MVP
Municipal Vulnerability Preparedness

Weston & Sampson

Urban Forest Management Plan

February 2026



Acknowledgments

Prepared For

This plan was prepared for the City of Medford and its residents.

Prepared By

This plan was developed by Weston & Sampson with guidance from the project Steering Committee including City staff and TreesMedford, a volunteer nonprofit that supports local tree planting and stewardship in Medford. Community input helped inform the development of this plan. Tree inventory services were provided by Davey Tree, and pest and disease assessments were conducted by Bartlett Tree Experts.

Funded By

This plan was funded by the Massachusetts Executive Office of Energy and Environmental Affairs (EEA) through the Municipal Vulnerability Preparedness (MVP) Action Grant Program (Fiscal Years 2025–2026).

Disclaimers

About This Plan

The Medford Urban Forest Management Plan (UFMP) is a strategic planning document that provides recommendations intended to guide long-term urban forestry management. It is not a regulatory document and does not create legal standards, obligations, or entitlements.

No Legal Duty or Guarantee

This plan does not require the City to perform specific actions on any tree or property, public or private. Tree care, planting, pruning, removals, and hazard response will be conducted as resources allow and according to City priorities and professional judgment. The City does not guarantee the survival of any tree referenced or planted through initiatives described in this plan.

Tree Risk and Hazard Disclaimer

References to tree condition or potential hazards in this plan are based on available inventory data and do not constitute formal risk assessment. Trees may change condition over time, and the City is not liable for conditions that develop after the inventory or publication of this plan.

Funding and Staffing Contingency

All recommendations in this plan are subject to available funding, staffing, grant support, and City Council approval. Proposed timelines and targets represent aspirational goals and may be adjusted based on feasibility and community priorities.

Partnership Acknowledgment

Where recommendations reference partnerships with community organizations or residents, such participation is voluntary and does not replace the City's public responsibilities. Private property owners remain responsible for trees located on their property, except where otherwise regulated.

Plan Adaptability

This plan is intended to be a flexible framework and should be updated over time as new data, resources, and community input become available.

Acronyms and Abbreviations

BMP – Best Management Practice(s)

CIP – Capital Improvement Plan

CPA – Community Preservation Act

DBH – Diameter at Breast Height

DCR – Massachusetts Department of Conservation and Recreation

DRG – Davey Resource Group

EAB – Emerald Ash Borer

EEA – Massachusetts Executive Office of Energy and Environmental Affairs

EJ – Environmental Justice

FY – Fiscal Year(s)

MA – Massachusetts

MassDOT – Massachusetts Department of Transportation

MEEC – Medford Energy and Environment Committee

M.G.L.A. – Massachusetts General Laws Annotated

MUZ – Mixed Use Zoning (District)

MVP – Municipal Vulnerability Preparedness (Program)

NRCS – USDA Natural Resources Conservation Service

ROW – Right-of-Way

SPGA – Special Permit Granting Authority

UFMP – Urban Forest Management Plan

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Photo by City of Medford

1. Executive Summary

The City of Medford presents its first Urban Forest Management Plan (UFMP) to guide municipal investment in the care and growth of Medford's urban forest. Trees are a form of natural infrastructure that provide environmental and public health benefits such as cooling, cleaner air, and stormwater reduction. Unlike many built systems that decline over time, the benefits provided by trees can increase as they mature when they are properly planted and cared for.[1]

Medford is located along the Mystic River north of Boston, with a community of just under 60,000 residents[2] and a mix of neighborhoods, commercial districts, and regional open space. Like many growing cities, Medford faces increasing climate challenges, including extreme heat, heavier rainfall, and localized flooding—impacts that are often greater in Environmental Justice (EJ) neighborhoods with limited tree cover and high percentages of paved surfaces.[3]

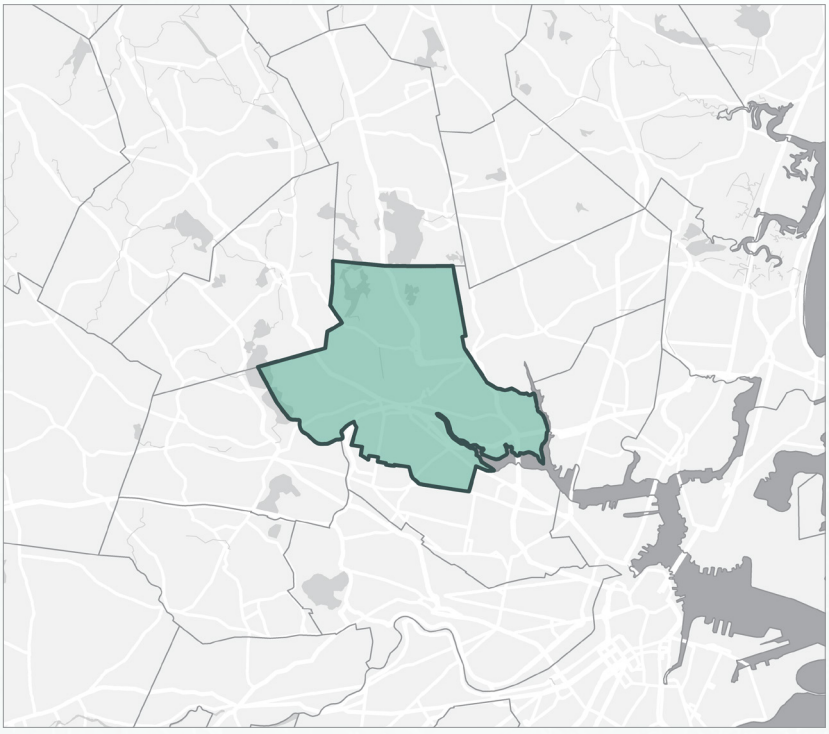


Figure 1: Map of Medford

Medford, MA

5322 acres of land

34% overall city canopy cover in 2021

20% urbanized tree canopy cover in 2021

60 acres of urbanized tree canopy lost between 2015 and 2021

45 this loss is the equivalent of 45 football fields

53% of the 60 acres of canopy loss, 53% are in residential areas

As temperatures rise and storms intensify, a healthy urban forest can help reduce heat, manage stormwater, and support quality of life, especially in neighborhoods with fewer existing trees.

Developed with support from the Massachusetts Vulnerability Preparedness (MVP) Program and guided by a Steering Committee of City staff and community partners from TreesMedford, this plan brings together data, community input, and urban forestry best practices to **inform future policy and investment decisions for Medford's urban forest.**



Figure 2: Community input noting where they would like to see more trees.

1.1 The Plan's Structure

- **Urban Forest Overview** – Introduces the role of trees in Medford and why long-term planning matters.
- **Tree Canopy Change** – Reviews current canopy conditions and where new planting could have the greatest impact.
- **Public Tree Inventory** – Summarizes nearly 10,000 mapped public trees and key trends in species, condition, age and vulnerability to pests and disease.
- **Policies & Programs** – Outlines existing policies and community programs related to both public and private trees, and identifies potential areas for future programs.
- **Forestry Division** – Describes current City operations for managing public trees, including staffing, services, and capacity.
- **Goals, Strategies & Implementation** – Presents phased strategies to guide an annual tree planting goal and potential funding mechanisms.

1.2 Key Findings

- **Urban Forest Overview:** Medford's trees are critical green infrastructure, providing cooling, stormwater management, cleaner air, and public health benefits. These benefits increase over time when trees are properly planted and maintained, and they are strengthened through active community stewardship programs.
- **Tree Canopy Change:** Tree canopy is declining citywide, with the greatest losses in residential, right-of-way, and Environmental Justice areas where heat and flooding risks are highest.
- **Public Tree Inventory:** Most public trees are in fair to good condition and many viable planting sites exist, but limited species diversity and overreliance on maples and invasive species increase vulnerability to pests and future loss.
- **Policy & Programs:** Stronger outcomes require embedding tree protection, planting, and partnerships into broader City policies, capital projects, and development processes rather than managing forestry separately.
- **Forestry Division:** Current staffing and budget constraints keep operations largely reactive, and additional capacity is needed to enable proactive maintenance, inspections, and long-term planning.

1.3 Recommendations Summary

Caring for Medford's urban forest is a shared responsibility. While the City manages trees on public land, many trees are on private property, so success depends on both municipal action and community partnership.

The following table summarizes the City's key strategies for a healthy, resilient, and equitable urban forest, highlighting priority actions across growth, protection, and maintenance. The full list of recommendations can be found in Section 7.1.

GROW	**Increase municipal planting from 200 to 400 trees per year by 2030,** prioritize Environmental Justice communities and vacant sites, diversify species, replace declining/invasive trees, and expand planting on private property through partnerships with TreesMedford and community groups.
PROTECT	**Strengthen tree ordinances and standards,** require tree protection during development, embed requirements into zoning and permitting, improve enforcement, and provide incentives and education to preserve private trees.
MAINTAIN	**Shift to proactive management** by increasing staffing, using Management Zones to target care, implementing routine pruning and maintenance cycles, and regularly updating inventory, canopy data, and the plan to guide decisions.



1954 Aerial Image provided by City of Medford

2. Urban Forest Overview

2.1 History of Medford's Urban Forest

Medford's landscape was once part of a mixed hardwood forest that stretched across the Mystic River Valley and into what is now the Middlesex Fells.[4] Large areas were cleared after European settlement in the 1600s for agriculture, timber, and shipbuilding.[5] By the late 1800s, growing concern about deforestation helped spur regional conservation efforts, including the creation of the Metropolitan Parks System in 1893, which protected nearby woodlands now managed as the Middlesex Fells Reservation.[6] As Medford developed through the 20th century, street trees were planted in many neighborhoods, though roadway expansion, utility work, and commercial growth reduced tree cover in more urbanized areas.



Figure 3: Aerial photo of the Mystic River along West Medford, Lawrence Estates, and Hillside neighborhoods, 1954. Image credit: City of Medford

By the early 2000s, concern grew about the loss of mature trees from aging, storm damage, and new development. Community interest in tree planting and stewardship increased, leading to the formation of TreesMedford in 2018, a volunteer group supporting local tree planting, education, and advocacy.[7] Medford has also been recognized as a Tree City USA community since 1998, reflecting more than two decades of participation in a national urban forestry program that promotes public tree care and local commitment to urban forestry standards. Today, Medford's urban forest reflects this layered history—a combination of remnant woodland, neighborhood shade trees, and newer plantings shaped by changing land-use and community priorities. **This plan builds on the findings of the 2024 Urban Forest Vulnerability Assessment,** which identified Medford's urban heat island hot spots, its impacts on residents, and priority planting areas.

2.2 Tree Benefits

Medford's urban forest includes all trees across the city - along streets, in parks and schoolyards, on institutional and commercial properties, and on private land. These trees are part of Medford's green infrastructure and contribute measurable public health, climate, and environmental benefits.

Trees play a functional role in Medford's built environment. They reduce surface temperatures by up to 20°F in shaded areas, improve air quality by filtering pollutants, and intercept rainfall that would otherwise contribute to local flooding. Studies also show that tree-lined streets are linked to increased walking activity[8] and improved physical and mental health.[9]

To better understand the value Medford's trees provide, an i-Tree Eco assessment was conducted using data from Medford's public tree inventory (page 17). This tool estimates the environmental services trees provide by measuring real field data combined with localized weather and air quality information.

2.3 Looking Ahead

Medford's urban forest is a valuable community asset that is changing. With ongoing development, aging trees, and rising temperatures, decisions made in the next few years will shape the tree canopy for decades to come. Now is an important time to plan ahead so that tree planting, protection, and long-term care can be proactive rather than reactive. This plan provides a practical path forward by identifying where trees are most needed, how to support tree health over time, and how City efforts and community participation can work together to build a stronger, healthier, and more resilient urban forest for Medford.



Benefits of Medford's Inventoried Public Trees

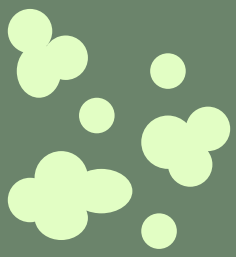
Based on i-Tree Eco analysis of 9,866 public trees in Medford:



Mitigate **2,245,080** gallons of stormwater each year



Sequester **211,980** pounds of carbon each year



Remove **6,060** pounds of air pollutants each year



Store a cumulative **11,353,660** pounds of carbon stored over their lifetime



The replacement value of these inventoried trees, or, the estimated cost for replacing an existing tree with a tree of similar size and species, is **$21,822,291**



These benefits increase as trees mature, underscoring the long-term value of proactive planting and care



3. Tree Canopy Change

This section provides an overview of Medford's tree canopy: how much tree cover exists today, how it has changed over time, and where the greatest needs and opportunities are for future investment. Tree canopy refers to the layer of leaves and branches that provide shade when viewed from above, and it is a common way to measure how much tree cover exists across a community. Tree canopy change measures how coverage increases or decreases over time, revealing patterns of tree loss or growth and helping communities understand the long-term health of their urban forest.

For this plan, tree canopy cover was measured using the most recent available LiDAR data from 2021, and **canopy change was assessed using a comparison of LiDAR datasets from 2015, 2018, and 2021.** LiDAR (Light Detection and Ranging) is a high-resolution mapping technology that uses light pulses to detect the height and structure of trees from aerial surveys, making it a reliable tool for tracking canopy trends over time.

Based on the 2021 data, Medford has approximately 34% tree canopy citywide, which includes all land within city boundaries—residential areas, streets, parks, commercial properties, and state-managed open space. When state-owned Department of Conservation and Recreation (DCR) lands are removed to better reflect canopy conditions in Medford's urbanized areas, canopy coverage is approximately 20%. This provides a more accurate picture of tree cover where people live, work, and go to school. Canopy has declined from the 35% citywide cover and 22% urbanized cover recorded in 2015 datasets.

As newer LiDAR datasets become available, **the City can use this baseline to monitor long-term canopy change and evaluate progress toward future goals.** To improve tracking in the future, Medford may also consider pursuing funding to access more frequent or higher-resolution canopy data—including private or state-supported sources—rather than waiting for publicly released data every several years. See Appendix A for maps related to canopy cover.



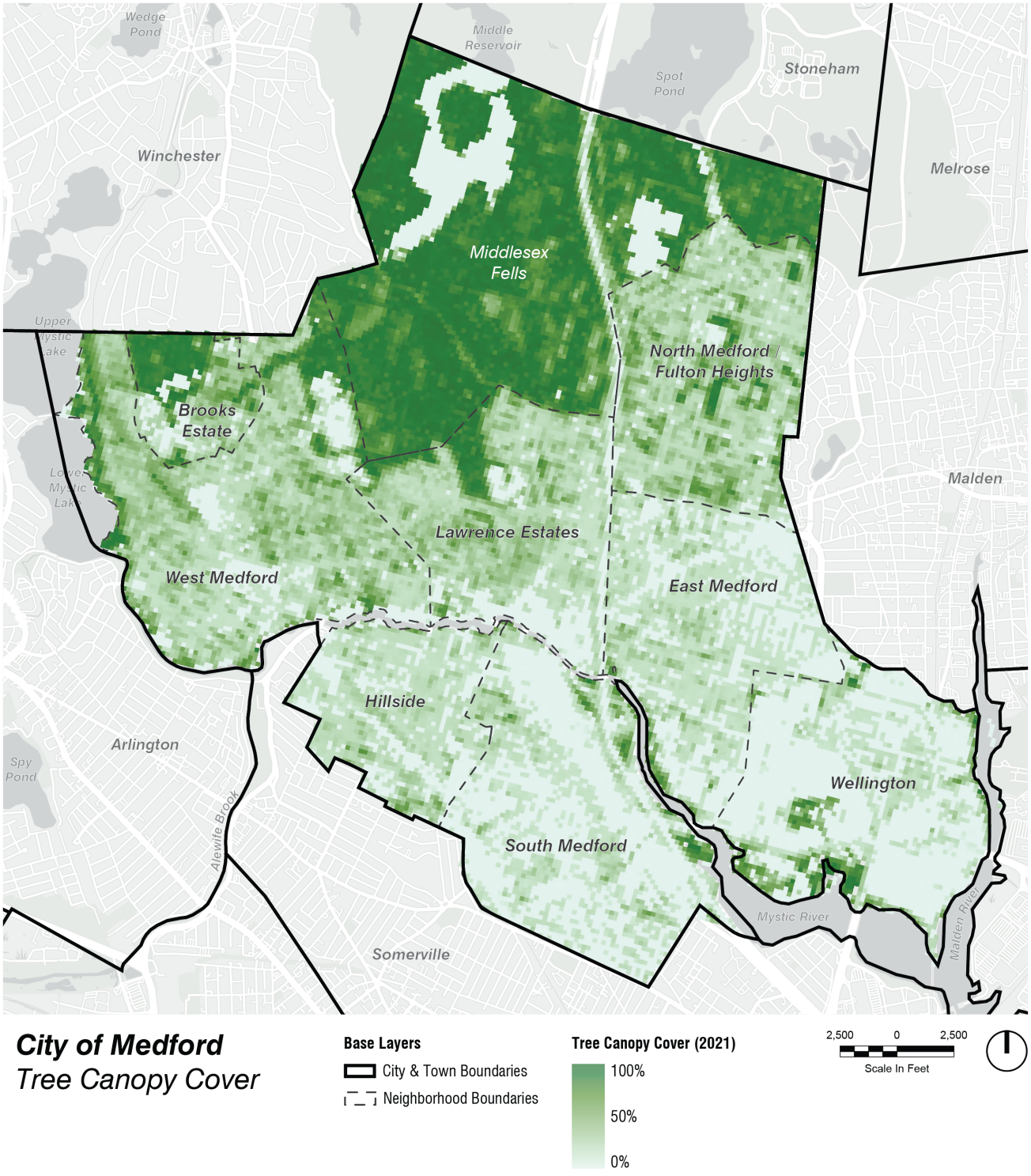
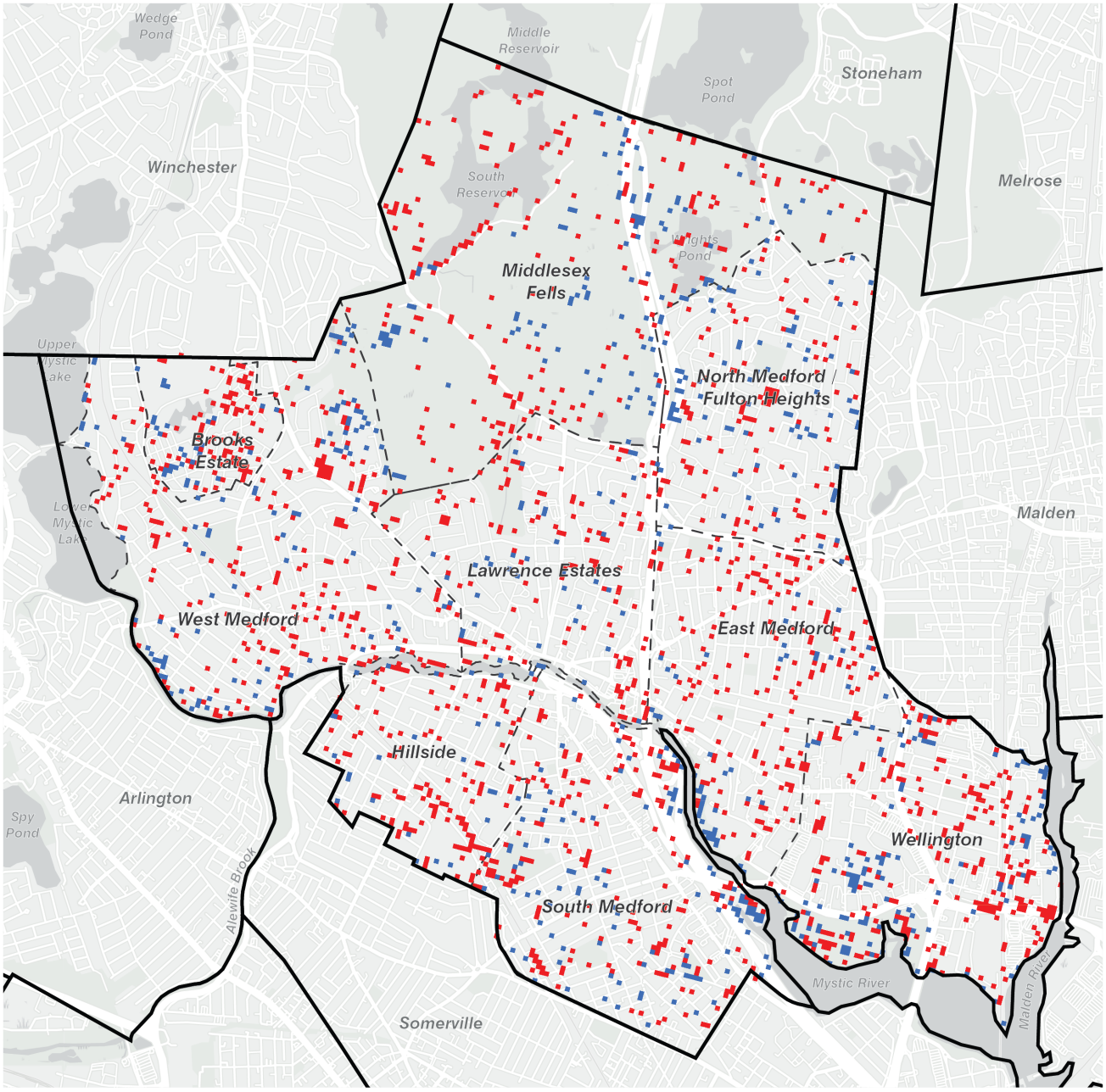


Figure 4: Tree Canopy Cover



Tree Canopy Change
2015-2018

Data collected using LiDAR (Light Detection and Ranging) canopy cover data to assess where canopy change has occurred over time in Medford.

Base Layers

- City & Town Boundaries
- Neighborhood Boundaries

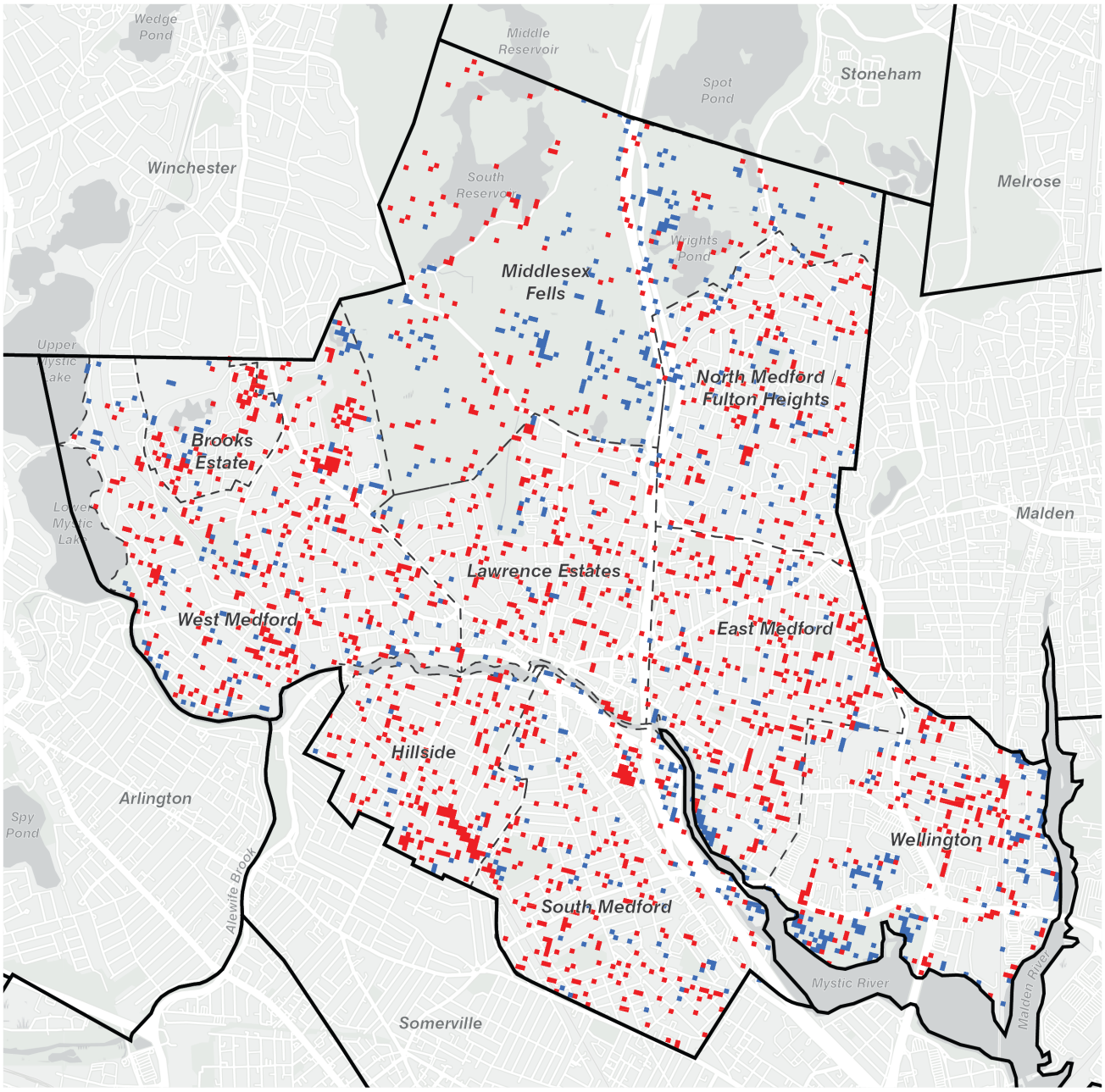
Change in Canopy

- Gain
- Loss

2,500 0 2,500

Scale In Feet

Figure 5: Tree Canopy Change (2015-2018)



Tree Canopy Change
2018-2021

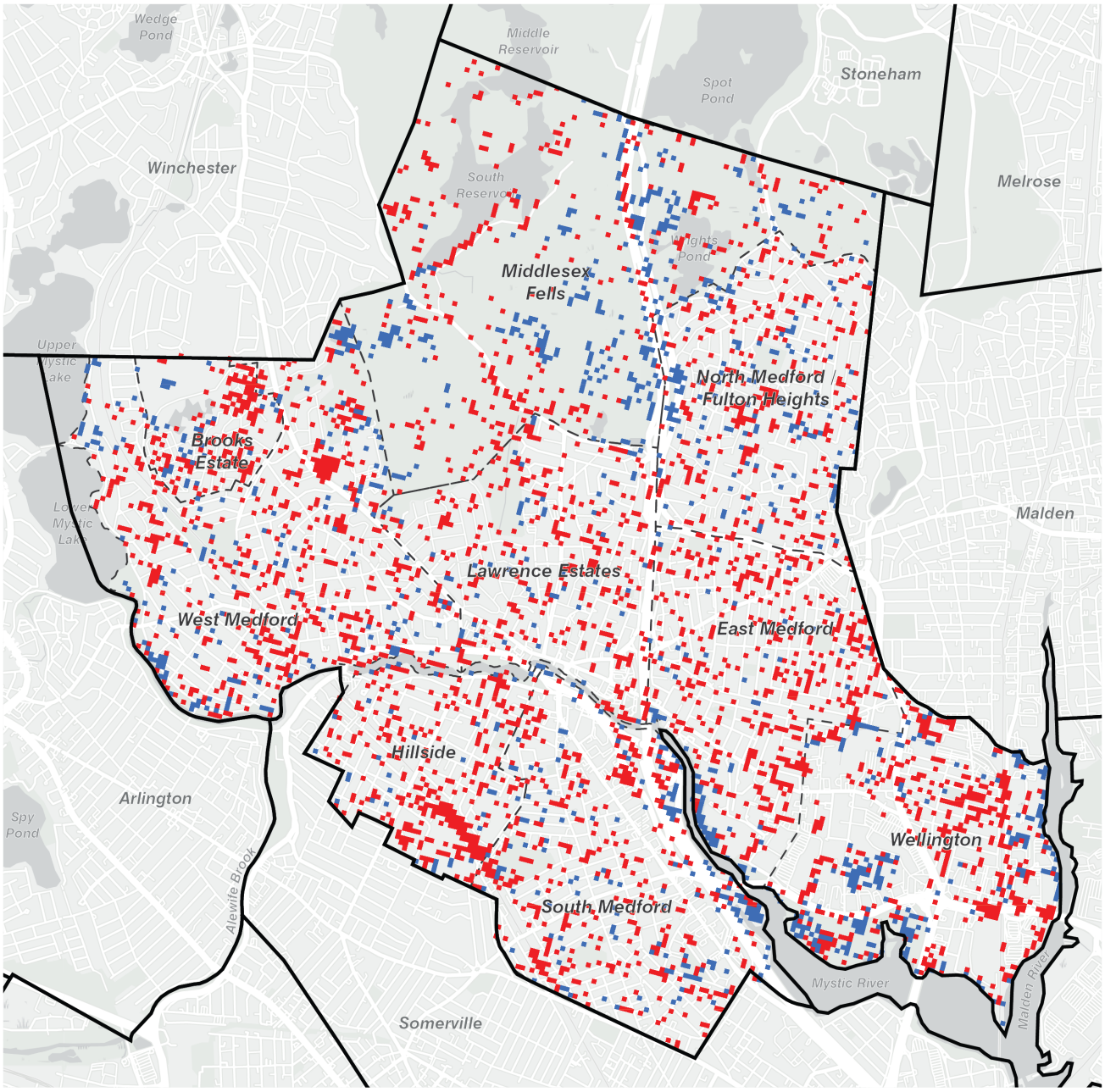
Data collected using LiDAR (Light Detection and Ranging) canopy cover data to assess where canopy change has occurred over time in Medford.

Base Layers
- City & Town Boundaries
- Neighborhood Boundaries

Change in Canopy
- Gain
- Loss

2,500 0 2,500
Scale In Feet

Figure 6: Tree Canopy Change (2018-2021)



Tree Canopy Change
2015-2021

Data collected using LiDAR (Light Detection and Ranging) canopy cover data to assess where canopy change has occurred over time in Medford.

Base Layers
- City & Town Boundaries
- Neighborhood Boundaries

Change in Canopy
- Gain
- Loss

2,500 0 2,500
Scale In Feet

Figure 7: Tree Canopy Change (2015-2021)

3.1 Land-Use

Canopy levels also vary across Medford based on how land is used. Most planting space exists on residential land and within the public right-of-way (ROW). The public ROW is the land along public streets that the City manages for transportation and utilities—including sidewalks, planting strips, and roadway edges where street trees are often located.[10]

The prevalence of each land-use type (Table 1) is broken down in Figure 8. Analysis findings indicate that each land-use type experienced tree canopy loss between 2015 and 2021 to varying degrees (Table 2) Most notably, residential and right-of-way land lost 1.11% and 1.67% of their canopy between 2015-2021, respectively, which is significant when considering these land-use types account for over half of Medford. Trees lost on residential land is often due to lot clearing for development, or individual property owners deciding to take down trees, while trees lost in the right-of-way is often due to construction or succumbing to harsh urban conditions.

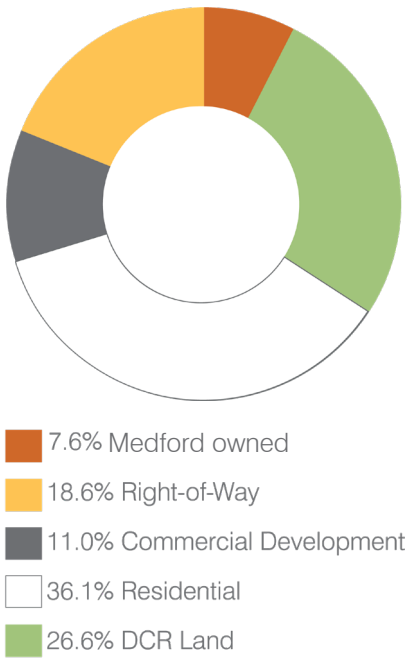


Figure 8: Distribution of Land-Use Types

Citywide Lands

At the citywide scale, Medford's total canopy includes all land within city boundaries, including residential areas, streets, parks, commercial land, and state-managed open space. Medford's overall tree canopy has gradually decreased in recent years. Between 2015 and 2021, canopy declined at an average rate of 0.58% per year (Table 4).

Urbanized Lands

Urbanized lands represent the parts of Medford that are developed for residential, commercial, industrial, and transportation uses—they make up just over 73% of all land in the city. This analysis excludes large forested areas managed by the Massachusetts Department of Conservation and Recreation (DCR) to provide a clearer picture of canopy conditions where most residents live and where tree loss has the greatest impact.

On urbanized land, canopy declined at an average rate of 1.18% per year between 2015 and 2021, nearly double the citywide rate (Table 4). These are the areas where most residents live and where heat and stormwater impacts are greatest, highlighting the need to focus replanting in streets, parks, and neighborhoods.

Municipal Lands

Municipal lands include Medford owned property and the public ROW, where the City has direct responsibility for tree management. These areas make up approximately 26% of all land in the city.

Between 2015 and 2021, municipal lands experienced overall canopy loss. Tree canopy on Medford owned property declined slightly, from about 33% to 32%, while canopy in the public ROW declined more noticeably, from about 19% to 17%. Combined, municipal lands lost roughly 1.2% canopy per year over this period (Table 4).

Table 1: Land-Use Types

Land-Use Type	Description
Medford Owned	Schools, parks, municipal facilities
DCR Land	Conservation land including Middlesex Fells
Residential	Private home properties
Commercial Development	Business and industrial areas
ROW	Street tree planting areas

Table 2: Tree Canopy Change – Land-Use Types

Land-Use Type	Land Area (acres)	Land Area Cover (%)	Canopy Cover Area, 2021 (%)	Annual Rate of Canopy Change, 2015-2021 (%)
Medford Owned	406	7.65	31.72	-0.53
DCR Land	1411	26.59	70.95	-0.07
Residential	1914	36.07	23.50	-1.11
Commercial Development	586	11.05	6.28	-1.87
ROW	989	18.64	17.48	-1.67

Table 3: Citywide, Urbanized, and Municipal Lands

Land-Use Type	Description
Citywide Lands	All land within city boundaries
Urbanized Lands	All land within city boundaries **excluding** areas managed by the Massachusetts Department of Conservation and Recreation (DCR)
Municipal Lands	Medford owned property and the public right-of-way (ROW)

Table 4: Tree Canopy Change – Citywide, Urbanized, and Municipal Lands

Land-Use Type	Land Area (acres)	Land Area Cover (%)	Canopy Cover Area, 2021 (%)	Annual Rate of Canopy Change, 2015-2021 (%)
Citywide Lands	5306	100.00	33.72	-0.58
Urbanized Lands	3895	73.41	20.23	-1.18
Municipal Lands	1395	26.29	21.62	-1.21

Table 5: Tree Canopy Change – Citywide Lands

Land Cover			Canopy Cover						Canopy Cover Change	
			2015	2015	2018	2018	2021	2021	2015-2021	2015-2021
Land-Use Type	Land Area (acres)	Land Cover (%)	Canopy Cover Area (acres)	Canopy Cover Area (%)	Canopy Cover Area (acres)	Canopy Cover Area (%)	Canopy Cover Area (acres)	Canopy Cover Area (%)	Annual Rate of Canopy Change (%)	Net Canopy Cover Area Change (acres)
Commercial Development	586	11.05	41	7.07	38	6.47	37	6.28	-1.87	-5
DCR Land	1411	26.59	1005	71.25	1000	70.85	1001	70.95	-0.07	-4
Medford Owned	406	7.65	133	32.77	131	32.33	129	31.72	-0.53	-4
Residential	1914	36.07	482	25.17	470	24.55	450	23.50	-1.11	-32
ROW	989	18.64	192	19.43	184	18.58	173	17.48	-1.67	-19
Total	**5306**	**100.00**	**1854**	**34.93**	**1822**	**34.35**	**1789**	**33.72**	**-0.58**	**-65**

Table 6: Tree Canopy Change – Urbanized Lands

Land Cover			Canopy Cover						Canopy Cover Change	
			2015	2015	2018	2018	2021	2021	2015-2021	2015-2021
Land-Use Type	Land Area (acres)	Land Cover (%)	Canopy Cover Area (acres)	Canopy Cover Area (%)	Canopy Cover Area (acres)	Canopy Cover Area (%)	Canopy Cover Area (acres)	Canopy Cover Area (%)	Annual Rate of Canopy Change (%)	Net Canopy Cover Area Change (acres)
Commercial Development	586	11.05	41	7.07	38	6.47	37	6.28	-1.87	-5
Medford Owned	406	7.65	133	32.77	131	32.33	129	31.72	-0.53	-4
Residential	1914	36.07	482	25.17	470	24.55	450	23.50	-1.11	-32
ROW	989	18.64	192	19.43	184	18.58	173	17.48	-1.67	-19
Total	**3895**	**73.41**	**848**	**21.78**	**823**	**21.13**	**788**	**20.23**	**-1.18**	**-60**

Table 7: Tree Canopy Change – Municipal Lands

Land Cover			Canopy Cover						Canopy Cover Change	
			2015	2015	2018	2018	2021	2021	2015-2021	2015-2021
Land-Use Type	Land Area (acres)	Land Cover (%)	Canopy Cover Area (acres)	Canopy Cover Area (%)	Canopy Cover Area (acres)	Canopy Cover Area (%)	Canopy Cover Area (acres)	Canopy Cover Area (%)	Annual Rate of Canopy Change (%)	Net Canopy Cover Area Change (acres)
Medford Owned	406	7.65	133	32.77	131	32.33	129	31.72	-0.53	-4
ROW	989	18.64	192	19.43	184	18.58	173	17.48	1.67	-19
Total	**1395**	**26.29**	**325**	**23.31**	**315**	**22.58**	**302**	**21.62**	**-1.21**	**-24**

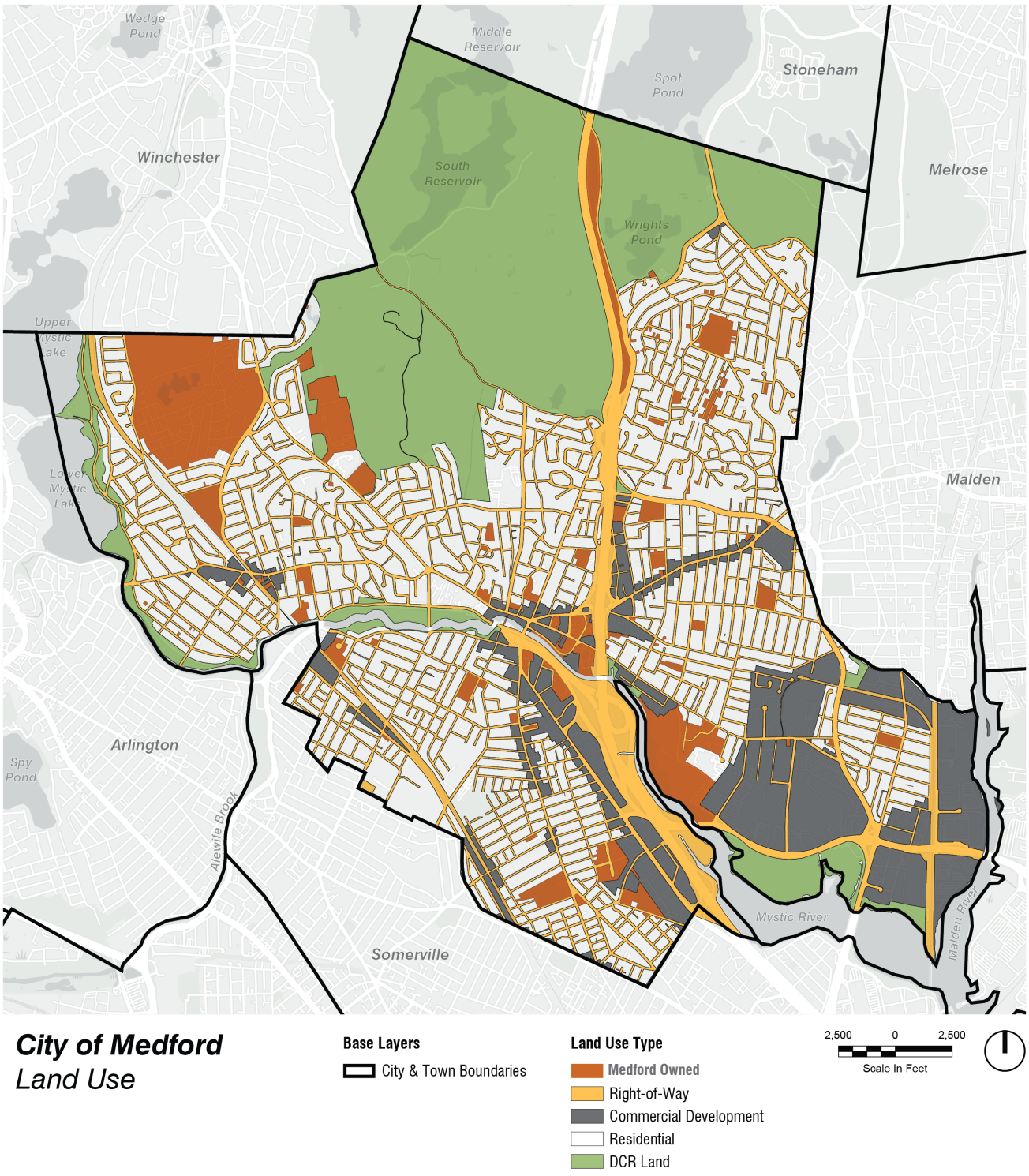


Figure 9: Land-Use Types

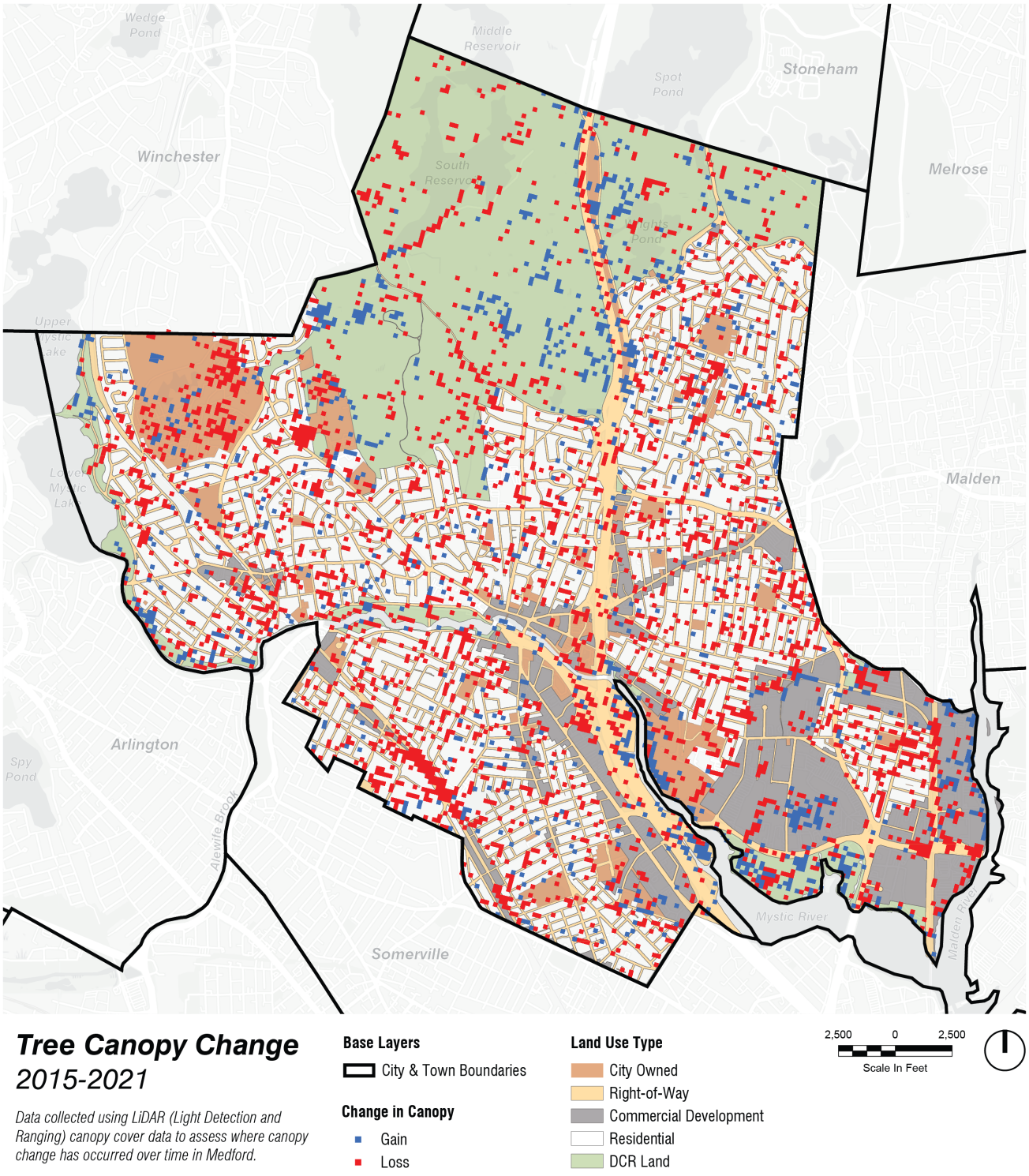


Figure 10: Tree Canopy Change and Land-Use Types (2015-2021)

3.2 Management Zone

The 2024 Medford Urban Forest Vulnerability Assessment established six distinct Management Zones in collaboration with Dr. Bryant Scharenbroch to aid the City in reducing tree mortality by identifying areas of the city where trees are under more or less stress. Trees within a single zone generally experience similar environmental conditions and stressors and therefore require a similar level of effort to maintain.

The initial boundaries for Management Zones were developed using Natural Resources Conservation Commission (NRCS) Soil Data, grouping similar soil types. Zones were then refined using land-use data, topography, historic land-use maps, climate hazards data, local knowledge, and on-the-ground verification (Figure 11).

DCR lands were grouped separately because the City does not maintain trees on these properties. The Brooks Estate Oak and Grove Cemetery were also grouped separately because this land is significantly different and maintained separately from the rest of Medford's urban forest. The remainder of the city was divided into three zones. The zones were classified by levels of environmental stress on street trees specifically (Table 8). The Management Zone delineations focused solely on street trees because the zones are intended specifically to aid the City in understanding which street trees will require the most maintenance and why.

One significant caveat for the maintenance required within each zone is sidewalk salt use by individual landowners. High salt use could result in added stress which cannot be predicted by the method of characterization used here.

Each Management Zone lost tree canopy cover between 2015 and 2021 (Table 9). DCR-owned land experienced the least amount of loss, with Middlesex Fells losing 0.22% of its canopy cover and other DCR land losing 0.44%.

Zone 3, classified as the Highest Stress Environment due to its unfavorable conditions for tree survival, lost the least amount of canopy cover when compared to other Medford owned zones. Zone 2 experienced the most significant canopy loss among the Management Zones. This is closely followed by Brooks Manor/ Cemetery with a 1.96% loss between 2015-2021.

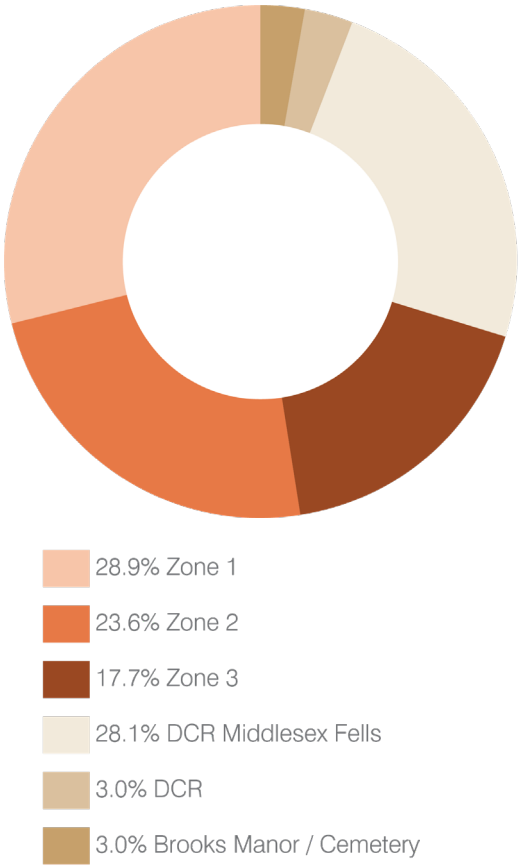


Figure 11: Distribution of Management Zones

Table 8: Management Zones

Management Zone	Description
DCR Land - Middlesex Fells	Conservation area owned and maintained by DCR
DCR Land	Conservation areas owned and maintained by DCR, aside from Middlesex Fells. Does not include roadways maintained by DCR (which are categorized as ROW)
Brooks Manor / Cemetery	Medford owned land
Zone 1 – Lower Stress Environment	Medium to Medium-High Density Residential Significant tree canopy cover and pervious surfaces in right-of-way and on private property Minimal exposure to flooding Minimal exposure to Urban Heat Island
Zone 2 – Mid-Level Stress Environment	High Density Residential or Light Commercial Moderate tree canopy cover and pervious surfaces in right-of-way and on private property Moderate exposure to flooding Moderate exposure to Urban Heat Island
Zone 3 – Highest Stress Environment	Commercial or Industrial Minimal to no tree canopy cover or pervious surfaces in right-of-way and on private property Significant exposure to flooding Significant exposure to Urban Heat Island

Table 9: Tree Canopy Change – Management Zones

Management Zone	Land Area (acres)	Land Area Cover (%)	Canopy Cover Area (%)	Annual Rate of Canopy Change, 2015-2021 (%)
DCR Land - Middlesex Fells	1279	32.83	74.68	-0.05
DCR Land	160	4.11	40.13	-0.18
Brooks Manor / Cemetery	157	4.02	47.48	-0.66
Zone 1	1535	39.42	29.75	-0.73
Zone 2	1253	32.16	12.42	-2.55
Zone 3	938	24.08	10.09	-1.49

Table 10: Tree Canopy Change - Management Zones

Land Cover			Canopy Cover						Canopy Cover Change	
			2015	2015	2018	2018	2021	2021	2015-2021	2015-2021
Management Zone	Land Area (acres)	Land Cover (%)	Canopy Cover Area (acres)	Canopy Cover Area (%)	Canopy Cover Area (acres)	Canopy Cover Area (%)	Canopy Cover Area (acres)	Canopy Cover Area (%)	Annual Rate of Canopy Change (%)	Net Canopy Cover Area Change (acres)
DCR Land - Middlesex Fells	1279	24.03	958	74.90	955	74.69	955	74.68	-0.05	-3
DCR Land	160	3.01	65	40.57	62	39.06	64	40.13	-0.18	-1
Brooks Manor / Cemetery	157	2.94	77	49.44	76	48.43	74	47.48	-0.66	-3
Zone 1	1535	28.85	478	31.10	470	30.64	457	29.75	-0.73	-21
Zone 2	1253	23.54	184	14.67	173	13.80	156	12.42	-2.55	-28
Zone 3	938	17.62	104	11.07	98	10.40	95	10.09	-1.49	-9
Total	**5322**	**100.00**	**1865**	**35.06**	**1834**	**34.47**	**1801**	**33.84**	**-0.58**	**-65**

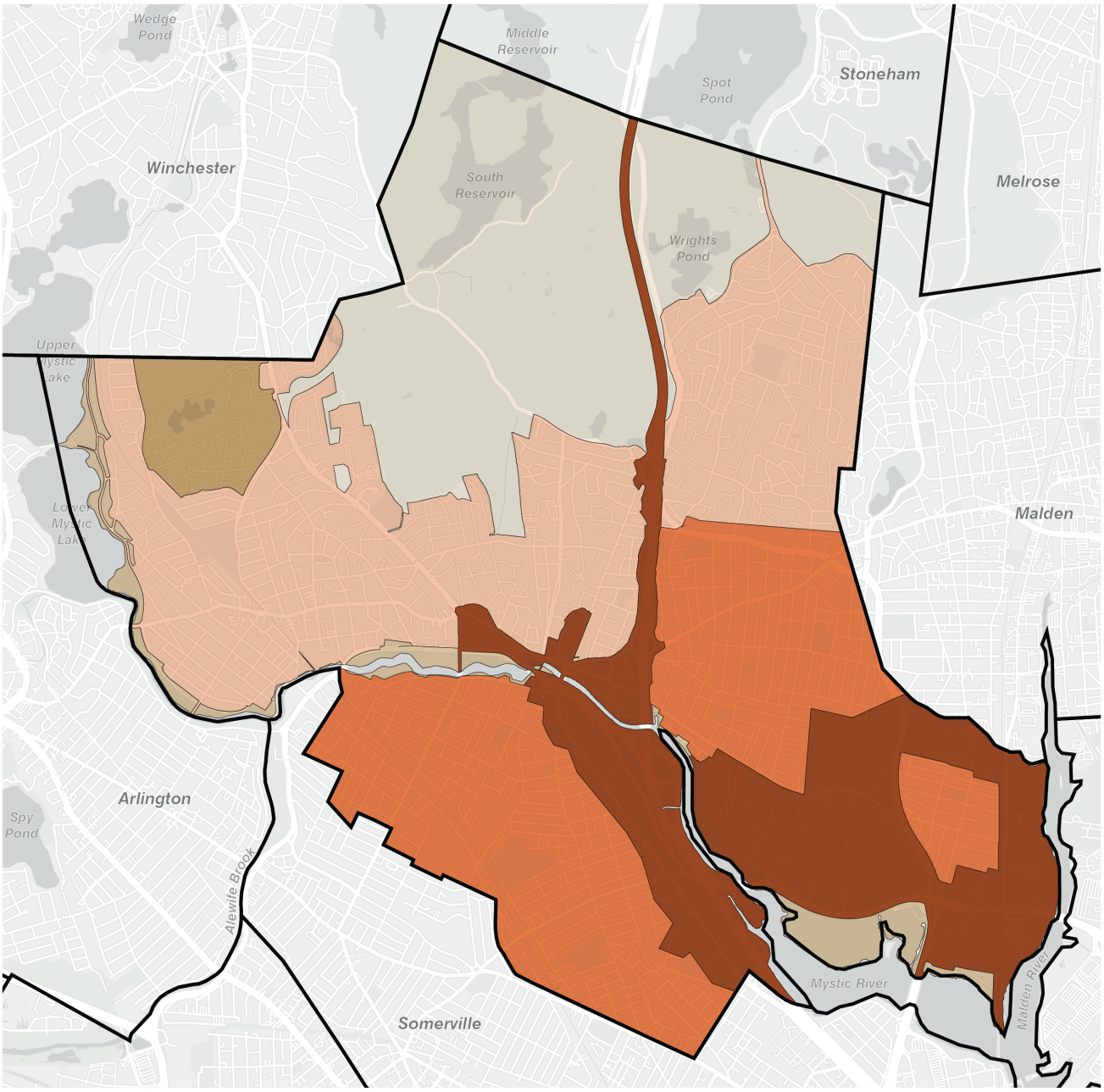


Figure 12: Management Zones

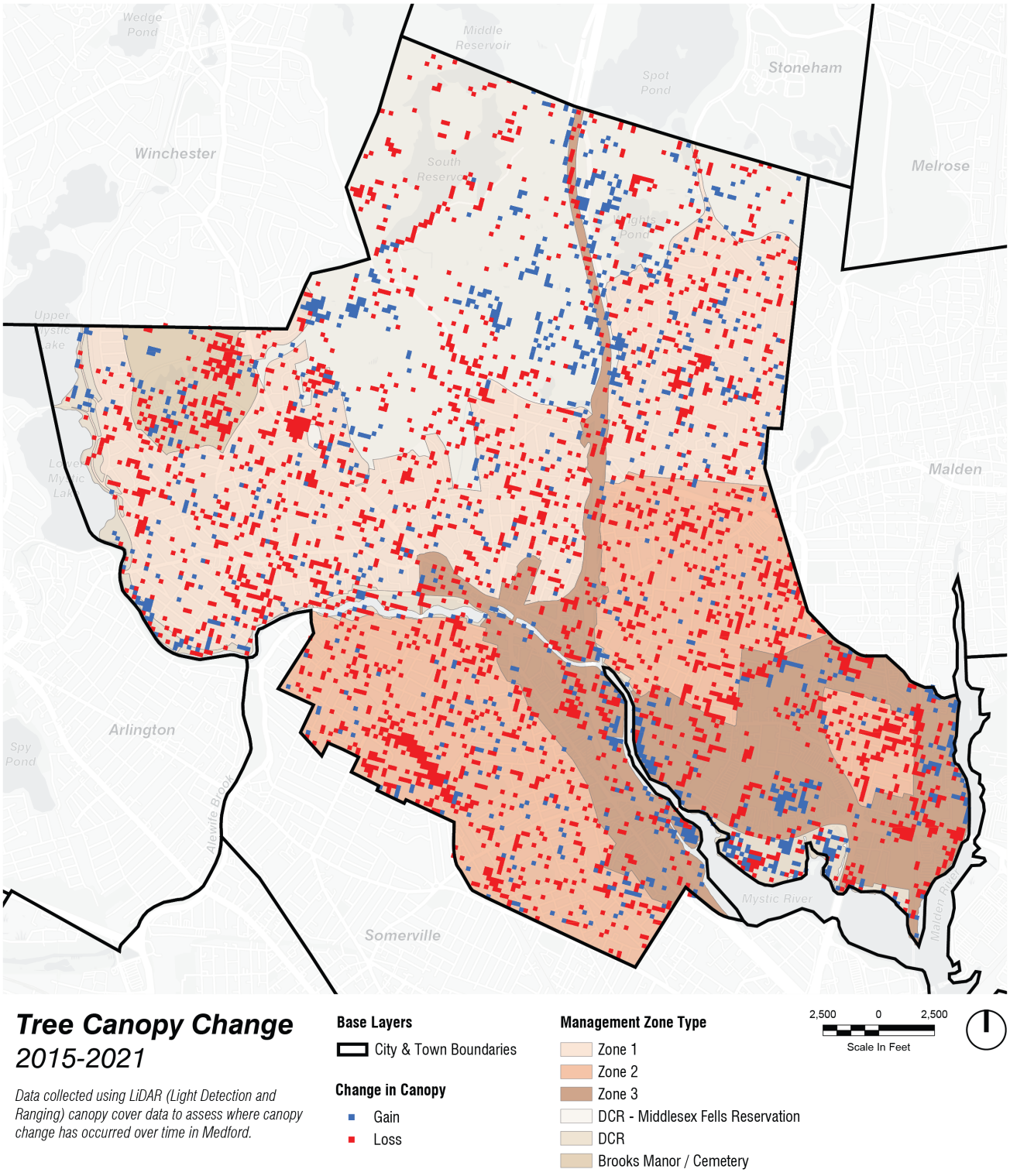


Figure 13: Tree Canopy Change and Management Zones (2015-2021)

3.3 Equity & Environmental Justice

Understanding how tree canopy is distributed across Medford helps identify **which neighborhoods have access to the benefits of trees and which areas may need additional investment.**

Neighborhoods

Tree canopy in Medford varies by neighborhood as illustrated in Figure 4. Areas with larger yards and more mature trees—such as West Medford and Lawrence Estates—tend to have higher canopy coverage. Denser neighborhoods with more pavement—such as South Medford and Wellington—have fewer trees and experience hotter summer conditions.

These differences are not evenly distributed and often overlap with environmental justice considerations.



Figure 14: Green Line Extension 2013. Image credit: City of Medford

Environmental Justice Neighborhoods

Tree canopy is not distributed equally across Medford (Table 11). Neighborhoods with less canopy experience higher summer heat, lower air quality, and fewer green spaces—conditions that often overlap with Environmental Justice (EJ) communities.

In Massachusetts, EJ populations are defined as neighborhoods where one or more of the following are true:[11]

- The annual median household income is <65% of the statewide annual median household income;
- Minorities make up >40% of the population;
- >25% of households identify as speaking English less than "very well"; and/or,
- Minorities make up >25% of the population and the annual median household income of the municipality in which the neighborhood is located does not exceed 150% of the statewide annual median household income.

In Medford, EJ areas have lower tree canopy coverage (14.1%) than non-EJ areas and have also experienced a greater rate of canopy loss over time (Table 13). Between 2015 and 2021, EJ communities lost canopy at an estimated –1.70% annually, compared to –0.28% in non-EJ areas and –1.21% citywide.

These trends provide important context for understanding how **environmental benefits and climate vulnerabilities vary across neighborhoods, and for guiding future tree management.**

Table 11: Tree Canopy Change – Neighborhoods

Neighborhood	Land Area (acres)	Land Area Cover (%)	Canopy Cover Area, 2021 (%)	Annual Rate of Canopy Change, 2015-2021 (%)
Brooks Estate	156	4.01	48.09	-0.66
East Medford	540	13.86	12.88	-2.00
Hillside	316	8.11	16.04	-2.46
Lawrence Estates	505	12.97	28.23	-0.86
Middlesex Fells	1214	31.16	73.27	-0.07
North Medford / Fulton Heights	533	13.68	31.40	-0.47
South Medford	637	16.35	10.12	-1.80
Wellington	598	15.36	11.67	-1.31
West Medford	799	20.51	32.67	-0.79

Table 12: Tree Canopy Change - Neighborhoods

Land Cover			Canopy Cover						Canopy Cover Change	
			2015	2015	2018	2018	2021	2021	2015-2021	2015-2021
Neighborhood	Land Area (acres)	Land Cover (%)	Canopy Cover Area (acres)	Canopy Cover Area (%)	Canopy Cover Area (acres)	Canopy Cover Area (%)	Canopy Cover Area (acres)	Canopy Cover Area (%)	Annual Rate of Canopy Change (%)	Net Canopy Cover Area Change (acres)
Brooks Estate	156	2.95	78	50.08	77	49.04	75	48.09	-0.66	-3
East Medford	540	10.19	79	14.63	75	13.91	70	12.88	-2.00	-9
Hillside	316	5.96	59	18.81	56	17.77	51	16.04	-2.46	-9
Lawrence Estates	505	9.54	150	29.77	147	29.16	143	28.23	-0.86	-8
Middlesex Fells	1214	22.91	893	73.57	889	73.29	889	73.27	-0.07	-4
North Medford / Fulton Heights	533	10.06	172	32.31	170	31.96	167	31.40	-0.47	-5
South Medford	637	12.02	72	11.34	69	10.77	64	10.12	-1.80	-8
Wellington	598	11.29	76	12.67	70	11.75	70	11.67	-1.31	-6
West Medford	799	15.08	274	34.31	269	33.72	261	32.67	-0.79	-13
Total	**5298**	**-**	**1854**	**35.00**	**1823**	**34.41**	**1790**	**33.78**	**-0.58**	**-64**

Table 13: Tree Canopy Change – Environmental Justice Areas

EJ Status	Land Area (acres)	Land Area Cover (%)	Canopy Cover Area, 2021 (%)	Annual Rate of Canopy Change, 2015-2021 (%)
EJ Areas	2511	64.46	14.08	-1.70
Non-EJ Areas	2790	71.63	51.48	-0.28

Table 14: Tree Canopy Change - Environmental Justice (EJ) Communities

Land Cover			Canopy Cover						Canopy Cover Change	
			2015	2015	2018	2018	2021	2021	2015-2021	2015-2021
Environmental Justice (EJ) Criteria	Land Area (acres)	Land Cover (%)	Canopy Cover Area (acres)	Canopy Cover Area (%)	Canopy Cover Area (acres)	Canopy Cover Area (%)	Canopy Cover Area (acres)	Canopy Cover Area (%)	Annual Rate of Canopy Change (%)	Net Canopy Cover Area Change (acres)
EJ Areas	2511	47.36	394	15.68	374	14.88	353	14.08	-1.70	-40
Non-EJ Areas	2790	52.64	1461	52.35	1450	51.96	1437	51.48	-0.28	-24
Total	**5301**	**-**	**1854**	**34.98**	**1823**	**34.40**	**1790**	**33.77**	**-0.58**	**-64**



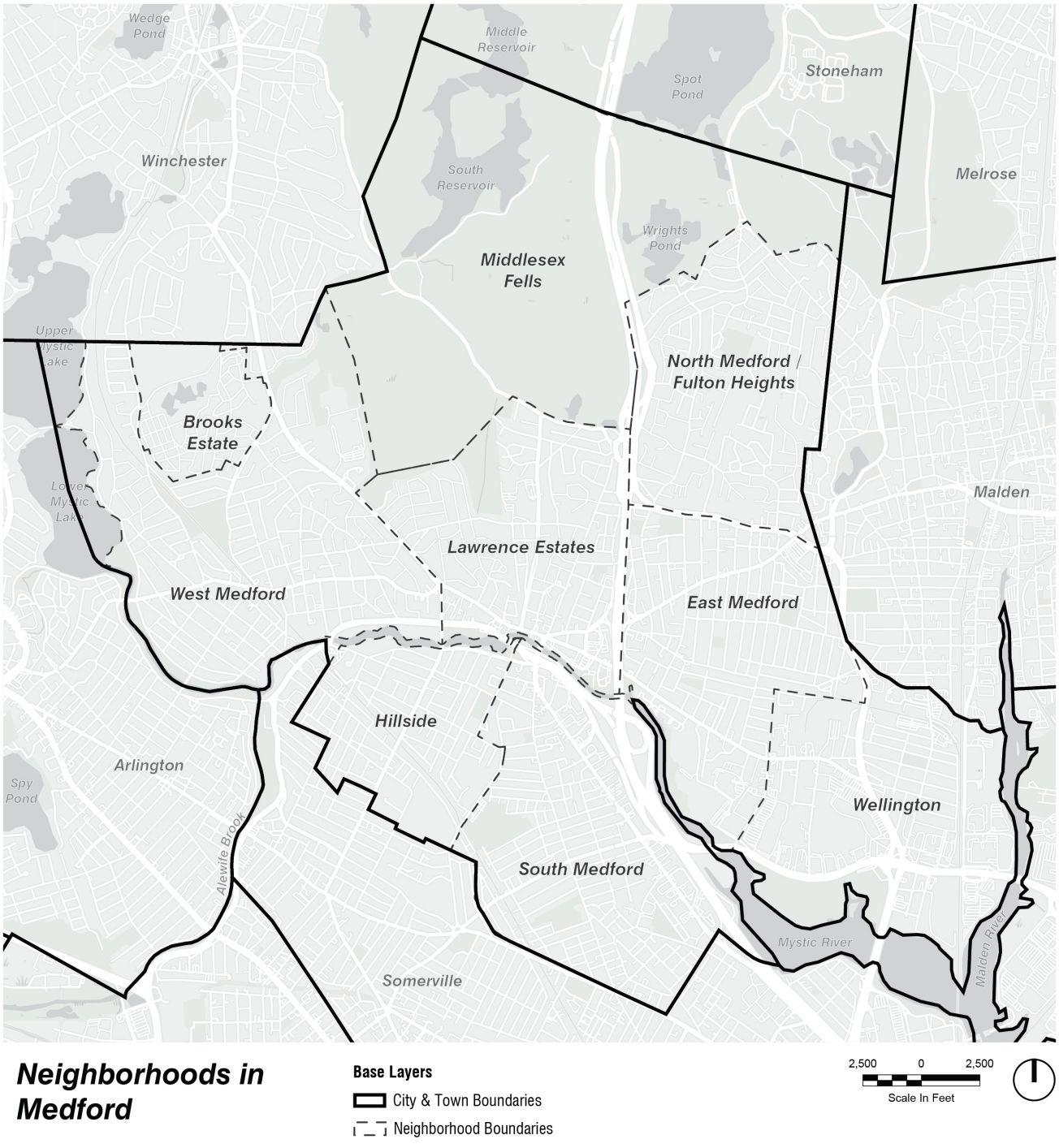
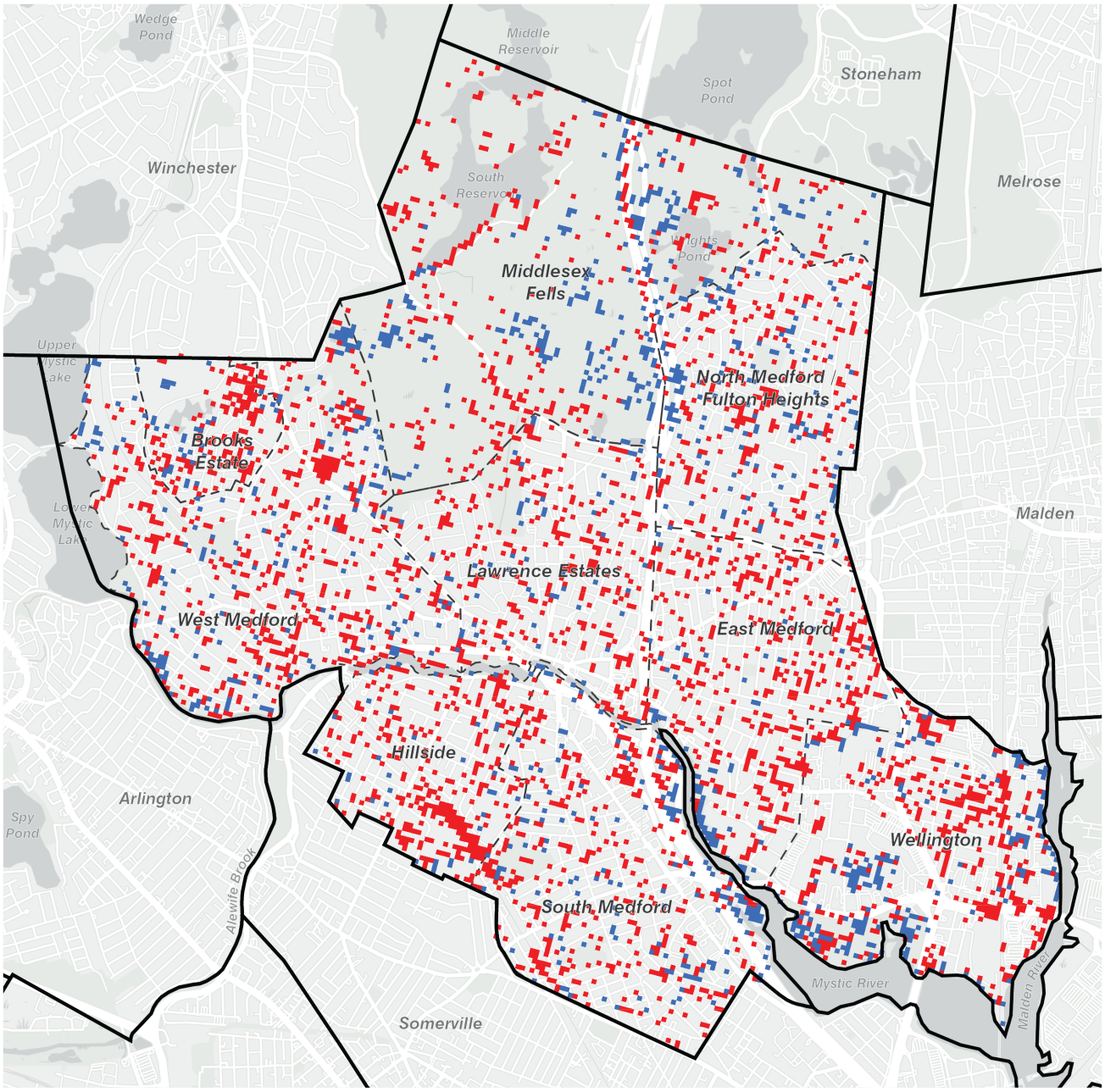


Figure 15: Medford Neighborhoods Map.
Note that these boundaries are not legally defined and may differ slightly from how residents describe neighborhood edges.



Tree Canopy Change

2015-2021

Data collected using LiDAR (Light Detection and Ranging) canopy cover data to assess where canopy change has occurred over time in Medford.

Base Layers

- City & Town Boundaries
- Neighborhood Boundaries

Change in Canopy

- Gain
- Loss

2,500 0 2,500

Scale In Feet

Figure 16: Tree Canopy Change and Medford Neighborhoods

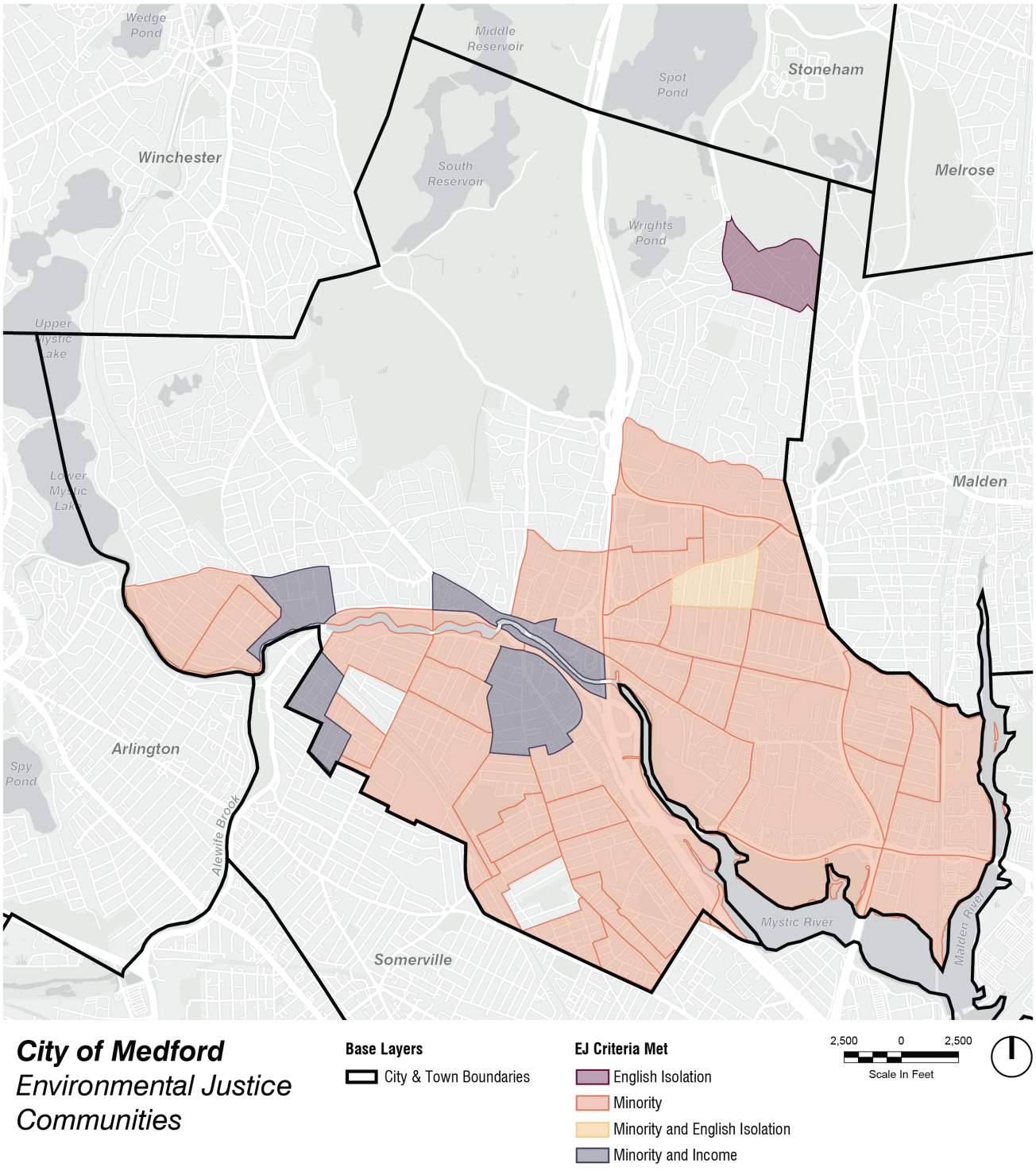


Figure 17: Environmental Justice Communities

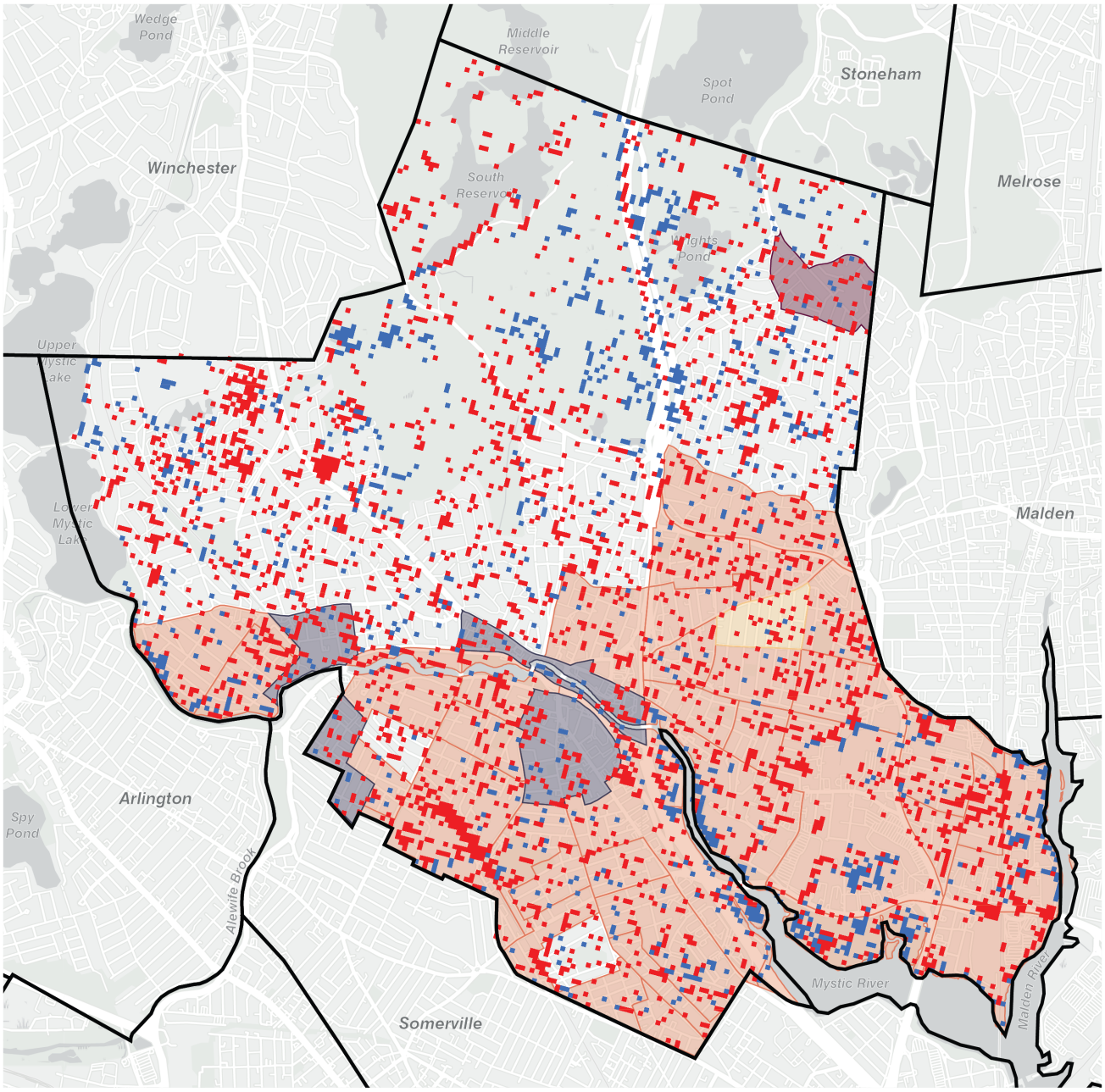


Figure 18: Tree Canopy Change and Environmental Justice Communities

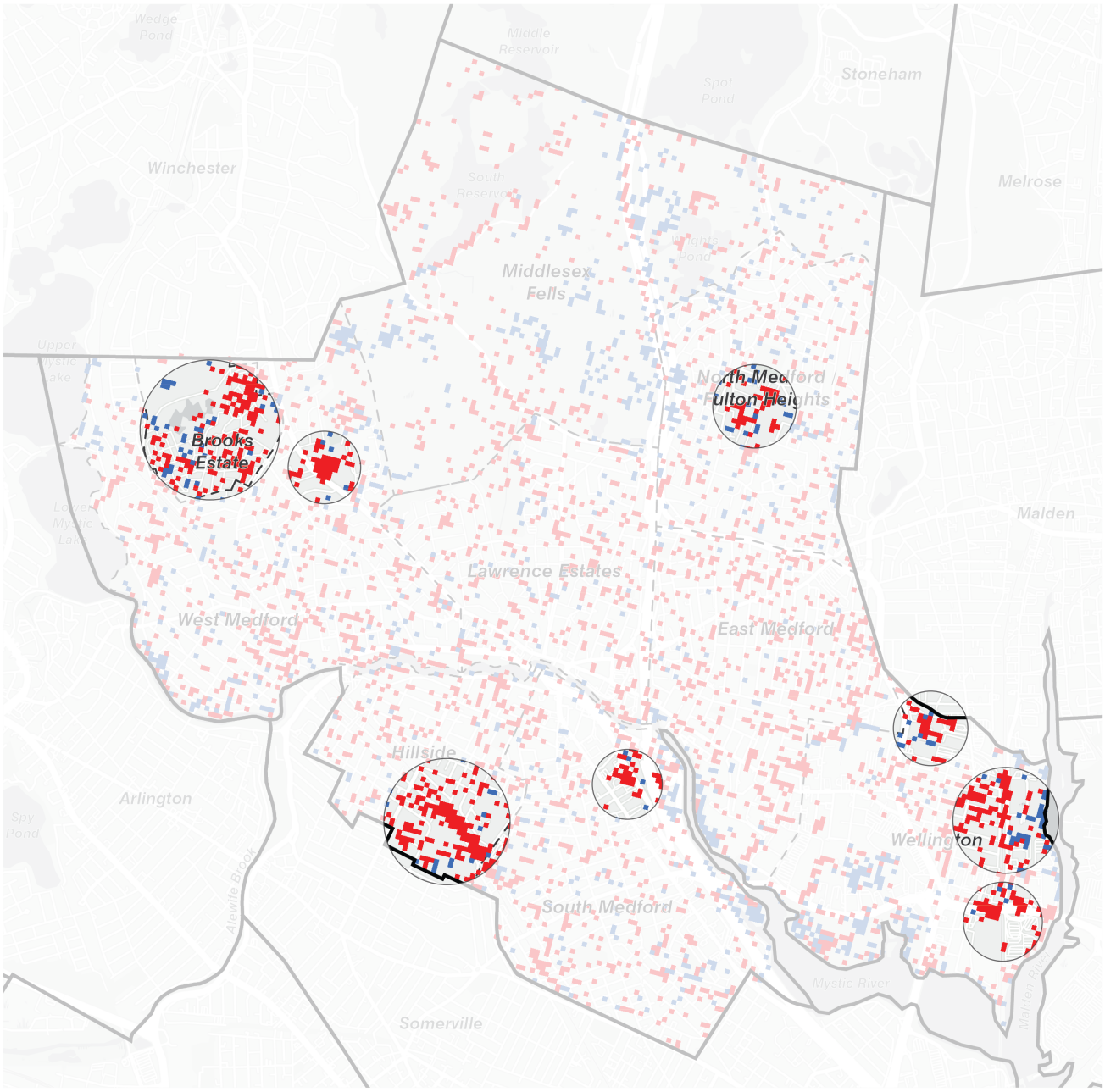


Figure 19: Tree Canopy Change and Areas of Significant Loss (2015-2021)

3.4 Possible Drivers of Canopy Change

A desktop review suggests that several factors may be contributing to recent canopy decline in Medford:

- Construction and infrastructure activity (e.g., Green Line Extension near Medford/Tufts, MassDOT Maintenance Facility, Route 16 bridge work)
- Private lot redevelopment (clearing for new housing or commercial projects)
- Age-related decline or pest damage (e.g., tree loss in park-like areas such as Oak Grove Cemetery)
- Urban stress (heat, compacted soils, limited root space, construction impacts)

These trends highlight important areas for future exploration to better understand local drivers of tree loss and to inform targeted strategies that can slow canopy decline over time. As the City advances this plan, further evaluation of these drivers will help identify **where proactive planting, policy tools, and tree protection practices can be most effective.**

Key Findings

- → **As of 2021, Medford had 33.7% tree canopy citywide,** but 20.2% canopy when excluding the natural areas of the city. This is a decrease from 34.9% and 21.8%, respectively, in 2015.
- → **Each land-use type lost canopy between 2015 and 2021.** Most notably, residential and right-of-way land, which account for over half of the city's land, lost the highest percent of their canopy over this period compared to other land-use types.
- → **Medium to Medium-High Density Residential areas lost more canopy** compared to zones designated as higher stress environments.
- → **Non-EJ areas have higher canopy cover than EJ areas,** and EJ areas lost more canopy between 2015-2021 compared to non-EJ areas.



4. Public Tree Inventory

A public tree inventory is a detailed record of trees located on land managed by the City, including street trees, park trees, and trees on other municipal properties. In this plan, public trees are defined as trees located on Medford owned land or within the public right-of-way (ROW). The inventory does not include trees on residential, commercial development, or DCR-managed lands.

A tree inventory is a core tool for urban forest management. It helps the City understand the size, condition, and composition of its tree population and guides decisions about maintenance, planting, risk management, and long-term budgeting. The inventory also provides a baseline for tracking change over time and aligning resources with priority needs. See Appendix B for tree inventory maps shown in this section.

4.1 Inventory Overview

Between 2020 and 2025, Davey Resource Group (DRG), with funding from the City of Medford and TreesMedford, inventoried street trees, select park trees, stumps, and vacant planting sites. This effort provides the most complete picture to date of Medford's public tree system.

As of 2025, all Medford owned street trees have been inventoried. Park trees, stumps, and vacant sites were also included; however, these datasets are not yet comprehensive (Figure 20). In total, 11,288 sites were documented, including 9,880 trees, 424 stumps, and 984 vacant planting sites (Figure 20).



9,880
trees



424
stumps



984
vacant planting sites



787
sites suitable for small trees



56
sites suitable for medium trees



69
sites suitable for large trees

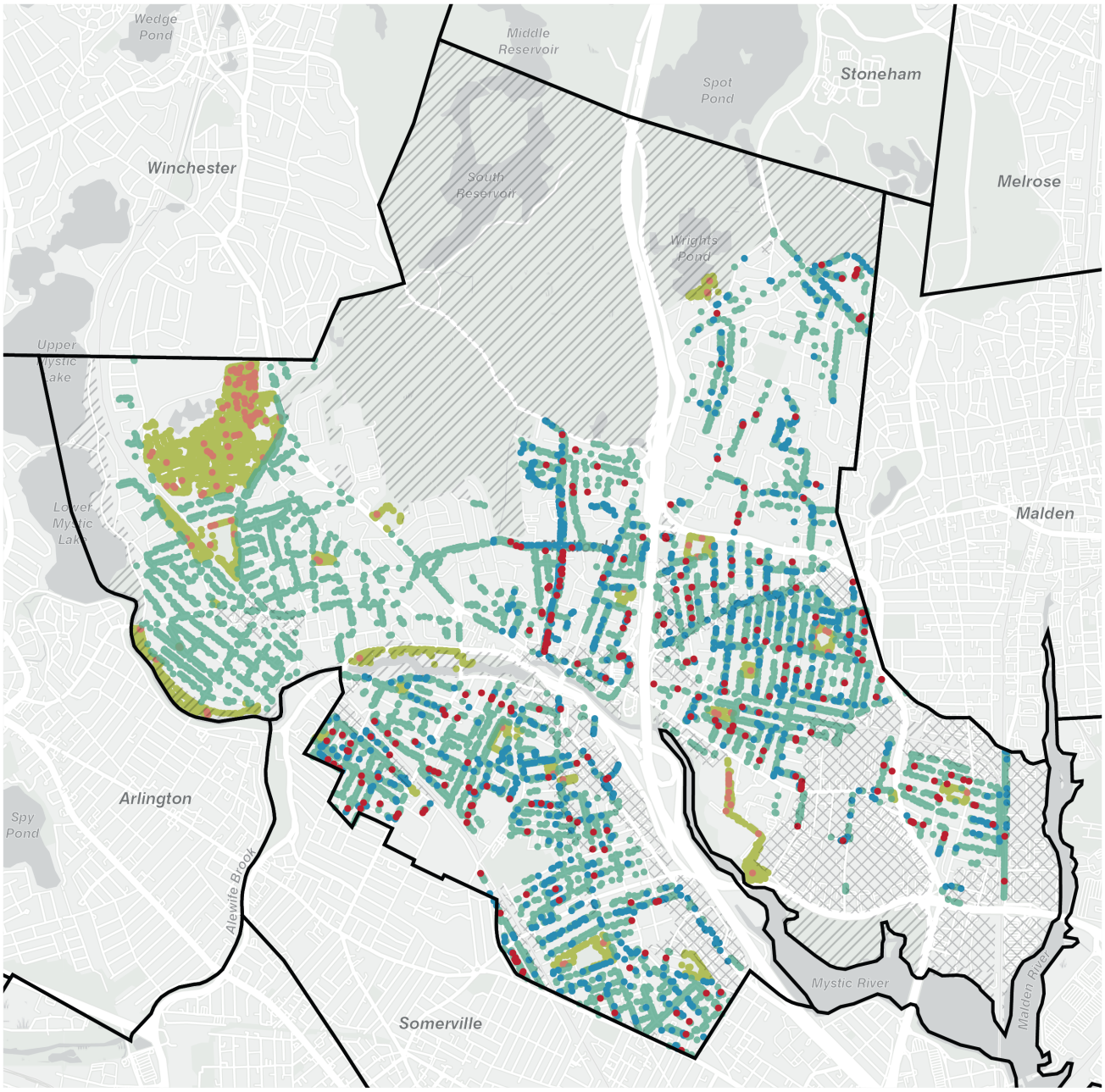


Figure 20: Medford Public Trees – Site Status

Of the vacant planting sites, 72 locations were recorded as no longer suitable for replanting ("retired") due to space constraints, utilities, or conflicting infrastructure. The remaining sites include 787 locations suitable for small trees, 56 for medium trees, and 69 for large trees (Figure 22). These suitability classifications provide a useful starting point; however, all vacant sites will require field verification by the Forestry Division to confirm site conditions and planting feasibility.

This inventory establishes a baseline for planning future maintenance and replanting efforts and will continue to improve as field data is refined over time.

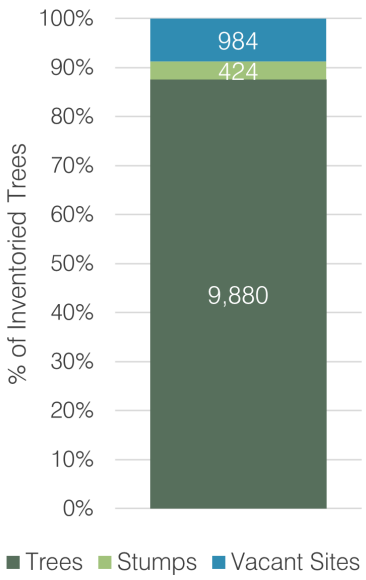


Figure 21: Public Tree Inventory - Trees, Stumps & Vacant Sites

4.2 Tree Condition

The inventory data shows that the majority of Medford's public trees are in Good (43%) or Fair (47%) condition (Figure 23). The remaining trees are rated Poor (10%) or Dead (1%), underscoring the need for targeted maintenance and phased removals, as well as future replanting.

Several common tree species in Medford show higher rates of poor condition, which increases vulnerability to pests and disease. Increasing species diversity and monitoring high-risk species will be important for reducing long-term pest and disease impacts.

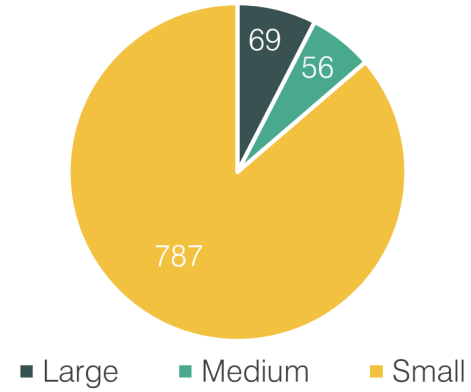


Figure 22: Public Tree Inventory - Vacant Site Sizes

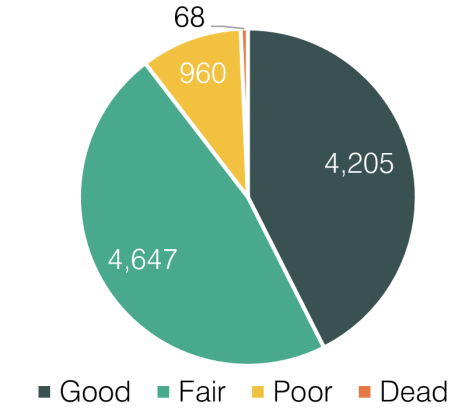


Figure 23: Public Tree Inventory – Condition



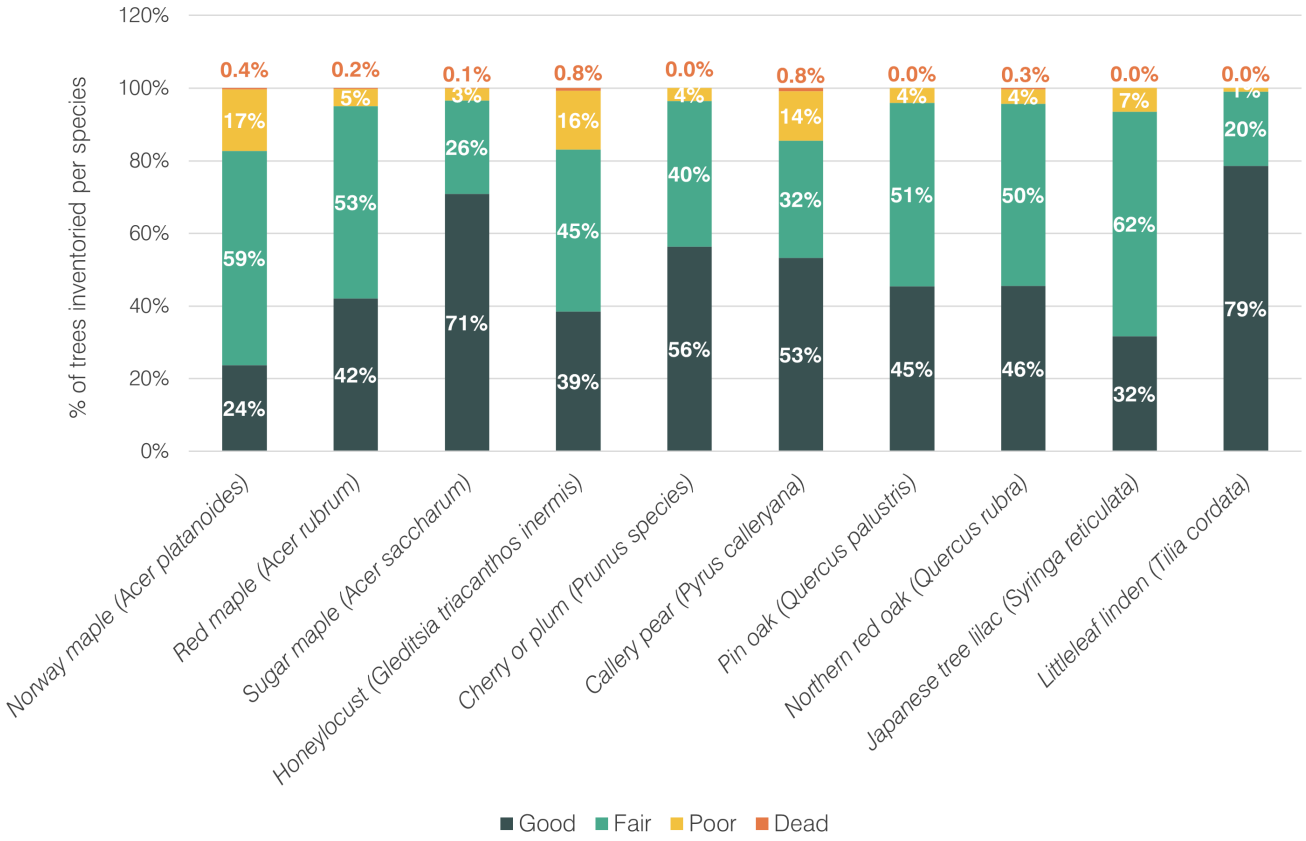


Figure 24: Public Tree Inventory – Conditions of top 10 most common tree species

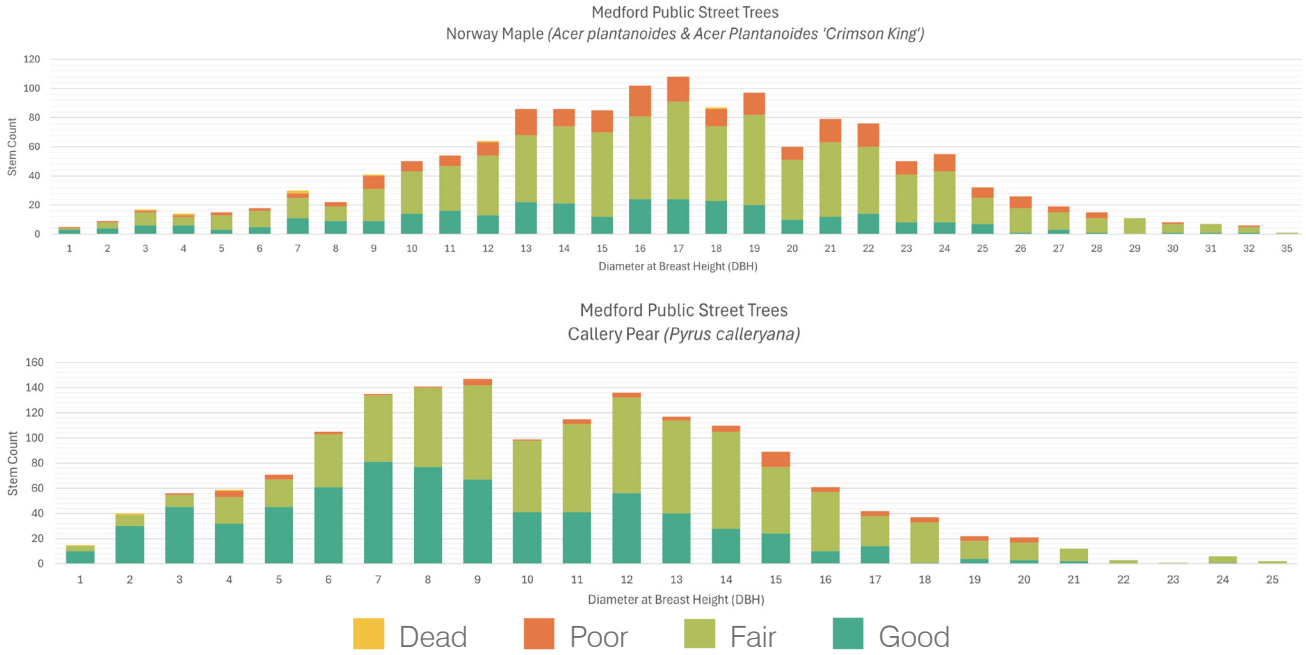


Figure 25: Conditions of Norway Maple Public Street Trees (top), Conditions of Callery Pear Public Street Trees (bottom)

4.3 Species Diversity

Maintaining biodiversity in the urban forest is critical to its health and long-term sustainability. In this context, biodiversity refers to the array and distribution of tree species, genera, and families.

UNDERSTANDING TREE DIVERSITY

Species = White oak (*Quercus alba*)
Genera = Oak (*Quercus*)
Family = *Fagaceae*
Includes oak, beech, chestnut, and more

A diverse urban forest reduces the likelihood of a community losing a significant amount of tree canopy at one time due to a stressor that is impacting specific tree species/genera /families. Take, for example, the city of Worcester, MA, whose tree canopy was greatly impacted when Asian longhorned beetle was found in 2008. The city's street tree population at this time was 80% maples, the preferred host of this invasive tree-killing insect.[12]

The industry standard metric is to compare a tree population against the "10-20-30 Rule".[13] This rule states that within a specified tree population, no one tree species should make up more than 10% of the population, no one genus should make up more than 20% of the population, and no one family should make up more than 30% of the population.

This rule acts as a tool to benchmark Medford's tree diversity based on the findings of the public tree inventory. This assessment pinpoints tree species and genera to reduce planting and highlights areas for the City to focus on increasing diversity levels. As the tree inventory is updated, this tool can be used again to track progress towards the City's diversity goals.

THE "10-20-30 RULE"



10%
no one tree **species** should make up more than **10%** of the population



20%
no one **genus** should make up more than **20%** of the population



30%
no one **family** should make up more than **30%** of the population

The public tree inventory recorded 125 unique tree species. The inventory shows that two species exceed the 10-20-30 Rule — Norway maple (*Acer platanoides*) and Callery pear (*Pyrus calleryana*), who make up a respective 21.3% and 17.9% of Medford's inventoried trees (Figure 26). These species are classified as invasive species in Massachusetts, and although this could account for some of their prevalence, they were once commonly planted street trees due to their tolerance of tough urban conditions. These species are no longer planted, as they are on the state's Prohibited Plant List, therefore will likely naturally diminish in prevalence among Medford's public trees as they reach the end of their life cycles. The inventory identified areas of significant invasive tree species populations, which indicate areas in need of management (Figure 35). A more detailed analysis of invasive species and replacement strategies is provided in "4.6 Planning for Species Transition". Red maple (*Acer rubrum*) is the third most commonly recorded tree species, accounting for 8.3% of Medford's public trees, nearing the recommended maximum threshold.

There were 62 unique genera recorded in the public tree inventory. Of these, maple (*Acer*) is the only genus that exceeds the 20% maximum recommended threshold, accounting for 35.7% of the inventory (Figure 27). However, pear (*Pyrus*) nears this limit at 17.9% of the inventoried population. Oak (*Quercus*) (8.8%), cherry (*Prunus*) (6.3%), and linden (*Tilia*) (3.8%) were recorded as the following most relevant genera — all well below the maximum recommended threshold.

One family exceeds the recommended 30% threshold: the Soapberry (*Sapindaceae*) family (35.8%), represented in Medford mainly by the maple genus, while Rose (*Rosaceae*) follows (26.6%), which includes pear, cherry, and apple genera (Figure 28).

The 10-20-30 Rule helps manage risk by promoting species diversity and reducing vulnerability to pests, disease, and climate stress. When it comes to new tree planting, the Forestry Division practices "right plant, right place," selecting species suited to site conditions, long-term maintenance needs, and climate resilience.

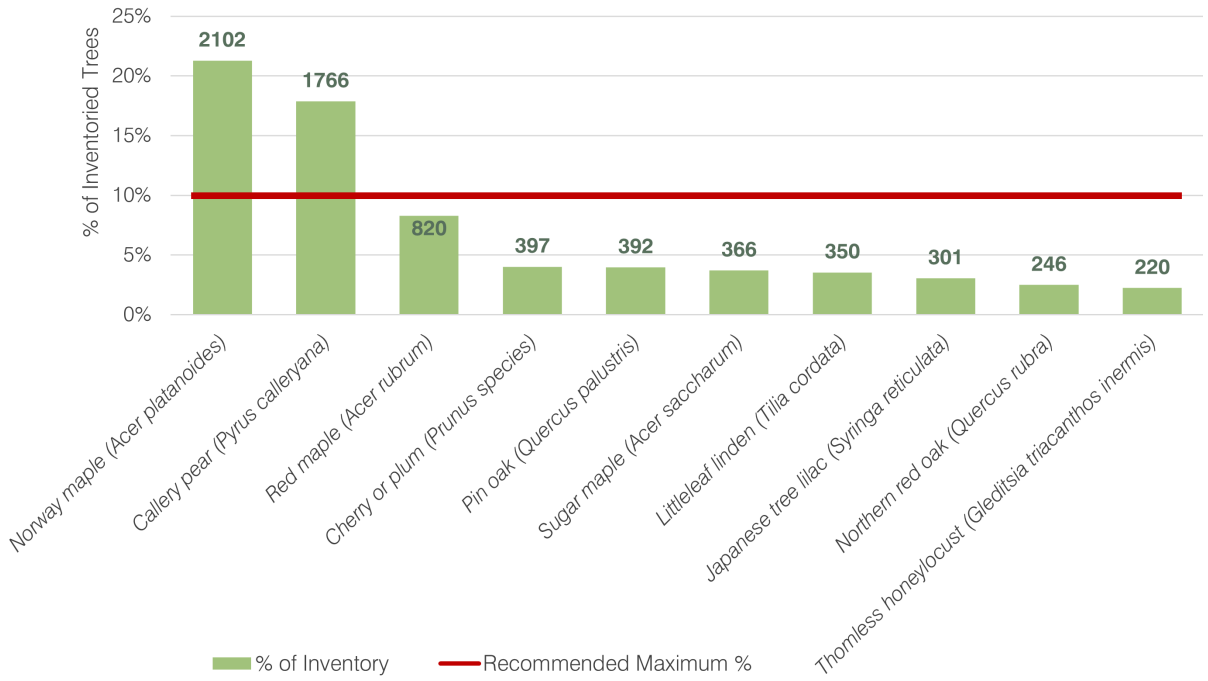


Figure 26: Public Tree Inventory – Top 10 most recorded tree species, compared against the recommended maximum population of any one species in a tree population (10%)

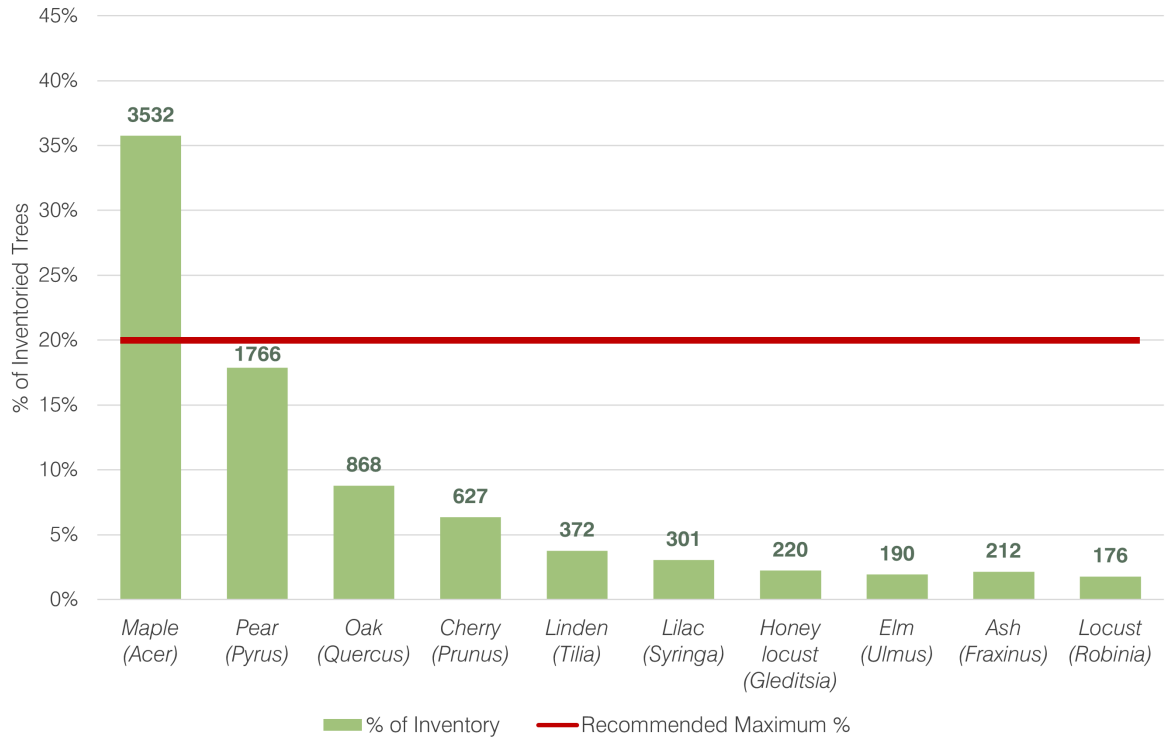


Figure 27: Top 10 most recorded tree genera, compared against the recommended maximum population of any one species in a tree population (20%)

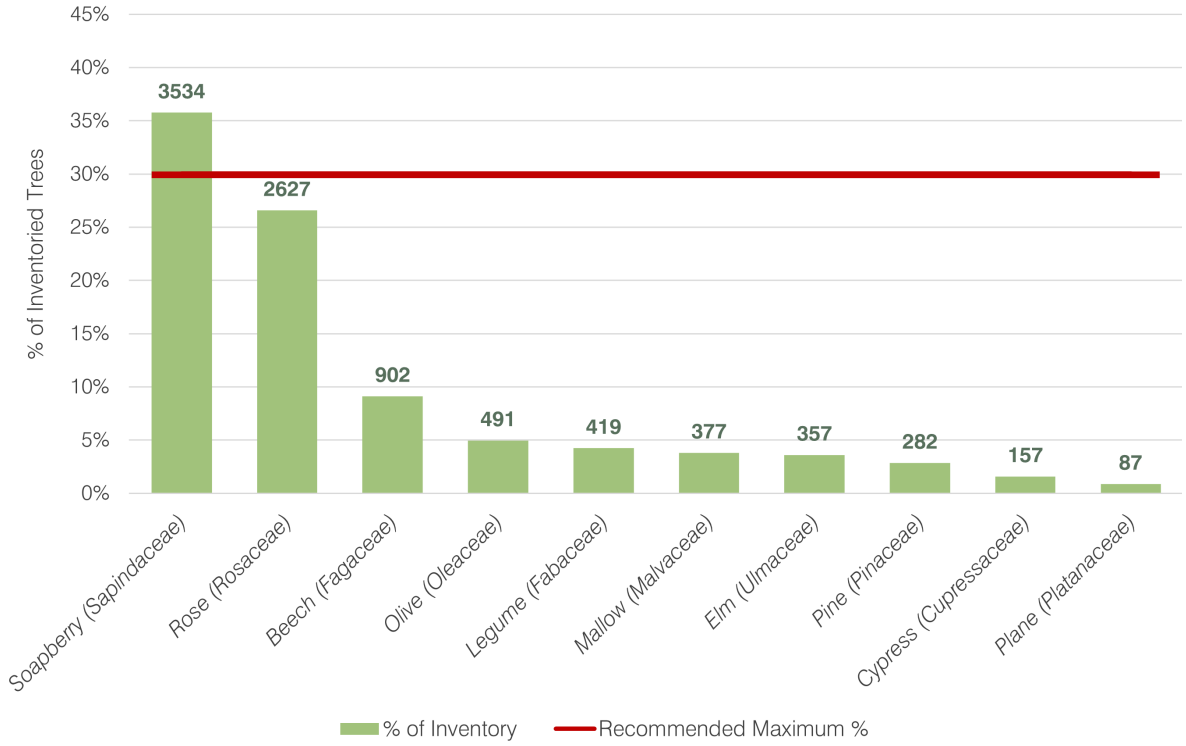


Figure 28: Top 10 most recorded tree families, compared against the recommended maximum population of any one species in a tree population (30%)

4.4 Tree Size & Age

Just as high levels of tree species diversity are an indicator to a healthy and sustainable urban forest, **the age distribution of trees provides important insights.** An urban forest with most of its trees being the same age runs the risk of losing a large portion of its tree canopy all at once, as trees die at the end of their lifespan or newly planted trees succumb to heat or other stressors. Further, trees have different management needs at different stages of life – maintaining consistent age diversity will simplify the City's tree management. The general trend in a tree's condition over the course of its life can be seen in Figure 25.

A tree's size can be used as a proxy to estimate its approximate age. Tree size was recorded as a part of the public tree inventory as diameter breast height (DBH), or the diameter of the tree 4.5 feet above ground level. The industry standard age classes are Young (0-8" DBH), Established (9-17" DBH), Maturing (18-24" DBH), and Mature (>25" DBH). Urban forestry industry guidelines[14] recommend that ideally, a tree population is 40% Young, 30% Established, 20% Maturing, and 10% Mature trees.

The public tree inventory recorded the tree population's age distribution as 40% Young, 37% Established, 14% Maturing, and 9% Mature (Figure 29). This age distribution follows the general best practices guidelines, but with Established trees as slightly overrepresented and Maturing and Mature trees slightly underrepresented. However, as seen in Figure 25, tree age distribution varies throughout the city, indicating areas with higher risk of losing canopy.

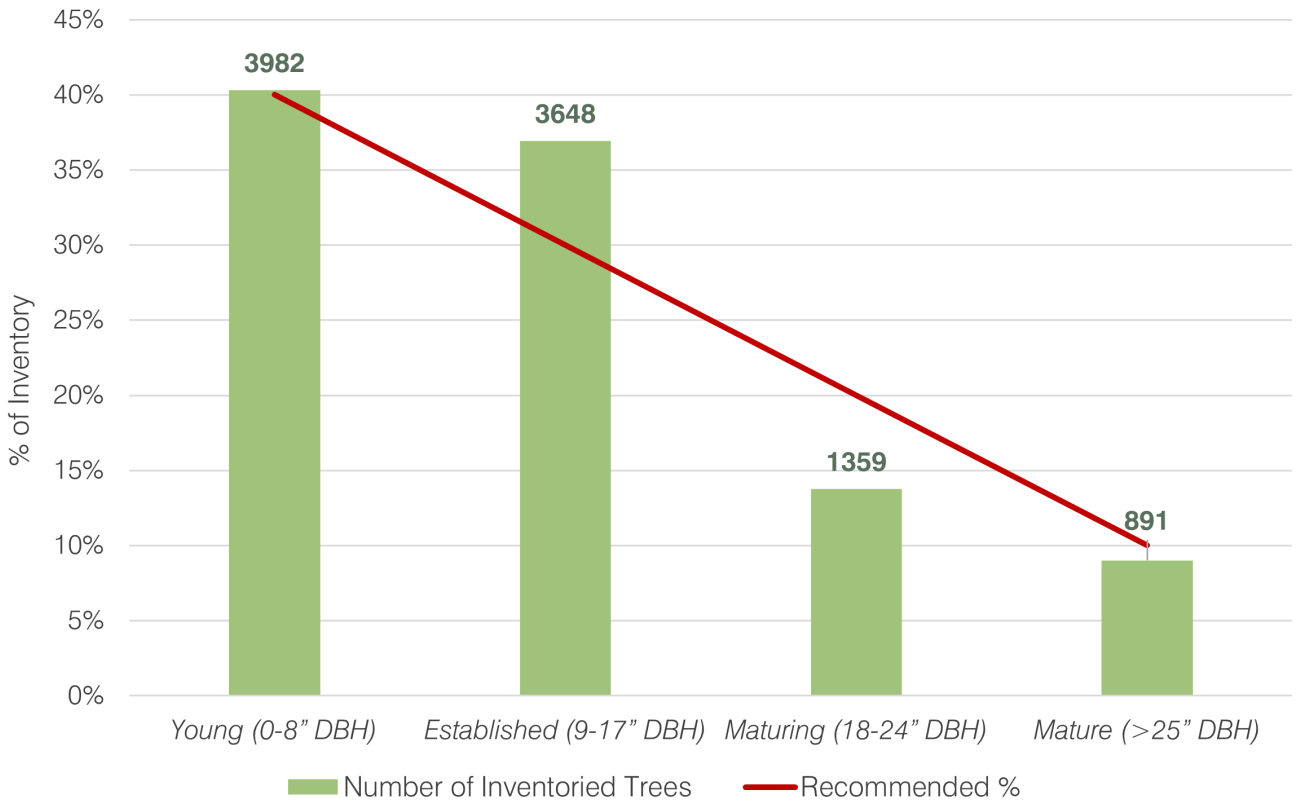
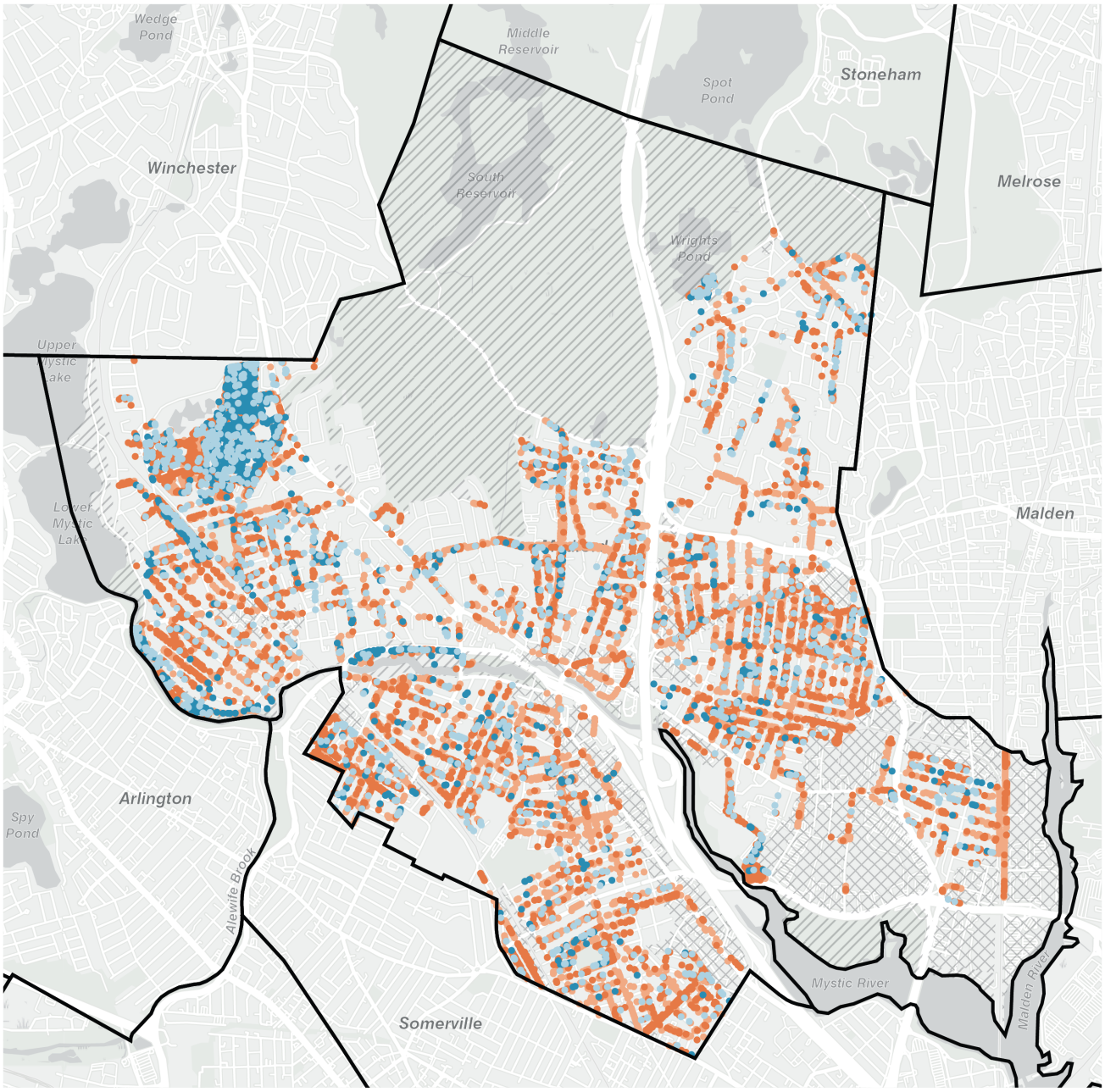


Figure 29: Size distribution of trees recorded in Medford's public tree inventory, compared against the industry recommended distribution.



Medford Public Trees
Tree Size (DBH)

Data collected from 2020–2025. Includes all city-managed street trees. City-managed park trees, stumps, and vacant sites are partially inventoried.

Base Layers

- City & Town Boundaries
- DCR Land
- Commercial Development

DBH (Diameter at Breast Height)

- 0-8" DBH
- 9-17" DBH
- 18-24" DBH
- >25" DBH

2,500 0 2,500

Scale In Feet

Figure 30: Medford Public Trees – Tree Size (DBH)

4.5 Common Pests & Diseases

A review by Bartlett Tree Experts identified several pest and disease pressures affecting Medford's most common tree species. Table 15 lists the common pests and diseases noted for the ten most prevalent tree species. Although this assessment does not include trees inventoried in Oak Grove Cemetery, these top ten species remain unchanged when including the cemetery species data.

These pests and diseases range in prevalence and severity and are best managed on a pest/disease- and species-specific basis. See Appendix D for species-specific assessments and guidance, in addition to a brief description of several significant pests of tree species that made up a smaller population of Medford's urban tree canopy.

Table 15: Common Pests and Diseases for Medford's Top 10 Species

Pests	Prevalence in top 10 species	Diseases	Prevalence in top 10 species
Defoliating caterpillars	7	Leaf spot	4
Aphids	4	Powdery mildew	2
Scale	4	Verticillium wilt	2
Ambrosia beetles	4	Anthracnose	2
Borers	3	Tar spot	1
Gall wasp	2	Target canker	1
Spider mites	2	Phytophthora root rot/canker	1
Mites	1	Annual and perennial cankers	1
Clearwing borer	1	Black knot	1
Phytophthora canker/root rot	1	Sooty mold	1
Honeylocust plant bug	1	Oak leaf blister	1
Mimosa webworm	1	Pear scab	1
		Pear rust	1
		Leaf blight	1
		Fire blight	1

Other locally-significant pests and diseases were listed by Bartlett for consideration – although they impact tree species that are less abundant in Medford, they have the potential to negatively affect tree health. **These pests and diseases include:**



Emerald Ash Borer, whose hosts include Green and White Ash (*Fraxinus pennsylvanica, Fraxinus americana*). Ash trees are in immediate need of inspection and likely treatment or removal (Figure 31).



Dutch Elm Disease, whose hosts includes the American Elm (*Ulmus americana*)



Beech Leaf Disease, whose hosts include the European Beech (*Fagus sylvatica*)



Spotted Lanternfly, whose hosts include the Tree of Heaven (*Ailanthus altissima*)

Understanding the prevalence and distribution of tree species that are vulnerable to pests and diseases is critical for effective urban forest management.

This includes pests and diseases that are already locally significant, ones that are present and may get worse, and ones that are not here but may expand in range due to climate change (such as oak wilt). Having this information enables the City to make informed, data-driven decisions related to monitoring, targeted maintenance plans, and proactive strategies to protect canopy health across Medford.

4.6 Planning for Species Transition

Tree species diversity contributes to long-term urban forest resilience. Medford's inventory shows that Norway maple and Callery pear make up a significant portion of the public tree population, around 21% and 18% respectively.

While most of these trees are currently in Good or Fair condition, ongoing monitoring remains important to track changes in health over time, especially as site conditions, maintenance needs, and pest pressures evolve. In addition, ash trees are expected to decline significantly in the coming years due to regional impacts from Emerald Ash Borer (EAB), an invasive pest now established in Massachusetts.

The gradual loss of multiple species over a short period could reduce tree canopy, particularly in neighborhoods where these species are concentrated (Figure 31).





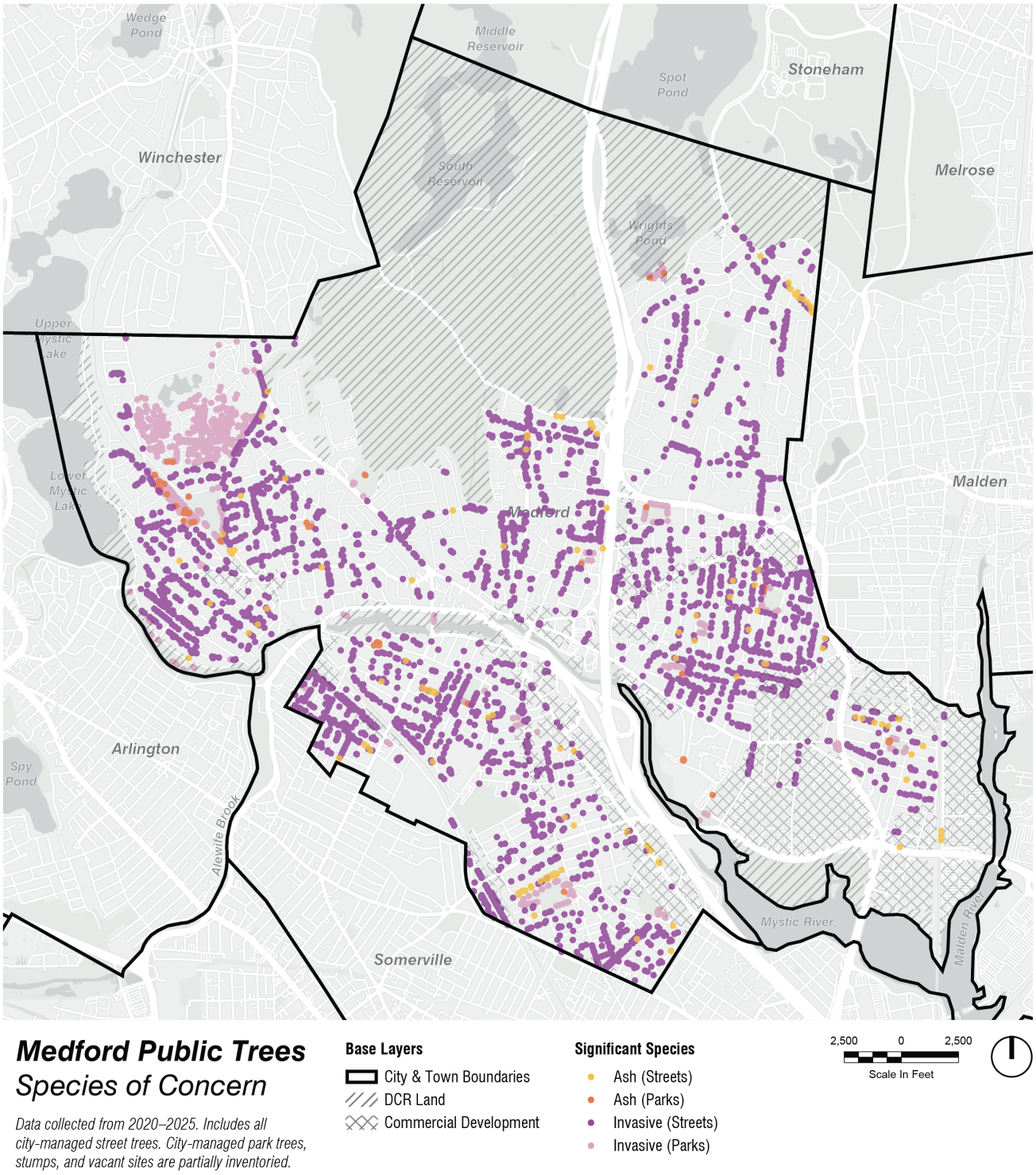


Figure 31: Medford Public Trees – Species of Concern

Scenarios A and B (Figure 32 and Figure 33) illustrate how different annual planting levels could influence long-term canopy conditions. They are planning examples, not projections, and are intended to help guide discussions on planting goals and resource needs.

Scenario A – Increased Planting

- Assumes planting grows to 400 new street trees per year by 2030.
- Could help offset expected tree loss from aging and declining species.
- May support faster progress toward stabilizing and gradually rebuilding tree canopy cover.
- Possible outcome: The urban forest may begin to recover sooner under a higher planting rate.

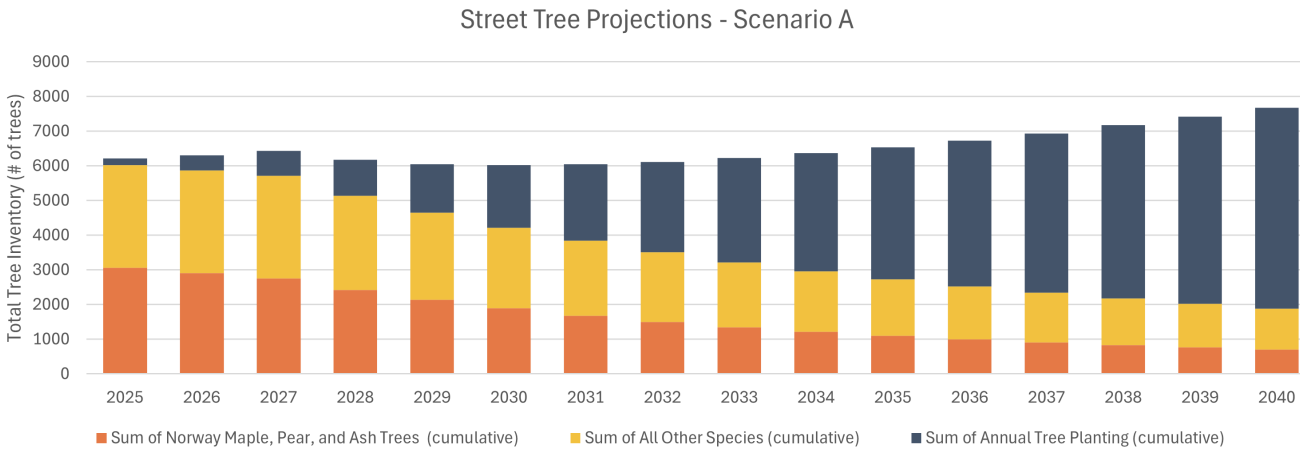


Figure 32: Public Street Tree Projections – Scenario A

Scenario B – Current Planting Level

- Assumes planting continues at about 200 trees per year.
- Gradual recovery is still possible, but tree loss from removals may take longer to replace.
- Neighborhood change would be slower, and some areas may not see gains for many years.
- Possible outcome: Urban forest growth takes longer to trend in a positive direction.

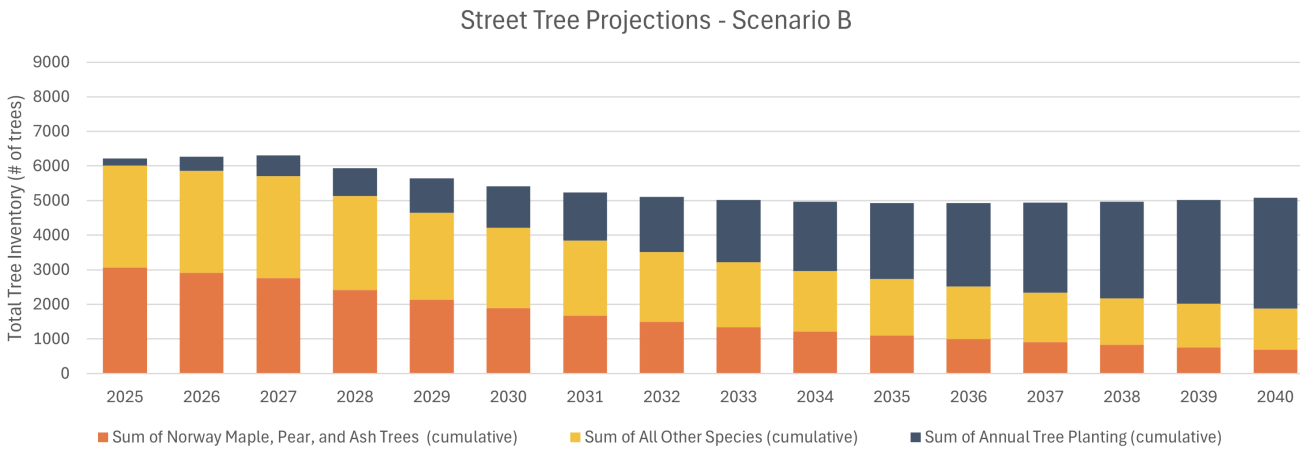


Figure 33: Public Street Tree Projections – Scenario B

Key Findings

- **Medford has inventoried nearly 10,000 public trees;** this tree population could be increased by approximately 14% if it were to plant in every vacant site and stump site identified in the inventory. Note: not all vacant sites may be eligible for planting.
- **90% of inventoried trees** are in Good or Fair condition.
- **The city's inventoried tree population has an overabundance** of Callery pear (*Pyrus calleryana*) and maple trees, especially Norway maple (*Acer platanoides*).
- The inventory mapped areas of **significant invasive tree species populations.**
- The city's inventoried tree population has a **generally good diversity in age.**
- The city's inventoried tree population has a **slight underrepresentation in older trees,** which are often concentrated in natural spaces.
- There are a number of **pests and diseases that threaten the health of tree species** in Medford.
- The inventory mapped areas of concentrated Ash tree populations, which are **vulnerable to the Emerald Ash Borer.**



5. Policy & Programs

Medford cares for public trees through a combination of policies, City operations, and community programs. These avenues provide a foundation for managing the urban forest, but they can be strengthened as the City plans for long-term canopy growth and climate resilience.

5.1 Current Tree Policies

Medford has several existing ordinances that provide a foundation for urban forest management, primarily focused on tree protection, public safety, and development standards. The City designates a Tree Warden with authority over public trees, including responsibility for their care, pest management, and permitting for pruning or removal.

Trees in the public right-of-way are protected from damage, unauthorized cutting, and improper use. Development regulations require tree accommodations in site planning, including tree openings in sidewalks, parking lot shade requirements, and ongoing maintenance of landscaped areas. Zoning standards emphasize preserving mature trees and natural site features, limiting clearing during construction, and enforcing root protection and soil management practices.[15]

Table 16 summarizes Medford's existing tree-related ordinances and how they currently support urban forest management.



While Medford does not currently have a comprehensive tree preservation ordinance or private property tree protections, its existing codes demonstrate a clear policy interest in maintaining public trees and integrating vegetation into development, **providing a strong platform for future urban forestry policy growth.**

Table 16: Medford Tree Ordinances

Section / Article	Description	Regulatory Focus
Chapter 86 - VEGETATION		
Sec. 86-61. - Warden appointed.	There shall be a tree warden. He shall be appointed by the mayor for a one-year term beginning the first Monday of March.	Authority
Sec. 86-62. - Jurisdiction and duties of tree warden.	The tree warden shall be charged with the care of shade trees within the limits of the highways and shall have all the powers and duties conferred and imposed upon tree wardens by M.G.L.A. c. 87, and shall perform such other duties as the mayor may from time to time determine, pertaining to trees within the limits of the public highways and other municipal property, except as otherwise provided by law.	Authority
Sec. 86-63. - Insect pest control.	The tree warden shall exercise the duties and responsibilities of a superintendent of insect and pest control as set forth in M.G.L.A. c. 132, § 13.	Authority
ARTICLE III. - TREES	***Cross reference*** *- Posting signs or advertisements on public property prohibited, § 58-5.*	Protection
	State Law reference *- Shade trees, M.G.L.A. c. 87.*	
	No person shall attach, place, paint, write, stamp or paste any sign, advertisement or other matter upon any lamppost, electric light, railway, telegraph or telephone pole, shade tree…	
	No person shall fasten or tie any horse or other animal to any shade tree…	
Sec. 86-91. - Permission to cut or trim required.	No person shall be allowed to cut, trim or top off any tree standing in the public ways of the city unless he shall have first obtained the permission of the tree warden. Such work shall be as provided in M.G.L.A. c. 87, §§ 3—5 and shall be performed under the direction of the tree warden.	Protection / procedure

Section / Article	Description	Regulatory Focus
Chapter 74 - STREETS		
Sec. 74-113. - Tree openings in sidewalks.	In the construction or reconstruction of sidewalks on public ways, provisions shall be made for the installation of tree openings at least every 40 feet, where feasible in the opinion of the city engineer. Contract specifications for such construction or reconstruction shall include such provision.	Development requirement
Chapter 94 - ZONING		
Sec. 94-6.3. - Landscaping, buffers, and screening	94-6.3.1 Applicability. Due to the higher density and mix of commercial, retail and residential uses in the MUZ District, the requirements of this section shall not apply to the MUZ District.	Development requirement
Sec. 94-6.3. - Landscaping, buffers, and screening	94-6.3.5 Large Parking Areas. Parking areas containing over 20 spaces shall have at least one shade tree per ten parking spaces, such tree to be a minimum of two and one-half inches in diameter and located either in the parking area or within ten feet of it. At least five percent of the interior of the parking area shall be maintained with landscaping, including trees, in landscape islands or plots of at least nine feet in width with no more than 20 parking spaces between each island or plot...	
Sec. 94-6.3. - Landscaping, buffers, and screening	94-6.3.9 Maintenance. All landscaping features, structures and areas required for buffering or screening shall be properly maintained. Dead shrubs or trees shall be replaced within one growing season as a condition of approval.	
Sec. 94-6.4. - Performance standards for multiple dwelling or nonresidential use.	94-6.4.6 Site Development Standards. To the extent practicable, the proposed development shall be located to preserve and enhance the natural features of the site, to avoid disturbances of environmentally sensitive areas, to minimize adverse impacts of development on adjoining properties, to minimize the alteration of the natural features of the site...	Preservation (intent)

Section / Article	Description	Regulatory Focus
Sec. 94-6.4. - Performance standards for multiple dwelling or nonresidential use.	3.Clearing for utility trenching... Roots should be cut cleanly rather than pulled or ripped out during utility trenching. Tunneling for utilities installation should be utilized wherever feasible to protect root systems of trees.	Protection / BMP
Sec. 94-6.4. - Performance standards for multiple dwelling or nonresidential use.	Preservation of existing vegetation. Priority shall be given to the preservation of existing stands of trees, trees at site perimeter, contiguous vegetation with adjacent sites (particularly existing sites protected through conservation restrictions), and specimen trees. Understory vegetation beneath the dripline of preserved trees shall be retained in an undisturbed state. During clearing and/or construction activities, all vegetation to be retained shall be surrounded by temporary protective fencing or other measures before any clearing or grading occurs, and maintained until all construction work is completed and the site is cleaned up. Barriers shall be large enough to encompass the essential zone of all vegetation to be protected. All vegetation within the protective fencing shall be retained in an undisturbed state.	Preservation
Sec. 94-6.4. - Performance standards for multiple dwelling or nonresidential use.	***Limit of clearing*.** Development envelopes for structures, driveways, wastewater disposal, lawn areas and utility work shall be designated to limit clearing and grading... Topsoil shall not be stockpiled in areas of protected trees, wetlands, and/or their vegetated buffers.	Protection / BMP
Sec. 94-6.4. - Performance standards for multiple dwelling or nonresidential use.	***Finished grade***... shall be no higher than the trunk flare(s) of trees to be retained. The design of grade changes at the base of existing large trees shall be subject to the approval of the SPGA or community development board or its agent.	Protection / BMP
Sec. 94-9.2. - Planned Development District.	A preliminary plan which shall include the following at a level of detail sufficient to enable a peer review, if required by the SPGA: 3) Significant vegetation (including mature trees, unique specimens of vegetation, and vegetation that indicates wetness);	Preservation (intent) / development requirement

5.2 Current Tree Programs

Several programs in Medford support tree planting, care, and community involvement in the urban forest. Some are operated by the City and focus on public trees, while others are run independently by local partners to increase tree planting and stewardship on private property.

City Programs

- **Street Tree Request Program** – Residents may request a new street tree in the public right-of-way.
- **Back-of-Sidewalk Planting Program** – Trees may be planted just inside private property (with owner permission) when sidewalk space is limited.
- **Stump Removal Program** – Stumps from previously removed trees are tracked and removed to create future planting locations.
- **SeeClickFix Tree Requests** – Residents can report tree concerns or request tree services through the City's online service request platform.

Community Programs (Led by TreesMedford)

- **Volunteer Watering Routes** – Local volunteers help water newly planted public trees to support early growth.
- **Residential Tree Giveaway Programs** – Trees are offered to residents for planting on private property to expand neighborhood canopy.
- **Significant Tree Recognition** – Community groups highlight notable or historic trees to promote awareness and stewardship.

5.3 Integration with Other City Plans

Trees support many of Medford's long-term goals—from climate resilience and public health to mobility, parks, and neighborhood character. The UFMP does not replace other plans. Instead, it supports and connects them by adding tree-related strategies that can be coordinated across departments.

Climate & Resilience Planning

Trees reduce extreme heat, improve air quality, and help manage stormwater. The UFMP supports climate goals identified through Medford's Climate Action and Adaptation work and offers strategies that can be included in future resilience planning.

Capital Projects

Coordinating planting with Capital Improvement Plan (CIP) projects allows the City to expand street and park tree planting efficiently during road reconstruction, park upgrades, or utility projects.

Community Preservation Act (CPA)

The Community Preservation Act is a potential funding source that can support tree planting and urban forestry projects when they are part of eligible **open space, recreation, or historic landscape improvements.** Examples may include adding shade trees in parks, along greenways or trails, or restoring historic tree landscapes.



Healthy Streets & Transportation

Street trees make walking, biking, and using transit more comfortable—especially during summer heat. The UFMP supports coordination with Complete Streets projects by integrating tree planting into sidewalk and roadway design.

Hazard Mitigation & Stormwater

Trees help reduce local flooding and stabilize soils. This plan reinforces the Hazard Mitigation Plan by identifying dead trees, trees in poor condition, and trees susceptible to pests and diseases for assessment and mitigation to reduce risk to the public.

Land-Use & Development

Local foundation work has already been done to explore regulatory pathways for tree protection and mitigation on private property through the Medford Energy & Environment Committee's Tree Advisory Subcommittee (2019).[16] This plan supports working with the Planning Department and Inspectional Services to include tree protection and tree replacement as part of development review, so new growth in the city can happen without losing the benefits trees provide to neighborhoods.

Community Partnerships

Partnerships are essential to strengthening Medford's urban forest. Community groups, nonprofits, residents, and institutions play an important role in expanding tree planting, stewardship, and public awareness. Collaboration with organizations such as TreesMedford and schools can help grow volunteer involvement, environmental education, and shared investment in Medford's tree canopy.

Key Findings

- Although Medford does have existing policies to protect its trees, there are key elements missing that would **help to strengthen the urban forest.**
- Medford has multiple plans that impact the urban forest or **could be supported by considering urban forestry.**



6. Forestry Division

The Forestry Division of the Department of Public Works (DPW) is responsible for the care and management of public trees along streets and on Medford owned property. Led by the City's Tree Warden, as required under Massachusetts General Law Chapter 87, the Division oversees public tree planting, pruning, removals, stump management, and tree safety assessments.

Public shade tree removals follow the Chapter 87 public hearing process, and tree work is prioritized based on safety, available staffing, and operational capacity. Resident service requests are received through the City's SeeClickFix platform and evaluated as part of ongoing field inspections and maintenance planning.

The Division provides essential services that include hazard response, storm cleanup, pruning for visibility and clearance, seasonal tree planting, and young tree establishment as resources allow. Forestry staff coordinate with other City departments as well as external partners, including the Massachusetts Department of Conservation and Recreation (DCR), MassDOT, National Grid, private contractors, and local organizations such as TreesMedford when projects involve public trees.

Due to high service demand and limited staff capacity, much of the Division's work is reactive, and proactive maintenance such as routine pruning and young tree care occurs when time and resources allow; expanding this capacity is a key long-term goal.

6.1 Forestry Budget

The forestry operations budget includes funding for public tree care and new tree planting. Public tree care funding supports the staffing and basic resources needed to manage public trees and respond to tree-related needs across the city. The new tree planting budget supports new street and park tree planting as funding and capacity allow, with current planting levels averaging approximately 200 new public trees per year.

6.2 Forestry Staffing

In municipal forestry operations, a three-person field-team is widely recognized as an industry standard for field work, with one staff member operating equipment such as a bucket truck, one performing ground support, and one managing site safety or traffic control.[17]

Medford's current staffing structure includes a Tree Warden, Foreman, two foresters and one laborer. Building crew capacity over time would improve safety, efficiency, and the Division's ability to complete proactive tree care.

Urban Forestry Division Roles

- **Tree Warden**: Leads the city's tree program and makes decisions about planting, tree care, and public tree removals. Required by Massachusetts law.
- **Foreman**: Leads the daily field work, making sure tree crews have what they need and that work is done safely and correctly.
- **Forester**: Helps manage the overall tree program, schedules work, supports crews, and coordinates larger tree care projects.
- **Laborer**: Works in the field planting trees, pruning branches, and caring for young and mature trees around the city.

Table 17: Forestry Division Capacity Building – Budget & Staffing

Forestry Budget & Staffing	Current (2025)	Example 2030 Scenario (*Illustrative Only*)
Estimated annual tree plantings	~200	~400
Estimated cost per tree	~$840	~$900
Estimated total forestry budget	**~$790,000**	**~$1.2M**
Staffing		
Tree Warden	1	1
Foreman	1	1
Forester	2	3
Laborer	1	3

***Note*:** *This scenario assumes gradual cost increases over time.*



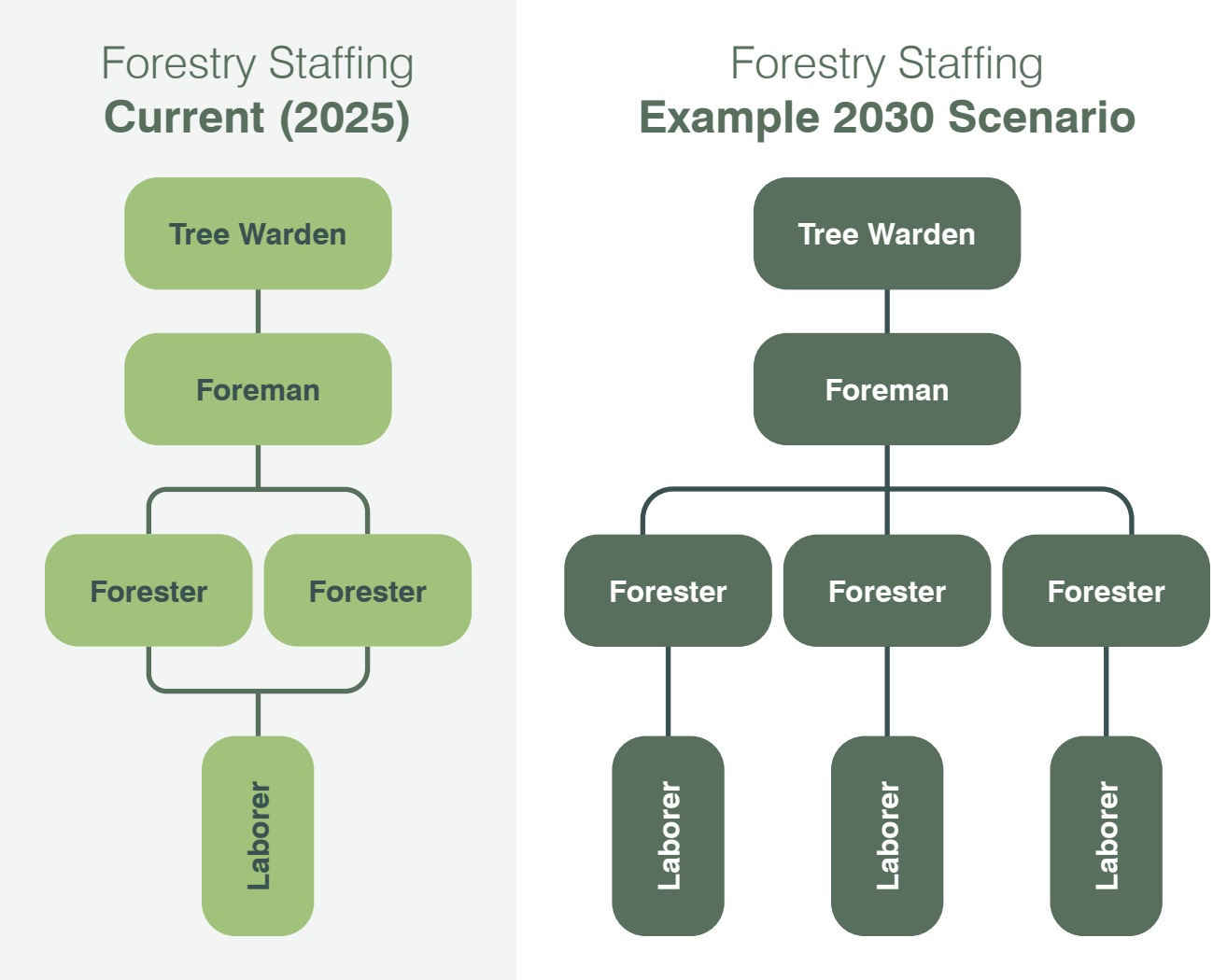


Figure 34: Forestry Division Capacity Building – Staffing Diagram

Key Findings

- The City offers several programs to **assist residents in planting and caring for street trees.**
- The City's operations are **bolstered by TreeMedford's programs and dedicated volunteers.**
- Medford's Forestry Division operates reactively **due to current budget resources.**
- Medford's Forestry Division operates reactively **due to current staffing resources.**



7. Goals, Strategies & Implementation

Medford's urban forest is at a turning point. Tree canopy has been declining due to aging trees, development pressure, and increasing climate impacts such as storms and heat stress. Reversing this trend will require a long-term commitment to both planting more trees and preventing avoidable canopy loss. This section outlines practical strategies the City can phase in over time to protect and grow tree canopy while strengthening Forestry Division capacity.

Early modeling gives a sense of how much effort it would take just to keep the tree canopy from shrinking by 2030:

840

Assuming annual public tree planting of 200 trees by the end of 2025, maintaining 22% canopy cover on City-managed land by 2030 would require planting roughly **840 trees annually for the next five years.**

2,360

Assuming annual citywide tree planting of 200 trees by the end of 2025, maintaining 20% canopy cover in urbanized lands by 2030 would require planting roughly **2,360 trees annually for the next five years.**

These figures do not represent realistic near-term targets based on current resources and capacity. Instead, they highlight that meaningful progress can come from **practical, phased strategies** that focus on balancing near-term action with long-term capacity building.

The approach presented in Section 7.1 outlines how Medford can minimize near-term canopy loss while building capacity for long-term recovery, **creating a stronger and more resilient urban forest over time.**



7.1 Recommendations

The following recommendations outline an integrated approach to addressing observed tree canopy loss while fostering a resilient and equitable urban forest through coordinated stewardship, policy, and community partnership.

GROW

Increase annual municipal planting contract from 200 trees to 400 trees by 2030.	Using the Figure 38 map, prioritize tree planting in EJ areas. Inspect vacant sites and dead tree sites for planting suitability, and consider replacing poor condition Norway maple (*Acer platanoides*) and Callery pear (*Pyrus calleryana*), and ash where available space is limited.
	Develop a long-term, city-wide planting plan to stagger tree ages over time and space. Pair short-lived and long-lived tree species in planting plans. Address the overabundance of mature trees in one area by replacing declining or dead trees in phased cycles and by shadow planting (planting new trees near aging trees expected to decline).
	Use the Recommended Tree Species List (Appendix C) for future planting decisions to increase species diversity in the urban forest and continue to phase out the overly abundant Norway maple (*Acer platanoides*) and Callery pear (*Pyrus calleryana*) populations as they naturally decline. Medford should limit planting maples until they represent less than 20% of the tree population.
	Explore alternative funding mechanisms (page 82) to increase the Division's budget for tree planting.
	Consider how tree plantings can be integrated into Medford's sustainability initiatives and capital project planning.
Encourage planting on private property.	Continue to partner with TreeMedford to provide enhanced engagement, tree planting, and tree care to Medford residents.
	Partner with nonprofits, schools, and neighborhood groups to support community-led planting.

PROTECT

Strengthen Medford's tree policies and encourage tree protection on private property.

Strengthen Medford's existing vegetation policy (Chapter 86) by considering:

- **Developing tree planting, maintenance,and removal standards,** including species diversity guidelines, approved planting methods, pruning standards, and permit requirements for tree removal.
- **Adding tree protection requirements during development,** including tree protection zones, construction limits near roots, and replanting/mitigation requirements.
- **Strengthening enforcement and penalties** for illegal removal or damage, including fines and restoration requirements.
- **Establishing an appeals and variance process** to promote transparency and consistency in decision-making.
- **Formally establishing a Tree Committee or advisory board** by ordinance to support policy review, urban forestry planning, and public engagement.

Strengthen policy integration by embedding tree protection requirements into zoning, permitting, and development review processes.

Support the development of a private tree ordinance.

Explore incentive programs to protect and preserve trees, such as developer credits or tax benefits.

Develop and distribute public educational materials about the benefits trees provide.

MAINTAIN	
Work towards proactive management of public trees.	Consistently monitor the urban forest for emerging pests and diseases.
	Right size the Forestry Division staff to enable a shift from primarily reactive work toward a proactive tree maintenance model.
	Utilize the Management Zones established in Section 3 for tree management decision-making and resource allocation.
	Implement a young tree structural pruning program to prune newly planted trees every 3 years.
Track and manage data to make informed management decisions.	Update tree inventory data in Cartegraph during the routine maintenance cycle to track inventory, maintenance needs, and planting performance.
	Update the canopy change assessment every 3-5 years to monitor canopy change and evaluate progress towards goals.
Update the Urban Forest Management Plan every 5 years to measure success, address challenges, and create new goals.	

Bare Root Planting

A hybrid planting program that uses a combination of balled and burlap trees and bare root trees is a potential option to plant more trees with the same budget. Bare root trees typically cost less and are easier to transport than larger balled-and-burlapped trees. They can be appropriate for large scale planting events, neighborhood street tree programs, and sites with good soil conditions and access to water.

However, they must be planted quickly after delivery, only during a short spring or fall window, and they require consistent watering during their first growing season to survive.[18]

Based on a rough preliminary comparison, if the City were to allocate about 25% of its current planting budget to bare-root stock as part of a hybrid approach, annual planting could increase from roughly 200 trees to 230–240 without increasing the budget.

This could be explored as a future strategy but would require further review to understand staffing capacity, contractor needs, storage and staging considerations, and watering logistics before a pilot could be implemented.

How Capacity Could Grow Over Time

Medford may explore a long-term approach that gradually increases tree planting and Forestry Division capacity as additional resources become available. Building capacity over time would not only support higher annual planting but also enable a shift from primarily reactive work—focused on hazard response and removals—toward a more proactive maintenance model. Proactive care practices, such as routine pruning cycles, watering during establishment, and early intervention to address pests or structural issues, extend tree life, reduce long-term replacement needs, and lower emergency response costs. National research has shown that preventive tree care programs are significantly more cost-effective than reactive approaches, helping communities preserve canopy cover while reducing long-term costs.[19]

Table 17 presents an illustrative planning scenario that shows how Medford's planting program and staffing levels could scale gradually over five years to support both planting and proactive maintenance. This scenario is for planning purposes only and would depend on future funding decisions, staffing availability, and department priorities.

Table 18: Succession planning strategies for a sustainable urban forest

Challenge	Strategy	Intended Outcome
Overabundance of mature trees in one area	Replace declining trees in phased cycles.	Promote continuous canopy coverage and age diversity.
	Use shadow planting (planting new trees near aging trees expected to decline).	Minimize duration of canopy gaps.
	Enhance monitoring & maintenance (e.g., structural pruning, pest/disease treatment, cabling/bracing, watering in drought, tree protection fencing, soil care).	Prolong health and stability of mature trees during transitional periods.
Maintaining an urban forest with diverse tree ages and species	Develop a long-term, city-wide planting plan to stagger tree ages over time and space, using varied planting densities and spacing to support gradual canopy replacement.	Prevent large-scale canopy loss due to synchronized aging in one location or uniform spacing the limits regeneration opportunities.
	Pair short-lived and long-lived tree species in planting plans.	Prevent large-scale canopy loss within overlapping tree ages.
	Select tree species to plant that suit their planting site, are not hosts to locally-significant pests/diseases and are climate-resilient.	Improve long-term viability of trees under changing climate conditions.
	See that appropriate maintenance is funded and available for all tree ages.	Prevent large-scale canopy loss of one age class due to inadequate maintenance.

Succession Planting

Succession planting—the phased replacement of overrepresented or vulnerable trees with a wider mix of climate-resilient trees—can help maintain canopy over time. This approach introduces new species gradually, improving diversity and age structure without sudden canopy loss.

Succession planting can aid in avoiding large-scale loss of tree canopy in any one area. This can include various strategies for both mitigating areas of low age and species diversity and for maintaining optimal levels of diversity in the urban forest.

Succession & Density Strategies

- **Canopy Shapes:** Choose trees with different canopy shapes.
- **Growth Rates:** Mix slow-growing and fast-growing trees.
- **Tree Sizes:** Combine larger and smaller tree species.

Increasing Street Tree Diversity

Durability:
- soil compaction
- salt tolerance
- drought tolerance
- heat tolerance
- Infrastructure

Diversity
- 10-20-30 rule
- pest, disease and climate resilience
- use of native and non-native species

Ecosystem Services
- pollinators
- habitat
- public health

Cultural Value
- flowering trees
- fall color

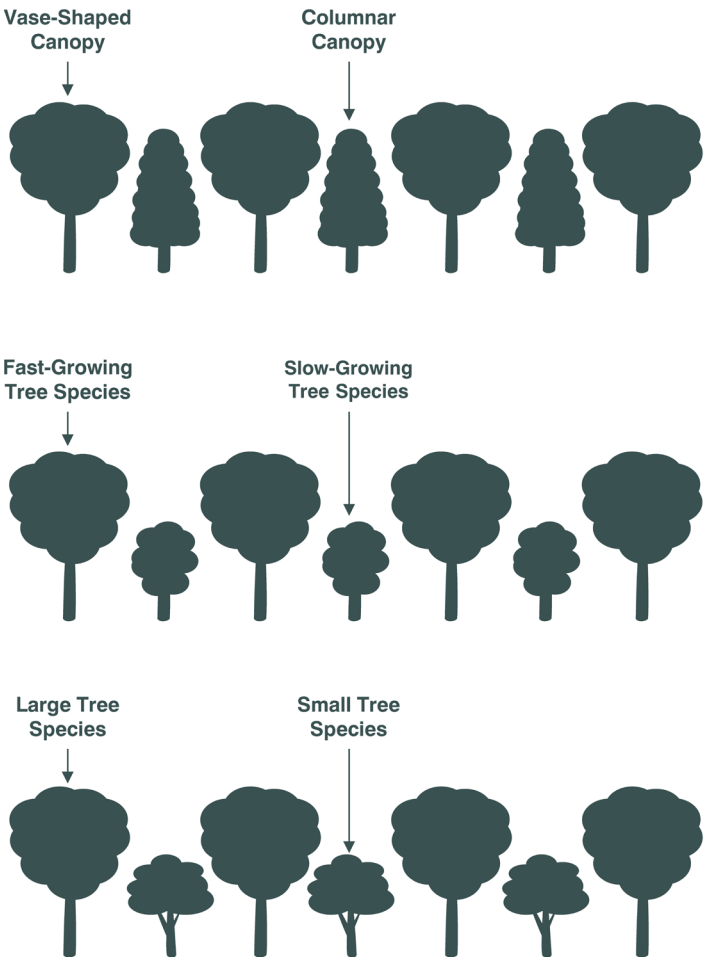


Figure 35: Succession & Density Strategies



Figure 36: Increasing Street Tree Diversity

Priority Planting Sites

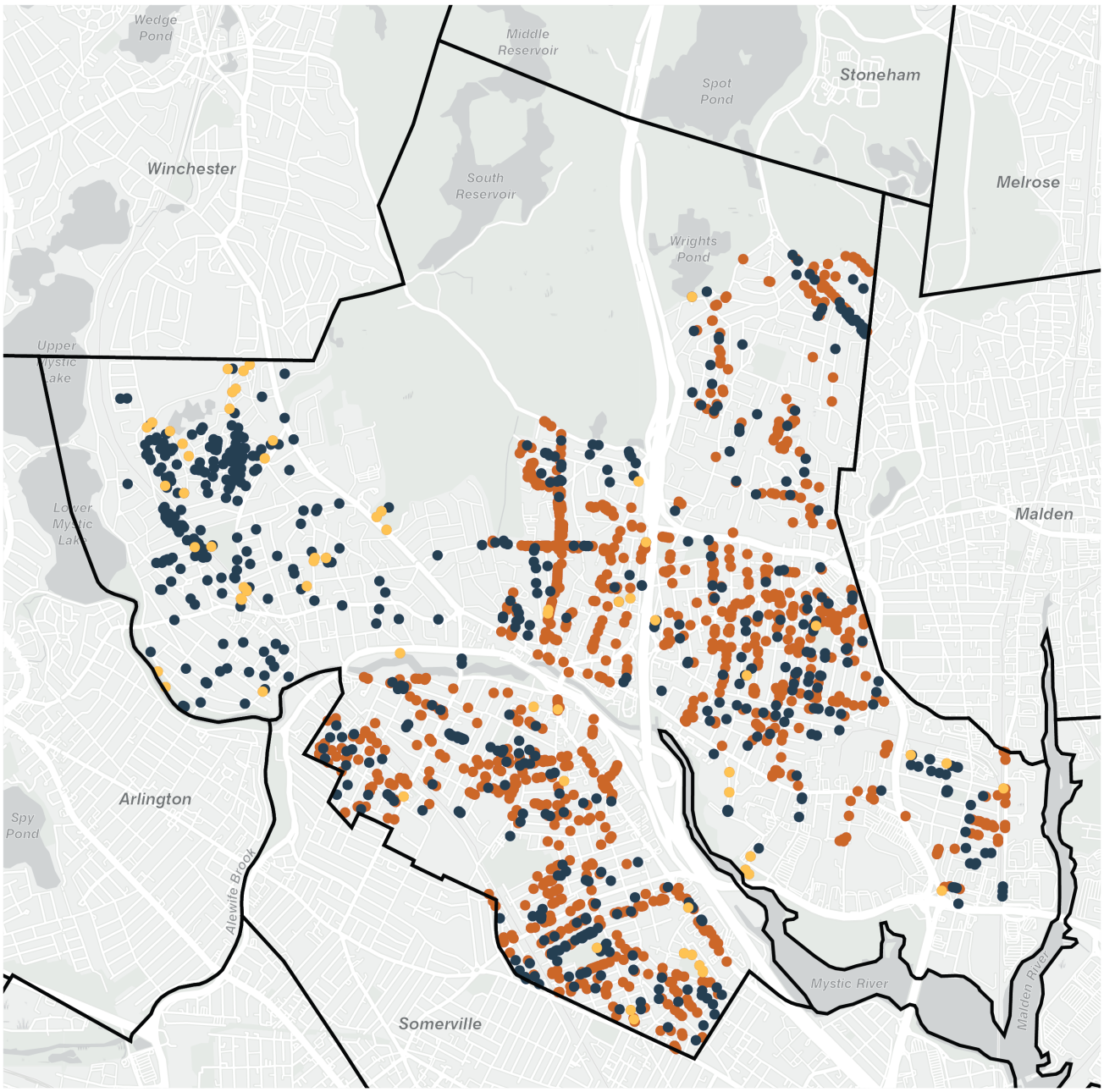
Locations identified through the tree inventory as containing dead trees, vacant planting sites, ash trees, pear trees in poor condition, or maple trees in poor condition have been **classified as priority planting opportunities** (Figure 37).

These conditions signal either existing canopy gaps or a high likelihood of near term tree failure due to pests, disease, structural decline, or aging species that are underperforming in the urban environment. Addressing these sites first allows the City to proactively replace lost canopy, reduce public safety risks, and prevent further deterioration of the streetscape. Targeted replanting also supports long term forest health by introducing a more diverse and climate resilient mix of species, helping Medford **strengthen its urban forest against future stressors such as extreme heat, storms, and invasive pests.**

Within this group of priority locations, **sites that fall within Environmental Justice population boundaries receive the highest level of prioritization** (Figure 38). Directing resources to these neighborhoods helps address historic inequities in tree canopy cover and the disproportionate exposure to heat, air pollution, and flooding impacts that often accompany lower canopy conditions. Focusing planting efforts in these areas directs the benefits of shade, cooling, improved air quality, and green infrastructure to the communities that need them most.

This equity driven approach supports both public health and climate resilience goals while advancing a more balanced and inclusive distribution of urban forest benefits across the community.





City of Medford
Priority Planting Sites

Base Layers
City & Town Boundaries

Trees & Sites
- Dead Trees
- All Vacant Sites
- Ash, Pear in Poor Condition, or Maple in Poor Condition

2,500 0 2,500
Scale In Feet

Figure 37: Priority Planting Sites Map

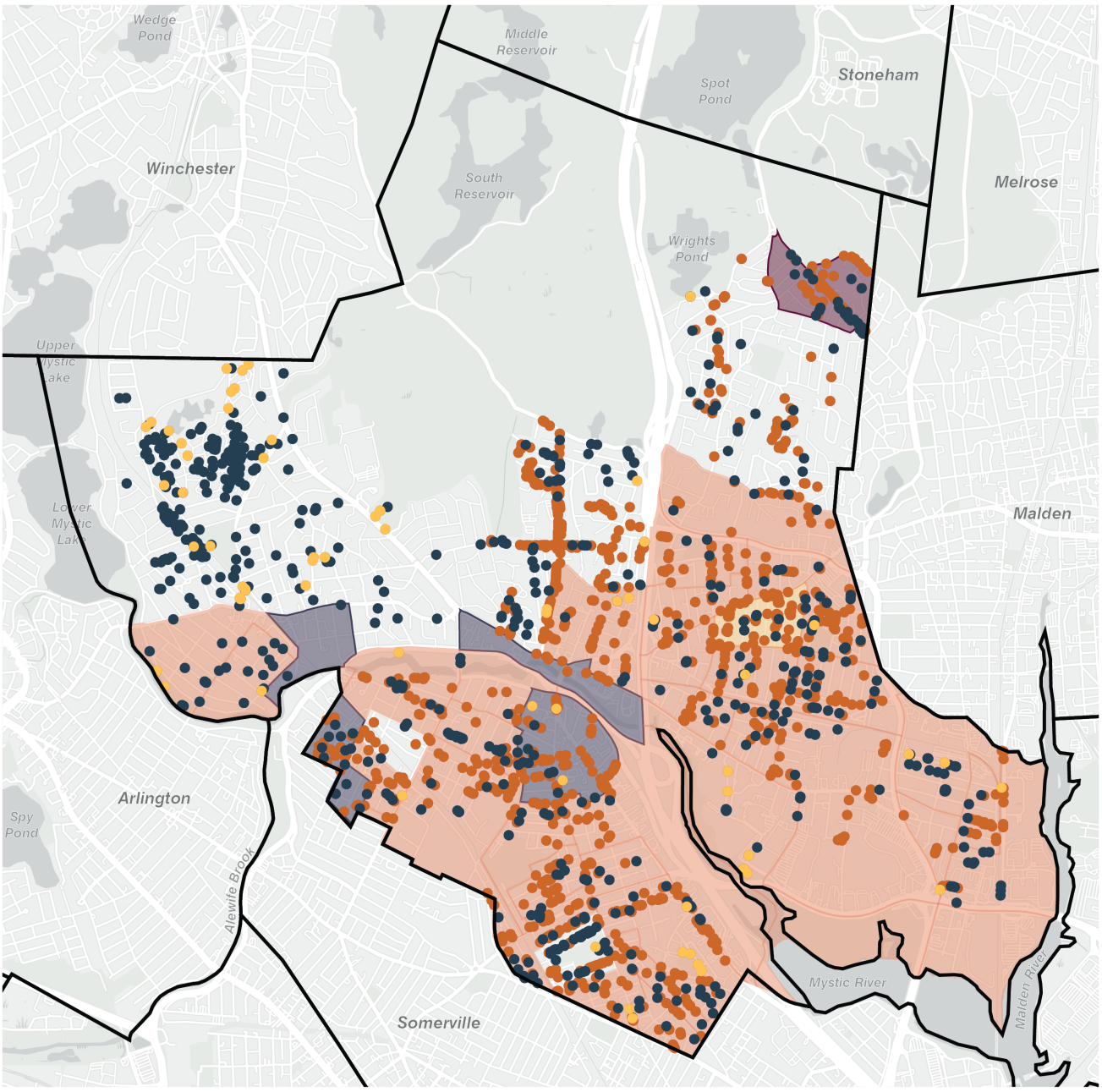


Figure 38: Priority Planting Sites and EJ Populations Map

7.2 Funding Sources



Figure 39: Funding source that could support urban forestry

Examples of Funding Sources That Could Support Urban Forestry

- **Operating Budget:** e.g. basic tree planting, watering, pruning, and removals
- **Capital Improvement Plan (CIP):** e.g. street trees in road projects, shade trees in schoolyard or park upgrades
- **Community Preservation Act (CPA):** e.g. tree planting in parks and open space, historic landscape restoration
- **State & Regional Grants:** e.g. climate resilience tree planting, urban heat mitigation, stormwater buffer trees
  - DCR Urban and Community Forestry Challenge Cost Share Grant Program
  - MVP grant
- **Development Mitigation:** e.g. mitigation fees, on-site planting requirements, canopy replacement
- **Corporate & Community Partners:** e.g. tree sponsorships, watering support, community planting events
- **Tree Fund:** e.g. a fund to accept payments/ donations for the purpose of assisting with new programs + staffing, public education, maintenance of existing trees, and planting of new trees

7.3 Future Plan Updates

This plan is intended to serve as a flexible guide that should be updated over time as funding, staffing capacity, planting methods, and community partnerships evolve. In 5 years, the plan should be updated to set new goals and priorities based on measurable progress and community feedback. Medford's urban forest is a long-term public asset that will require ongoing investment and effort. This plan establishes a framework for making informed decisions, tracking progress, and adjusting course as conditions change.

Endnotes

1 Society of Municipal Arborists, quoted in Planning Magazine (American Planning Association), "More Trees, Please" (2017).

2 U.S. Census Bureau. “QuickFacts: Medford city, Massachusetts.” Census.gov, https://www.census.gov/quickfacts/geo/chart/medfordcitymassachusetts/PST045222

3 Massachusetts Department of Conservation and Recreation. (n.d.). History of Middlesex Fells Reservation. https://www.mass.gov/locations/middlesex-fells-reservation

4 Massachusetts Department of Conservation and Recreation. (n.d.). History of Middlesex Fells Reservation. https://www.mass.gov/locations/middlesex-fells-reservation

5 Medford Historical Society & Museum. (n.d.). Early industries and development in Medford. https://www.medfordhistorical.org/

6 Friends of the Middlesex Fells Reservation. (n.d.). History of the Fells. https://www.friendsofthefells.org/history/

7 TreesMedford. (n.d.). About TreesMedford. https://treesmedford.org/

8 National Association of Realtors. Community & Transportation Preferences Survey.

9 World Health Organization. Urban Green Spaces and Health: Evidence Review.

10 Massachusetts Department of Transportation. Right of Way Acquisition and Your Property (n.d.).

11 Massachusetts Executive Office of Energy and Environmental Affairs (EEA). (2021). Environmental Justice Policy.

12 USDA. (n.d.). Worcester’s Urban Forest. USDA Northeast Climate Hub. https://www.climatehubs.usda.gov/hubs/northeast/project/worcesters-urban-forest#:~:text=Over%2030%2C000%20trees%20were%20removed,longhorned%20beetle%20infestation%20in%202009.

13 Santamour, F.S. (1990). Trees for Urban Planting: Diversity, Uniformity, and Common Sense. U.S. National Arboretum: Agricultural Research Service.

14 Richards, N.A. (1983). Diversity and Stability in a Street Tree Population. Urban Ecology, 7(2), 159–171.

15 Medford, MA – Municipal Code of Ordinances. Tree-related regulations accessed via Municode Library: library.municode.com/search?stateId=21&clientId=12026&searchText=trees&contentTypeId=CODES

16 Medford Energy & Environment Committee, Tree Advisory Subcommittee. (2019). Research summary and recommendations. City of Medford.

17 Society of Municipal Arborists (SMA) & International Society of Arboriculture (ISA). (2019). Municipal forestry operations guidance.

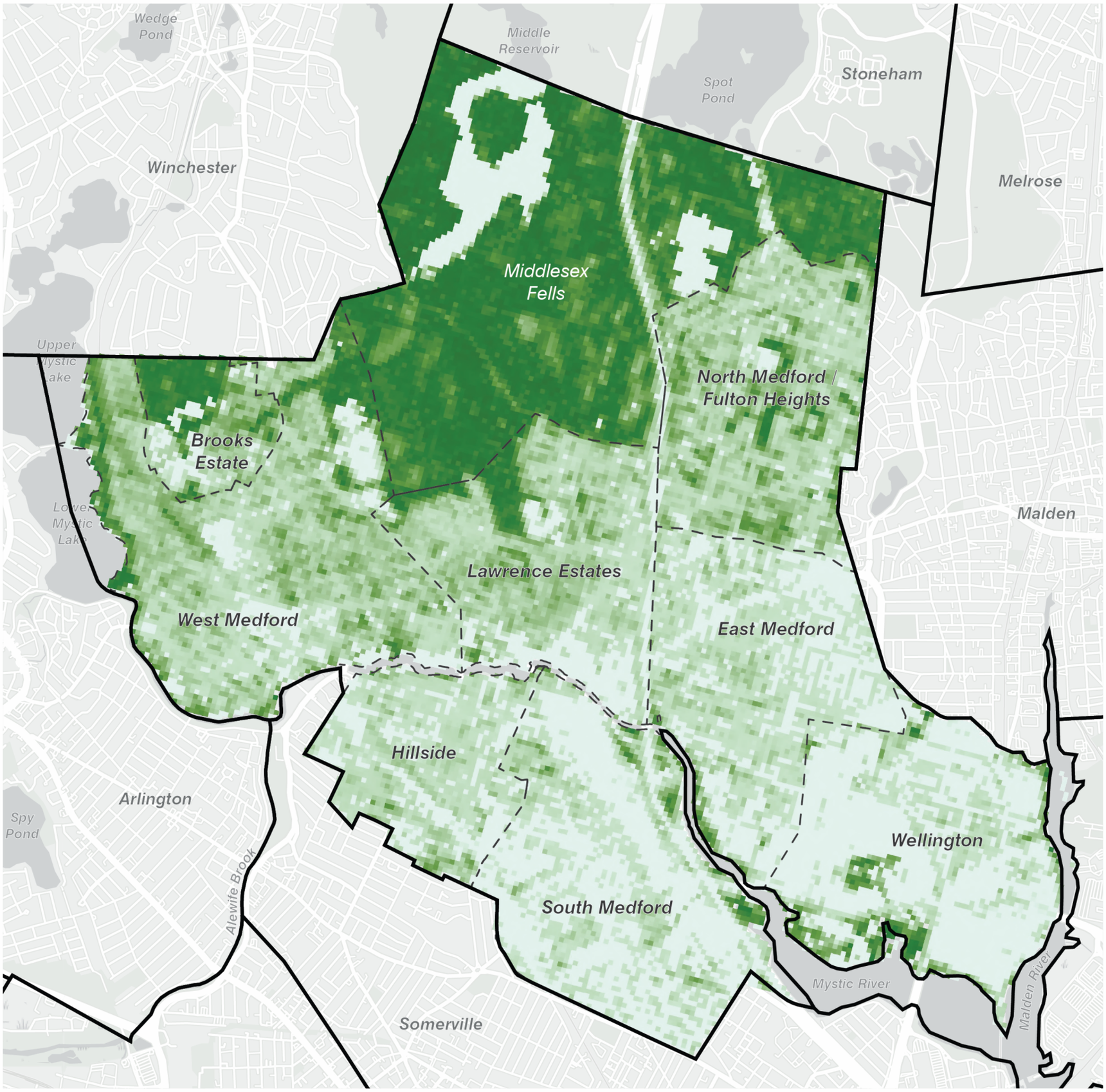
18 University of Massachusetts Amherst Urban & Community Forestry Program. (2025). *Bare root tree planting* (factsheet). University of Massachusetts Amherst. Available at: https://www.umass.edu/urbantree/factsheets/24bareroottreeplanting.html. Accessed October 22, 2025.

19 Hauer, R. J., Vogt, J., & Fischer, B. C. (2015). What is the cost of not maintaining the urban forest? Arborist News, 24–28. International Society of Arboriculture.



APPENDIX A

Medford Tree Canopy



City of Medford

Tree Canopy Cover

Base Layers

- City & Town Boundaries
- Neighborhood Boundaries

Tree Canopy Cover (2021)

100%

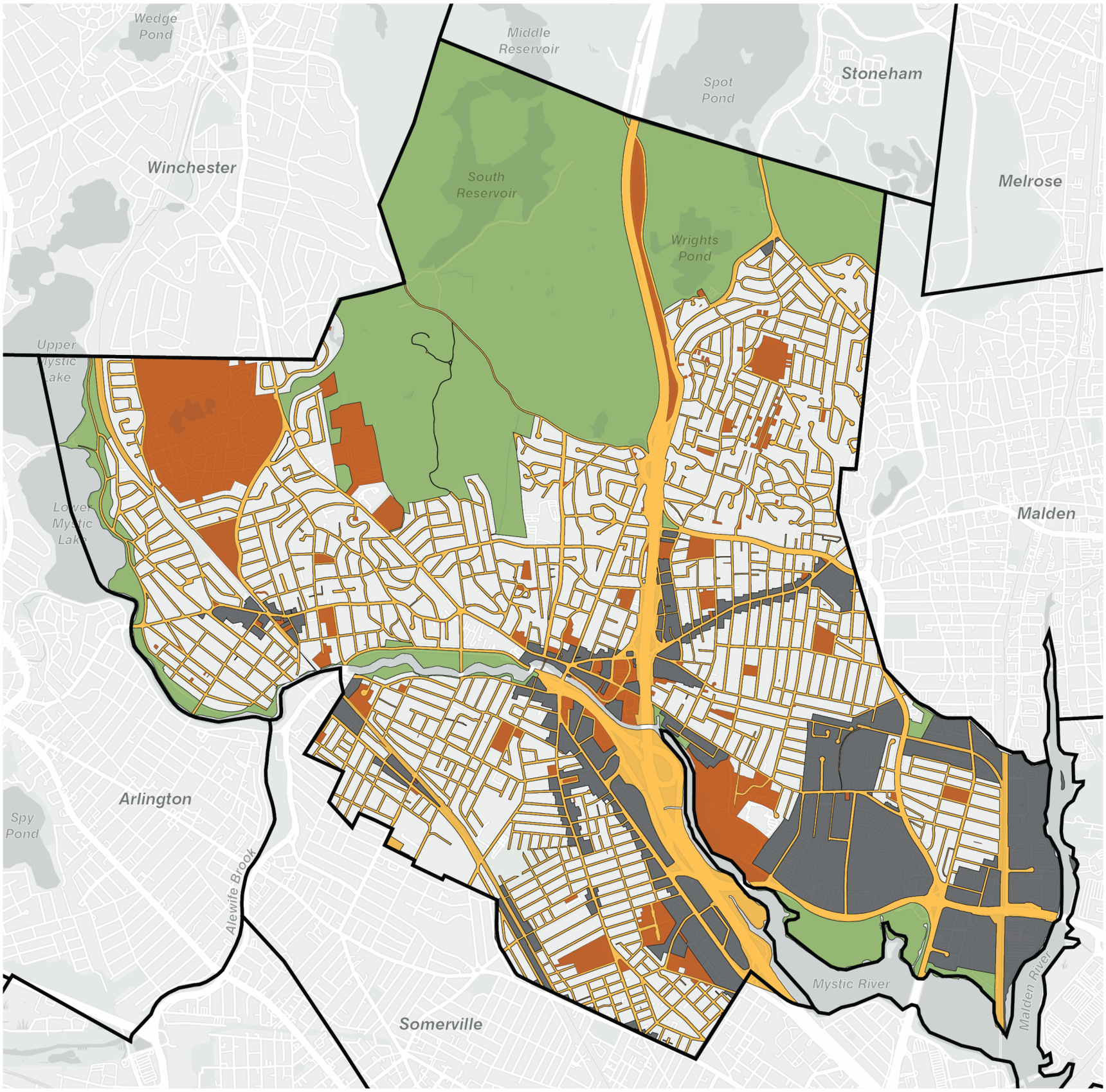
50%

0%

2,500 0 2,500

Scale In Feet

Weston & Sampson



City of Medford
Land Use

Base Layers

- City & Town Boundaries

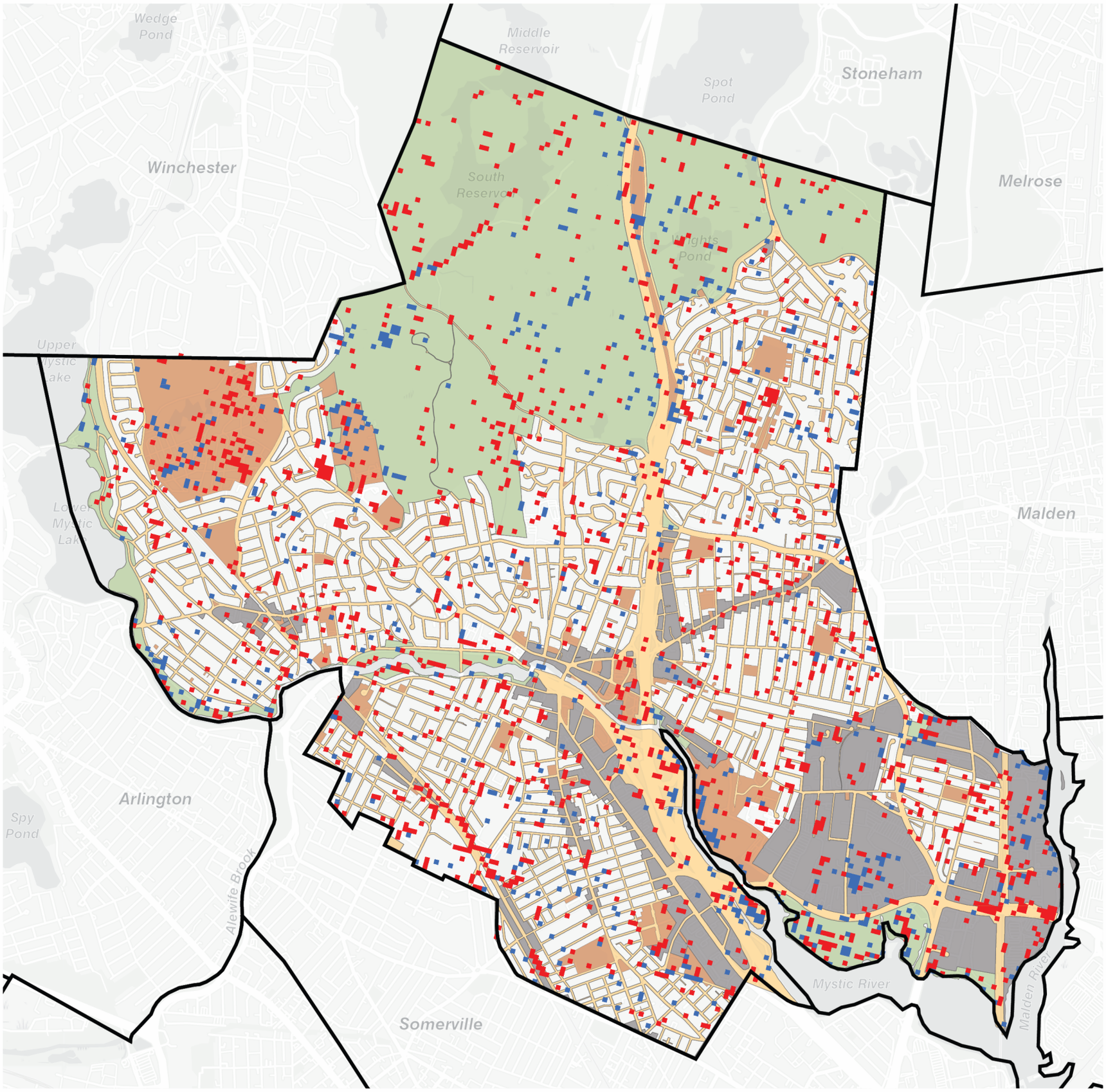
Land Use Type

- City Owned
- Right-of-Way
- Commercial Development
- Residential
- DCR Land

2,500 0 2,500

Scale In Feet

Weston & Sampson



Tree Canopy Change
2015-2018

Data collected using LiDAR (Light Detection and Ranging) canopy cover data to assess where canopy change has occurred over time in Medford.

Base Layers

- City & Town Boundaries

Change in Canopy

- Gain
- Loss

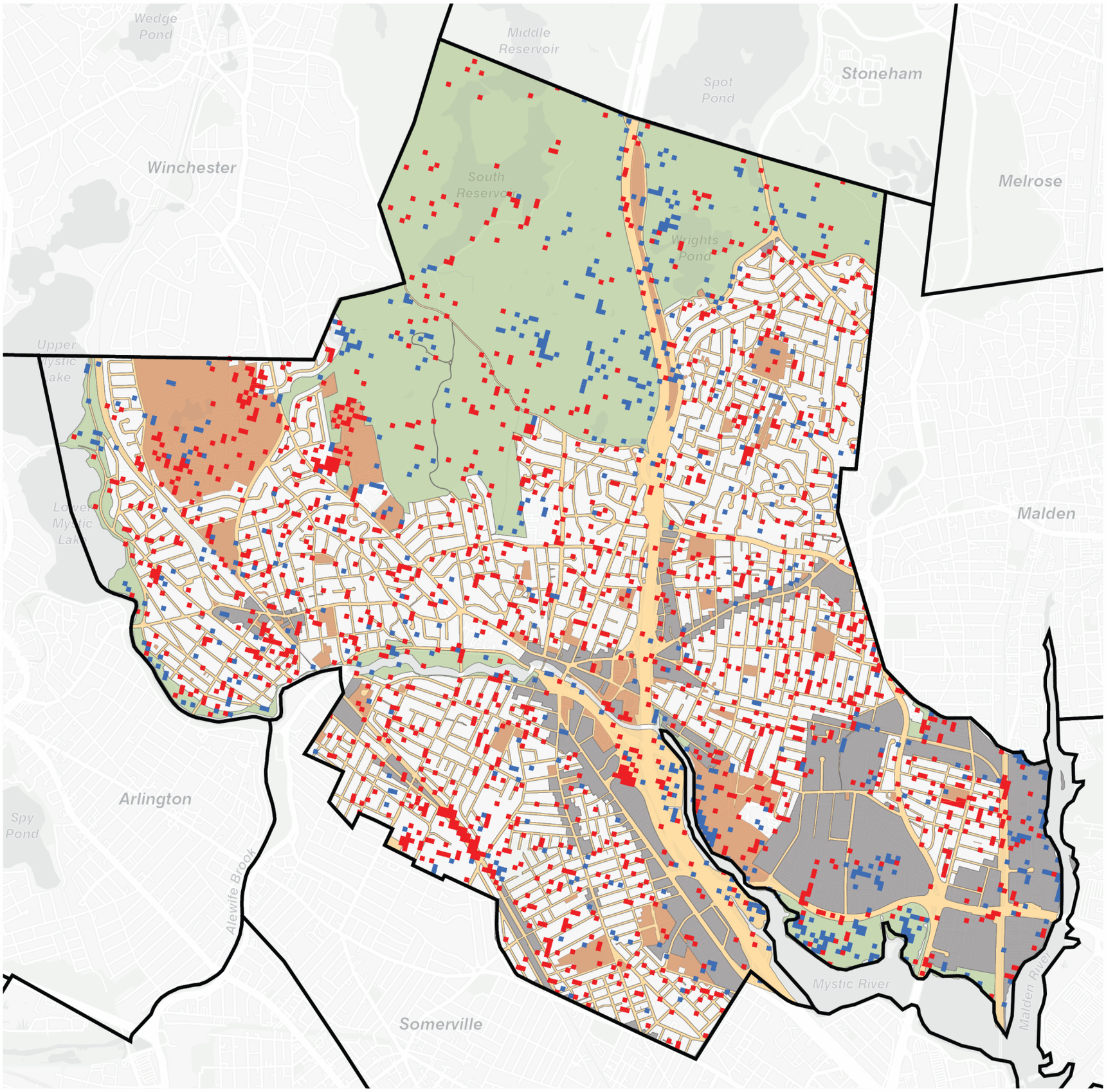
Land Use Type

- City Owned
- Right-of-Way
- Commercial Development
- Residential
- DCR Land

2,500 0 2,500

Scale In Feet

Weston & Sampson



Tree Canopy Change
2018-2021

Data collected using LiDAR (Light Detection and Ranging) canopy cover data to assess where canopy change has occurred over time in Medford.

Base Layers

- City & Town Boundaries

Change in Canopy

- Gain
- Loss

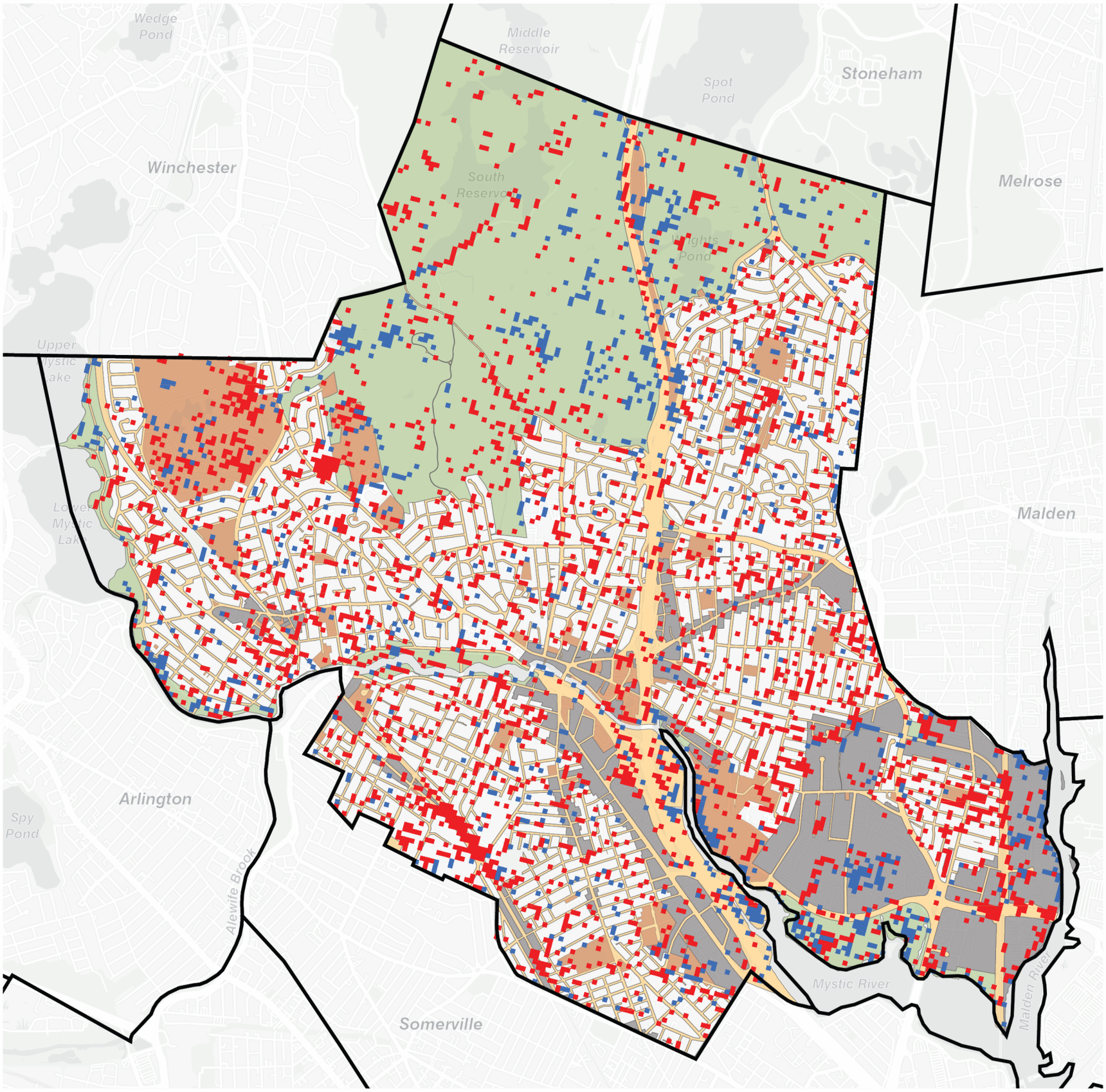
Land Use Type

- City Owned
- Right-of-Way
- Commercial Development
- Residential
- DCR Land

2,500 0 2,500

Scale In Feet

Weston & Sampson



Tree Canopy Change
2015-2021

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Base Layers

- City & Town Boundaries

Change in Canopy

- Gain
- Loss

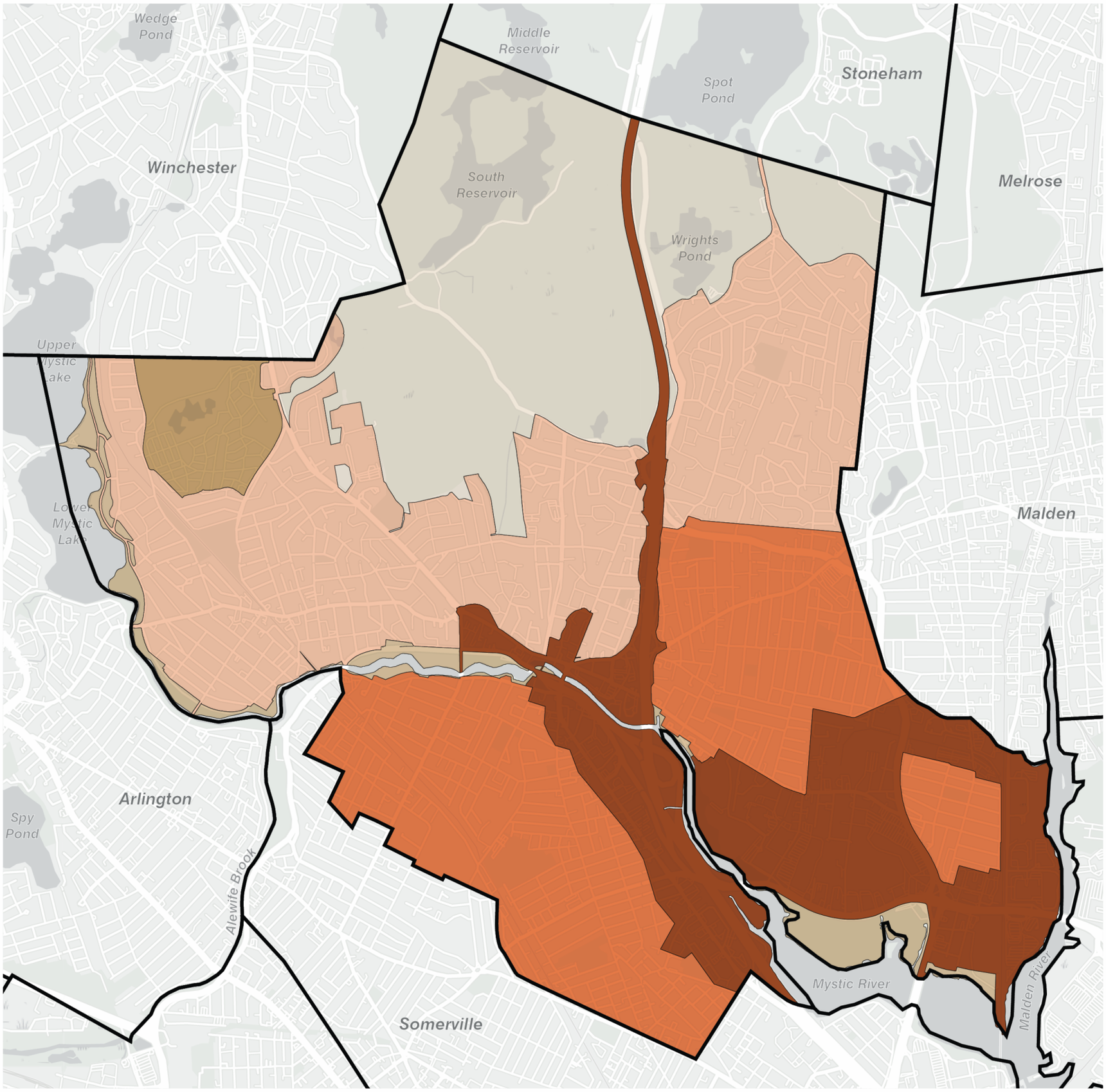
Land Use Type

- City Owned
- Right-of-Way
- Commercial Development
- Residential
- DCR Land

2,500 0 2,500

Scale In Feet

Weston & Sampson



City of Medford
Management Zones

Base Layers

- City & Town Boundaries

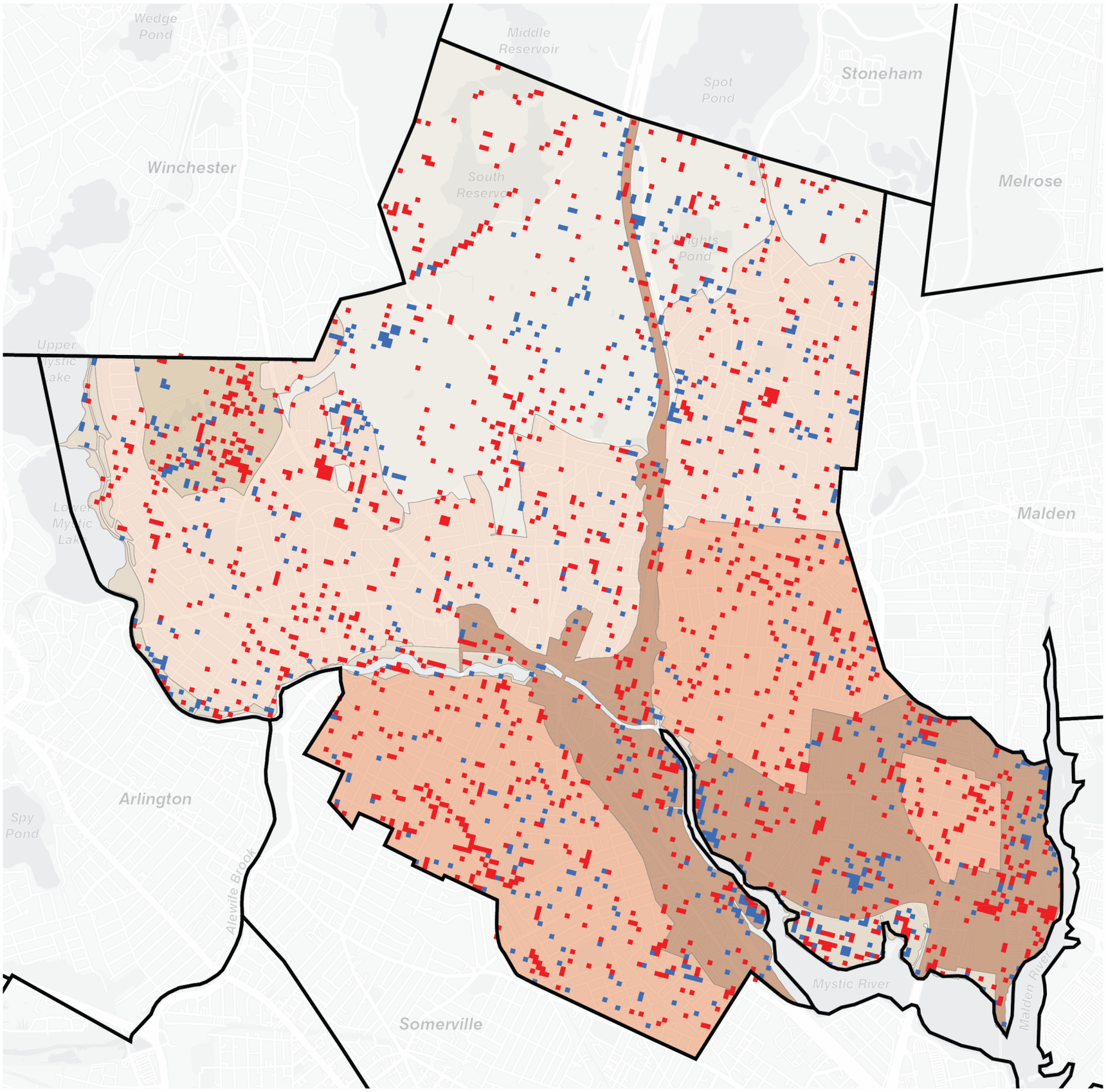
Management Zone Type

- Zone 1
- Zone 2
- Zone 3
- DCR - Middlesex Fells Reservation
- DCR
- Brooks Manor / Cemetery

2,500 0 2,500

Scale In Feet

Weston & Sampson



Tree Canopy Change
2015-2018

Data collected using LiDAR (Light Detection and Ranging) canopy cover data to assess where canopy change has occurred over time in Medford.

Base Layers

- City & Town Boundaries

Change in Canopy

- Gain
- Loss

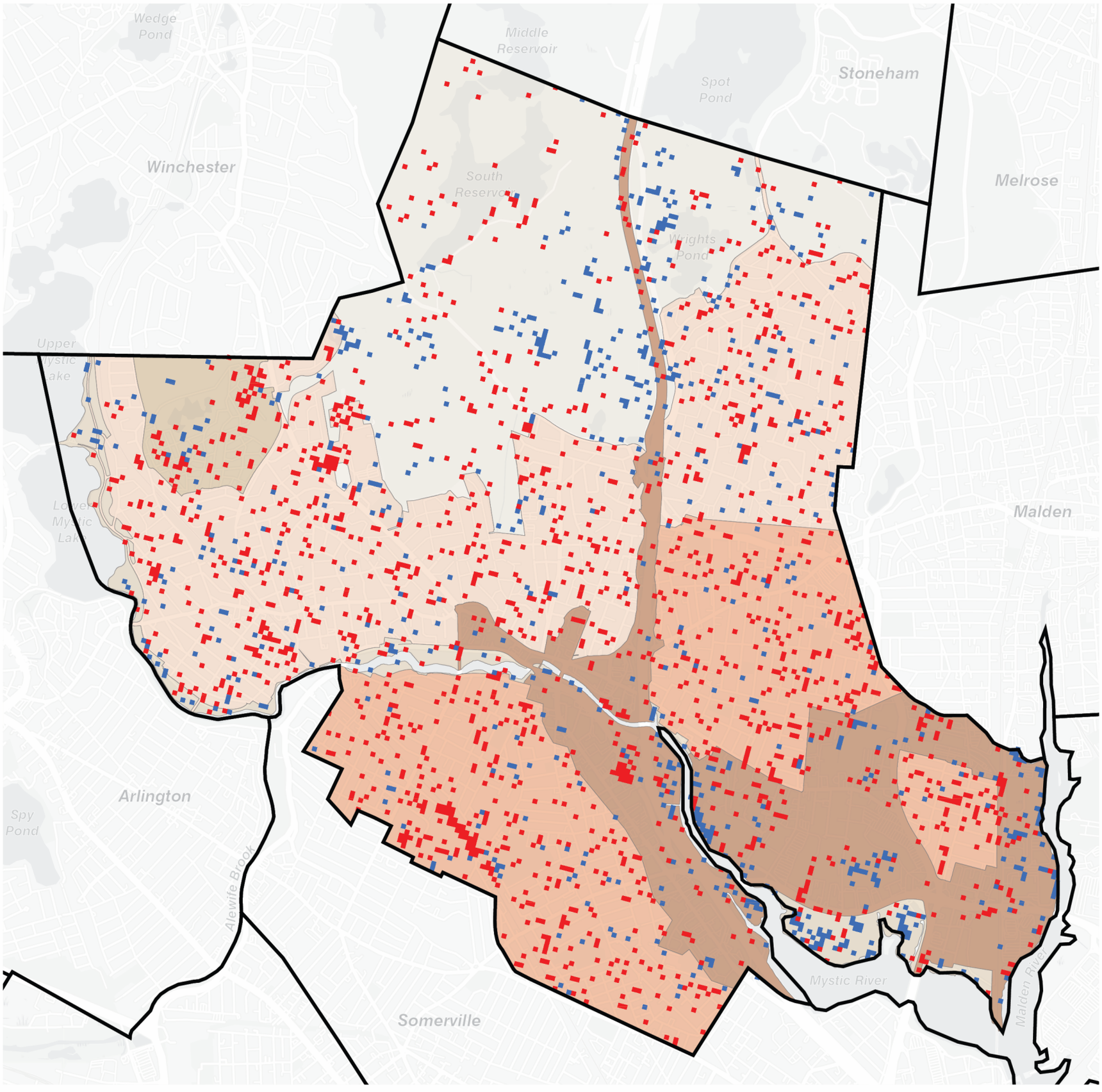
Management Zone Type

- Zone 1
- Zone 2
- Zone 3
- DCR - Middlesex Fells Reservation
- DCR
- Brooks Manor / Cemetery

2,500 0 2,500

Scale In Feet

Weston & Sampson



Tree Canopy Change
2018-2021

Data collected using LiDAR (Light Detection and Ranging) canopy cover data to assess where canopy change has occurred over time in Medford.

Base Layers

- City & Town Boundaries

Change in Canopy

- Gain
- Loss

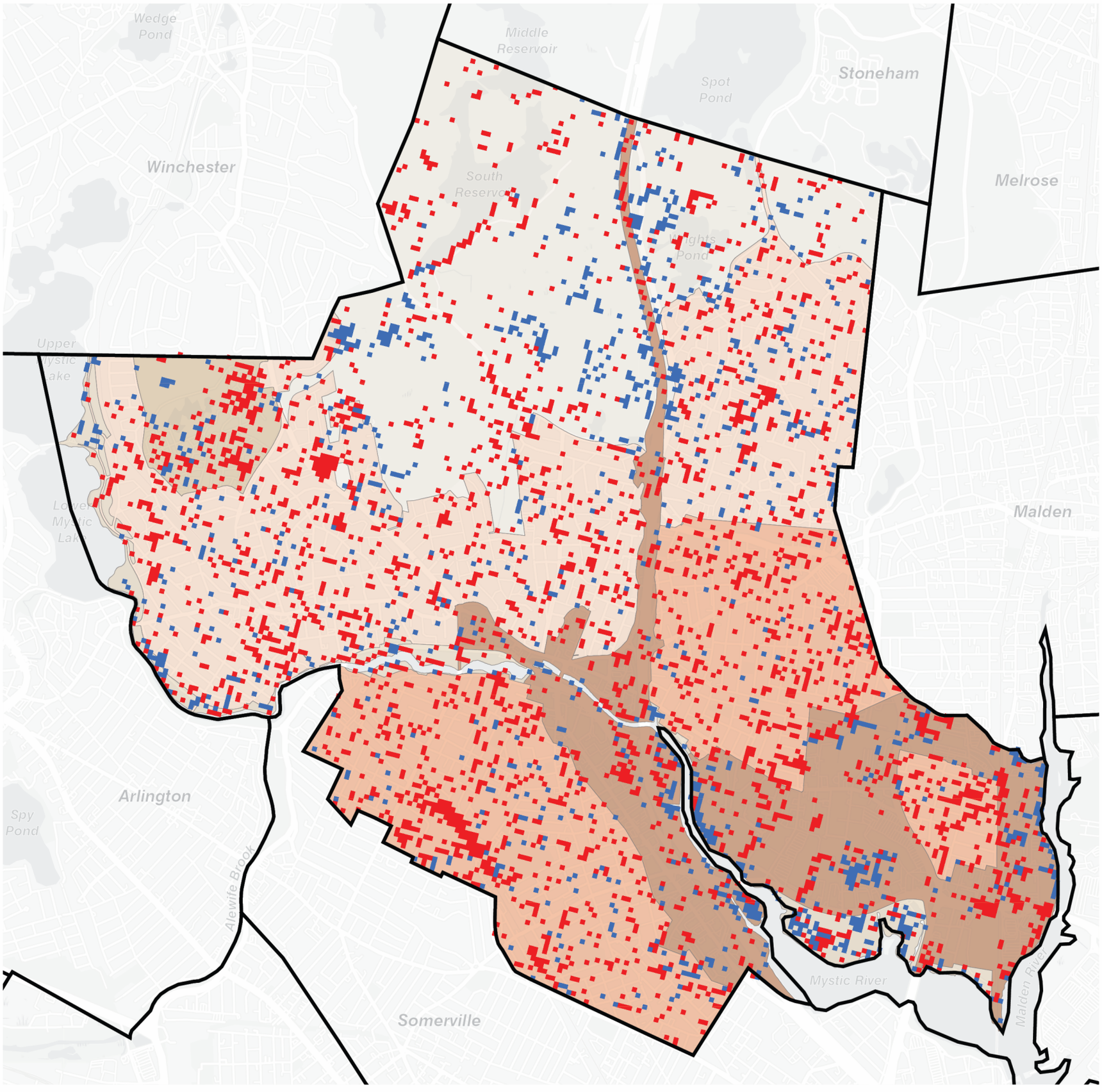
Management Zone Type

- Zone 1
- Zone 2
- Zone 3
- DCR - Middlesex Fells Reservation
- DCR
- Brooks Manor / Cemetery

2,500 0 2,500

Scale In Feet

Weston & Sampson



Tree Canopy Change
2015-2021

Data collected using LiDAR (Light Detection and Ranging) canopy cover data to assess where canopy change has occurred over time in Medford.

Base Layers

- City & Town Boundaries

Change in Canopy

- Gain
- Loss

Management Zone Type

- Zone 1
- Zone 2
- Zone 3
- DCR - Middlesex Fells Reservation
- DCR
- Brooks Manor / Cemetery

2,500 0 2,500

Scale In Feet

Weston & Sampson



Neighborhoods in Medford

Base Layers

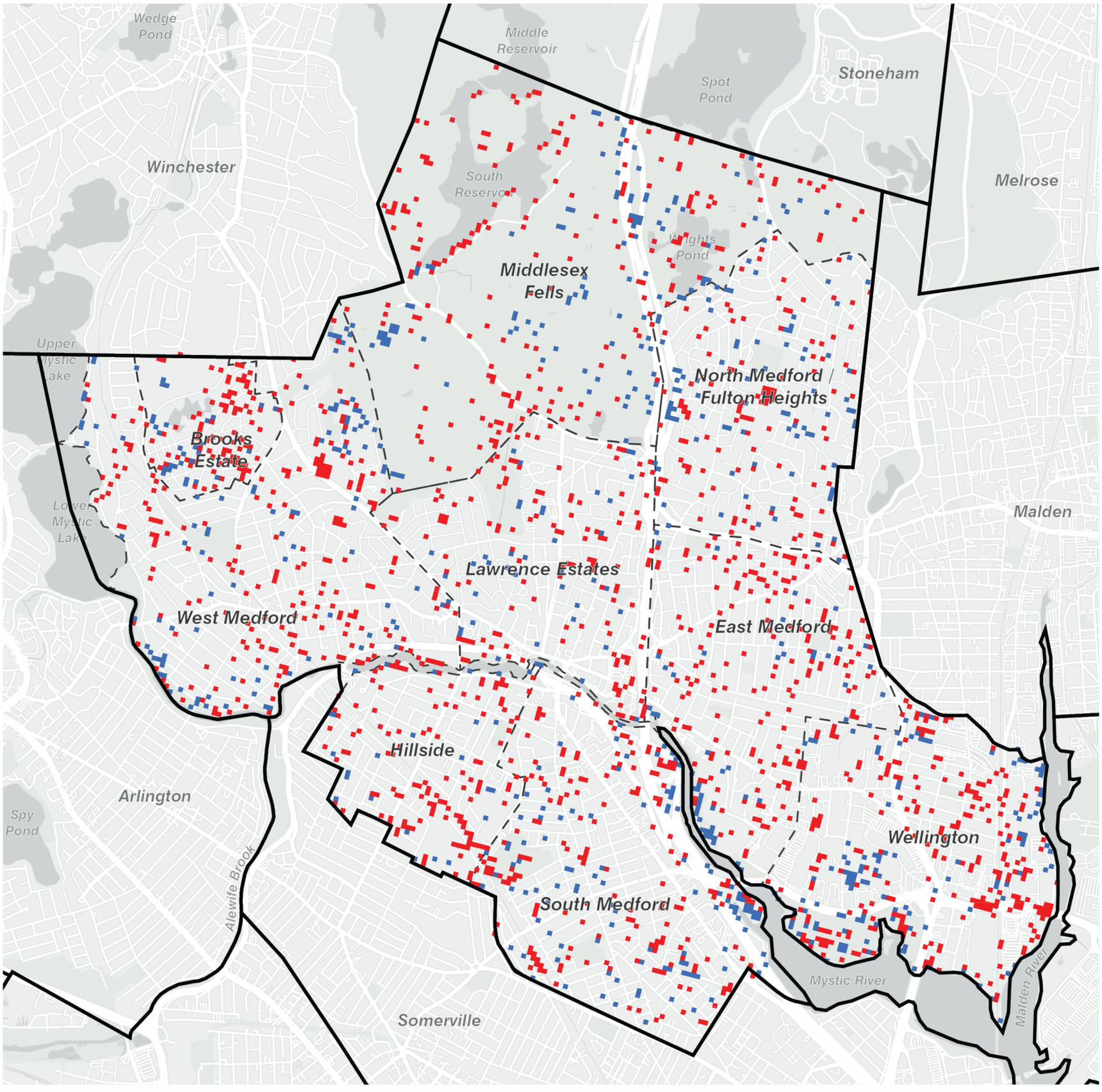
City & Town Boundaries

Neighborhood Boundaries

2,500 0 2,500

Scale In Feet

Weston & Sampson



Tree Canopy Change
2015-2018

Data collected using LiDAR (Light Detection and Ranging) canopy cover data to assess where canopy change has occurred over time in Medford.

Base Layers

- City & Town Boundaries
- Neighborhood Boundaries

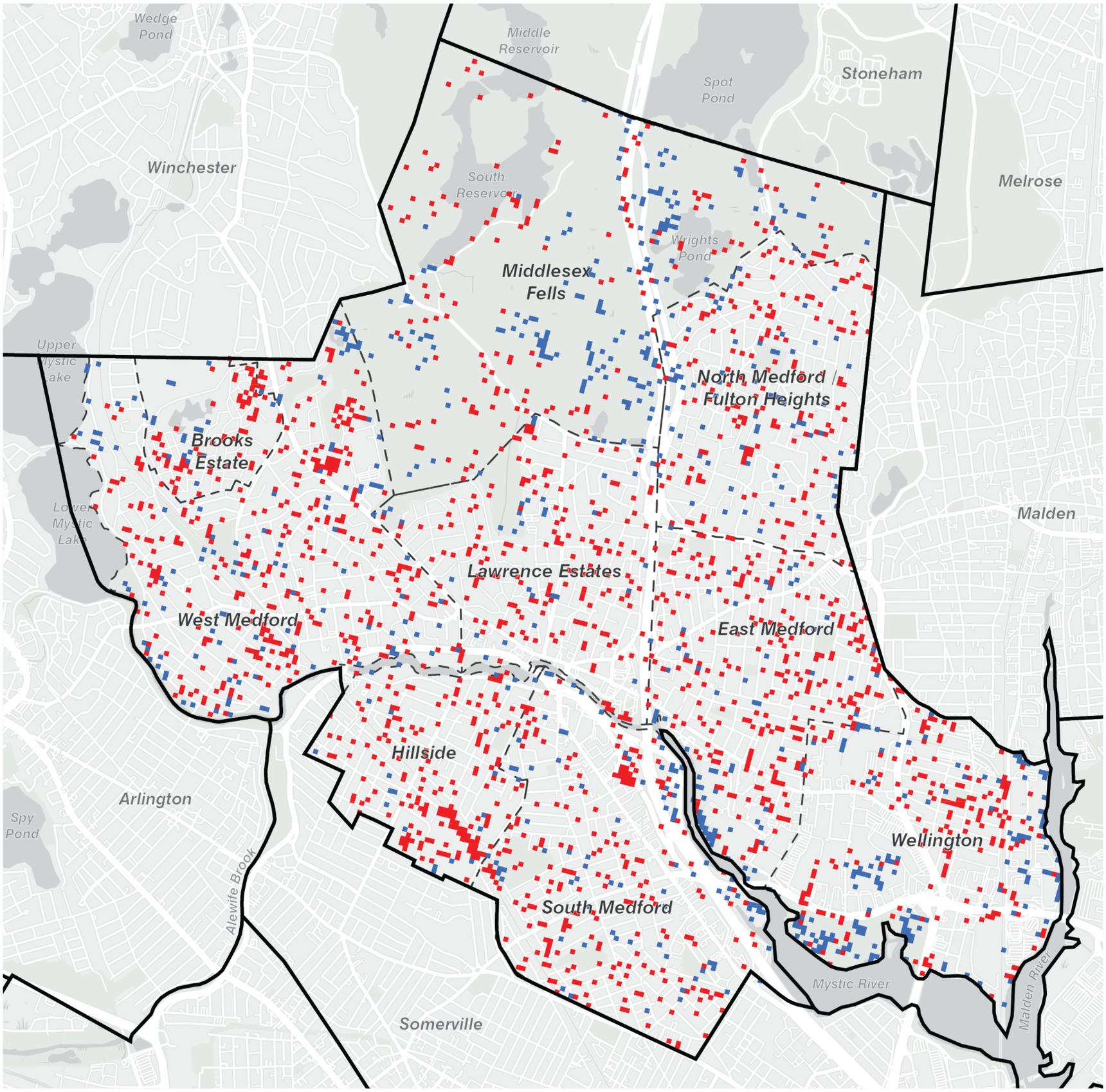
Change in Canopy

- Gain
- Loss

2,500 0 2,500

Scale In Feet

Weston & Sampson



Tree Canopy Change
2018-2021

Data collected using LiDAR (Light Detection and Ranging) canopy cover data to assess where canopy change has occurred over time in Medford.

Base Layers

- City & Town Boundaries
- Neighborhood Boundaries

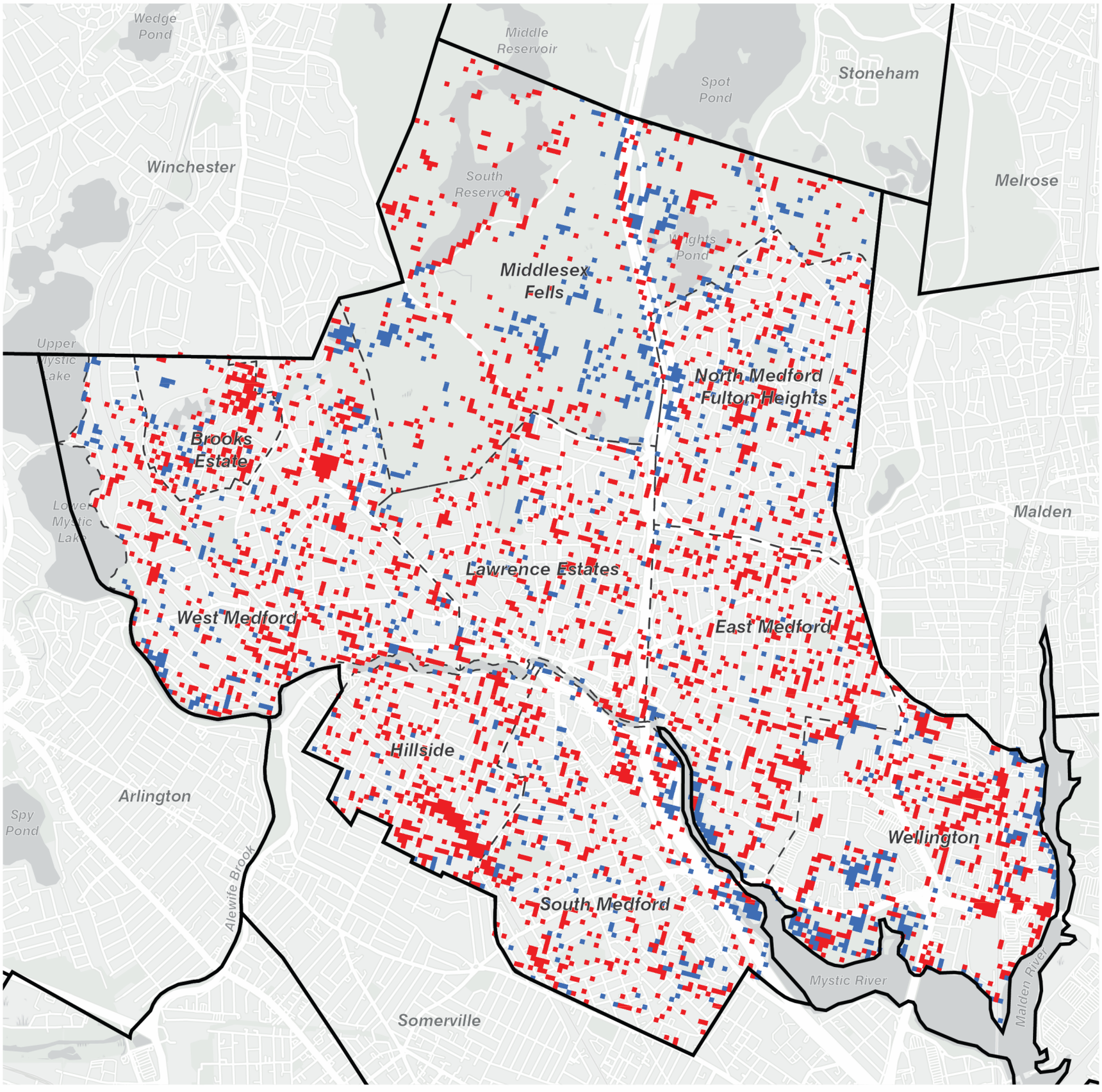
Change in Canopy

- Gain
- Loss

2,500 0 2,500

Scale In Feet

Weston & Sampson



Tree Canopy Change
2015-2021

Data collected using LiDAR (Light Detection and Ranging) canopy cover data to assess where canopy change has occurred over time in Medford.

Base Layers

- City & Town Boundaries
- Neighborhood Boundaries

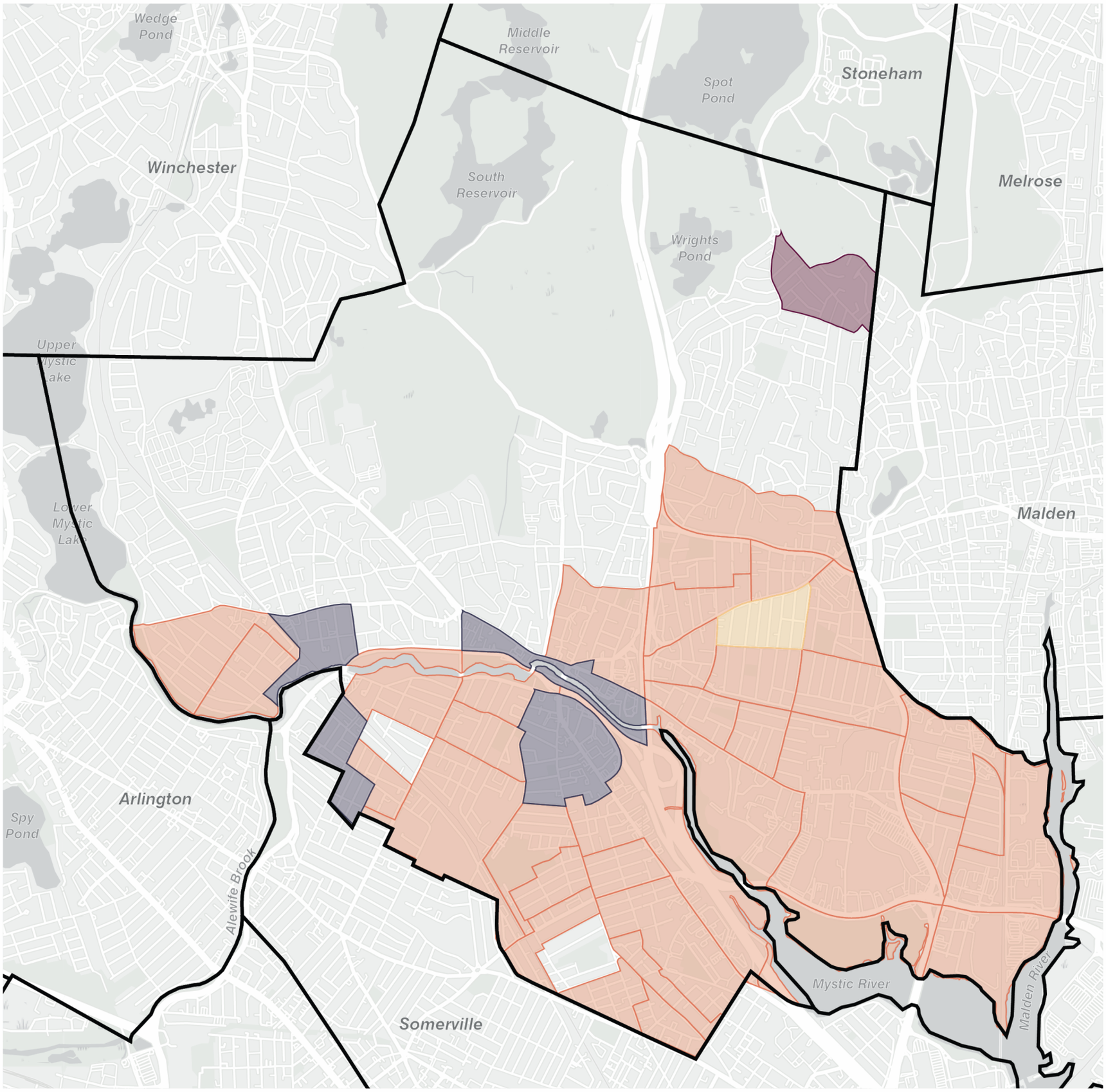
Change in Canopy

- Gain
- Loss

2,500 0 2,500

Scale In Feet

Weston & Sampson



City of Medford

Environmental Justice Communities

Base Layers

- City & Town Boundaries

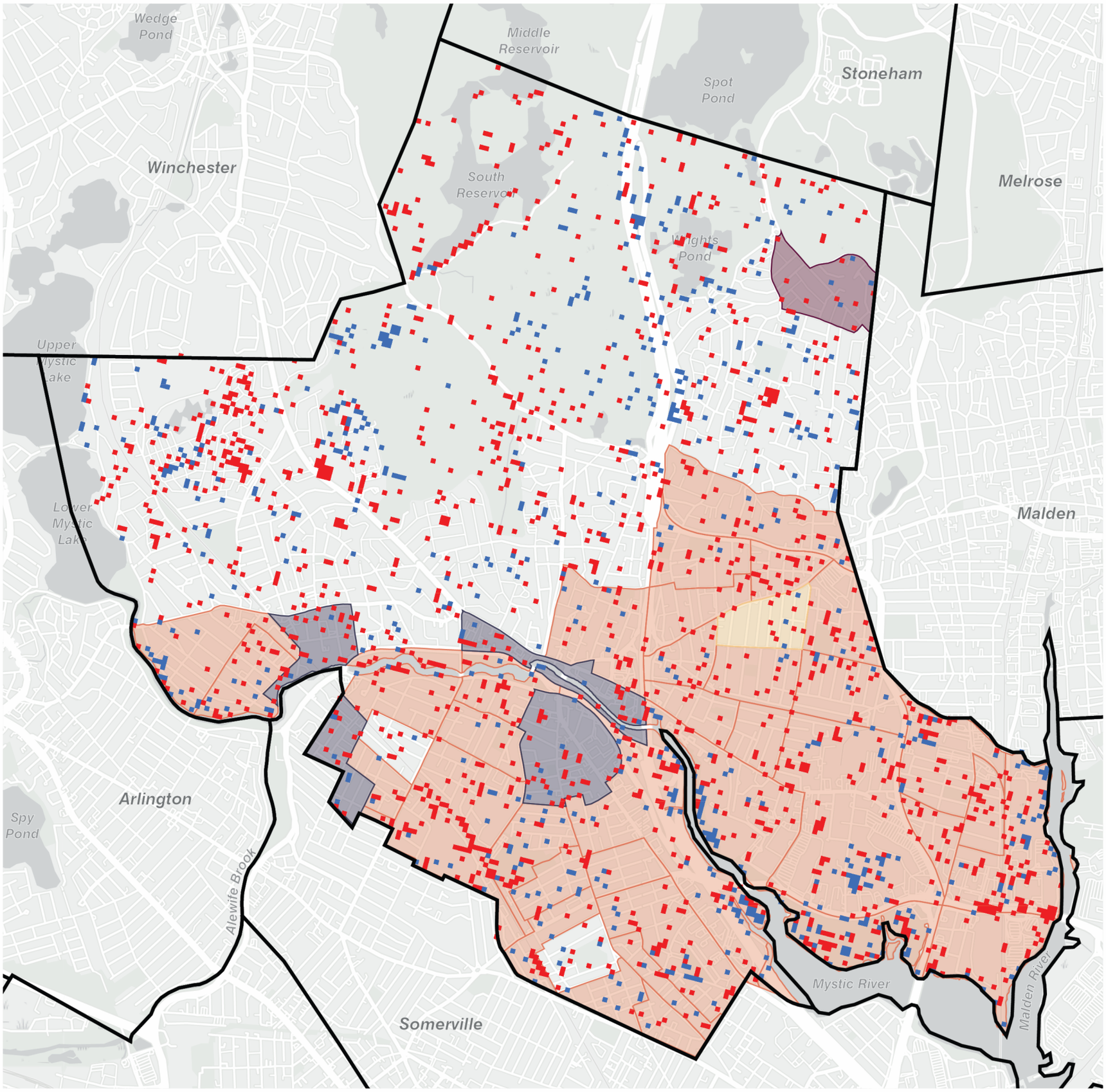
EJ Criteria Met

- English Isolation
- Minority
- Minority and English Isolation
- Minority and Income

2,500 0 2,500

Scale In Feet

Weston & Sampson



Tree Canopy Change
2015-2018

Data collected using LiDAR (Light Detection and Ranging) canopy cover data to assess where canopy change has occurred over time in Medford.

Base Layers

- City & Town Boundaries

Change in Canopy

- Gain
- Loss

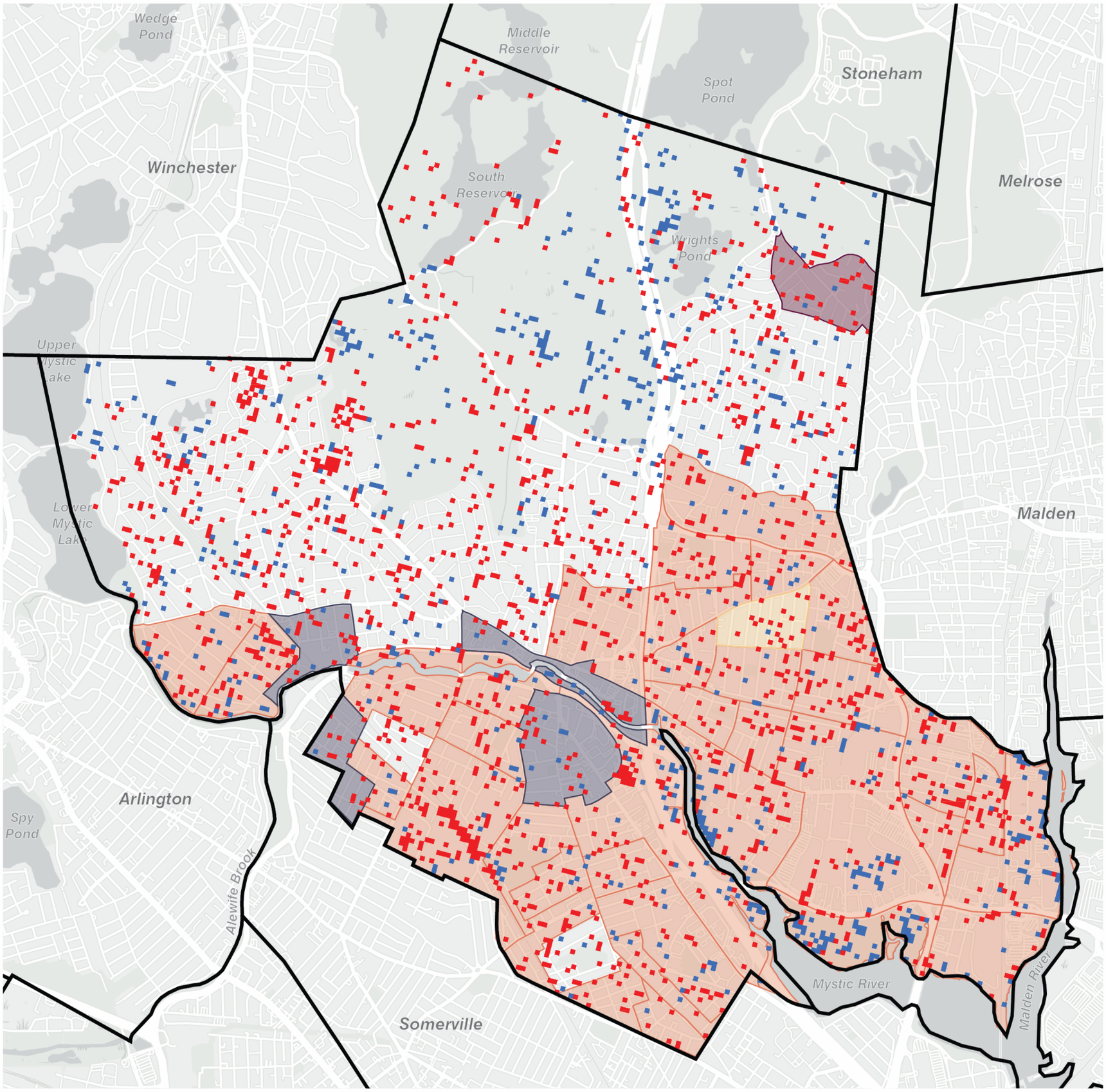
EJ Criteria Met

- English Isolation
- Minority
- Minority and English Isolation
- Minority and Income

2,500 0 2,500

Scale In Feet

Weston & Sampson



Tree Canopy Change
2018-2021

Data collected using LiDAR (Light Detection and Ranging) canopy cover data to assess where canopy change has occurred over time in Medford.

Base Layers

- City & Town Boundaries

Change in Canopy

- Gain
- Loss

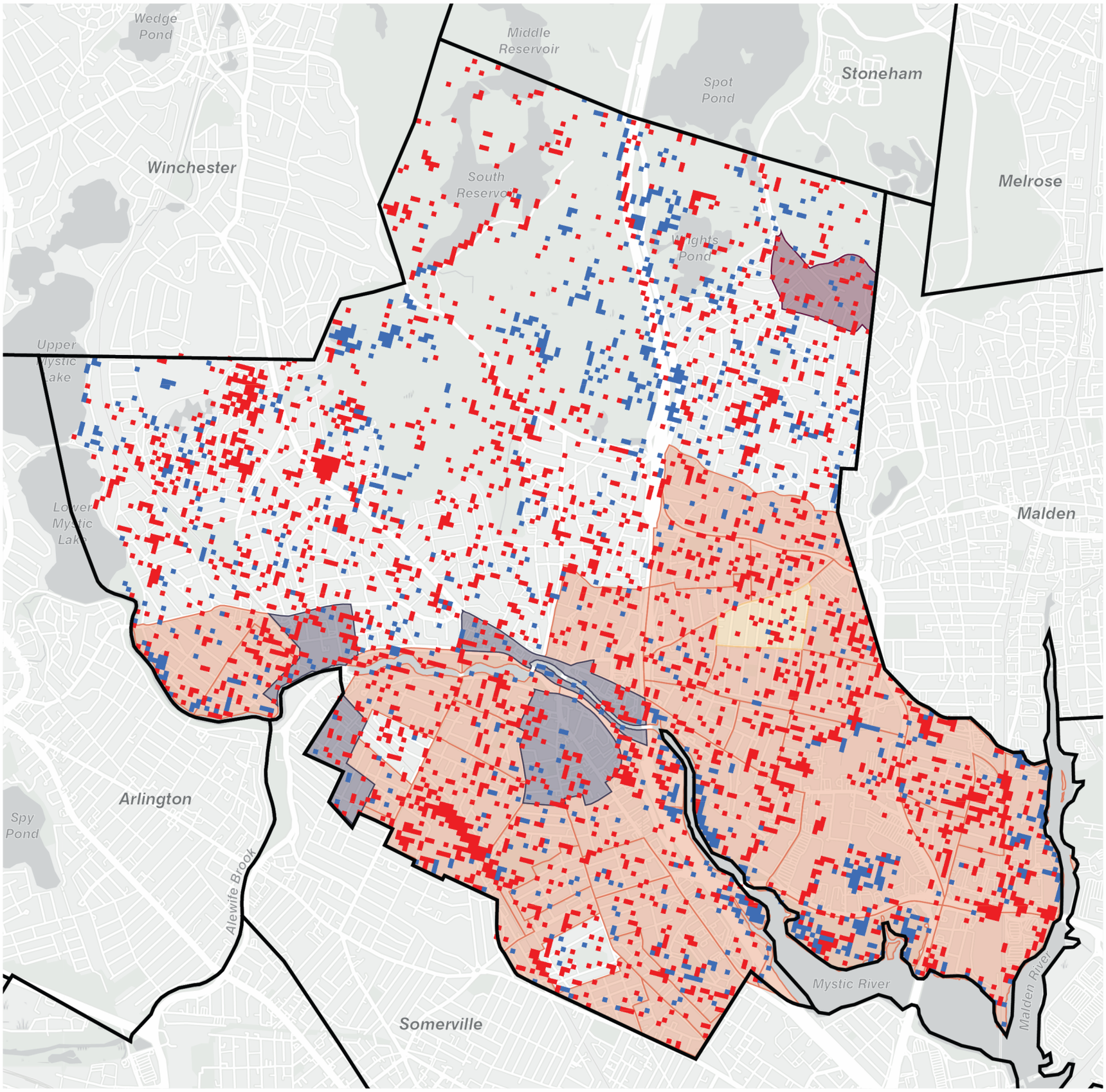
EJ Criteria Met

- English Isolation
- Minority
- Minority and English Isolation
- Minority and Income

2,500 0 2,500

Scale In Feet

Weston & Sampson



Tree Canopy Change
2015-2021

Data collected using LiDAR (Light Detection and Ranging) canopy cover data to assess where canopy change has occurred over time in Medford.

Base Layers

- City & Town Boundaries

Change in Canopy

- Gain
- Loss

EJ Criteria Met

- English Isolation
- Minority
- Minority and English Isolation
- Minority and Income

2,500 0 2,500

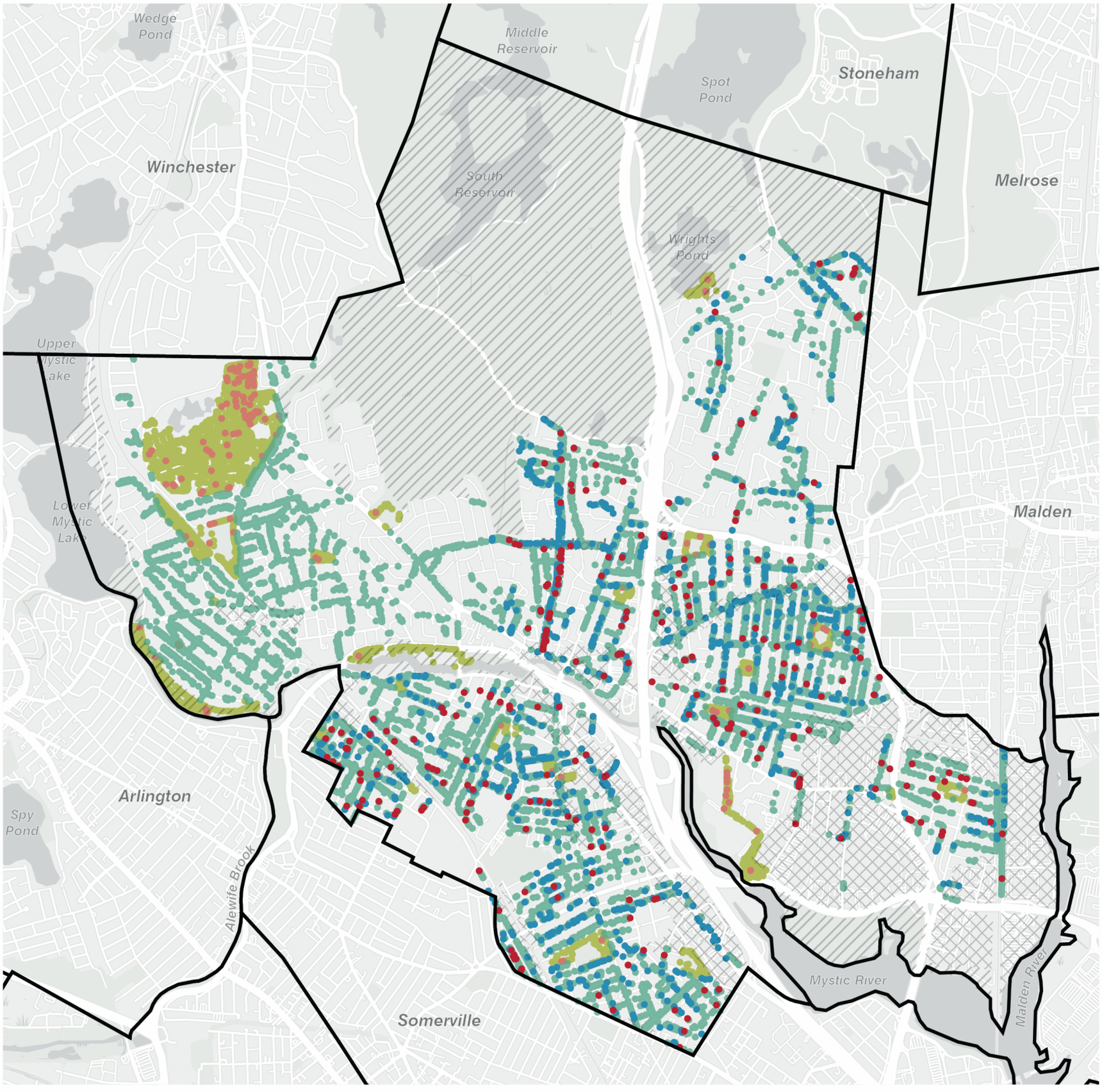
Scale In Feet

Weston & Sampson



APPENDIX B

Medford Tree Inventory



Medford Public Trees

Site Status

Data collected from 2020–2025. Includes all city-managed street trees. City-managed park trees, stumps, and vacant sites are partially inventoried.

Base Layers

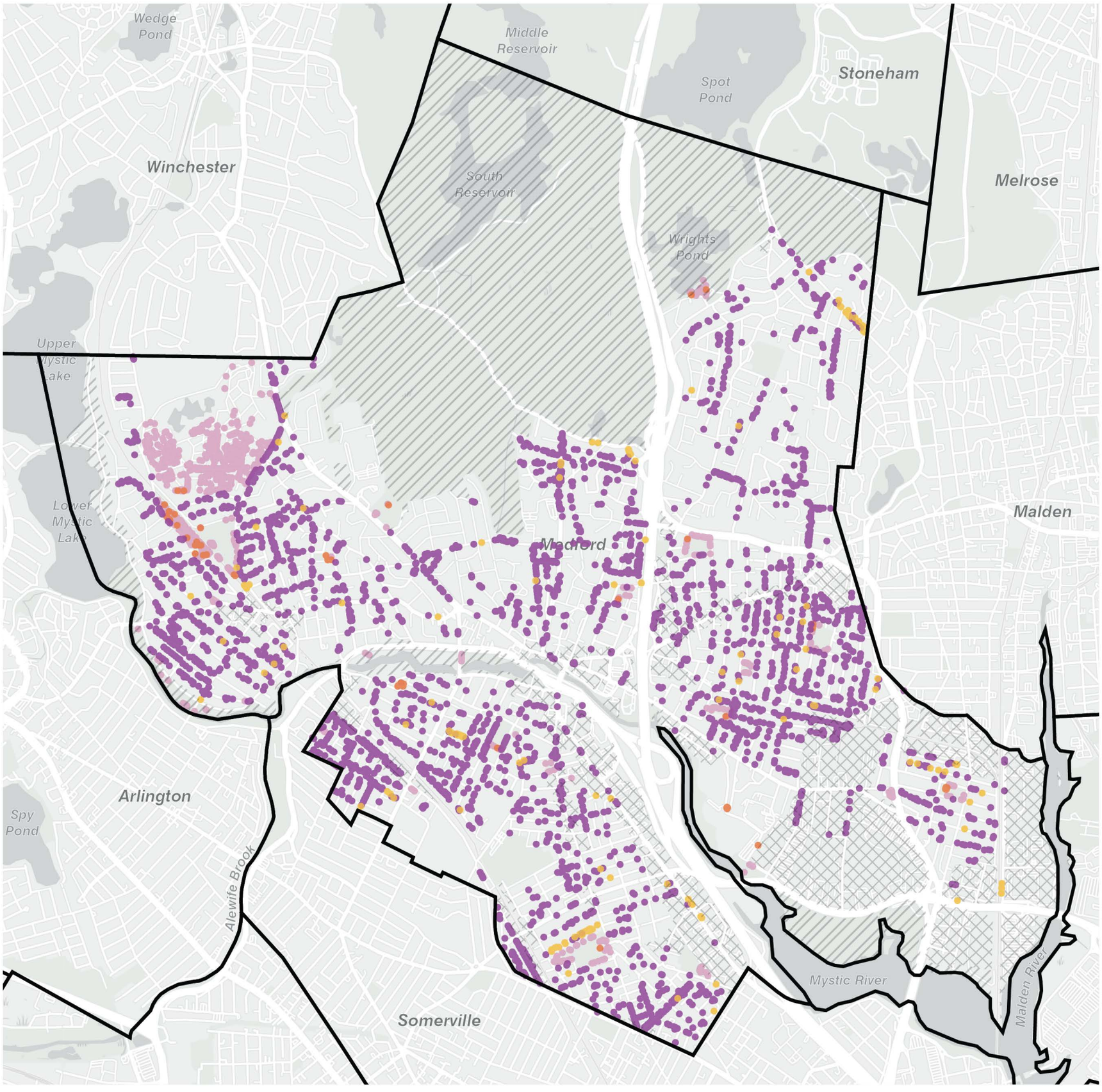
- City & Town Boundaries
- DCR Land
- Commercial Development

Site Status

- Tree (Streets)
- Tree (Parks)
- Stump (Streets)
- Stump (Parks)
- Vacant Site (Streets)

2,500 0 2,500

Scale In Feet



Medford Public Trees

Species of Concern

Data collected from 2020–2025. Includes all city-managed street trees. City-managed park trees, stumps, and vacant sites are partially inventoried.

Base Layers

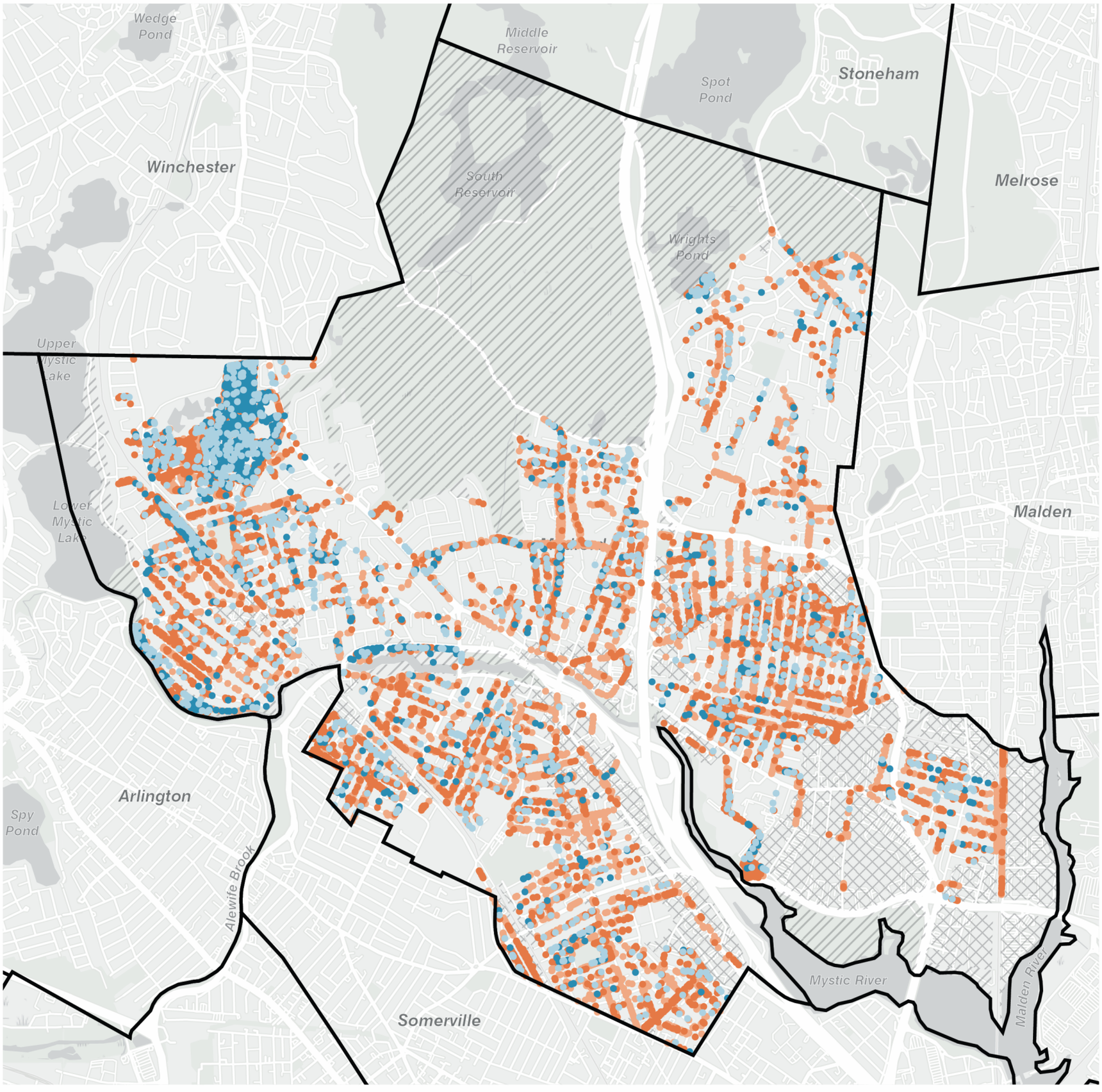
- City & Town Boundaries
- DCR Land
- Commercial Development

Significant Species

- Ash (Streets)
- Ash (Parks)
- Invasive (Streets)
- Invasive (Parks)

2,500 0 2,500

Scale In Feet



Medford Public Trees

Tree Size (DBH)

Data collected from 2020–2025. Includes all city-managed street trees. City-managed park trees, stumps, and vacant sites are partially inventoried.

Base Layers

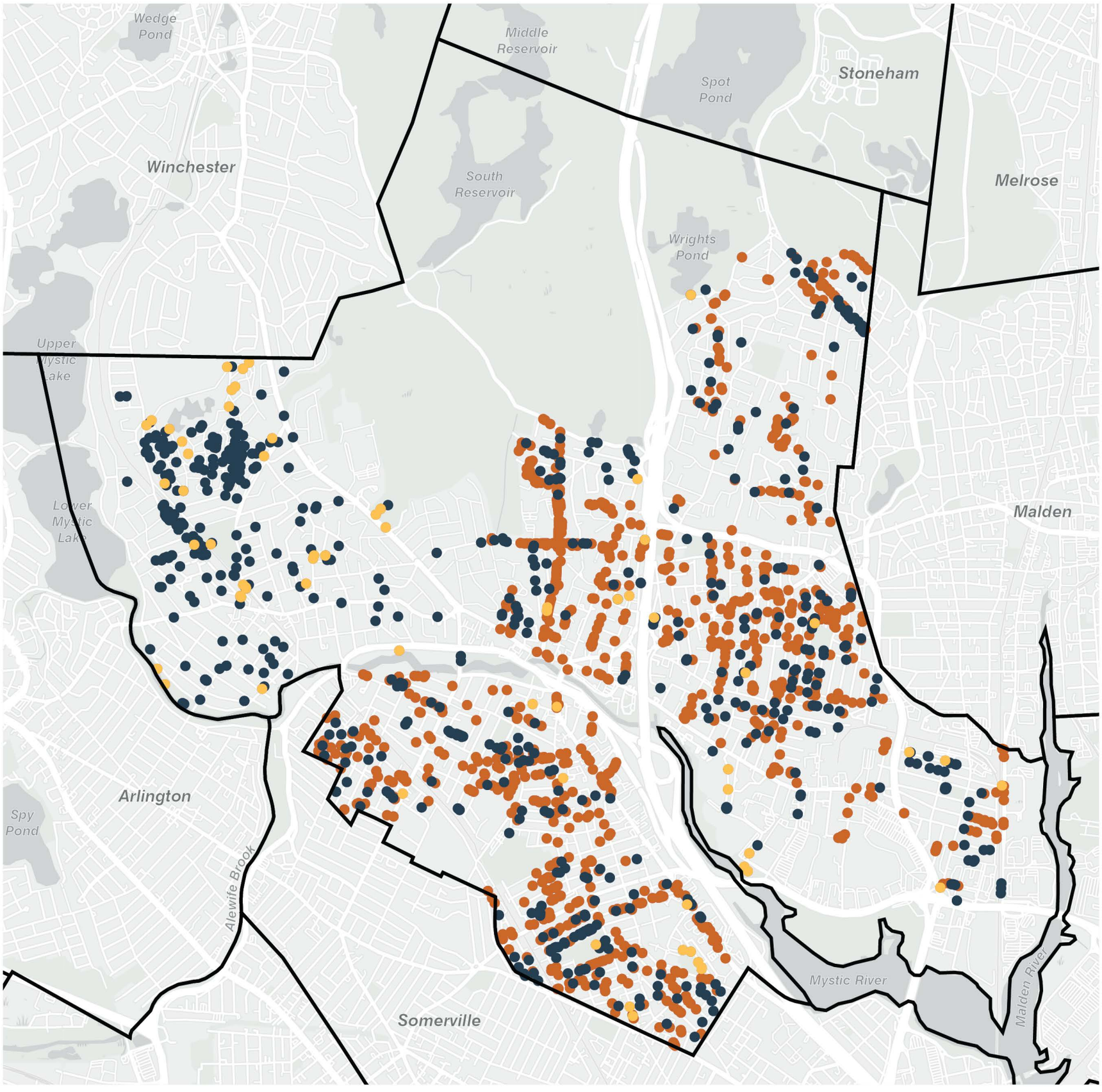
- City & Town Boundaries
- DCR Land
- Commercial Development

DBH (Diameter at Breast Height)

- 0-8” DBH
- 9-17” DBH
- 18-24” DBH
- >25” DBH

2,500 0 2,500

Scale In Feet



City of Medford
Priority Planting Sites

Base Layers

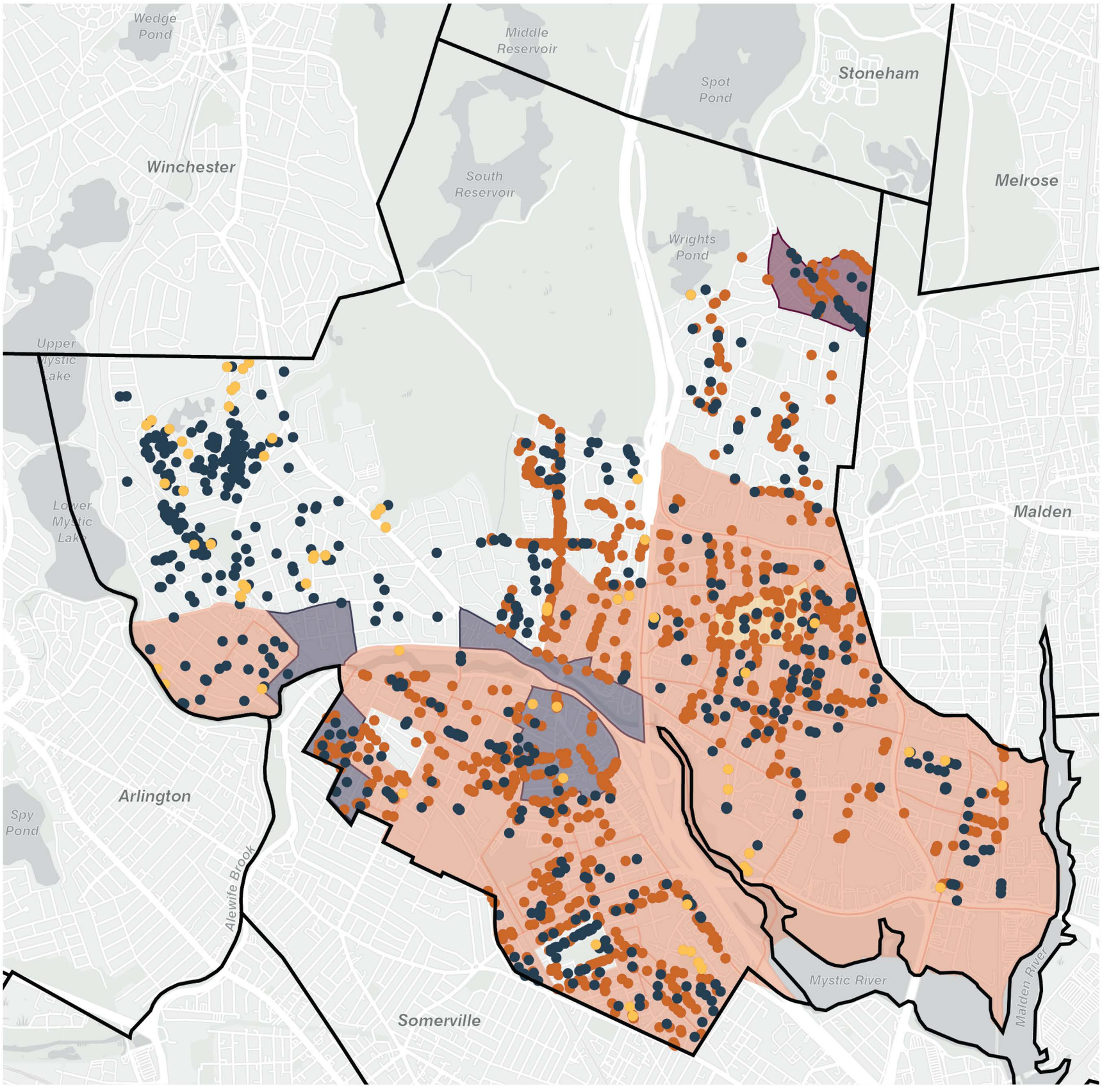
City & Town Boundaries

Trees & Sites

- Dead Trees
- All Vacant Sites
- Ash, Pear in Poor Condition, or Maple in Poor Condition

2,500 0 2,500

Scale In Feet



City of Medford

Priority Planting Sites and EJ Populations Map

Base Layers

- City & Town Boundaries

Trees & Sites

- Dead Trees
- All Vacant Sites
- Ash, Pear in Poor Condition, or Maple in Poor Condition

EJ Populations 2020

- English Isolation
- Minority
- Minority and English Isolation
- Minority and Income

2,500 0 2,500

Scale In Feet



APPENDIX C

Medford Tree Species List

Recommended Tree Species List for Medford Public Trees

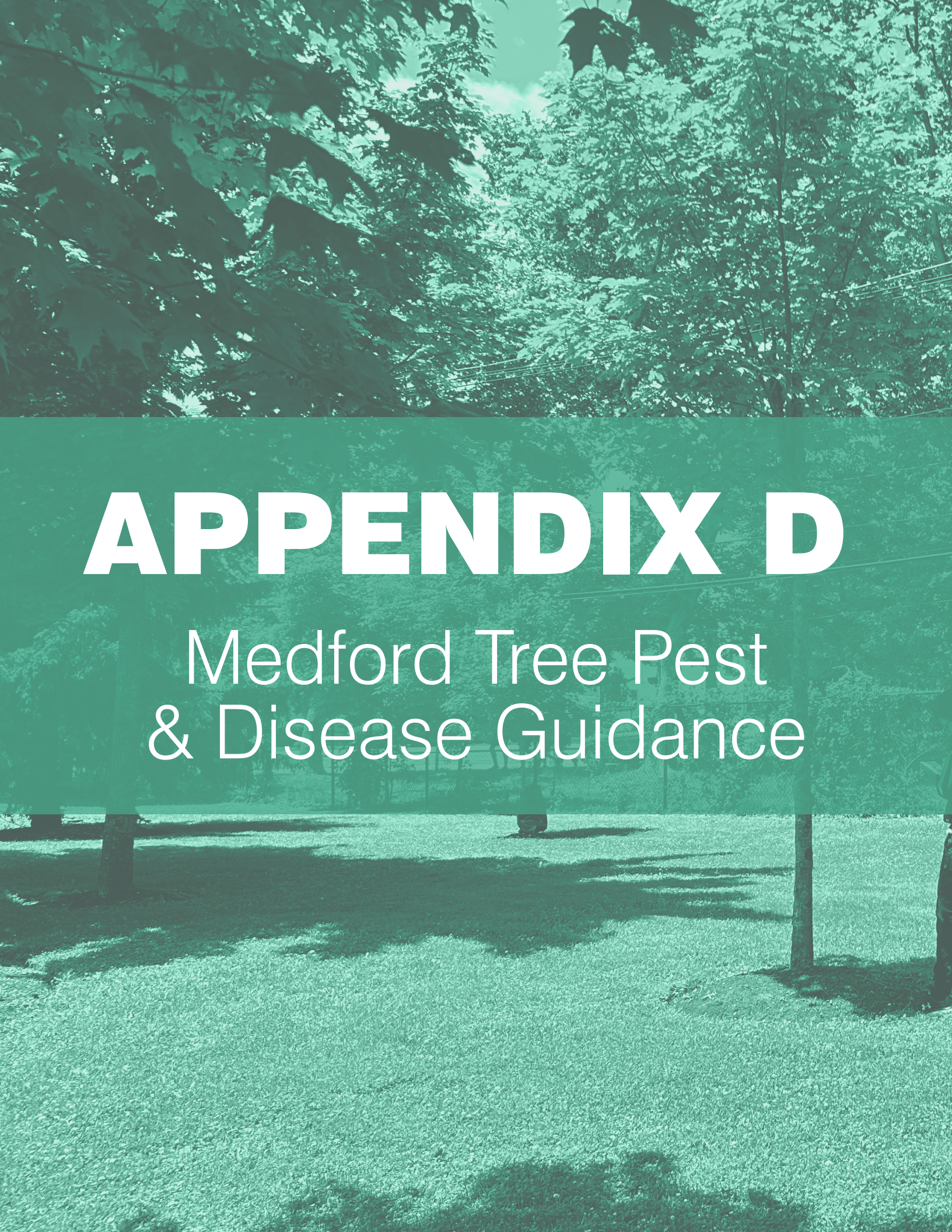
Scientific Name	Common Name	Approximate Height at Maturity (ft.)	Primary Function
*Amelanchier spp.**	Serviceberry	20-30	Ornamental
Aesculus x carnea	Red horsechestnut	30-50	Shade
*Betula nigra**	River birch	40-70	Shade
Carpinus betulus	European hornbeam	40-60	Shade
*Carpinus caroliniana**	American hornbeam	20-35	Ornamental
*Catalpa speciosa**	Northern catalpa	40-60	Shade
*Celtis occidentalis**	Hackberry	40-60	Shade
Cercidiphyllum japonicum	Katsuratree	50	Shade
*Cercis canadensis**	Eastern redbud	20-30	Ornamental
Cladrastis kentukea	American yellowwood	30-50	Shade
Cornus kousa	Kousa dogwood	15-30	Ornamental
Cornus mas	Cornelian cherry dogwood	15-25	Ornamental
Corylus colurna	Turkish hazelut	40-50	Shade
*Crataegus crusgalli var. inermis**	Thornless hawthorn	20-30	Ornamental
Ginkgo biloba	Ginkgo (male cultivars)	40-80	Shade
*Gleditsia triacanthos var. inermis**	Honeylocust	40-60	Shade
Gymnocladus dioicus	Kentucky coffeetree	60-75	Shade
Koelreuteria paniculata	Golden raintree	30-40	Ornamental
Liquidambar styraciflua	Sweetgum	60-70	Shade
*Liriodendron tulipifera**	Tuliptree	70-90	Shade
Maackia amurensis	Amur maackia	20-30	Ornamental
Malus spp.	Crabapple	15-25	Ornamental
Metasequoia glyptostroboides	Dawn redwood	70-100	Shade
*Nyssa sylvatica**	Black tupelo	30-50	Shade
*Ostrya virginiana**	American hophornbeam	25-40	Ornamental
Parrotia persica	Persian parrotia	20-40	Ornamental
Platanus x acerifolia	London planetree	75-100	Shade
Prunus sargentii	Sargent cherry	25-40	Ornamental
Prunus sargentii 'Accolade'	Accolade cherry	15-25	Ornamental
Prunus serrulata 'Kwanzan'	Kwanzan cherry	25-30	Ornamental
Prunus subhirtella 'Autumnalis'	Autumn cherry	25-40	Ornamental
*Prunus virginiana**	Chokecherry	20-30	Ornamental

Prunus x incam 'Okame'	Okame cherry	15-25	Ornamental
Prunus x yedoensis	Yoshino cherry	15-25	Ornamental
*Quercus bicolor**	Swamp white oak	50-60	Shade
*Quercus coccinea**	Scarlet oak	40-50	Shade
Quercus imbricaria	Shingle oak	40-60	Shade
*Quercus macrocarpa**	Bur oak	60-80	Shade
*Quercus montana**	Chestnut oak	50-70	Shade
Quercus phellos	Willow oak	40-60	Shade
*Quercus rubra**	Northern red oak	50-75	Shade
*Quercus velutina**	Black oak	50-60	Shade
Styphnolobium japonicum	Japanese pagoda tree	50-70	Shade
Syringa reticulata	Japanese tree lilac	20-48	Ornamental
*Taxodium distichum**	Bald cypress	50-70	Shade
*Tilia americana**	American linden	50-80	Shade
Tilia cordata	Littleleaf linden	50-70	Shade
Tilia tomentosa	Silver linden	50-70	Shade
*Ulmus americana**	American elm (cultivars with resistance to DED)	50-70	Shade
Ulmus spp.	Elm cultivars	50-60	Shade
Zelkova serrata	Zelkova	50-105	Shade

*Key: * Indicates a species that is native to the New England region.*

Notes:
Maples (Acer spp.) should be avoided until their overall representation in the public tree inventory falls below the recommended maximum of 20% per genus.

Pears (Pyrus spp.), Apples (Malus spp.), and Cherries (Prunus spp.) should be planted with caution, as they belong to the Soapberry family (Sapindaceae), which currently exceeds the recommended 30% maximum for any one family in the public tree population.



APPENDIX D

Medford Tree Pest & Disease Guidance

Weston and Sampson
Town of Medford Pest and Disease Guidance Memo| 2025

Submitted by:
Bartlett Tree Experts

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INTRODUCTION

Bartlett Tree Experts was retained by Weston and Sampson to review a municipal inventory performed throughout the town of Medford, Massachusetts. This inventory data was collected by the Davey Tree Expert Company and provided by Weston and Sampson. In this review, species specific concerns are presented for the trees documented in Medford. The 10 most abundant species, which accounts for approximately 74% of the total tree population, were included in this assessment.

This review included:

- An assessment of all tree species currently present in Medford based on provided inventory data;
- A review of relative species performance of the top 10 tree species found in Medford during the inventory conducted by the Davey Tree Expert Company;
- A review of common pest and disease issues that are expected to impact the top 10 species in Medford;
- Noting any additional concerns that may significantly impact tree health and condition in the future;
- Providing additional resources and photographs (not of trees observed in Medford) where appropriate.

The methods and procedures we used to make the above determinations and recommendations are detailed in the following sections.

Tree Species Identified in Medford

T000000.ree Species Observed	Total Number of Trees	Percentage of Tree Population	Good	Fair	Poor	Dead
Abies balsamea	2	0%	2			
Abies concolor	2	0%	2			
Acer campestre	7	0%	5	2		
Acer ginnala	5	0%	1	3	1	
Acer negundo	28	0%	8	15	5	
Acer palmatum	10	0%	8	2		
Acer platanoides	1792	21%	456	1047	281	8
Acer pseudoplatanus	30	0%	7	20	3	
Acer rubrum	815	9%	580	208	26	1
Acer saccharinum	52	1%	16	33	3	
Acer saccharum	280	3%	172	92	16	
Acer species	1	0%				1
Acer tataricum	2	0%	2			
Acer x freemanii	3	0%	2	1		
Aesculus hippocastanum	2	0%		1	1	
Ailanthus altissima	46	1%	11	32	3	
Albizia julibrissin	1	0%		1		
Amelanchier species	38	0%	29	8	1	
Betula lenta	2	0%	1			1
Betula nigra	34	0%	24	9	1	
Betula papyrifera	9	0%	7		2	
Betula pendula	2	0%	1	1		
Betula populifolia	5	0%	1	4		
Carpinus betulus	20	0%	8	5	7	
Carya cordiformis	4	0%	1	3		
Carya glabra	8	0%	4	4		
Carya ovata	2	0%	2			
Catalpa speciosa	7	0%	2	4	1	
Cedrus atlantica	5	0%	5			
Celtis occidentalis	6	0%	1	2	2	1

T000000.ree Species Observed	Total Number of Trees	Percentage of Tree Population	Good	Fair	Poor	Dead
Cercis canadensis	11	0%	8	2	1	
Chamaecyparis pisifera	6	0%	1	5		
Cladrastis kentukea	2	0%	1		1	
Cornus florida	12	0%	6	5	1	
Cornus kousa	32	0%	26	5	1	
Cornus mas	2	0%	2			
Cornus sericea	1	0%	1			
Cornus species	2	0%				2
Crataegus species	12	0%	2	9	1	
Euonymus europaeus	1	0%		1		
Fagus sylvatica	7	0%	3	2	2	
Fraxinus americana	37	0%	4	15	14	4
Fraxinus pennsylvanica	150	2%	21	100	28	1
Fraxinus species	1	0%				1
Ginkgo biloba	36	0%	25	10		1
Gleditsia triacanthos inermis	219	3%	173	44	2	
Gymnocladus dioicus	1	0%		1		
Hamamelis virginiana	1	0%	1			
Hibiscus syriacus	5	0%	4		1	
Juglans nigra	59	1%	34	21	4	
Juniperus virginiana	16	0%	12	4		
Liquidambar styraciflua	52	1%	45	6	1	
Liriodendron tulipifera	18	0%	16	1	1	
Maackia amurensis	1	0%		1		
Magnolia acuminata	1	0%		1		
Magnolia stellata	2	0%	1	1		
Magnolia virginiana	1	0%	1			
Magnolia x soulangiana	17	0%	10	7		
Malus species	137	2%	56	71	10	
Malus sylvestris	6	0%	2	4		
Metasequoia glyptostroboides	8	0%	6	1		1
Morus alba	75	1%	13	50	12	

T000000.ree Species Observed	Total Number of Trees	Percentage of Tree Population	Good	Fair	Poor	Dead
Nyssa sylvatica	31	0%	29	2		
Parrotia persica	6	0%	4	2		
Picea abies	7	0%	5	2		
Picea glauca	20	0%	13	7		
Picea pungens	21	0%	14	7		
Pinus nigra	1	0%		1		
Pinus resinosa	27	0%	10	15	2	
Pinus strobus	52	1%	38	10	2	2
Platanus hybrida	83	1%	58	18	7	
Platanus occidentalis	3	0%	2	1		
Populus deltoides	8	0%	3	5		
Prunus cerasifera	5	0%		4	1	
Prunus serotina	204	2%	35	139	28	2
Prunus serrulata	5	0%	4	1		
Prunus species	348	4%	148	149	50	1
Prunus x yedoensis	3	0%	3			
Pseudotsuga menziesii	2	0%	1	1		
Pyrus calleryana	1717	20%	737	905	72	3
Quercus alba	31	0%	13	14	4	
Quercus bicolor	22	0%	10	9	3	
Quercus coccinea	7	0%	4	3		
Quercus palustris	333	4%	202	123	8	
Quercus phellos	1	0%	1			
Quercus rubra	232	3%	71	145	16	
Quercus velutina	55	1%	19	32	4	
Rhamnus cathartica	2	0%		1	1	
Rhus typhina	4	0%	1	2		1
Robinia pseudoacacia	158	2%	18	107	31	2
Salix alba	1	0%		1		
Salix babylonica	4	0%	1	2	1	
Salix integra	1	0%	1			
Salix matsudana	2	0%	2			

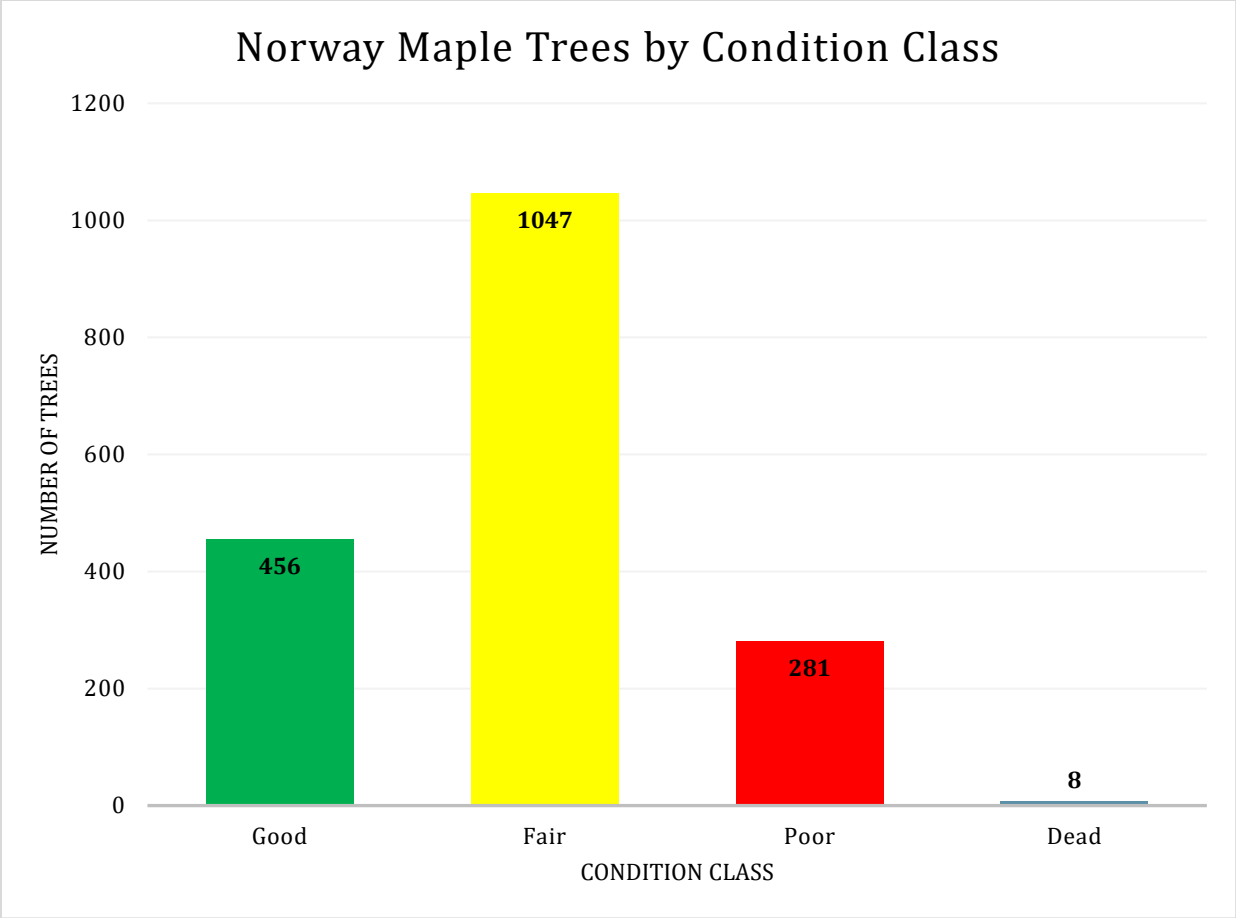
T000000.ree Species Observed	Total Number of Trees	Percentage of Tree Population	Good	Fair	Poor	Dead
Salix nigra	1	0%	1			
Salix species	1	0%				1
Sciadopitys verticillata	2	0%	2			
Sorbus aucuparia	1	0%		1		
Styphnolobium japonicum	7	0%	3	2	2	
Styrax japonicus	4	0%	4			
Syringa reticulata	300	3%	136	151	12	1
Taxus species	3	0%	3			
Thuja occidentalis	46	1%	31	9	2	4
Thuja plicata	11	0%	10		1	
Tilia americana	16	0%	9	7		
Tilia cordata	348	4%	158	176	14	
Tilia tomentosa	4	0%	2	2		
Tsuga canadensis	25	0%	7	15	2	1
Ulmus americana	147	2%	95	44	8	
Ulmus parvifolia	9	0%	7	2		
Ulmus pumila	5	0%	1	4		
Ulmus rubra	2	0%		2		
Ulmus x	22	0%	18	3	1	
Unknown Tree	12	0%				12
Zelkova serrata	142	2%	84	46	11	1
Grand Total	**8655**		**3850**	**4036**	**716**	**53**

Species listed in red were determined to be the top 10 species identified in the Medford inventory conducted by the Davey Tree Expert Company.

Norway Maple: *Acer platanoides*

The breakdown of tree species condition class is as followed:

Condition Class	Total	Percentage of Tree Species
Good	456	25%
Fair	1047	58%
Poor	281	16%
Dead	8	0%
Total	1792	



Norway Maple Management

Species Pests: Borers, ambrosia beetles, defoliating caterpillars, aphids

Treatment Options: Bark/systemic treatment for borers, foliar/systemic treatment for caterpillars, foliar/systemic treatment for aphids

Common Species Diseases: Tar spot, target canker, Phytophthora root rot/canker

Treatment Options: Foliar fungicide treatment for tar spot, none available for target canker, soil/systemic treatment for Phytophthora

Species Tolerance to Construction/Urban Conditions: Good

Species Failure Profile: Girdling roots, branch failure due to overextended limbs with poor branch architecture, co-dominant stems with included bark

Beneficial Attributes: Can grow to large shade tree with adequate space and resources, tolerant of difficult urban conditions

Recommended Tree Care Activities: Root collar excavation on trees with observed girdling roots or buried root collars. Pruning to improve tree structure, especially on younger trees.

Other Concerns: Listed as invasive species in Massachusetts by the Massachusetts Invasive Plant Advisory Group (MIPAG), not recommended for replanting

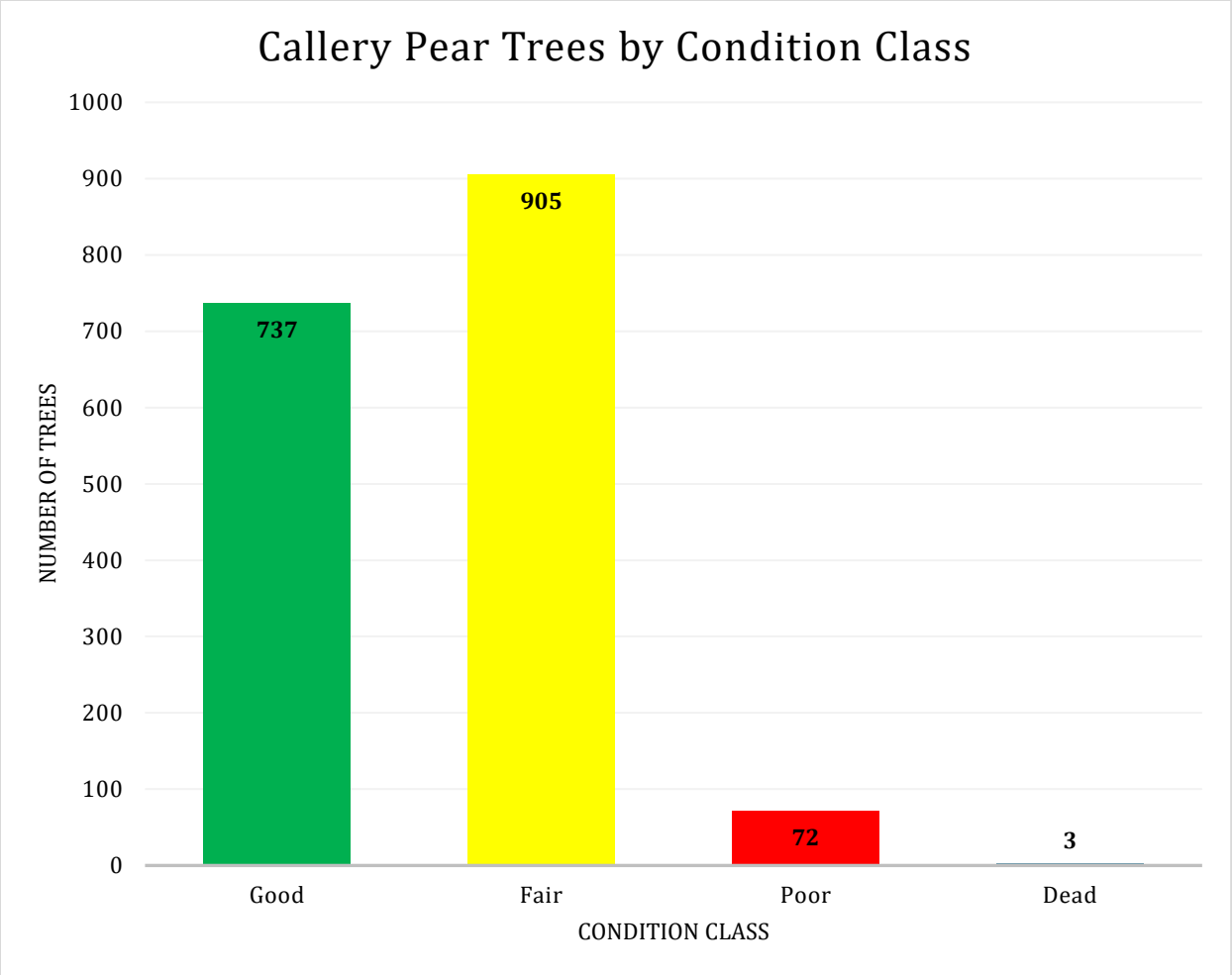


Norway maples are susceptible to perennial cankers on stems and branches. There are not any plant health care treatments that can manage this fungal pathogen.

Callery Pear: *Pyrus calleryana*

The breakdown of tree species condition class is as followed:

Condition Class	Total	Percentage of Tree Species
Good	737	43%
Fair	905	53%
Poor	72	4%
Dead	3	0%
Total	1717	



Callery Pear Management

Species Pests: Aphids, defoliating caterpillars

Treatment Options: Foliar treatment for aphids, foliar/systemic treatment for caterpillars

Species Diseases: Pear scab, leaf blight, fire blight, pear rust

Treatment Options: Foliar fungicide treatment

Species Tolerance to Construction/Urban Conditions: Good

Species Failure Profile: Prone to co-dominant stems and poor branch attachments, brittle wood

Beneficial Attributes: Attractive flowers in spring, tight and pyramidal form when young

Recommended Tree Care Activities: Pruning to subordinate multiple co-dominant stems, reducing weight of branch ends to reduce likelihood of storm damage

Other Concerns: Listed as invasive species in several states surrounding Massachusetts but not by the Massachusetts Invasive Plant Advisory Group (MIPAG) at this time. Not recommended for replanting by many sources due to invasive characteristics.

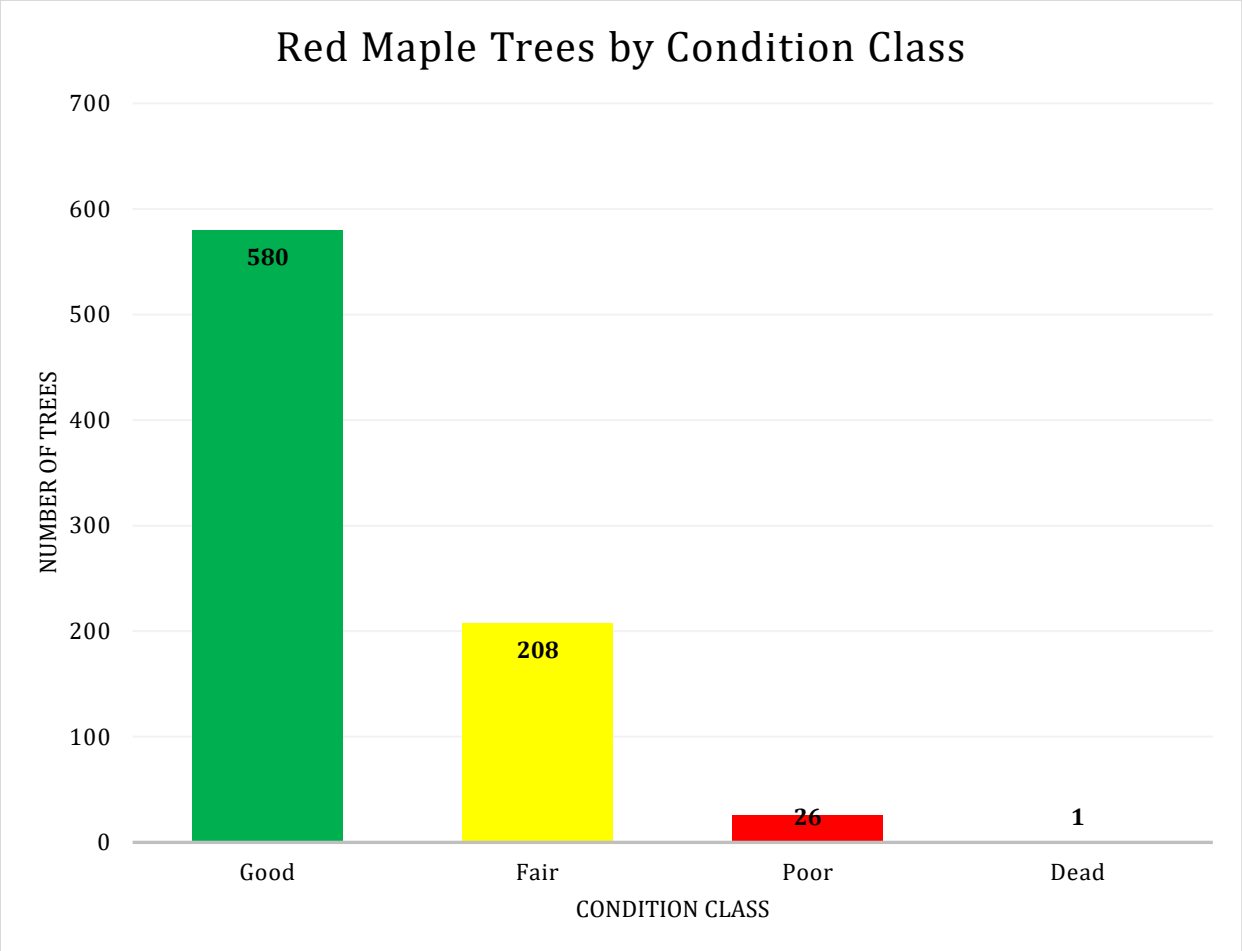


Callery pears have attractive white flowers in the spring and a tight, pyramidal form.

Red Maple: *Acer rubrum*

The breakdown of tree species condition class is as followed:

Condition Class	Total	Percentage of Tree Species
Good	580	71%
Fair	208	26%
Poor	26	3%
Dead	1	0%
Total	815	



Red Maple Management

Species Pests: Defoliating caterpillars, ambrosia beetles/borers

Treatment Options: Foliar/systemic treatment for caterpillars, bark/systemic treatment for borer species

Species Diseases: Anthracnose, leaf spot

Treatment Options: Foliar fungicide treatment

Species Tolerance to Construction/Urban Conditions: Good

Species Failure Profile: Prone to co-dominant stems and poor branch attachments, girdling roots

Beneficial Attributes: Grows to large shade tree with adequate space and resources, attractive fall color

Recommended Tree Care Activities: Root collar excavation on trees with observed girdling roots or buried root collars. Pruning to subordinate multiple co-dominant stems and to develop branch structure, especially when young

Other Concerns: Micronutrient deficiencies that cause chlorosis common, soil samples can help determine specific nutrient issues.



Red maples are prone to girdling roots. Girdling roots circle the lower stem and can eventually disrupt the flow of water and nutrients from the roots to the stem.

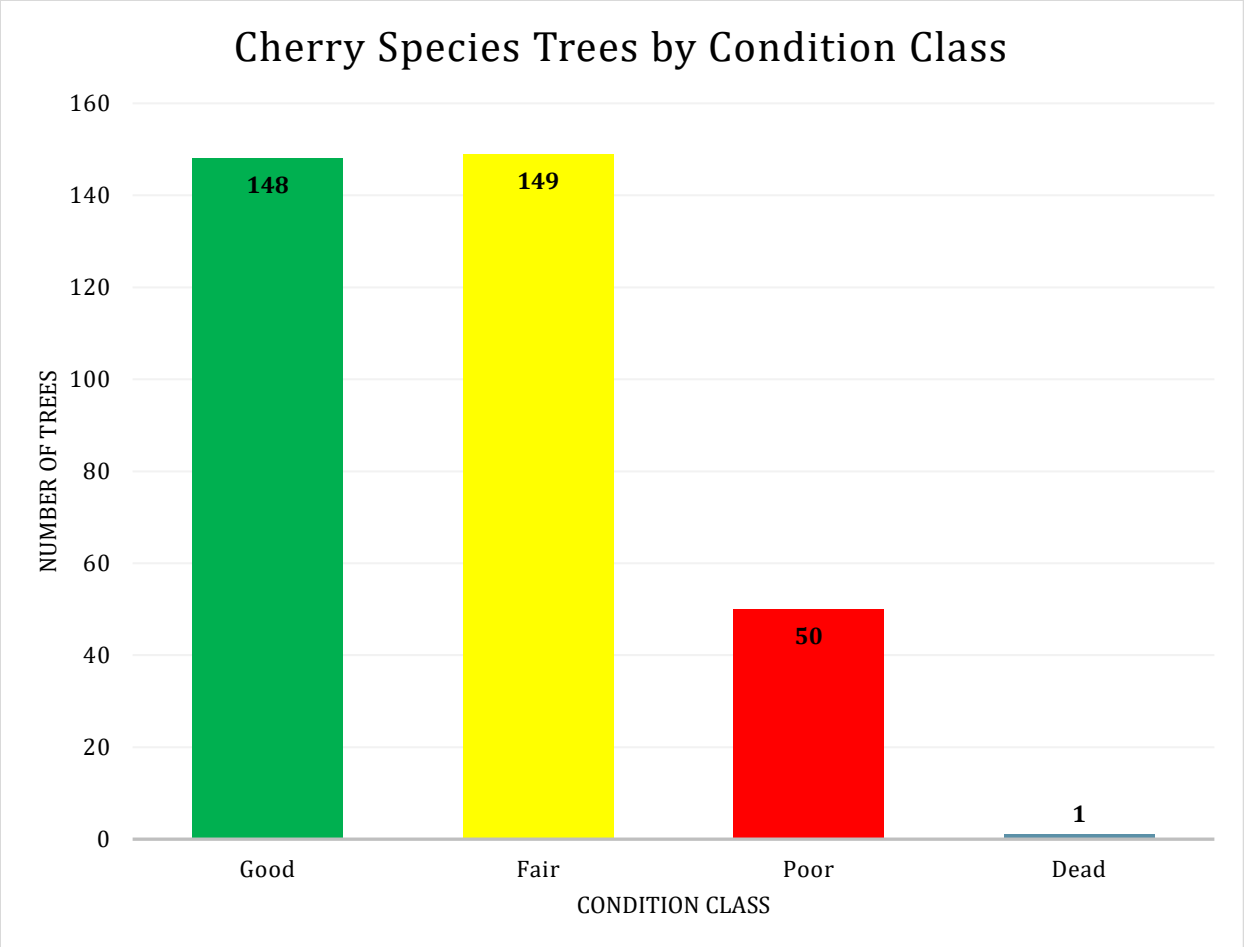


Nutrient deficiencies can cause chlorosis, which characterized by the interveinal area of a leaf becoming light green or yellow while the area directly next to the leaf vein remains green.

Cherry Species: *Prunus* sp.

The breakdown of tree species condition class is as followed:

Condition Class	Total	Percentage of Tree Species
Good	148	43%
Fair	149	43%
Poor	50	14%
Dead	1	0%
Total	348	



Cherry Species Management

Species Pests: Defoliating caterpillars, ambrosia beetles/borers

Treatment Options: Foliar/systemic treatment for caterpillars, bark/systemic treatment for borer species

Species Diseases: Leaf spot, black knot

Treatment Options: Foliar fungal treatment for leaf spot, no treatment available for black knot

Species Tolerance to Construction/Urban Conditions: Moderate, poor compartmentalization of decay

Species Failure Profile: Prone to co-dominant stems and poor branch structure, poorly compartmentalizes internal decay

Beneficial Attributes: Multiple species of Prunus have attractive flowers, generally smaller stature than other shade tree species

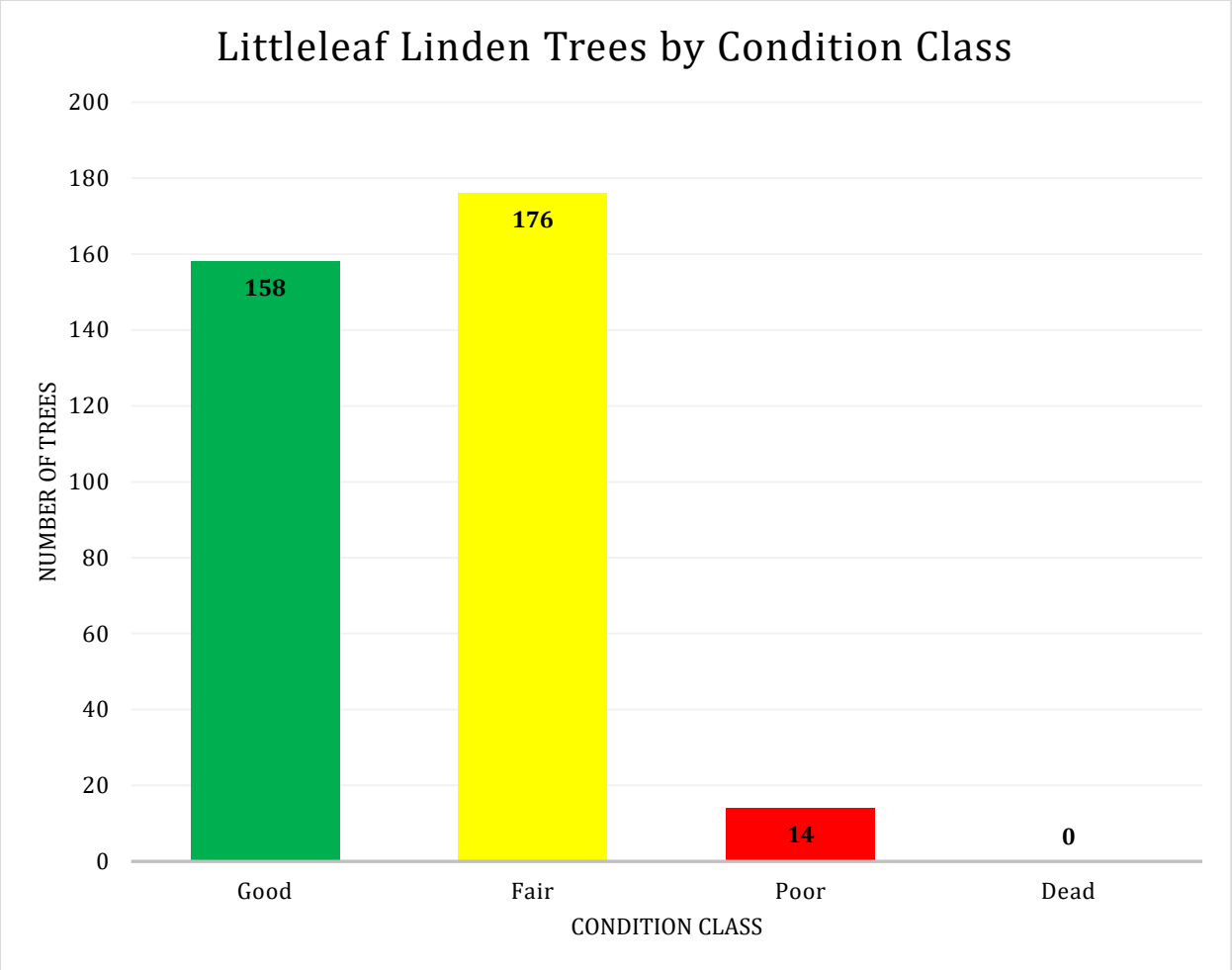
Recommended Tree Care Activities: Pruning to develop branch structure, especially when young.

Other Concerns: N/A

Littleleaf Linden: *Tilia cordata*

The breakdown of tree species condition class is as followed:

Condition Class	Total	Percentage of Tree Species
Good	158	45%
Fair	176	51%
Poor	14	4%
Dead	0	0%
Total	348	



Littleleaf Linden Management

Species Pests: Aphids, mites, scale, defoliating caterpillars

Treatment Options: Foliar/systemic treatment for caterpillars, bark/systemic treatment for borer species

Species Diseases: Sooty mold, powdery mildew, leaf spots

Treatment Options: Control piercing/sucking insect activity to control sooty mold, foliar fungicide application for powdery mildew and leaf spots

Species Tolerance to Construction/Urban Conditions: Good

Species Failure Profile: Prone to co-dominant stems with included bark and poor branch structure, girdling roots

Beneficial Attributes: Flowers great for pollinators, large shade tree with appropriate space and resources

Recommended Tree Care Activities: Root collar excavation on trees with observed girdling roots or buried root collars. Pruning to develop branch structure, especially when young.

Other Concerns: Waste from aphid activity (honeydew, often seen with sooty mold) attracts stinging insects such as yellow jackets and hornets.

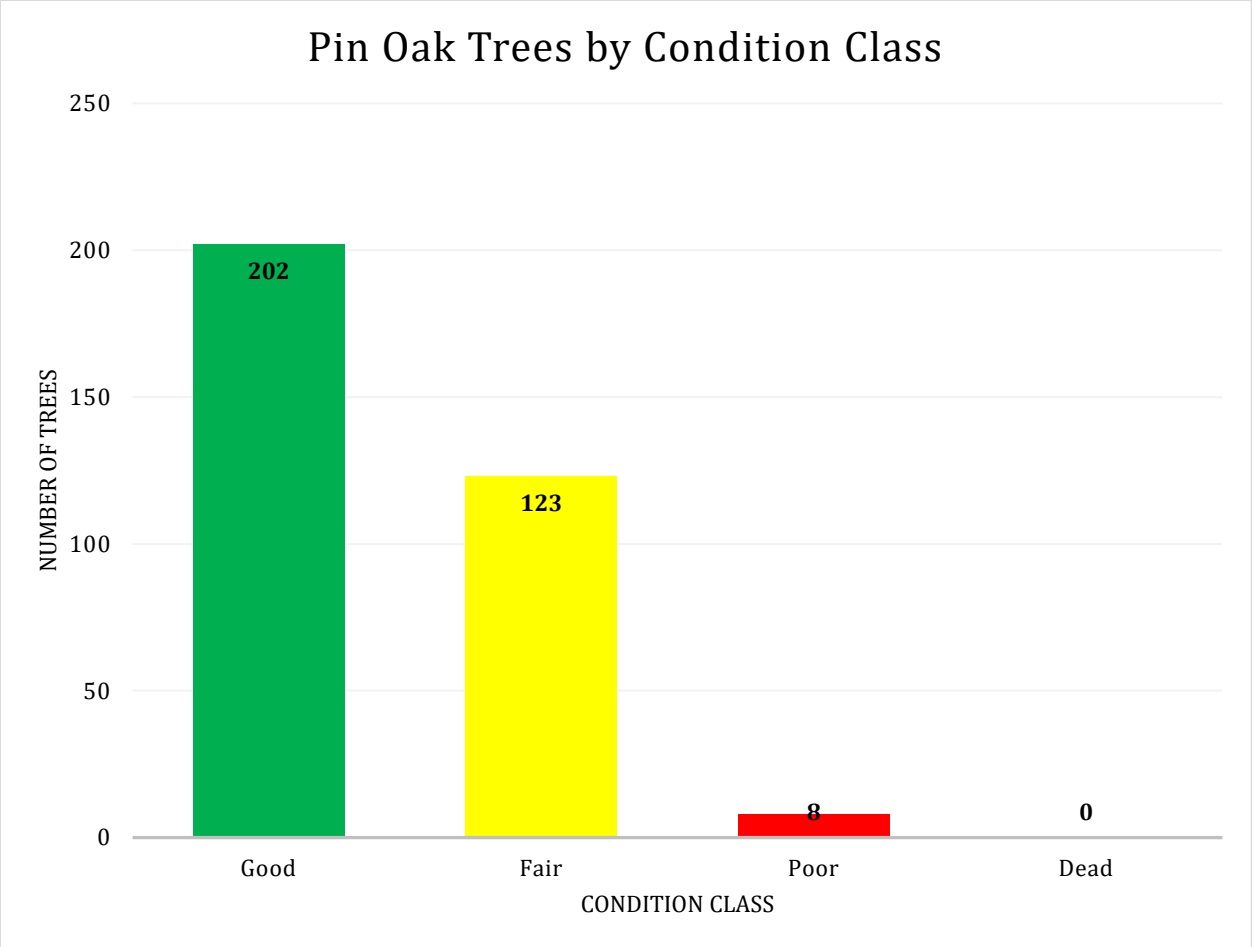


Spindle galls on linden are caused by eriophyid mites.

Pin Oak: *Quercus palustris*

The breakdown of tree species condition class is as followed:

Condition Class	Total	Percentage of Tree Species
Good	202	61%
Fair	123	37%
Poor	8	2%
Dead	0	0%
Total	333	



Pin Oak Management

Species Pests: Gall wasp, defoliating caterpillars, spider mites

Treatment Options: Foliar/systemic treatment for caterpillars, systemic treatment for gall wasp

Species Diseases: Oak wilt has been observed in eastern and central states, not in Massachusetts at this time

Treatment Options: Systemic treatments in stem, removal of infected individuals of oak wilt

Species Tolerance to Construction/Urban Conditions: Good

Species Failure Profile: Lower stem/root flare decay common in oak species

Beneficial Attributes: Flowers great for pollinators, large shade tree with appropriate space and resources

Recommended Tree Care Activities: Pruning to develop branch structure, especially when young.

Other Concerns: N/A



Gall wasp can cause deformities on the leaves and twigs of pin oak trees. Growths on twigs can cause twig dieback and even death of heavily infested trees.

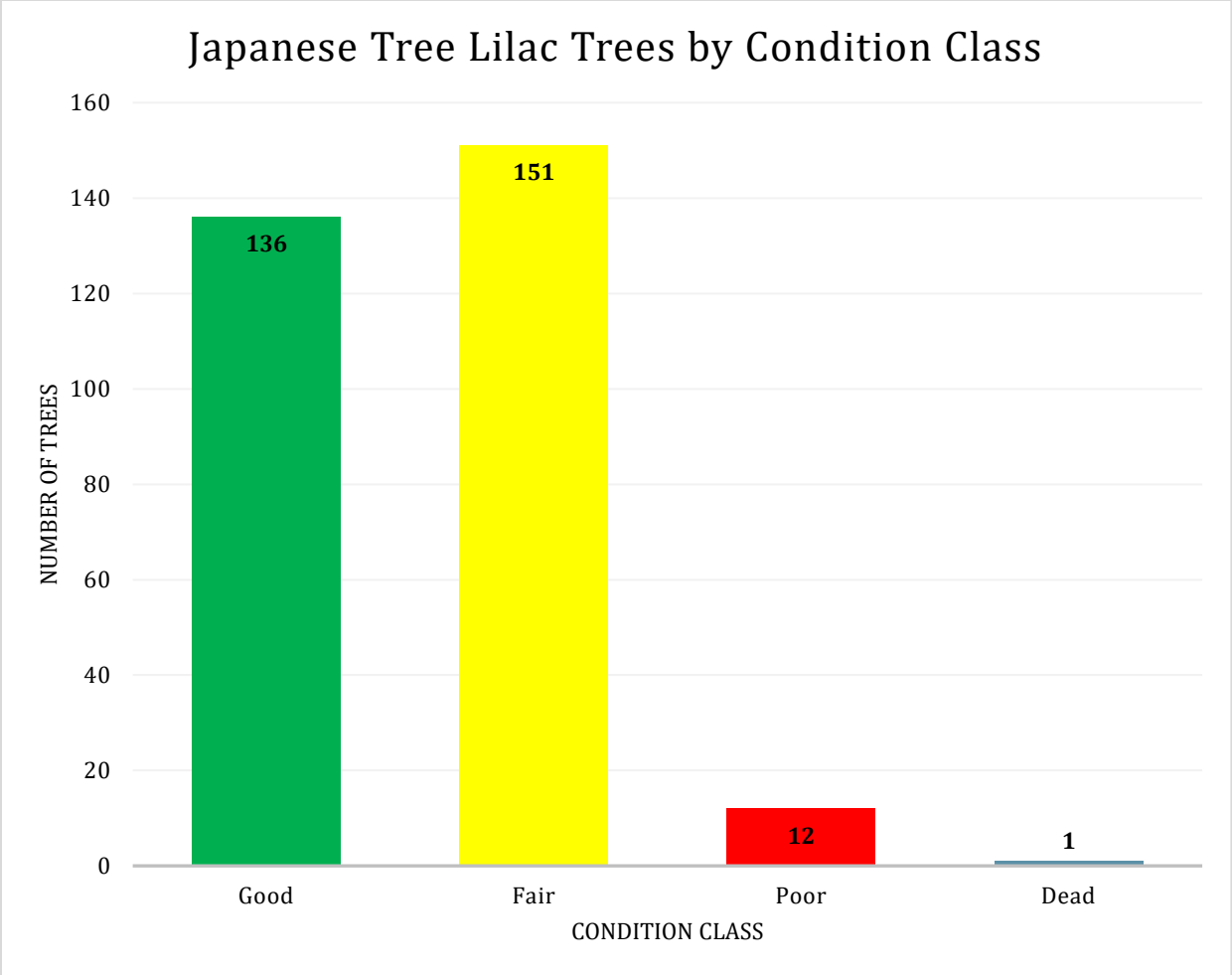


Pin oaks are also susceptible to spider mites, which cause a bronzing of the leaf surface.

Japanese Tree Lilac: *Syringa reticulata*

The breakdown of tree species condition class is as followed:

Condition Class	Total	Percentage of Tree Species
Good	136	45%
Fair	151	50%
Poor	12	4%
Dead	1	0%
Total	300	



Japanese Tree Lilac Management

Species Pests: Clearwing borer, scales

Treatment Options: Improve cultural environment and/or bark insecticide treatment for borers, horticultural oil, foliar, or systemic treatment for scale

Species Diseases: Powdery mildew, leaf spot, Verticillium wilt

Treatment Options: Foliar fungicide treatment for powdery mildew and leaf spot, prune to removed infected areas of plant when symptoms of Verticillium wilt are observed

Species Tolerance to Construction/Urban Conditions: Good, low drought tolerance

Species Failure Profile: Generally small stature, poor branch attachments

Beneficial Attributes: Attractive and fragrant flowers, small stature for sites with less space

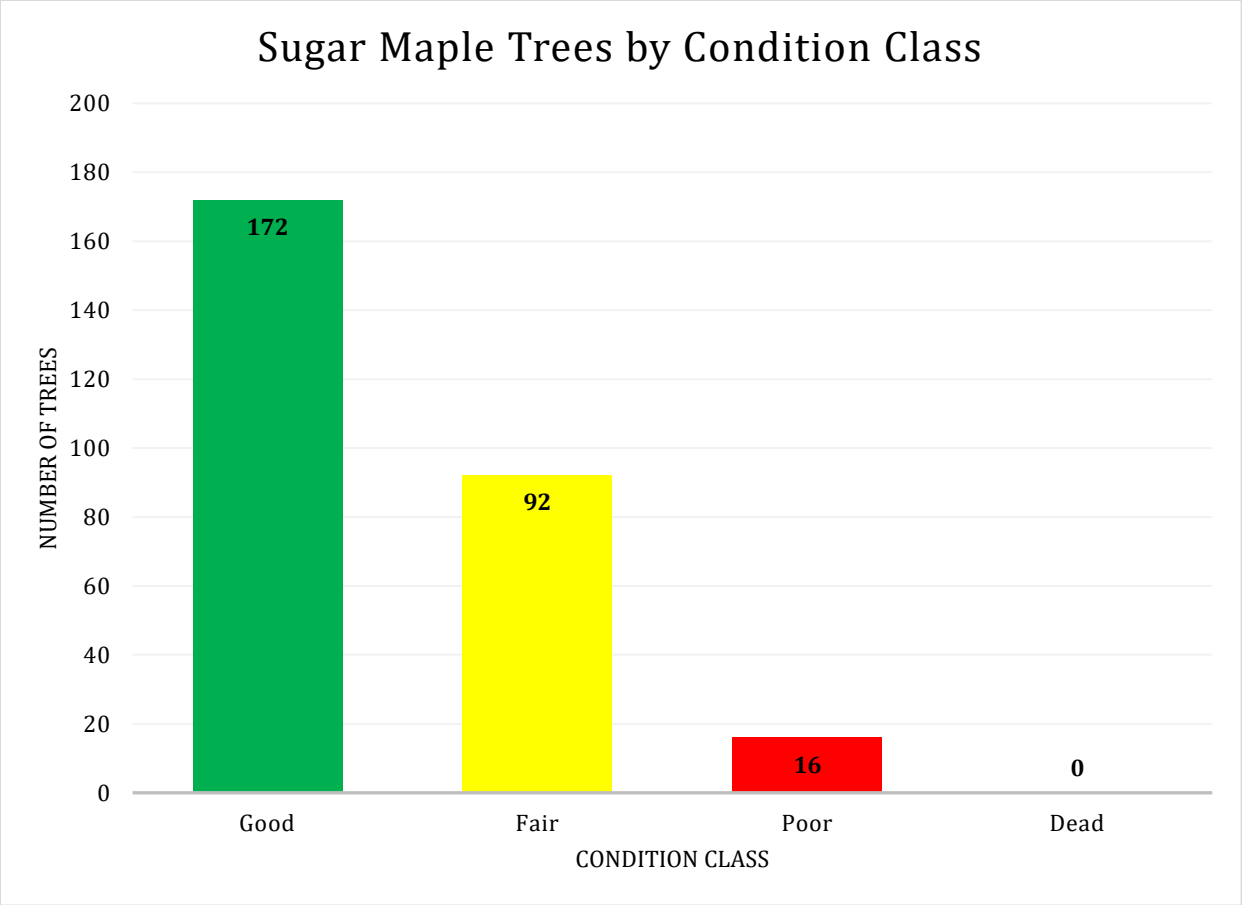
Recommended Tree Care Activities: Develop branch structure on young trees, improve environment to limit drought-like conditions as much as possible

Other Concerns: Species is considered invasive in multiple areas in the northeastern United States, including Long Island. There is a potential for this tree to be classified as invasive and would no longer be recommended for replanting.

Sugar Maple: *Acer saccharum*

The breakdown of tree species condition class is as followed:

Condition Class	Total	Percentage of Tree Species
Good	172	61%
Fair	92	33%
Poor	16	6%
Dead	0	0%
Total	280	



Sugar Maple Management

Species Pests: Aphids, Phytophthora canker/root rot, ambrosia beetles/borers

Treatment Options: Foliar or systemic treatment for aphids, systemic treatment for Phytophthora, bark or systemic treatment for borers

Species Diseases: Anthracnose, Verticillium wilt

Treatment Options: Foliar fungicide treatment for anthracnose, prune to removed infected areas of plant when symptoms of Verticillium wilt are observed

Species Tolerance to Construction/Urban Conditions: Poor, susceptible to decline due to climate change, sensitive to air pollutants and root impacts

Species Failure Profile: Co-dominant stems with included bark, girdling roots

Beneficial Attributes: Attractive fall color, large shade tree when appropriate resources and space are available

Recommended Tree Care Activities: Developmental pruning of young trees, root collar excavation for trees with girdling roots or a buried root collar

Other Concerns: N/A



Pruning young trees, such as sugar maples, to promote a strong central stem and develop branch structure is a very beneficial practice. Developmental pruning can remove tree parts that can become issues for a tree later in life such as these co-dominant stems.

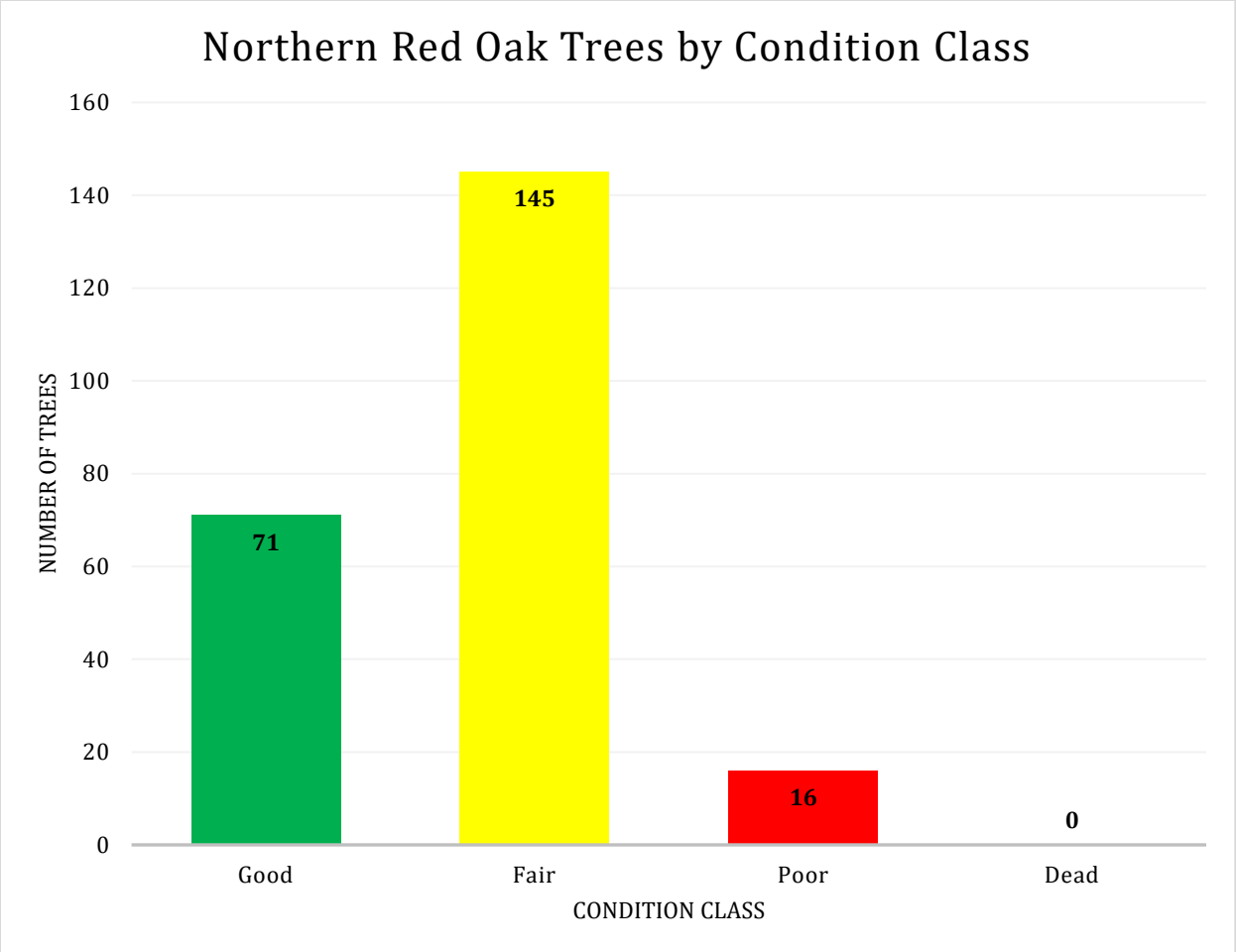


Aphids can be found under the surface of sugar maple leaves. This pest can lead to honeydew production, which can stain the tree and other infrastructure around the tree black from sooty mold.

Northern Red Oak: *Quercus rubra*

The breakdown of tree species condition class is as followed:

Condition Class	Total	Percentage of Tree Species
Good	71	31%
Fair	145	63%
Poor	16	7%
Dead	0	0%
Total	232	



Northern Red Oak Management

Species Pests: Defoliating caterpillars, scale, gall wasp, borers

Treatment Options: Foliar or systemic treatment for caterpillars, horticultural oil, systemic, or foliar treatment for scale, bark or systemic treatment for borers

Species Diseases: Oak leaf blister, oak wilt has been observed in eastern and central states, not in Massachusetts at this time

Treatment Options: Oak leaf blister rarely requires treatment, removal of infected individuals of oak wilt

Species Tolerance to Construction/Urban Conditions: Moderate

Species Failure Profile: Poor branch attachment, lower stem and root flare decay

Beneficial Attributes: can grow to large shade tree with appropriate space and resources

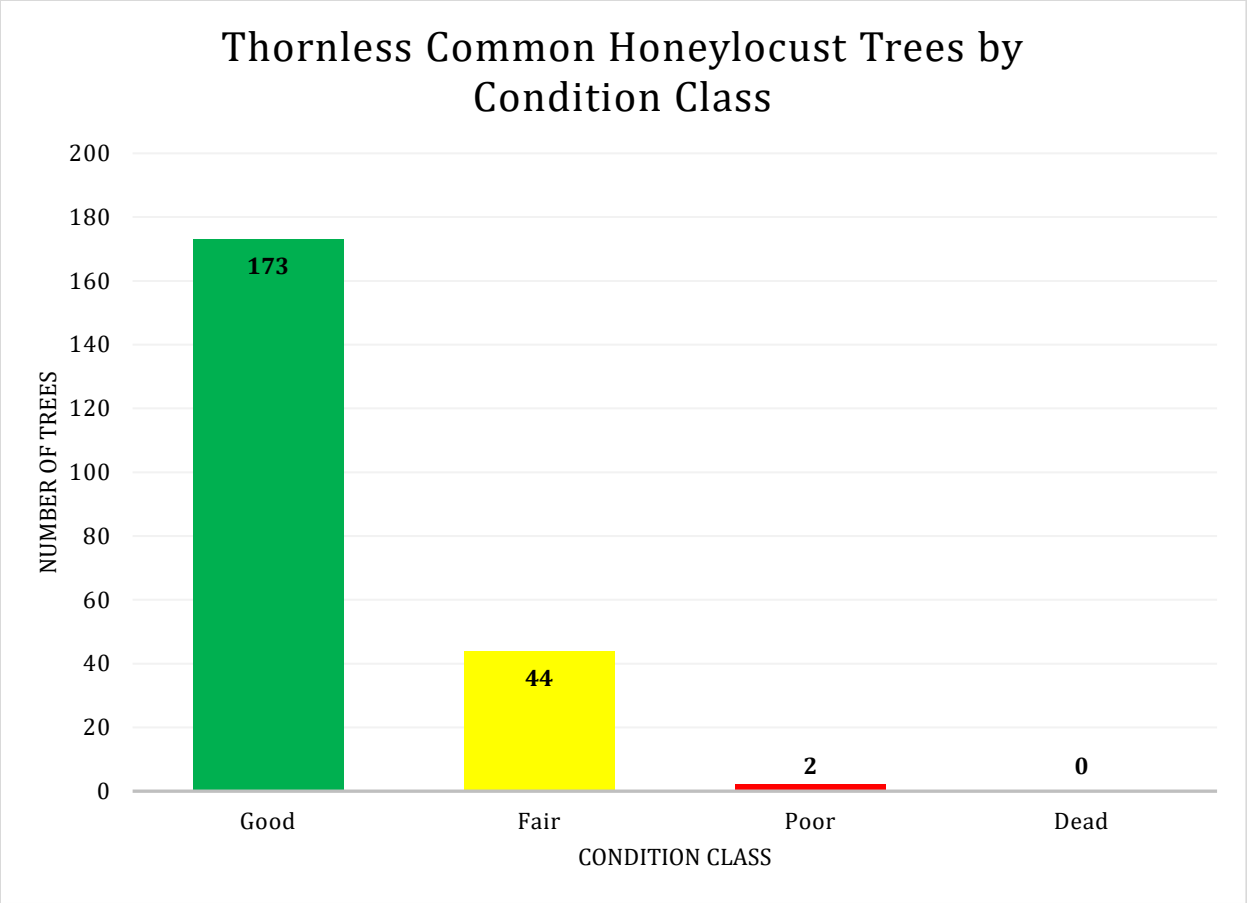
Recommended Tree Care Activities: developmentally prune young trees to improve canopy structure

Other Concerns: N/A

Thornless Common Honeylocust: *Gleditsia triacanthos* var. *inermis*

The breakdown of tree species condition class is as followed:

Condition Class	Total	Percentage of Tree Species
Good	173	79%
Fair	44	20%
Poor	2	1%
Dead	0	0%
Total	219	



Thornless Common Honeylocust Management

Species Pests: Spider mites, honeylocust plant bug, mimosa webworm, scale, borer

Treatment Options:

Species Diseases: Annual and perennial cankers

Treatment Options: None available for canker

Species Tolerance to Construction/Urban Conditions: Good

Species Failure Profile: Poor branch structure

Beneficial Attributes: Small flowers in late spring, interesting seed pods, used for shade and wildlife habitat

Recommended Tree Care Activities: Prune to improve appearance because of persisting dead branches throughout the canopy

Other Concerns: Wild trees may have sharp thorns on branches



Calico scale was observed on this honeylocust in an urban setting.



Honeylocust plant bug can cause leaf deformation, stunting, and chlorosis.

Additional Species Considerations

The following list includes significant pests of tree species that made up a smaller population of Medford's urban tree canopy. These pests have the potential to negatively affect tree health and vigor in the long term.

Green and White Ash (*Fraxinus pennsylvanica, Fraxinus americana*): Emerald Ash Borer is a significant pest of ash trees that can cause tree decline and death without treatment. Systemic treatments are available for trees that have not yet begun to decline from EAB damage.

American Elm (*Ulmus americana*): Some elms that are not resistance to Dutch Elm Disease require periodic preventative treatments. Many cultivars of American elm exist that are resistant to Dutch Elm Disease. Developmental pruning is recommended to improve tree structure in young trees.

European Beech (*Fagus sylvatica*): Beech Leaf Disease is a serious disease complex that can cause rapid energy depletion, decline, and even death of untreated individuals. Systemic and foliar treatment options are available for trees to manage Beech Leaf Disease.

Tree of Heaven (*Ailanthus altissima*): Tree of Heaven is one of the preferred host for the spotted lanternfly. Though this pest may not cause tree death in all cases, the honeydew produced by feeding lanternflies may be unsightly and attract stinging insects.



Emerald Ash Borer (EAB) create tunnels beneath the bark and can disrupt the flow of water and nutrients to the tree.



Beech Leaf Disease causes dark banding, leaf distortions, and eventual leaf drop. This depletes the tree's available nutrients and can lead to decline and death of untreated trees.