TREE INVENTORY SUMMARY

FAIRHAVEN, MA

SEPTEMBER | 2025

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developers of TreePlotter

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TABLE OF
CONTENTS

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# FAIRHAVEN, MA TREE INVENTORY
SUMMARY REPORT

Having a healthy, diverse urban forest can provide many benefits to residents as well as the ecosystem. In addition to being aesthetically pleasing, trees also provide a number of ecosystem services. For example, they scrub the air of pollutants, slow the release of stormwater runoff into the watershed, filter stormwater, provide oxygen, reduce energy costs, provide shade, and offer habitat and food for wildlife.

Trees in urban environments not only contribute services to the area, but also provide residents with invaluable green space and health benefits. Research has shown that proximity to green space is linked to better mental health, as well as increases in social connections, and physical well-being. (Barton et al., 2010; Holtan et al., 2014; Takano, 2002).

The keys to maintaining a sustainable and healthy urban forest are species and age diversity, proper tree maintenance, risk management, and community support, which can be accomplished with an urban forest management plan. The information in this report is provided to guide future maintenance and management and to better plan for the health and longevity of Fairhaven, MA's urban forest.

The inventory data were analyzed in Microsoft Excel and Fairhaven, MA's own TreePlotter app (**https://pg-cloud.com/FairhavenMA/**) to determine the state, characteristics, and trends of the urban forest. Analyses and summaries were completed for the inventoried trees to determine the health and diversity of all trees managed by the Fairhaven, MA.

The data include 6,940 trees, and 80 stumps that were inventoried by an ISA Certified Arborist® accredited by the International Society of Arboriculture and analyzed for site quality, health observations, tree risk, and structural defects among other data points. The majority of inventoried sites were located within, or growing into the public rights-of-way along town maintained roads. The remaining sites were located on town maintained properties like parks and town facilities.
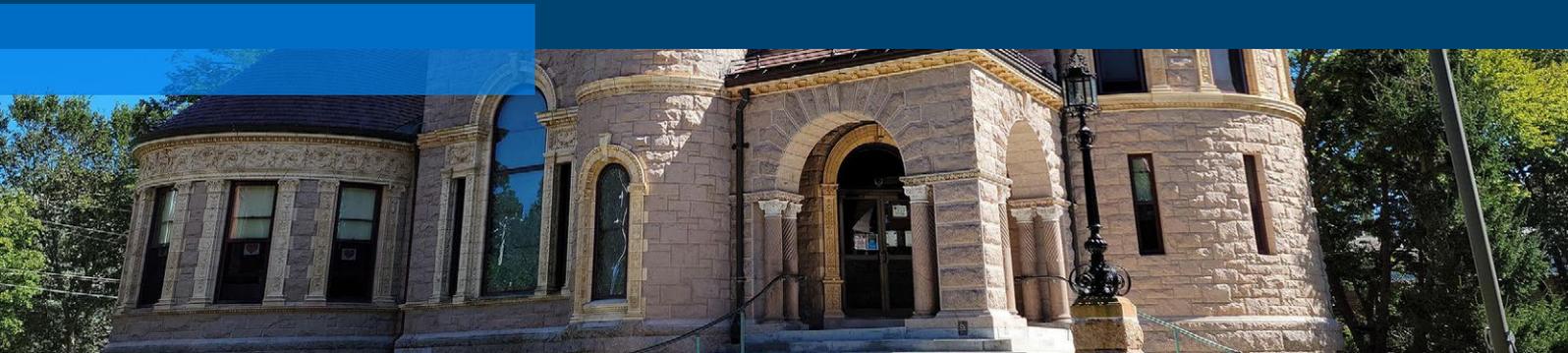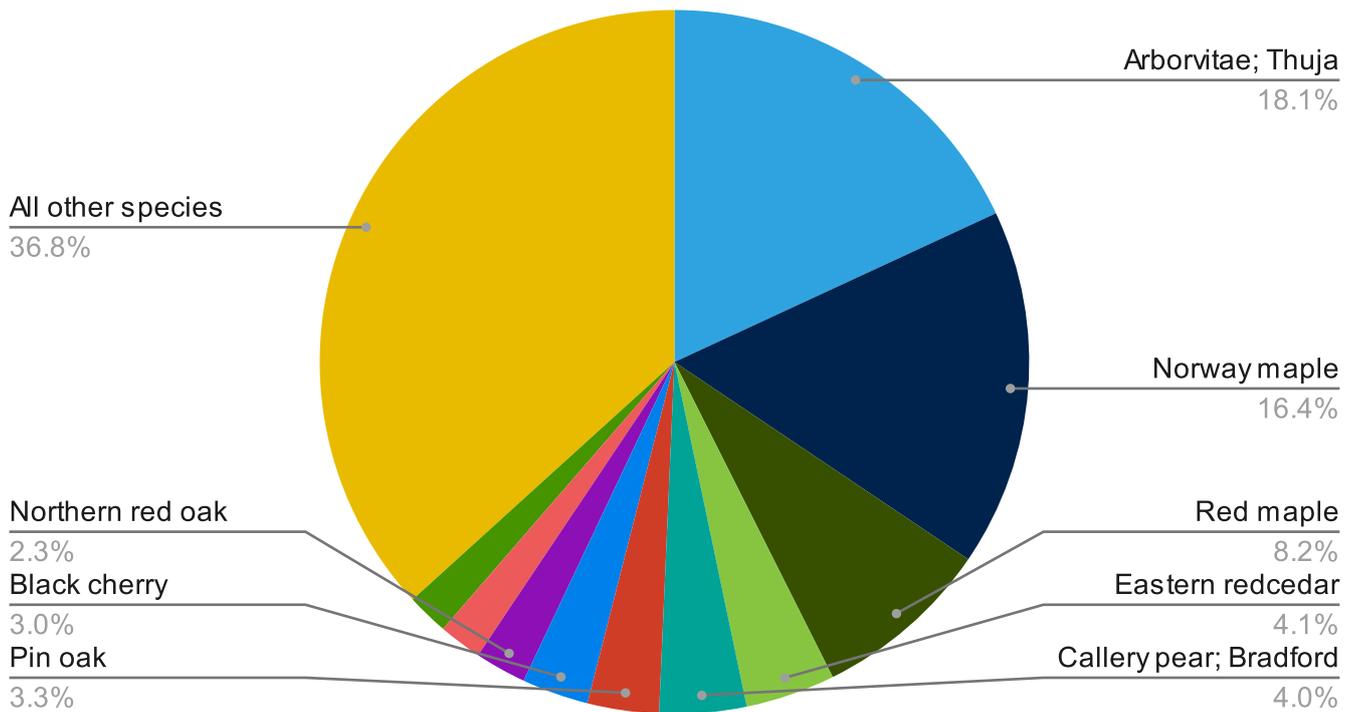
INVENTORY RESULTS AT-A-GLANCE

The following report sections provide the results and recommendations based on the town's tree characteristics and is organized by Structure, Management, and Distribution, followed by the Recommendations section. The summary results presented below will be discussed in greater detail in the following sections.

SPECIES DIVERSITY

A total of 169 unique tree species and/or cultivars were identified throughout the inventory. The top 10 species comprise 63% of the total inventory, with Arborvitae; Thuja species being the most prevalent with 1,253 trees, or 18% of the total inventory.

COMMON NAME	COUNT	PERCENT
Arborvitae; Thuja species	1,253	18.10%
Norway maple	1,139	16.40%
Red maple	567	8.20%
Eastern redcedar	284	4.10%
Callery pear; Bradford pear	275	4.00%
Pin oak	226	3.30%

COMMON NAME	COUNT	PERCENT
Black cherry	211	3.00%
Northern red oak	163	2.30%
American elm	137	2.00%
Green ash	132	1.90%
All other species	2,553	36.80%

## Species Diversity - Top 10 Species Compared to All Species

*Not included in label - American elm (2.0%), Green ash (1.9%)

SIZE DISTRIBUTION

Overall, the size distribution of Fairhaven's urban forest is similar to the ideal size distribution, with the exception of trees in the 0-6 inch diameter class.

| DSH RANGE	COUNT	PERCENT	IDEAL PERCENT
0-6in	2,149	31.00%	40%
6-12in	1,699	24.50%	25%
12-18in	1,234	17.80%	15%
18-24in	878	12.70%	10%
24-30in	551	7.90%	6%
>30in	429	6.20%	4%

DSH Ranges of Inventoried Trees
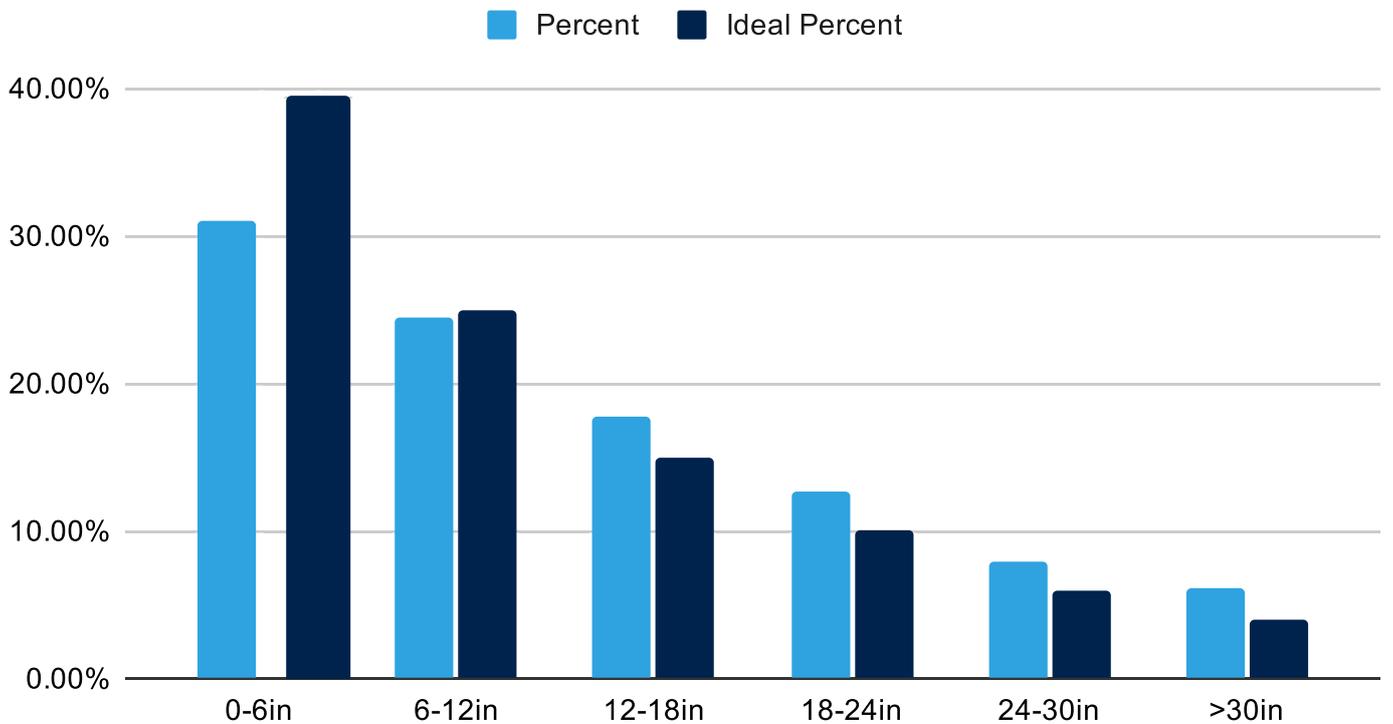
TREE CONDITIONS

Most trees inventoried had a 'Good' condition, making up 49%, or 3,426 trees in the inventory. Only 3% of trees were identified as 'Critical' condition.

| CONDITION	COUNT	PERCENT
Excellent	484	6.97%
Good	3,426	49.37%
Fair	1,929	27.80%
Poor	799	11.51%
Critical	224	3.23%
Dead	78	1.12%
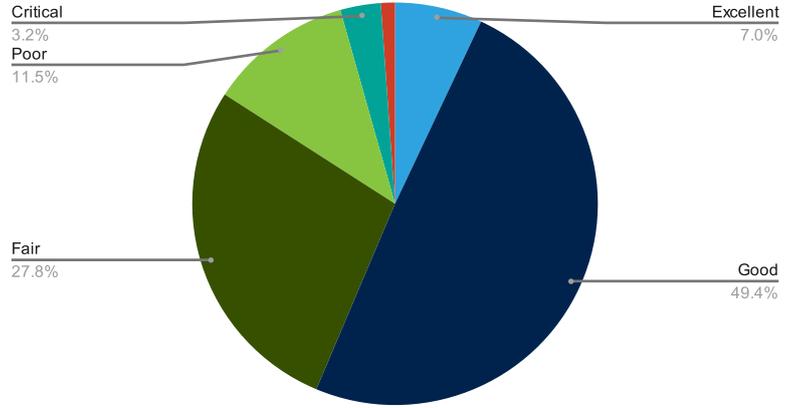
*Not included in label - Dead (1.1%)

RECOMMENDED MAINTENANCE

All trees inventoried had a recommended maintenance task assigned to them. The most prominent maintenance need was 'Routine Prune', recommended for 80% of trees inventoried.

MAINTENANCE PRIORITY	COUNT	PERCENT
Large Tree Routine Prune	2,276	32.80%
Small Tree Routine Prune	3,243	46.73%
Priority 2 Prune	454	6.54%
Training Prune	262	3.78%
Priority 1 Prune	109	1.57%
Priority 2 Removal	94	1.35%
Priority 3 Removal	469	6.76%
Priority 1 Removal	33	0.48%
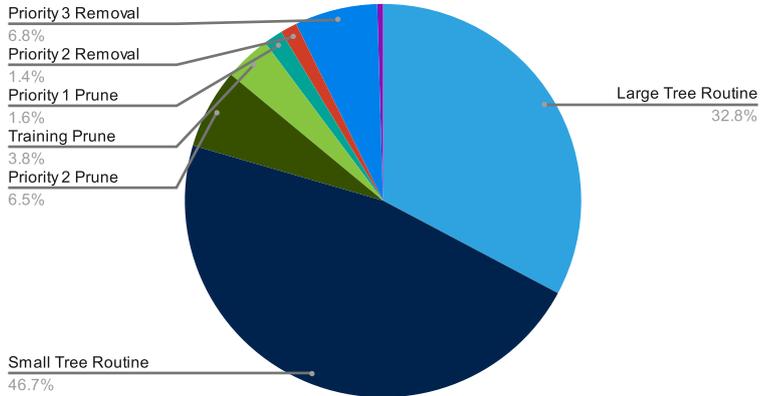
*Not included in label - Priority 1 Removal (0.5%)

TREE INVENTORY STRUCTURE

Urban forest structure describes the tree population in an area in terms of its species composition, number of trees, age classes, and tree distribution. These summaries assist municipal tree managers in proper tree management and planting to ensure long-lasting canopy and benefits distributed equally throughout the town.
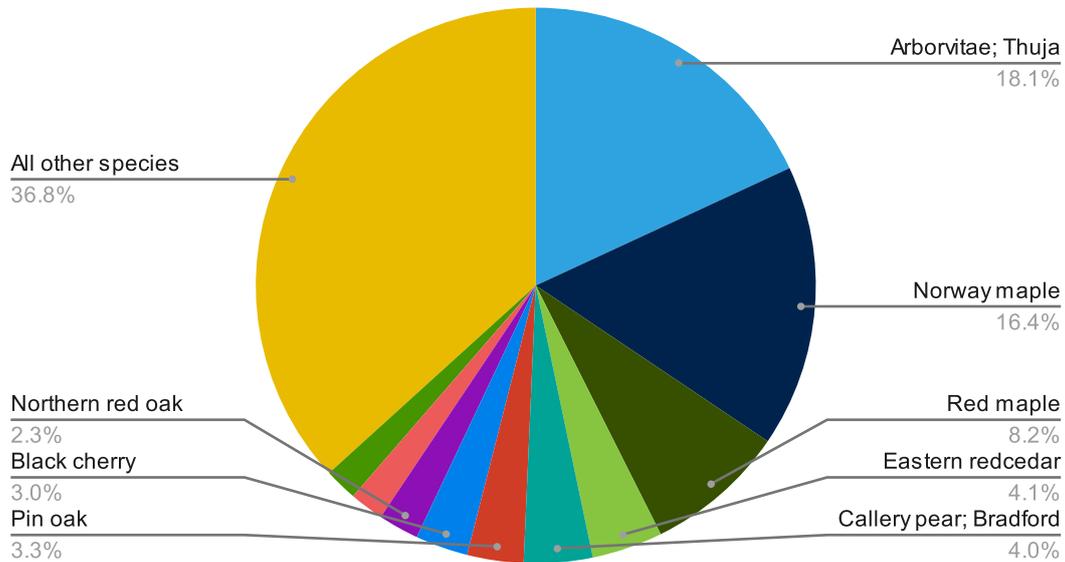
TREE DIVERSITY AND COMPOSITION

Species composition data are essential since the types of trees present throughout the town dictate the amount and type of benefits produced, tree maintenance activities required, and budget considerations.

The 6,940 trees inventoried consist of 169 different species and cultivar classifications. The top 10 species comprise 63% of the tree population. The highest percentage consists of Arborvitae; Thuja species with 18% (1,253 trees) of the total tree population, followed by Norway maple with 16% (1139 trees) and red maple with 8% (567 trees). This figure shows the top species compared to the other 159 species inventoried.

COMMON NAME	COUNT	PERCENT
Arborvitae; Thuja species	1,253	18.10%
Norway maple	1,139	16.40%
Red maple	567	8.20%
Eastern redcedar	284	4.10%
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Species Diversity - Top 10 Species Compared to All Species

*Not included in label - American elm (2.0%), Green ash (1.9%)

The most common genus inventoried was Acer with 29% of the total inventory. This genus, per the inventory, includes:

- Amur maple (*Acer ginnala*)
- Bloodgood Japanese maple (*Acer palmatum 'Bloodgood'*)
- Boxelder (*Acer negundo*)
- Freeman maple (*Acer × freemanii*)
- Japanese maple (*Acer palmatum*)
- Norway maple (A*cer platanoides*)
- Norway maple 'Crimson King' (*Acer platanoides 'Crimson King'*)
- October Glory maple (*Acer rubrum 'October Glory'*)

- Red maple (*Acer rubrum*)
- Rocky Mountain Glow maple (*Acer grandidentatum 'Rocky Mountain Glow'*)
- Shantung maple; Purpleblow maple (*Acer truncatum*)
- Silver maple (*Acer saccharinum*)
- State Street maple (*Acer miyabei 'State Street'*)
- Sugar maple (*Acer saccharum*)
- Sycamore maple (*Acer pseudoplatanus*)

GENUS	COUNT	PERCENT
Acer	2,022	29.14%
Thuja	1,344	19.37%
Quercus	592	8.53%
Prunus	478	6.89%
Juniperus	296	4.27%

GENUS	COUNT	PERCENT
Pyrus	275	3.96%
Fraxinus	221	3.18%
Ulmus	151	2.18%
Sassafras	127	1.83%
Platanus	119	1.71%

Most Common Genus - Top 10

- Acer
- Thuja
- Quercus
- Prunus
- Juniperus
- Pyrus
- Fraxinus
- Ulmus
- Sassafras
- Platanus
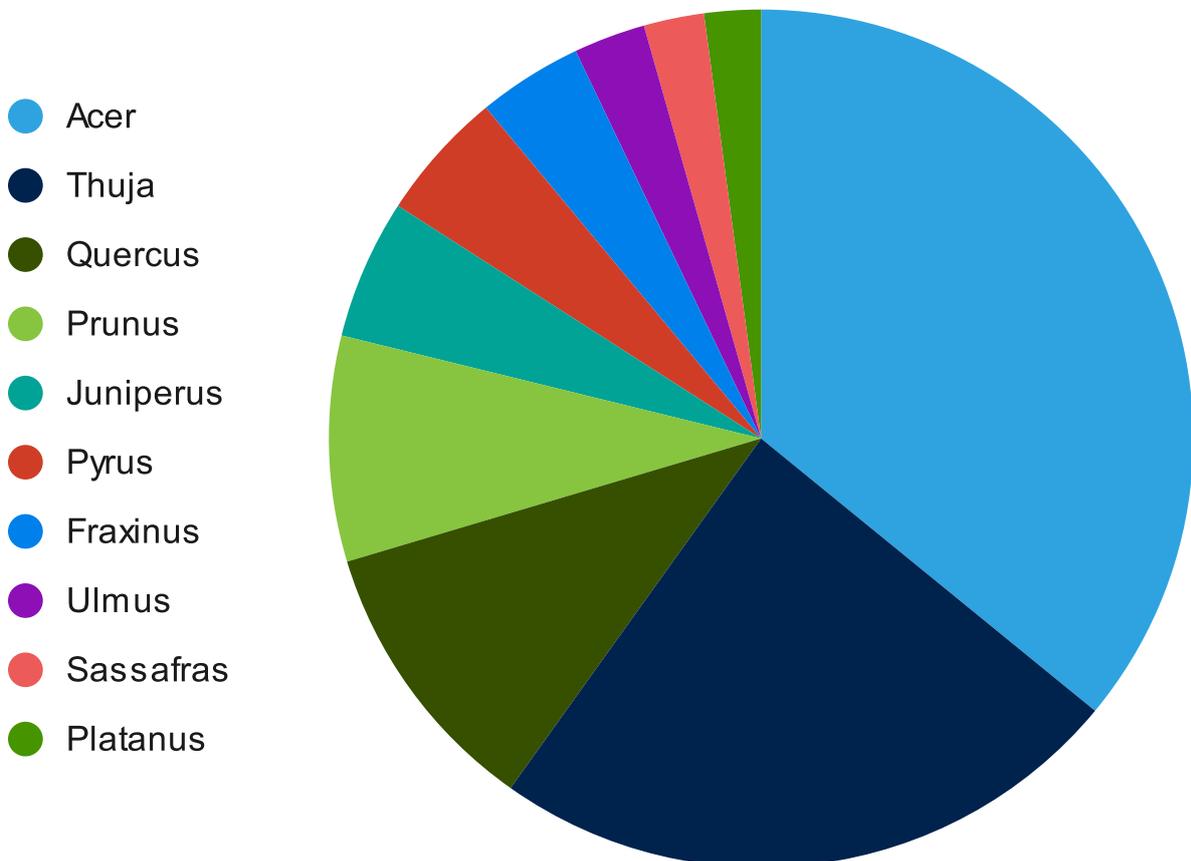
SIZE DISTRIBUTION

The distribution of tree sizes is a crucial factor in shaping the structure of an urban forest and determining its current and future costs. A diverse range of tree sizes ensures a steady stream of ecological benefits now and into the future, and utilizing this information can assist the town in allocating maintenance schedules and budgets with greater accuracy. In contrast, an urban forest with unevenly distributed tree ages may not provide that steady stream of ecological benefits for future generations. Careful consideration of size distribution is essential for ensuring a sustainable and healthy urban forest.

The inventoried trees were categorized into the following diameter size classes: young trees (0-6 inches DSH or diameter at breast height measured at 4.5 feet), established (7-12 inches DSH), maturing (13-18 and 19-24 inches DSH), and mature trees (25-30 and >30 inches). Since tree species have different lifespans and mature at different diameters, heights, and crown spreads, actual tree age cannot be determined from diameter size class alone. However, general classifications of size can be extrapolated into relative age classes.

To optimize the value and benefits of Fairhaven, MA's trees, the urban forest should have a high percentage of large canopy trees, as these provide greater ecosystem benefits. On the other hand, there must be a suitable number of younger, smaller trees in the urban forest to account for and eventually replace large and mature trees in decline. Having a healthy percentage of young trees in the urban forest will ensure a sustainable tree population as well as age distribution in future years. To compare Fairhaven, MA's urban forest structure to industry-recommended standards, the "ideal distribution" is used. (Richards, "Diversity and Stability in a Street Tree Population. 1983).

Richards proposed an ideal diameter size class distribution for street trees based on observations of well-adapted trees. Richards' ideal distribution suggests that the largest fraction of trees (approximately 40% of the population) should be young (less than 8 inches DSH), while a smaller fraction (approximately 10%) should be in the large-diameter size class (greater than 24 inches DSH). A tree population with an ideal distribution would have an abundance of newly planted and young trees, and lower numbers of established, maturing, and mature trees.

DSH Ranges of Inventoried Trees
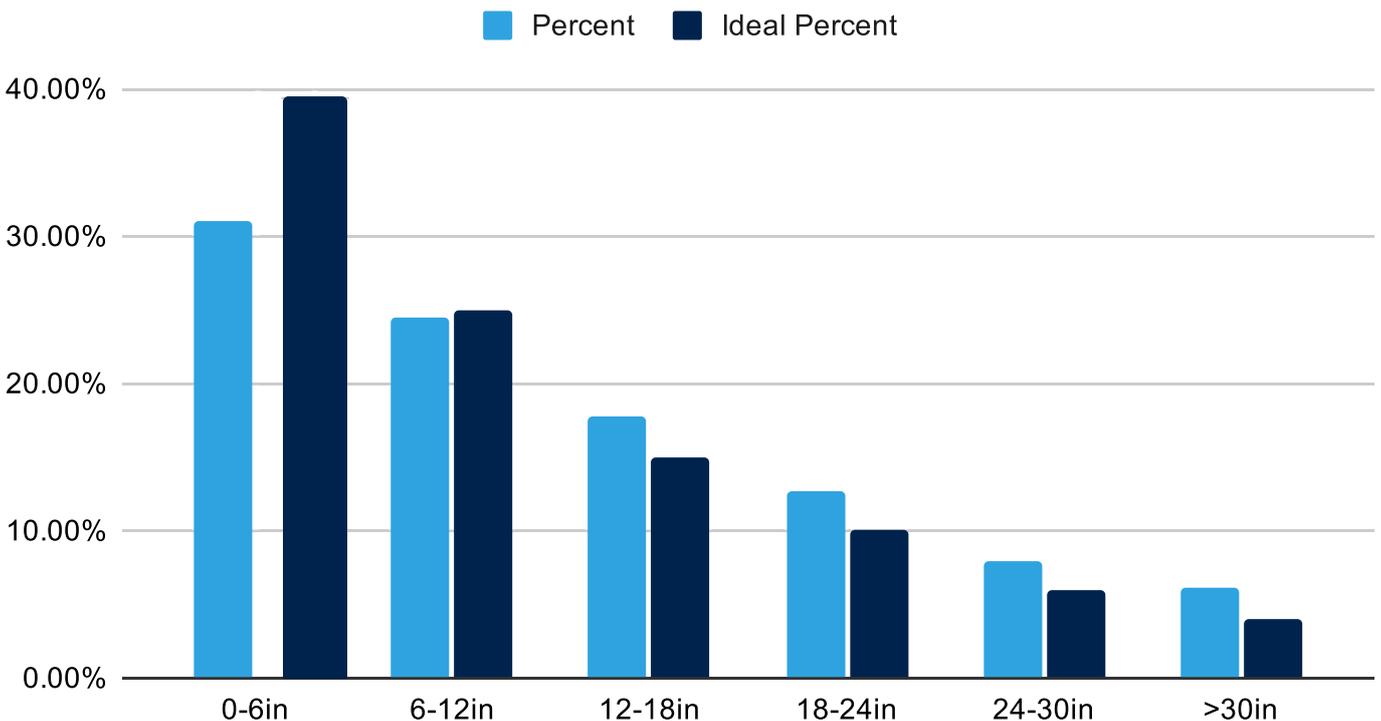
Overall, the diameter distribution of Fairhaven, MA's inventoried trees (blue bars) is fairly similar to the ideal distribution for a healthy urban forest (red bars). As shown in the figure, approximately 31% of the urban forest is composed of trees with a DSH (diameter at breast height) between 0–6 inches, compared to the ideal 40%. This indicates that the community has a substantial proportion of young or small-statured trees, which is desirable for maintaining long-term canopy health.

Trees in the 6–12 inch range make up about 24% of the population, closely aligning with the ideal (25%). The 12–18 inch range accounts for roughly 17% of the population, which is slightly above the recommended level. Similarly, trees 18–24 inches represent about 12%, again exceeding the ideal.

At the larger size classes, trees 24–30 inches represent about 8% of the population, compared to an ideal of 5%, while trees greater than 30 inches make up about 6% of the population, nearly double the ideal proportion of 3%. These larger trees provide significant ecological and social benefits, but they should also be monitored closely for maintenance needs, potential risks, and signs of decline.

While Fairhaven has a healthy representation of mid- and large-sized trees, the slightly lower proportion of young trees suggests that continued planting will be important to ensure future canopy replacement.

An ideal age distribution in the tree population allows managers to allocate and project annual maintenance costs uniformly. This ensures continuity in overall tree canopy coverage and associated benefits which are often dependent on the growing space of individual trees (e.g. open grown versus restricted growing areas). It is recommended to monitor and strategically manage large trees throughout the town and weigh the risks and benefits that are associated with large, mature trees.
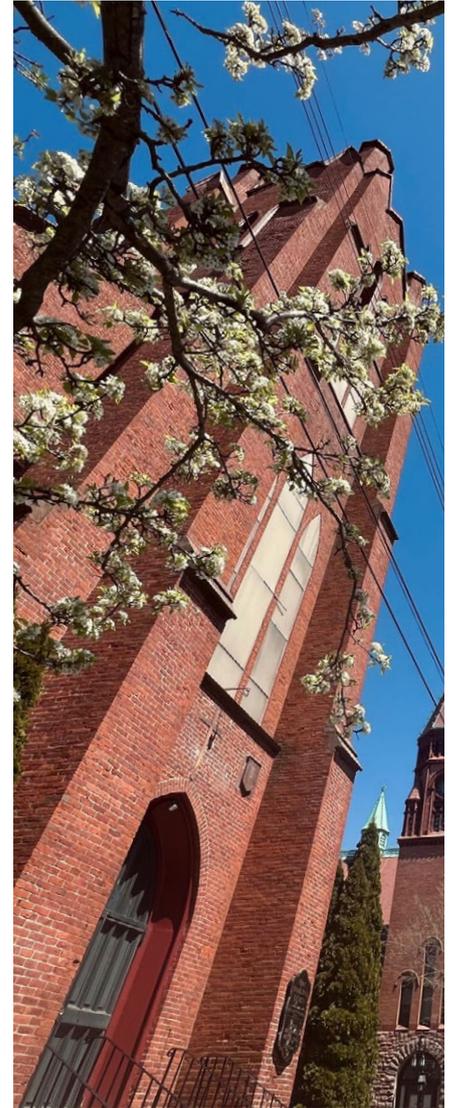
TREE INVENTORY MANAGEMENT

Tree characteristics and environmental factors affect the management needs for urban trees. An analysis of the condition and maintenance requirements assists managers in planning Fairhaven, MA's urban forest.

Tree condition indicates how well trees are managed and how well they perform, given site-specific conditions. Tree maintenance needs are assigned for public safety reasons and for the health and longevity of the trees themselves. Understanding the maintenance needs of an urban forest assists tree managers in establishing daily work plans and maintaining public safety.

URBAN FOREST CONDITION

The inventory data were analyzed to identify potential trends in tree condition and management needs. Information on the condition of trees plays an important role in planning, budgeting, and use of resources. Each inventoried tree's health was evaluated by an ISA Certified Arborist® based on the condition of the wood and the foliage as well as the structure.

The chart below summarizes the 6,940 trees and shows the detailed information for each condition class.

Out of 6,940 trees 78 trees were categorized as Dead. The majority of living trees were categorized as Good (49.4%), and about a quarter (27.8%) were categorized as Fair. Only 3.2% (224 trees) were categorized as Critical and 11.5% were Poor (799 trees), which leaves 7% of trees in the Excellent condition category.

Tree by Condition

Critical
3.2%
Poor
11.5%
Excellent
7.0%
Fair
27.8%
Good
49.4%
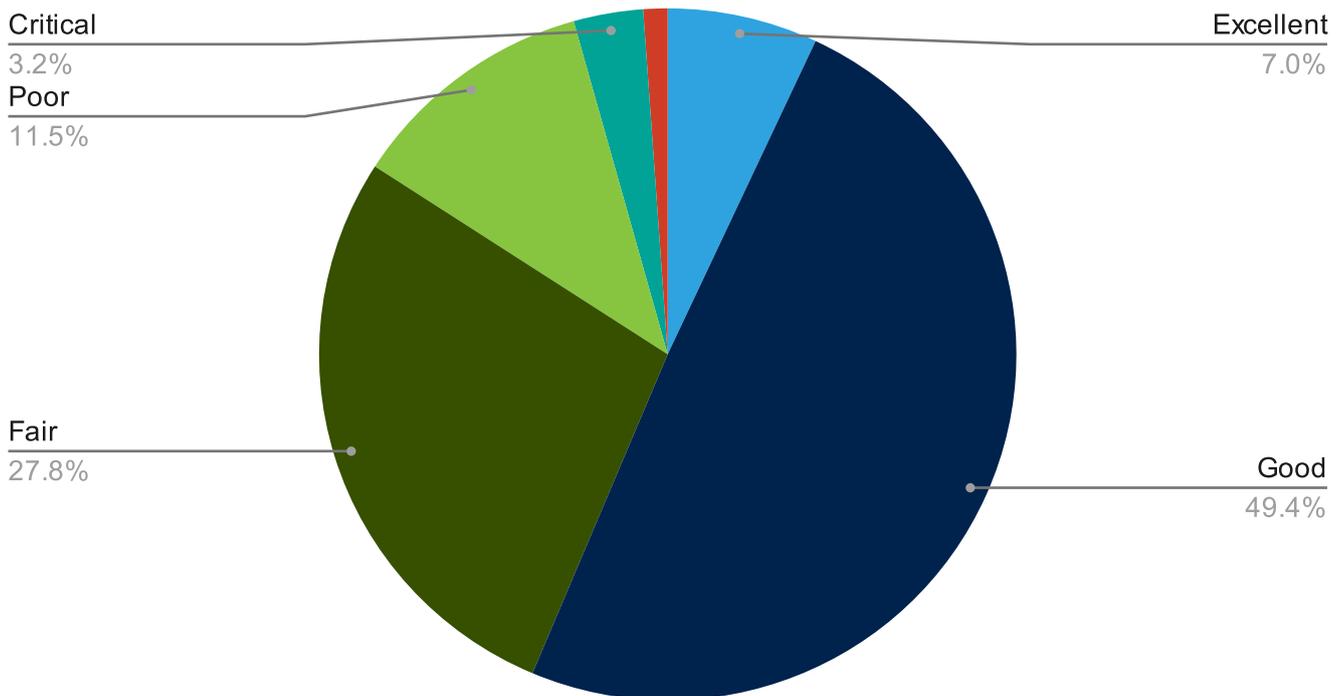
*Not included in label - Dead (1.1%)

TREE OBSERVATIONS

Tree observations were recorded during the inventory to further describe a tree's health, structure, or location when more detail was needed. A total of 22 unique observations were included in the inventory.

OBSERVATIONS	COUNT	PERCENT
Cavity Decay	1,385	9.38%
Codominant Stems	4,598	31.14%
Crown Dieback	1,103	7.47%
Deadwood	2,330	15.78%
Disease	21	0.14%
Fungal growth/Fruiting bodies	54	0.37%
Girdling Roots	233	1.58%
Grate/Guard Conflict	10	0.07%
Hardscape Damage	573	3.88%
Hardware Installed	52	0.35%
Improperly Installed	1	0.01%

OBSERVATIONS	COUNT	PERCENT
Improperly Mulched	11	0.07%
Improperly Pruned	736	4.99%
Included Bark	409	2.77%
Mechanical Damage	640	4.33%
Nutrient Deficiency	4	0.03%
Pests	126	0.85%
Poor Location	80	0.54%
Poor Root System	270	1.83%
Poor Structure	1,154	7.82%
Serious Decline	293	1.98%
Signs of Stress	681	4.61%

This table above provides a complete summary of the observations for Fairhaven, MA's trees. A total of 14,764 observations were recorded during the tree inventory. 5,768 sites were noted with at least one observation while 1,172 sites had no observation recorded. Codominant stems was the most frequent observation recorded (31%) during the inventory, followed by Deadwood (16%), and Cavity decay (9%).

RECOMMENDED MAINTENANCE

The arborists assigned a predetermined maintenance need for each tree. Overall tree condition and severity of potential defects present were used to guide the maintenance recommendations and prioritizations.

MAINTENANCE PRIORITY	COUNT	PERCENT
Large Tree Routine Prune	2,276	32.80%
Small Tree Routine Prune	3,243	46.73%
Priority 2 Prune	454	6.54%
Training Prune	262	3.78%

MAINTENANCE PRIORITY	COUNT	PERCENT
Priority 1 Prune	109	1.57%
Priority 2 Removal	94	1.35%
Priority 3 Removal	469	6.76%
Priority 1 Removal	33	0.48%

This table provides a summary of the maintenance and pruning recommendations for Fairhaven, MA's trees. All 6,940 trees inventoried trees were assigned a maintenance priority.

The maintenance priorities are based on industry-standard definitions of pruning and removal needs. The largest category is **Small Tree Routine Pruning** (46.7% of trees), defined as trees that "require routine horticultural pruning to promote proper structure, health, and vigor." Similarly, **Large Tree Routine Pruning** (32.8%) applies to more mature trees that "require routine horticultural pruning to maintain clearance, structure, and health."

Several trees require more urgent attention. **Priority 1 Pruning** (1.6%) identifies trees that "require pruning to remove dead, dying, diseased, or weak branches that pose an imminent risk." **Priority 2 Pruning (6.5%)** refers to trees with "dead, dying, diseased, or weak branches that should be pruned but do not present immediate risk." Additionally, **Training Pruning** (3.8%) is recommended for younger trees and is "usually required when a tree is young to manage structure and reduce defects later in life."

Removals represent a smaller portion of the recommendations. **Priority 1 Removals** (0.5%) are "trees designated for removal that have defects posing imminent risk of failure and therefore must be removed immediately." **Priority 2 Removals** (1.4%) are trees with significant structural or health concerns but without immediate hazards, while **Priority 3 Removals** (6.8%) are "trees that should be removed, but that pose minimal risk and can be scheduled for later action."

Properly maintained and healthy trees are key to the success of Fairhaven, MA's urban forest. It is recommended that the town utilize the TreePlotter software and the assigned Maintenance Needs to remove the trees marked for Priority 1 Removal and prune the trees marked for Priority 1 Pruning as soon as possible.

TREE INVENTORY DISTRIBUTION AND GROWING SPACE

The distribution of trees across different land use types can have a significant impact on various aspects of urban forest management, including maintenance costs, schedules, potential risks such as pests or diseases, and the effects of climate change. Properly distributed trees can also help advance the town's efforts to achieve an equitable distribution of tree canopy and associated benefits, ensuring that all residents have equal access to this valuable resource. By strategically planting trees in areas where they are most needed, urban forest managers can promote sustainability and resilience while also enhancing the well-being of local communities.

LAND USE

Trees located near a Single Family residence made up a majority of the inventory with 69% or 4,813 trees. 13% (930) of trees in the inventory dataset are located in Parks.9.5% of trees are located in a Vacant/Other land use type. 4.6% (660) of trees are located on property adjacent to Small Commercial businesses. 2% (146) of trees were located near Industrial/ Large Commercial properties. The remaining 1% of trees were classified as being located on Multi-Family occupied properties.

Tree Percent by Land Use

Industrial/ Large
2.1%

Small Commercial
4.6%

Vacant/ Other
9.5%

Park
13.4%

Single Family
69.4%
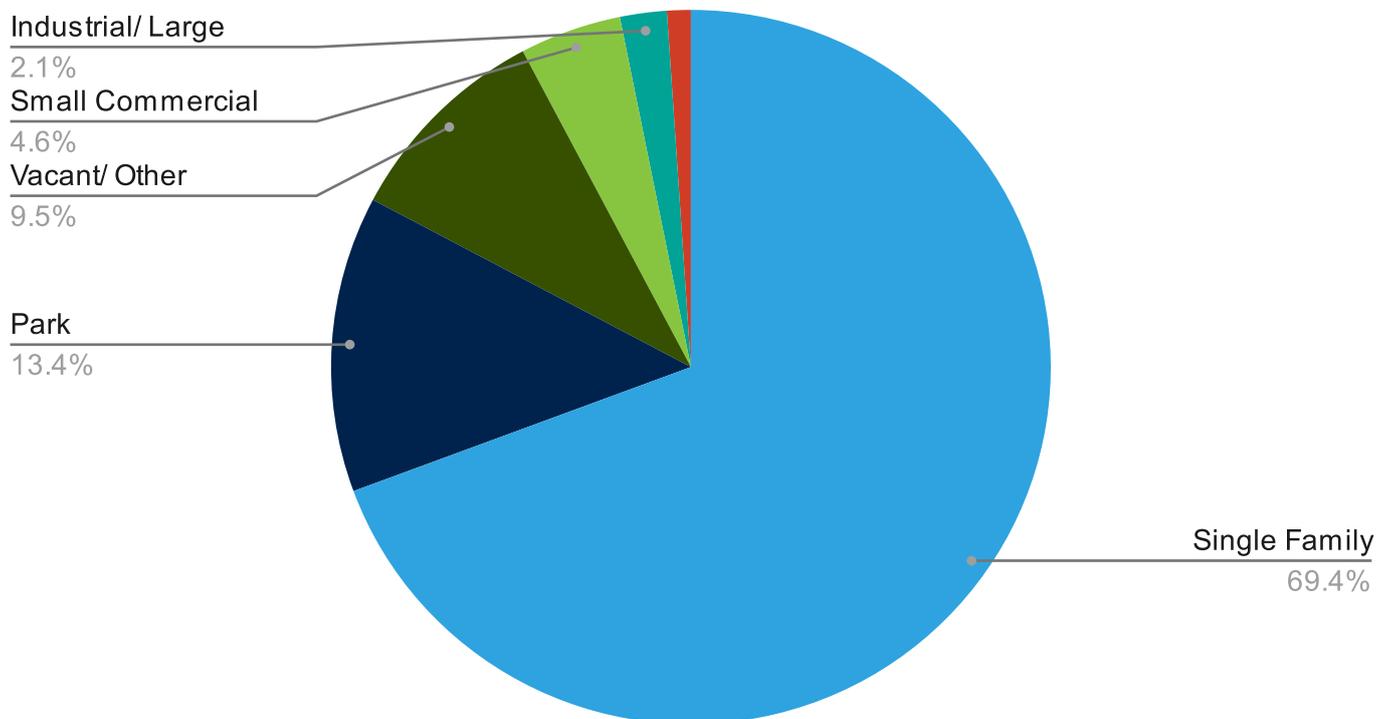
*Not included in label - Multi Family (1.1%)

PLANTING SITE WIDTH

Trees require adequate growing space to thrive and maintain their health over time. The amount of space available for tree roots to expand and access soil nutrients, water, and oxygen can have a significant impact on tree growth, development, and longevity. When trees are planted in areas with limited space, they may experience stunted growth, weakened structure, and increased susceptibility to pests and diseases. In contrast, trees with ample growing space can develop deep, strong root systems that enhance their ability to withstand environmental stressors and support their overall health. An analysis of planting site width can assist tree managers in making future tree species selections for sites with similar characteristics.

The smallest planting site width measurements were collected for each inventoried tree and are summarized in the table below. A majority of trees inventoried are growing in small and medium growing spaces (90%) or 6,243 trees. The remaining 697 trees (10%) are growing in Class III sites, 11 feet or greater.

Planting Site Width

Class 3 (large) 11ft+
10.0%

Class 1 (small) 1-5ft
44.4%

Class 2 (medium) 6-
45.6%
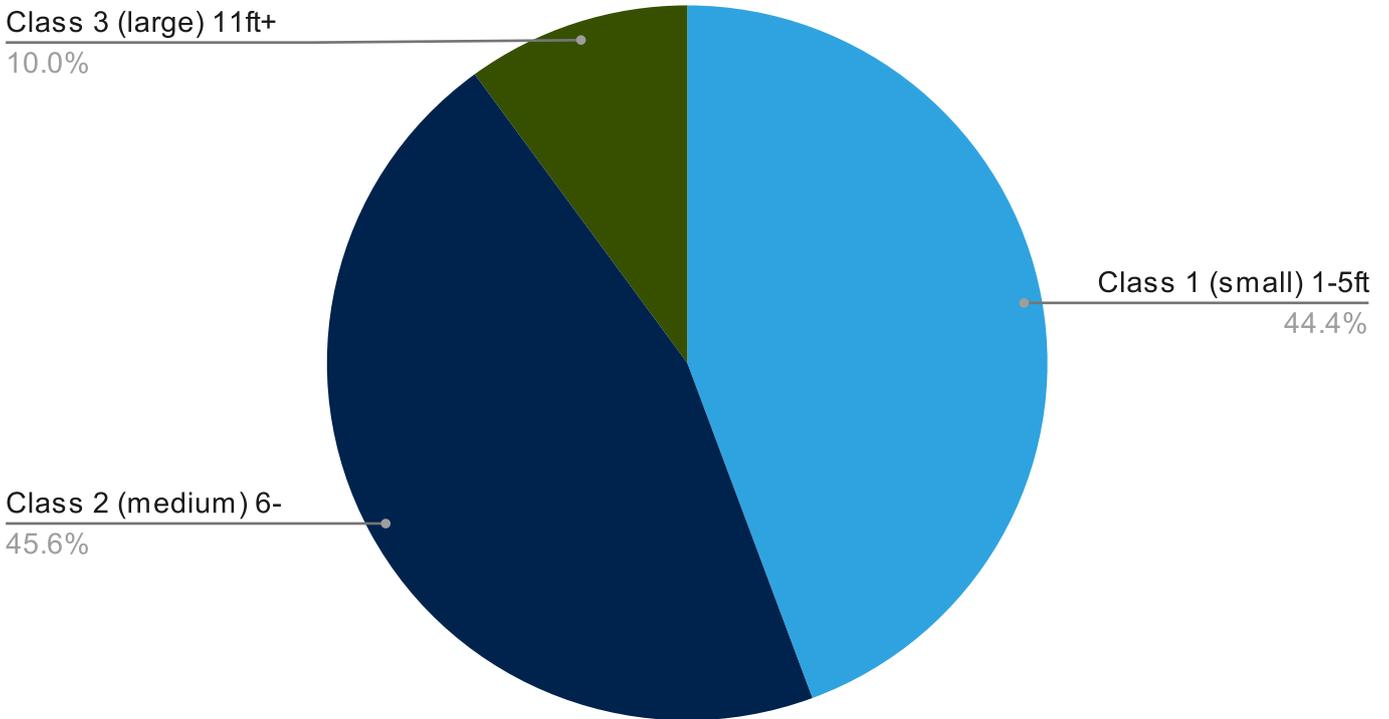
GROWING SPACE

Similarly to the Planting Site Width, the Growing Space of a tree can also impact tree growth, health, and maintenance costs over time. Analyzing the growing space of trees can also provide valuable insights for tree managers when selecting future tree species. By assessing the growing space, managers can determine which species are best suited for a given location and which species should be avoided.

GROWING SPACE	COUNT	PERCENT
Front Yard	4,138	59.63%
Planting Strip	1,163	16.76%
Other (Unmaintained)	948	13.66%

GROWING SPACE	COUNT	PERCENT
Other (Maintained)	537	7.74%
Cutout	77	1.11%
Median/Island	77	1.11%

Tree Percent by Growing Space

Median/Island
1.1%
Other (Maintained)
7.7%
Other (Unmaintained)
13.7%
Planting Strip
16.8%
Front Yard
59.6%
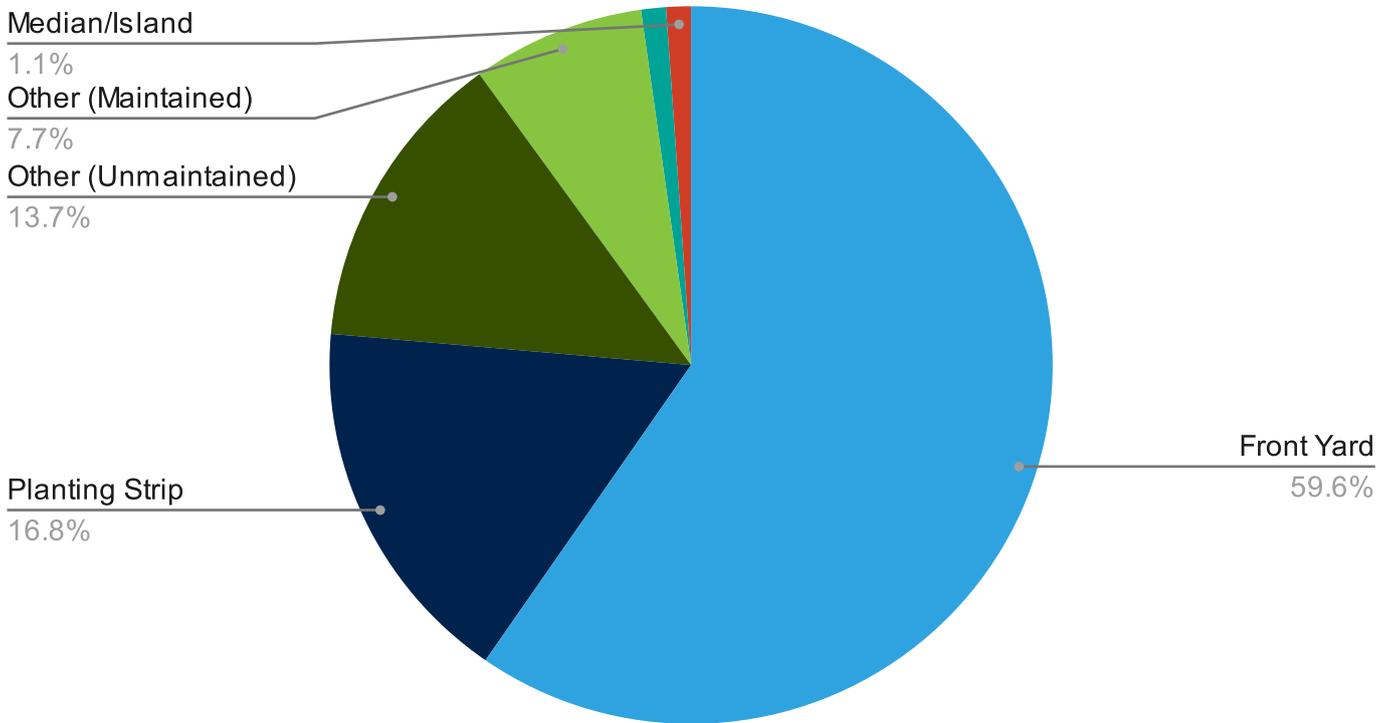
RISK ASSESSMENTS

All trees inventoried received a basic level 2 risk assessment. The large majority of the trees identified for risk were categorized as Low (94%). 5.6% of trees were assessed as Moderate. 20 trees, or .29% were categorized as high risk. The remaining 1 tree was rated for extreme risk.

RISK RATING	COUNT	PERCENT
Low	6,525	94.02%
Moderate	394	5.68%
High	20	0.29%
Extreme	1	0.01%

Risk Rating
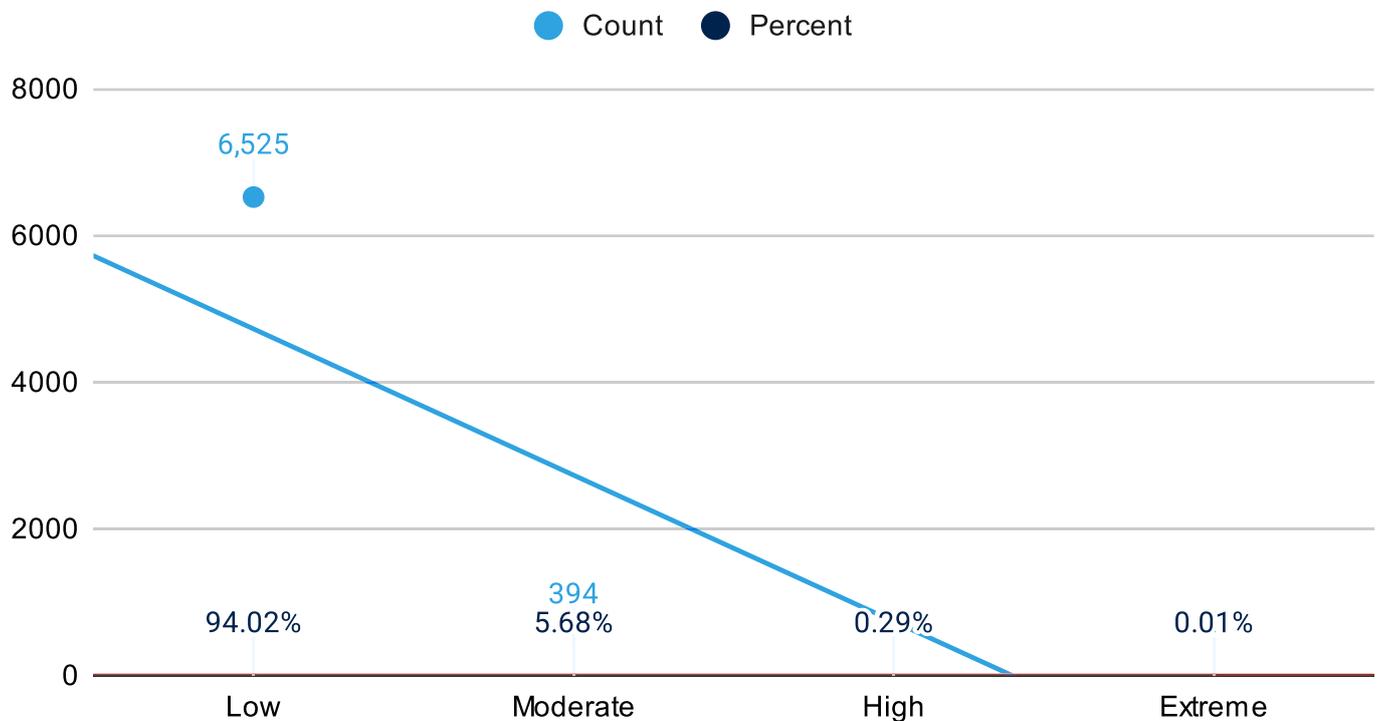
RECOMMENDATIONS

The town's trees are a defining and valued characteristic of Fairhaven, MA, making it a desirable place to live, work and play. It is a resource that has a history and legacy of care and management; however, certain trees require immediate removal or maintenance.

The town should prioritize the implementation of a regular monitoring and maintenance schedule for all trees and proactively plant new trees, especially after removal, to enhance the natural beauty of the town and maximize the benefits provided by trees. While this effort will require additional resources and work, it is crucial for ensuring that Fairhaven, MA's trees remain appreciated and valued by both residents and visitors. By maintaining and planting trees, the town can promote a healthy environment, improve air and water quality, reduce energy consumption, and provide recreational opportunities for the community. Ultimately, a well-maintained urban forest can contribute to the well-being and quality of life for all who call Fairhaven, MA home.

- Utilize inventory data and analysis to develop an Urban Forest Management Plan.

- Monitor trees in less than Fair condition (1,101 trees)

- Conduct Structural Pruning on trees to promote a healthy structure (859 trees)

- Maintain or establish a cyclical, routine tree monitoring and maintenance schedule

- Consider pruning the 2,173 trees with clearance conflicts to bike paths, buildings, vehicles, signs/signals, utilities and sidewalks to enhance safe walking and biking facilities.

- Remove trees that are prescribed for Removal and plant trees after removal

- Consider removing the hanging branch from 70 trees.

- Plant trees in suitable locations to account for the low proportion of small statured trees below 6" DSH.

- Remove the 33 trees marked for priority removals

- Consider treating the 147 trees identified as having disease present, and the 16 trees with pests or pest damage present

- Ensure industry standards and best management practices are followed during the planting and care of trees

- Educate the community about the tree inventory population, the associated benefits, and the tree management program

- Continue to track maintenance, plantings, and removals in the TreePlotter application

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SEPTEMBER 2025

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