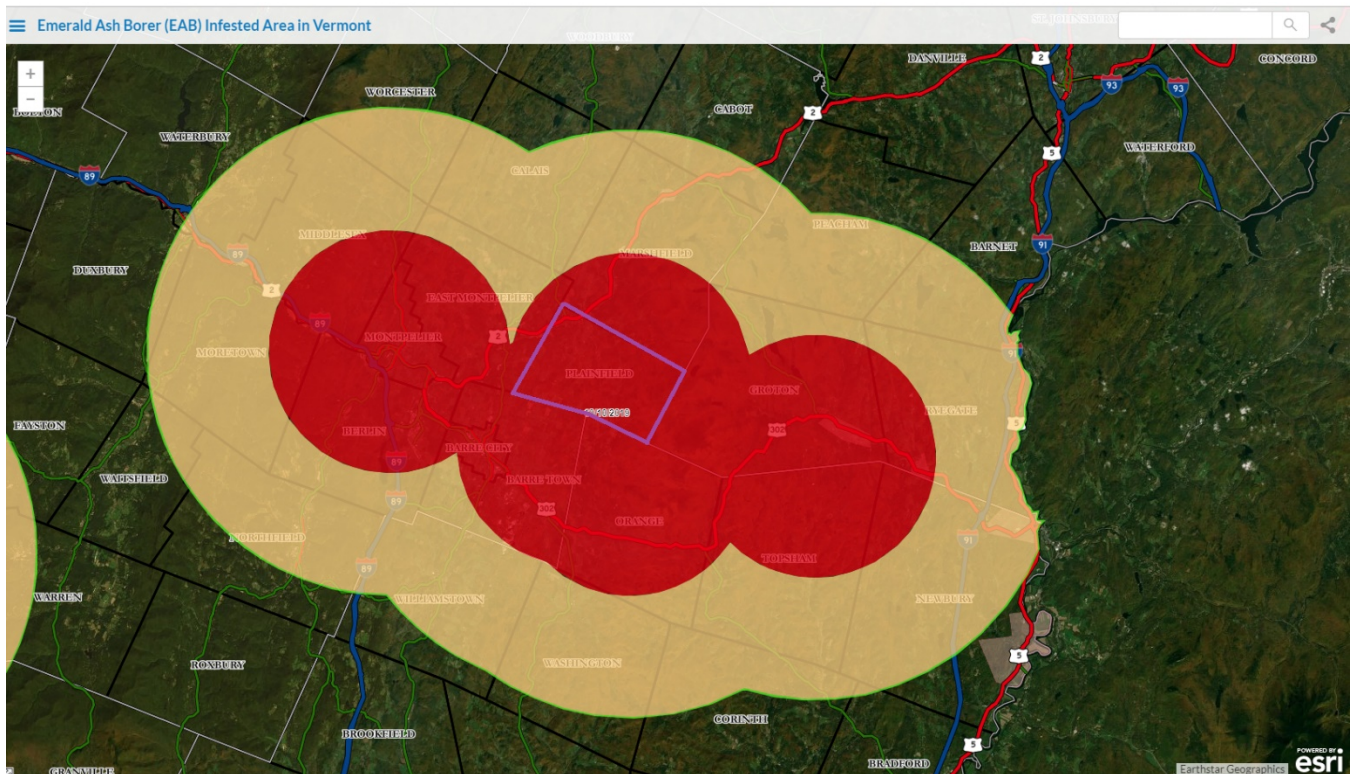


Figure 1. Map of Washington County EAB Infested Area and Plainfield highlighted in purple. From [vtinvasives.org](http://vtinvasives.org): “The Infested Area is split into Confirmed Infested Areas and High Risk Areas. Confirmed Infested Areas (shaded in red) are within 5 miles of a known infestation. While symptoms may not be obvious, it is likely that EAB is present in much of this area. High Risk Areas (shaded in yellow) extend 5 miles from the outer edge of a Confirmed Infested Area. EAB is likely expanding into, and present in some of this area.”

## II. EMERALD ASH BORER: A PRIMER AND MANAGEMENT STRATEGIES

First detected in Detroit in 2002, emerald ash borer (EAB) spread quickly across the eastern and southern portion of the United States and Canada via the transportation of infested ash wood. In its native habitat, ash trees exhibit enough chemical resistance to keep beetle populations in balance with ash tree survival. In North America, however, very few native ash trees are able to resist EAB infestation (some, called “lingering ash”, do survive). EAB has killed tens of millions of ash trees in both urban and rural environments nationwide, causing the trees to become brittle within the first year of infestation and resulting in 99% ash tree mortality in urban areas within five years.

Adult EAB are bullet-shaped, metallic green, and  $\frac{1}{4}$  -  $\frac{1}{2}$  inch long. The larvae are segmented, creamy white, legless and can grow up to 3cm in length. While adult EAB compromise ash tree health by eating ash tree leaves, it is the feeding pattern of the larvae that kill the tree. EAB larvae form s-shaped galleries under the bark, ultimately killing the ash tree in a severe infestation by cutting off the flow of nutrients up and down the tree. Signs of EAB in an ash tree include canopy dieback, “blonding” from woodpecker flecking, epicormic branching, bark cracks or splits, and s-shaped galleries underneath the bark. Adult EAB travel between 1 and 2 miles per year on their own but are moved much more quickly by the transportation of infested wood by people. For pictures of signs and symptoms of EAB, visit [vtinvasives.org/land/emerald-ash-borer-vermont](http://vtinvasives.org/land/emerald-ash-borer-vermont).

EAB was detected in Vermont in February of 2018; as of the writing of this report, it has now been confirmed in eight counties in the state. All Vermont towns are encouraged to prepare for and manage the impacts of EAB and the loss of ash trees in community forests, in parks, village greens, outside municipal buildings, and along roadsides. Dead and dying ash trees along the public right-of-way and in public places pose a significant risk to public safety due to their brittle nature when infested and unpredictable failure patterns. In rural communities, failing ash trees on both public and private property may land on roads, creating risk for travelers and causing costly clean-up along roads where ash trees number in the hundreds. In addition, the loss of ash trees will leave gaps in the tree canopy, impacting the ecological, economic, and aesthetic benefits provided by the roadside trees and forests. Municipalities will bear the responsibility and costs of removing and treating public ash trees, as well as any replanting efforts. In urban areas, the cost of removing a dead or dying ash tree is estimated at 3 times higher than the cost of removing a healthy ash tree due to the inability to safely climb infested ash for removal and the increased cleanup of shattered limbs and trunk pieces. It is currently unknown what the costs of dead ash tree removal or cleanup will cost along Vermont’s rural roads.

Learn more about EAB, ash tree identification, the signs and symptoms of EAB, and recommendations to Slow the Spread of EAB at [vtinvasives.org](http://vtinvasives.org).

For more information about Emerald Ash Borer Management, visit [vtcommunityforestry.org/community-planning/tree-pests](http://vtcommunityforestry.org/community-planning/tree-pests).

In general, there are three methods for managing EAB and affected ash trees at the municipal level. Towns may choose one option to implement town-wide, or may assign varying options to different portions of road in the town. The three options are:

### ❖ **Preemptive Management**

Ash trees along rural roads are removed prior to EAB infestation and, if appropriate, replaced with a diversity of tree species that do not host EAB, either at the site of removal or elsewhere. As a result, the community's roadways will contain no public ash trees.

#### **Pros**

- Opportunity to spread removal costs over a longer time frame.
- Reduces problem of managing many dead or hazardous ash trees at one time.
- Opportunity to start replanting trees and recovering canopy right away.
- Greater flexibility in organizing removal and routine work schedules.
- Ability to utilize ash wood locally as lumber or firewood.
- Possibility of recouping timber value of felled trees.

#### **Cons**

- Immediate impacts to tree canopy and aesthetics.
- Removing healthy ash may create negative feeling in the community.
- Does not account for trees that may be resistant to EAB and survive infestation.
- Does not consider that research may find an effective control of EAB.

**COST:** The initial costs associated with this option will be high due to expenses associated with tree removal. However, limited annual cost for EAB management will be incurred after the implementation of this strategy.

### ❖ **Selective Management**

High-value ash trees in selected areas are treated annually or biannually with insecticides – this is a long-term investment for the lifetime of the ash tree. Along roads, some ash trees are removed before infestation to reduce risk to travelers and reduce cost of removal once trees are infested and dying. Other ash trees along some roads and in public forests are left unmanaged (and will likely succumb to EAB infestation) or are managed under the guidance of the community tree warden when they are deemed risk trees. Town-wide, ash trees are regularly monitored for their health and levels of EAB infestation.

#### **Pros**

- Saves high-value trees that provide ecological services for the town.
- Moderates costs to municipality over time.
- Results in short-term canopy gap if tree removal and replanting or regeneration is staged in some areas.
- Minor habitat disturbance where logging equipment is used to remove trees.

- Possibility of recouping timber value of felled trees.

**Cons**

- Risks of dead or dying ash along roads remain in right-of-way.
- Effects of EAB persist throughout town
- May remove trees that may be resistant to EAB and survive infestation

COST: Treatment, removal, and replacement costs will be spread out over an extended period.

❖ **Reactive Management**

Ash trees are managed and maintained in the same way as all other trees in the community. Some are removed when infested with EAB or dead, some are removed as necessary when they fall in the road, and some are left to degrade and fall in place. Ultimately, most ash trees will die as the infestation spreads through the municipality.

**Pros:**

- Delayed impacts to tree canopy and aesthetics.
- No negative public perception of removing healthy trees.
- Delayed budgetary impacts until EAB infestation is widespread and severe.
- Further EAB research may offer effective control, minimizing need for removals.
- Some roadside ash may prove resistant to EAB and will not require removal or management.

**Cons:**

- Budget impacts are severe as the town manages hundreds of dying and dead trees each year.
- Replanting funds may not be available due to extreme removal costs.

COST: Although this strategy may cost nothing up front, significant costs will be incurred over a short period of time as ash die quickly and concurrently. Additionally, the cost of the removal of dead ash trees is more expensive than removal of live trees due to decreased structural integrity of EAB-infested trees and the risk they pose to tree removal crews.

**III. PLAINFIELD ASH TREE INVENTORY AND EAB MANAGEMENT PLAN**

The Ash Tree Management Plan for the town of Plainfield will help the town budget for the effects of dying ash in and near the right-of-way as they succumb to EAB infestation. This EAB and Ash Tree Management Plan includes both active and passive management strategies for live and dead roadside ash trees and describes the role town staff, volunteers, and any contractors will play in the management of these trees.

The strategic planning portion of the Plainfield Ash Tree Management Plan is guided by the community's vision of its roadsides as outlined in their Town Plan and in their working group meetings.

### ❖ Inventory Methodology

The first and most important step in managing a community's roadside trees and preparing for EAB is to conduct an inventory of ash trees that may affect the public right-of-way and travelled road when infested or dying. Such an inventory was conducted in Plainfield by the Urban & Community Forestry program staff in 2019. Data collected on each tree included:

- geographic location (recorded by cell-enabled iPad or iPhone)
- town name
- road name (derived from GIS software)
- tree count of data point (number of stems)
- diameter class
  - trees under 4" DBH were not inventoried
  - 4"-12" diameter at breast height (DBH)
  - 12"-24" DBH
  - greater than 24" DBH
- condition
  - good
  - fair
  - poor
  - dead
- management responsibility
  - public right-of-way tree (i.e. within 24.25 feet of the centerline of the road)
  - utility right-of-way tree (i.e. portions of the tree within 10 feet of a utility line or are likely to impact a utility line when falling)
  - privately owned tree that may fall in the right-of-way (i.e. as visually inspected from the right-of-way)
- priority for removal
  - yes
  - no
  - unknown

The inventory covered approximately 20 miles of roads identified as priority travelled routes in the town by Bram Towbin and Joanne Garton (VT Urban & Community Forestry) in the spring of 2019 (see Figure 2: 2019 Plainfield Ash Tree Inventory Routes).

Plainfield DRAFT Ash Tree Management Plan

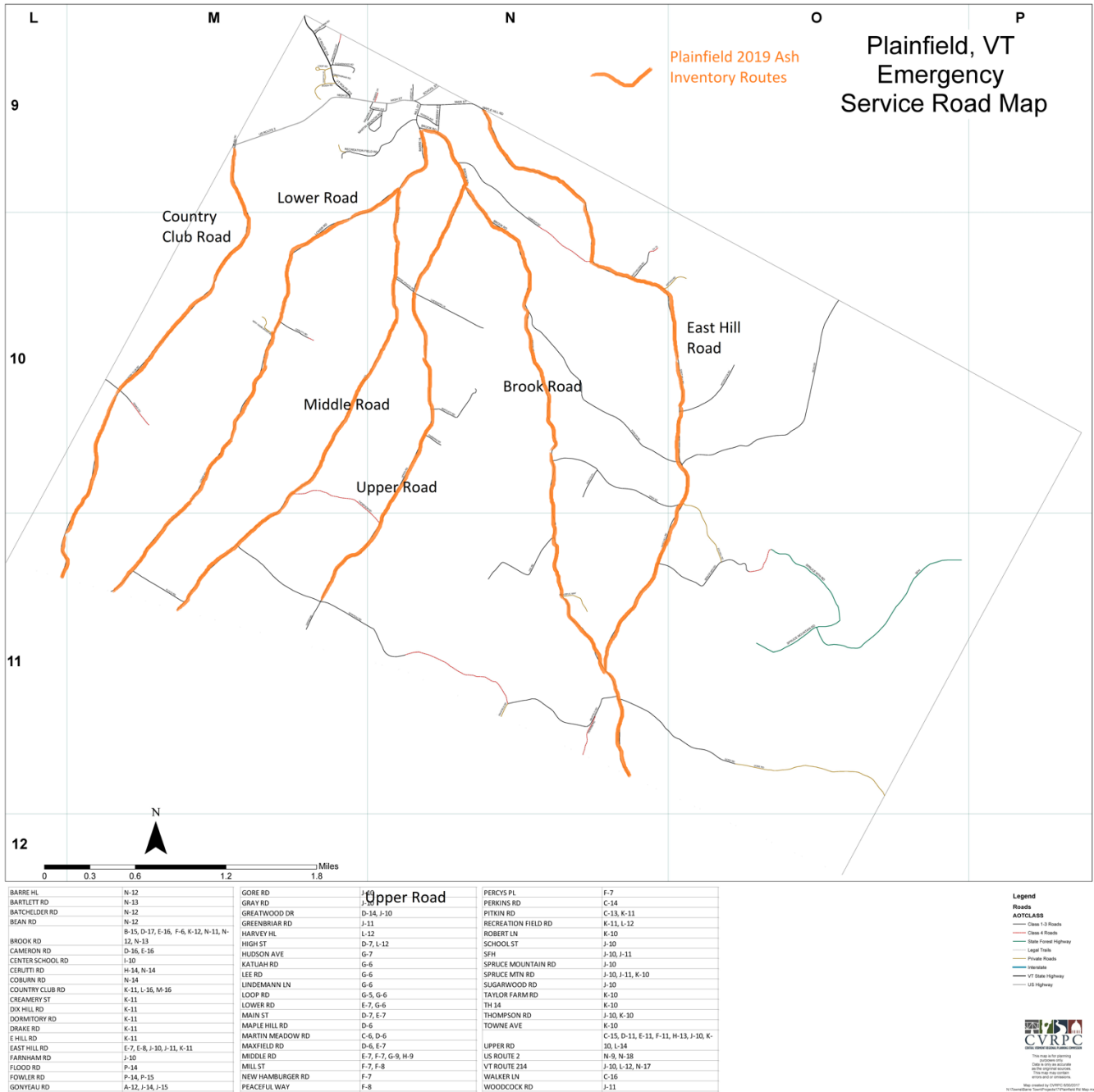
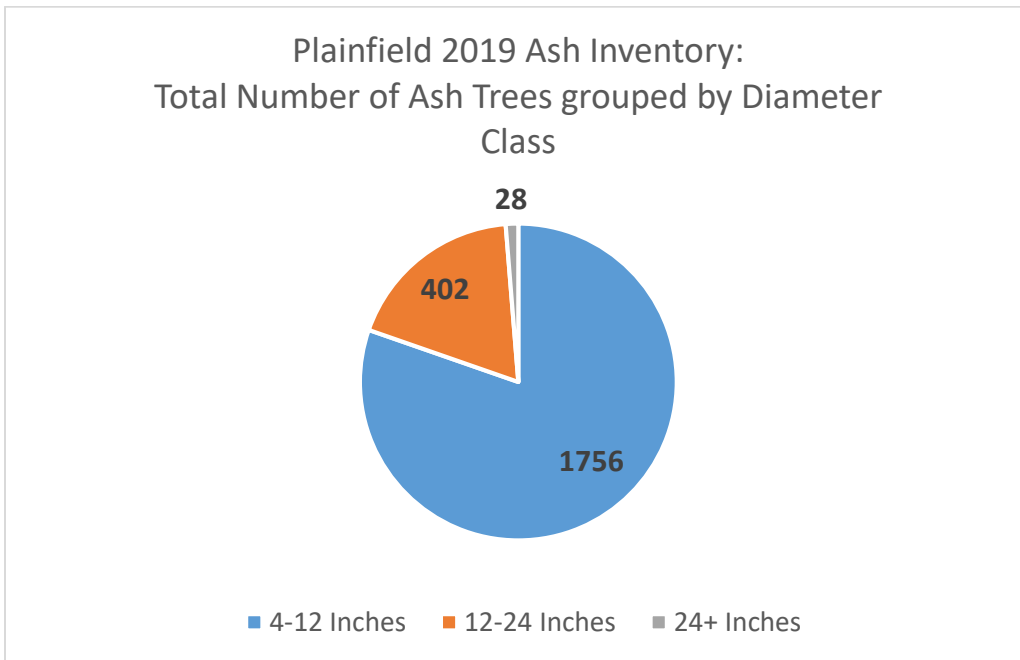


Figure 2. Plainfield 2019 Ash Tree Inventory Routes. With the exception of data collected on July 10, 2019 by the Maple Hill High School student, Vermont Urban & Community Forestry staff collected data on both sides of the road along mapped priority routes. Collected data concerned: date of data collection; ash tree diameter; ash tree location (including town name and GPS-recorded location); ash tree health; ash tree management type; and the number of ash tree stems at one data point location. Base map courtesy of Central Vermont Regional Planning Commission.



### ❖ Inventory Results

The inventory yielded 2,186 individual trees at 1,547 different locations that may impact the right-of-way when dying or dead. These results are conservative; not all inventoried trees will impact the right-of-way, but capturing the full breadth of ash size and density in areas that may impact the right-of-way provides a comprehensive view of the scope of potential EAB management needs along priority roads in Plainfield. Ash tree inventory data is available for all towns at the [Vermont Roadside Ash Viewer<sup>1</sup>](#) website, accessed via a username and password provided to the Plainfield EAB management team. Data can be filtered according to desired parameters and displayed on screen.



**Chart 1: Ash Tree by Diameter Class.**

Over 80% of the inventoried ash trees less than 12 inches DBH; over 18% are between 12 inches and 24 inches DBH; less than 2% are greater than 24 inches DBH.

<sup>1</sup> ANR Roadside Ash Viewer, requires username and password:  
<http://vtanr.maps.arcgis.com/apps/webappviewer/index.html?id=c3dd4d5ecc9c465f92d0d636d0ab3d1b>

| <b>Table 1: Plainfield 2019 Ash Tree Inventory<br/>Ash Tree Condition grouped by Diameter Class</b> |             |             |             |             |                    |
|---|-------------|-------------|-------------|-------------|--------------------|
| <b>Diameter (DBH)</b>   | <b>Good</b> | <b>Fair</b> | <b>Poor</b> | <b>Dead</b> | <b>Grand Total</b> |
| 4-12 inches   | 1640        | 26          | 79          | 11          | 1756               |
| 13-24 inches  | 346         | 14          | 37          | 5           | 402                |
| 24+ inches  | 20          | 1           | 6           | 1           | 28                 |
| <b>Grand Total</b>  | <b>2006</b> | <b>41</b>   | <b>122</b>  | <b>17</b>   | <b>2186</b>        |

**Table 1: Ash Tree Condition grouped by Diameter Class.**

Almost 94% of inventoried ash are in good or fair condition; over 6% of inventoried ash trees are in poor condition or dead, likely due to causes unrelated to EAB as assessed through visual survey.

Map 1 on page 12 of this Management Plan illustrates ash tree condition (Good, Fair, Poor, Dead) and any trees marked as “Priority Removal”.

| <b>Table 2: Plainfield 2019 Ash Tree Inventory<br/>Ash Tree Management Type grouped by Diameter Class</b> |                 |                |                |                    |
|---|-----------------|----------------|----------------|--------------------|
| <b>Diameter</b>   | <b>Town ROW</b> | <b>Private</b> | <b>Utility</b> | <b>Grand Total</b> |
| 4-12 inches   | 926             | 544            | 286            | 1756               |
| 12-24 inches  | 164             | 156            | 82             | 402                |
| 24+ inches  | 14              | 10             | 4              | 28                 |
| <b>Grand Total</b>  | <b>1104</b>     | <b>710</b>     | <b>372</b>     | <b>2186</b>        |

**Table 2: Ash Tree Management Type grouped by Diameter Class.**

Approximately 50% of inventoried ash trees are within the public right-of-way; over 32% are privately owned and managed ash trees; the remaining 17% are likely within the utility company right-of-way. In Plainfield, they utility companies are Green Mountain Power in the northwestern part of the town and Washington Electric Cooperative in the remainder of the town.

Map 2 on page 14 of this Ash Management Plan illustrates ash tree locations classified by management type; within this map, town ROW trees are also classified by diameter class.

| <b>Table 3: Plainfield 2019 Ash Tree Inventory<br/>Ash Tree Diameter Classes grouped by Road Name</b> |                    |                     |                   |                    |
|---|--------------------|---------------------|-------------------|--------------------|
| <b>Road Name</b>  | <b>4-12 inches</b> | <b>12-24 inches</b> | <b>24+ inches</b> | <b>Grand Total</b> |
| Barre Hill Rd   | 21                 |                     | 1                 | 22                 |
| Bean Rd   | 28                 | 4                   | 3                 | 35                 |
| Brook Rd  | 206                | 48                  |                   | 254                |
| Country Club Rd   | 358                | 81                  | 4                 | 443                |
| East Hill Rd  | 434                | 99                  | 8                 | 541                |
| Flood Rd  | 4                  | 3                   |                   | 7                  |
| Lower Rd  | 179                | 53                  | 2                 | 234                |
| Middle Rd   | 322                | 83                  | 9                 | 414                |
| Recreation Field Rd   | 2                  | 2                   |                   | 4                  |
| Upper Rd  | 202                | 29                  | 1                 | 232                |
| <b>Grand Total</b>  | <b>1756</b>        | <b>402</b>          | <b>28</b>         | <b>2186</b>        |

**Table 3: Ash Tree Diameter Class Type grouped by Road Name**

A summary of ash tree counts and sizes on inventoried roads as grouped by road name. This includes ash trees of all management types (public ROW, utility ROW, and private).

**IV. EAB MANAGEMENT PLAN**

❖ **Management Priority**

The town of Plainfield has set the following priority:

❖ **Available Management Options**

The town of Plainfield plans to to:

The town will disposal of all trees in the following ways:

Comprehensive vegetation management for the town will also include:

❖ **Responsibilities**

The following Town staff will be responsible for this Implementation Plan

- 1)
- 2)
- 3)

❖ **Funding**

The following funding sources will be utilized for this Implementation Plan

- 1)
- 2)

**Budget and Schedule**

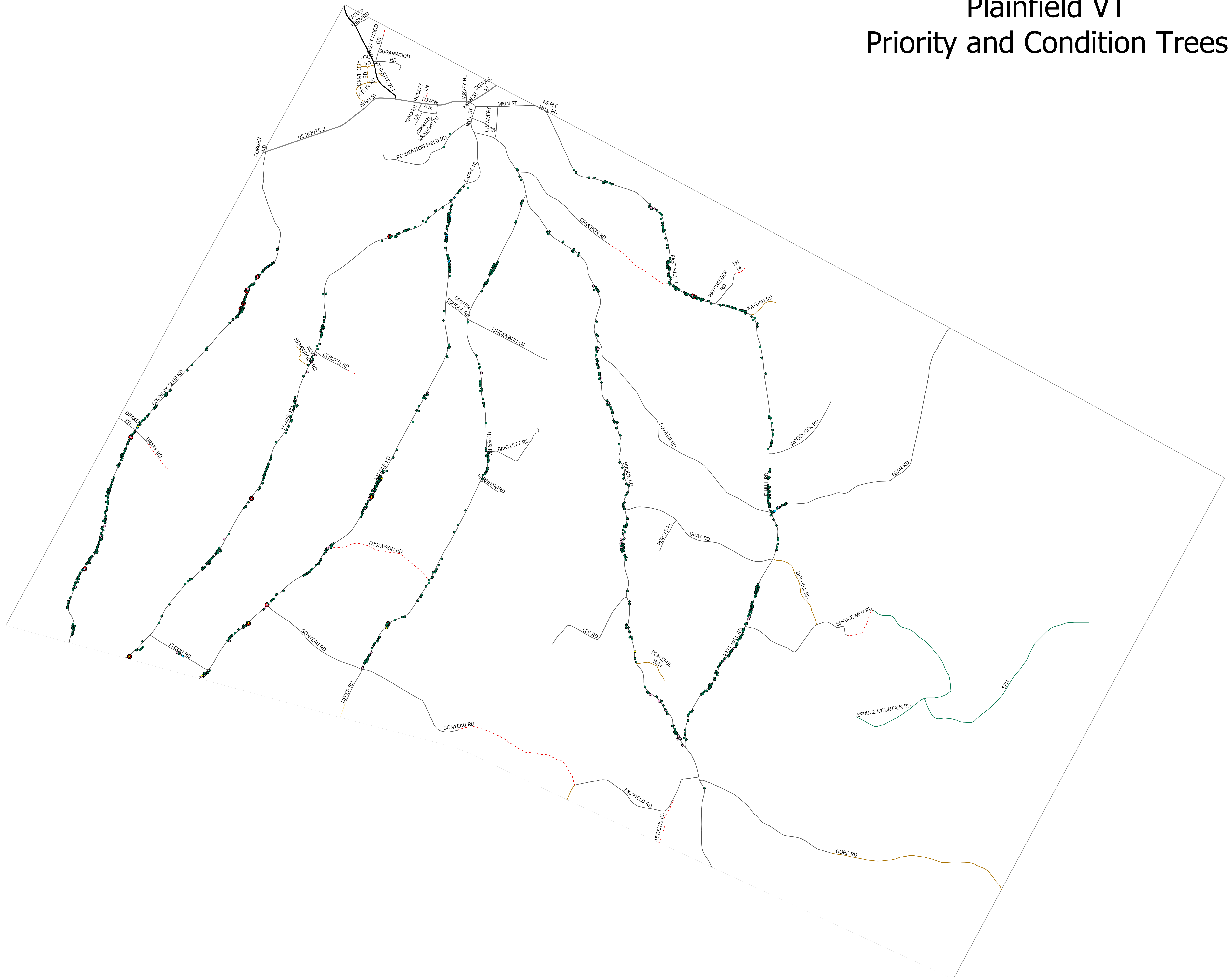
5 Year Tree Care Budget Projection and Schedule

|                     |                   |               | 2020          |               | 2021          |               | 2022          |               | 2023          |               | 2024          |               | 5 YR<br>TOTAL |
|---------------------|-------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Activity            | Diameter<br>class | Cost/<br>tree | # of<br>trees | Total<br>cost | # of<br>trees | Total<br>cost | # of<br>trees | Total<br>cost | # of<br>trees | Total<br>cost | # of<br>trees | Total<br>cost |               |
| Specify<br>activity | 1-12"             |               |               |               |               |               |               |               |               |               |               |               |               |
|                     | 12-24"            |               |               |               |               |               |               |               |               |               |               |               |               |
|                     | 24"+              |               |               |               |               |               |               |               |               |               |               |               |               |
| Activity<br>totals  |                   |               |               |               |               |               |               |               |               |               |               |               |               |

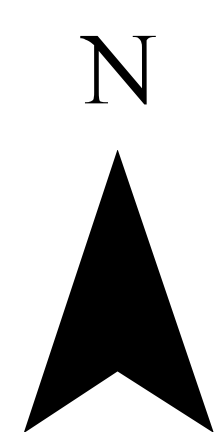
**Map 1**

Plainfield 2019 Ash Tree Inventory Results:  
Ash tree condition (Good, Fair, Poor, Dead) and any trees marked as "Priority Removal".

# Plainfield VT Priority and Condition Trees



- Trees**
- CONDITION**
- Good
  - Fair
  - Poor
  - Dead
  - Priority Removal
- Roads**
- Interstate
  - State Highway
  - US Highway
  - Class 1-3 Town Highways
  - - - Class 4 Town Highway
  - National Forest Highway
  - State Forest Highway
  - Private Roads
  - Legal Trails



Map created by CVRPC 11/13/2019  
 This map is for planning purposes only.  
 Data is only as accurate as the original sources.  
 This map may contain errors and or omissions.

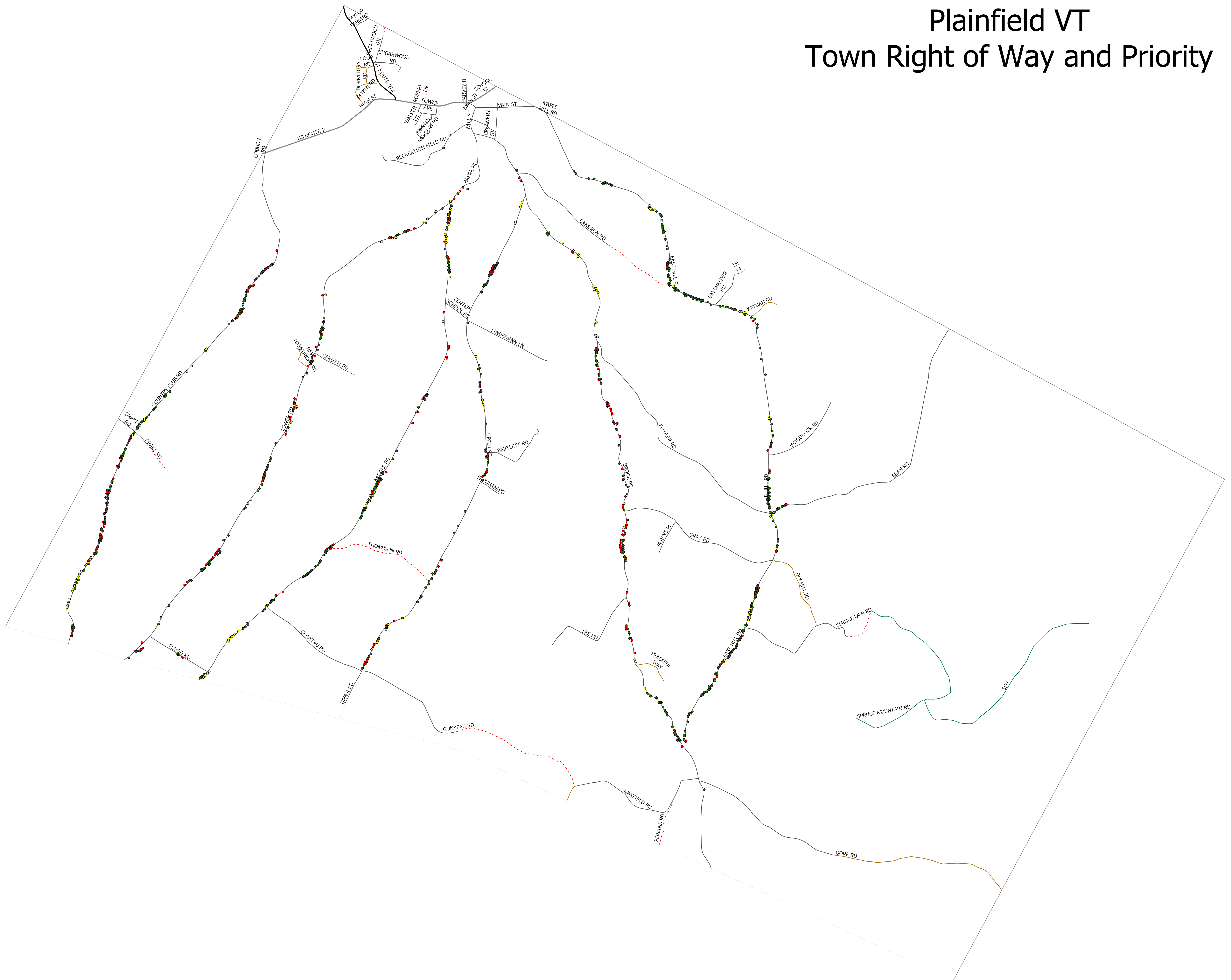


**Map 2**

Plainfield 2019 Ash Tree Inventory Results:

Ash tree locations classified by management type (public ROW, private, utility ROW);  
additionally, public ROW trees are grouped by diameter class

# Plainfield VT Town Right of Way and Priority



## Plainfield Town Right of Way Trees

- Diameter
- 4-11 inches
  - 12-23 inches
  - 24+ inches

## PlainfieldAshData

### ROADSIDE

- PRIVATE
- UTILITY

### Roads

- Interstate
- State Highway
- US Highway
- Class 1-3 Town Highways
- Class 4 Town Highway
- National Forest Highway
- State Forest Highway
- Private Roads
- Legal Trails



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