URBAN FOREST PLAN

NEIGHBORHOOD STRATEGIES

September 2022

CHARLESTOWN

NEIGHBORHOOD STRATEGIES

Neighborhood tree planting, preservation, and care efforts will serve as critical and exciting early steps in Urban Forest Plan (UFP) implementation.

Implementation at the Neighborhood Scale
Strategies outlined in the UFP provide guidance for a wide range of work that is needed across the city and at the neighborhood level. Expanding the canopy includes planting new trees (whether that's in a street, a park, within a new business district or at an individual's home), protecting existing trees, and caring for all trees. This work is essential in Boston, and is directly connected to the Urban Forest Plan goals and strategies.

Strategy 3 includes a set of maps that identify areas of priority citywide based on the goal of canopy expansion where it is most needed: in historically marginalized communities, neighborhoods with low canopy levels, areas experiencing extreme heat, and environmental justice communities.

The citywide maps provide guidance on where to begin planting efforts (which neighborhoods should be prioritized for early efforts). This chapter provides further guidance and focus for neighborhood-scale implementation efforts.

Neighborhood Maps as Starting Points
A map for every neighborhood has been developed *as a starting point* to begin to decide on where actions are needed first in every neighborhood. These maps provide a wide range of information (where data was available on appropriate scale) that neighborhoods and public agencies can use to begin to take action on plan recommendations. These same neighborhood strategies can be informative for tree planting and protection efforts on private property as well.

HOW CAN WE EXPAND CANOPY?

Tree canopy can be expanded in three primary ways: caring for existing trees to ensure longevity, protecting existing trees from removal, and planting new trees. These are the three approaches that can be considered by public and private property owners to expand canopy in our neighborhoods. The neighborhood strategies outlined in this chapter focus on defining areas for new planting and promote methods for planting the right tree in the right place.

Cover Image: Charlestown

Each neighborhood strategy includes maps and graphs outlining the following:

- **_Canopy and Land Use Trends_** Canopy is constantly undergoing change, either through planting and cutting of trees or growth over time. Analysis completed as part of the City's 2014-2019 Urban Tree Canopy Assessment conducted by the University of Vermont provided information on the net gain and loss of canopy in each neighborhood and what land use types these changes occurred on. These data are provided to identify trends and inform strategies. For example, a neighborhood with low canopy and limited change may do best with a strong planting strategy while preservation and care for existing canopy (while important in all neighborhoods) may be the most critical action in a neighborhood that has higher levels of canopy and is experiencing canopy loss.

- **_Priority Zones_** These are zones defined by overlaying tree canopy levels, areas of extreme heat, environmental justice census blocks, and previously redlined districts. These factors were chosen based on feedback from the Community Advisory Board and community open house, as well as input on plan goals and strategies. These priority zones should be looked at not only for direct action through these neighborhood strategies, they should also be considered as critical areas for expansion of canopy as city planning initiatives or private development plans take place.

- **_Existing Conditions: Physical and Environmental Opportunities and Constraints_**. Consideration of each neighborhood's physical and

environmental attributes is important when finding space available for trees. It can also determine who has the greatest ability to take action in each neighborhood. The plan describes both long-term and short-term actions including changes to policy and practice for new projects. At the same time, we must look at existing opportunities to expand canopy. These neighborhood strategies are intended to provide information to guide immediate action as well as near and long-term action.

Maps and text in this section include information on streets (right-of-way locations and widths), open spaces (open space land use), and heat and flooding impacts. These provide initial information on a number of areas, including the identification of where street tree canopy is low and can be expanded, with or without significant roadway alterations, where open spaces may have low levels of canopy and/or where open space is lacking within a low canopy area. It also helps identify who and what types of owners and uses are present and therefore who might have the capacity to expand canopy in the area.
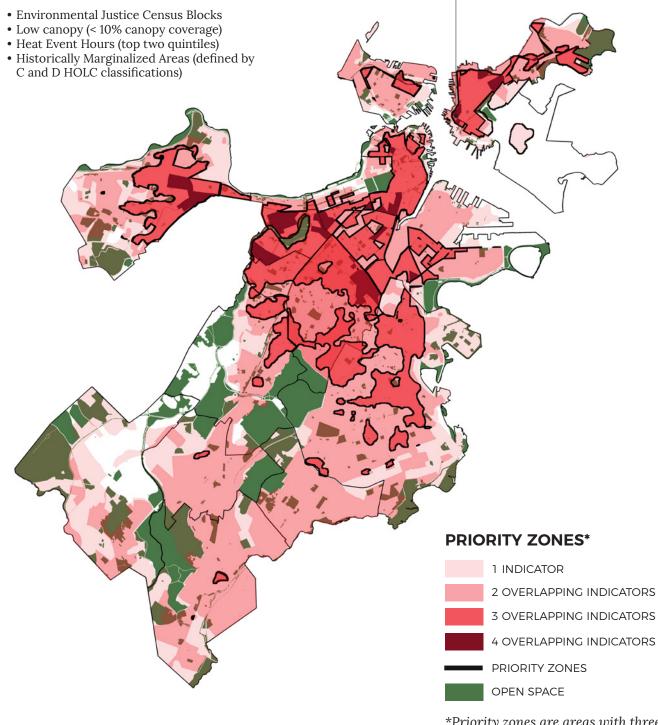
- **_Street Tree Species Analysis_** This information will be extremely useful in planning street tree planting projects for that neighborhood and ensuring a diverse and resilient street tree population is installed. This analysis provides a snapshot of current conditions.

The species analysis is based on data from the 2021 public street tree inventory and best practices and industry standards. Canopy must be expanded with climate adaptability, biodiversity, resistance to pests, public health and community well-being in mind.

WHAT IS A PRIORITY ZONE?

Priority zones are a way to focus efforts, but should not prevent action in areas not highlighted in this map. Many priority populations, for example, live in areas with relatively high overall canopy, but in which canopy cover is declining.

Priority zones are determined by three or more overlapping prioritization indicators, which include:

- Environmental Justice Census Blocks
- Low canopy (< 10% canopy coverage)
- Heat Event Hours (top two quintiles)
- Historically Marginalized Areas (defined by C and D HOLC classifications)

PRIORITY ZONES*

▨	1 INDICATOR
▨	2 OVERLAPPING INDICATORS
▨	3 OVERLAPPING INDICATORS
▨	4 OVERLAPPING INDICATORS
▬	PRIORITY ZONES
▨	OPEN SPACE

Priority zones are areas with three or more overlapping indicators.

HOW CAN WE BEGIN?

The new Director of Urban Forestry, a position recommended to be filled as a critical action in Strategy 1, is important to have in place at the City before initiating this work. This role is key to developing a structure for City/community partnership planting program.
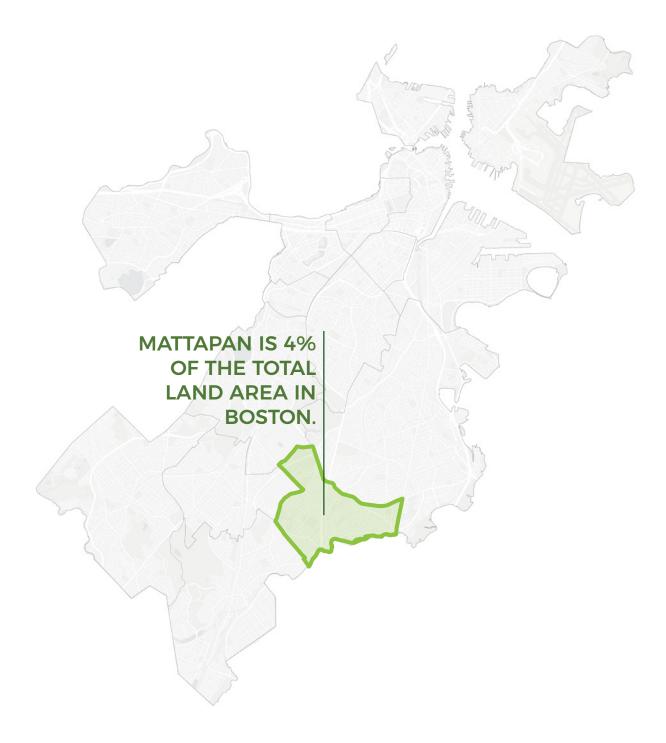
In short, the right tree must be planted in the right place in order to support the overall health of the urban forest and the community. To support these choices the species analysis section includes a list of the ten most common species by neighborhood, recommendations on species to limit in order to improve diversity and limit vulnerability to pests and disease, and information on trees expected to fare better/worse with climate change. While not exhaustive, these suggestions can help in the selection of the right tree for individual sites and help to reduce overuse of any one species or genus as well as increase biodiversity as the canopy expands. Final species selection for any street tree plantings will be approved by the Boston Parks and Recreation Department. A detailed guide on tree species can be found in the Urban Forest Plan Appendix C: Species Guide.

HOW TO USE THIS TOOL

New public planting efforts must be aligned with the goals of equity first and ensuring community involvement in decision making. For this reason, it is important to set up a process for neighborhood planting strategy implementation that follows these tenets. This process is outlined in Strategy 3.

The first step for each neighborhood is to engage with the City to start to define local priorities and needs, and to determine how best to meet those needs together. The neighborhood-level information included in this chapter is intended to be used *as a starting point* for discussions regarding opportunities, challenges, and community goals. It can additionally provide basic guidance to any private landowners interested in expanding canopy on their property and the City of Boston as they begin to take early actions of planting in existing empty tree pits, open spaces, and other public properties. Using these maps, the community and City can start to prioritize where City and private resources should be directed first.
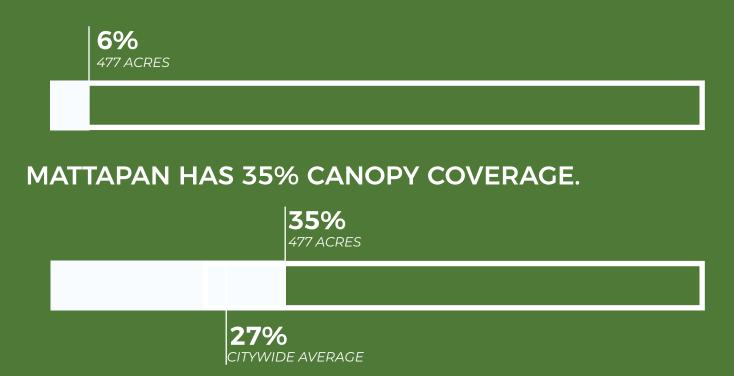
Following this initial coordination, it is recommended (Strategy 3) that a structure for a City/community partnership planting program be created and a toolkit developed for each neighborhood to utilize.
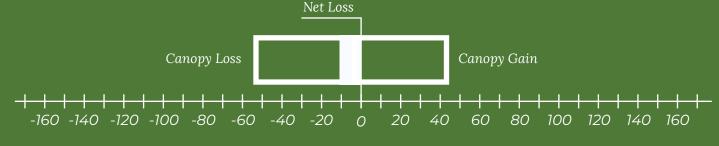
MATTAPAN

MATTAPAN IS 4% OF THE TOTAL LAND AREA IN BOSTON.

CANOPY AND LAND USE TRENDS

MATTAPAN HAS 6% OF BOSTON'S CANOPY.

6%
477 ACRES

MATTAPAN HAS 35% CANOPY COVERAGE.

35%
477 ACRES

27%
CITYWIDE AVERAGE

MATTAPAN LOST 54 ACRES AND GAINED 44 ACRES FOR A NET LOSS OF 10 ACRES OF TREE CANOPY FROM 2014-2019. THE GREATEST LOSSES WERE ON RESIDENTIAL LANDS.

Net Loss

Canopy Loss   *Canopy Gain*

-160 -140 -120 -100 -80 -60 -40 -20 0 20 40 60 80 100 120 140 160

ACRES

PRIORITY INDICATORS

PRIORITY ZONES

The following maps highlight factors that play a part in social vulnerability and indicate areas of greatest need for expanding canopy. These were chosen based on feedback from the Community Advisory Board and community open house, plan goals and strategies. All data should be field verified for accuracy. Opportunities are not indicative of recommendations or suggested plantings, but rather a starting place for ongoing conversations and on-the-ground exploration.

Environmental Justice Census Blocks. In Massachusetts, a neighborhood is defined as an Environmental Justice population if one or more of the following four criteria apply:

- the annual median household income is not more than 65% of the statewide annual median household income;
- minorities comprise 40% or more of the population;
- 25% or more of households lack English language proficiency; or
- minorities comprise 25% or more 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.

The following map shows areas that meet any one or more of these criteria.

Low Canopy. Using 2019 Tree Canopy Coverage Assessment data, this map identifies census tracts with less than 10% tree canopy coverage.

Heat Event Hours. Using data produced by the City of Boston's Heat Resilience Study, this map identifies areas exposed to the most heat impact (two upper quintiles), as defined by modeled urban heat event hours.

Historic Marginalization This map shows areas that received 'C' or 'D' ratings from the 1938 HOLC 'Residential Security Map'. These areas were subject to housing discrimination, as well as often subject to other practices and policies of disinvestment. Data is provided by the University of Richmond's Mapping Inequality Project.
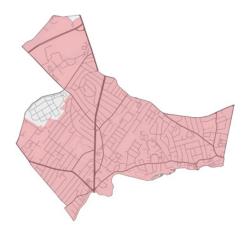
Priority Zones. Zones of highest priority are determined by overlapping prioritization indicators. Those areas with more than three overlapping indicators are highlighted. This map should serve as a starting place for further analysis and community discussions and these zones should be given particular consideration for action in future planning and development proposals.

Priority zones should help weight planting canopy expansion focus and attention, but should not be indicative of overall resources and efforts needed. Many priority populations, for example, live in areas with relatively high overall canopy, but in which canopy cover is declining. These areas will need to continue to be monitored and should be prioritized through proactive care, preservation and expansion, as included in Strategies 2, 3 and 4.
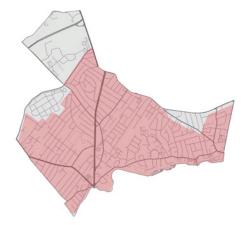
PRIORITY INDICATORS

Environmental Justice Communities

Low Canopy

Heat Event Hours

Historic Marginalization

MATTAPAN
PRIORITY ZONES*

▨	1 INDICATOR
▨	2 OVERLAPPING INDICATORS
▨	3 OVERLAPPING INDICATORS
▨	4 OVERLAPPING INDICATORS
▨	OPEN SPACE
▬	PRIORITY ZONES

*Priority zones are areas with three
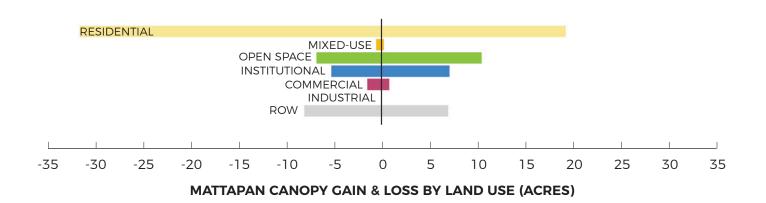or more overlapping indicators.*

⊢——————⊣ 2,000 FT.

EXISTING CONDITIONS

Physical and environmental opportunities and constraints will impact a neighborhood's ability to expand the canopy. It can also determine who has the greatest ability to take action. When used in coordination with the mapped priority zones, these maps can provide greater understanding of where opportunities to expand planting may be the greatest, by whom, and what types of planting might be best suited to the area (ie. street trees, green buffers or additional plantings in open spaces).
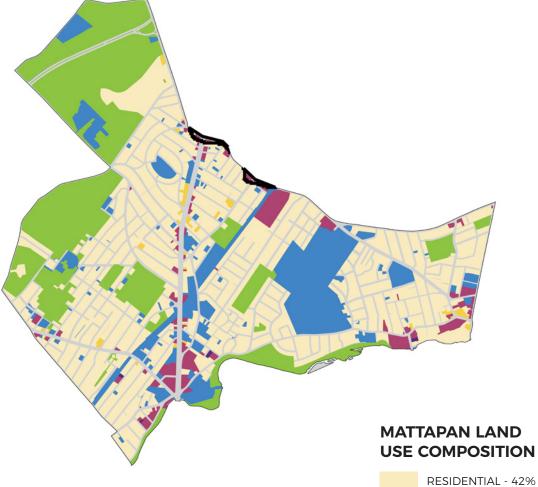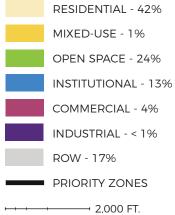
LAND USE

Every neighborhood has a different make-up of private and public land, as well as different key land uses and property owners. The existence of various land uses can affect opportunities for expanding canopy and who in the community has the ability and responsibility to act.

Residential land, which is where most of Boston's canopy lies, requires actions by private owners, who often need education on proper planting and care practices. Commercial land use can provide opportunities for tree canopy additions in parking lots and in pedestrian-heavy business districts. Trees in business districts improve the visitor experience and have been shown to drive up sales and activity, creating a positive economic benefit. Industrial lands, on the other hand, can at times be challenging places to plant, but often benefit from vegetated buffers from adjacent neighborhoods to reduce visual impact, noise, and air pollution.

Mattapan is predominantly residential (42%) with significant open space (24%) and right-of-way designation. There is only a sliver of a priority zone at the boundary between Mattapan and Dorchester, however, areas of overlapping priority indicators are predominantly residential. Right-of-way and open space are specifically discussed on the following pages.

RESIDENTIAL
MIXED-USE
OPEN SPACE
INSTITUTIONAL
COMMERCIAL
INDUSTRIAL
ROW

-35 -30 -25 -20 -15 -10 -5 0 5 10 15 20 25 30 35

MATTAPAN CANOPY GAIN & LOSS BY LAND USE (ACRES)

MATTAPAN LAND USE COMPOSITION

- RESIDENTIAL - 42%
- MIXED-USE - 1%
- OPEN SPACE - 24%
- INSTITUTIONAL - 13%
- COMMERCIAL - 4%
- INDUSTRIAL - < 1%
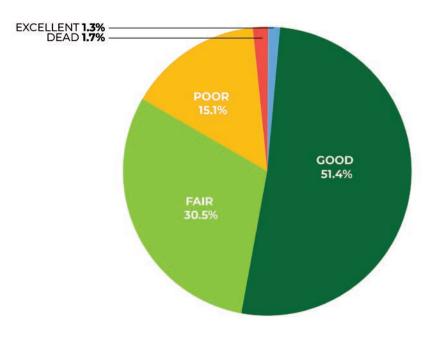- ROW - 17%
- PRIORITY ZONES

2,000 FT.

RIGHT-OF-WAY (ROW)

Right-of-way (ROW) refers to property in Boston that is subject to public use for streets, curbs, planting strips, sidewalks, etc. These lands in Boston represent a set of potential planting sites over which the Parks Department and other City departments already have the jurisdiction to expand canopy.

The map on the following page includes sidewalk width, which is a significant determinant of whether space can be found to plant trees in existing or new tree pits. Tree canopy data can be overlaid with locations of existing street trees and potential planting sites along streets. This can illustrate areas where canopy expansion could occur with little-to-no alterations needed, and where more intensive changes to the street would be needed. Priority Zones are included in this map to indicate any potential planting sites that fall within priority areas.

Areas with sidewalk widths over 8'-6" (inclusive of the curb) meet current standards and could be considered for immediate planting, while sidewalk widths less than 8'-0" (inclusive of the curb) would likely require more significant changes to the street or exceptions to current standards. More significant changes are discussed in Strategy 4.

In Mattapan, an estimated 178 potential street tree planting sites (including existing tree pits with dead trees) were identified during the inventory in May 2021. These sites should be considered for immediate planting, in particular those falling within the priority zones. Potential planting sites all need to be evaluated on a case-by-case basis in the field for suitability.
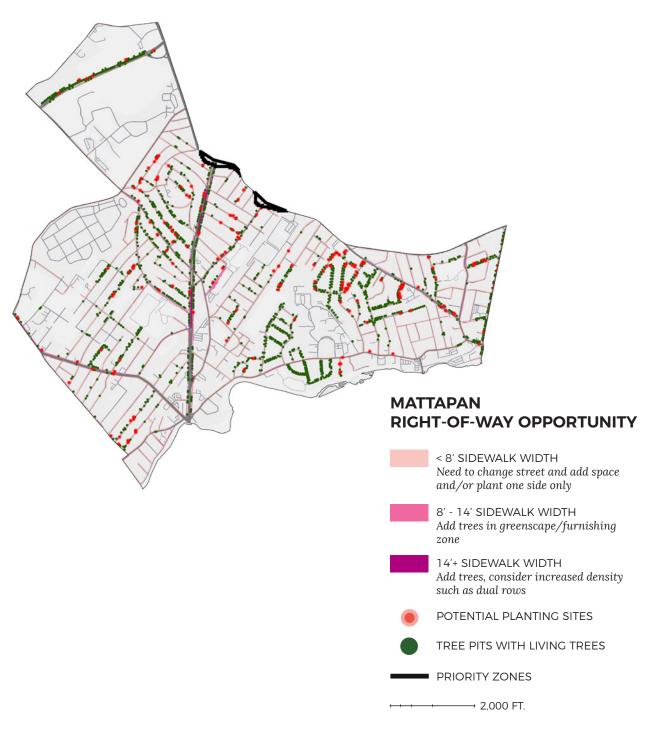
During the inventory, it was also observed that Mattapan is one of five neighborhoods in which trees are in greater conflict with above ground utilities. Opportunities for reducing these conflicts should be considered. Refer to Strategy 4 for further information.

MATTAPAN STREET TREE CONDITION COMPOSITION

EXCELLENT **1.3%**
DEAD **1.7%**
POOR **15.1%**
GOOD **51.4%**
FAIR **30.5%**

TAKEAWAYS:
Over half (52.7%) of the street trees in Mattapan are considered in Good or Excellent condition, with the remaining majority in Fair and Poor condition. Proactive care practices should be focused on improving the condition of those trees in Fair or Poor condition to support development of a healthy canopy in the long term.

MATTAPAN
RIGHT-OF-WAY OPPORTUNITY

< 8' SIDEWALK WIDTH
Need to change street and add space and/or plant one side only

8' - 14' SIDEWALK WIDTH
Add trees in greenscape/furnishing zone

14'+ SIDEWALK WIDTH
Add trees, consider increased density such as dual rows

● POTENTIAL PLANTING SITES

● TREE PITS WITH LIVING TREES

━━ PRIORITY ZONES

├──────────┤ 2,000 FT.

STREET TREE ANALYSIS

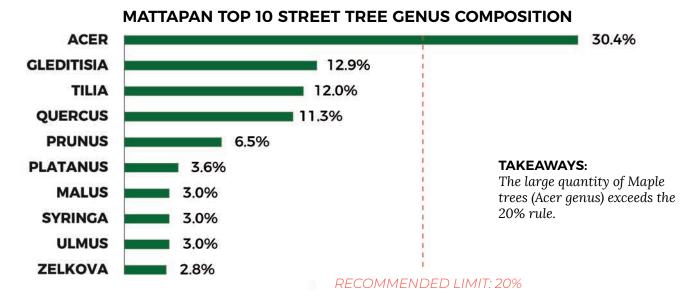Based on data from the 2021 public street tree inventory the ten most common species in each neighborhood as well as distribution of genus, age, and overall condition are shown below. Based on best practices and industry standards, recommendations are provided on species to limit in order to improve diversity and reduce vulnerability to pests and disease

as well as suggestions on species expected to fare better or worse with climate change. As a general rule, industry recommendations are to limit any one species to less than 10% of total canopy and any single genus to less than 20%.

MATTAPAN TOP 10 TREE SPECIES

Species	%
NORWAY MAPLE	11%
HONEYLOCUST	10%
LITTLELEAF LINDEN	9%
RED MAPLE	5%
PIN OAK	4%
CRIMSON KING MAPLE	3%
JAPANESE TREE LILAC	3%
NORTHERN RED OAK	2%
AMERICAN SYCAMORE	2%
JAPANESE ZELKOVA	2%

RECOMMENDED LIMIT: 10%

SUSCEPTIBLE TO...

SPOTTED LANTERNFLY

EMERALD ASH BORER

ASIAN LONGHORN BEETLE

EXTREME HEAT

EXPECTED TO FARE WELL AS CLIMATE WARMS

MATTAPAN TOP 10 STREET TREE GENUS COMPOSITION

Genus	%
ACER	30.4%
GLEDITISIA	12.9%
TILIA	12.0%
QUERCUS	11.3%
PRUNUS	6.5%
PLATANUS	3.6%
MALUS	3.0%
SYRINGA	3.0%
ULMUS	3.0%
ZELKOVA	2.8%

TAKEAWAYS:
The large quantity of Maple trees (Acer genus) exceeds the 20% rule.
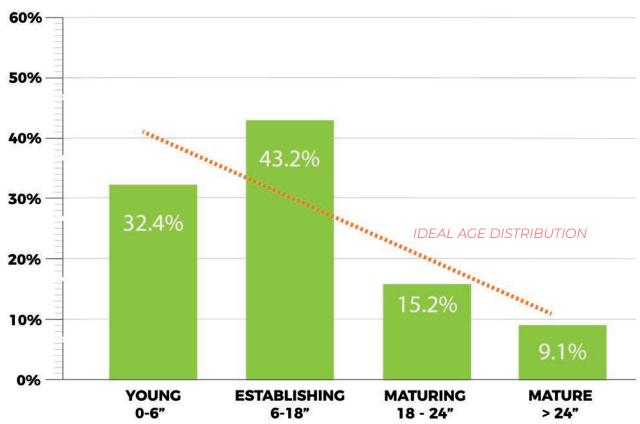
RECOMMENDED LIMIT: 20%

Additional genera identified in Mattapan: Amelanchier, Carpinus, Catalpa, Celtis, Cercidiphyllum, Cercis, Cornus, Crataegus, Eucommia, Fraxinus, Ginkgo, Gymnocladus, Hibiscus, Koelreuteria, Liquidambar, Liriodendron, Malus, Morus, Ostrya, Parrotia, Picea, Pyrus, Rhamnus, Sophora, Syringa, Thuja,

MATTAPAN STREET TREE AGE COMPOSITION

Age Class	%
YOUNG 0-6"	32.4%
ESTABLISHING 6-18"	43.2%
MATURING 18 - 24"	15.2%
MATURE > 24"	9.1%

IDEAL AGE DISTRIBUTION

TAKEAWAYS:
Mattapan has relatively well distributed size and age with a greater number of establishing street trees relative to the ideal distribution. Focus should be on proactive care and preservation of existing canopy to improve longevity and new planting to increase the number of young street trees.

OPEN SPACE

Open spaces represent a set of potential planting sites over which the Parks Department and other City departments already have the jurisdiction to expand canopy.

This map shows all open spaces including parks, sports fields, urban wilds, cemeteries and plazas. Tree canopy data is overlaid with open spaces to indicate where these areas may have limited canopy and therefore become sites of opportunity for canopy expansion. The property status as protected or unprotected is indicated in the map in order to identify where canopy within open spaces may or may not be at risk due to future land use change. Note: while cemeteries are unprotected open spaces they are generally not at risk for conversion and could be an opportunity for canopy protection and expansion. Priority Zones are included in this map to indicate any potential open space planting sites that fall within priority areas.
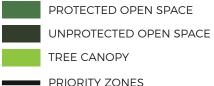
Mattapan has a mix of protected and unprotected open spaces. Opportunities to increase canopy in the existing open spaces should be considered.

SHERRIN WOODS, MATTAPAN

**MATTAPAN
OPEN SPACE OPPORTUNITY**

- PROTECTED OPEN SPACE
- UNPROTECTED OPEN SPACE
- TREE CANOPY
- PRIORITY ZONES

2,000 FT.

ENVIRONMENTAL CONSTRAINTS

Environmental conditions across the neighborhoods in Boston vary widely. There are coastal conditions, hills, streams and other existing environmental factors which impact plant communities, plant life and health. These maps identify some of the key dynamics in each neighborhood, in particular how climate change may impact conditions and chances of survival for plantings.
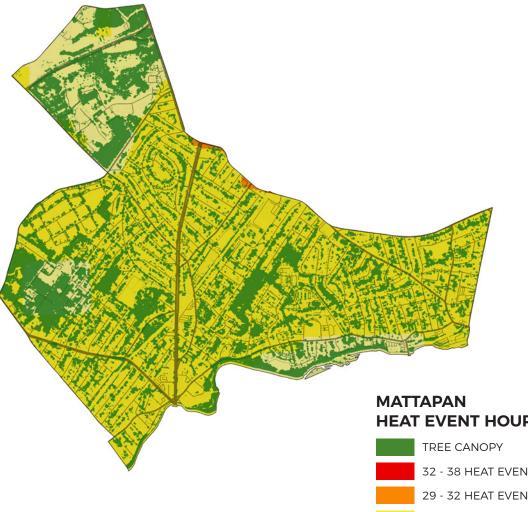
- **Urban Heat**. While trees can help to mitigate urban heat island impacts, heat can have a significant adverse impact on trees as well, especially over the long term. Some trees will fare better in conditions of extreme heat. Planting should aim to consider heat in species selection.

  Mattapan has only very minimal areas of higher heat. Trees in this area are therefore at lesser risk of damage due to heat than other neighboring areas.

- **Flooding**. With climate change, portions of Boston are expected to see significant flooding either as a result of increased precipitation or Coastal inundation as storms increase and sea levels rise. While not as damaging to trees as salt water coastal flooding, sitting water can eventually harm or kill otherwise healthy trees. Planned infrastructural work aimed at reducing climate risks will play a critical role in mitigating some of this flooding, however, these threats should be considered in the planting approach. For example, species that are more tolerant of wet conditions should be selected in flood-prone areas and areas intended to collect and hold stormwater. Additionally, coastal protection projects should

consider canopy levels and include new plantings and/or protection of existing canopy.

Mattapan is not at risk of significant coastal flooding.

**MATTAPAN
HEAT EVENT HOURS***

■ TREE CANOPY

■ 32 - 38 HEAT EVENT HOURS

■ 29 - 32 HEAT EVENT HOURS

■ 26 - 29 HEAT EVENT HOURS

26 - 29 HEAT EVENT HOURS

23 - 26 HEAT EVENT HOURS

0 - 23 HEAT EVENT HOURS

Heat Event Hours are modelled hours during the week that the Heat Index exceeds Boston Heat Alert Levels (see Heat Resilience Solutions for Boston).

2,000 FT.