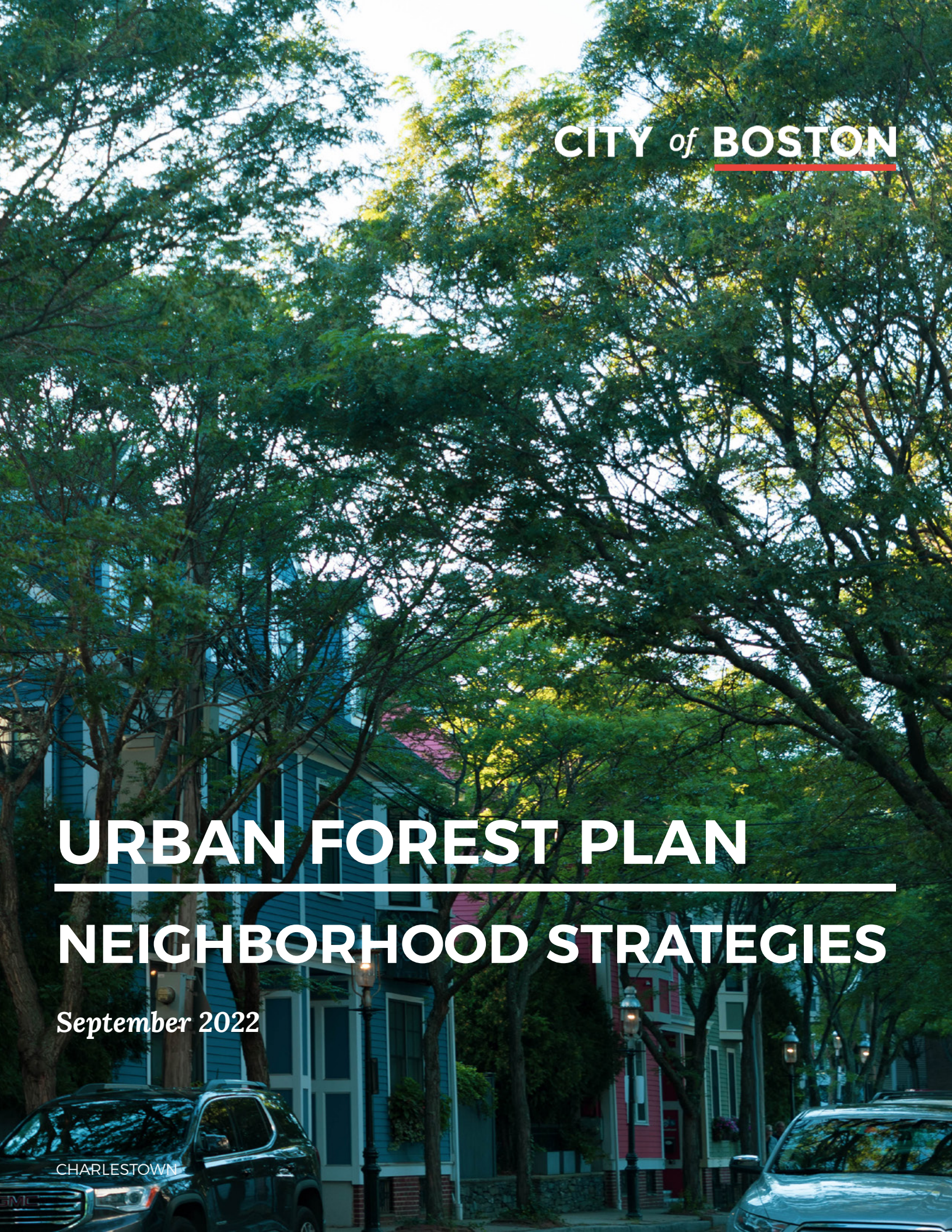
CITY of BOSTON

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.

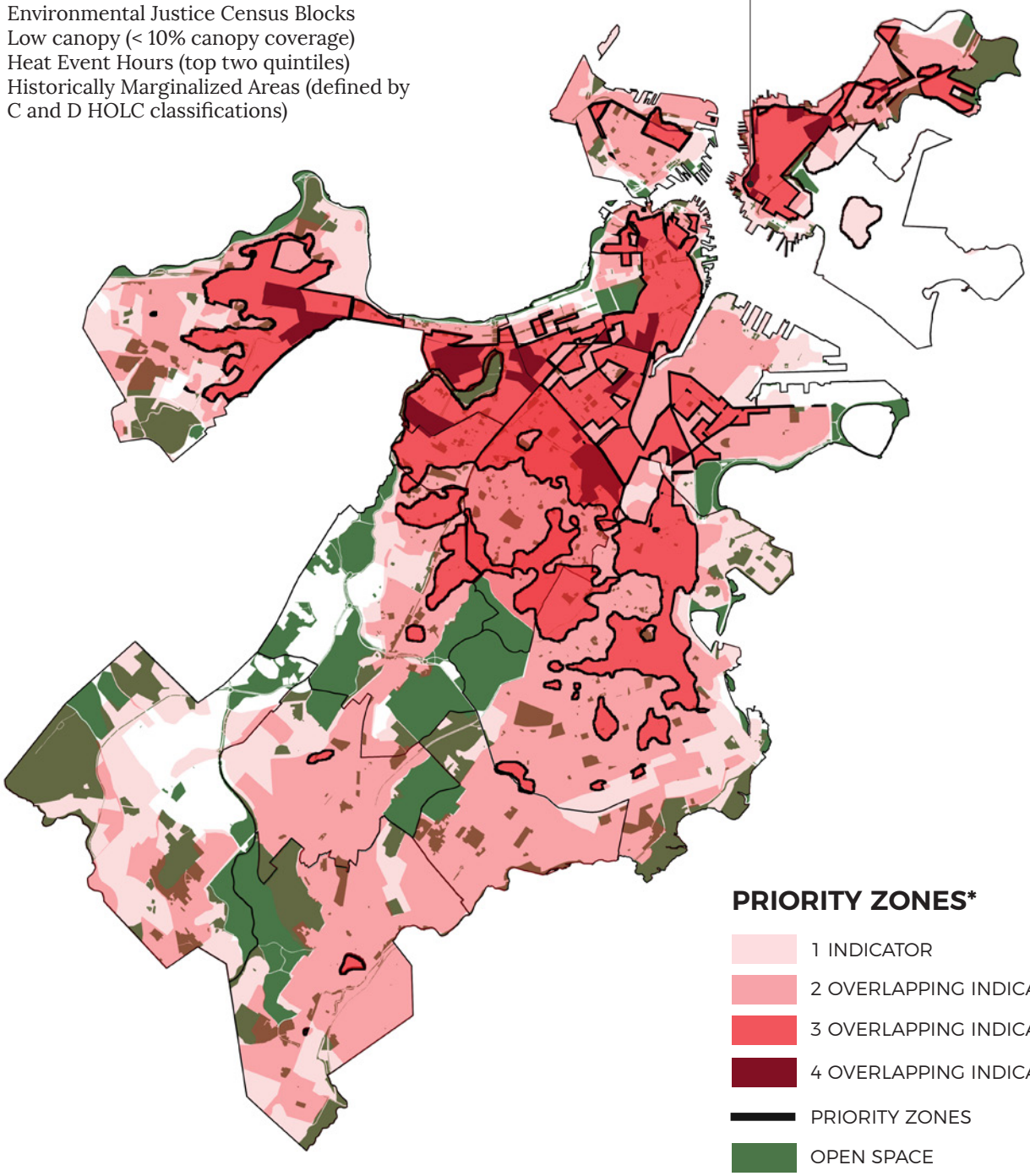
The species analysis is based on data from the 2021 public street tree inventory and best practices and industry standards. Canopy must be expanded with climate adaptability, biodiversity, resistance to pests, public health and community well-being in mind.

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 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

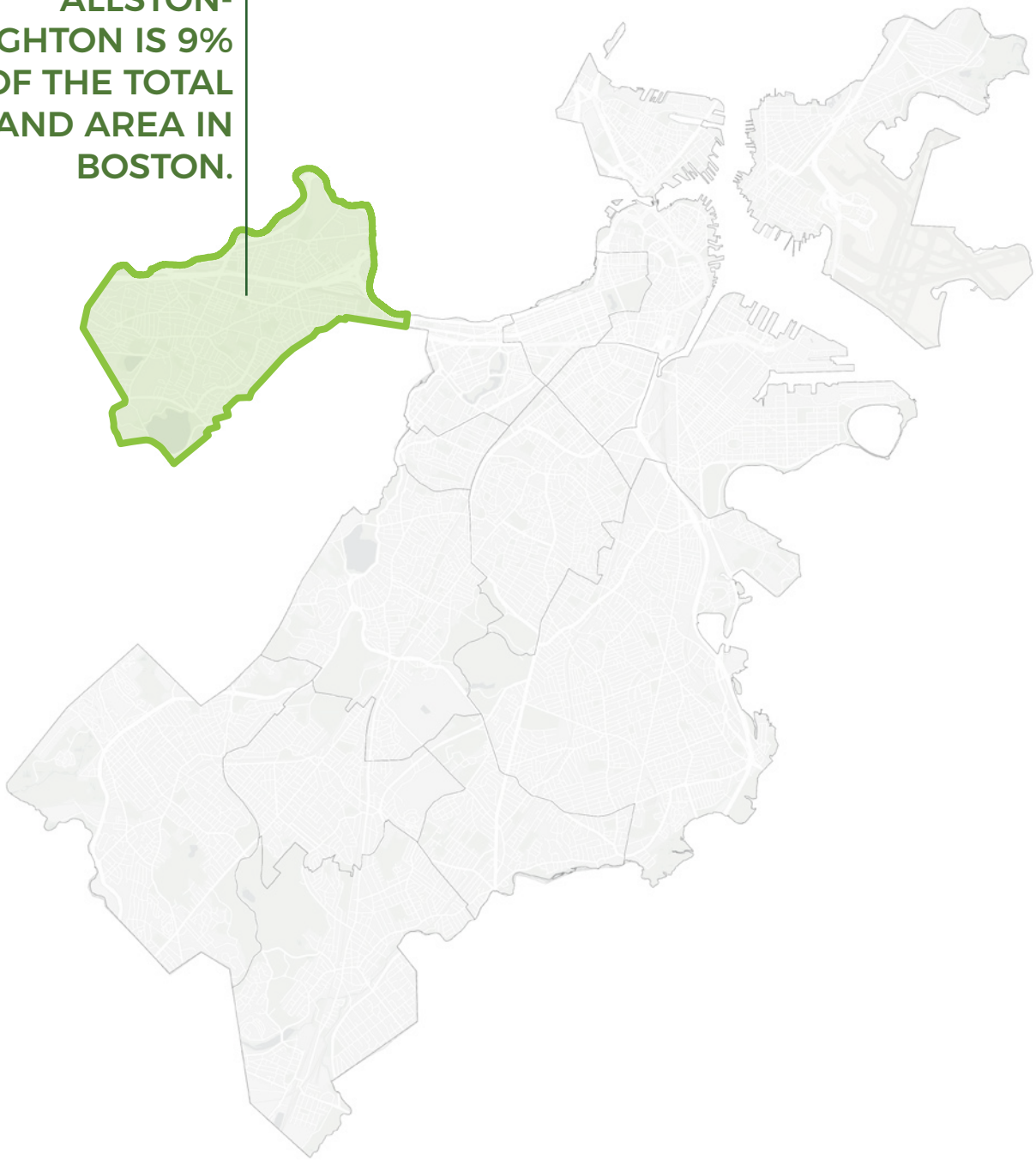
New public planting efforts must be aligned with the goals of equity first and ensuring community involvement in decision making. For this reason, it is important to set up a process for neighborhood planting strategy implementation that follows these tenets. This process is outlined in Strategy 3.

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.

ALLSTON-BRIGHTON

ALLSTON-BRIGHTON IS 9% OF THE TOTAL LAND AREA IN BOSTON.

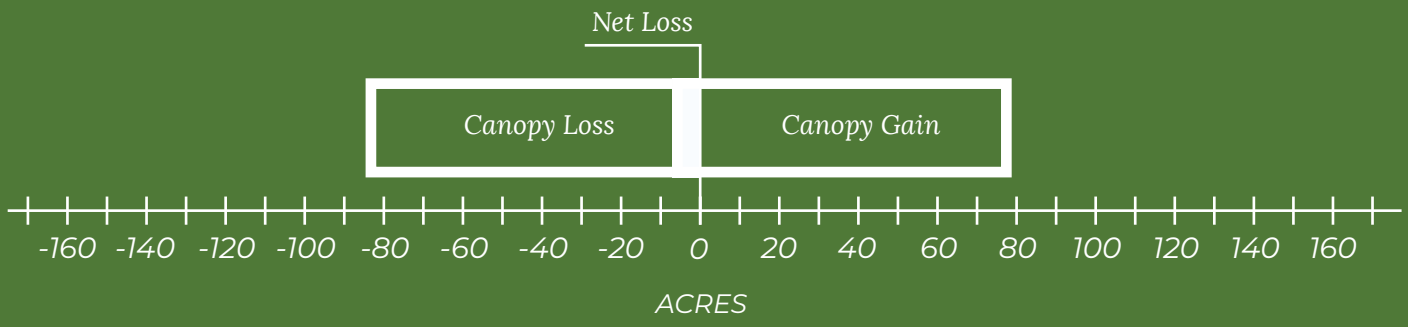


CANOPY AND LAND USE TRENDS

ALLSTON-BRIGHTON HAS 8% OF BOSTON'S CANOPY.

ALLSTON-BRIGHTON HAS 23% CANOPY COVERAGE.

ALLSTON-BRIGHTON LOST 86 ACRES AND GAINED 79 ACRES FOR A NET LOSS OF 7 ACRES OF TREE CANOPY FROM 2014-2019. THE GREATEST LOSSES WERE ON RESIDENTIAL AND OPEN SPACE LANDS.



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;
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- 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.

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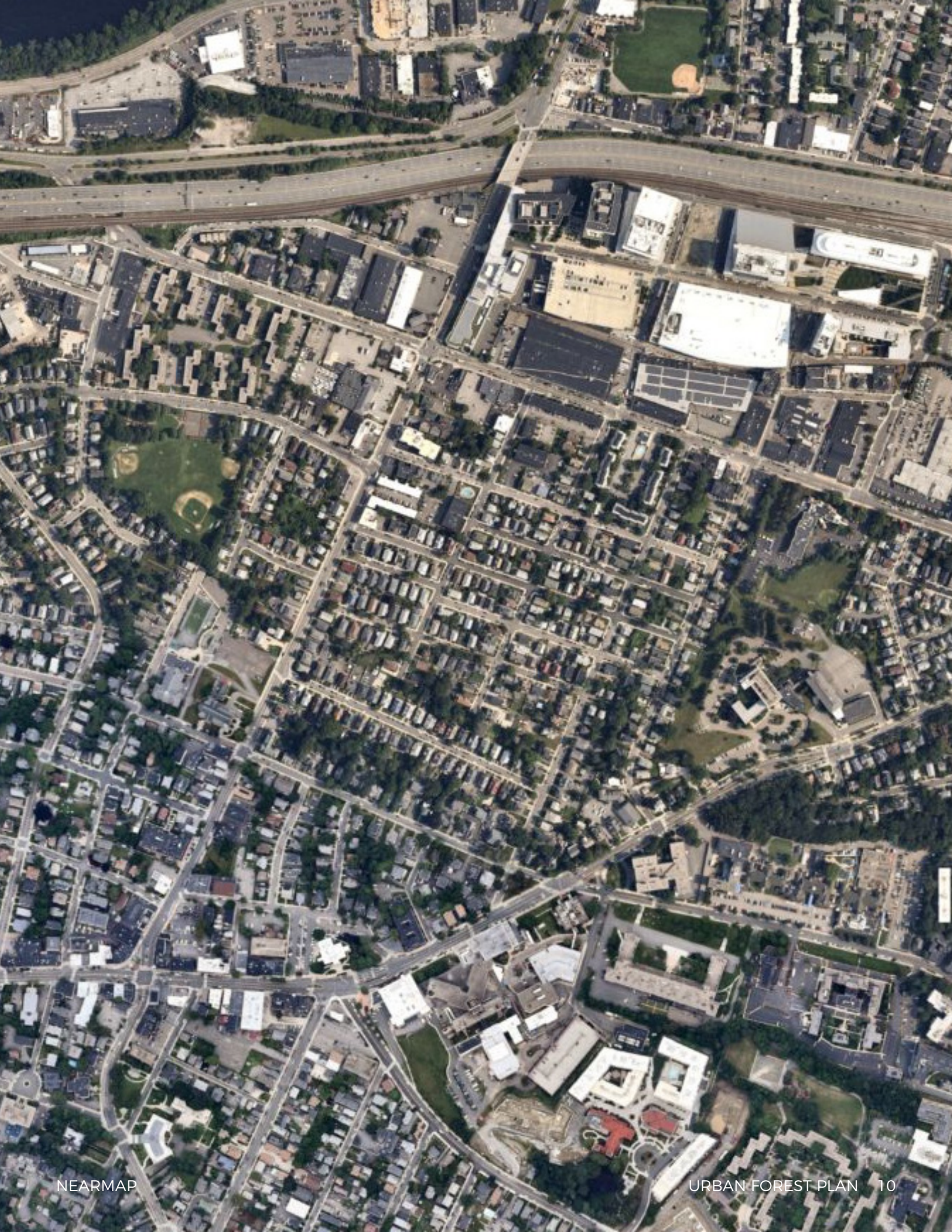
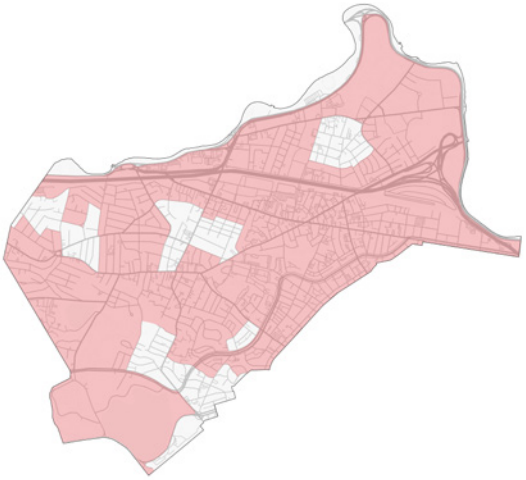
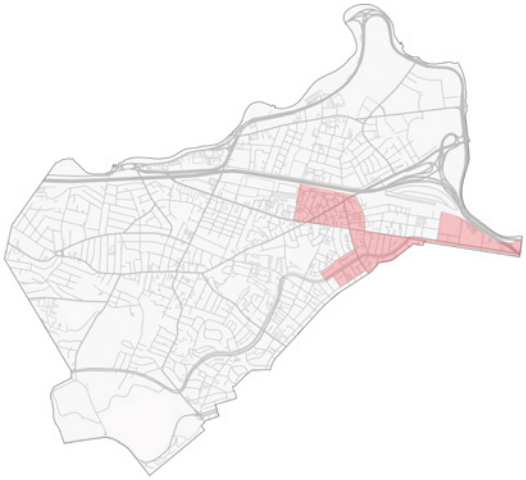
Priority zones should help weight planting canopy expansion focus and attention, but should not be indicative of overall resources and efforts needed. Many priority populations, for example, live in areas with relatively high overall canopy, but in which canopy cover is declining. These areas will need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



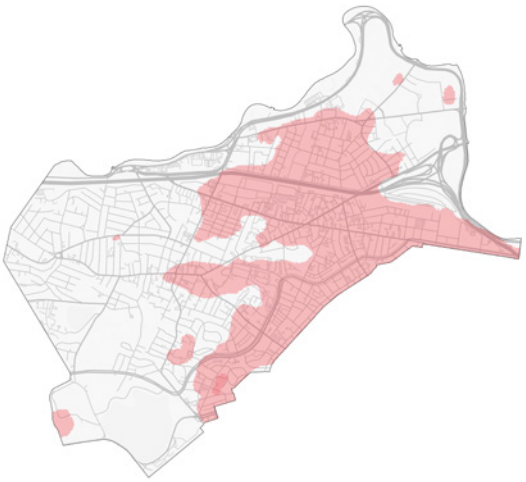
PRIORITY INDICATORS



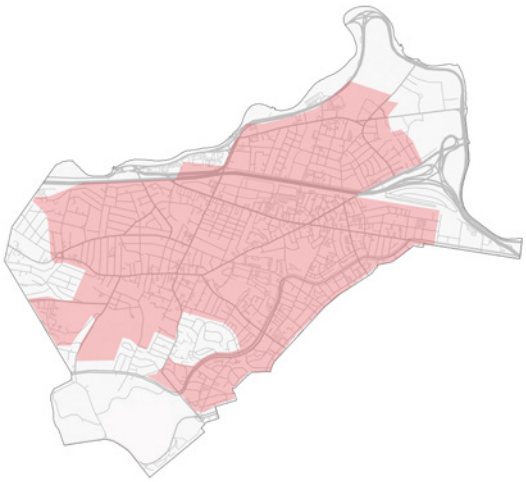
Environmental Justice Communities



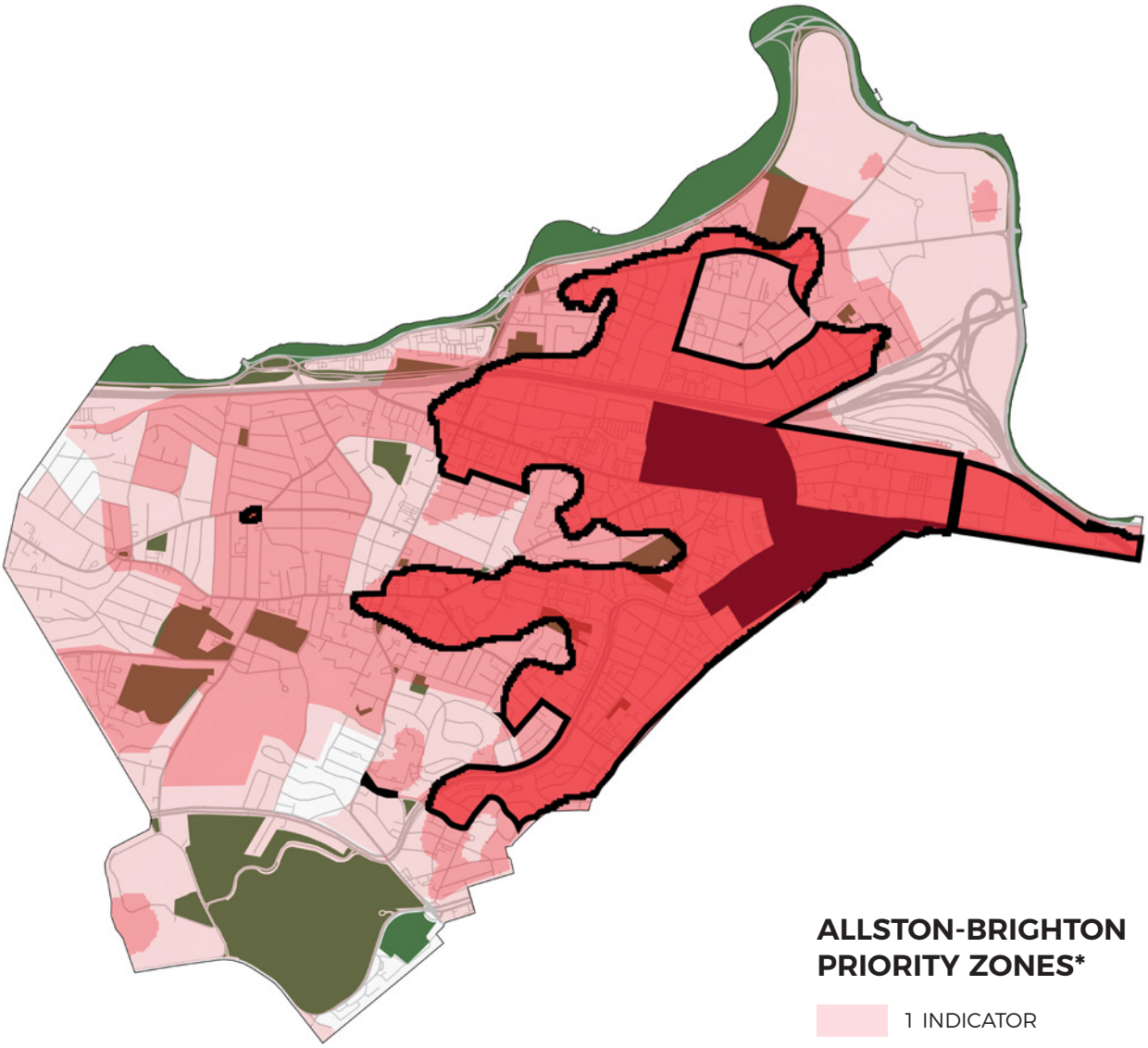
Low Canopy



Heat Event Hours



Historic Marginalization



ALLSTON-BRIGHTON 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

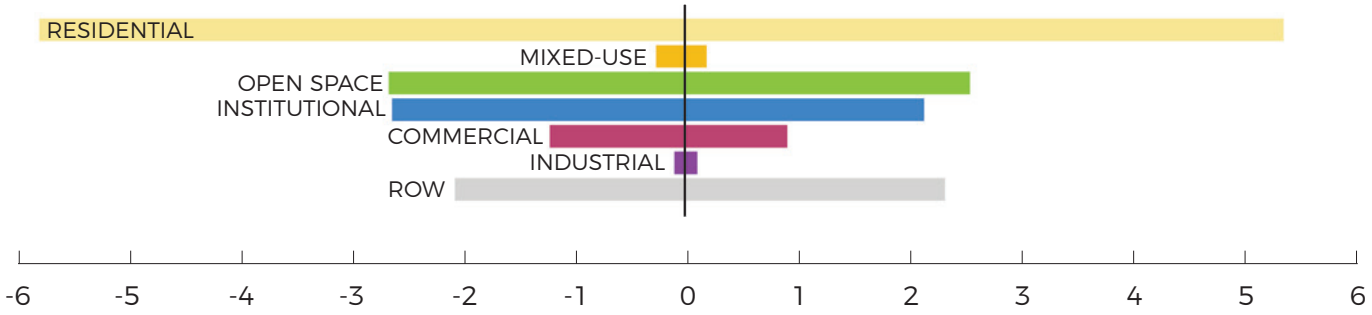
Physical and environmental opportunities and constraints will impact a neighborhood's ability to expand the canopy. It can also determine who has the greatest ability to take action. When used in coordination with the mapped priority zones, these maps can provide greater understanding of where opportunities 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

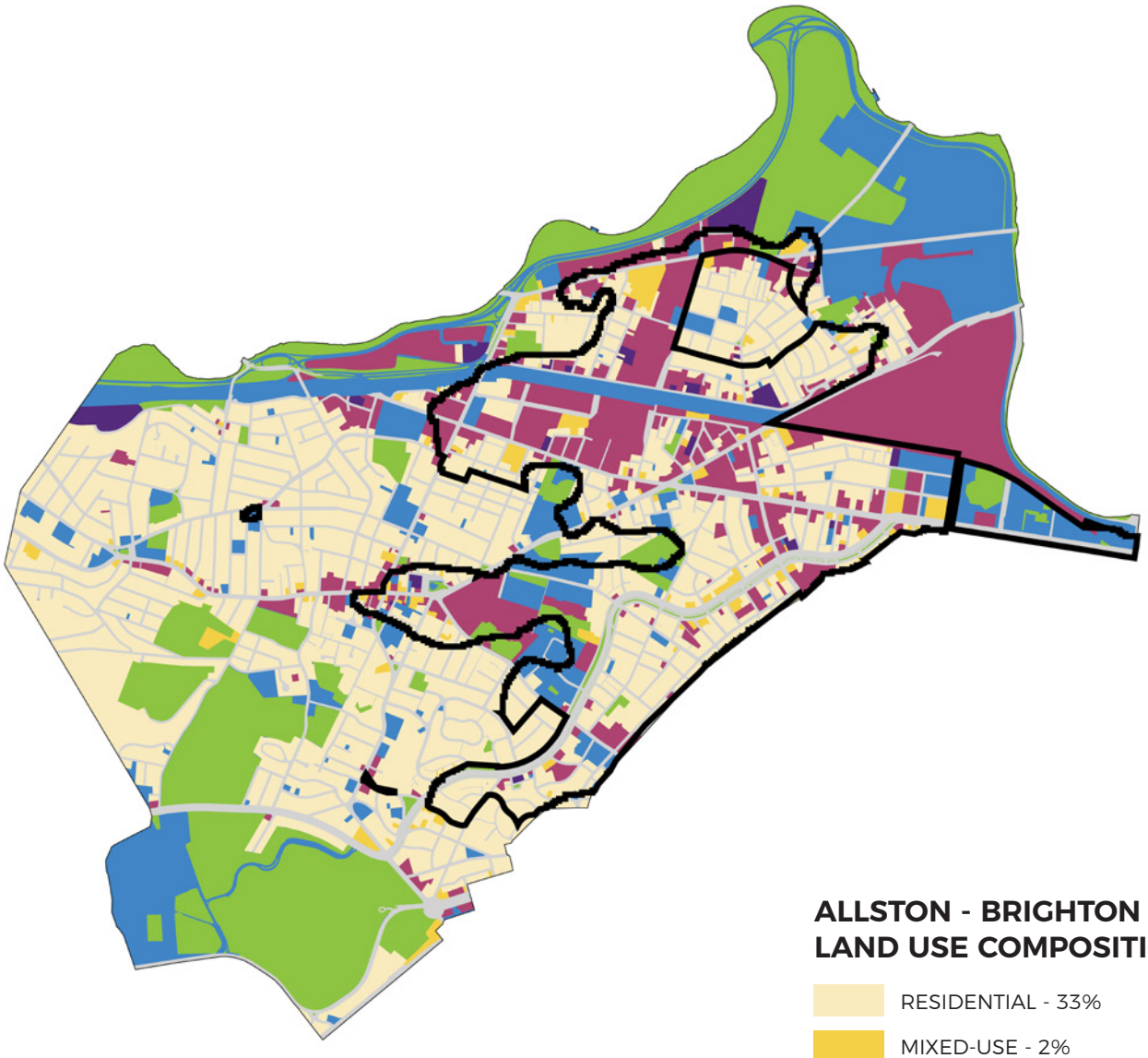
Every neighborhood has a different make-up of private and public land, as well as different key land uses and property owners. The existence of various land uses can affect opportunities for expanding canopy and who in the community has the ability and responsibility to act.

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.

Allston-Brighton is predominantly residential (33%) and open space (19%) with significant right-of-way and institutional designations. The priority zone is a combination of all land use types with residential and commercial dominating. Right-of-way and open space are specifically discussed on the following pages.



ALLSTON - BRIGHTON CANOPY GAIN & LOSS BY LAND USE (ACRES)



ALLSTON - BRIGHTON LAND USE COMPOSITION

- RESIDENTIAL - 33%
- MIXED-USE - 2%
- OPEN SPACE - 19%
- INSTITUTIONAL - 16%
- COMMERCIAL - 13%
- INDUSTRIAL - 1%
- ROW - 16%
- 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.

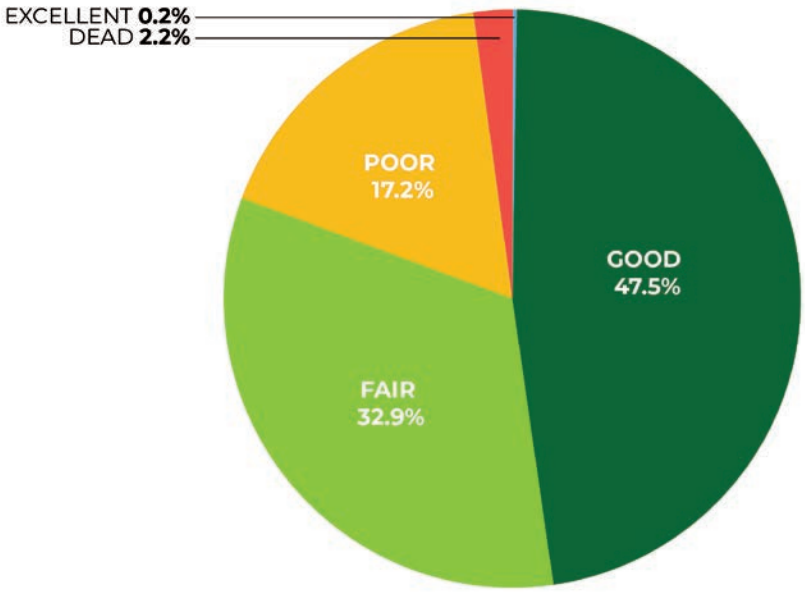
The map on the following page includes sidewalk width, which is a significant determinant of whether space can be found to plant trees in existing or new tree pits. Tree canopy data can be overlaid with locations of existing street trees and potential planting sites along streets. This can illustrate 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.

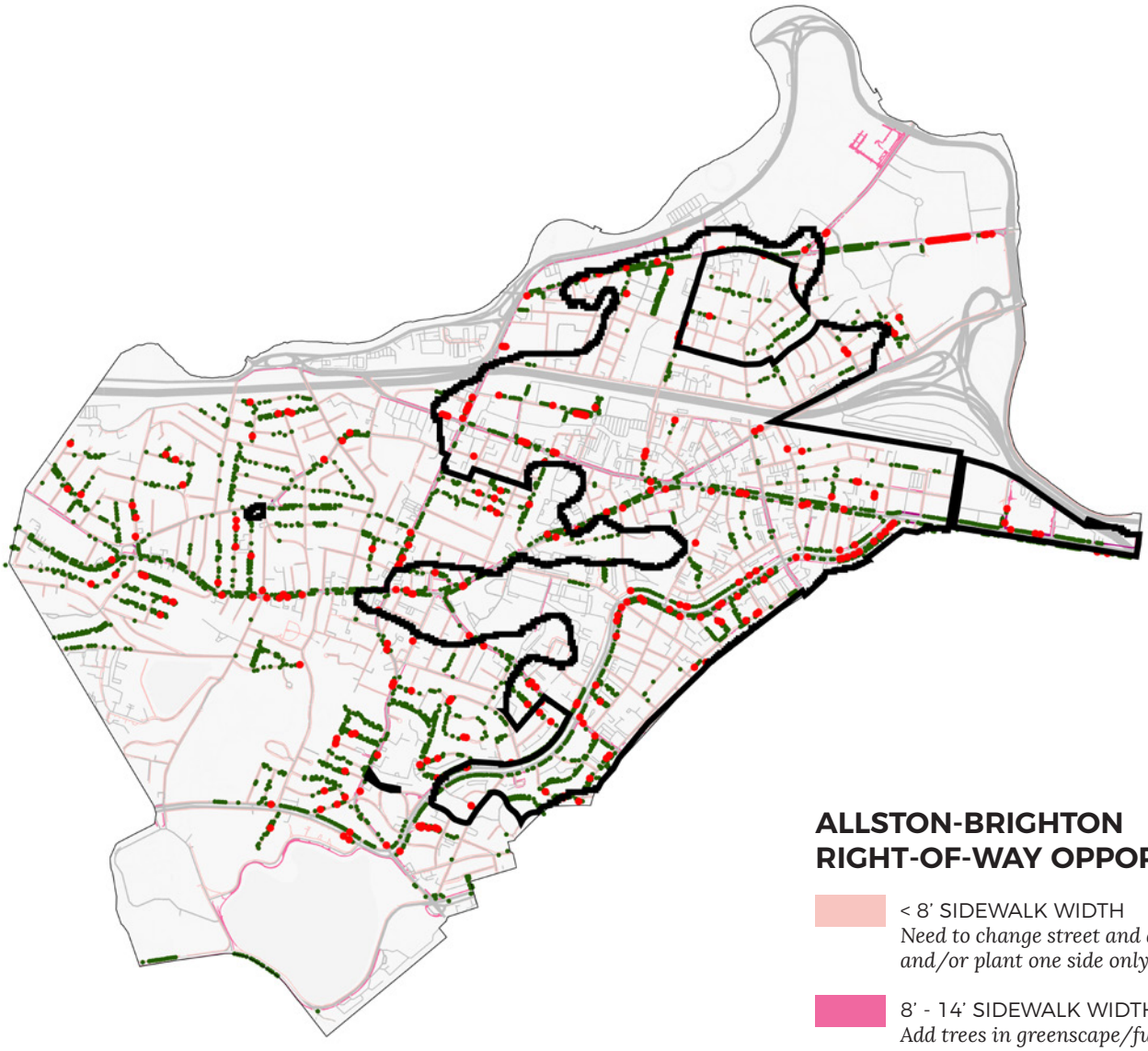
In Allston-Brighton, an estimated 290 potential street tree planting sites (including existing tree pits with dead trees) were identified during the inventory in May 2021. A number of these are within the priority zones and should be considered for immediate planting. Potential planting sites all need to be evaluated on a case-by-case basis in the field for suitability.

During the inventory, it was also observed that Allston-Brighton 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.

ALLSTON-BRIGHTON STREET TREE CONDITION COMPOSITION



TAKEAWAYS:
Less than 50% of the street trees in Allston-Brighton are considered in Good or Excellent 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.



ALLSTON-BRIGHTON 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

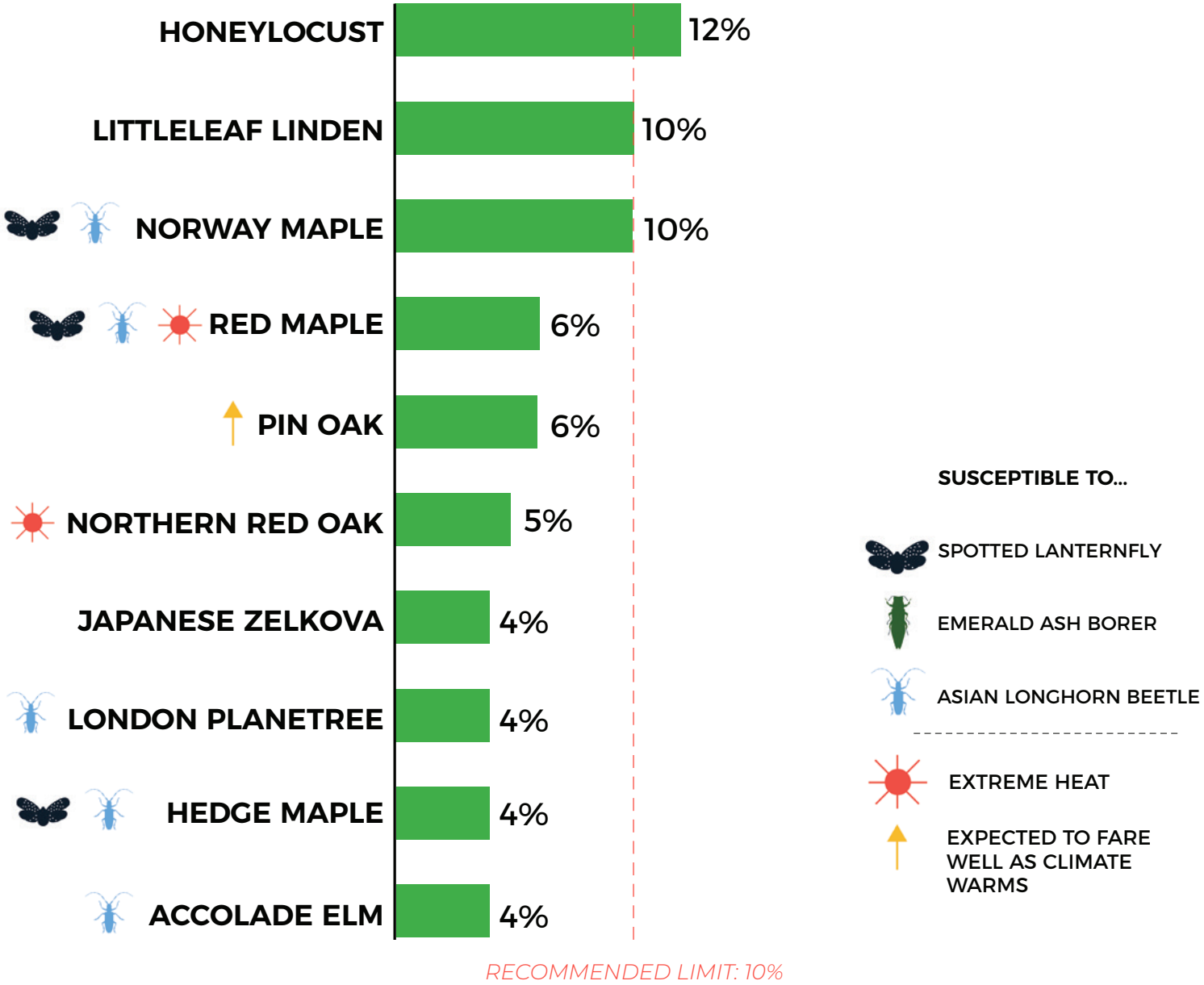
PRIORITY ZONES

2,000 FT.

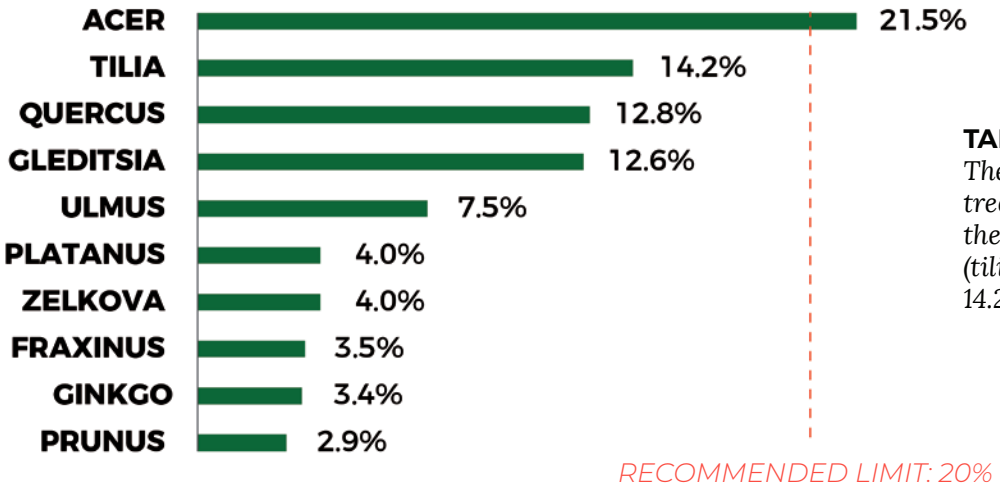
STREET TREE ANALYSIS

Based on data from the 2021 public street tree inventory, the ten most common species in each neighborhood as well as distribution of tree species (genus), age, and overall condition are shown below. Based on best practices and industry standards, recommendations are provided to improve tree diversity in Allston-Brighton to reduce vulnerability to pests and disease as well as ensure long-term tree health in the face of future 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%.

ALLSTON-BRIGHTON TOP 10 TREE SPECIES



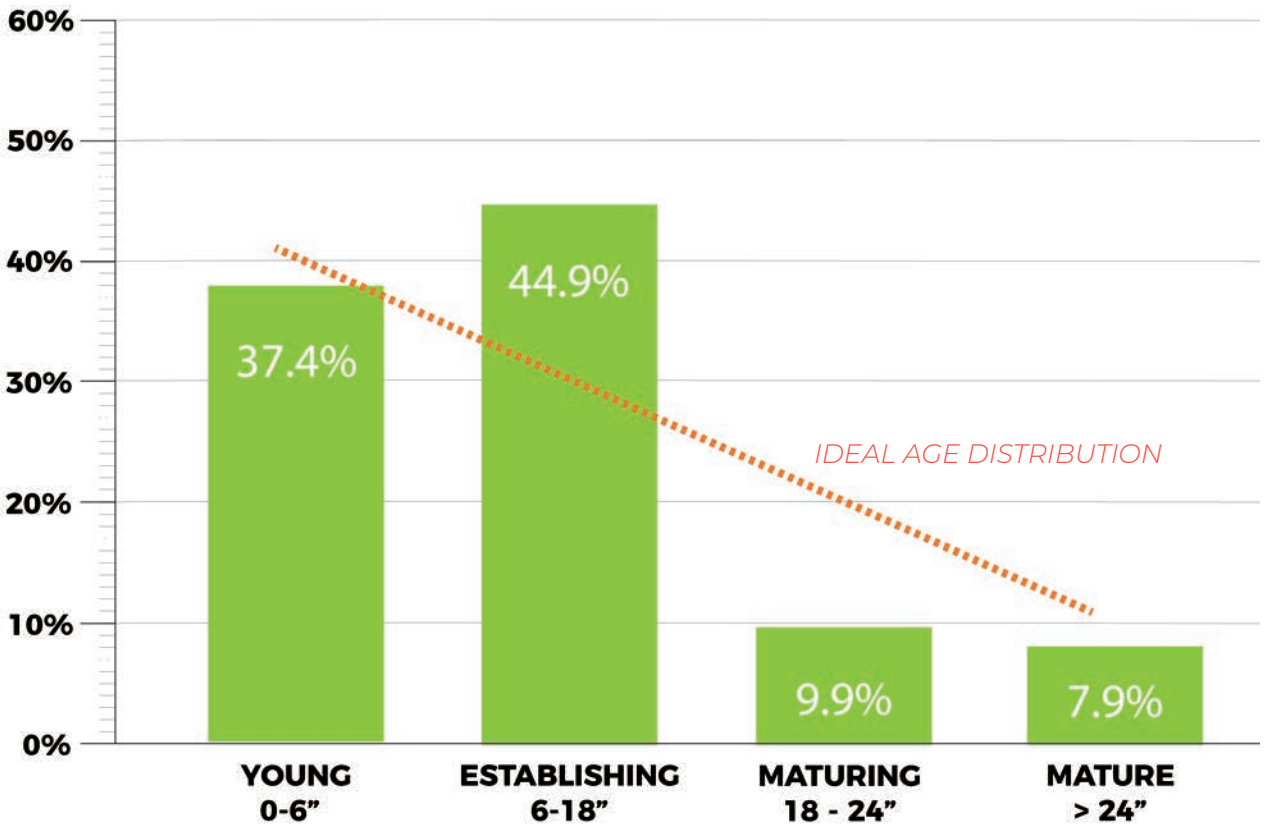
ALLSTON-BRIGHTON TOP 10 STREET TREE GENUS COMPOSITION



TAKEAWAYS:
The large quantity of maple trees (acer genus) exceeds the 20% rule, with lindens (tilia genus)following at 14.2% of all street trees.

Additional genera identified in Allston-Brighton: Aesculus, Ailanthus, Amelanchier, Betula, Carpinus, Celtis, Cornus, Corylus, Crataegus, Cupressocyparis, Eucommia, Gymnocladus, Koelrueteria, Liquidambar, Liriodendron, Maackia, Malus, Morus, Nyssa, Ostrya, Picea, Pyrus, Sophora, Syringa, Taxodium, Taxus, Thuja,

ALLSTON-BRIGHTON STREET TREE AGE COMPOSITION



TAKEAWAYS:
Allston-Brighton has a large number of establishing street trees and too few maturing street trees relative to the ideal distribution. Focus should be on proactive care and preservation of existing canopy to improve longevity and continuing to maintain young trees at current or slightly higher levels.

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.

Allston-Brighton has a mix of protected and unprotected open spaces. Many of these include large recreational facilities which limit capacity for planting. The priority zone has limited open space. Adding open space in this zone could increase canopy and satisfy multiple neighborhood needs.

CASSIDY PLAYGROUND, ALLSTON-BRIGHTON

ALLSTON-BRIGHTON OPEN SPACE OPPORTUNITY

- PROTECTED OPEN SPACE
- UNPROTECTED OPEN SPACE
- TREE CANOPY
- PRIORITY ZONES
- 2,000 FT.

ENVIRONMENTAL CONSTRAINTS

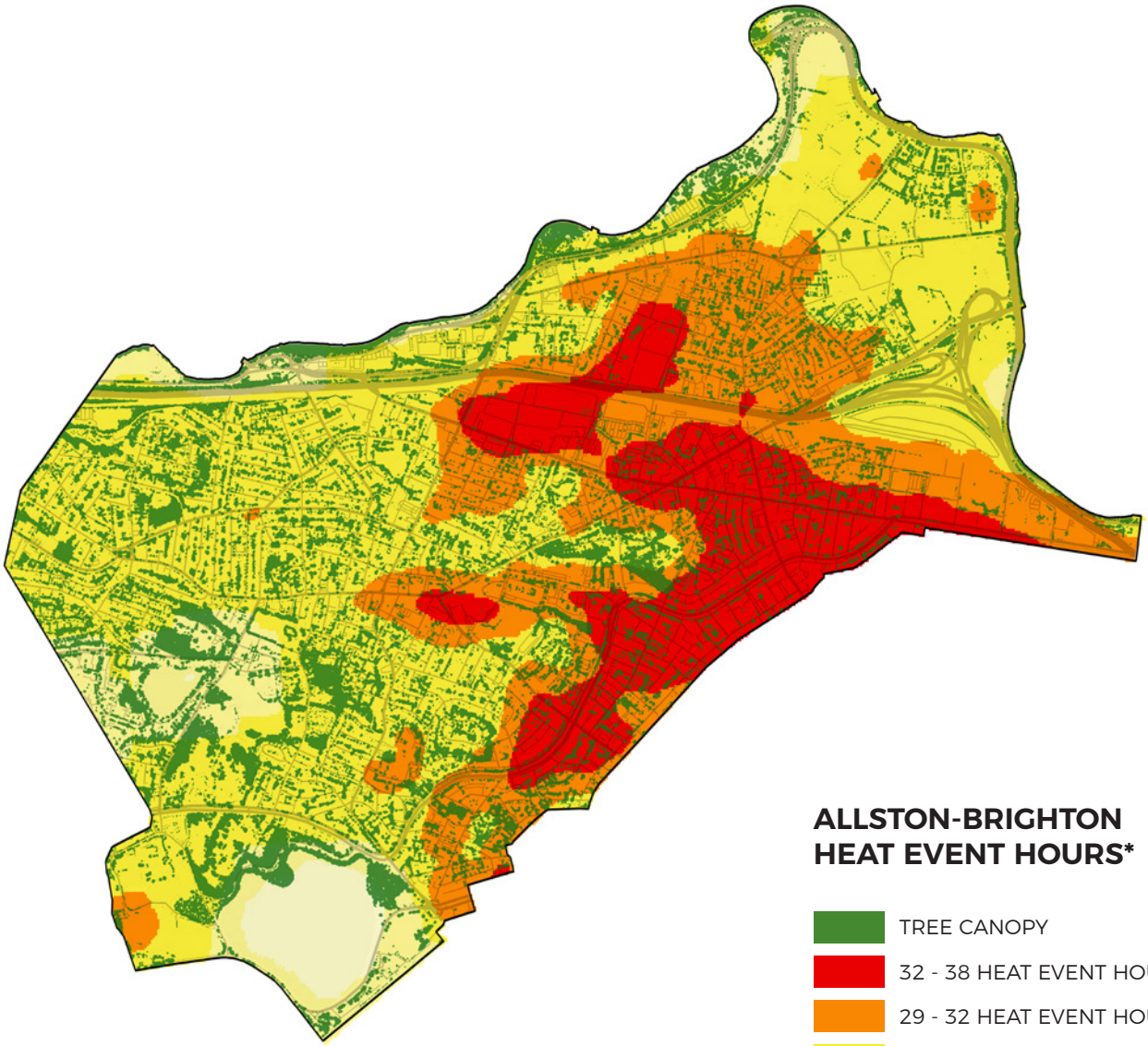
Environmental conditions across the neighborhoods in Boston vary widely. There are coastal conditions, hills, streams and other existing environmental factors which impact plant communities, plant life and health. These maps identify some of the key dynamics in each neighborhood, in particular how climate 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.

  High heat is a priority indicator, therefore, priority planting zones commonly fall within high heat areas, as they do in Allston-Brighton. The lowest canopy areas are within the high heat area. This highlights the need to select trees for new planting that will fare well in future heat conditions.

- ***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.

  Allston-Brighton is anticipated to experience limited flooding from the Charles River as storms increase. High heat is a priority indicator, therefore, priority planting zones commonly fall within high heat areas, as they do in Allston-Brighton. The lowest canopy areas are within the high heat area. This highlights the need to select trees for new planting that will fare well in future heat conditions.



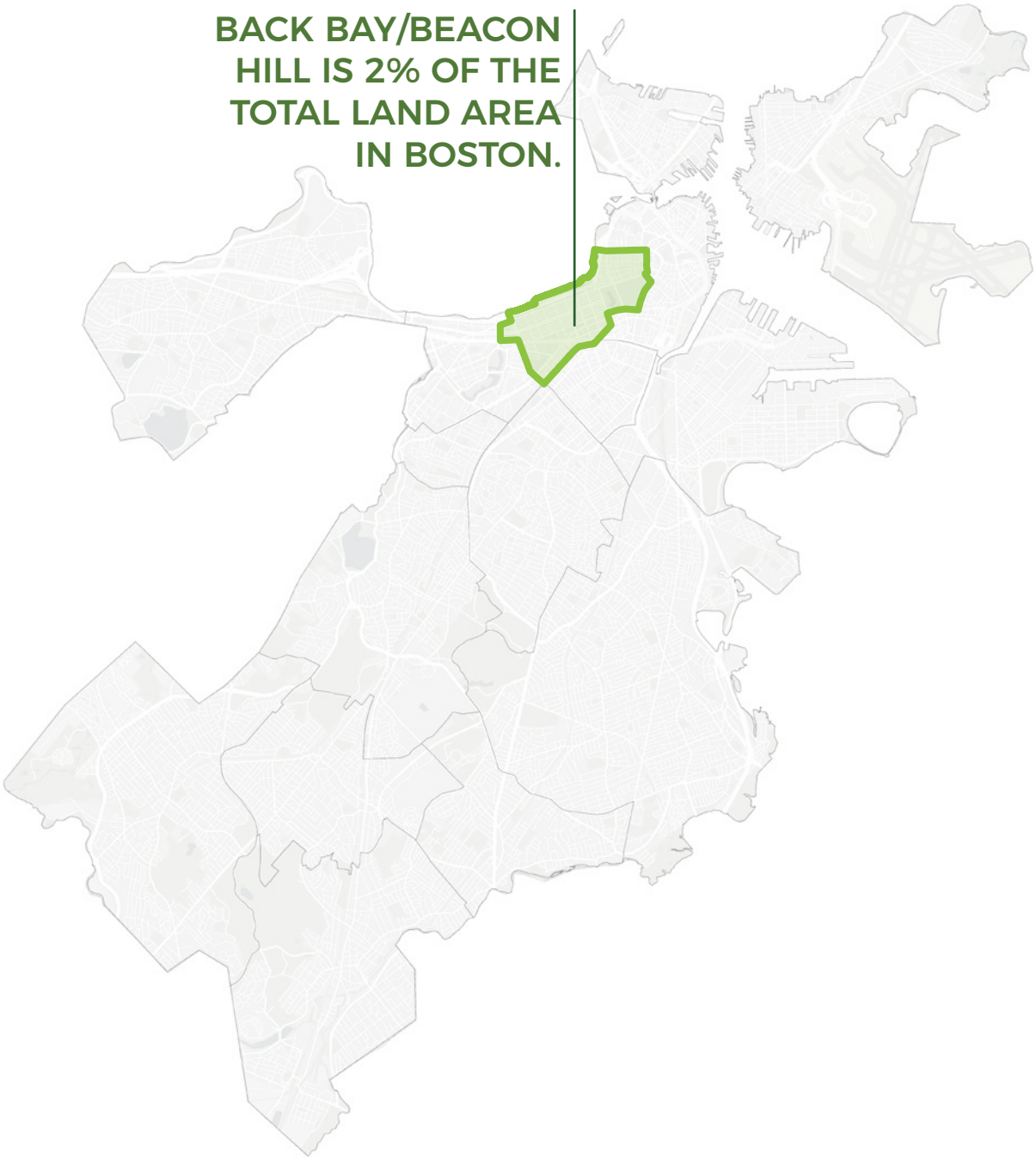
ALLSTON-BRIGHTON HEAT EVENT HOURS*

- TREE CANOPY
- 32 - 38 HEAT EVENT HOURS
- 29 - 32 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.

BACK BAY/BEACON HILL

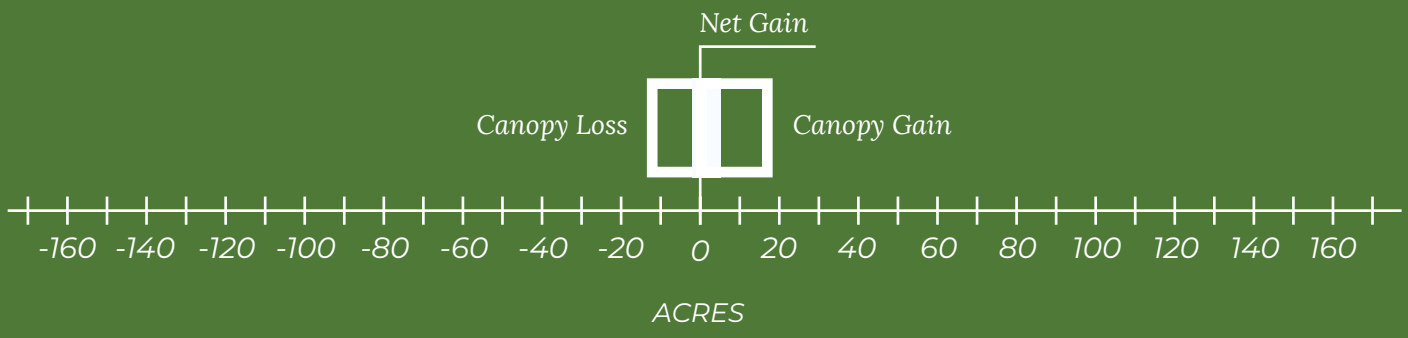


CANOPY AND LAND USE TRENDS

BACK BAY/BEACON HILL HAS 2% OF BOSTON'S CANOPY.

BACK BAY/BEACON HILL HAS 21% CANOPY COVERAGE.

BACK BAY/BEACON HILL LOST 13 ACRES AND GAINED 19 ACRES FOR A NET GAIN OF 6 ACRES OF TREE CANOPY FROM 2014-2019. THE GREATEST GAINS WERE WITHIN OPEN SPACES.



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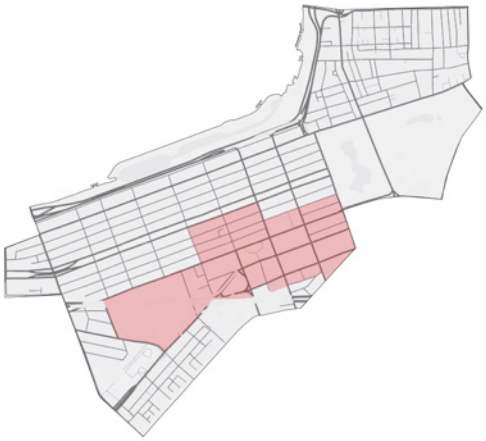
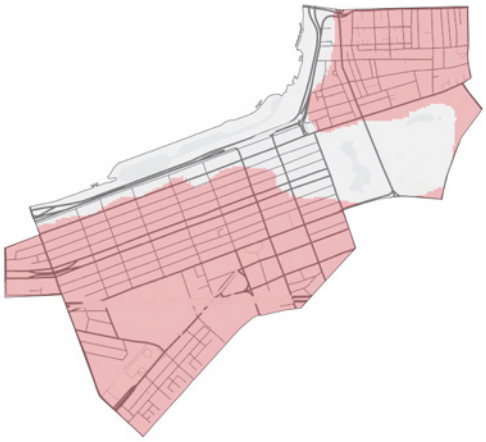
NEARMAP

PRIORITY INDICATORS

Environmental Justice Communities

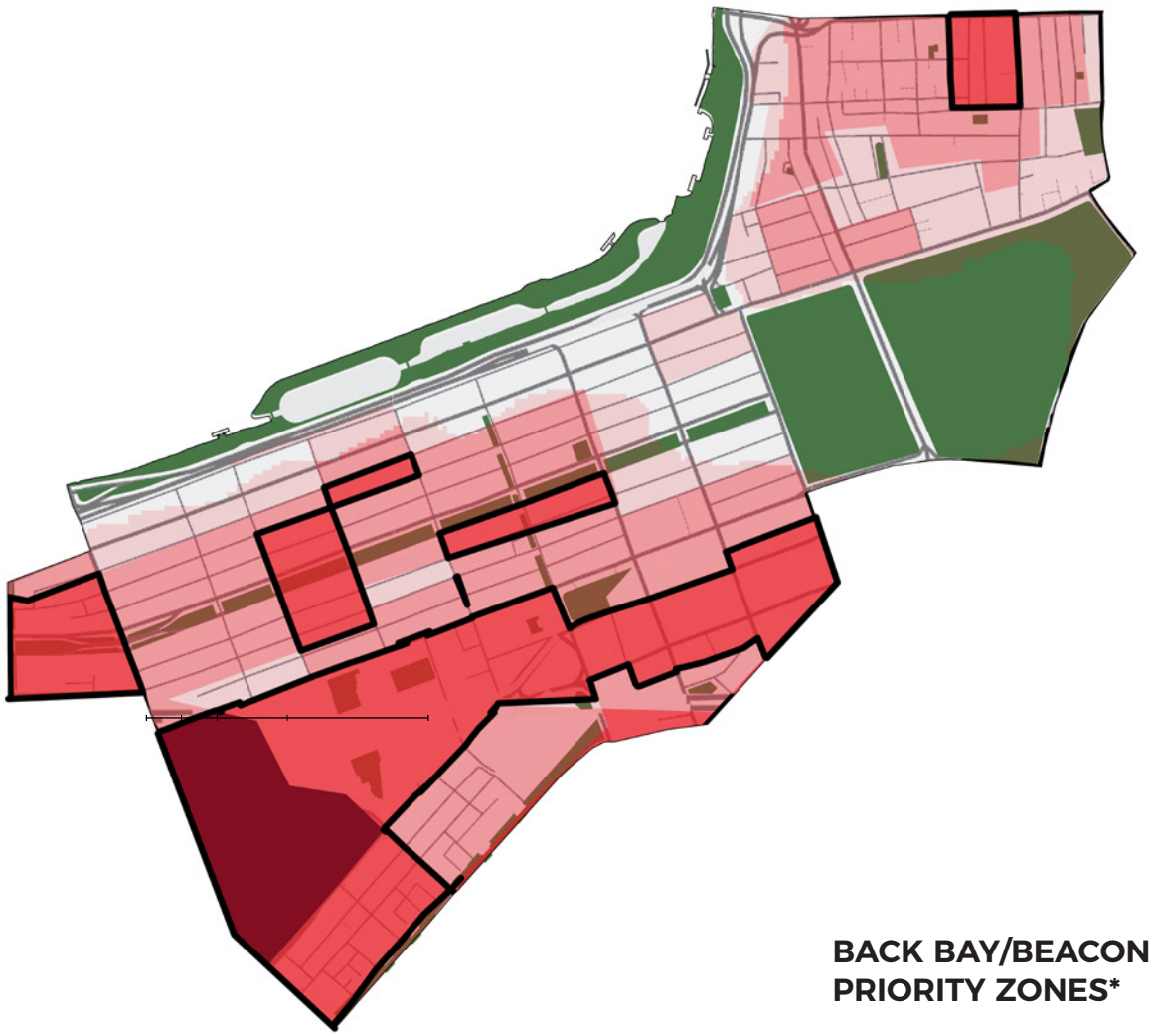


Low Canopy



Heat Event Hours

Historic Marginalization



BACK BAY/BEACON HILL 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

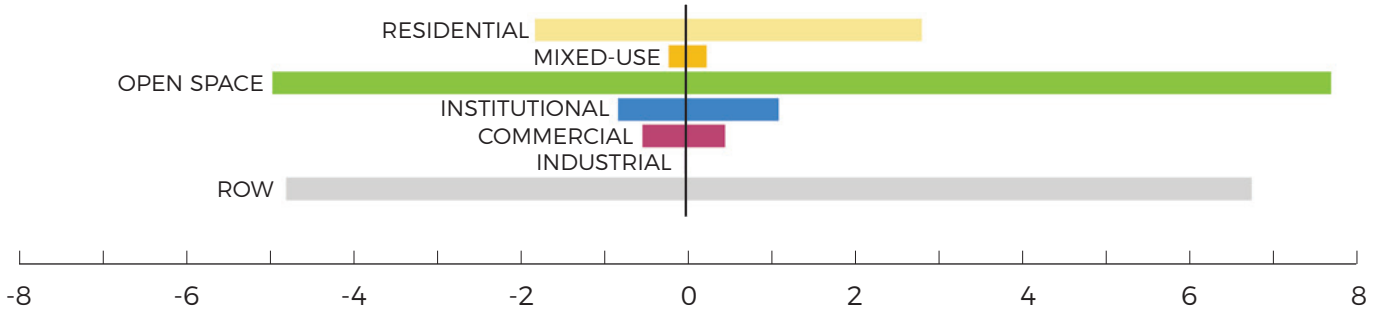
Physical and environmental opportunities and constraints will impact a neighborhood's ability to expand the canopy. It can also determine who has the greatest ability to take action. When used in coordination with the mapped priority zones, these maps can provide greater understanding of where opportunities 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

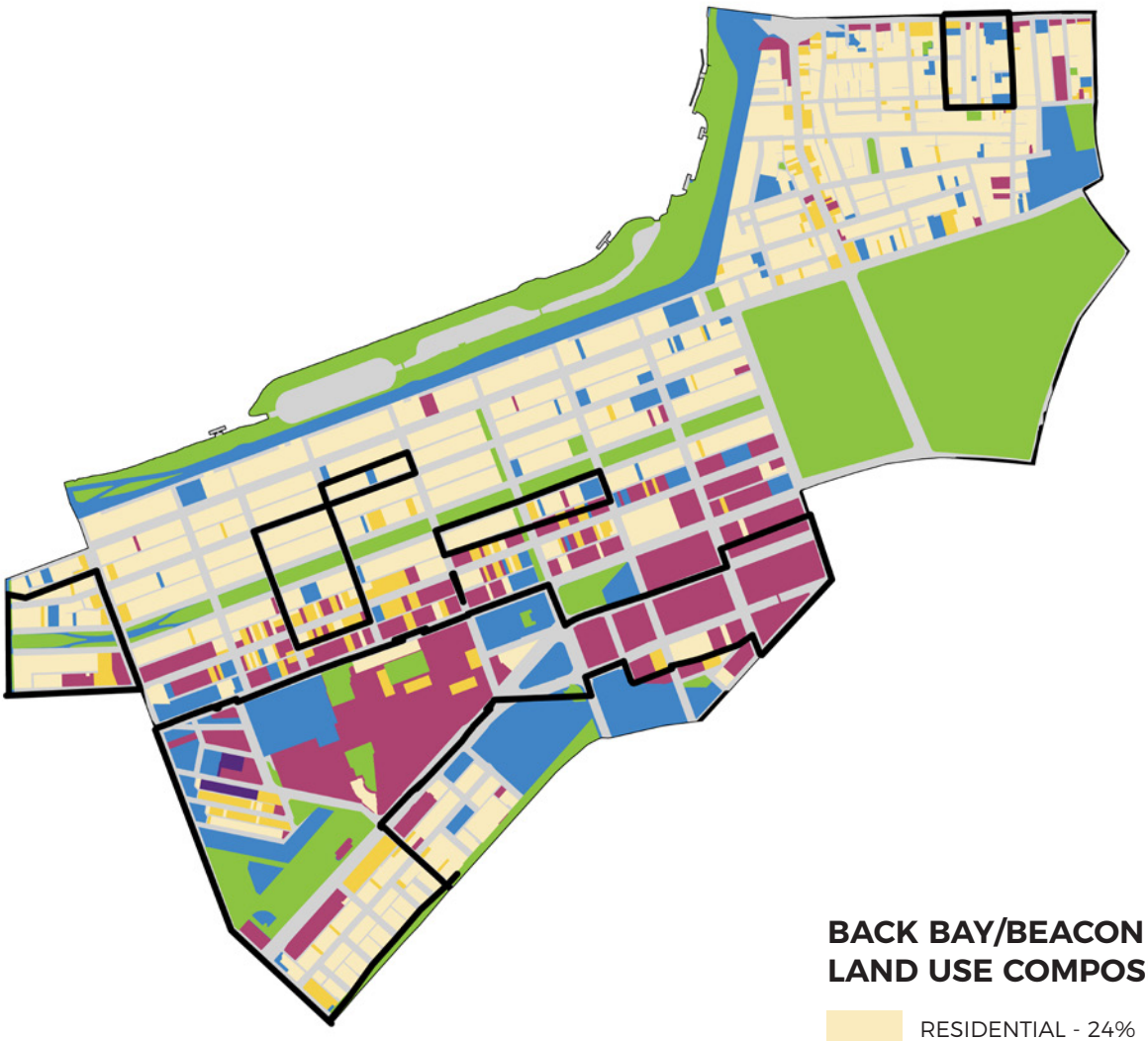
Every neighborhood has a different make-up of private and public land, as well as different key land uses and property owners. The existence of various land uses can affect opportunities for expanding canopy and who in the community has the ability and responsibility to act.

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.

Back Bay/Beacon Hill is predominantly right-of-way (27%), residential (24%) and open space (23%). The priority zones include a combination of residential, institutional and commercial land uses as well as right-of-way. Right-of-way and open space are specifically discussed on the following pages.



BACK BAY/BEACON HILL CANOPY GAIN & LOSS BY LAND USE (ACRES)



BACK BAY/BEACON HILL LAND USE COMPOSITION

- RESIDENTIAL - 24%
- MIXED-USE - 3%
- OPEN SPACE - 23%
- INSTITUTIONAL - 16%
- COMMERCIAL - 11%
- INDUSTRIAL - < 1%
- ROW - 27%
- PRIORITY ZONES

2,000 FT.

RIGHT-OF-WAY (ROW)

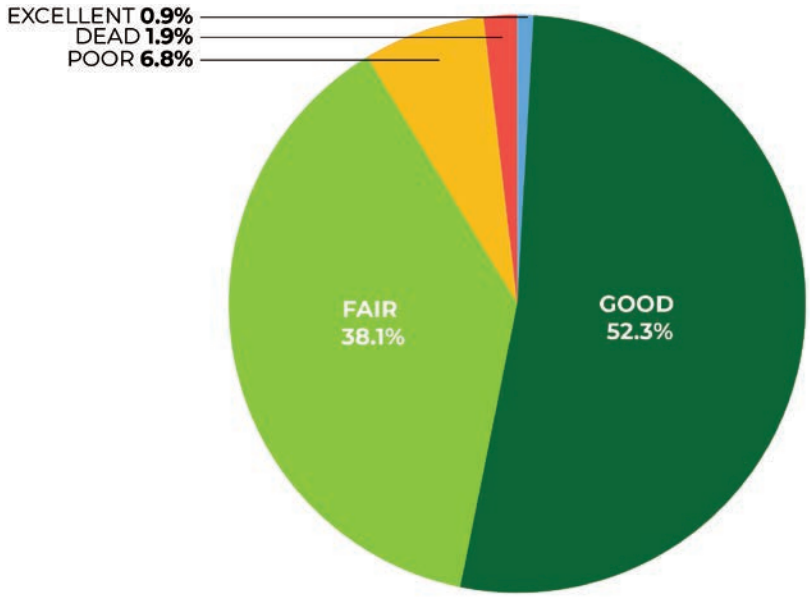
Right-of-way (ROW) refers to property in Boston that is subject to public use for streets, curbs, planting strips, sidewalks, etc. These lands in Boston represent a set of potential planting sites over which the Parks Department and other City departments already have the jurisdiction to expand canopy.

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.

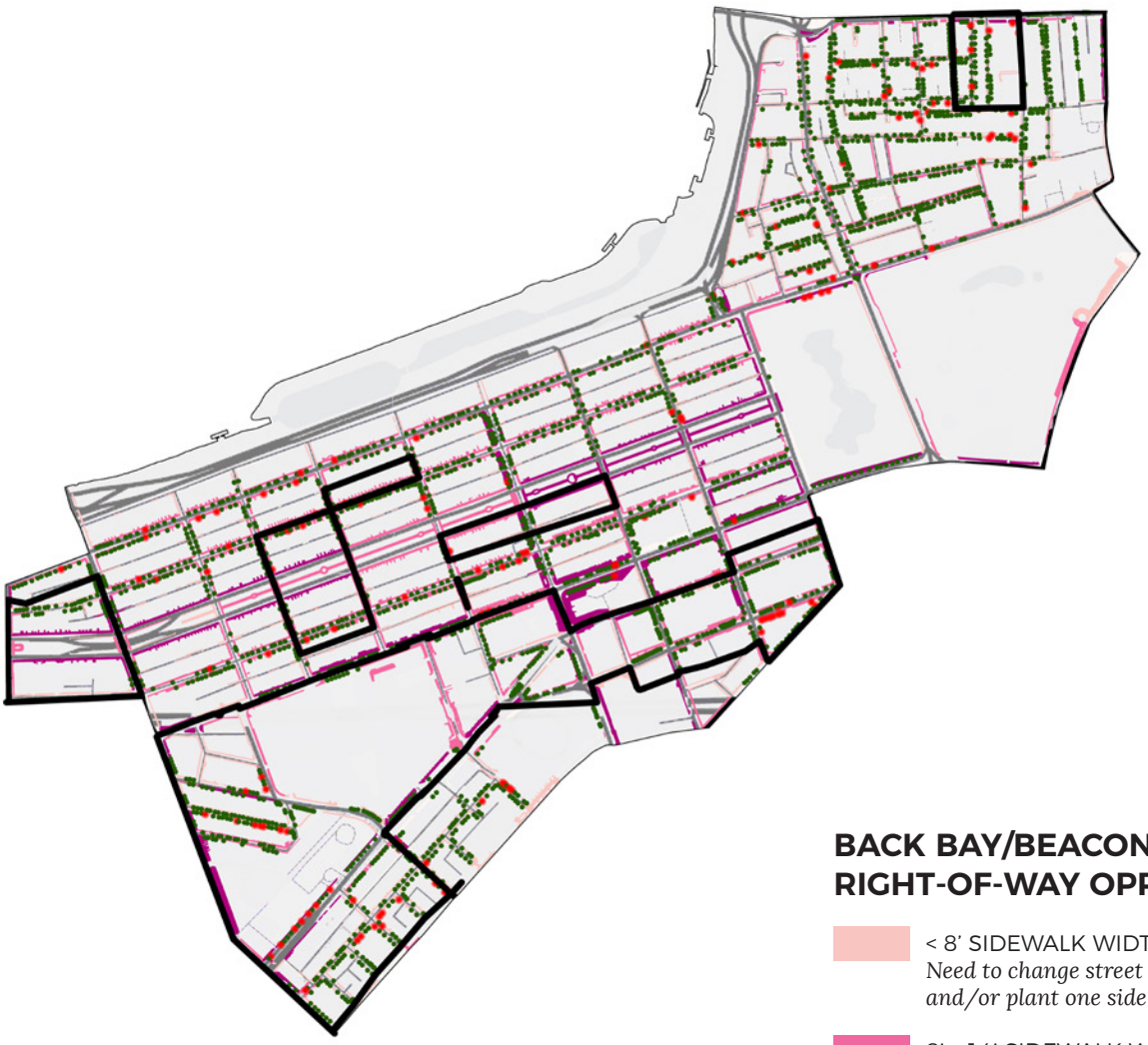
Areas with sidewalk widths over 8'-6" (inclusive of the curb) meet current standards and could be considered for immediate planting, while sidewalk widths less than 8'-0" (inclusive of the curb) would likely require more significant changes to the street or exceptions to current standards. More significant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

In Back Bay/Beacon Hill, an estimated 143 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.

BACK BAY/BEACON HILL STREET TREE CONDITION COMPOSITION



TAKEAWAYS:
Slightly more than half (53.2%) of the street trees in Back Bay/ Beacon Hill are considered in Good or Excellent condition, with the remaining majority in Fair condition, making Back Bay/Beacon Hill trees some of the overall healthiest in the city. 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.



BACK BAY/BEACON HILL 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

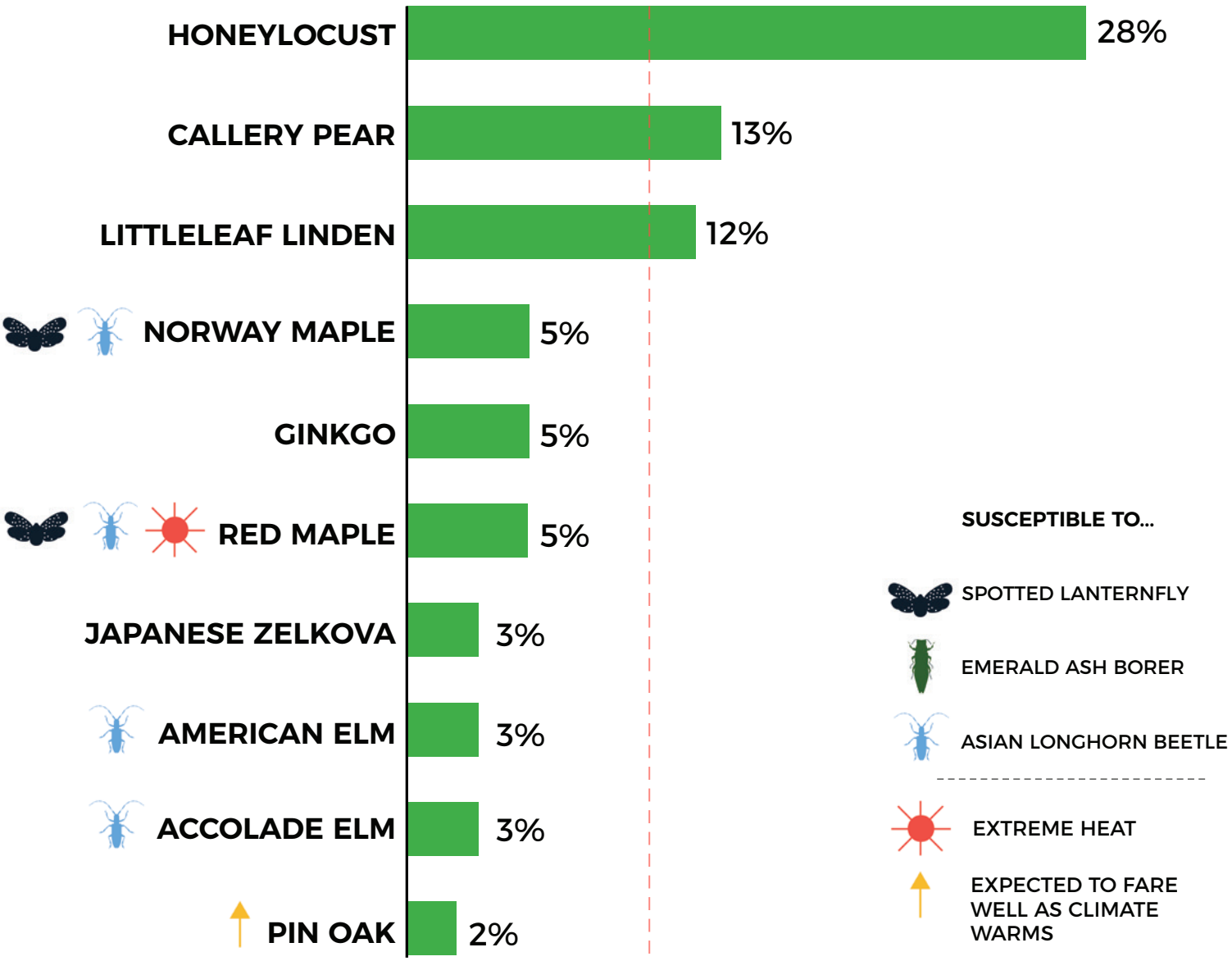
PRIORITY ZONES

2,000 FT.

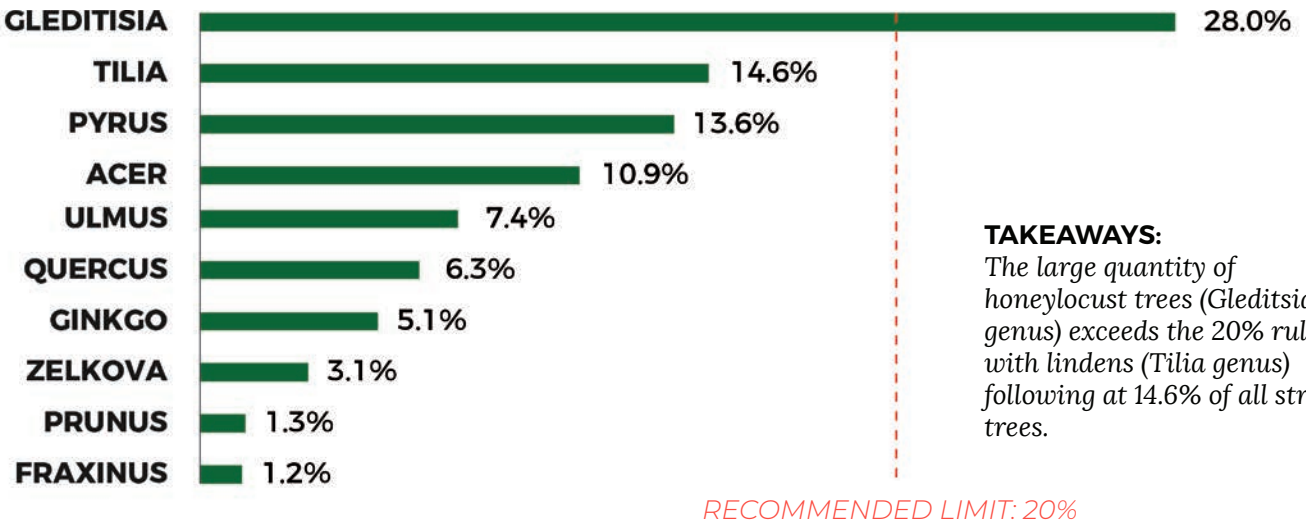
STREET TREE ANALYSIS

Based on data from the 2021 public street tree inventory the ten most common species in each neighborhood as well as distribution of tree species (genus), age, and overall condition are shown below. Based on best practices and industry standards, recommendations are provided to improve tree diversity in Back Bay/Beacon Hill to reduce vulnerability to pests and disease as well as ensure long term tree health in the face of future 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%.

BACK BAY/BEACON HILL TOP 10 TREE SPECIES



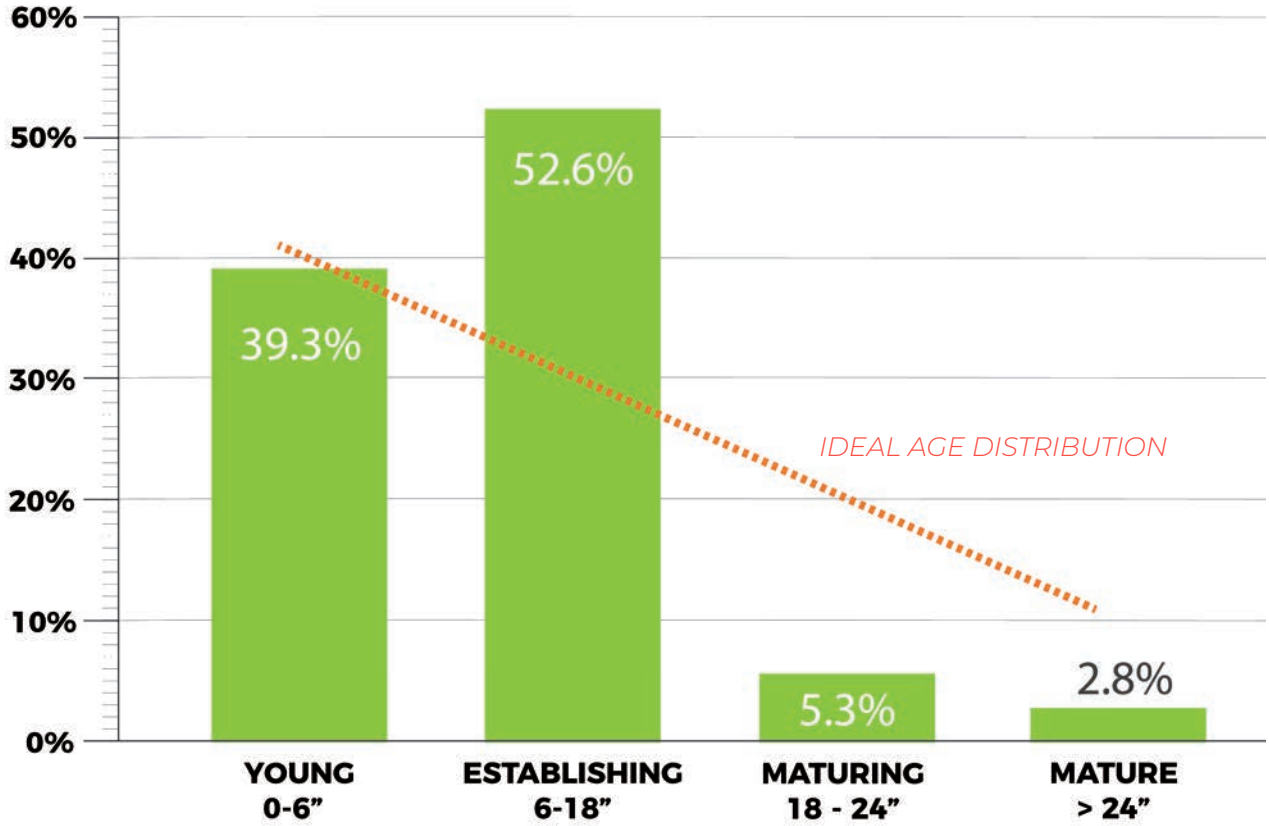
BACK BAY/BEACON HILL TOP 10 STREET TREE GENUS COMPOSITION



TAKEAWAYS:
The large quantity of honeylocust trees (Gleditsia genus) exceeds the 20% rule, with lindens (Tilia genus) following at 14.6% of all street trees.

Additional genera identified in Back Bay/Beacon Hill: Aesculus, Amelanchier, Betula, Carpinus, Celtis, Cercidiphyllum, Cercis, Crataegus, Eucommia, Fagus, Gymnocladus, Hydrangea, Juniperus, Koelrueteria, Liquidambar, Liriodendron, Magnolia, Malus, Morus, Nyssa, Ostrya, Platanus, Robinia, Salix, Sophora, Syringa, Taxus, Thuja,

BACK BAY/BEACON HILL STREET TREE AGE COMPOSITION



TAKEAWAYS:
Back Bay/Beacon Hill has a large number of establishing street trees and few maturing and mature street trees relative to the ideal distribution. Focus should be on proactive care and preservation of existing canopy to improve longevity as well as continuing to maintain young trees at current levels.

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 Back Bay/BeaconHill includes large, protected public open spaces such as Boston Common, Commonwealth Avenue, and the Charles River Esplanade. In addition to these, a number of smaller open spaces are dispersed throughout the neighborhood.

BOSTON COMMON, BACK BAY/BEACON HILL

BACK BAY/BEACON HILL
OPEN SPACE OPPORTUNITY

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

2,000 FT.

ENVIRONMENTAL CONSTRAINTS

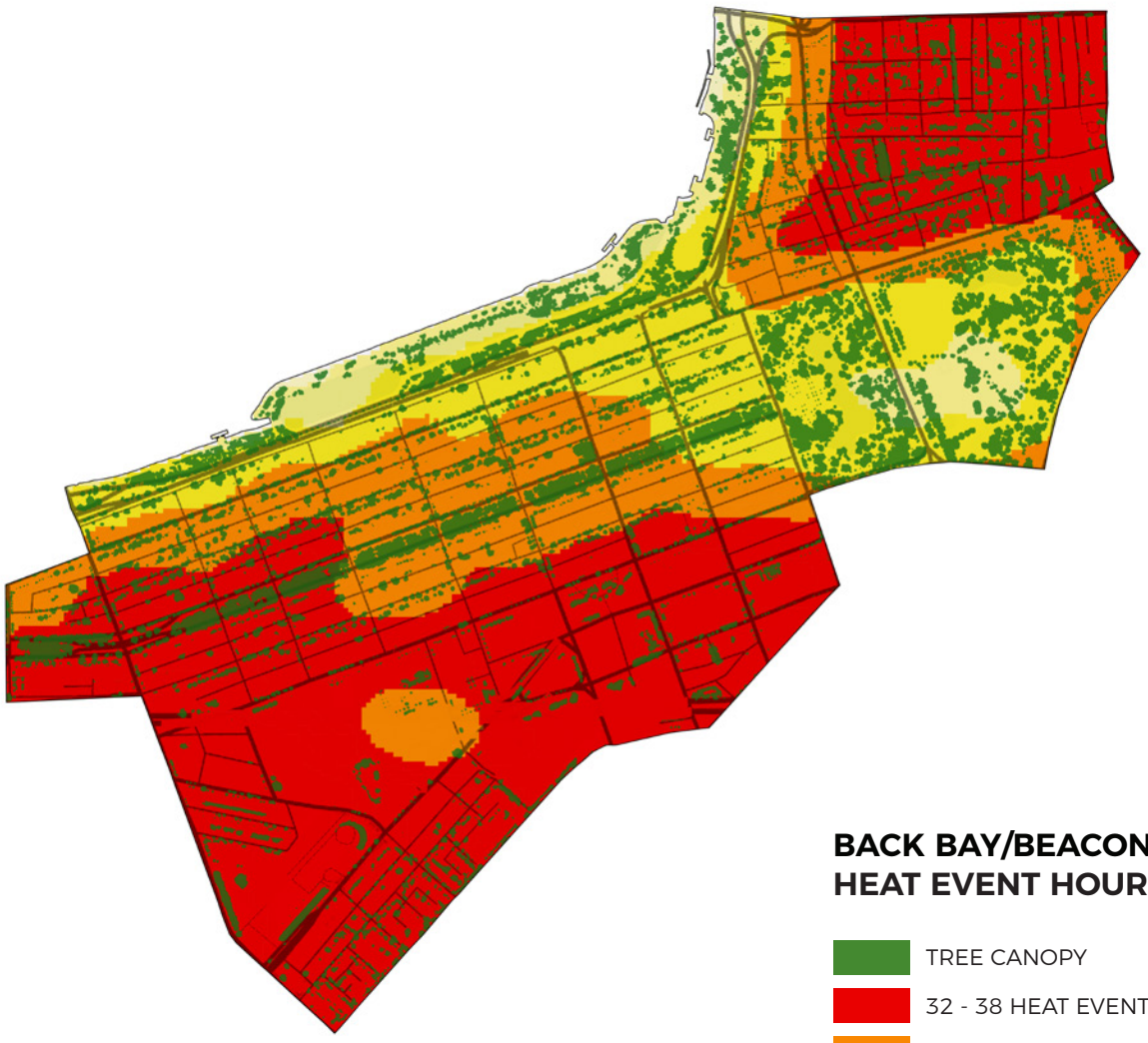
Environmental conditions across the neighborhoods in Boston vary widely. There are coastal conditions, hills, streams and other existing environmental factors which impact plant communities, plant life and health. These maps identify some of the key dynamics in each neighborhood, in particular how climate 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.

  High heat is a priority indicator, therefore, priority planting zones commonly fall within high heat areas, as they do in Back Bay/Beacon Hill. Despite large amounts of open space with quality canopy, Back Bay/ Beacon Hill experiences high heat levels. This highlights the need to care for trees subject to high heat and to select trees for new planting that will fare well in future heat conditions.

- ***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.

  Back Bay/Beacon Hill is anticipated to experience flooding from the Charles River as well as coastal inundation from the Downtown area as sea levels rise and storms increase.



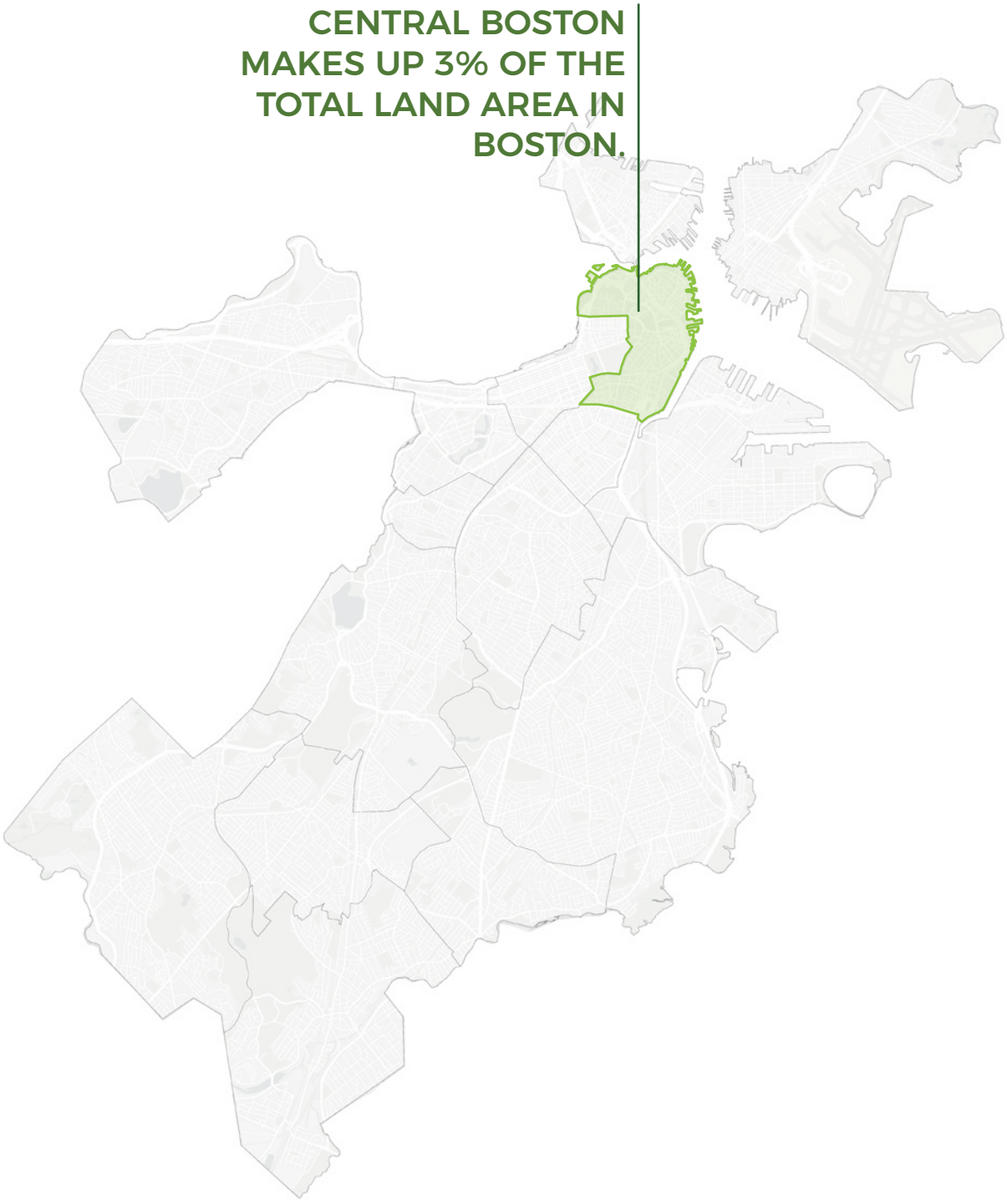
BACK BAY/BEACON HILL HEAT EVENT HOURS*

- TREE CANOPY
- 32 - 38 HEAT EVENT HOURS
- 29 - 32 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.

CENTRAL BOSTON

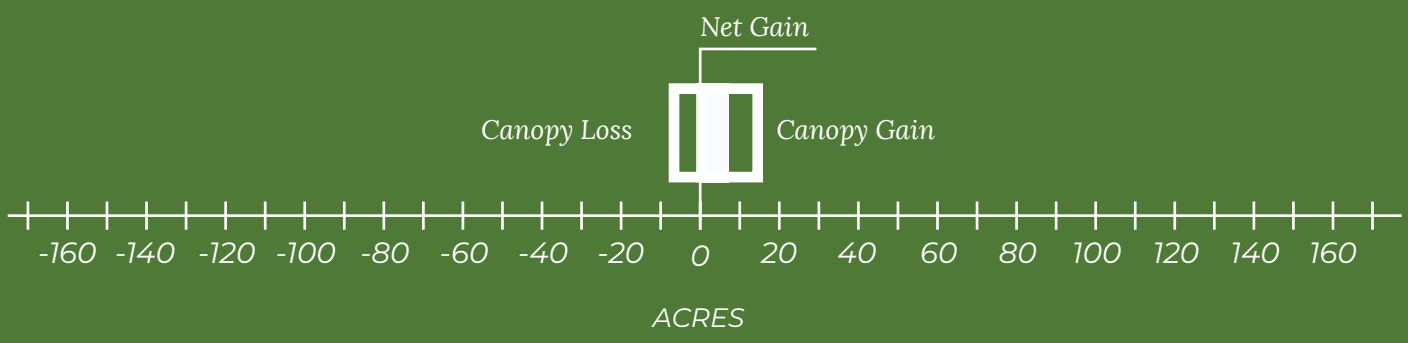


CANOPY AND LAND USE TRENDS

CENTRAL BOSTON HAS 1% OF BOSTON'S CANOPY.

CENTRAL BOSTON HAS 9% CANOPY COVERAGE.

CENTRAL BOSTON LOST 8 ACRES AND GAINED 16 ACRES FOR A NET GAIN OF 8 ACRES OF TREE CANOPY FROM 2014-2019. THE GREATEST GAINS WERE WITHIN OPEN SPACE.



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.

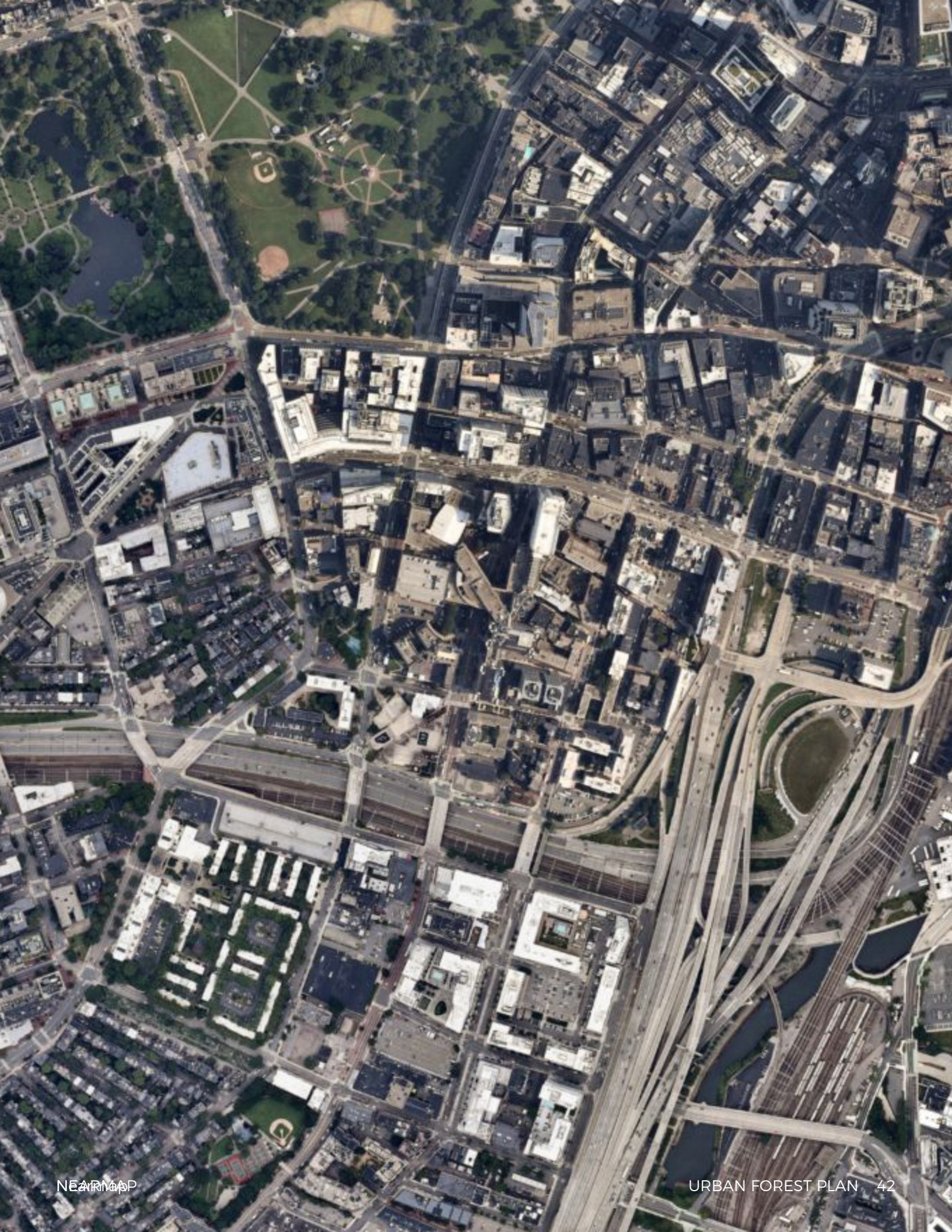
Low Canopy. Using 2019 Tree Canopy Coverage Assessment data, this map identifies census tracts with less than 10% tree canopy coverage.

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.

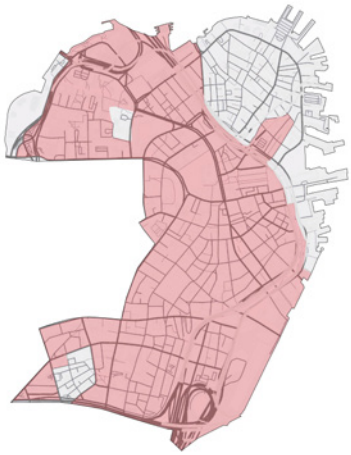
Historic Marginalization This map shows areas that received 'C' or 'D' ratings from the 1938 HOLC 'Residential Security Map'. These areas were subject to housing discrimination, as well as often subject to other practices and policies of disinvestment. Data is provided by the University of Richmond's 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.

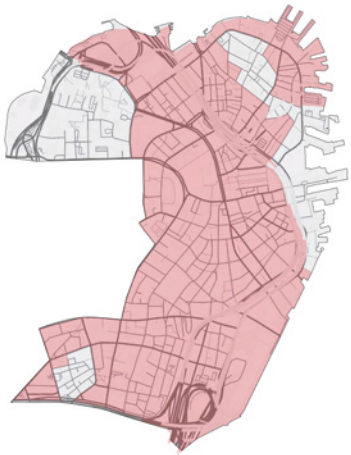
Priority zones should help weight planting canopy expansion focus and attention, but should not be indicative of overall resources and efforts needed. Many priority populations, for example, live in areas with relatively high overall canopy, but in which canopy cover is declining. These areas will need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



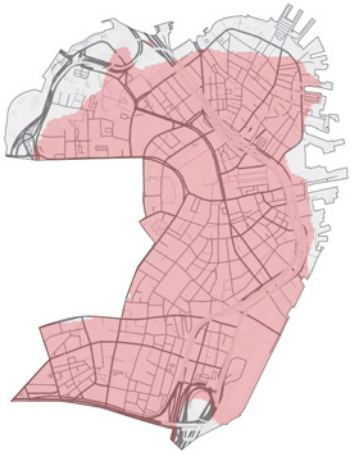
PRIORITY INDICATORS



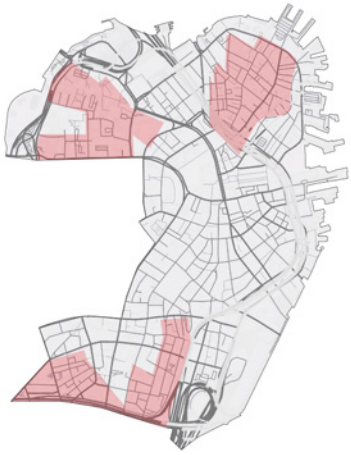
Environmental Justice Communities



Low Canopy



Heat Event Hours



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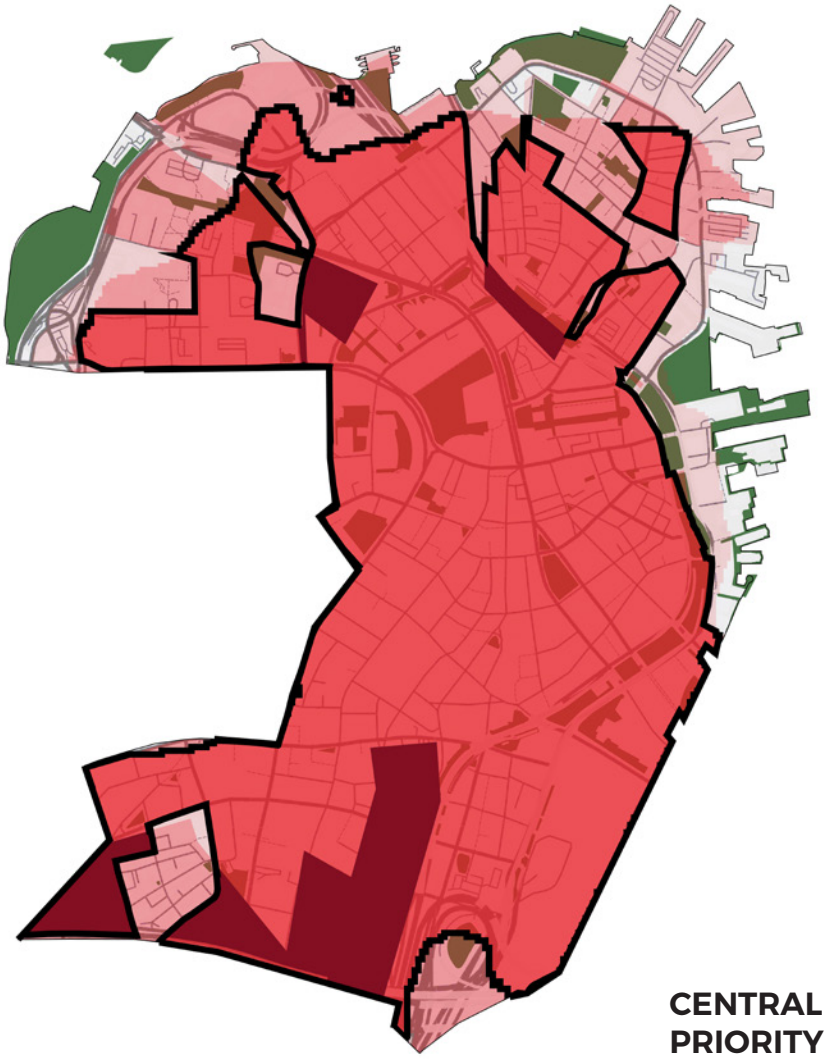

CENTRAL BOSTON PRIORITY ZONES*

- 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.

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LAND USE

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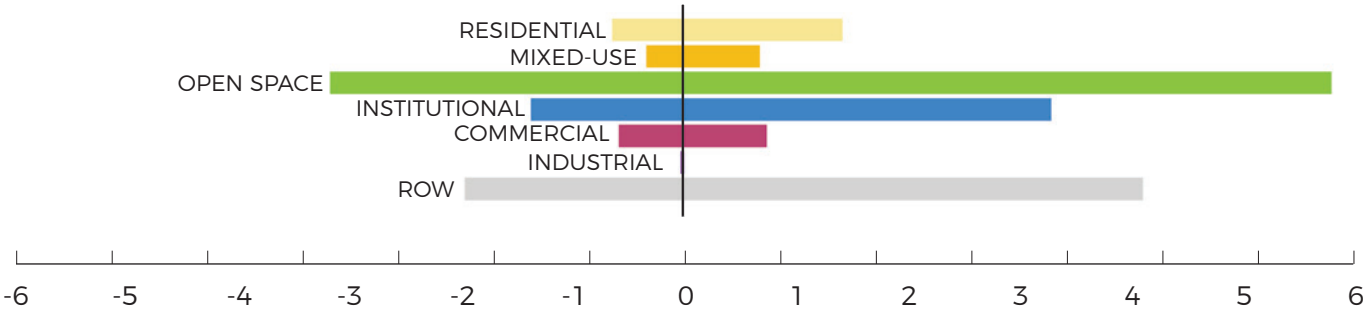
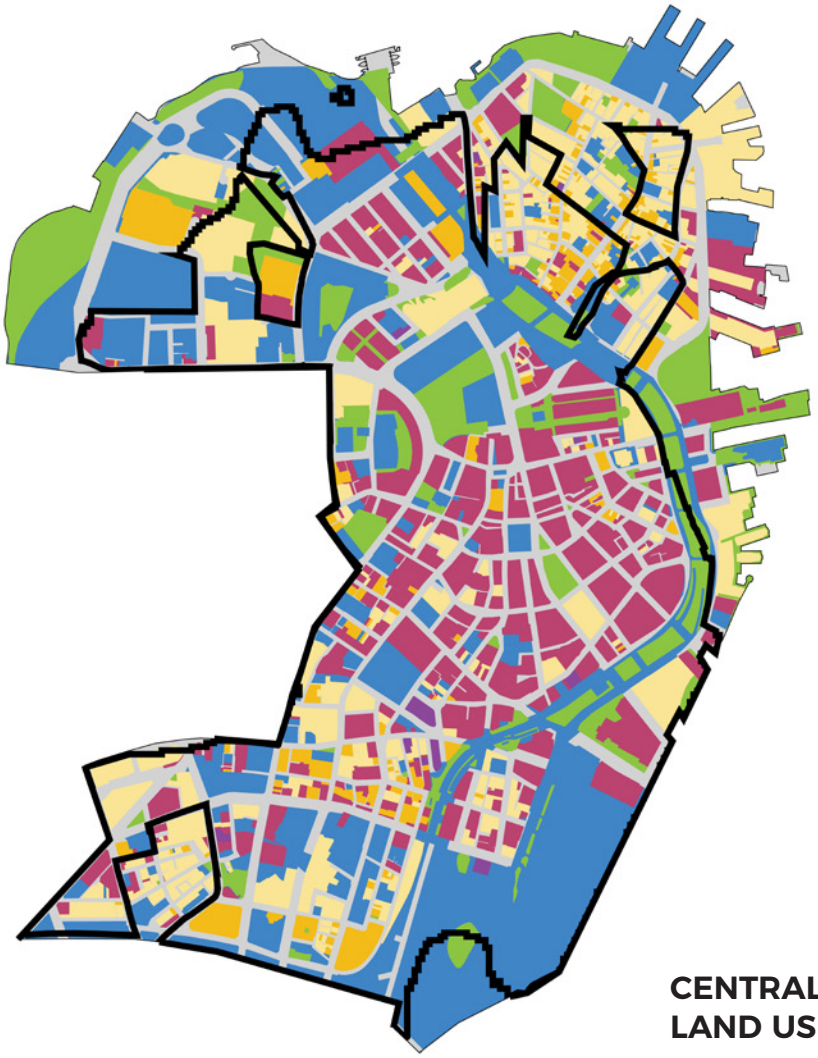
Residential land, which is where most of Boston's canopy lies, requires actions by private owners, who often need education on proper planting and care practices. Commercial land use can provide opportunities for tree canopy additions in parking lots and in pedestrian-heavy business districts. Trees 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.

Central Boston is predominantly institutional (30%) with significant right-of-way (24%) and commercial (16%) designations. The priority zones include a combination of institutional, right-of-way, residential, and commercial land uses. Right-of-way and open space are specifically discussed on the following pages.



CENTRAL BOSTON CANOPY GAIN & LOSS BY LAND USE (ACRES)



CENTRAL BOSTON LAND USE COMPOSITION

- RESIDENTIAL - 14%
- MIXED-USE - 5%
- OPEN SPACE - 12%
- INSTITUTIONAL - 30%
- COMMERCIAL - 16%
- INDUSTRIAL - < 1%
- ROW - 24%
- PRIORITY ZONES

2,000 FT.

RIGHT-OF-WAY (ROW)

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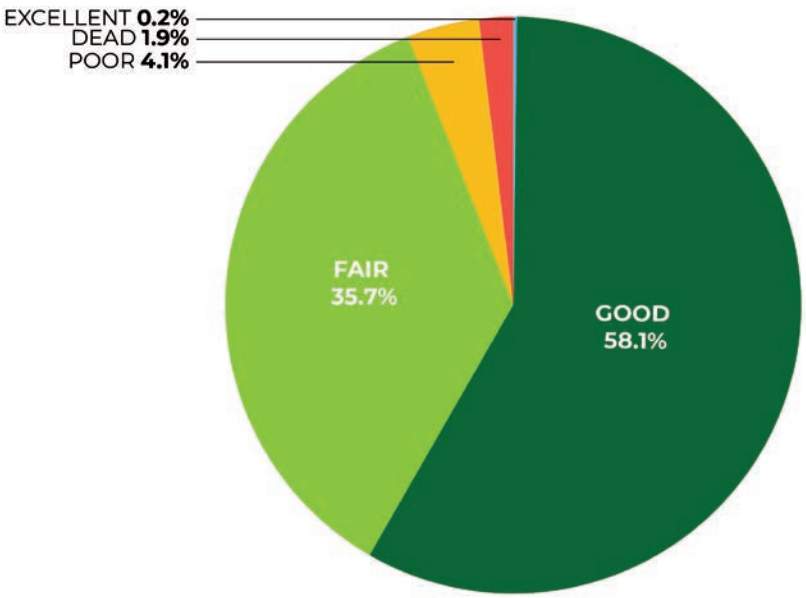
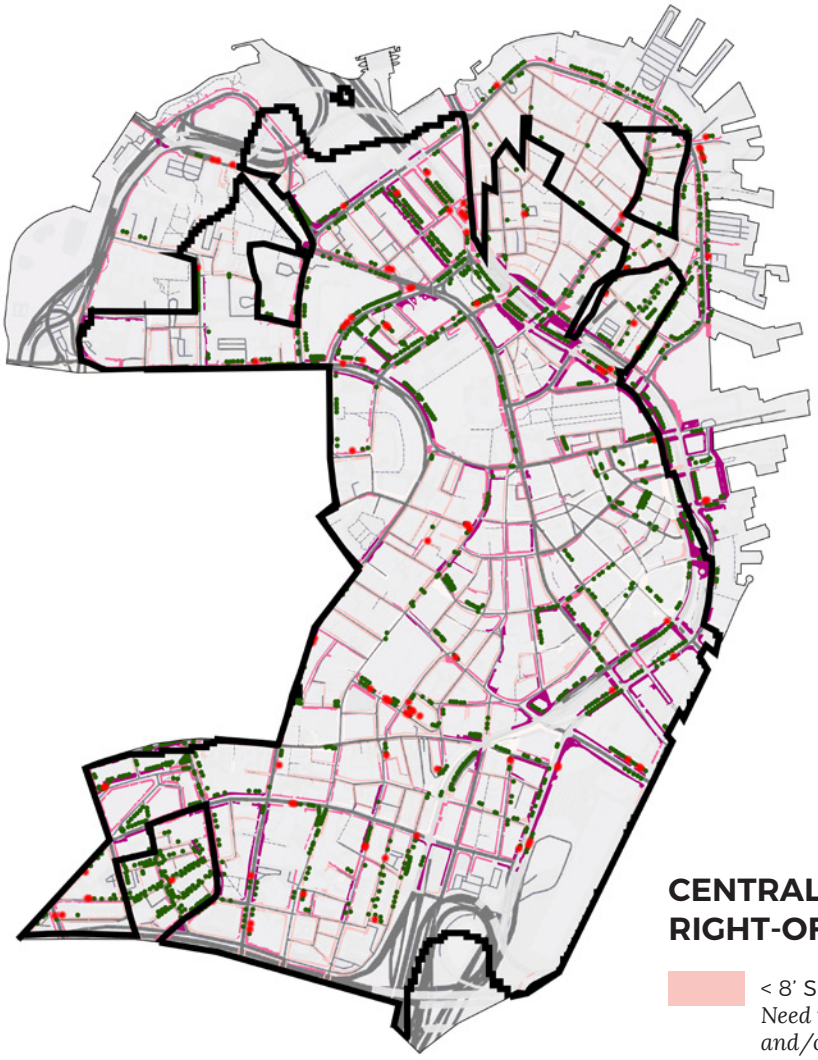
In Central Boston, an estimated 103 potential street tree planting sites (including existing tree pits with dead trees) were identified during the inventory in May 2021. These sites should be considered for immediate planting, in particular those falling within the priority zones. Potential planting sites all need to be evaluated on a case-by-case basis in the field for suitability.

CENTRAL BOSTON STREET TREE CONDITION COMPOSITION



TAKEAWAYS:
Over half (58%) of the street trees in Central Boston are considered in Good or Excellent condition, with the remaining majority in Fair condition, making Central Boston trees some of the overall healthiest in the city. 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.



CENTRAL BOSTON
RIGHT-OF-WAY OPPORTUNITY

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POTENTIAL PLANTING SITES

TREE PITS WITH LIVING TREES

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2,000 FT.

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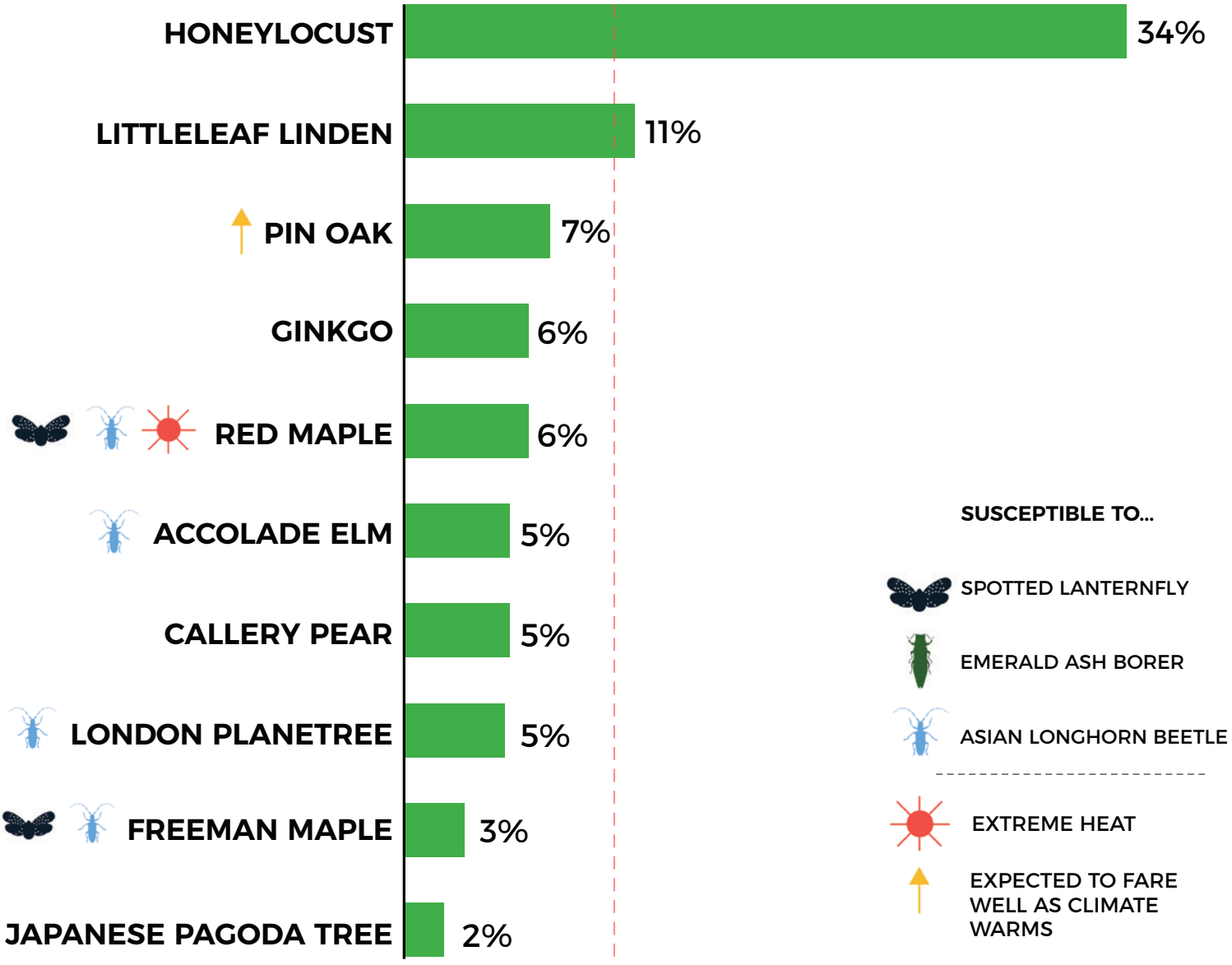
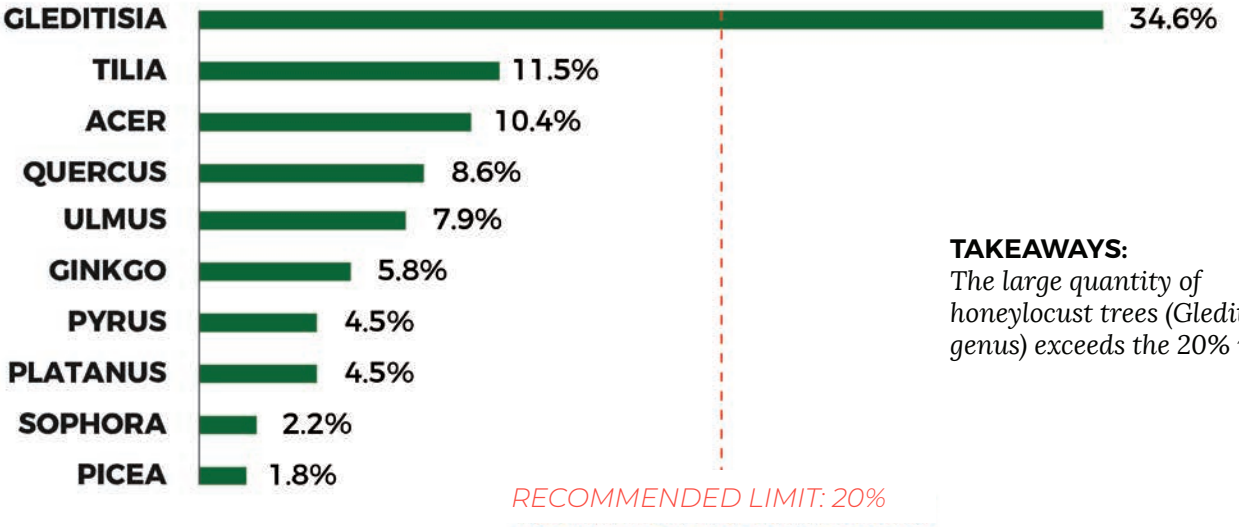
Based on data from the 2021 public street tree inventory the ten most common species in each neighborhood as well as distribution of tree species (genus), age, and overall condition are shown below. Based on best practices and industry standards, recommendations are provided to improve tree diversity in Central Boston to reduce vulnerability to pests and disease as well as ensure long term tree health in the face of future 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%.

CENTRAL BOSTON TOP 10 TREE SPECIES



CENTRAL BOSTON TOP 10 STREET TREE GENUS COMPOSITION



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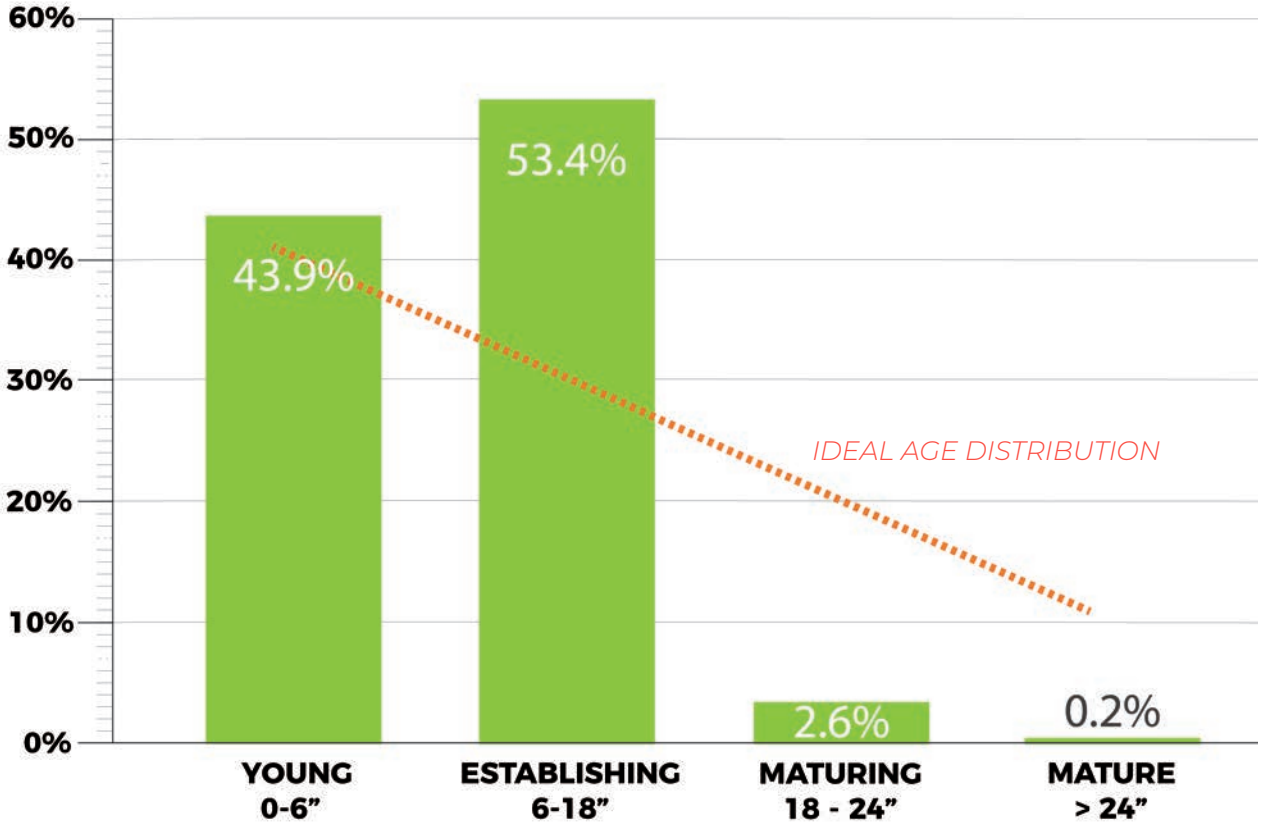
The large quantity of honeylocust trees (Gleditsia genus) exceeds the 20% rule.

Additional genera identified in Central Boston: Aesculus, Amelanchier, Carpinus, Celtis, Fraxinus, Gymnocladus, Koelrueteria, Liquidambar, Liriodendron, Magnolia, Malus, Nyssa, Ostrya, Pinus, Prunus, Sophora, Viburnum, Zelkova

CENTRAL BOSTON STREET TREE AGE COMPOSITION



TAKEAWAYS:
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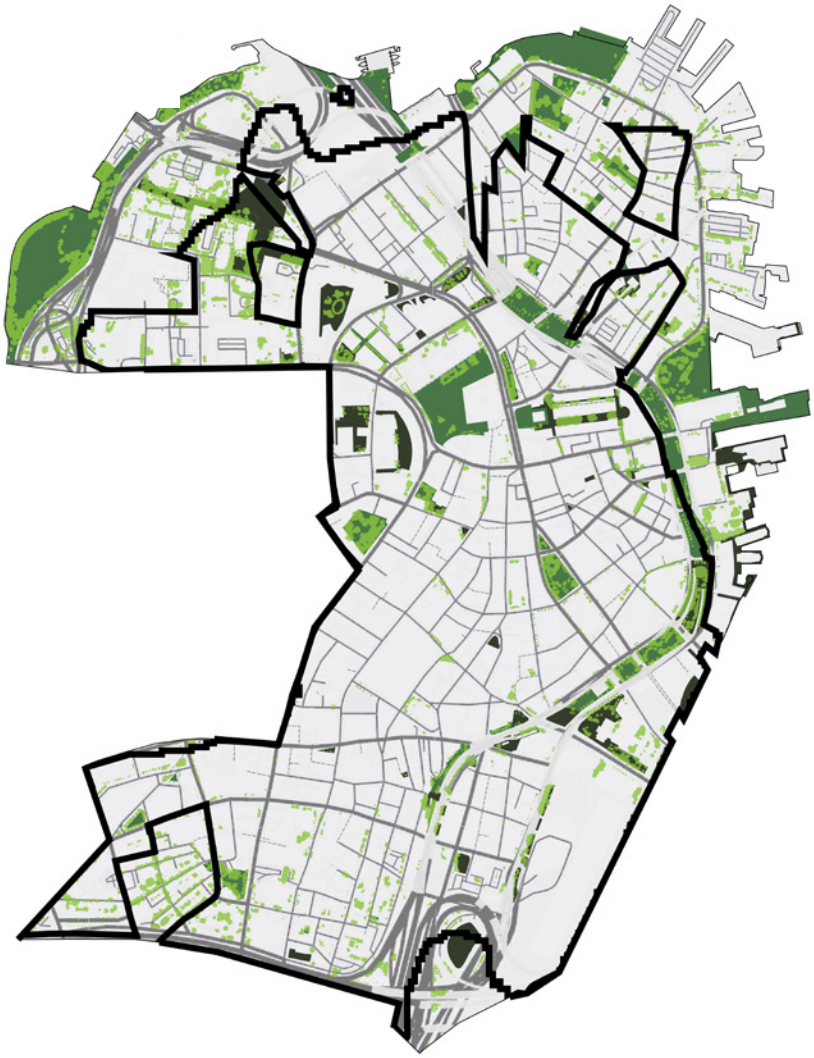
This map shows all open spaces including parks, sports fields, urban wilds, cemeteries and plazas. Tree canopy data is overlaid with open spaces to indicate where these areas may have limited canopy and therefore become sites of opportunity for canopy expansion. The property status as protected or unprotected 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.

Central Boston has numerous protected open spaces including the Rose Kennedy Greenway and two publicly owned parks along the waterfront. In addition to these a number of smaller protected and unprotected open spaces are distributed throughout the neighborhood. However, the priority zones have little to no open space. Opportunities to increase canopy in the existing open spaces and to create additional open spaces within the priority zone should be considered, particularly in Chinatown which represents the largest area within the priority zone and has only a single small open space.

ROSE KENNEDY GREENWAY, CENTRAL BOSTON



CENTRAL BOSTON
OPEN SPACE OPPORTUNITY

- PROTECTED OPEN SPACE
- UNPROTECTED OPEN SPACE
- TREE CANOPY
- PRIORITY ZONES
- 2,000 FT.

ENVIRONMENTAL CONSTRAINTS

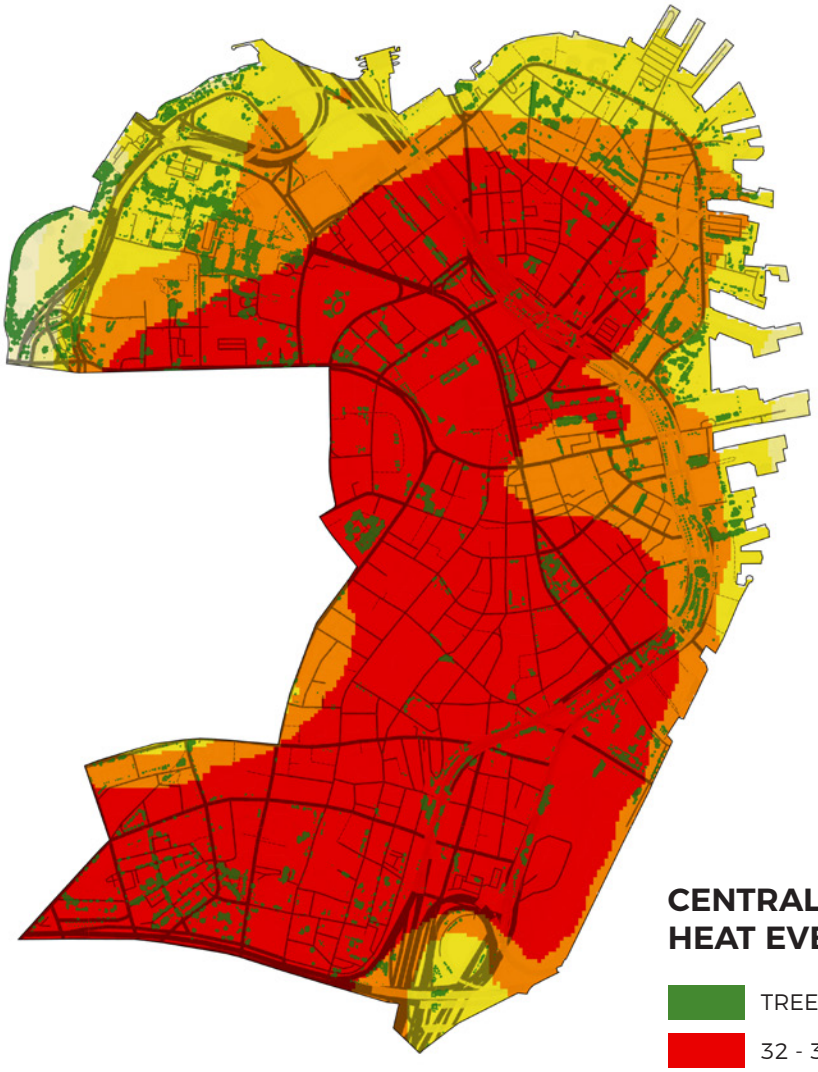
Environmental conditions across the neighborhoods in Boston vary widely. There are coastal conditions, hills, streams and other existing environmental factors which impact plant communities, plant life and health. These maps identify some of the key dynamics in each neighborhood, in particular how climate 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.

  High heat is a priority indicator, therefore, priority planting zones commonly fall within high heat areas, as they do in Central Boston. Nearly all of Central Boston experiences high heat levels. This highlights the need to reduce heat through all possible means, care for trees subject to high heat and to select trees for new planting that will fare well in future heat conditions.

- ***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.

  Central Boston is subject to significant coastal flooding with projected sea level rise. This flooding puts many existing trees at risk. Ongoing Climate Ready Boston efforts to limit coastal flooding will help reduce this risk, however, species that are flood and saline tolerant should be considered for new plantings. Implementation of flood risk reduction strategies through the Climate Ready Boston initiative should consider inclusion of new plantings and protection of existing trees where possible.



CENTRAL BOSTON HEAT EVENT HOURS*

- TREE CANOPY
- 32 - 38 HEAT EVENT HOURS
- 29 - 32 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.

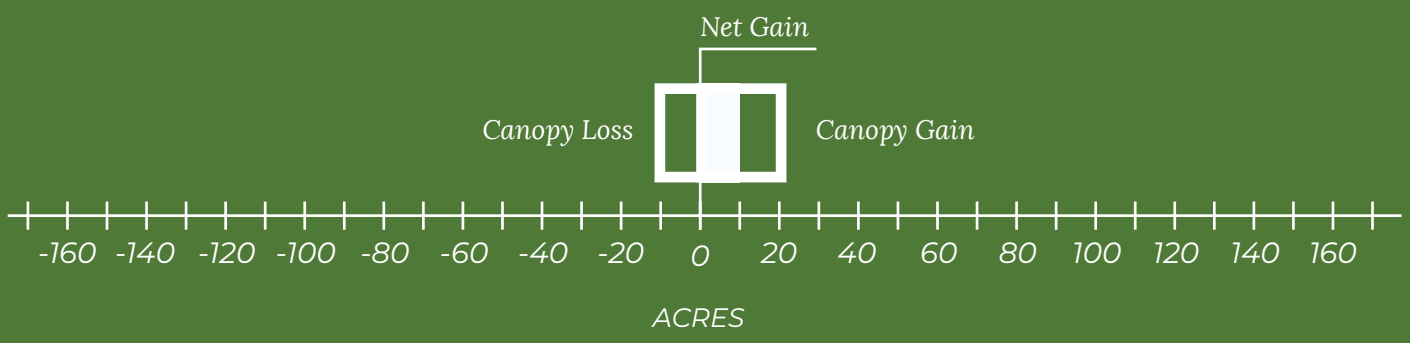
CHARLESTOWN

CANOPY AND LAND USE TRENDS

CHARLESTOWN HAS 1% OF BOSTON'S CANOPY.

CHARLESTOWN HAS 11% CANOPY COVERAGE.

CHARLESTOWN LOST 11 ACRES AND GAINED 21 ACRES FOR A NET GAIN OF 10 ACRES OF TREE CANOPY FROM 2014-2019. THE GREATEST GAINS WERE WITHIN OPEN SPACES AND RIGHTS OF WAY.



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.

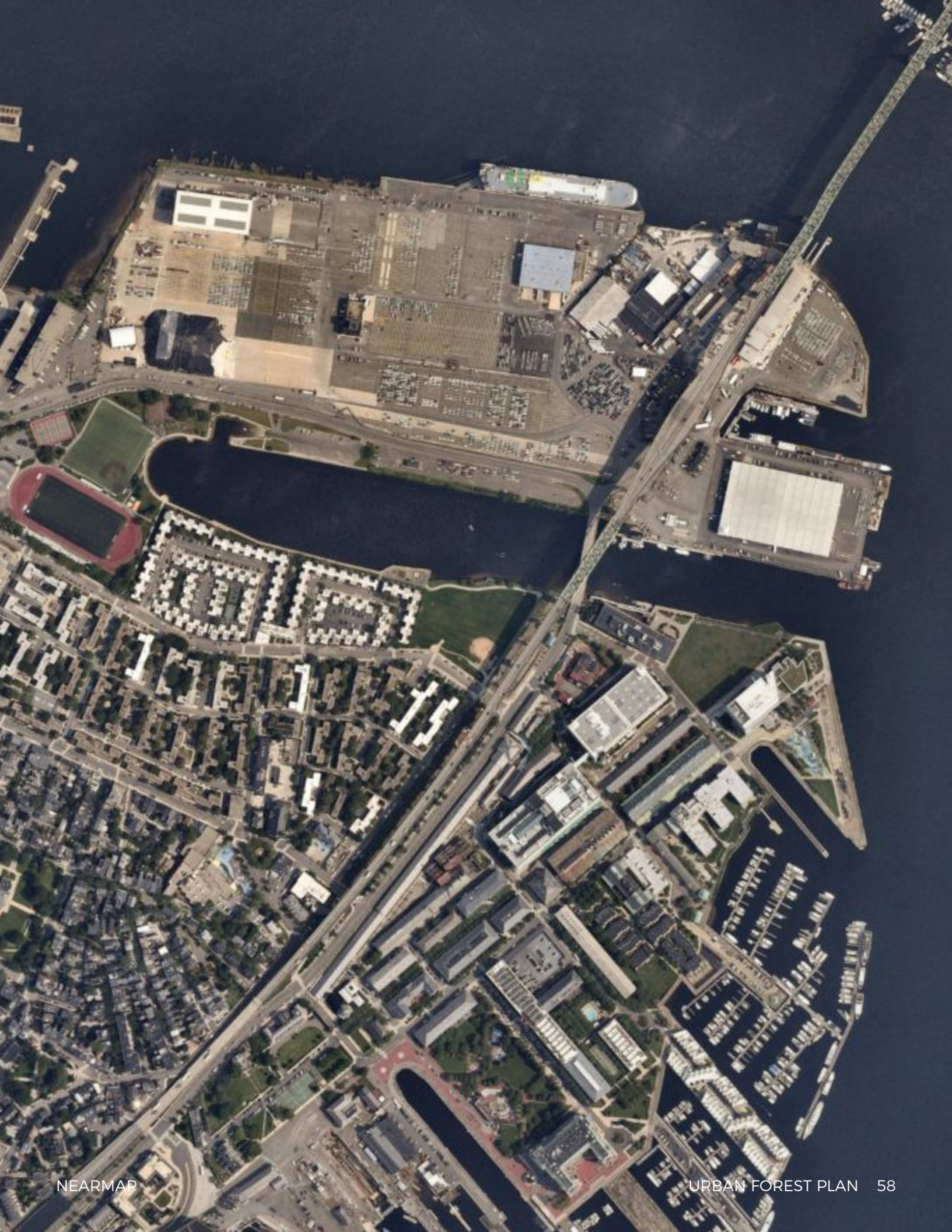
Low Canopy. Using 2019 Tree Canopy Coverage Assessment data, this map identifies census tracts with less than 10% tree canopy coverage.

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.

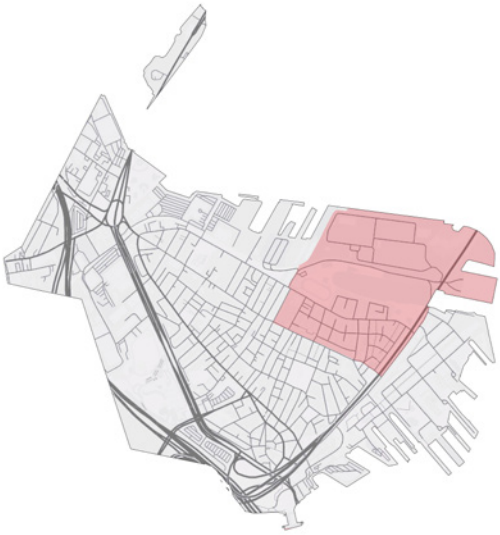
Historic Marginalization This map shows areas that received 'C' or 'D' ratings from the 1938 HOLC 'Residential Security Map'. These areas were subject to housing discrimination, as well as often subject to other practices and policies of disinvestment. Data is provided by the University of Richmond's 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.

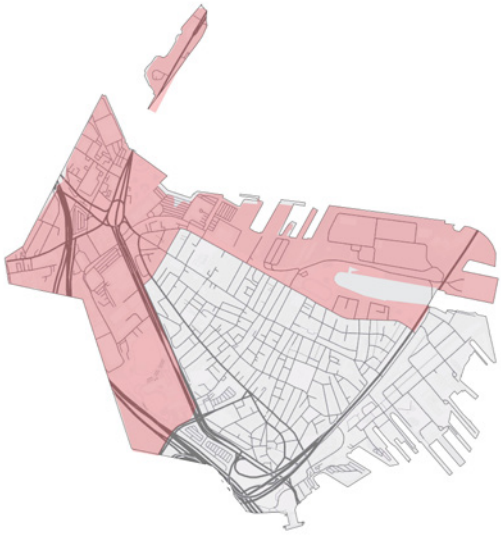
Priority zones should help weight planting canopy expansion focus and attention, but should not be indicative of overall resources and efforts needed. Many priority populations, for example, live in areas with relatively high overall canopy, but in which canopy cover is declining. These areas will need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



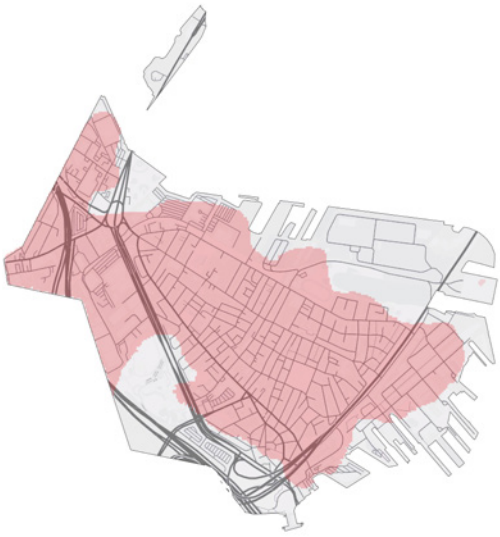
PRIORITY INDICATORS



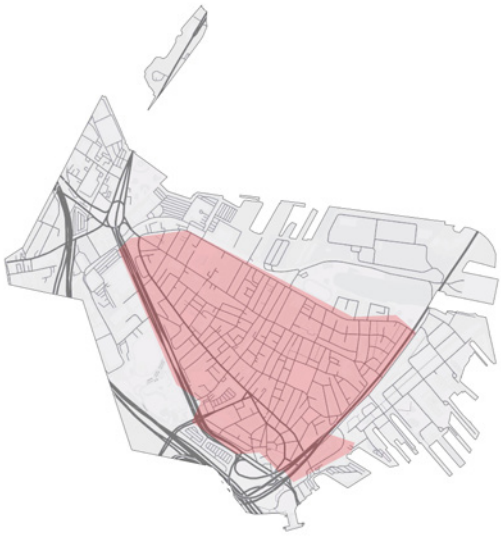
Environmental Justice Communities



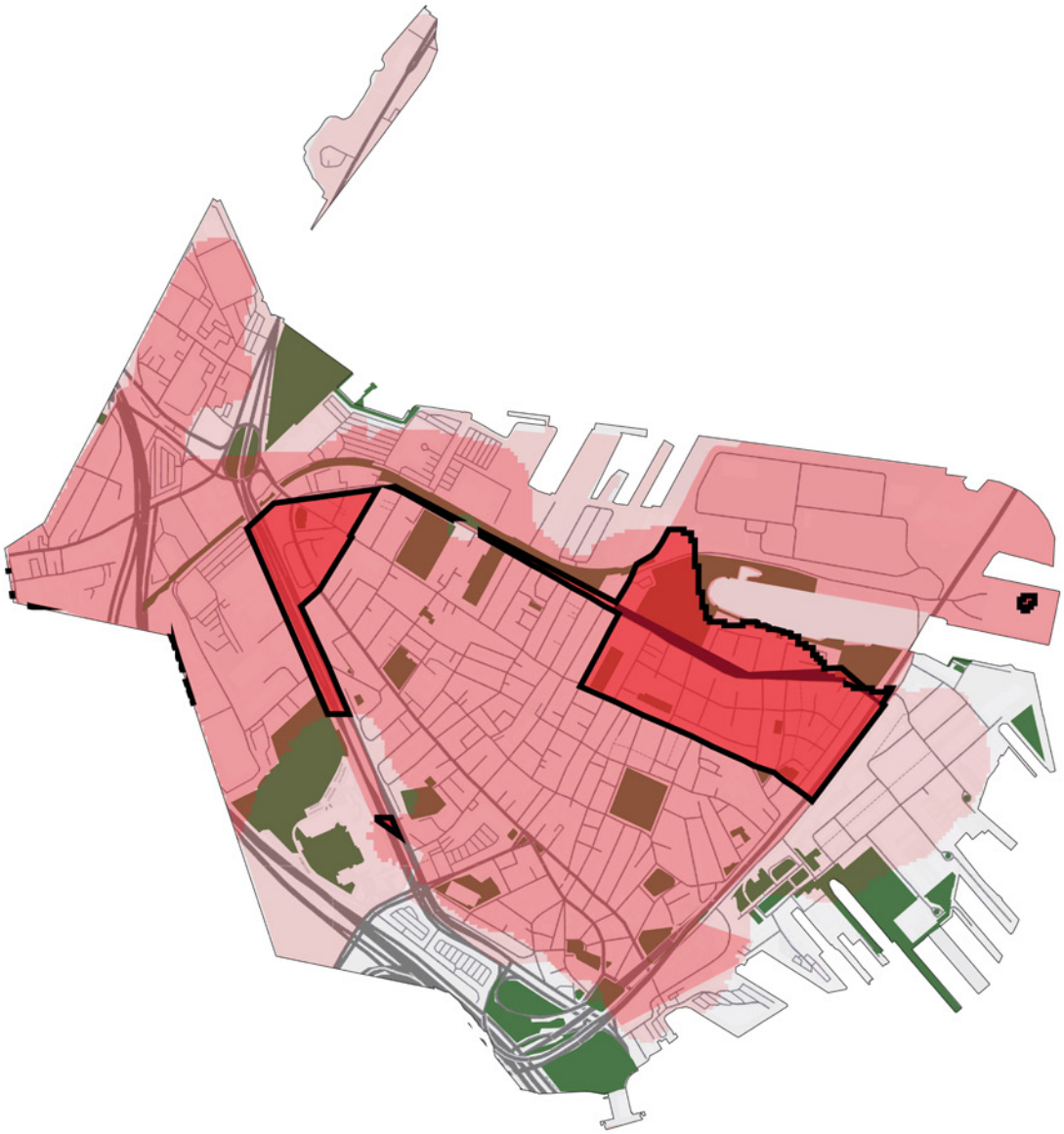
Low Canopy



Heat Event Hours



Historic Marginalization



CHARLESTOWN 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

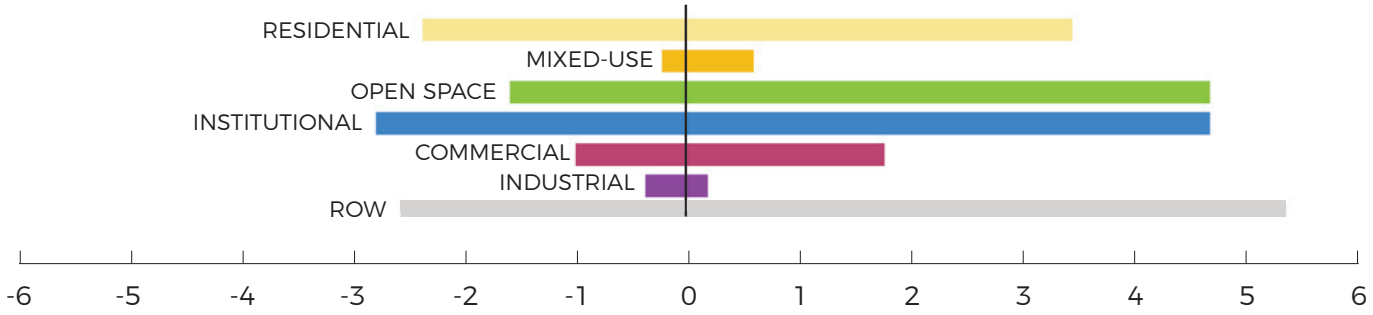
Physical and environmental opportunities and constraints will impact a neighborhood's ability to expand the canopy. It can also determine who has the greatest ability to take action. When used in coordination with the mapped priority zones, these maps can provide greater understanding of where opportunities 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

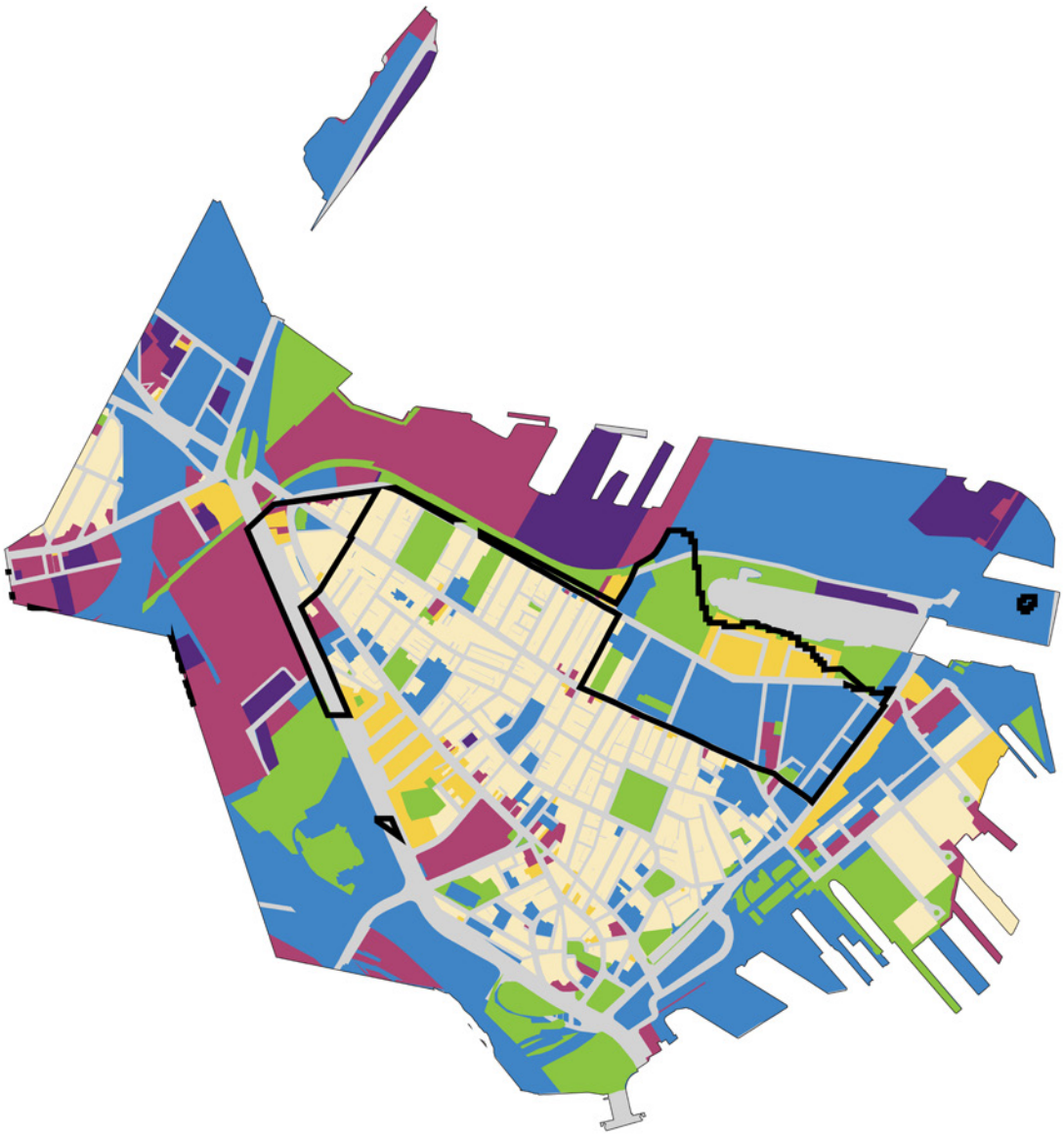
Every neighborhood has a different make-up of private and public land, as well as different key land uses and property owners. The existence of various land uses can affect opportunities for expanding canopy and who in the community has the ability and responsibility to act.

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.

Charlestown is predominantly institutional (32%) and right-of-way (20%) with significant residential (15%) designation. The priority zones include primarily residential land and right-of-way. Right-of-way and open space are specifically discussed on the following pages.



CHARLESTOWN CANOPY GAIN & LOSS BY LAND USE (ACRES)



CHARLESTOWN LAND USE COMPOSITION

- RESIDENTIAL - 15%
- MIXED-USE - 4%
- OPEN SPACE - 12%
- INSTITUTIONAL - 32%
- COMMERCIAL - 14%
- INDUSTRIAL - 5%
- ROW - 20%
- PRIORITY ZONES

2,000 FT.

RIGHT-OF-WAY (ROW)

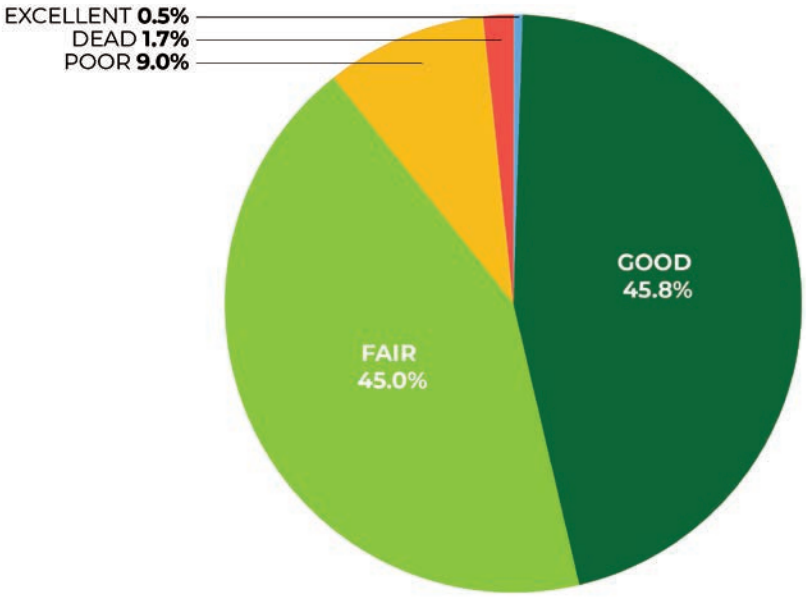
Right-of-way (ROW) refers to property in Boston that is subject to public use for streets, curbs, planting strips, sidewalks, etc. These lands in Boston represent a set of potential planting sites over which the Parks Department and other City departments already have the jurisdiction to expand canopy.

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 Charlestown, an estimated 141 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.

CHARLESTOWN STREET TREE CONDITION COMPOSITION



TAKEAWAYS:
Less than 50% of the street trees in Charlestown are considered in Good or Excellent condition, with the remaining majority in Fair 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.

CHARLESTOWN
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

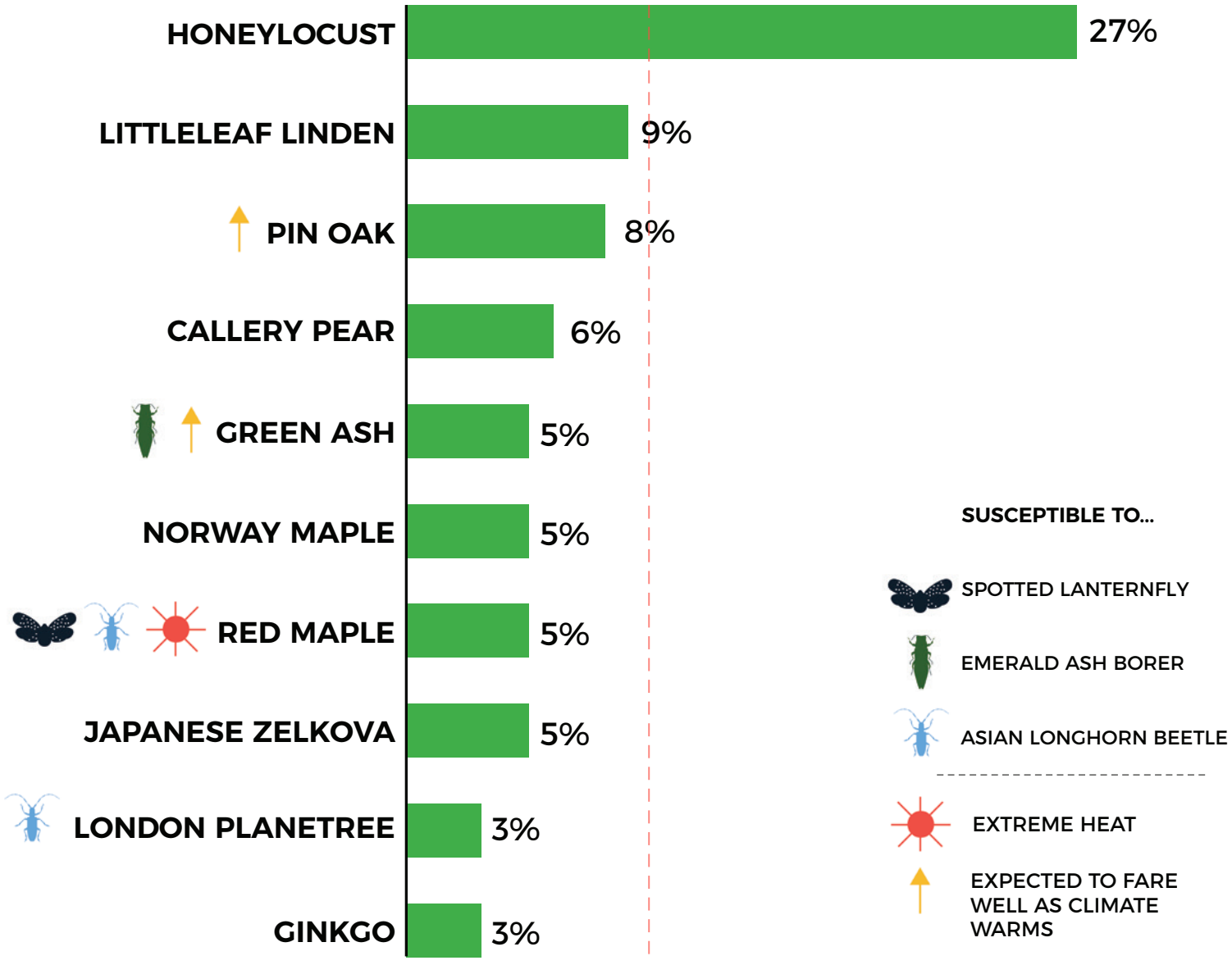
PRIORITY ZONES

2,000 FT.

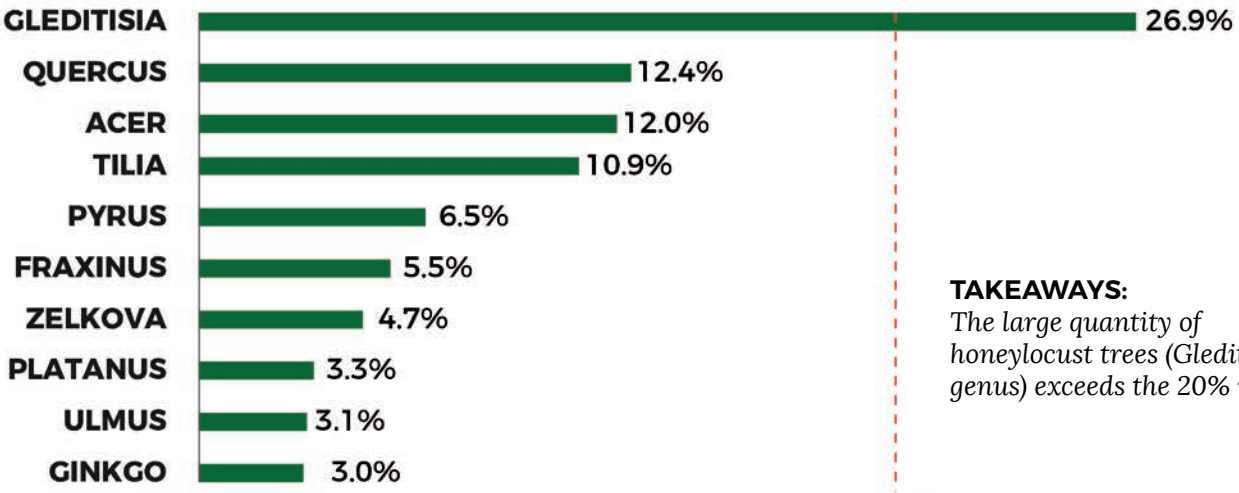
STREET TREE ANALYSIS

Based on data from the 2021 public street tree inventory the ten most common species in each neighborhood as well as distribution of tree species (genus), age, and overall condition are shown below. Based on best practices and industry standards, recommendations are provided to improve tree diversity in Charlestown to reduce vulnerability to pests and disease as well as ensure long term tree health in the face of future 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%.

CHARLESTOWN TOP 10 TREE SPECIES



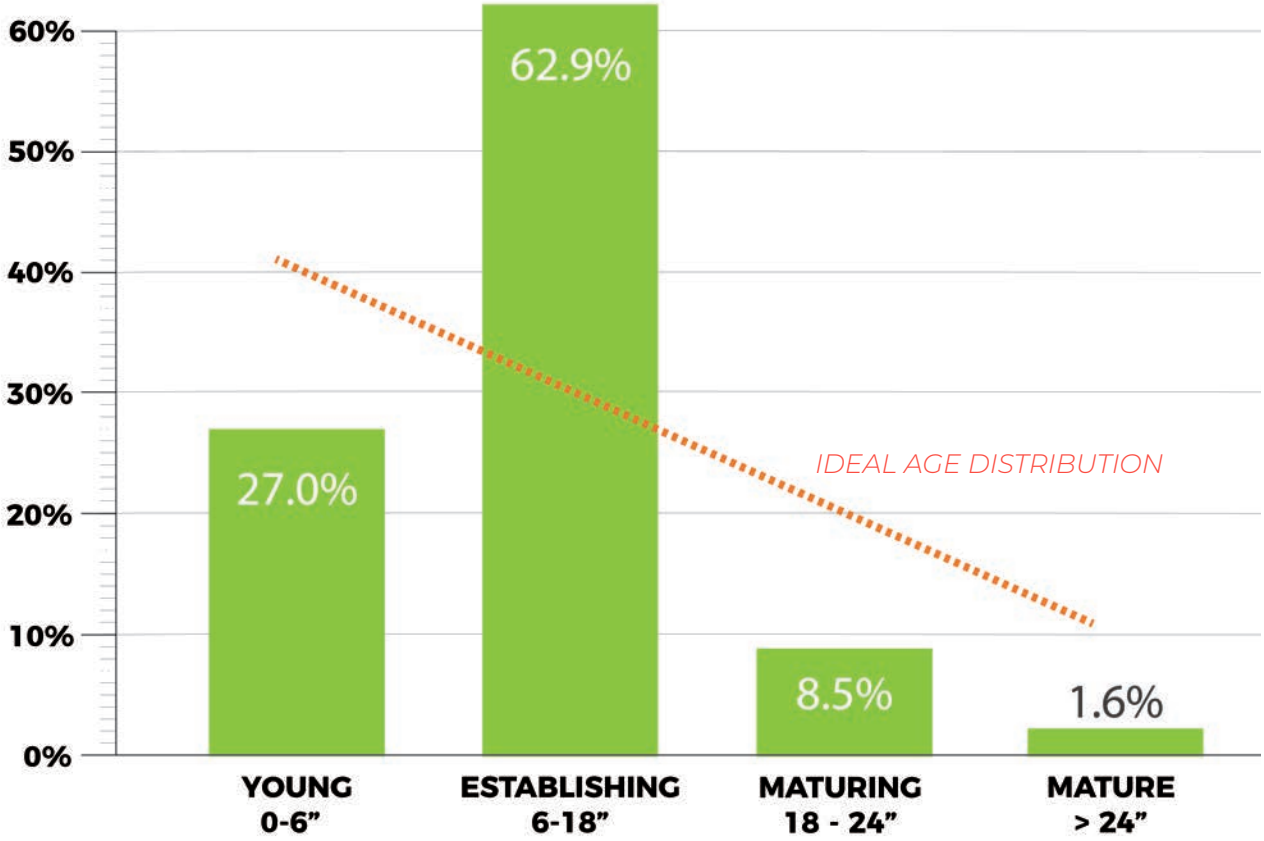
CHARLESTOWN TOP 10 STREET TREE GENUS COMPOSITION



TAKEAWAYS:
The large quantity of honeylocust trees (Gleditsia genus) exceeds the 20% rule.

Additional genera identified in Charlestown: Amelanchier, Carpinus, Celtis, Cornus, Gymnocladus, Koelrueteria, Liquidambar, Liriodendron, Malus, Ostrya, Picea, Pinus, Prunus, Sophora, Syringa,

CHARLESTOWN STREET TREE AGE COMPOSITION



TAKEAWAYS:
Charlestown has a very large number of establishing street trees, very few maturing and mature street trees and too few young trees relative to the ideal distribution. Focus should be on proactive care and preservation of existing canopy to improve longevity and new plantings 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.

Charlestown has a mix of protected and unprotected open spaces. Opportunities to increase canopy in the existing open spaces and to create additional open spaces within the priority zones should be considered.

MERINO PARK, CHARLESTOWN

CHARLESTOWN
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.

  High heat is a priority indicator, therefore, priority planting zones commonly fall within high heat areas, as they do in Charlestown. However, the highest heat areas in Charlestown are largely outside the priority zones in a primarily residential area. This highlights the need to care for trees subject to high heat and to select trees for new planting that will fare well in future heat conditions.

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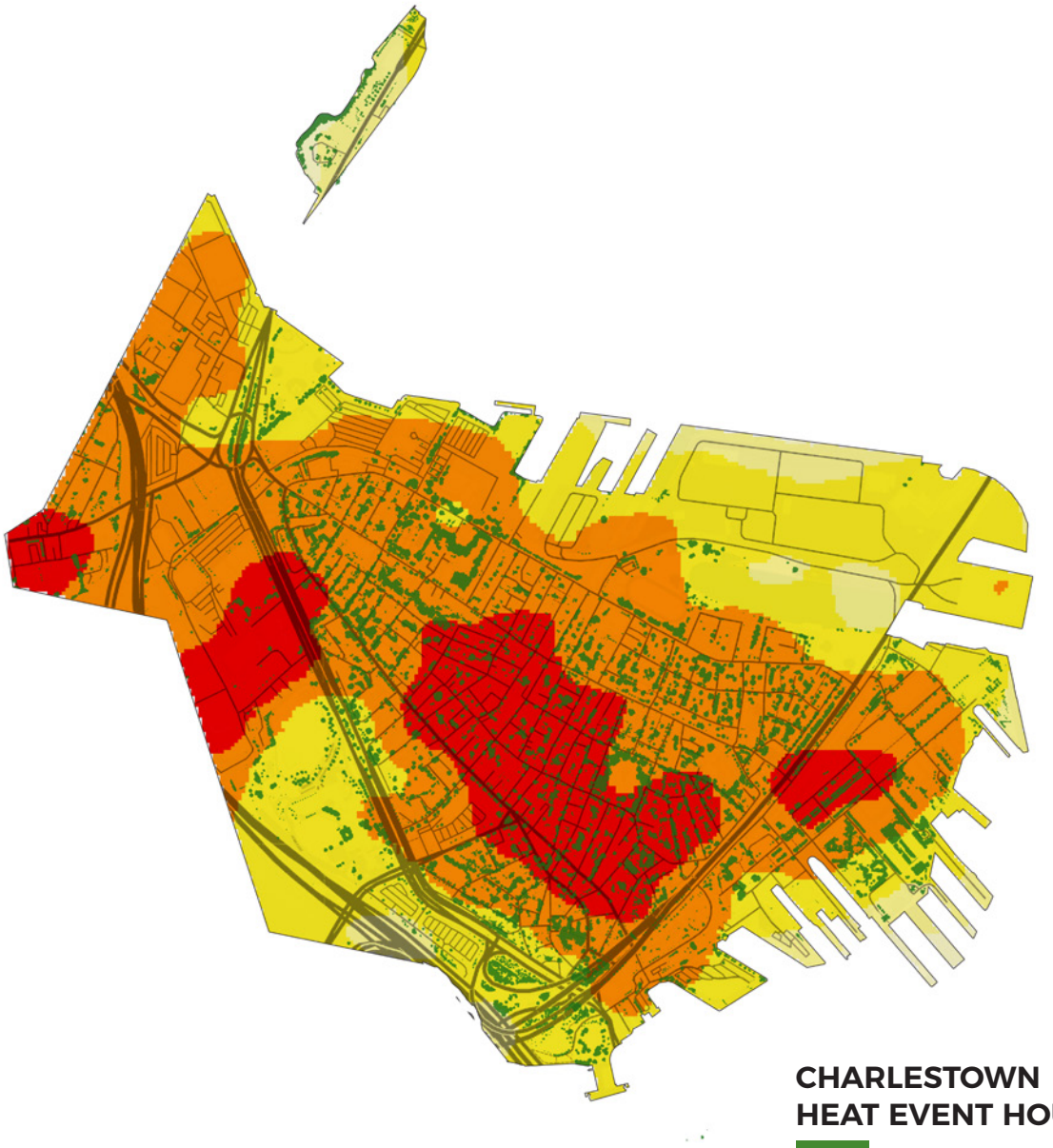

CHARLESTOWN HEAT EVENT HOURS*

- TREE CANOPY
- 32 - 38 HEAT EVENT HOURS
- 29 - 32 HEAT EVENT HOURS
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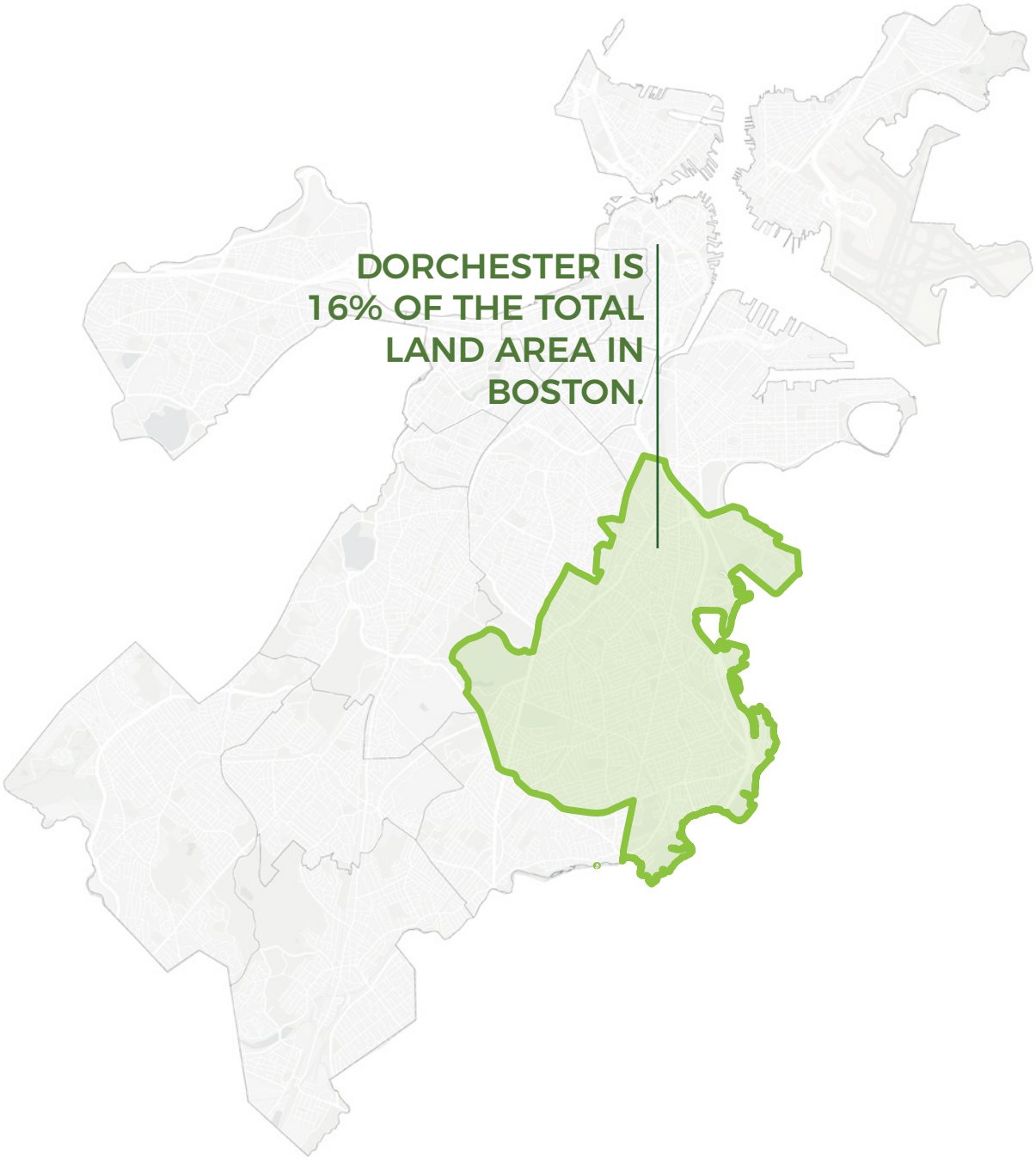
2,000 FT.

DORCHESTER

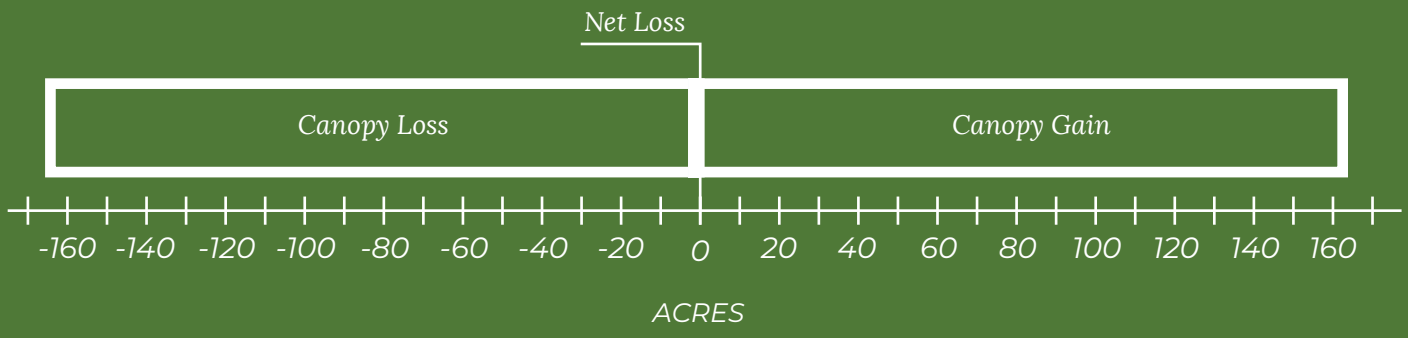


CANOPY AND LAND USE TRENDS

DORCHESTER HAS 13% OF BOSTON'S CANOPY.

DORCHESTER HAS 22% CANOPY COVERAGE.

DORCHESTER LOST 165 ACRES AND GAINED 163 ACRES FOR A NET LOSS OF 2 ACRES OF TREE CANOPY FROM 2014-2019. THE GREATEST LOSSES WERE ON RESIDENTIAL LANDS.



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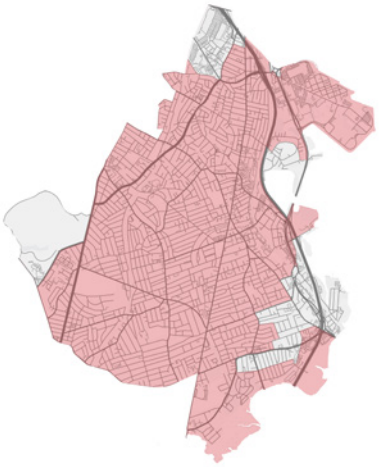
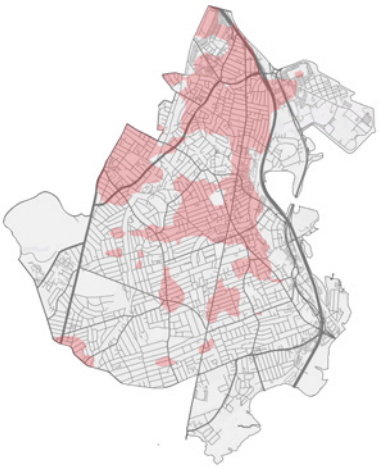
PRIORITY INDICATORS

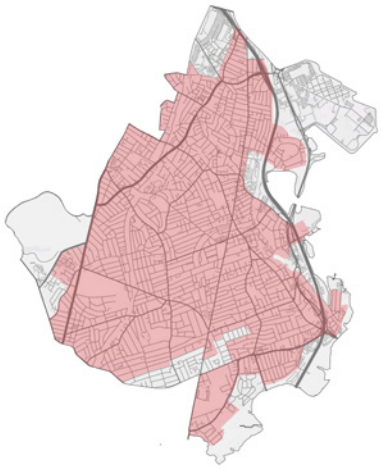


Environmental Justice Communities

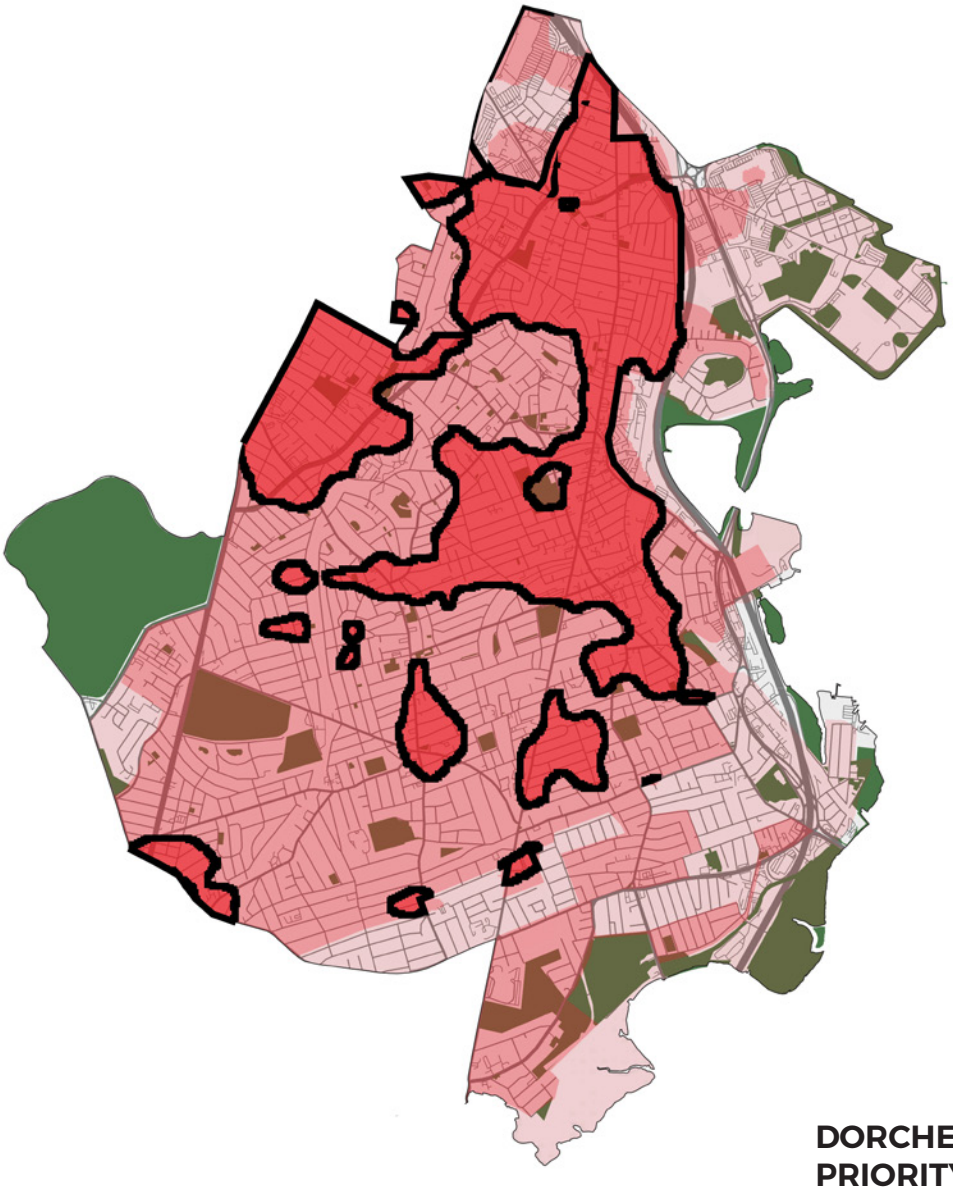
Low Canopy



Heat Event Hours



Historic Marginalization



DORCHESTER 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

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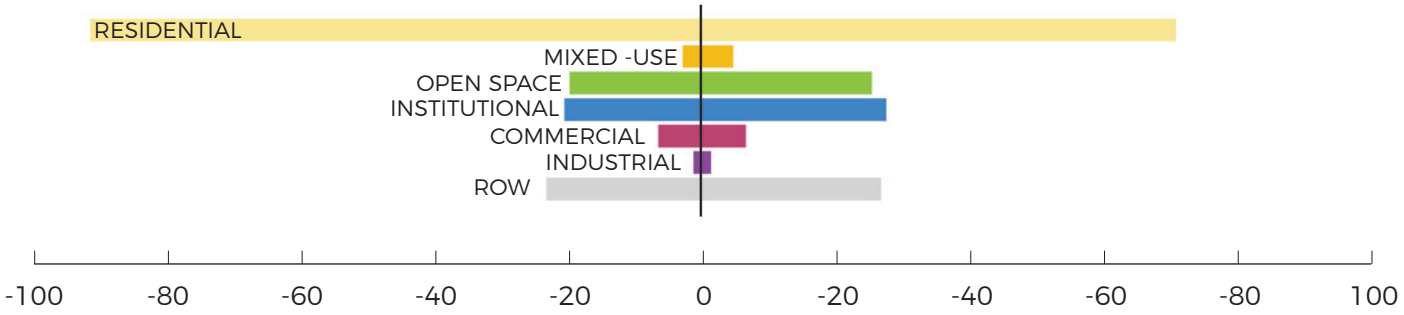
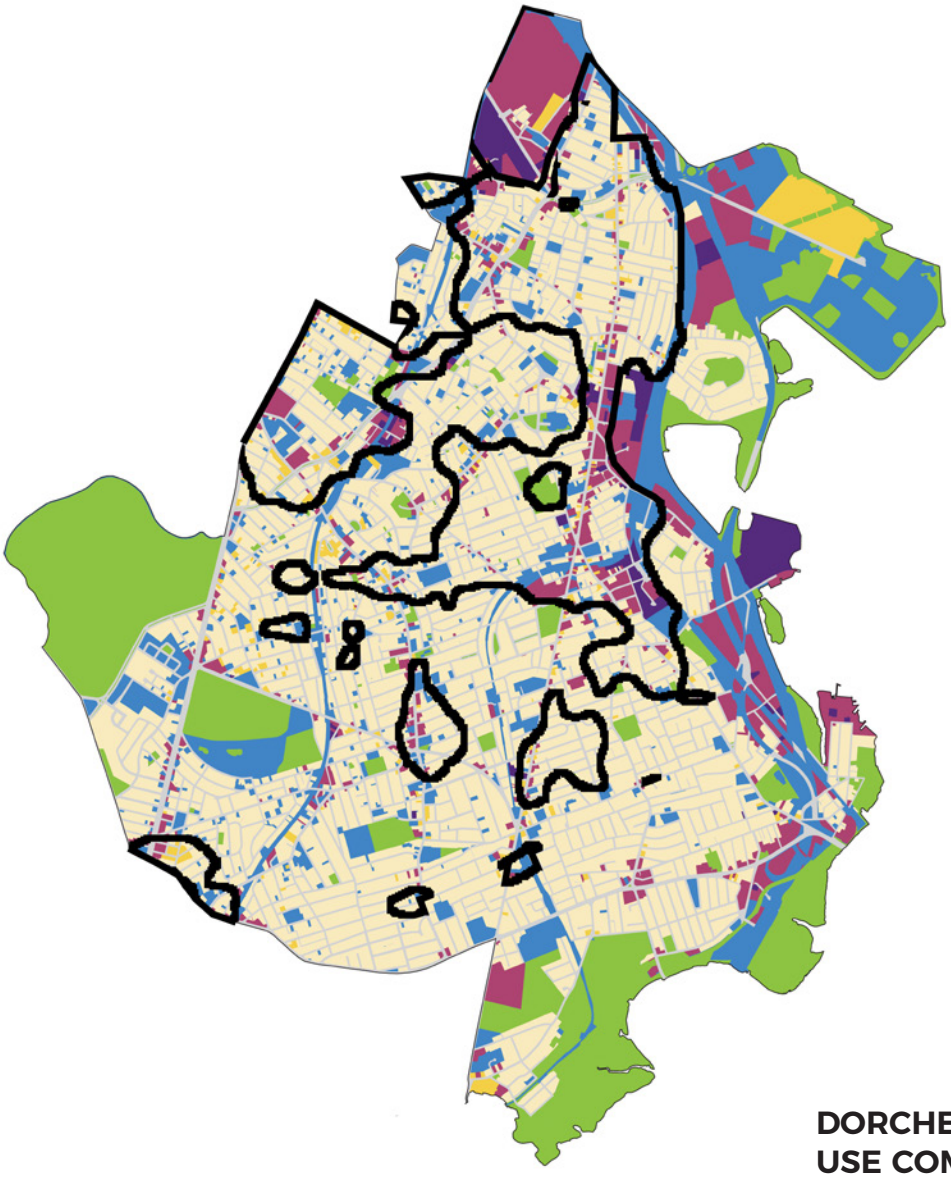
Dorchester is predominantly residential (39%) with significant right-of-way (17%), open space (16%), and institutional (15%) designation. The priority zones include a combination of residential, and commercial land uses. Right-of-way and open space are specifically discussed on the following pages.



DORCHESTER CANOPY GAIN & LOSS BY LAND USE (ACRES)



DORCHESTER LAND USE COMPOSITION

- RESIDENTIAL - 39%
- MIXED-USE - 2%
- OPEN SPACE - 16%
- INSTITUTIONAL - 15%
- COMMERCIAL - 8%
- INDUSTRIAL - 2%
- ROW - 17%
- PRIORITY ZONES
- 2,000 FT.

RIGHT-OF-WAY (ROW)

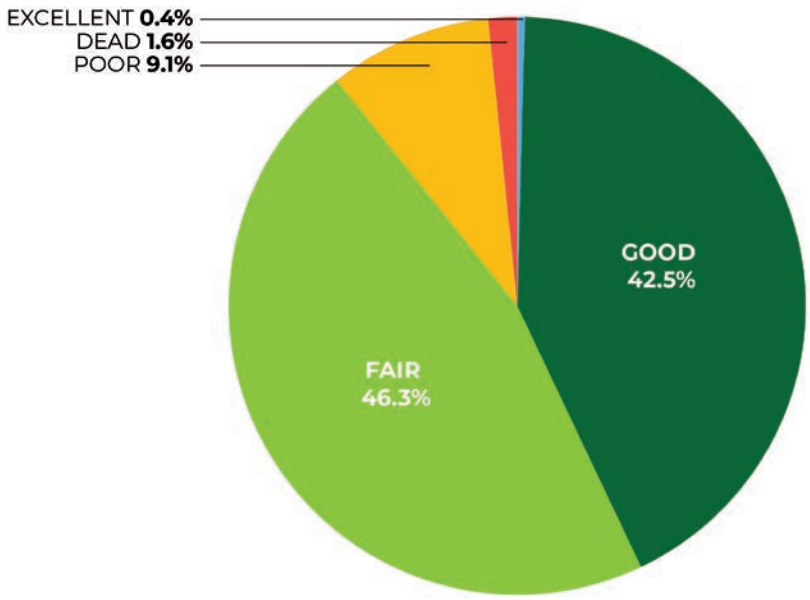
Right-of-way (ROW) refers to property in Boston that is subject to public use for streets, curbs, planting strips, sidewalks, etc. These lands in Boston represent a set of potential planting sites over which the Parks Department and other City departments already have the jurisdiction to expand canopy.

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.

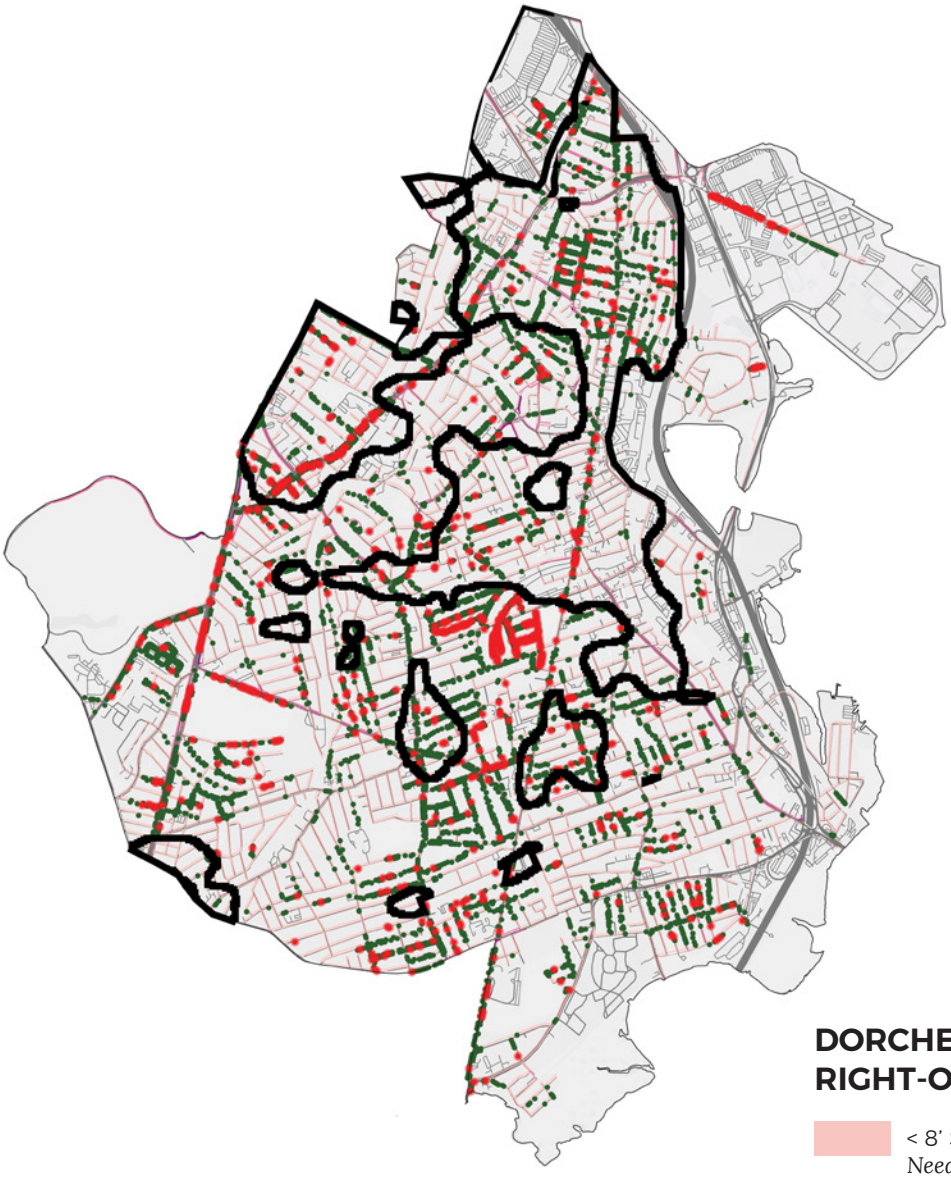
Areas with sidewalk widths over 8'-6" (inclusive of the curb) meet current standards and could be considered for immediate planting, while sidewalk widths less than 8'-0" (inclusive of the curb) would likely require more significant changes to the street or exceptions to current standards. More significant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

In Dorchester, an estimated 853 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.

DORCHESTER STREET TREE CONDITION COMPOSITION



TAKEAWAYS:
Less than 50% of the trees in Dorchester are considered in Good or Excellent condition, with the remaining majority in Fair 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.



DORCHESTER
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

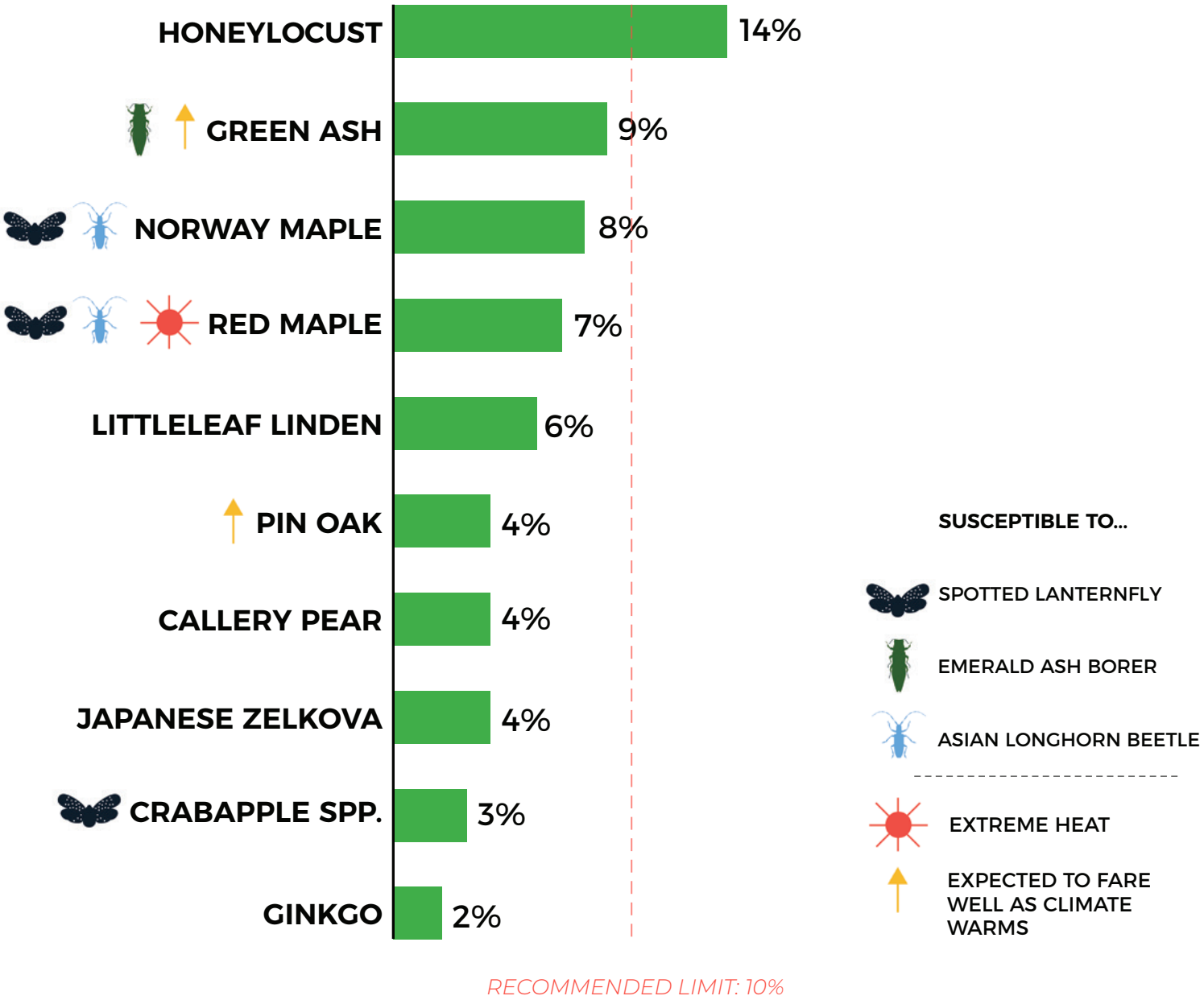
PRIORITY ZONES

2,000 FT.

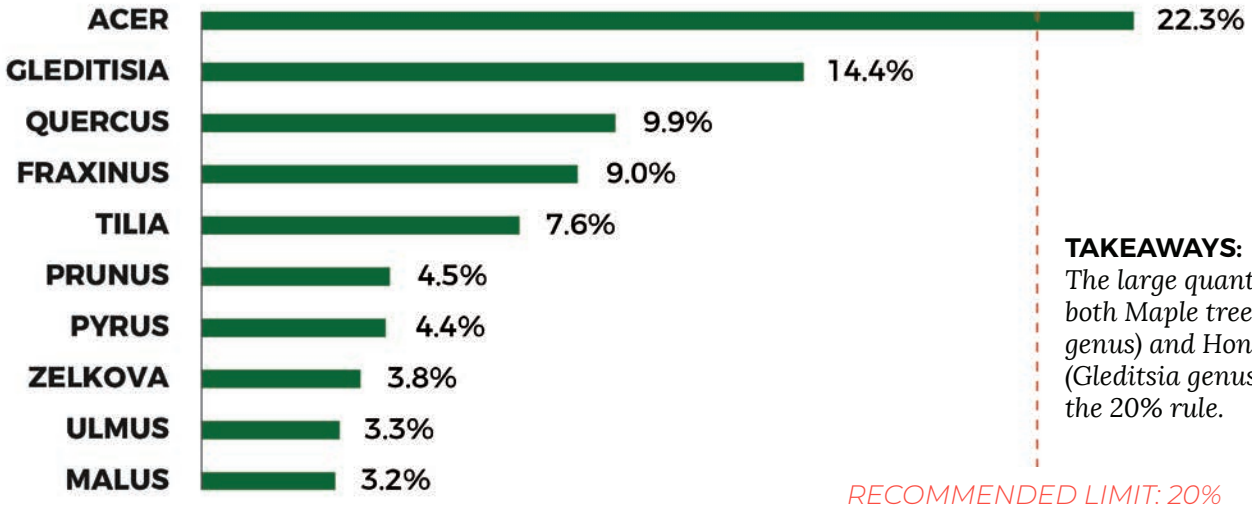
STREET TREE ANALYSIS

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%.

DORCHESTER TOP 10 TREE SPECIES



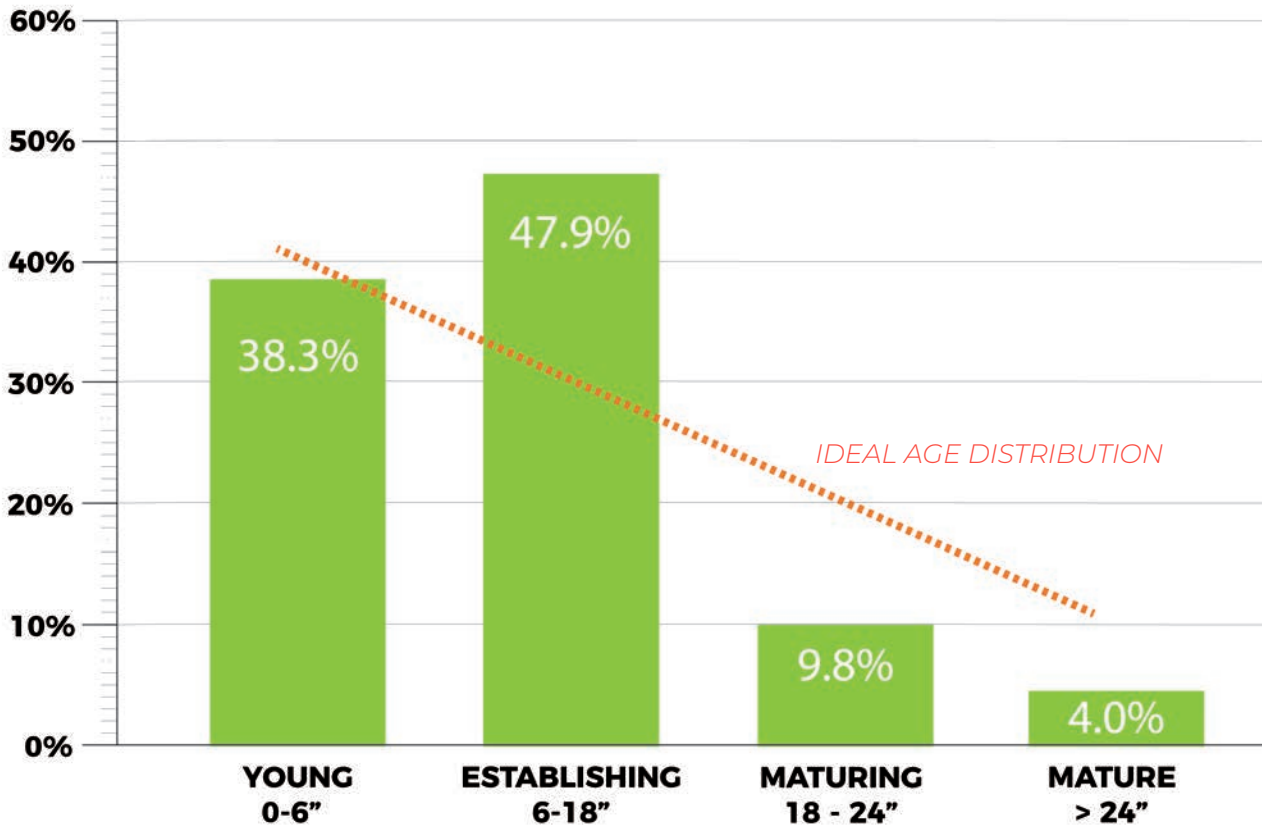
DORCHESTER TOP 10 STREET TREE GENUS COMPOSITION



TAKEAWAYS:
The large quantity of both Maple trees (Acer genus) and Honeylocusts (Gleditsia genus) exceeds the 20% rule.

Additional genera identified in Dorchester: Aesculus, Ailanthus, Amelanchier, Carpinus, Carya, Catalpa, Celtis, Cercidiphyllum, Cercis, Cladrastis, Cornus, Cotinus, Crataegus, Eucommia, Fagus, Ginkgo, Gymnocladus, Hibiscus, Juglans, Juniperus, Koelrueteria, Laburnum, Liquidambar, Liriodendron, Maackia, Magnolia, Morus, Nyssa, Ostrya, Parrotia, Phellodendron, Platanus, Platycladus, Robinia, Sophora, Syringa, Taxodium, Thuja,

DORCHESTER STREET TREE AGE COMPOSITION



TAKEAWAYS:
Dorchester has a very large number of establishing street trees and too few maturing and mature street trees relative to the ideal distribution. Focus should be on proactive care and preservation of existing canopy to improve longevity and continuing to maintain young street trees at current levels.

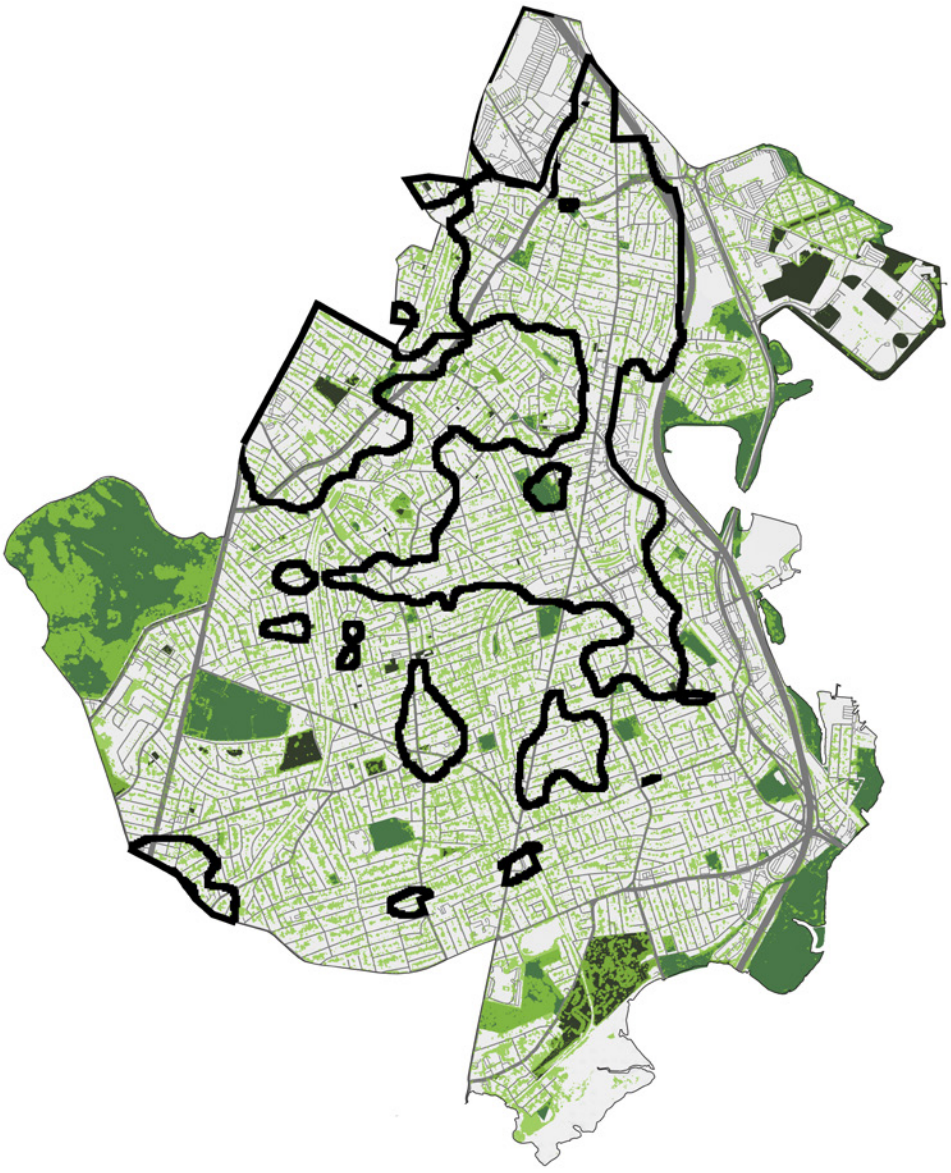
OPEN SPACE

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.

Dorchester has a mix of larger protected open spaces and smaller unprotected open spaces. However, the priority zones have little to no open space. Opportunities to increase canopy in the existing open spaces and to create additional open spaces within the priority zones should be considered.

DORCHESTER PARK, DORCHESTER



DORCHESTER
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.

  High heat is a priority indicator, therefore, priority planting zones commonly fall within high heat areas, as they do in Dorchester. This highlights the need to care for trees subject to high heat and to select trees for new planting that will fare well in future heat conditions.

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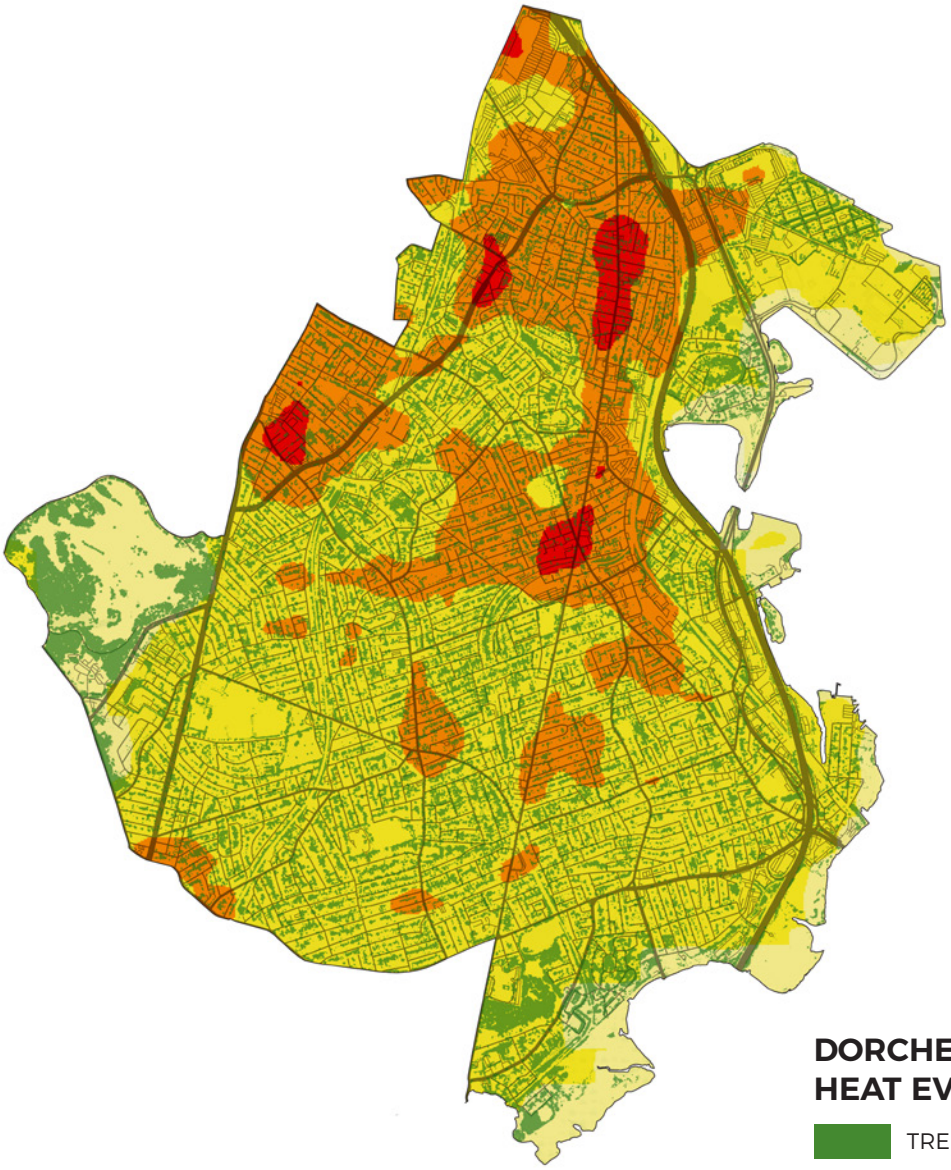


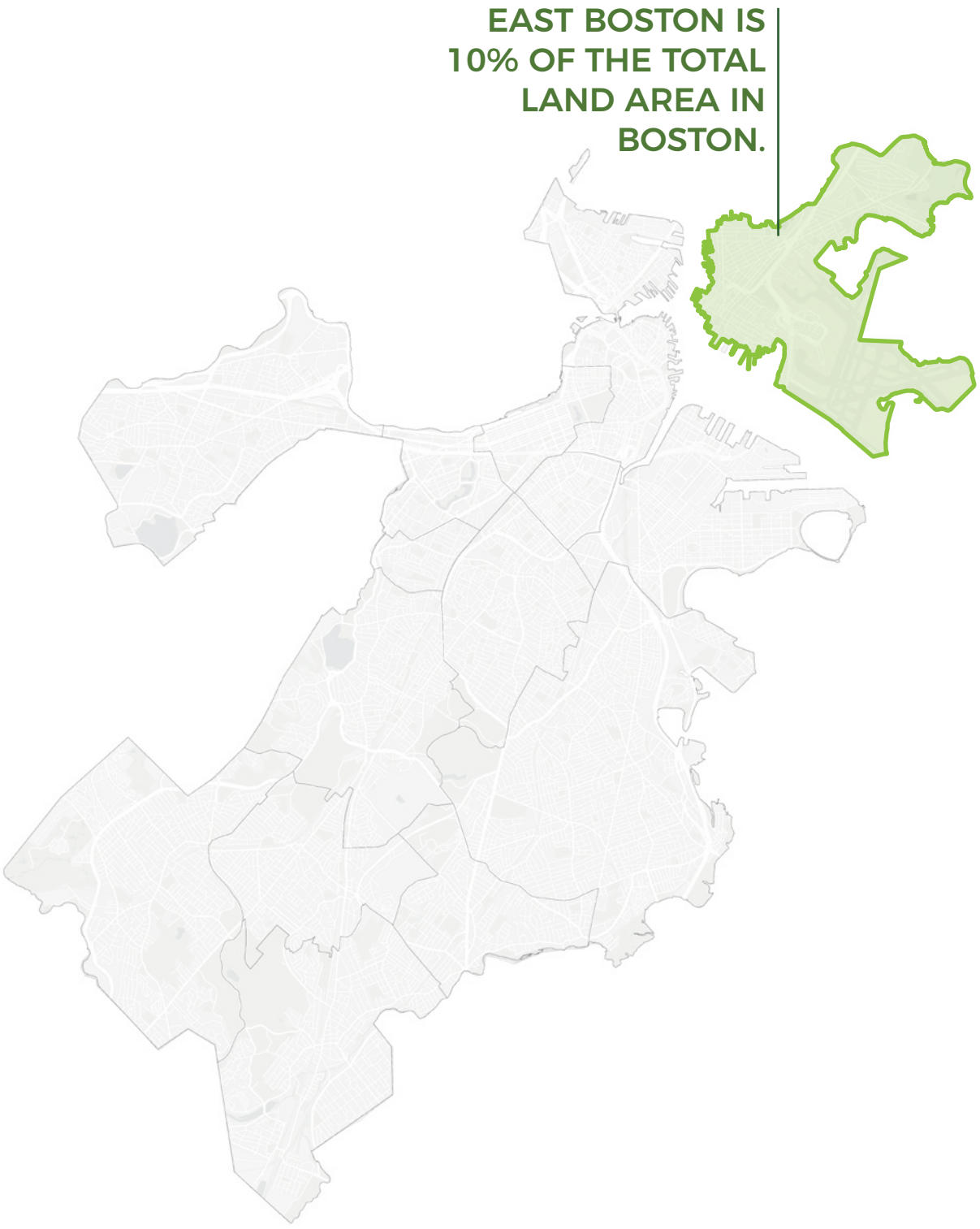
DORCHESTER HEAT EVENT HOURS*

- TREE CANOPY
- 32 - 38 HEAT EVENT HOURS
- 29 - 32 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.

EAST BOSTON

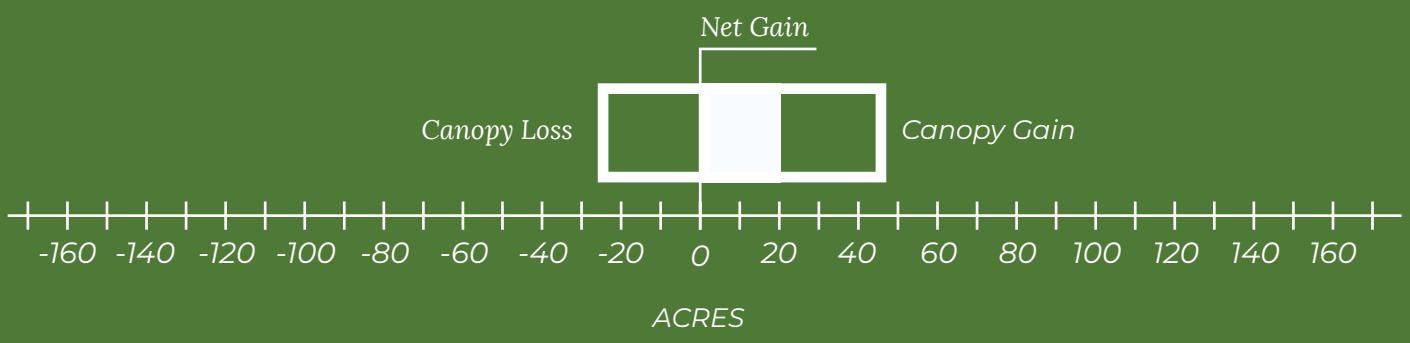


CANOPY AND LAND USE TRENDS

EAST BOSTON HAS 3% OF BOSTON'S CANOPY.

EAST BOSTON HAS 7% CANOPY COVERAGE.

EAST BOSTON LOST 27 ACRES AND GAINED 47 ACRES FOR A NET GAIN OF 20 ACRES OF TREE CANOPY FROM 2014-2019. THE GREATEST GAINS WERE ON OPEN SPACE AND INSTITUTIONAL LANDS.



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.

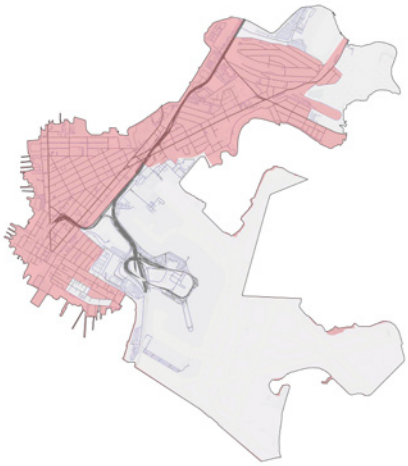
Heat Event Hours. Using data produced by the City of Boston's Heat Resilience Study, this map identifies areas exposed to the most heat impact (two upper quintiles), as defined by modeled urban heat event hours.

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.

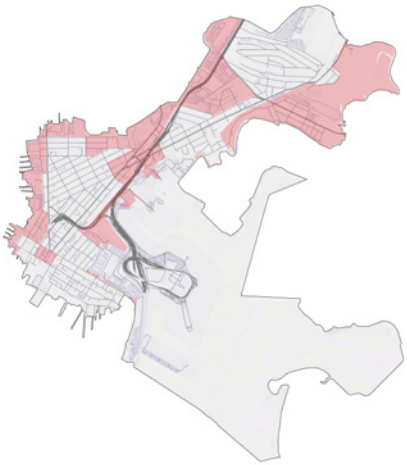
Priority Zones. Zones of highest priority are determined by overlapping prioritization indicators. Those areas with more than three overlapping indicators are highlighted. This map should serve as a starting place for further analysis and community discussions and these zones should be given particular 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



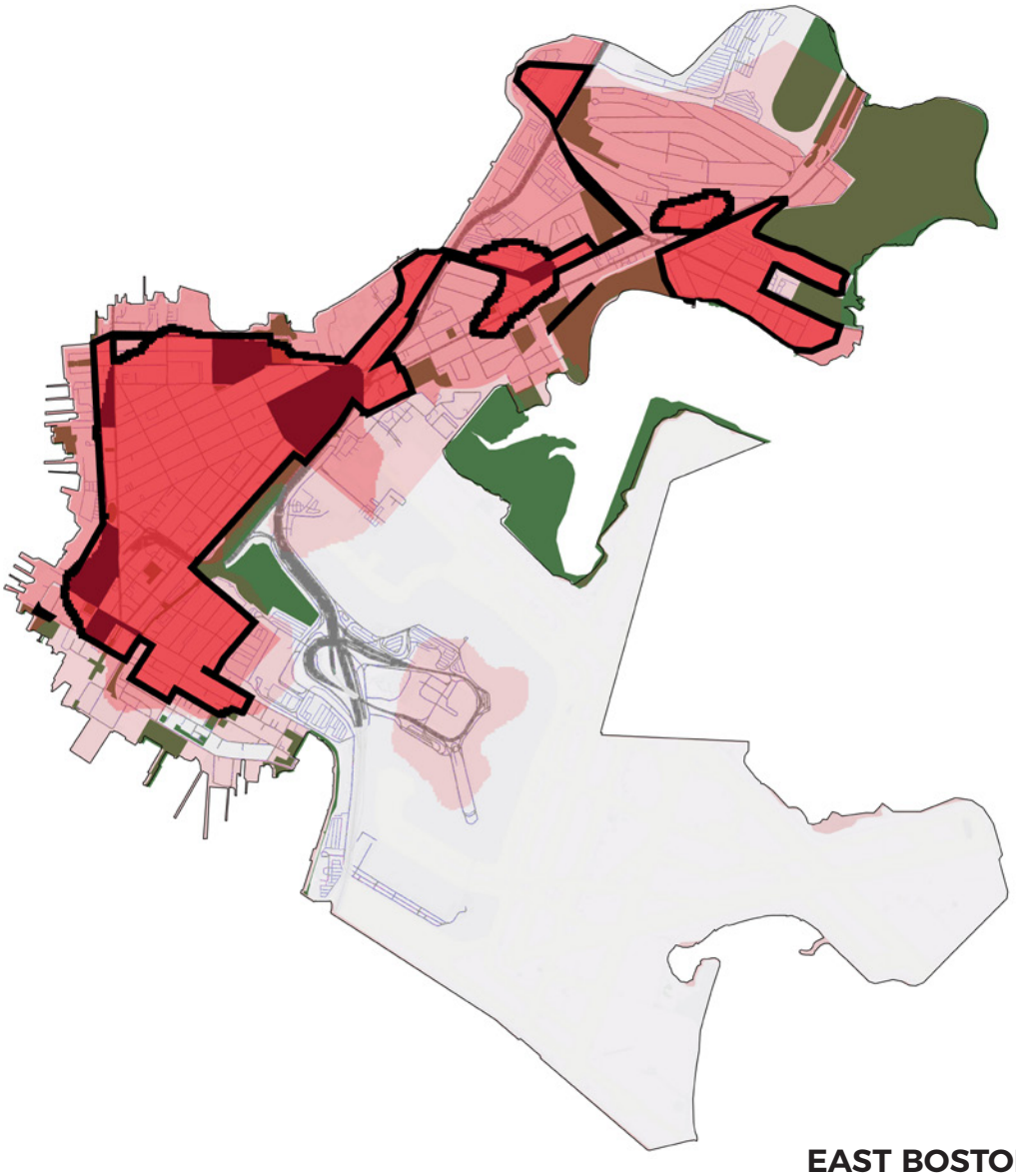
Environmental Justice Communities



Low Canopy

Heat Event Hours

Historic Marginalization



EAST BOSTON 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

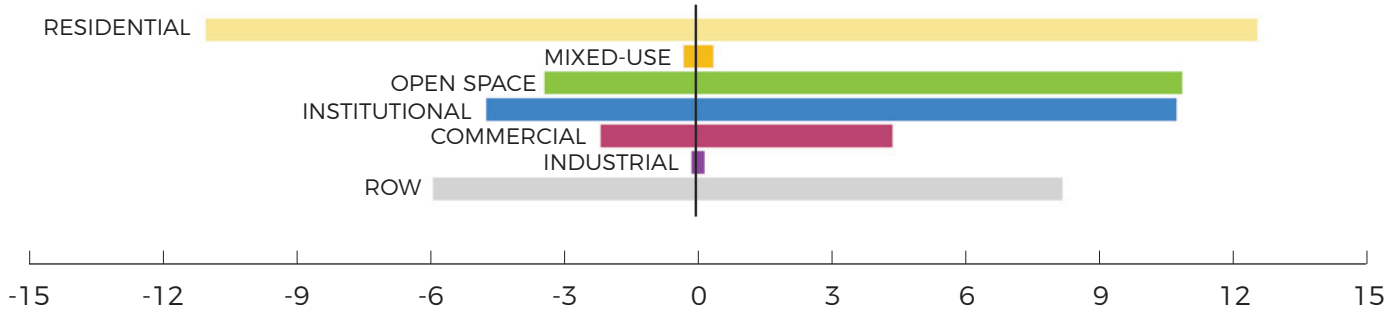
Physical and environmental opportunities and constraints will impact a neighborhood's ability to expand the canopy. It can also determine who has the greatest ability to take action. When used in coordination with the mapped priority zones, these maps can provide greater understanding of where opportunities 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

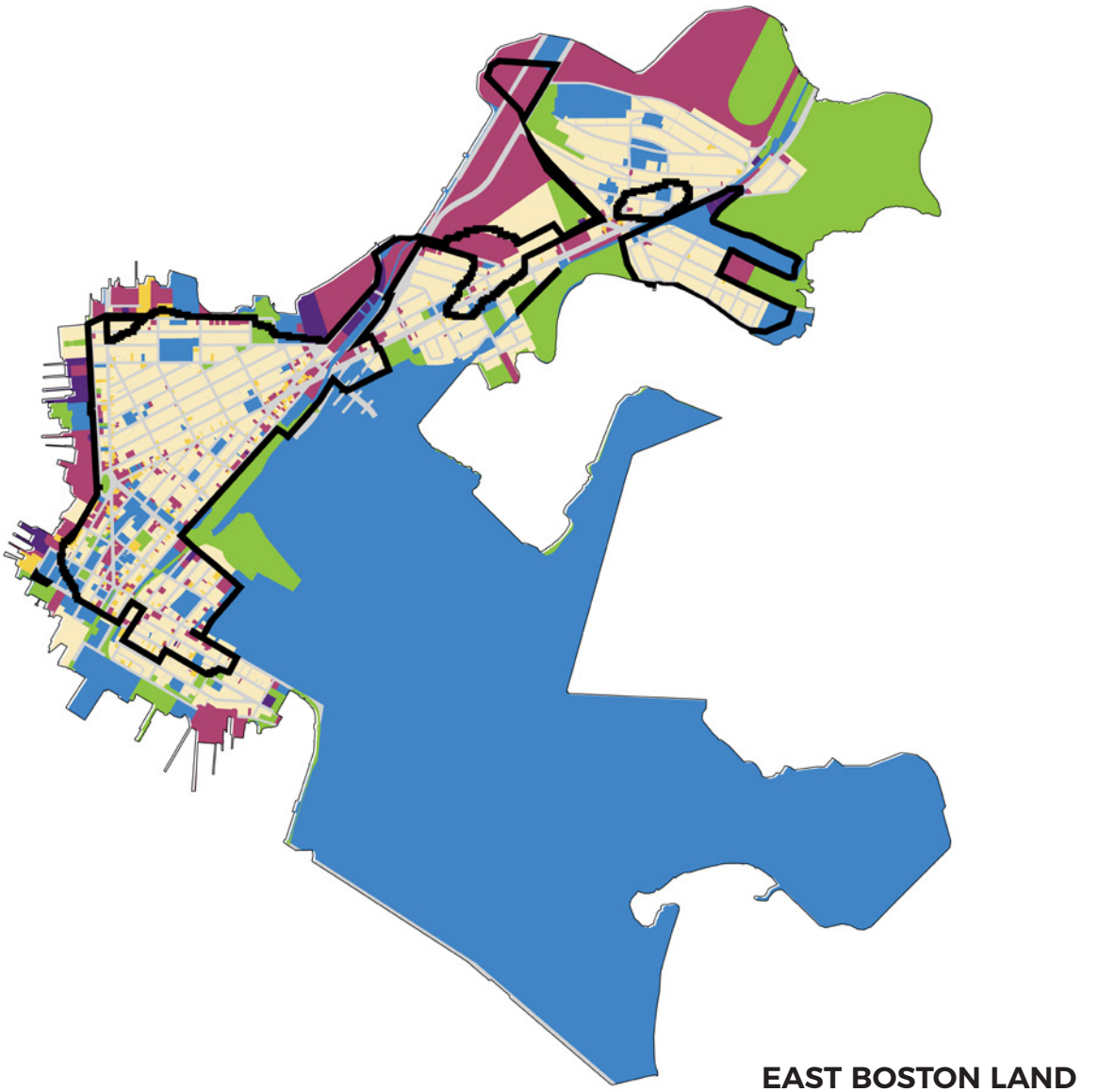
Every neighborhood has a different make-up of private and public land, as well as different key land uses and property owners. The existence of various land uses can affect opportunities for expanding canopy and who in the community has the ability and responsibility to act.

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.

East Boston is predominantly institutional (57%) with 13% residential lands. The priority zones include a combination of residential and institutional designation. Right-of-way and open space are specifically discussed on the following pages.



EAST BOSTON CANOPY GAIN & LOSS BY LAND USE (ACRES)



EAST BOSTON LAND USE COMPOSITION

- RESIDENTIAL - 13%
- MIXED -USE - 1%
- OPEN SPACE - 11%
- INSTITUTIONAL - 57%
- COMMERCIAL - 9%
- INDUSTRIAL - 1%
- ROW - 9%
- PRIORITY ZONES

2,000 FT.

RIGHT-OF-WAY (ROW)

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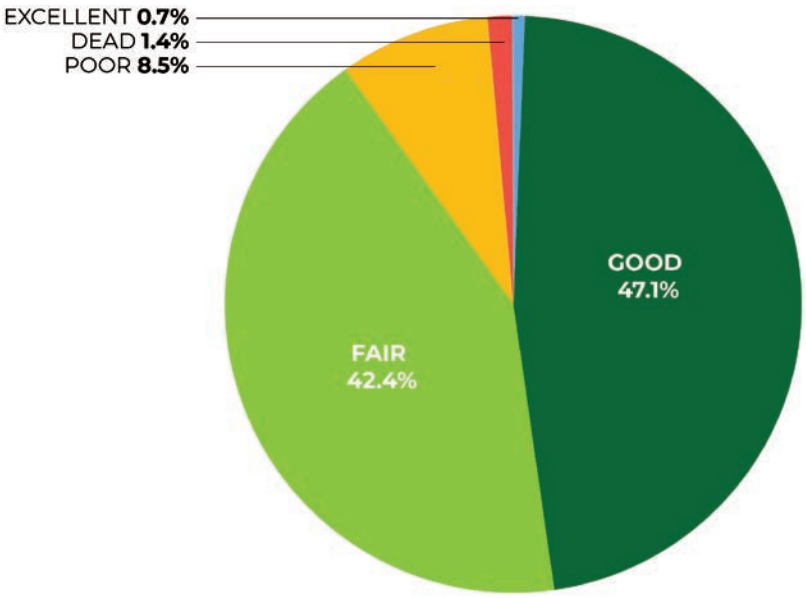
In East Boston, an estimated 220 potential street tree planting sites (including existing tree pits with dead trees) were identified during the inventory in May 2021. These sites should be considered for immediate planting, in particular those falling within the priority zones. Potential planting sites all need to be evaluated on a case-by-case basis in the field for suitability.

During the inventory, it was also observed that East Boston 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.

EAST BOSTON STREET TREE CONDITION COMPOSITION



TAKEAWAYS:
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EAST BOSTON
RIGHT-OF-WAY OPPORTUNITY

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Add trees in greenscape/furnishing zone

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POTENTIAL PLANTING SITES

TREE PITS WITH LIVING TREES

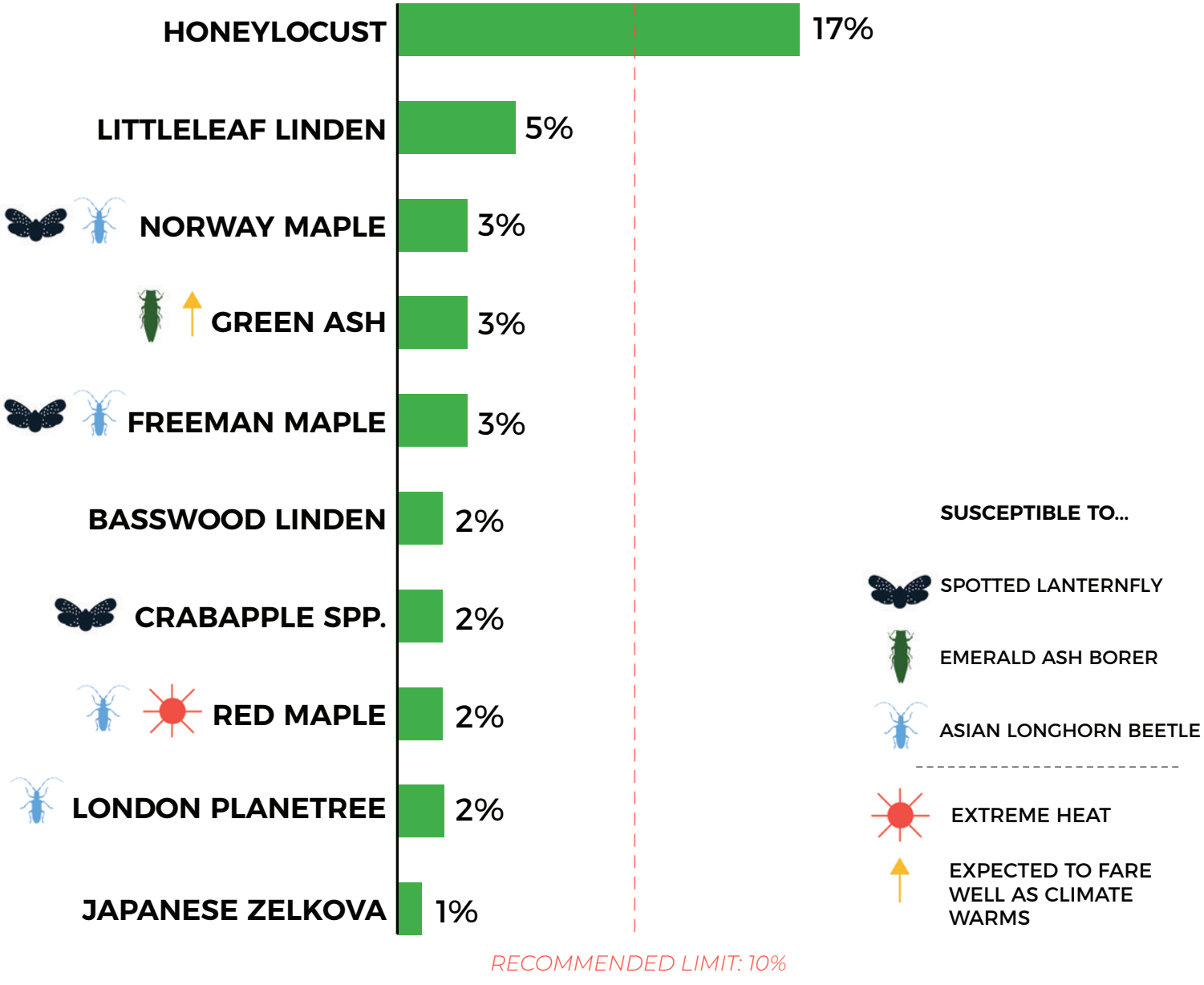
PRIORITY ZONES

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%.

EAST BOSTON TOP 10 TREE SPECIES



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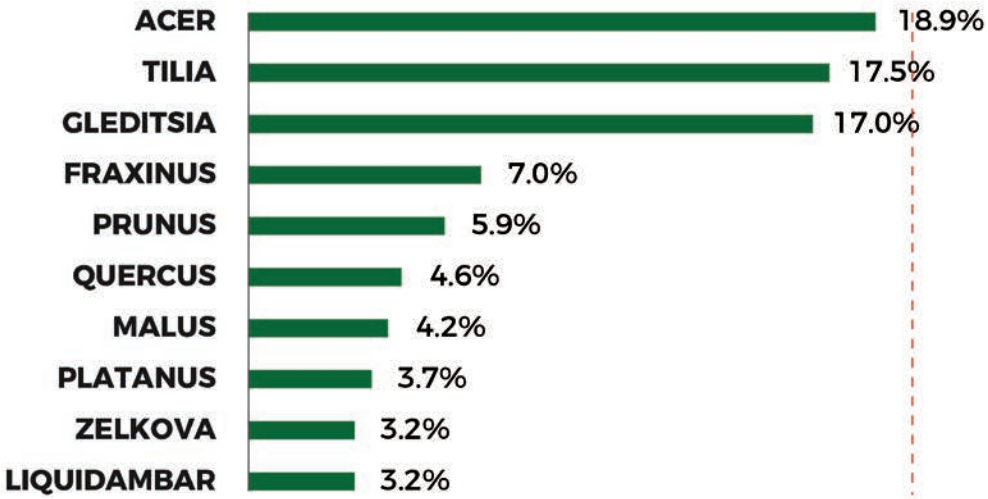
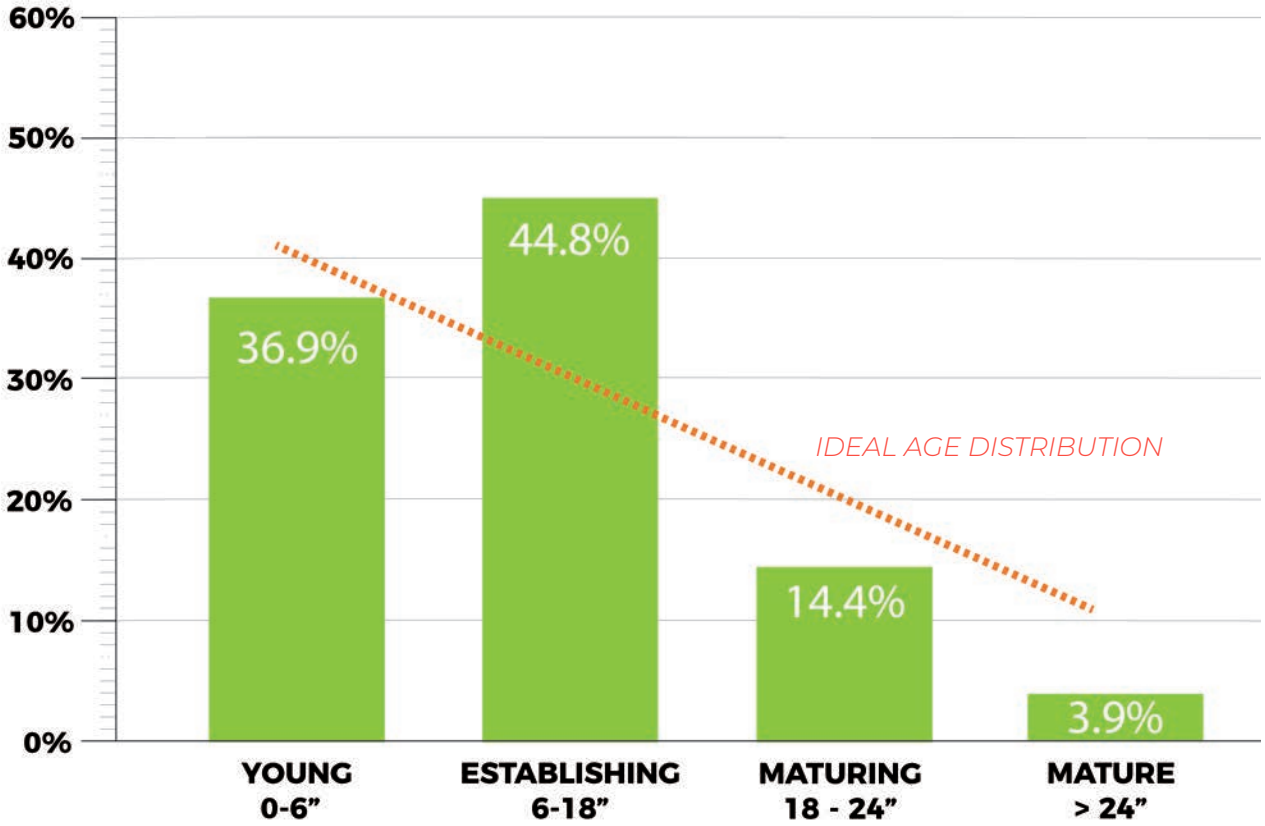


TAKEAWAYS:
No species exceeds the 20% rule. However, Maple trees (Acer genus) and Lindens (Tilia genus) are close to that limit.

Additional genera identified in East Boston: Aesculus, Ailanthus, Alnus, Amelanchier, Carpinus, Celtis, Cercidiphyllum, Cornus, Crataegus, Ginkgo, Gymnocladus, Hydrangea, Koelrueteria, Liriodendron, Magnolia, Metasequoia, Morus, Nyssa, Ostrya, Picea, Pinus, Populus, Pyrus, Sophora, Syringa, Taxodium, Taxus, Thuja, Ulmus

EAST BOSTON STREET TREE AGE COMPOSITION



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East Boston has a mix of protected and unprotected open spaces including the Belle Isle Marsh. However, the priority zones have little to no open space. Opportunities to increase canopy in the existing open spaces and to create additional open spaces within the priority zones should be considered.

NOYES PLAYGROUND, EAST BOSTON

EAST BOSOTN
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.

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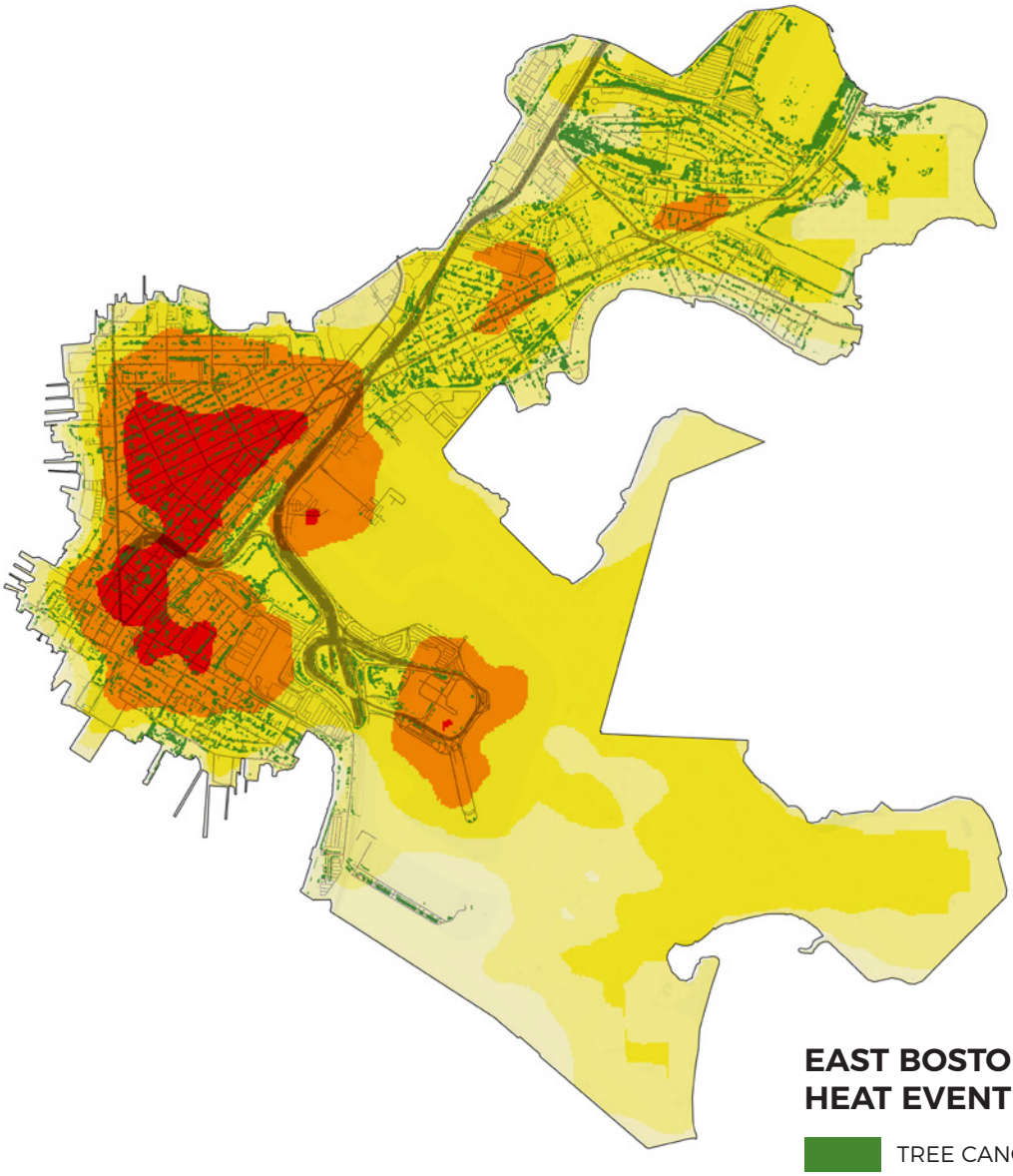


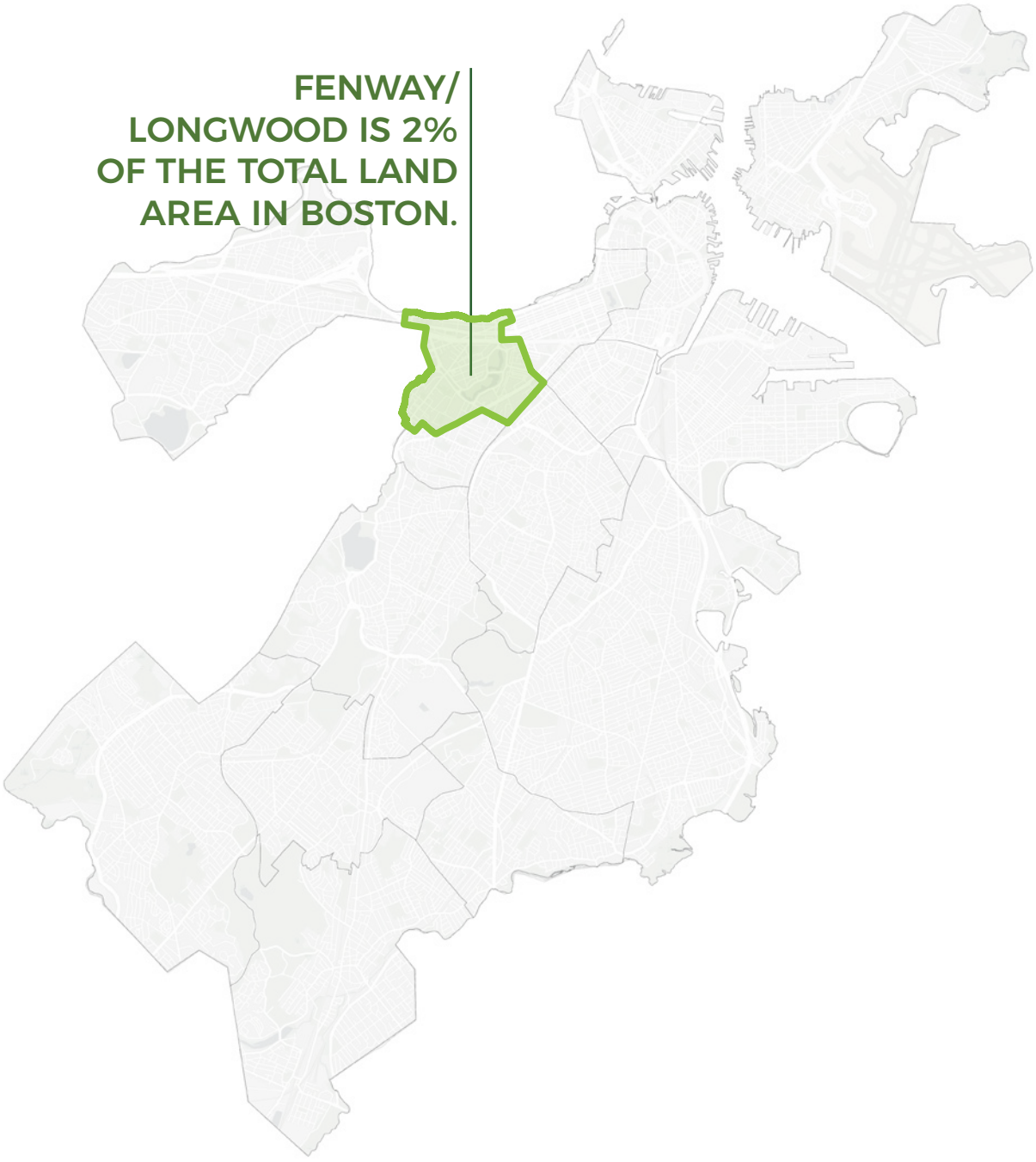
EAST BOSTON
HEAT EVENT HOURS*

- TREE CANOPY
- 32 - 38 HEAT EVENT HOURS
- 29 - 32 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.

FENWAY/LONGWOOD

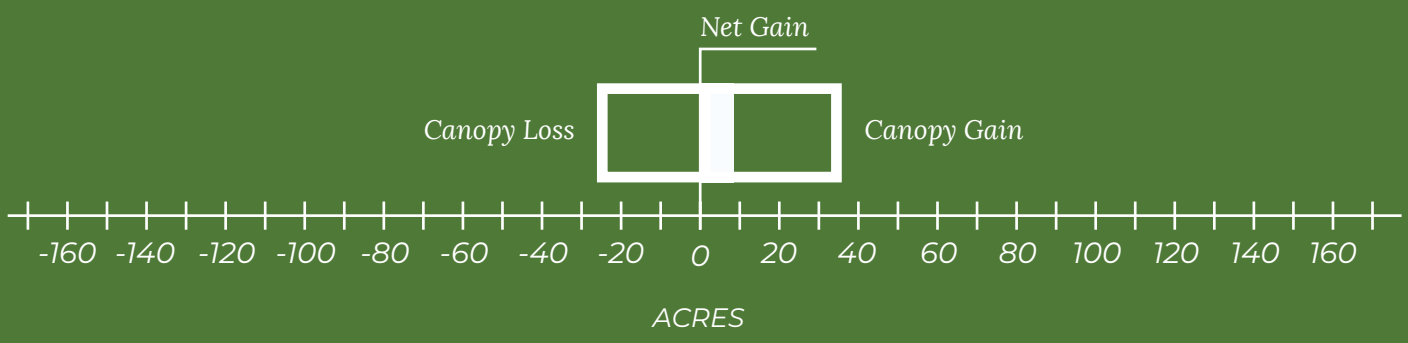


CANOPY AND LAND USE TRENDS

FENWAY/LONGWOOD HOLDS 2% OF BOSTON'S CANOPY.

FENWAY/LONGWOOD HAS 18% CANOPY COVERAGE.

FENWAY/LONGWOOD LOST 28 ACRES AND GAINED 37 ACRES FOR A NET GAIN OF 9 ACRES OF TREE CANOPY FROM 2014-2019. THE GREATEST GAINS WERE WITHIN OPEN SPACES.



PRIORITY INDICATORS

PRIORITY ZONES

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- 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.

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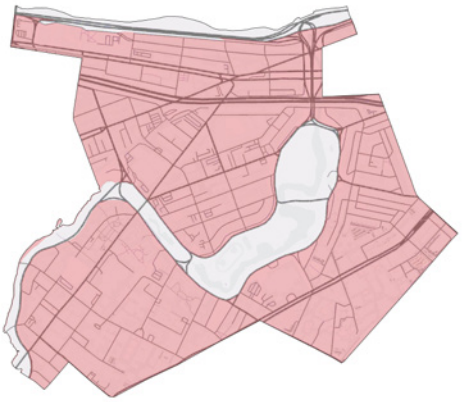
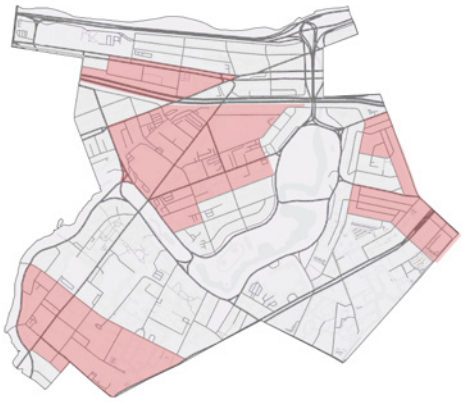
Priority Zones. Zones of highest priority are determined by overlapping prioritization indicators. Those areas with more than three overlapping indicators are highlighted. This map should serve as a starting place for further analysis and community discussions and these zones should be given particular 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.

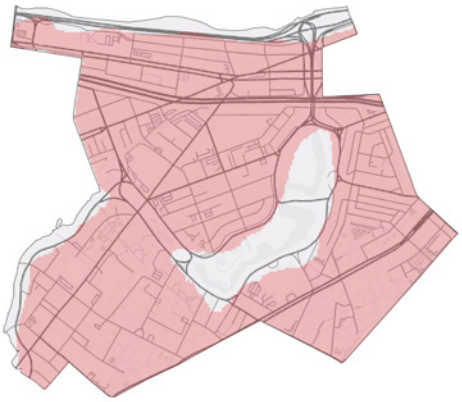
PRIORITY INDICATORS



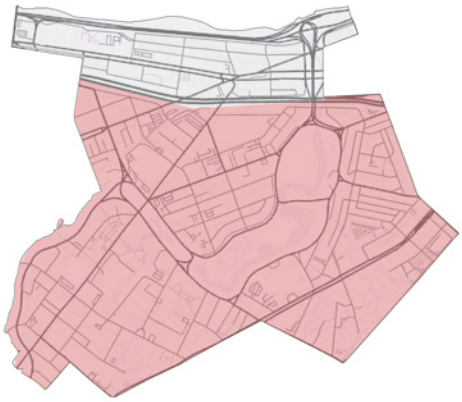
Environmental Justice Communities



Low Canopy



Heat Event Hours



Historic Marginalization

FENWAY/LONGWOOD 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

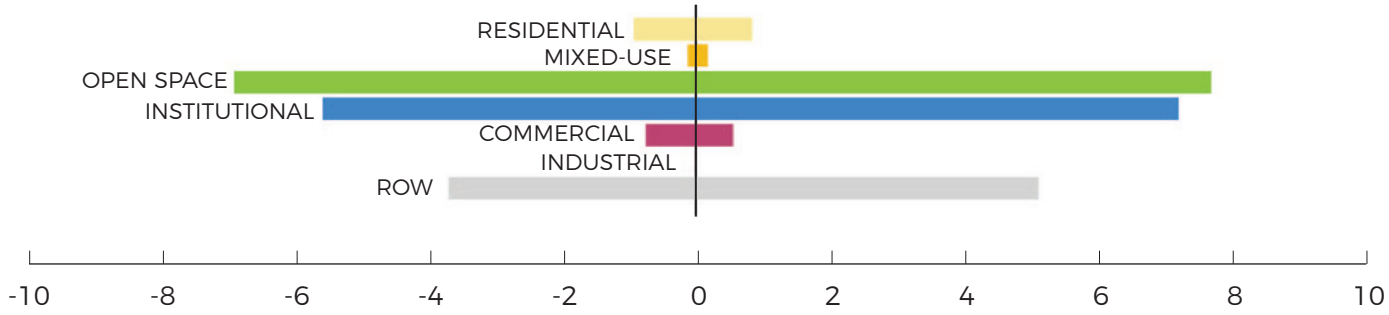
Physical and environmental opportunities and constraints will impact a neighborhood's ability to expand the canopy. It can also determine who has the greatest ability to take action. When used in coordination with the mapped priority zones, these maps can provide greater understanding of where opportunities 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

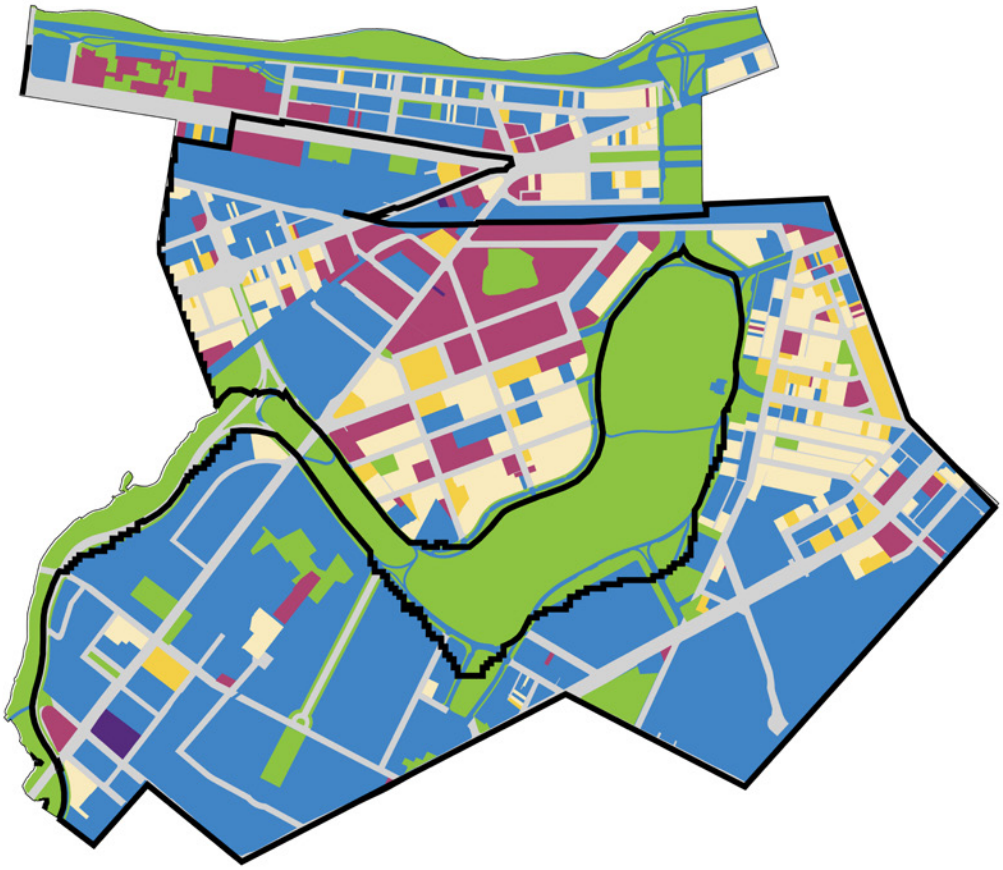
Every neighborhood has a different make-up of private and public land, as well as different key land uses and property owners. The existence of various land uses can affect opportunities for expanding canopy and who in the community has the ability and responsibility to act.

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.

Fenway/Longwood is dominated by open space (21%) with significant right-of-way (18%) and institutional (14%) designation. The priority zones include a combination of institutional, residential, and commercial land uses as well as right-of-way. Right-of-way and open space are specifically discussed on the following pages.



FENWAY/LONGWOOD CANOPY GAIN & LOSS BY LAND USE (ACRES)



FENWAY/LONGWOOD LAND USE COMPOSITION

- RESIDENTIAL - 9%
- MIXED-USE - 3%
- OPEN SPACE - 21%
- INSTITUTIONAL - 14%
- COMMERCIAL - 8%
- INDUSTRIAL - < 1%
- ROW - 18%
- PRIORITY ZONES

2,000 FT.

RIGHT-OF-WAY (ROW)

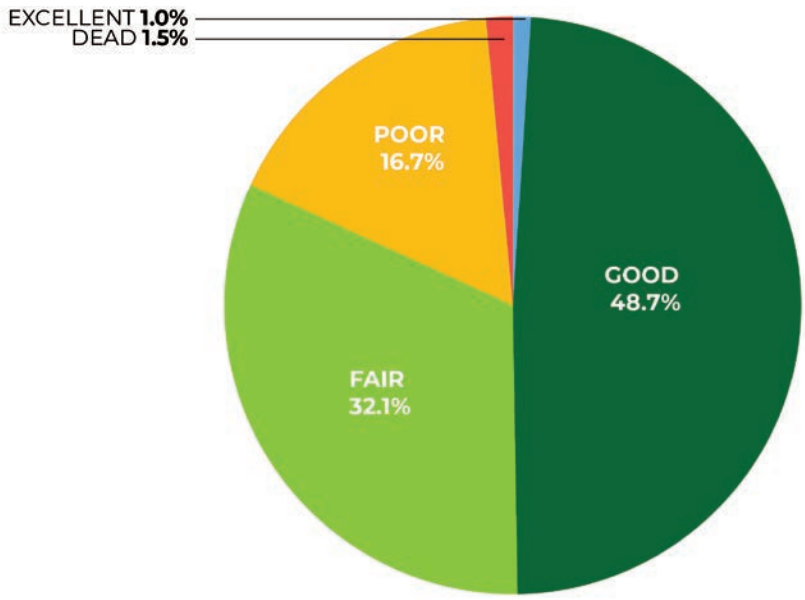
Right-of-way (ROW) refers to property in Boston that is subject to public use for streets, curbs, planting strips, sidewalks, etc. These lands in Boston represent a set of potential planting sites over which the Parks Department and other City departments already have the jurisdiction to expand canopy.

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.

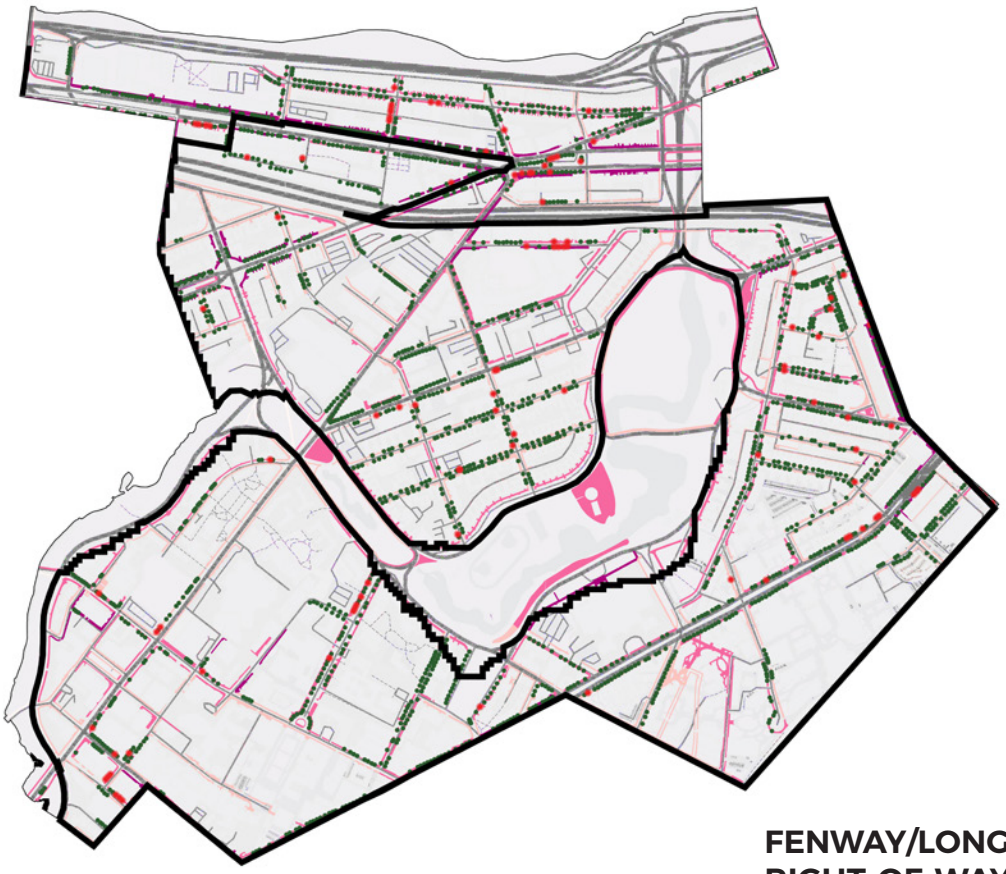
Areas with sidewalk widths over 8'-6" (inclusive of the curb) meet current standards and could be considered for immediate planting, while sidewalk widths less than 8'-0" (inclusive of the curb) would likely require more significant changes to the street or exceptions to current standards. More significant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

In Fenway/Longwood, an estimated 106 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.

FENWAY/LONGWOOD STREET TREE CONDITION COMPOSITION



TAKEAWAYS:
Slightly less than half of the street trees in Fenway/Longwood 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.



FENWAY/LONGWOOD 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

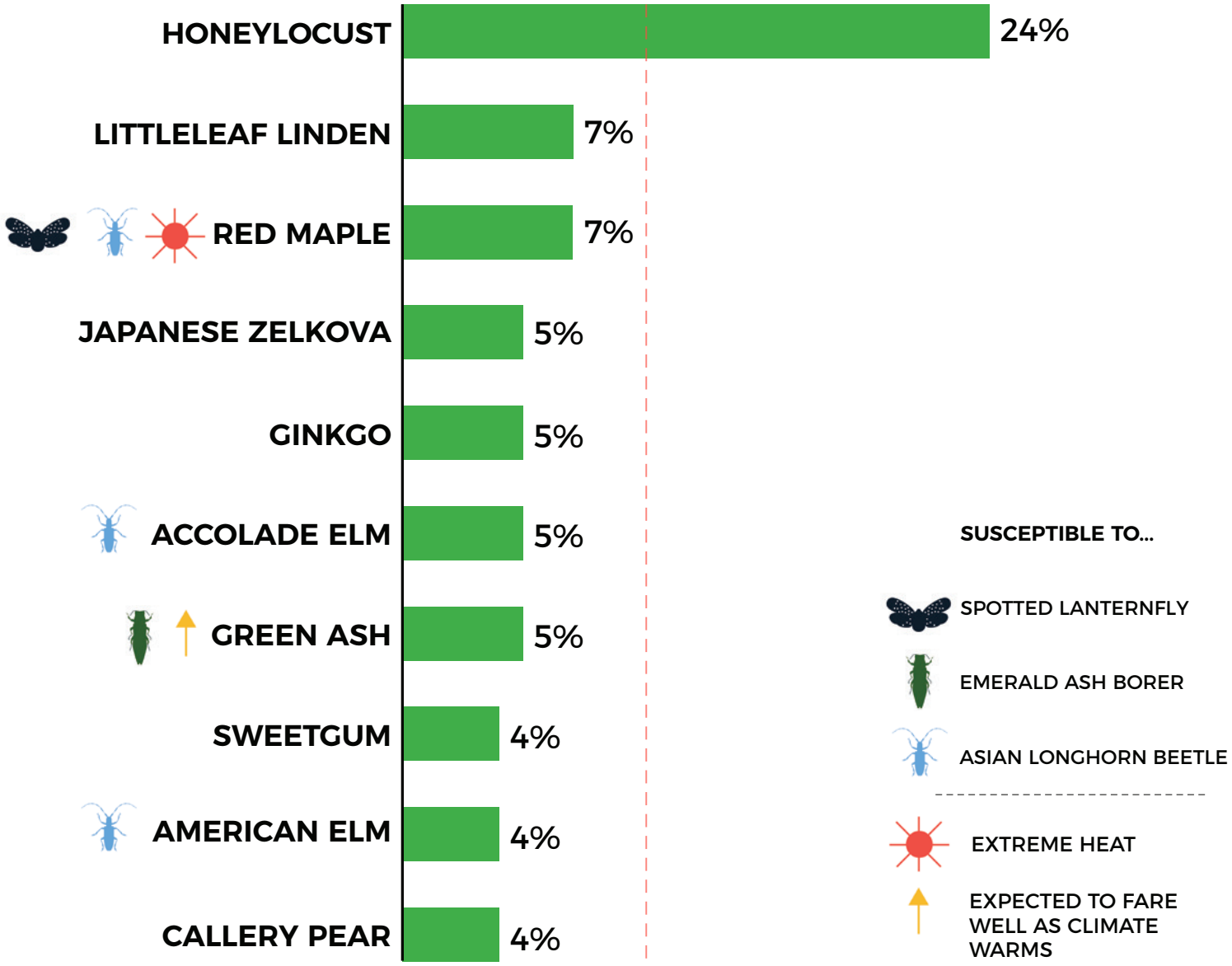
PRIORITY ZONES

2,000 FT.

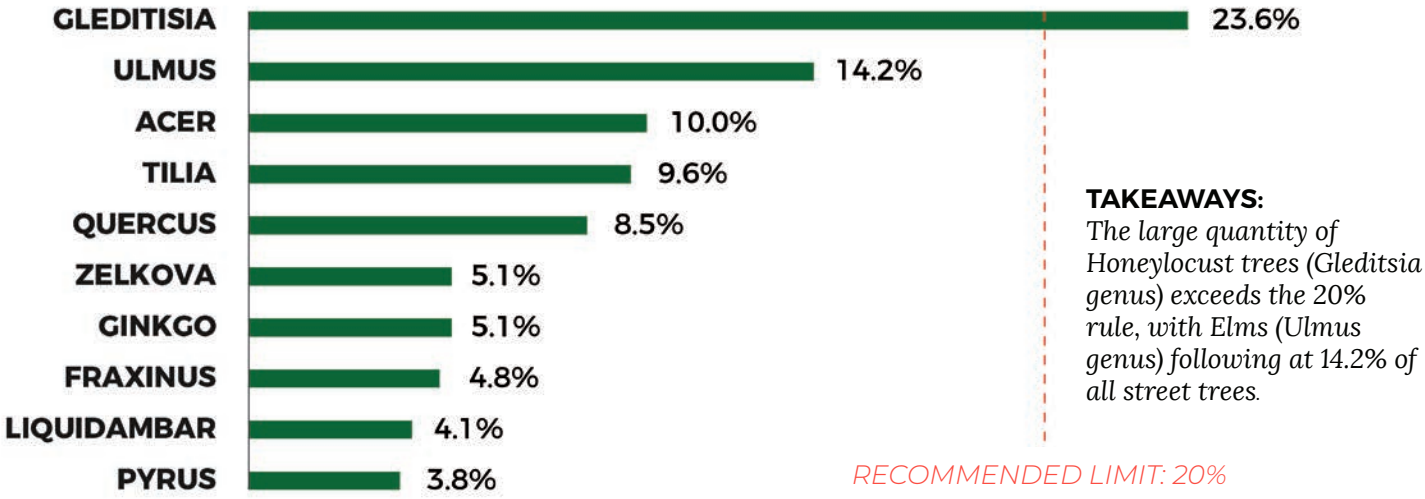
STREET TREE ANALYSIS

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%.

FENWAY/LONGWOOD TOP 10 TREE SPECIES



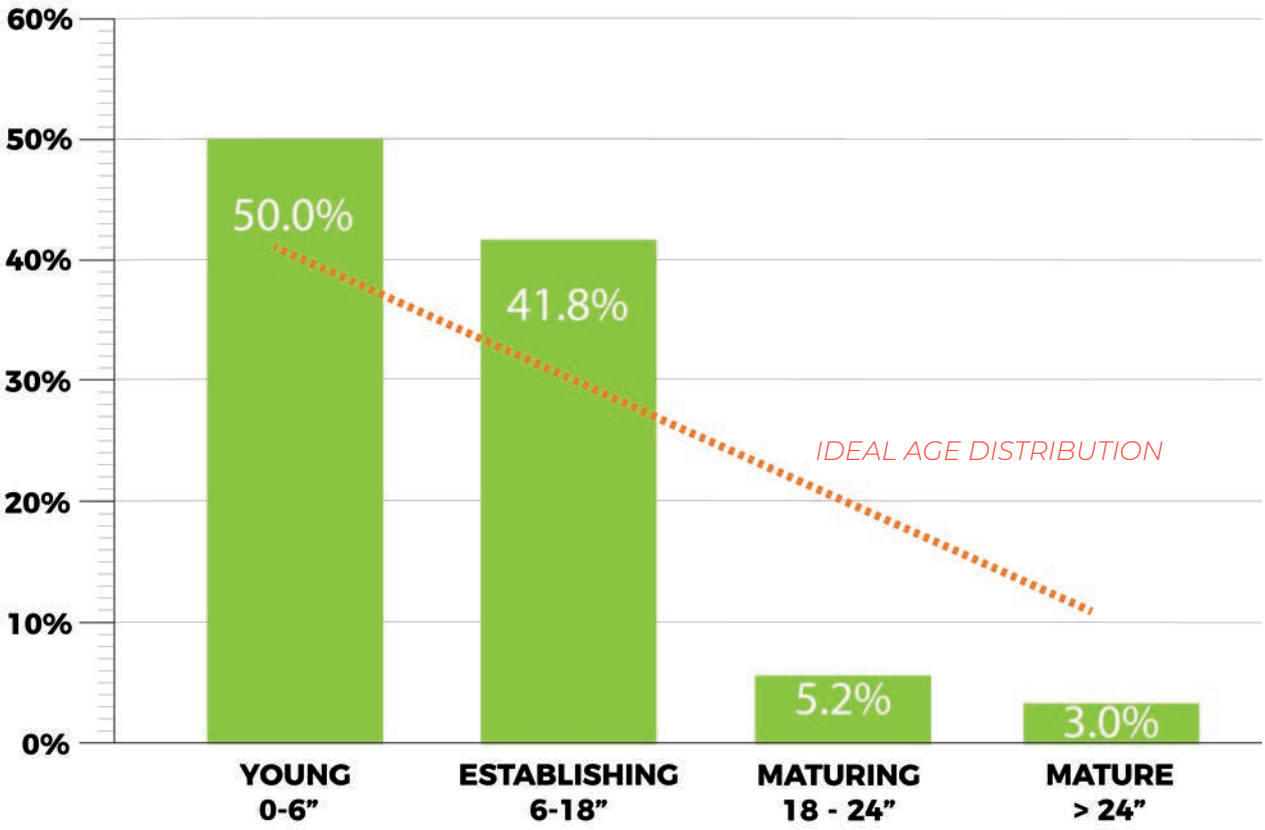
FENWAY/LONGWOOD TOP 10 STREET TREE GENUS COMPOSITION



TAKEAWAYS:
The large quantity of Honeylocust trees (Gleditsia genus) exceeds the 20% rule, with Elms (Ulmus genus) following at 14.2% of all street trees.

Additional genera identified in Fenway/Longwood: Aesculus, Ailanthus, Alnus, Amelanchier, Carpinus, Celtis, Cercidiphyllum, Cornus, Crataegus, Ginkgo, Gymnocladus, Hydrangea, Koelrueteria, Liriodendron, Magnolia, Metasequoia, Morus, Nyssa, Ostrya, Picea, Pinus, Populus, Pyrus, Sophora, Syringa, Taxodium, Taxus, Thuja, Ulmus

FENWAY/LONGWOOD STREET TREE AGE COMPOSITION



TAKEAWAYS:
Fenway/Longwood has a very large number of young and establishing street trees and very few maturing and mature street trees relative to the ideal distribution. Focus should be on proactive care and preservation of existing canopy to improve longevity.

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.

Fenway/Longwood has large protected open spaces, portions of the Emerald Necklace and the Charles River Esplanade, as well as a number of smaller unprotected open spaces. The priority zones have a limited number of small mostly unprotected open spaces. Opportunities to increase canopy in the existing open spaces and to create additional open spaces within the priority zones should be considered.

SYMPHONY PARK, FENWAY/LONGWOOD

FENWAY/LONGWOOD OPEN SPACE OPPORTUNITY

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

2,000 FT.

ENVIRONMENTAL CONSTRAINTS

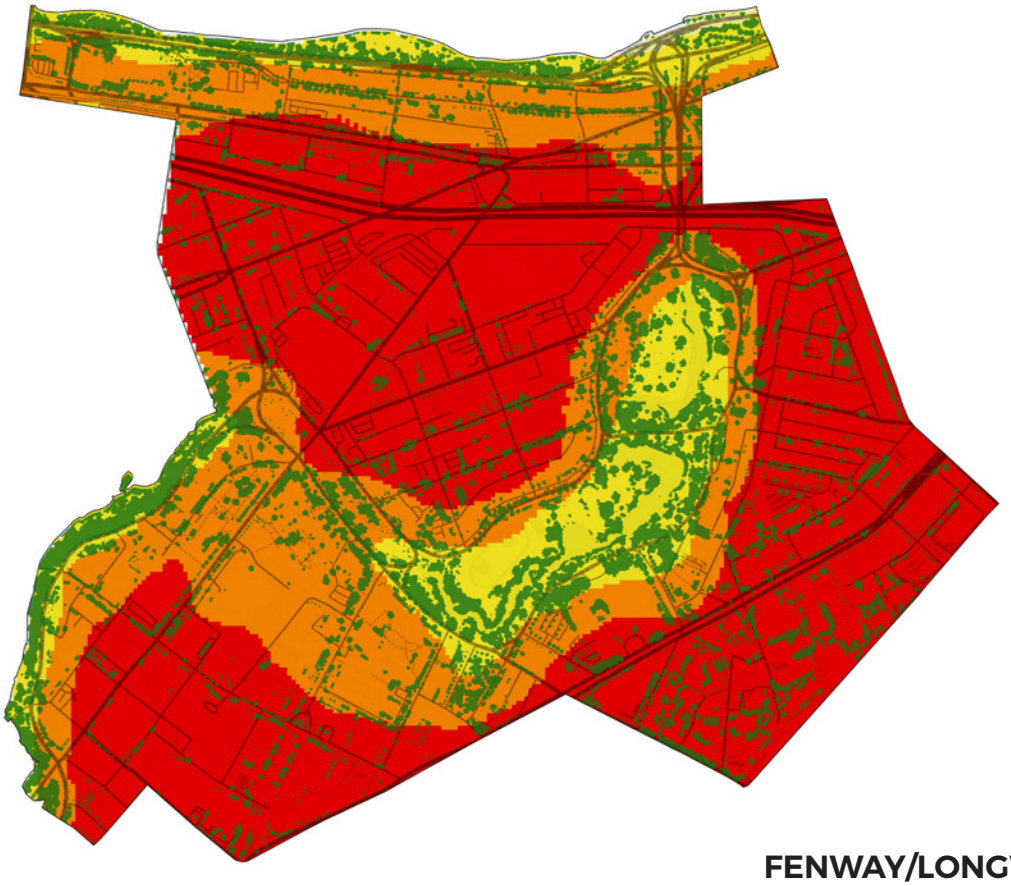
Environmental conditions across the neighborhoods in Boston vary widely. There are coastal conditions, hills, streams and other existing environmental factors which impact plant communities, plant life and health. These maps identify some of the key dynamics in each neighborhood, in particular how climate 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.

  High heat is a priority indicator, therefore, priority planting zones commonly fall within high heat areas, as they do in Fenway/Longwood. Nearly all of Fenway/Longwood experiences high heat levels. This highlights the need to reduce heat through all possible means, care for trees subject to high heat and to select trees for new planting that will fare well in future heat conditions.

- ***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.

  Fenway/Longwood is not subject to significant coastal flooding. Limited flooding along the Charles River Esplanade is anticipated.



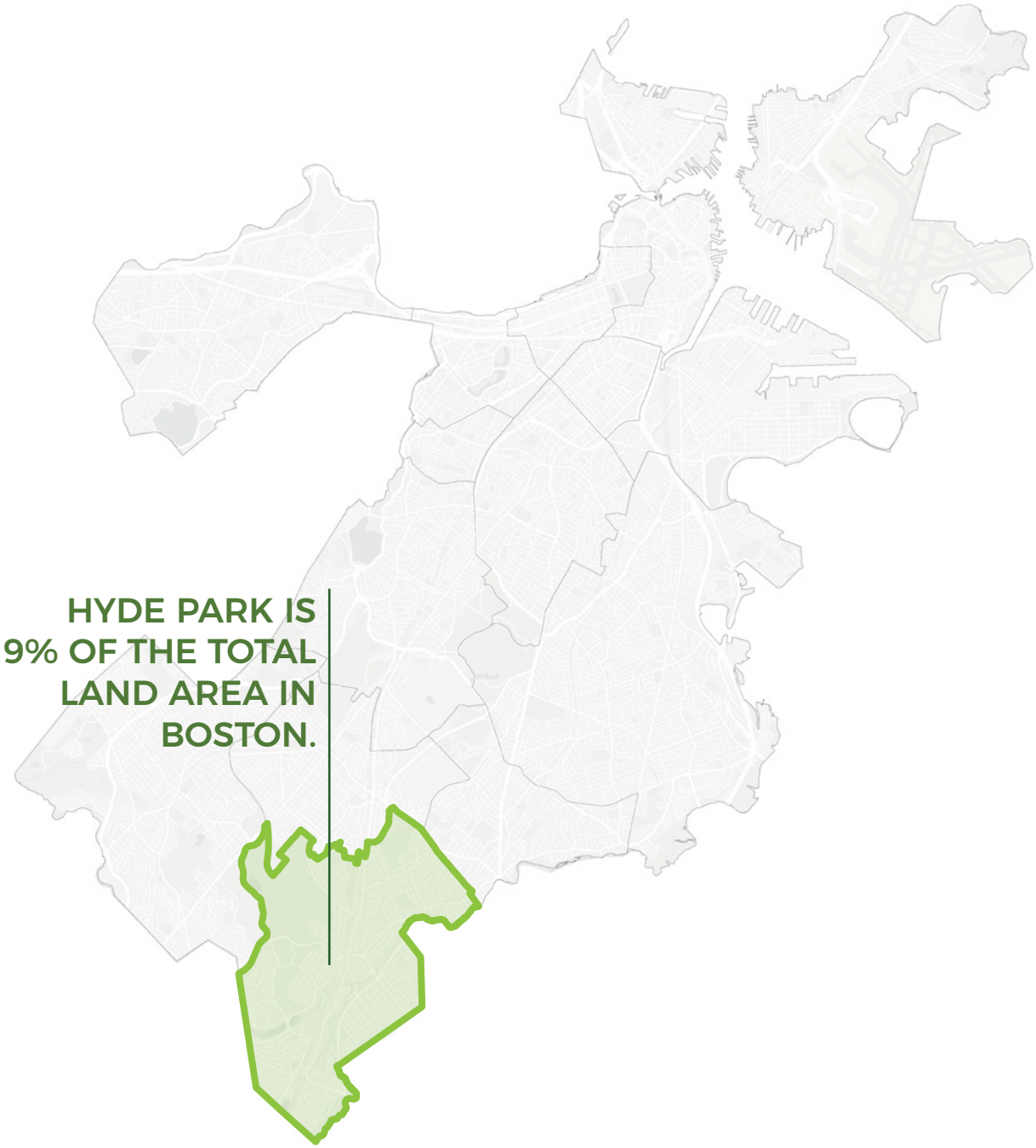
FENWAY/LONGWOOD HEAT EVENT HOURS*

- TREE CANOPY
- 32 - 38 HEAT EVENT HOURS
- 29 - 32 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.

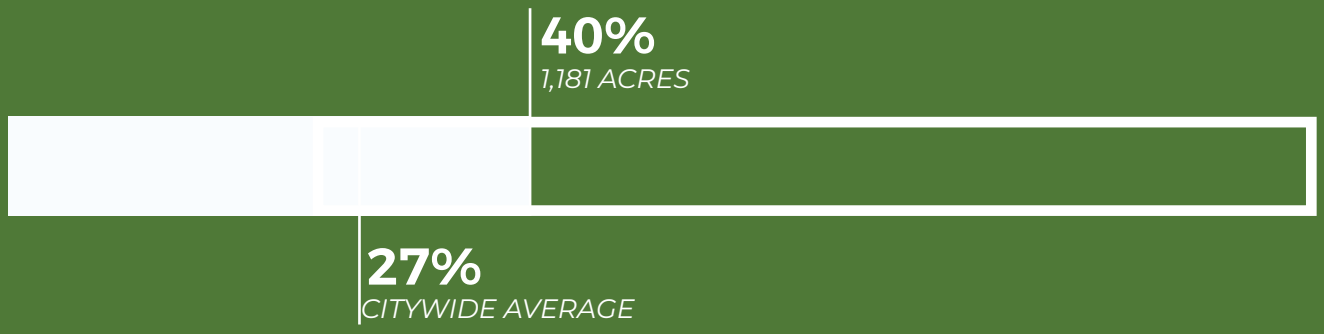
HYDE PARK



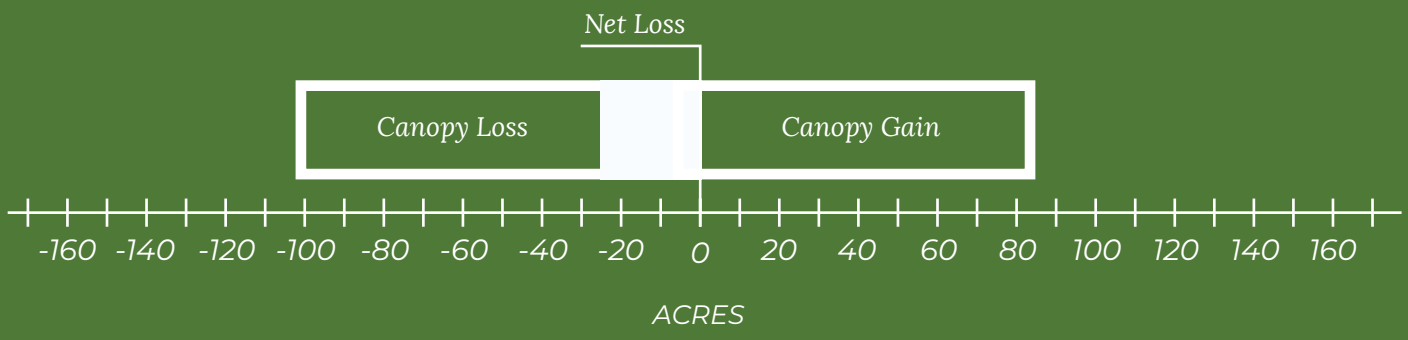
CANOPY AND LAND USE TRENDS

HYDE PARK HOLDS 14% OF BOSTON'S CANOPY.

HYDE PARK HAS 40% CANOPY COVERAGE.



HYDE PARK LOST 113 ACRES AND GAINED 86 ACRES FOR A NET LOSS OF 27 ACRES OF TREE CANOPY FROM 2014-2019. THE GREATEST LOSSES WERE ON RESIDENTIAL LANDS.



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.

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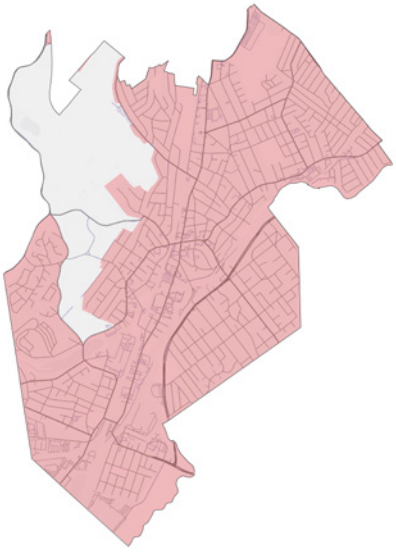
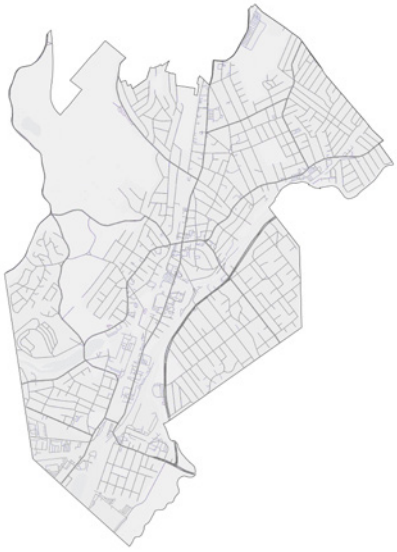
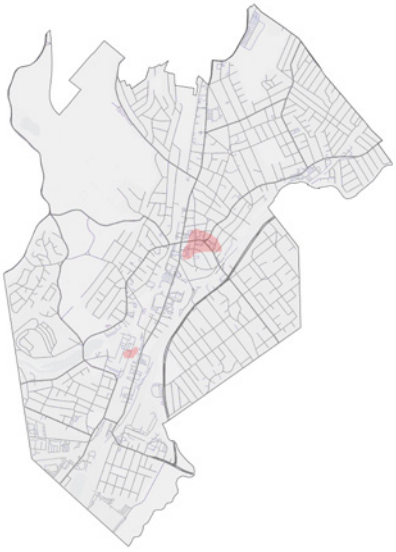
PRIORITY INDICATORS



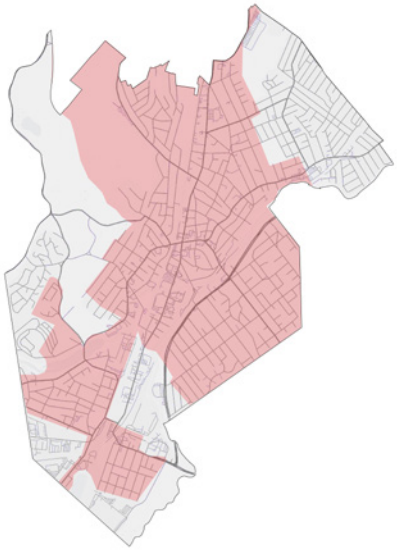
Environmental Justice Communities



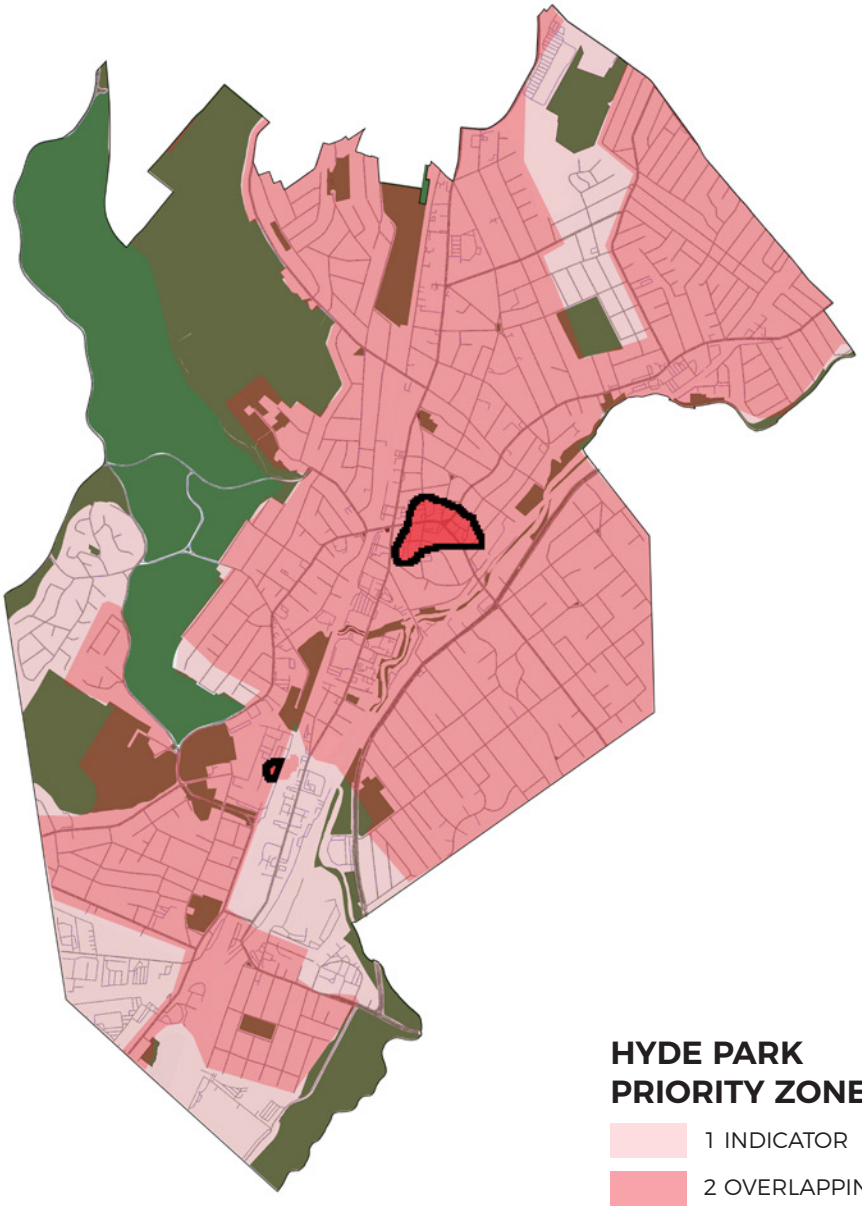
Low Canopy



Heat Event Hours



Historic Marginalization



HYDE PARK 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

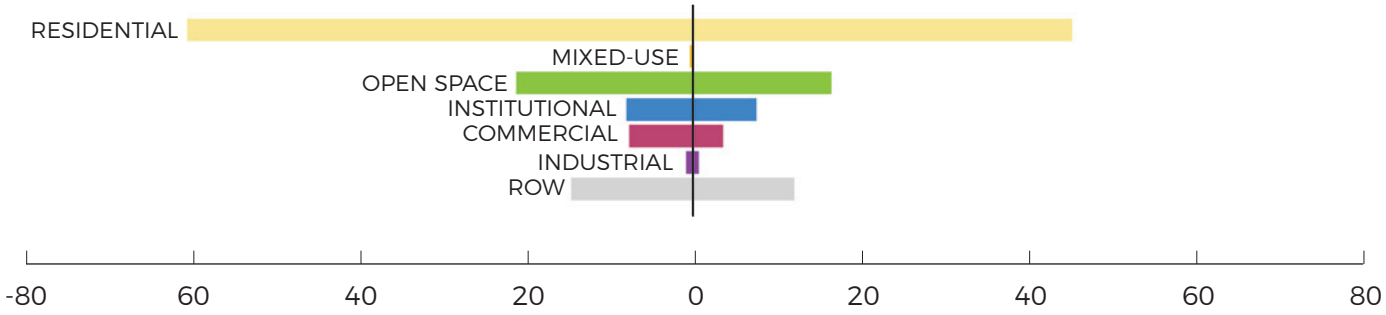
Physical and environmental opportunities and constraints will impact a neighborhood's ability to expand the canopy. It can also determine who has the greatest ability to take action. When used in coordination with the mapped priority zones, these maps can provide greater understanding of where opportunities 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

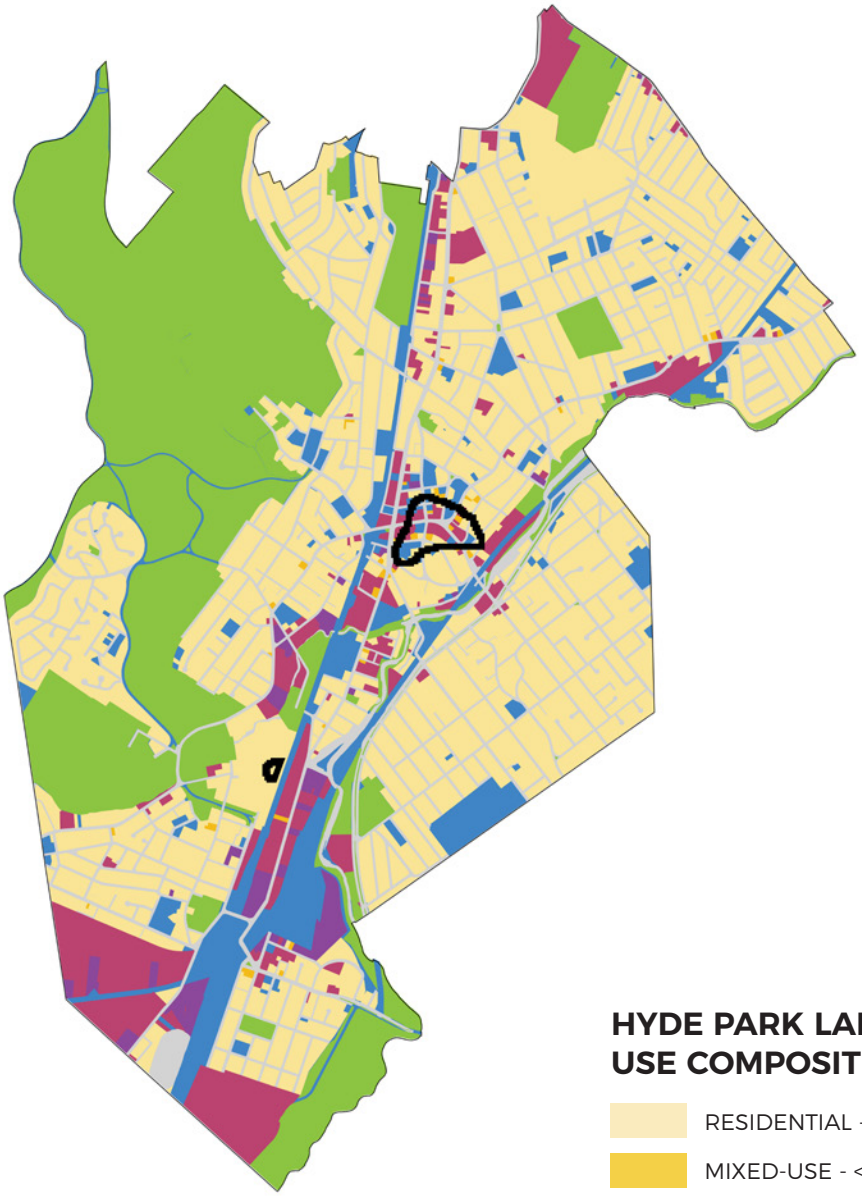
Every neighborhood has a different make-up of private and public land, as well as different key land uses and property owners. The existence of various land uses can affect opportunities for expanding canopy and who in the community has the ability and responsibility to act.

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.

Hyde Park is predominantly residential (41%) with significant open space (28%). The priority zone includes a combination of institutional, residential, and commercial designation. Right-of-way and open space are specifically discussed on the following pages.



HYDE PARK CANOPY GAIN & LOSS BY LAND USE (ACRES)



HYDE PARK LAND USE COMPOSITION

- RESIDENTIAL - 41%
- MIXED-USE - < 1%
- OPEN SPACE - 28%
- INSTITUTIONAL - 8%
- COMMERCIAL - 7%
- INDUSTRIAL - 1%
- ROW - 14%
- 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.

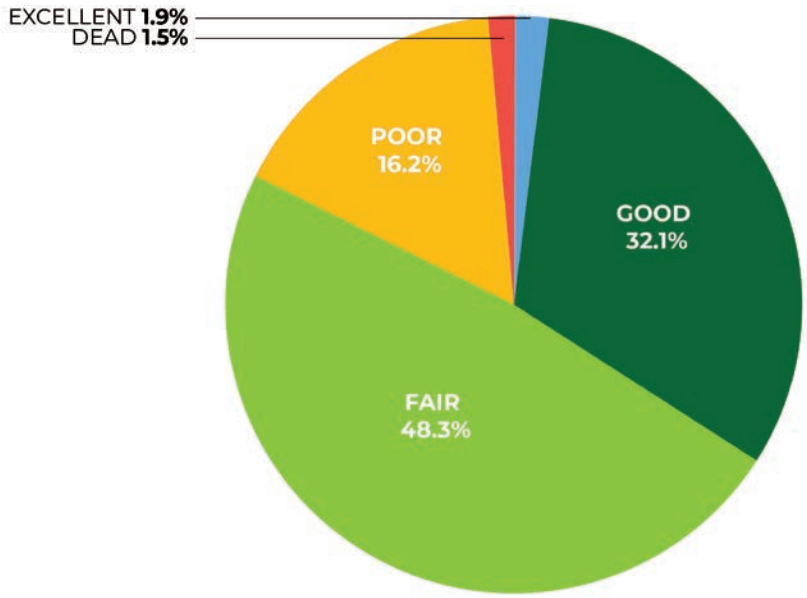
The map on the following page includes sidewalk width, which is a significant determinant of whether space can be found to plant trees in existing or new tree pits. Tree canopy data can be overlaid with locations of existing street trees and potential planting sites along streets. This can illustrate 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.

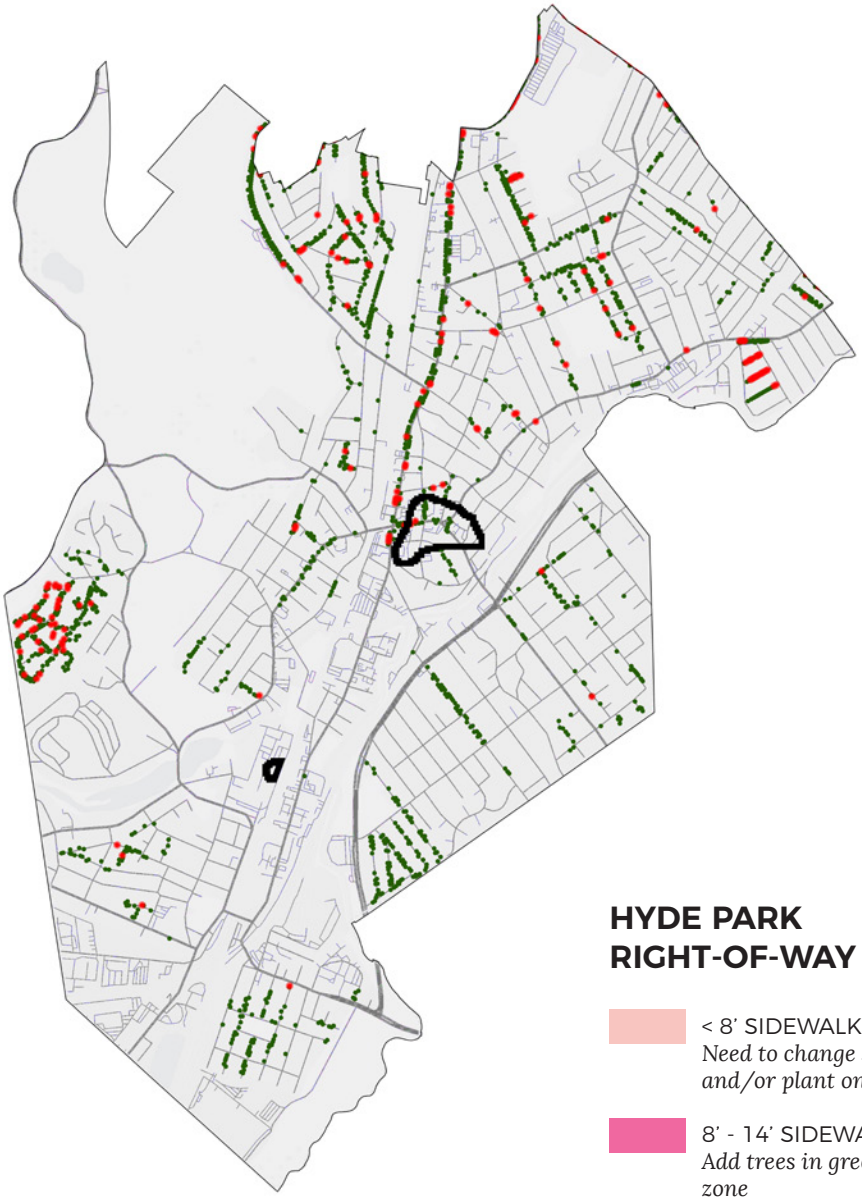
In Hyde Park, an estimated 166 potential street tree planting sites (including existing tree pits with dead trees) were identified during the inventory in May 2021. These sites should be considered for immediate planting, in particular those falling within the priority zones. Potential planting sites all need to be evaluated on a case-by-case basis in the field for suitability.

During the inventory, it was also observed that Hyde Park 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.

HYDE PARK STREET TREE CONDITION COMPOSITION



TAKEAWAYS:
Only 34% of the street trees in Hyde Park are considered in Good or Excellent condition, with the remaining majority in Fair or Poor condition, making Hyde Park trees some of the least healthy in the city. 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.



HYDE PARK
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

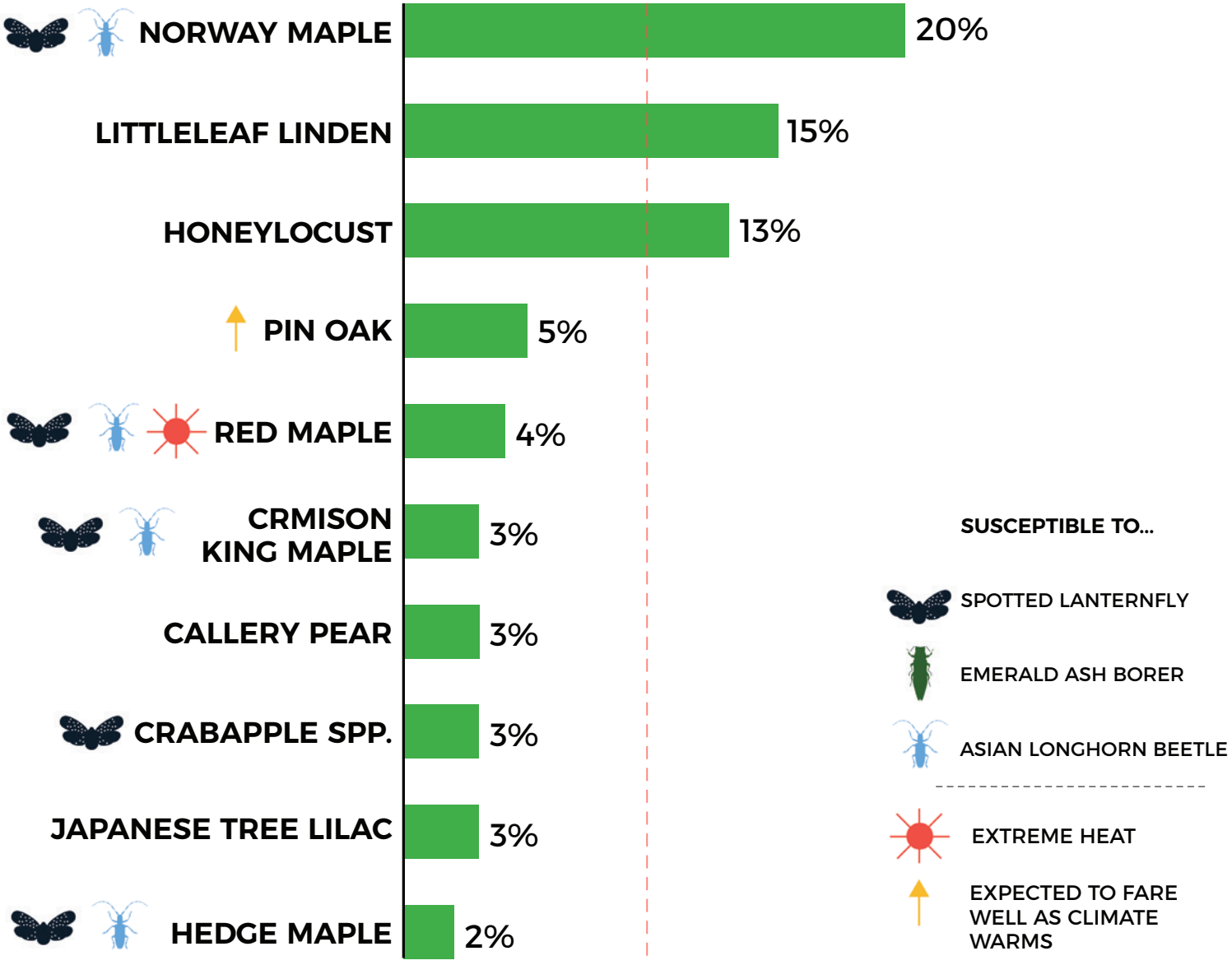
PRIORITY ZONES

2,000 FT.

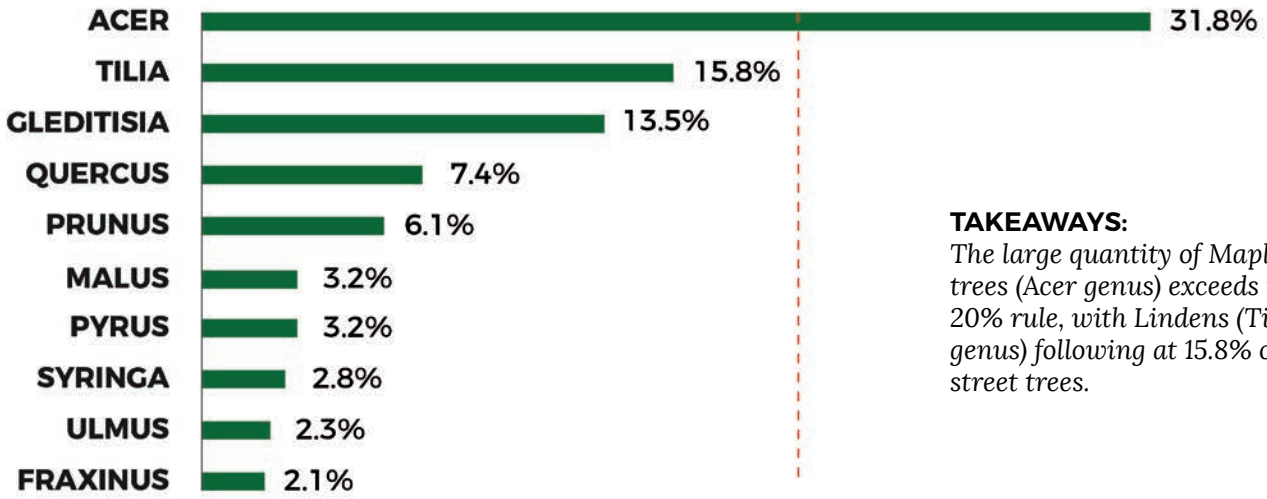
STREET TREE ANALYSIS

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%.

HYDE PARK TOP 10 TREE SPECIES



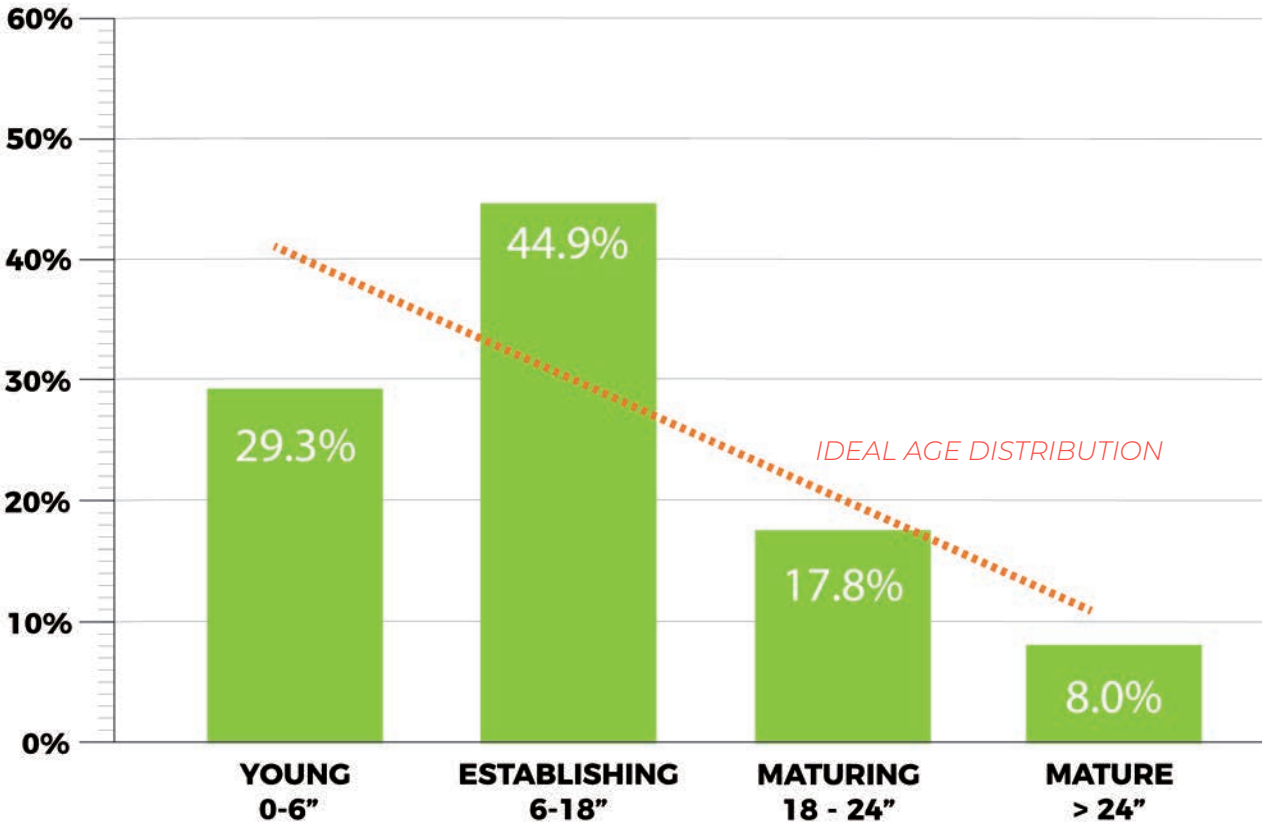
HYDE PARK TOP 10 STREET TREE GENUS COMPOSITION



TAKEAWAYS:
The large quantity of Maple trees (Acer genus) exceeds the 20% rule, with Lindens (Tilia genus) following at 15.8% of all street trees.

Additional genera identified in Hyde Park: Ailanthus, Amelanchier, Carpinus, Celtis, Cercidiphyllum, Cercis, Cornus, Crataegus, Eucomia, Ginkgo, Gymnocladus, Hibiscus, Koelreuteria, Lagerstroemia, Liquidambar, Liriodendron, Magnolia, Malus, Morus, Nyssa, Ostrya, Parrotia, Pinus, Platanus, Robinia, Sophora, Syringa, Zelkova

HYDE PARK STREET TREE AGE COMPOSITION



TAKEAWAYS:
Hyde Park has a very large number of establishing street trees and too few young and mature street trees relative to the ideal distribution. Focus should be on understanding the underlying causes of tree conditions as well as proactive care and preservation of existing canopy to improve longevity and new planting to increase the number of young street trees.

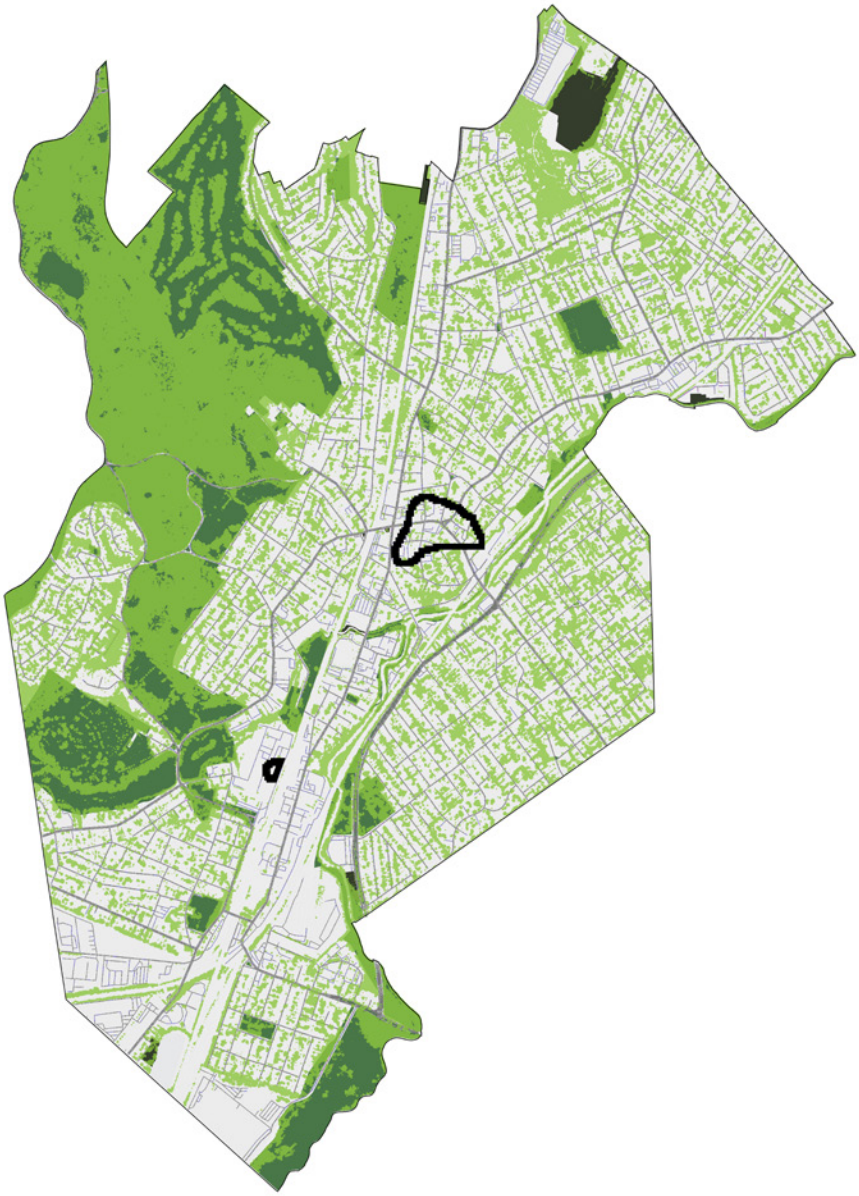
OPEN SPACE

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.

Hyde Park has large protected open spaces as well as a number of smaller protected and unprotected open spaces. The priority zone in this neighborhood is small but potential for a small pocket park or shaded plaza could be investigated. Opportunities to increase canopy in the existing open spaces should be considered.

GEORGE WRIGHT GOLF COURSE, HYDE PARK



HYDE PARK
OPEN SPACE OPPORTUNITY

- PROTECTED OPEN SPACE
- UNPROTECTED OPEN SPACE
- TREE CANOPY
- PRIORITY ZONES
- 2,000 FT.

ENVIRONMENTAL CONSTRAINTS

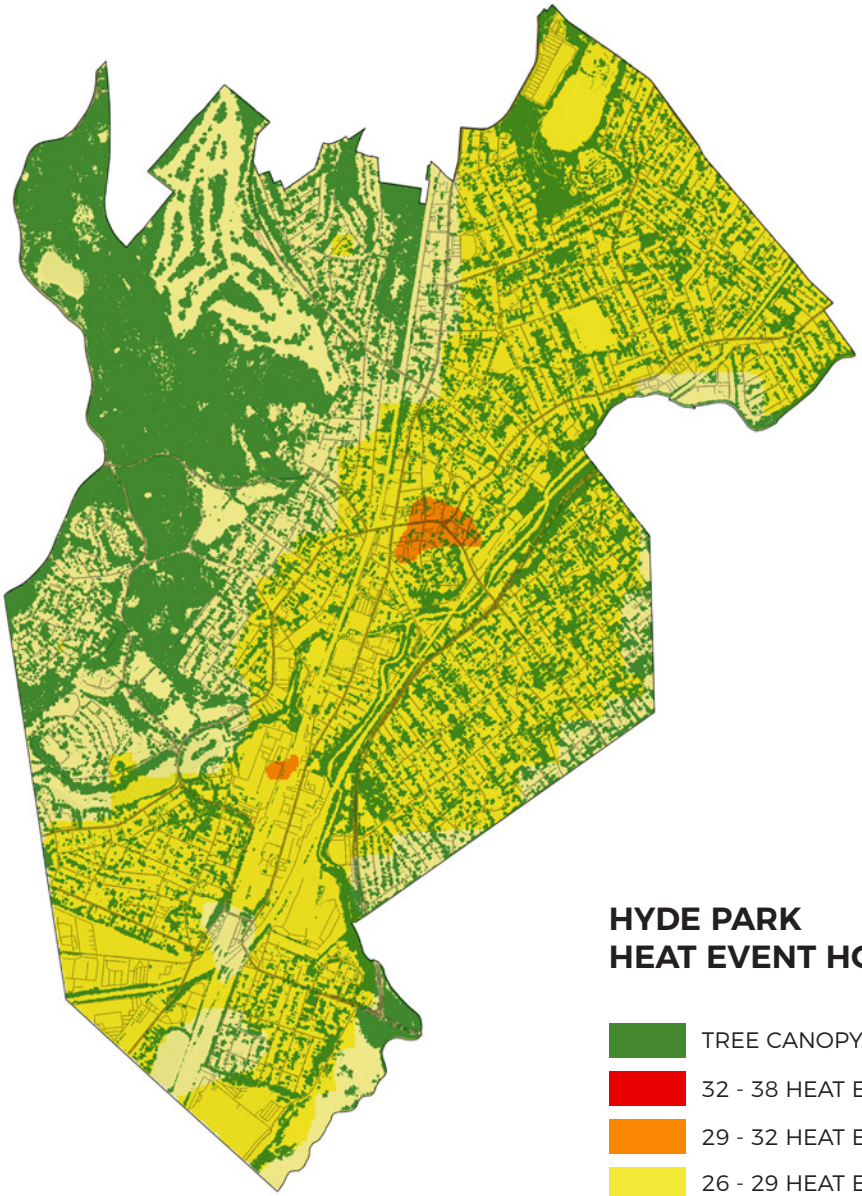
Environmental conditions across the neighborhoods in Boston vary widely. There are coastal conditions, hills, streams and other existing environmental factors which impact plant communities, plant life and health. These maps identify some of the key dynamics in each neighborhood, in particular how climate 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.

  High heat is a priority indicator, therefore, priority planting zones commonly fall within high heat areas, as they do in Hyde Park. However, in general Hyde Park does not experience extreme heat. Select actions to reduce heat in the priority zone would limit concerns with impacts to trees due to heat.

- ***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.

  Hyde Park is not subject to significant coastal flooding with projected sea level rise.



HYDE PARK
HEAT EVENT HOURS*

- TREE CANOPY
- 32 - 38 HEAT EVENT HOURS
- 29 - 32 HEAT EVENT HOURS
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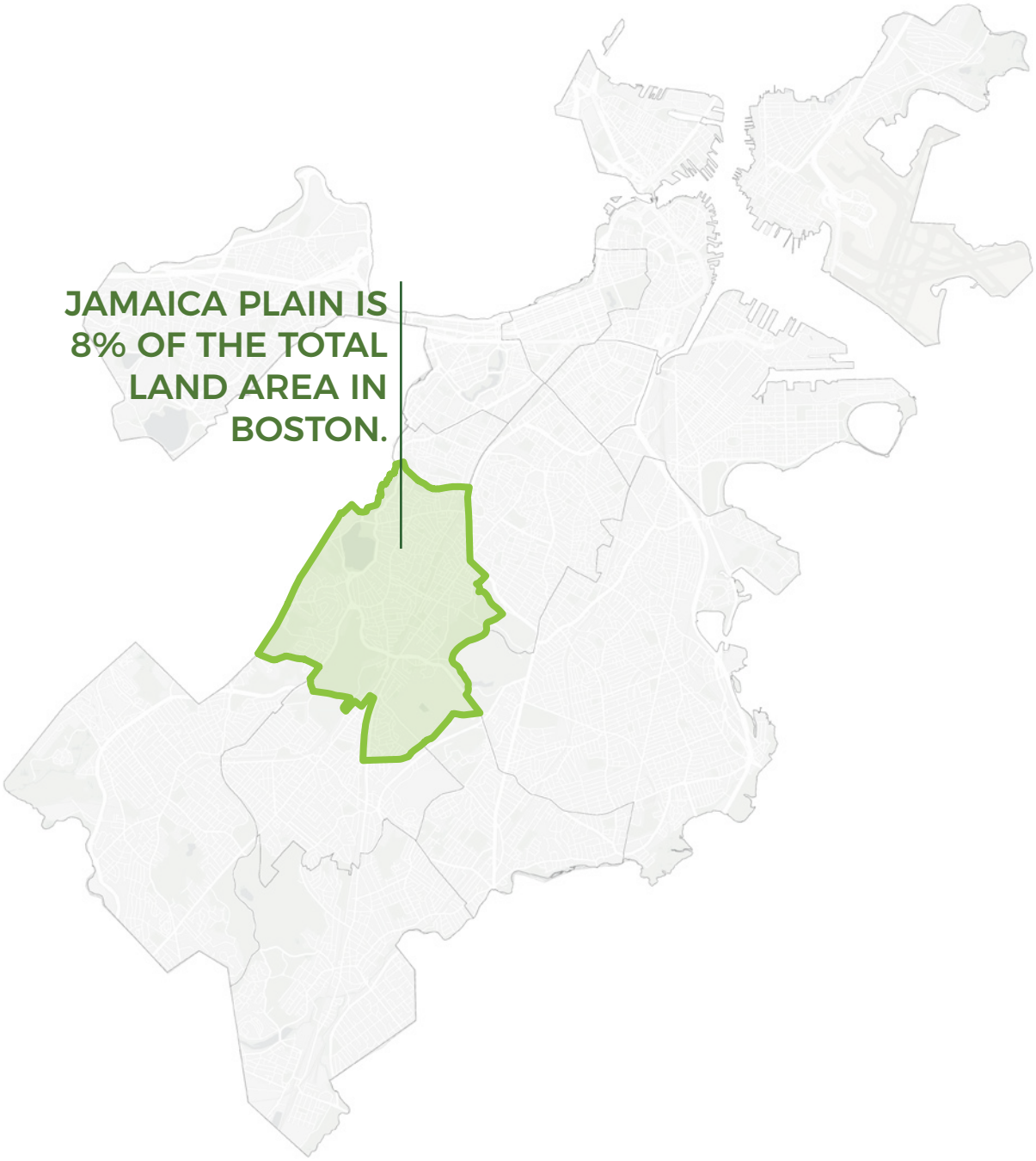
**Heat Event Hours are modelled hours during the week that the Heat Index exceeds Boston Heat Alert Levels (see Heat Resilience Solutions for Boston).*

2,000 FT.

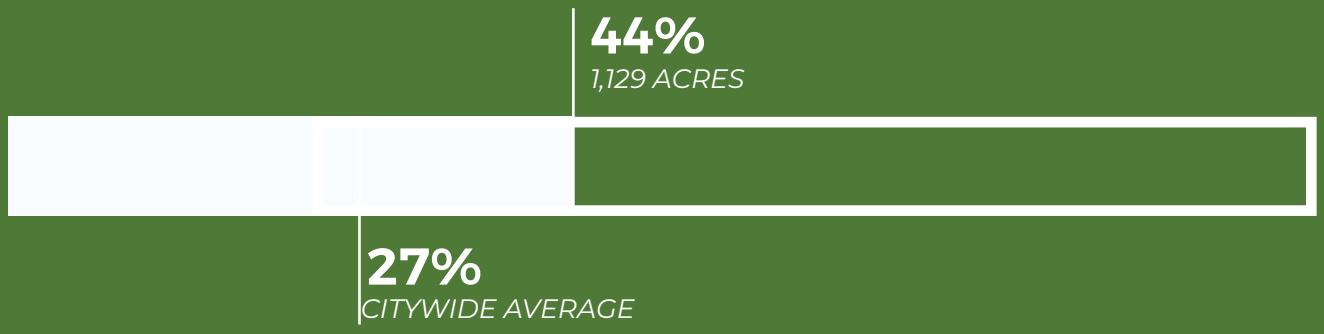
JAMAICA PLAIN



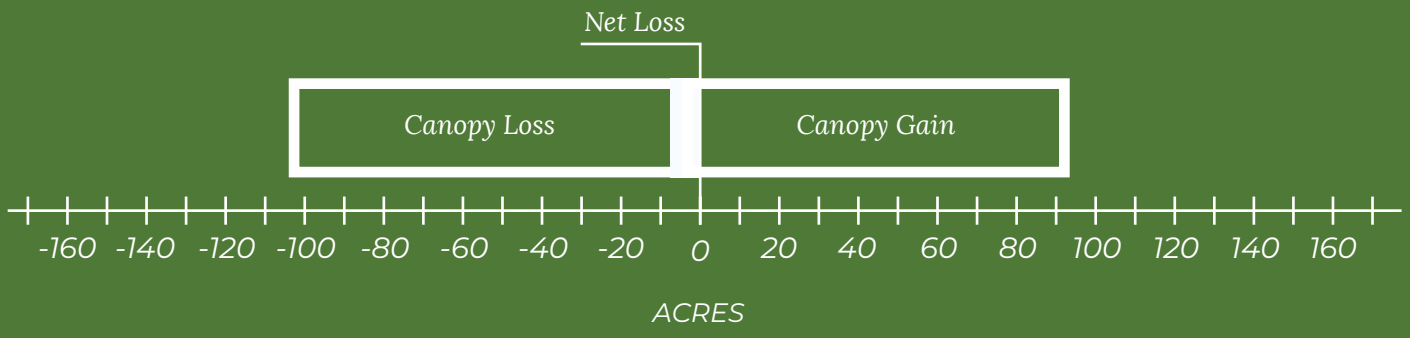
CANOPY AND LAND USE TRENDS

JAMAICA PLAIN HAS 14% OF BOSTON'S CANOPY.

JAMAICA PLAIN HAS 44% CANOPY COVERAGE.



JAMAICA PLAIN LOST 102 ACRES AND GAINED 93 ACRES FOR A NET LOSS OF 9 ACRES OF TREE CANOPY FROM 2014-2019. THE GREATEST LOSSES WERE ON RESIDENTIAL LANDS.



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PRIORITY ZONES

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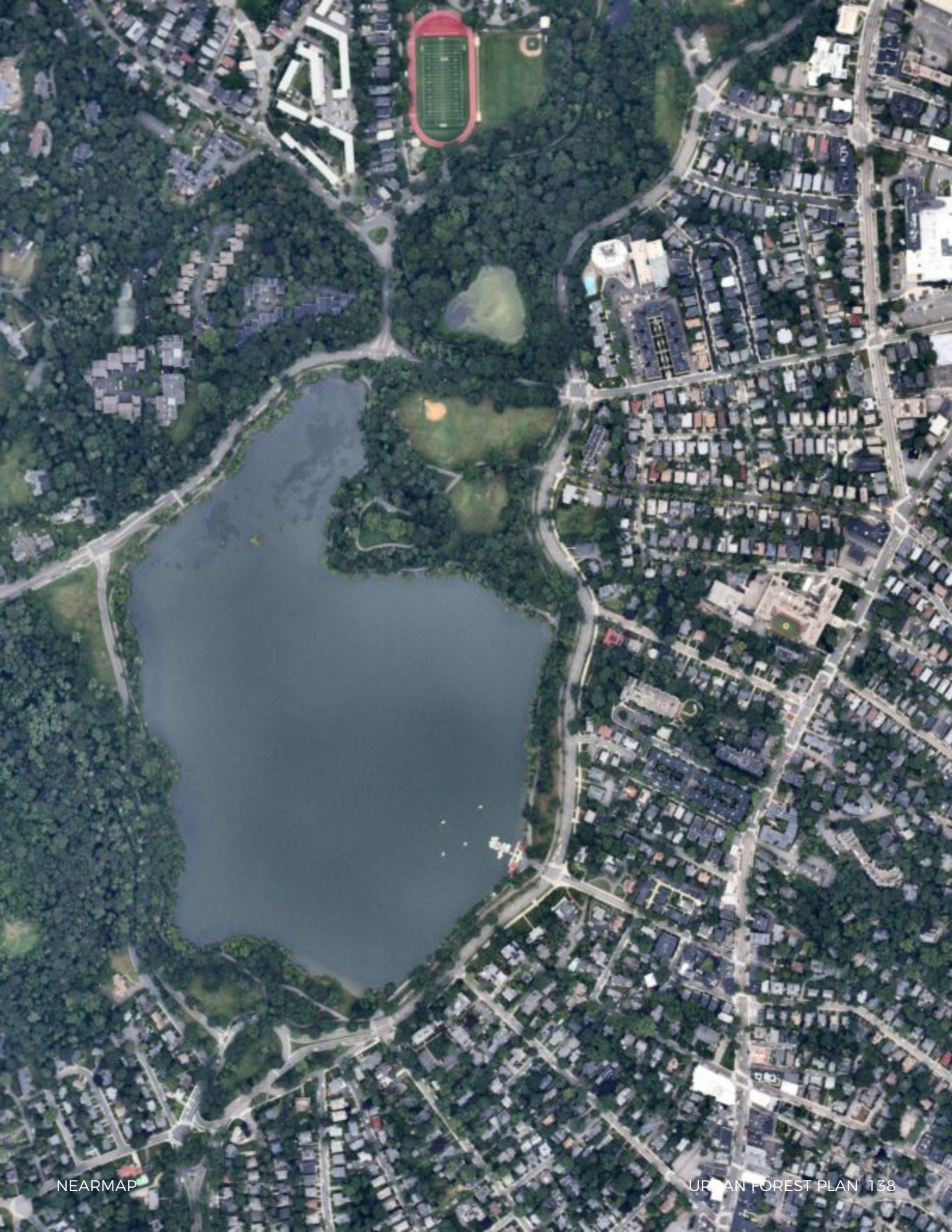
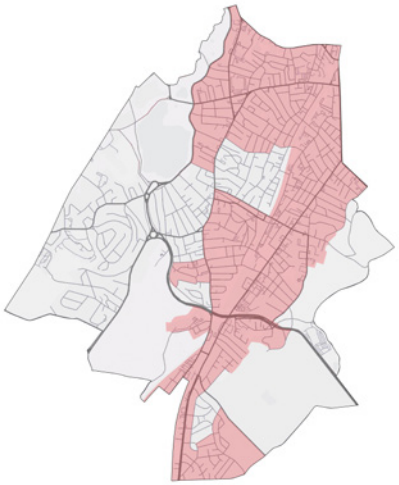
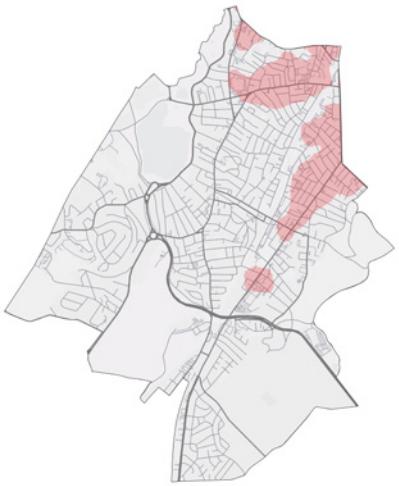


PRIORITY INDICATORS

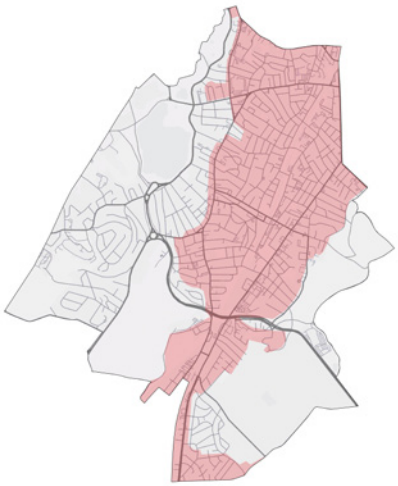


Environmental Justice Communities

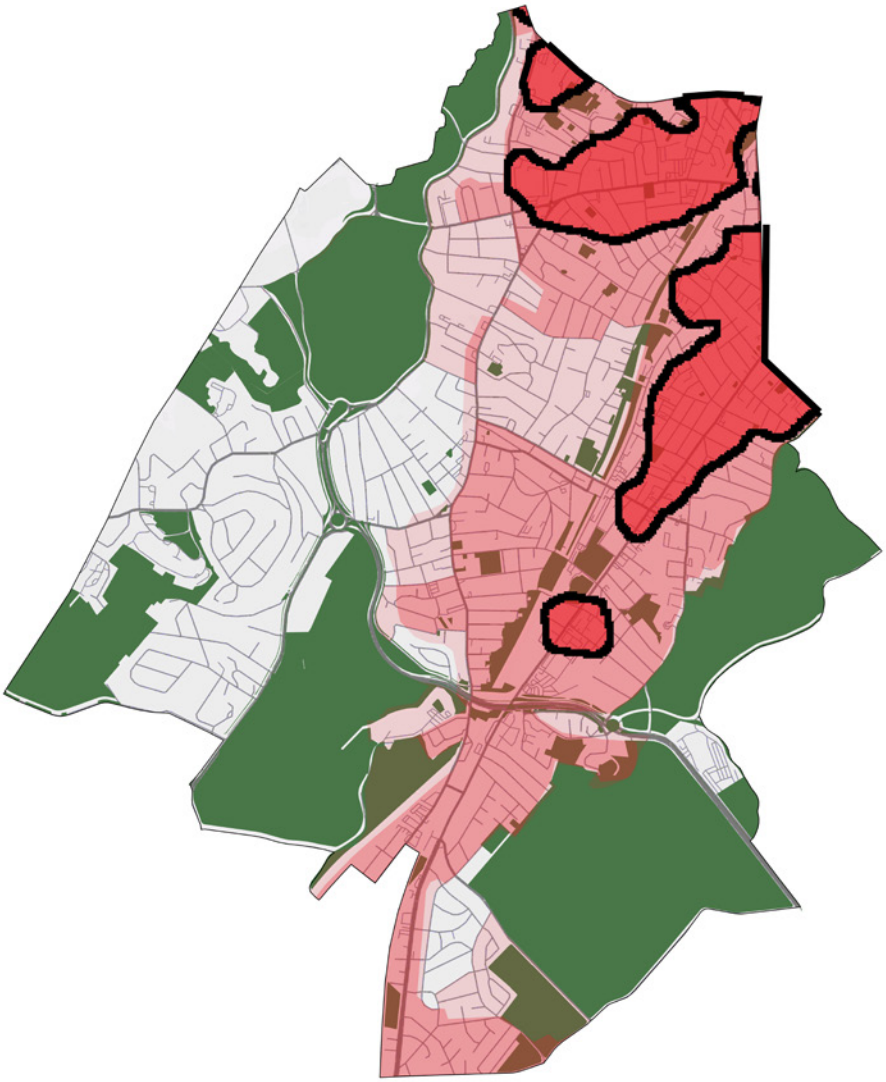
Low Canopy



Heat Event Hours



Historic Marginalization



JAMAICA PLAIN 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

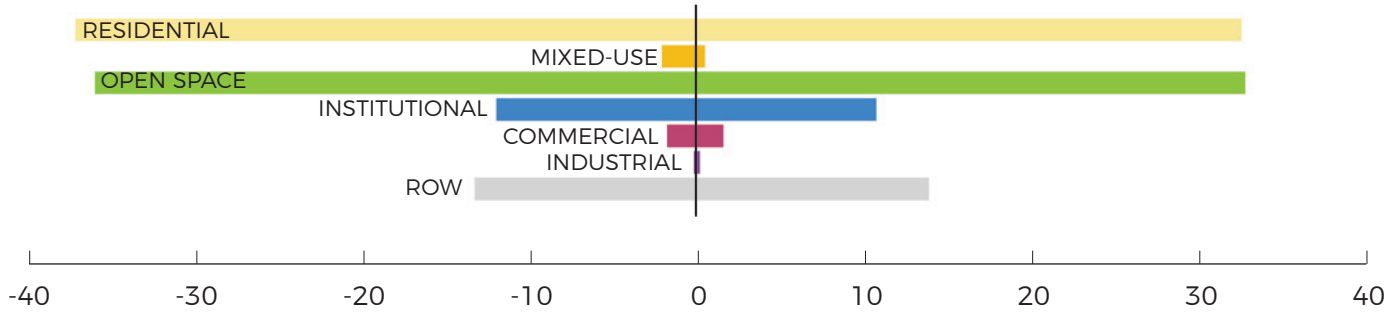
Physical and environmental opportunities and constraints will impact a neighborhood's ability to expand the canopy. It can also determine who has the greatest ability to take action. When used in coordination with the mapped priority zones, these maps can provide greater understanding of where opportunities 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

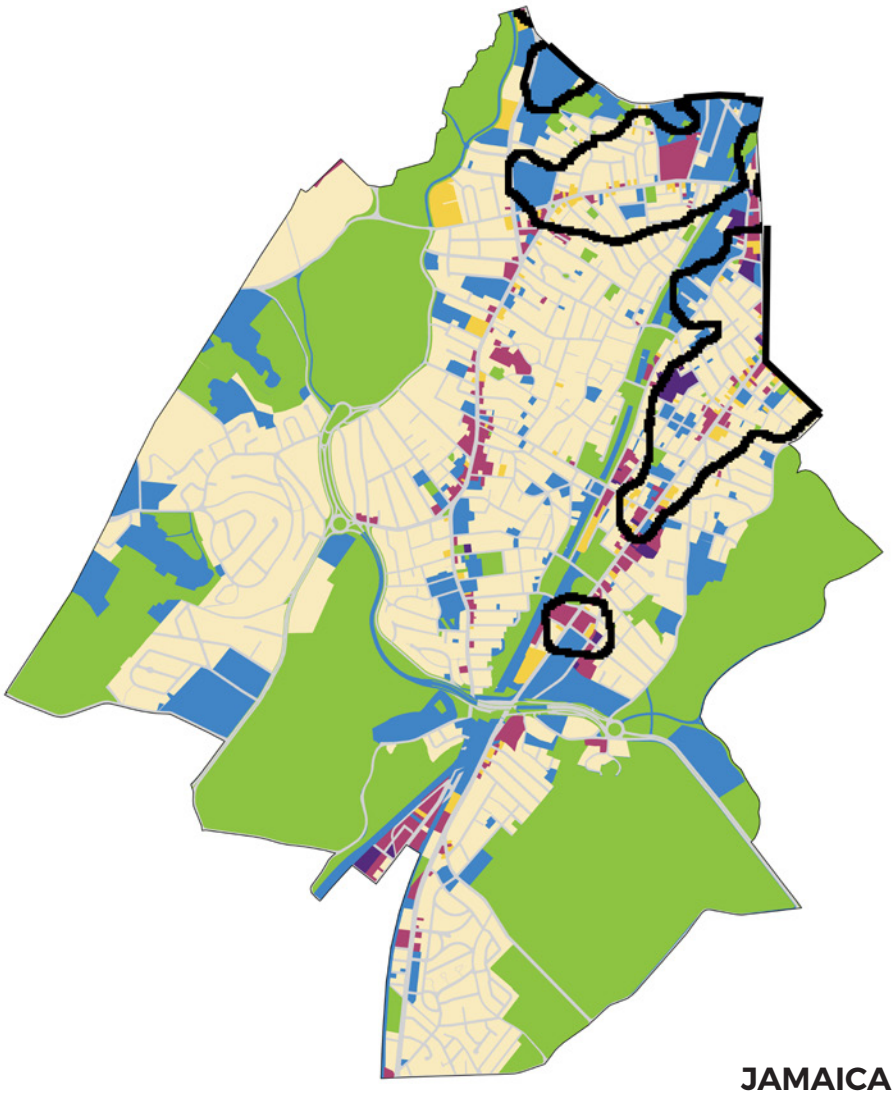
Every neighborhood has a different make-up of private and public land, as well as different key land uses and property owners. The existence of various land uses can affect opportunities for expanding canopy and who in the community has the ability and responsibility to act.

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.

Jamaica Plain is predominantly open space (37%) with significant residential (33%). The priority zone includes a combination of institutional, residential, and commercial designation. Right-of-way and open space are specifically discussed on the following pages.



JAMAICA PLAIN CANOPY GAIN & LOSS BY LAND USE (ACRES)



JAMAICA PLAIN LAND USE COMPOSITION

- RESIDENTIAL - 33%
- MIXED-USE - 1%
- OPEN SPACE - 37%
- INSTITUTIONAL - 13%
- COMMERCIAL - 3%
- INDUSTRIAL - 1%
- ROW - 13%
- PRIORITY ZONES

2,000 FT.

RIGHT-OF-WAY (ROW)

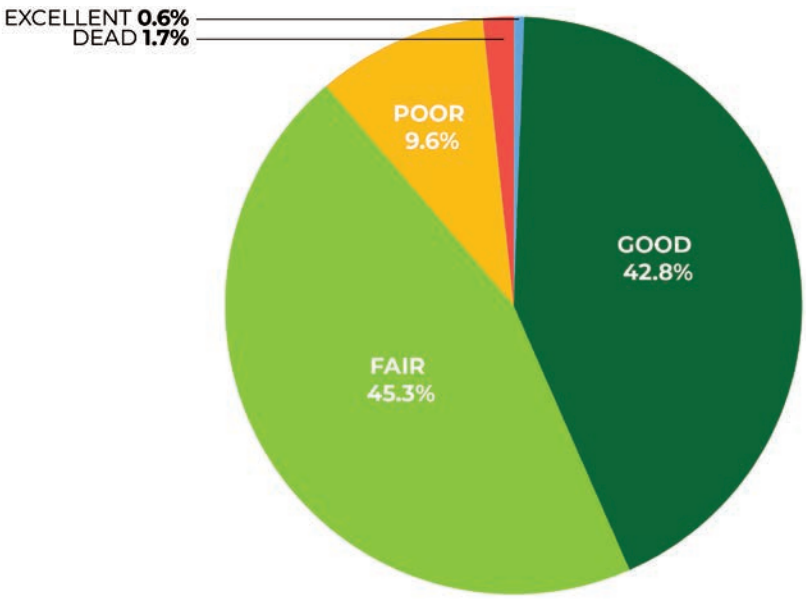
Right-of-way (ROW) refers to property in Boston that is subject to public use for streets, curbs, planting strips, sidewalks, etc. These lands in Boston represent a set of potential planting sites over which the Parks Department and other City departments already have the jurisdiction to expand canopy.

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.

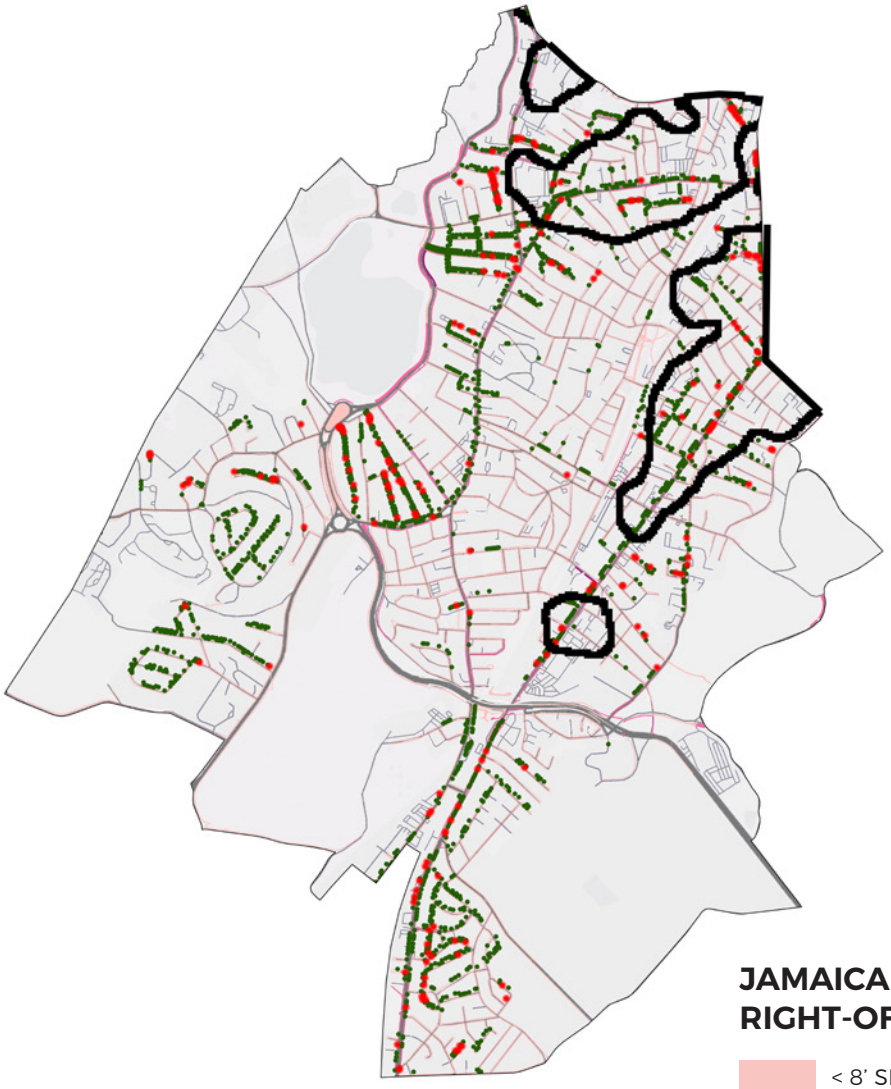
Areas with sidewalk widths over 8'-6" (inclusive of the curb) meet current standards and could be considered for immediate planting, while sidewalk widths less than 8'-0" (inclusive of the curb) would likely require more significant changes to the street or exceptions to current standards. More significant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

In Jamaica Plain, an estimated 238 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.

JAMAICA PLAIN STREET TREE CONDITION COMPOSITION



TAKEAWAYS:
Less than half of the street trees in Jamaica Plain are considered in Good or Excellent condition, with the remaining majority in Fair 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.



JAMAICA PLAIN
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

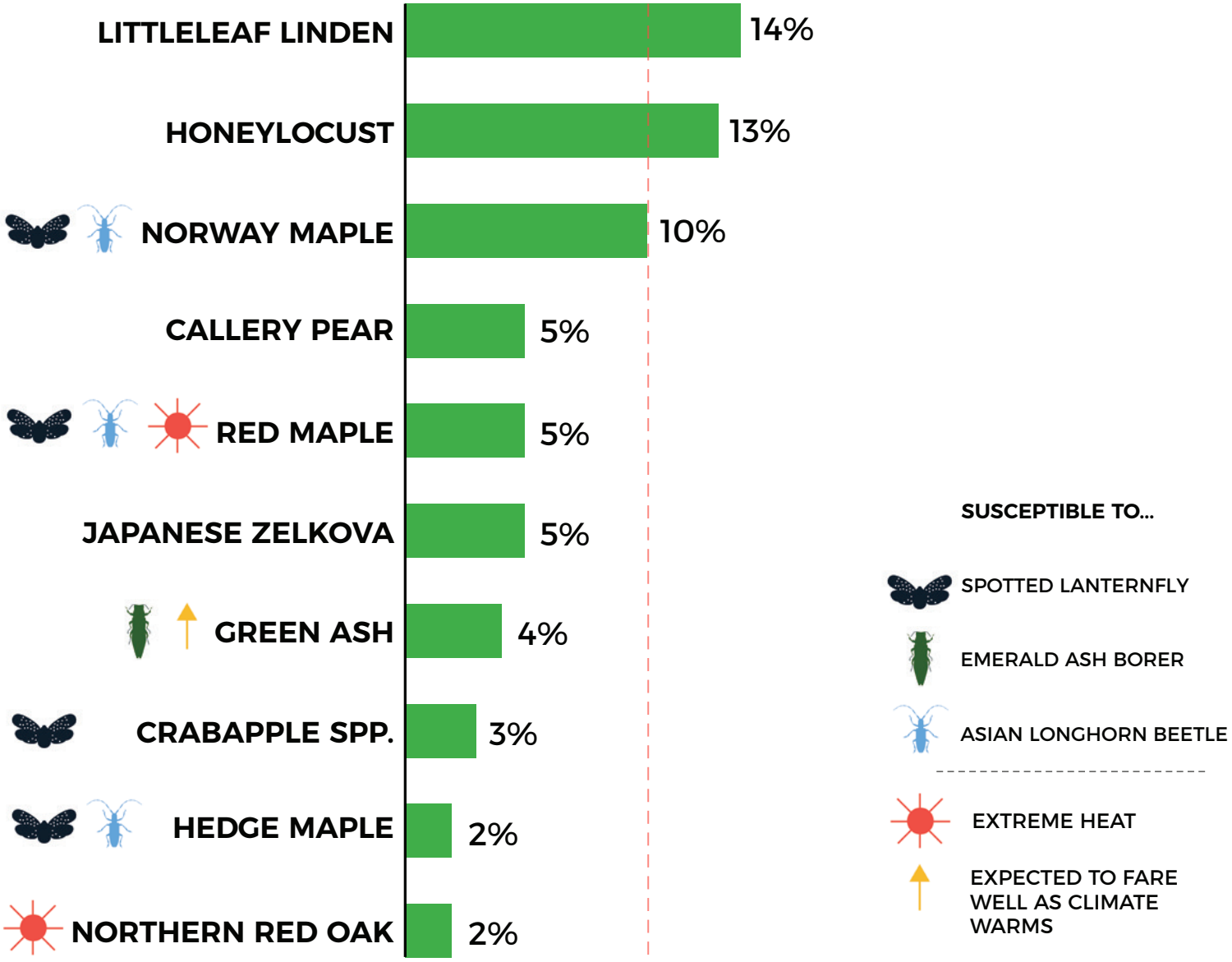
PRIORITY ZONES

2,000 FT.

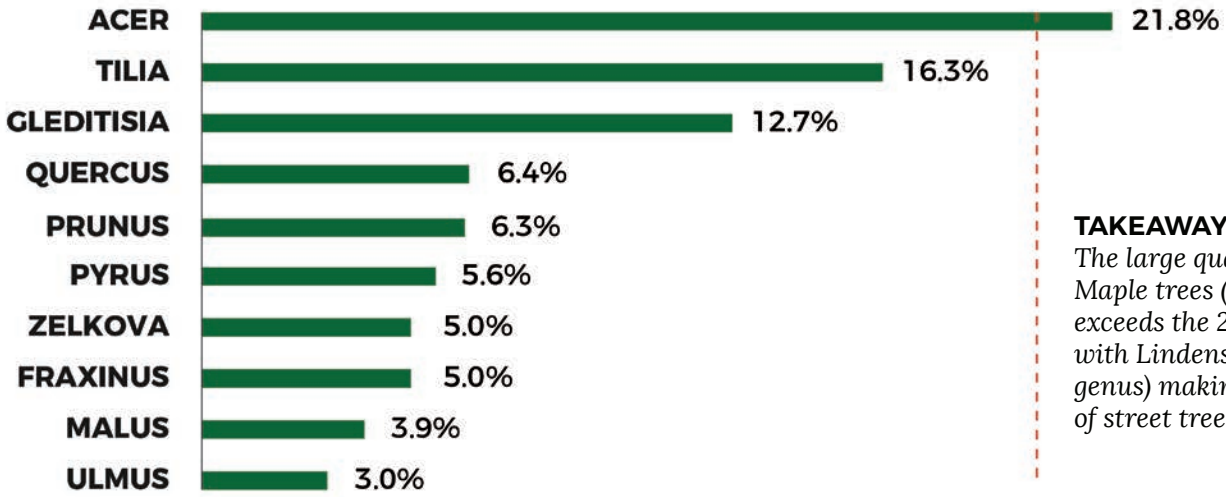
STREET TREE ANALYSIS

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%.

JAMAICA PLAIN TOP 10 TREE SPECIES



JAMAICA PLAIN TOP 10 STREET TREE GENUS COMPOSITION



TAKEAWAYS:
The large quantity of Maple trees (Acer genus) exceeds the 20% rule with Lindens (Tilia genus) making up 16.3% of street trees.

Additional genera identified in Jamaica Plain: Aesculus, Ailanthus, Amelanchier, Betula, Carpinus, Carya, Celtis, Cercidiphyllum, Cercis, Cladrastis, Cornus, Crataegus, Eucommia, Ginkgo, Gymnocladus, Hibiscus, Koelreuteria, Lagerstroemia, Liquidambar, Liriodendron, Magnolia, Malus, Morus, Nyssa, Ostrya, Parrotia, Pinus, Platanus, Robinia, Sophora, Syringa, Viburnum

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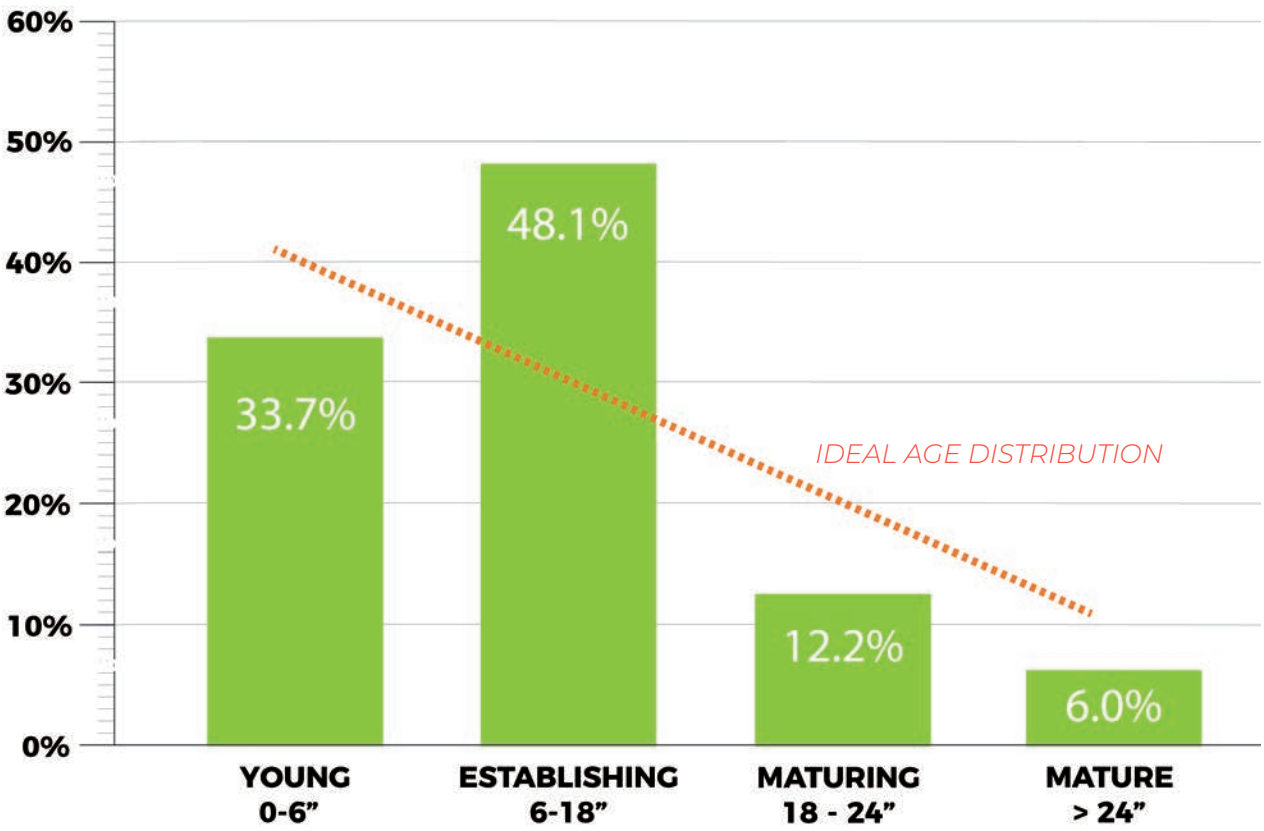

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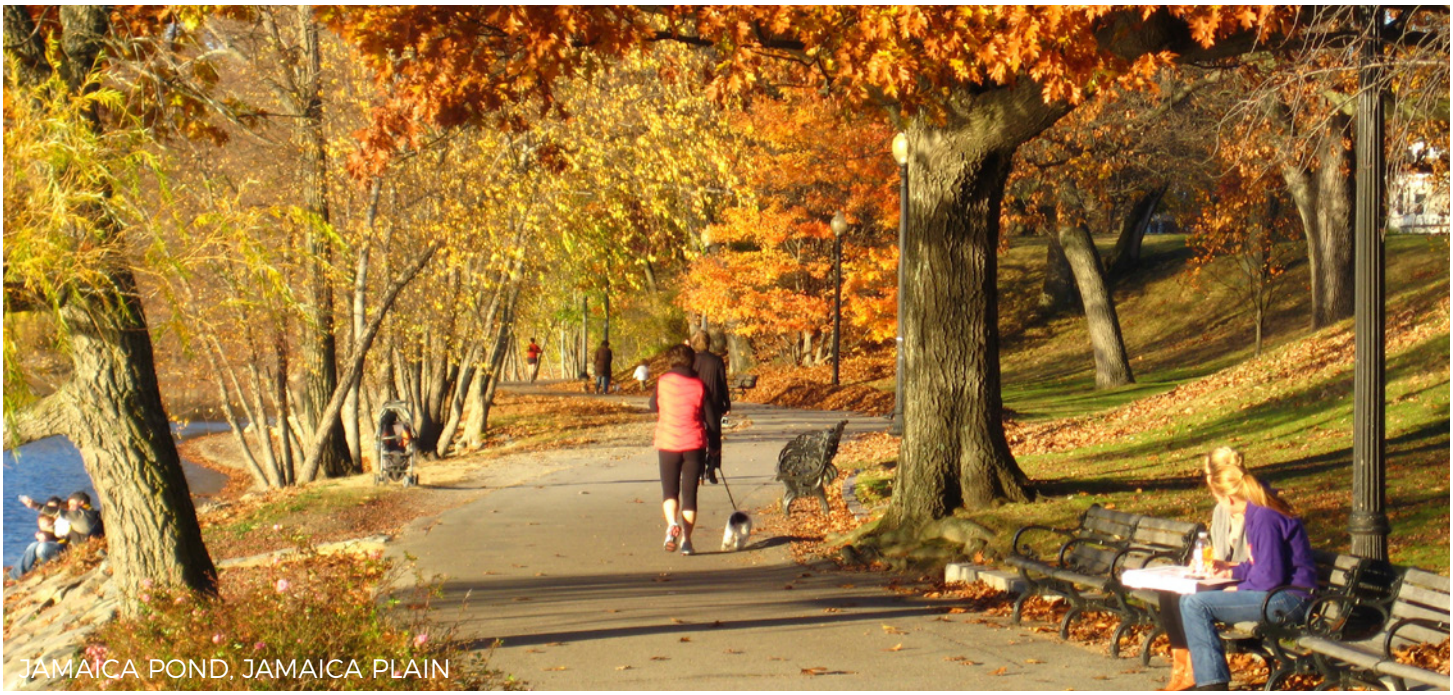
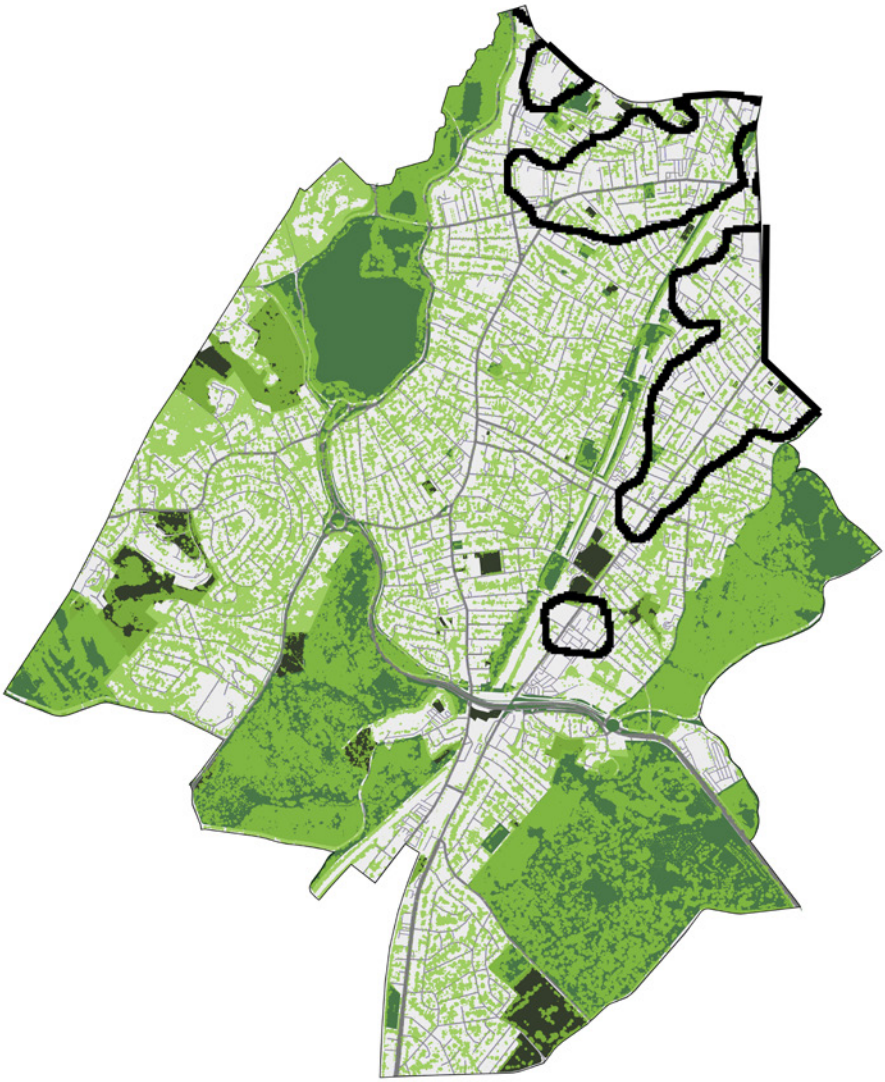
Jamaica Plain has a number of large protected and unprotected open spaces in addition to numerous small parks and plazas. However, the priority zone has little to no open space. Opportunities to increase canopy in the existing open spaces and to create additional open spaces within the priority zone should be considered.



JAMAICA POND, JAMAICA PLAIN



JAMAICA PLAIN
OPEN SPACE OPPORTUNITY

- PROTECTED OPEN SPACE
- UNPROTECTED OPEN SPACE
- TREE CANOPY
- PRIORITY ZONES
- 2,000 FT.

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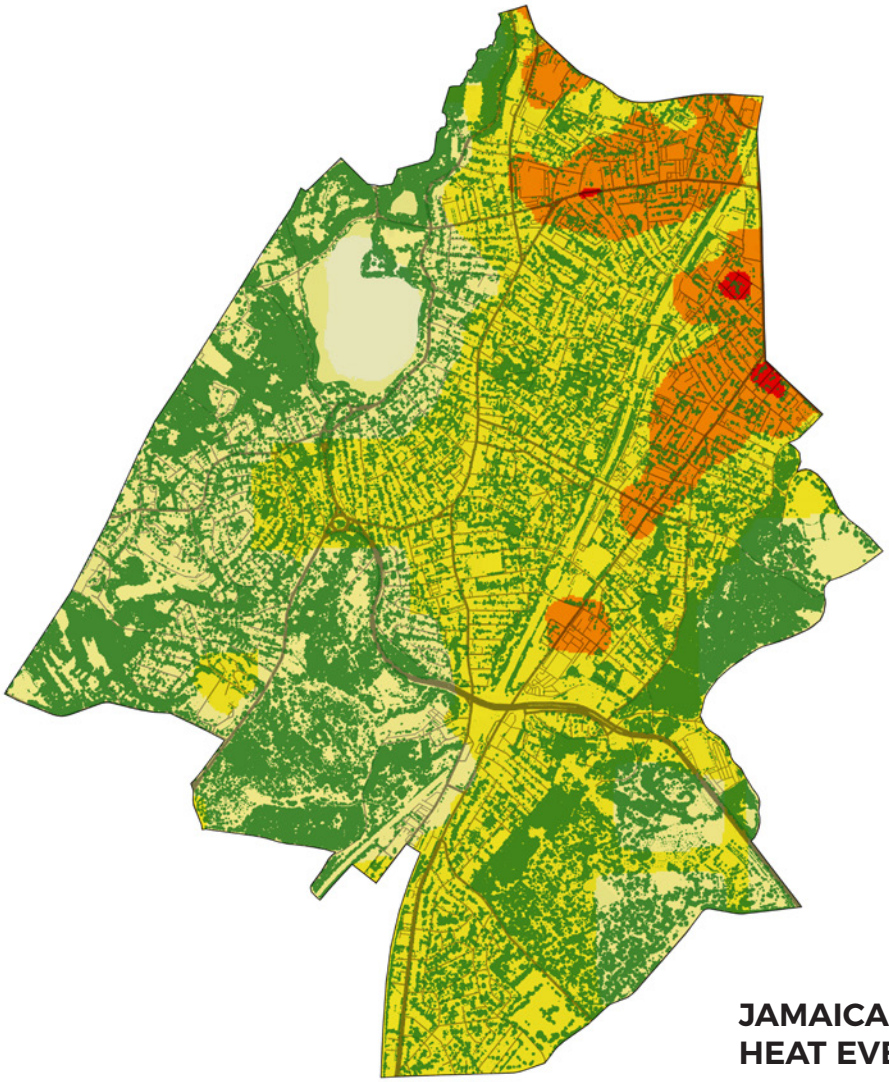

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- TREE CANOPY
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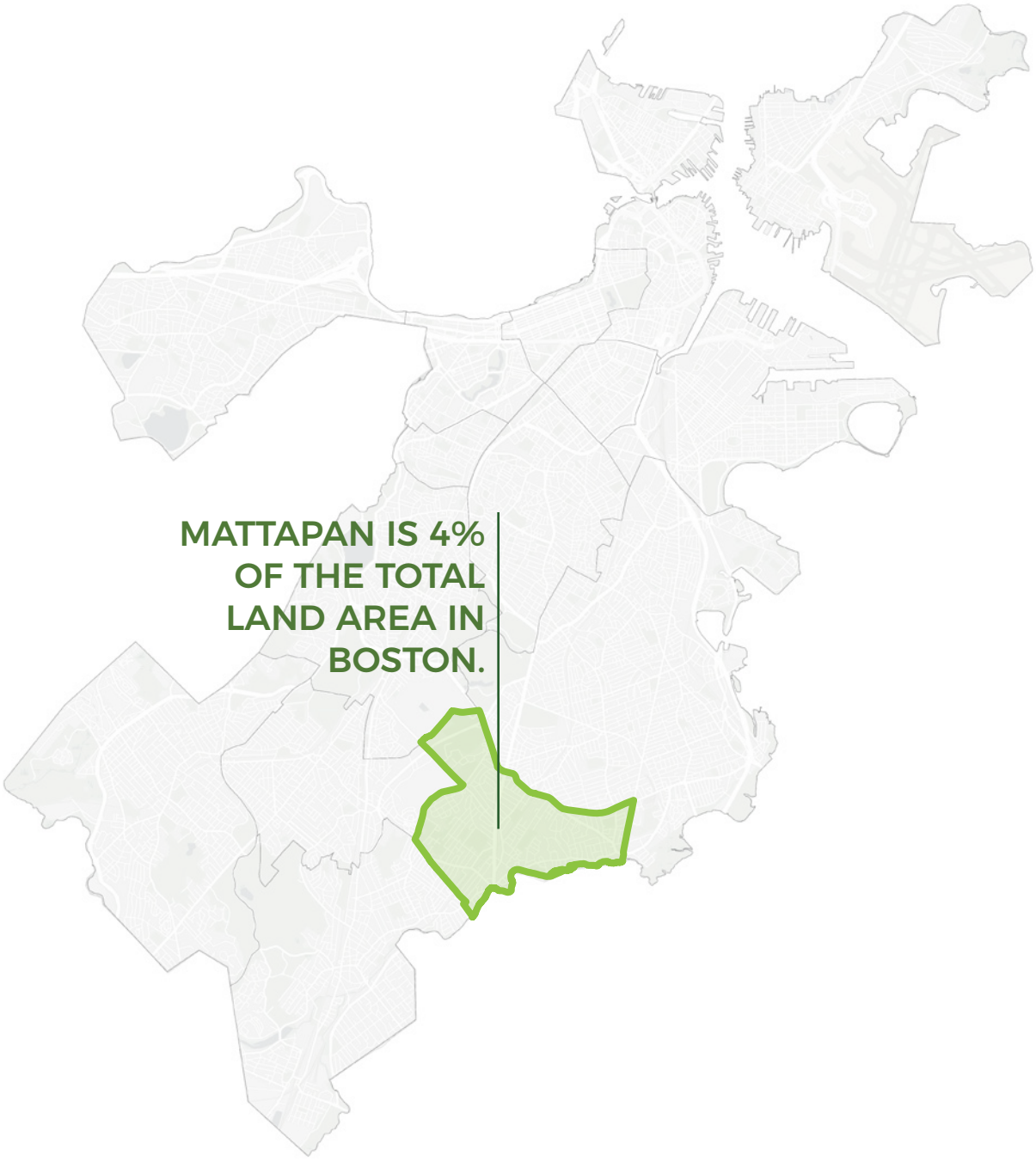
MATTAPAN



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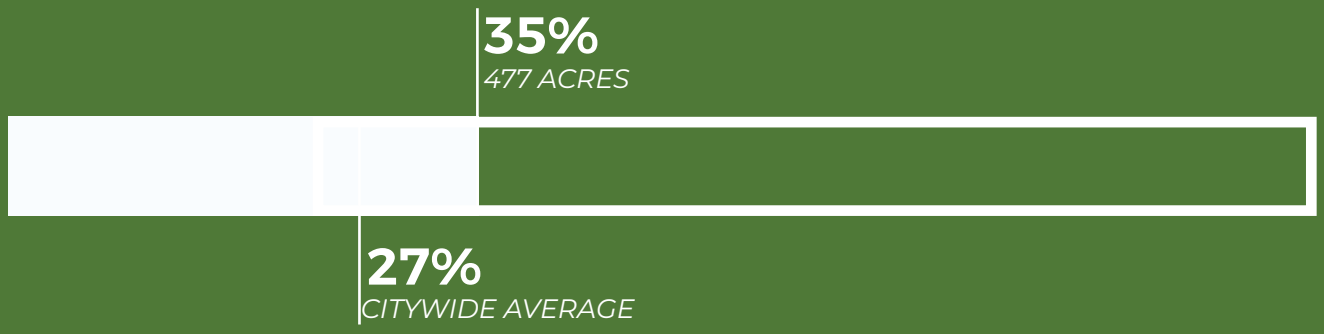

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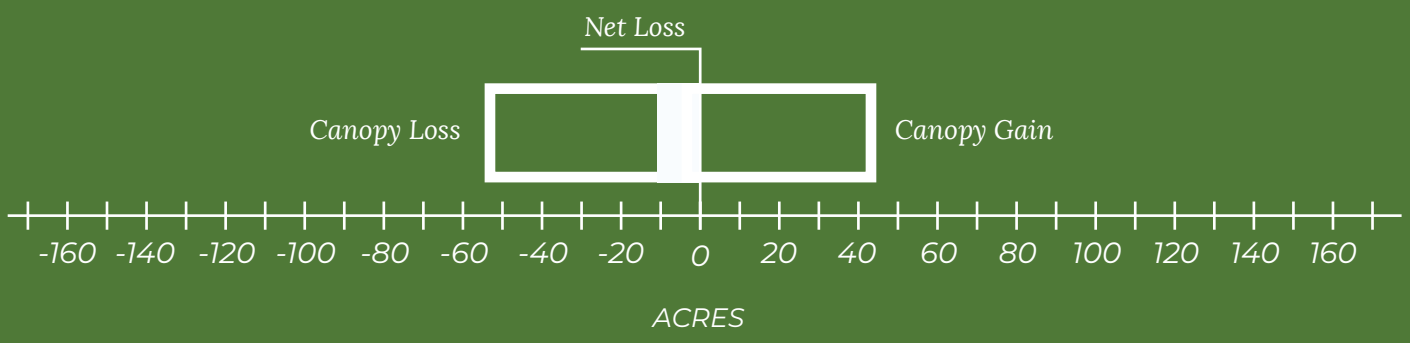

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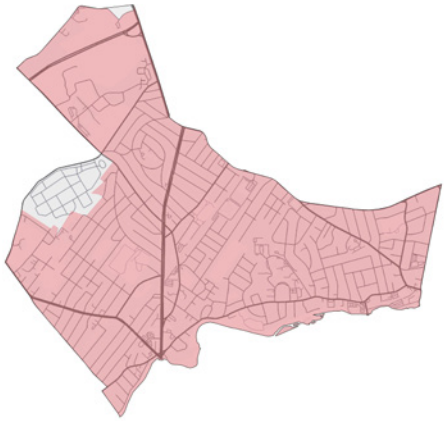
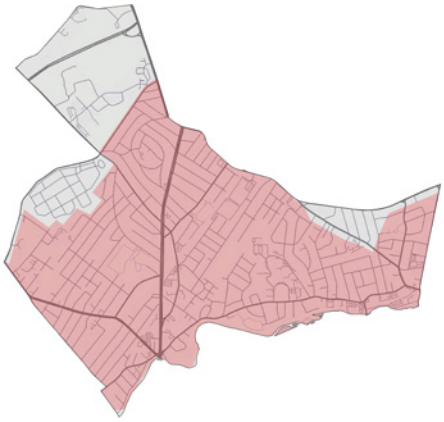
PRIORITY INDICATORS



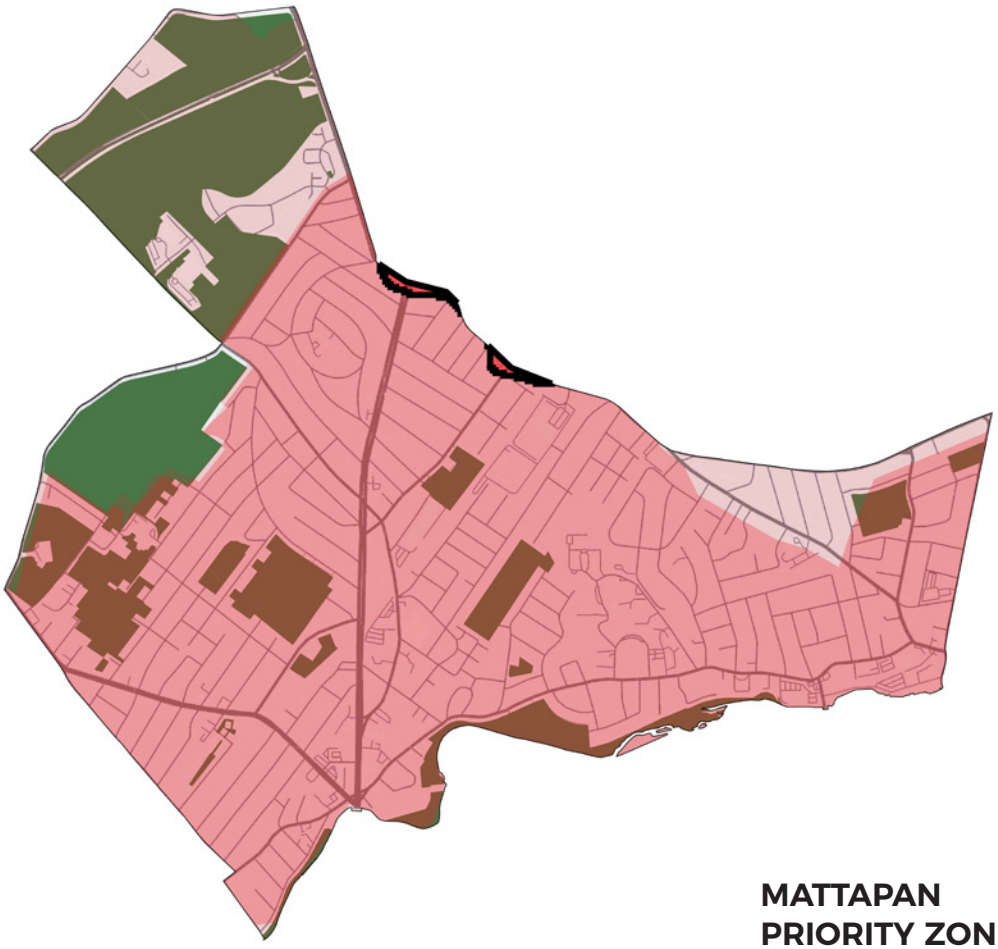
Environmental Justice Communities

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

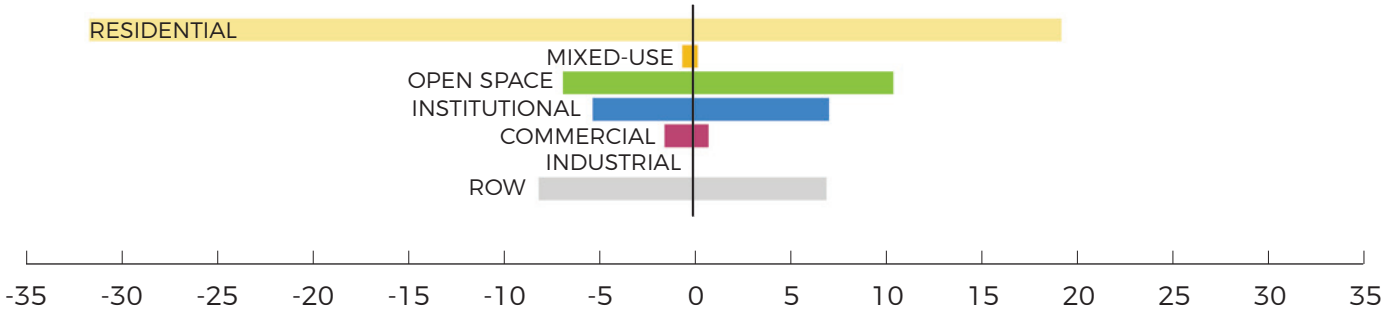
Physical and environmental opportunities and constraints will impact a neighborhood's ability to expand the canopy. It can also determine who has the greatest ability to take action. When used in coordination with the mapped priority zones, these maps can provide greater understanding of where opportunities 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

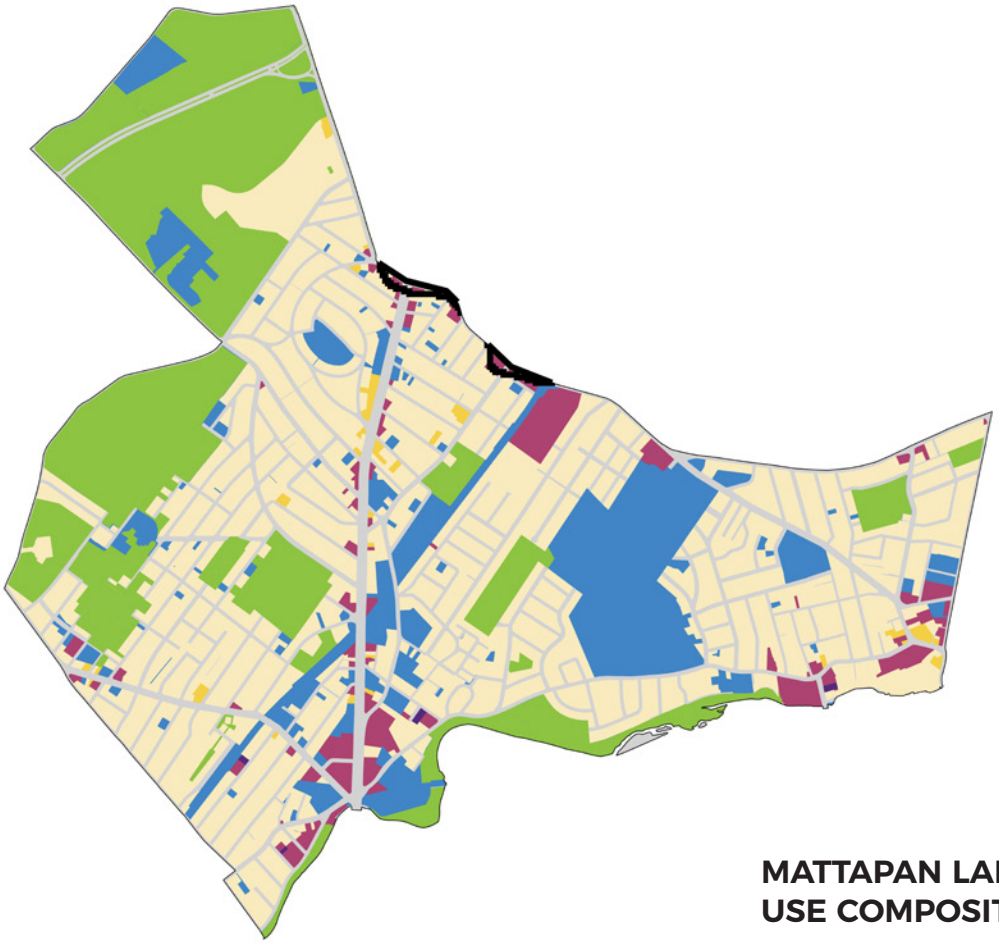
Every neighborhood has a different make-up of private and public land, as well as different key land uses and property owners. The existence of various land uses can affect opportunities for expanding canopy and who in the community has the ability and responsibility to act.

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.



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.

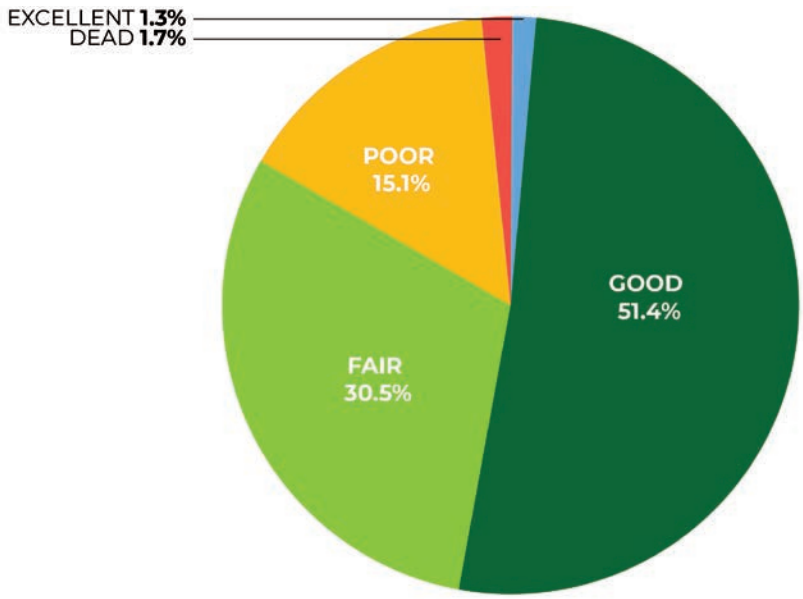
The map on the following page includes sidewalk width, which is a significant determinant of whether space can be found to plant trees in existing or new tree pits. Tree canopy data can be overlaid with locations of existing street trees and potential planting sites along streets. This can illustrate 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.

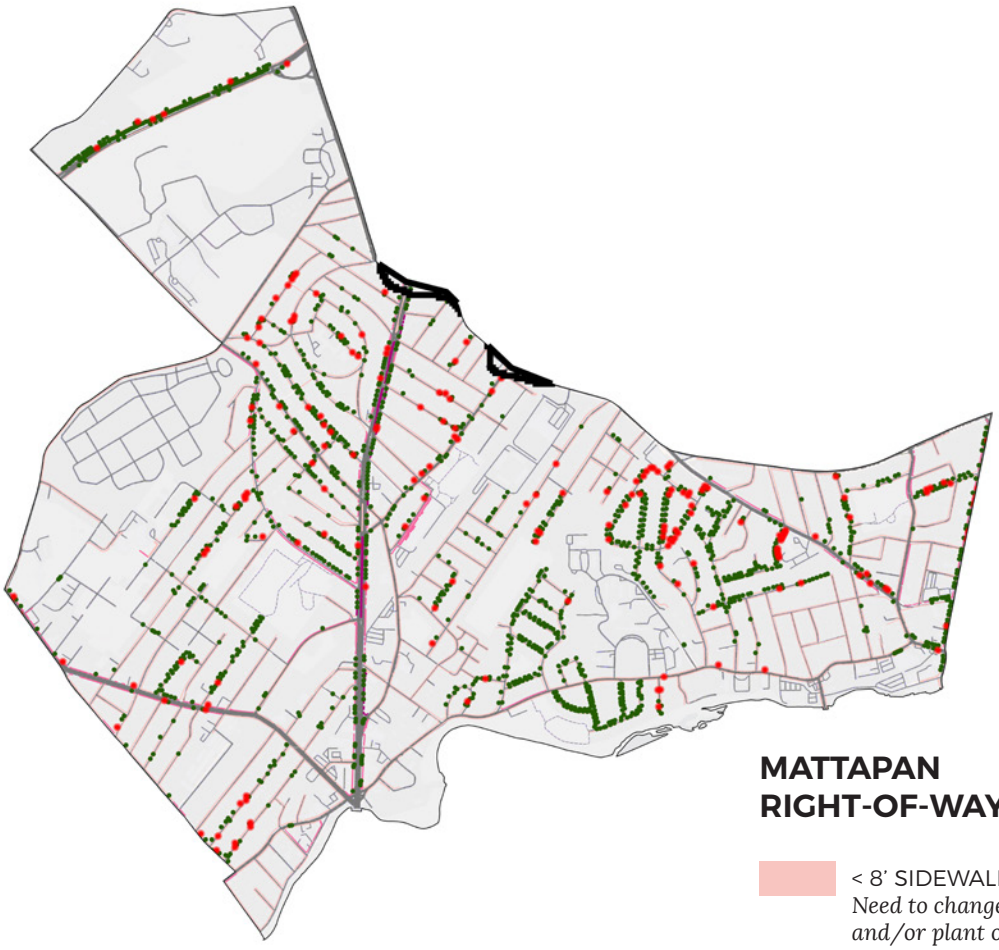
In Mattapan, an estimated 178 potential street tree planting sites (including existing tree pits with dead trees) were identified during the inventory in May 2021. These sites should be considered for immediate planting, in particular those falling within the priority zones. Potential planting sites 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



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

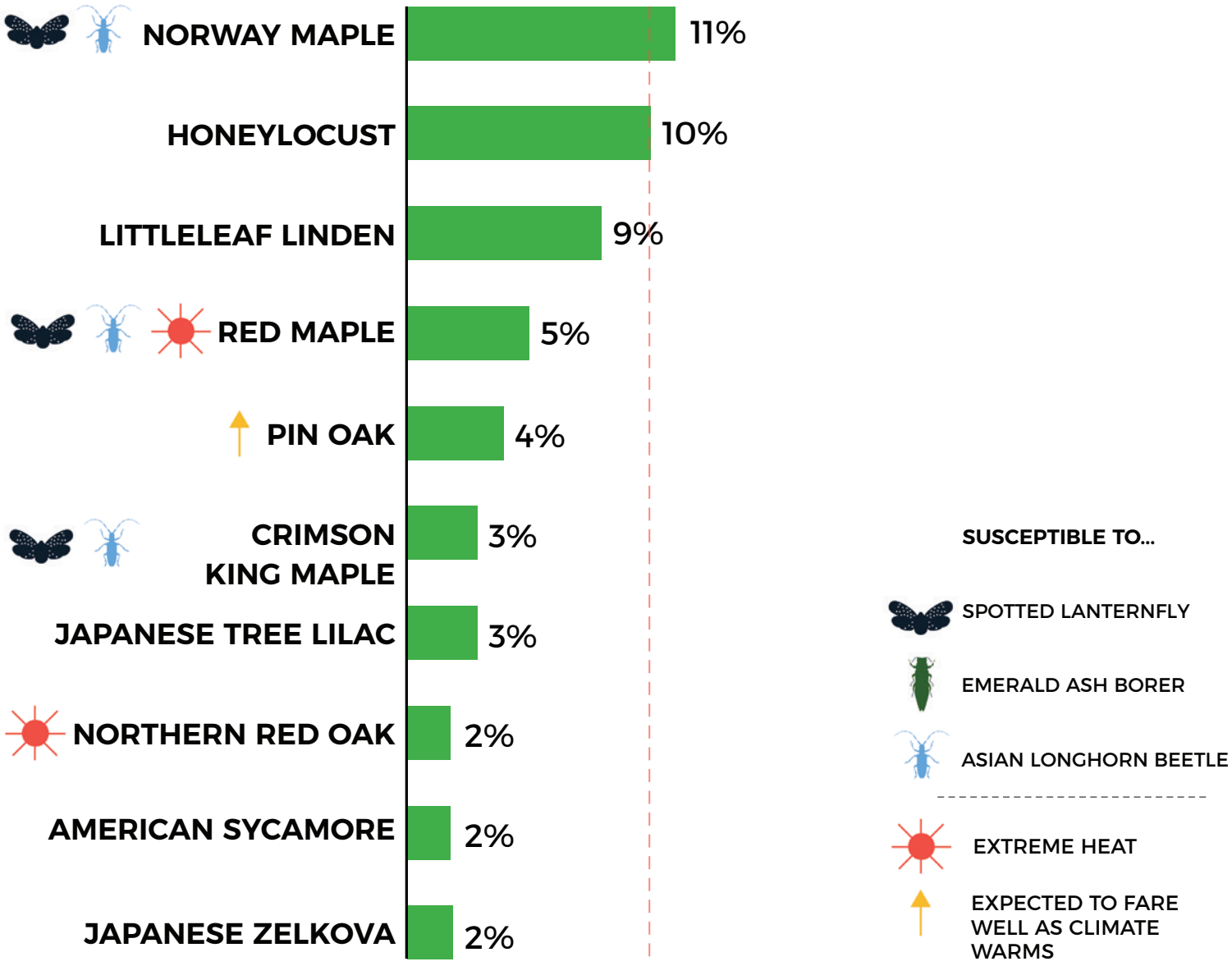
PRIORITY ZONES

2,000 FT.

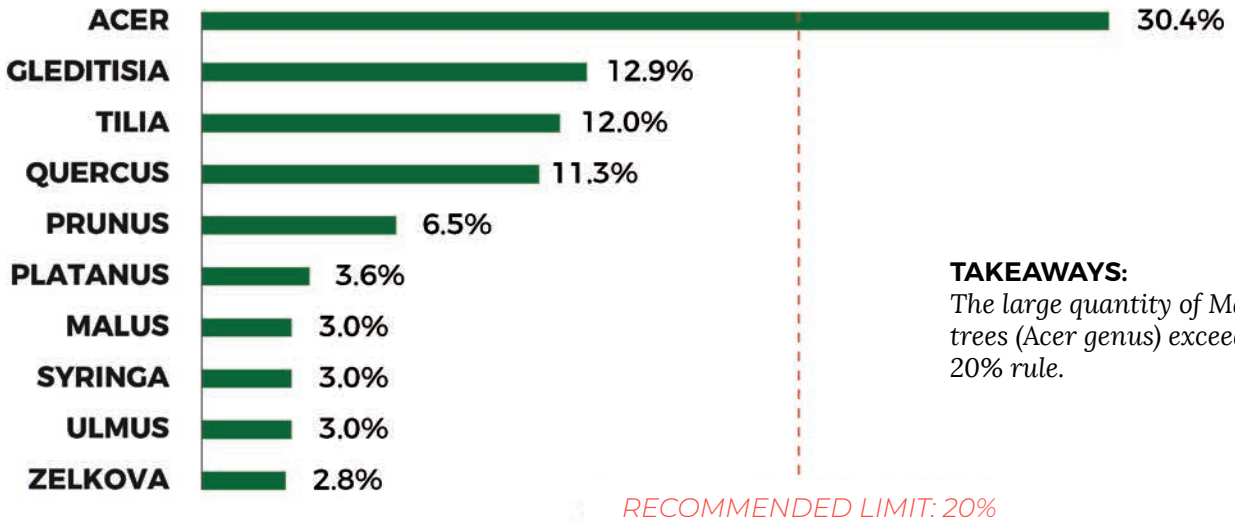
STREET TREE ANALYSIS

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



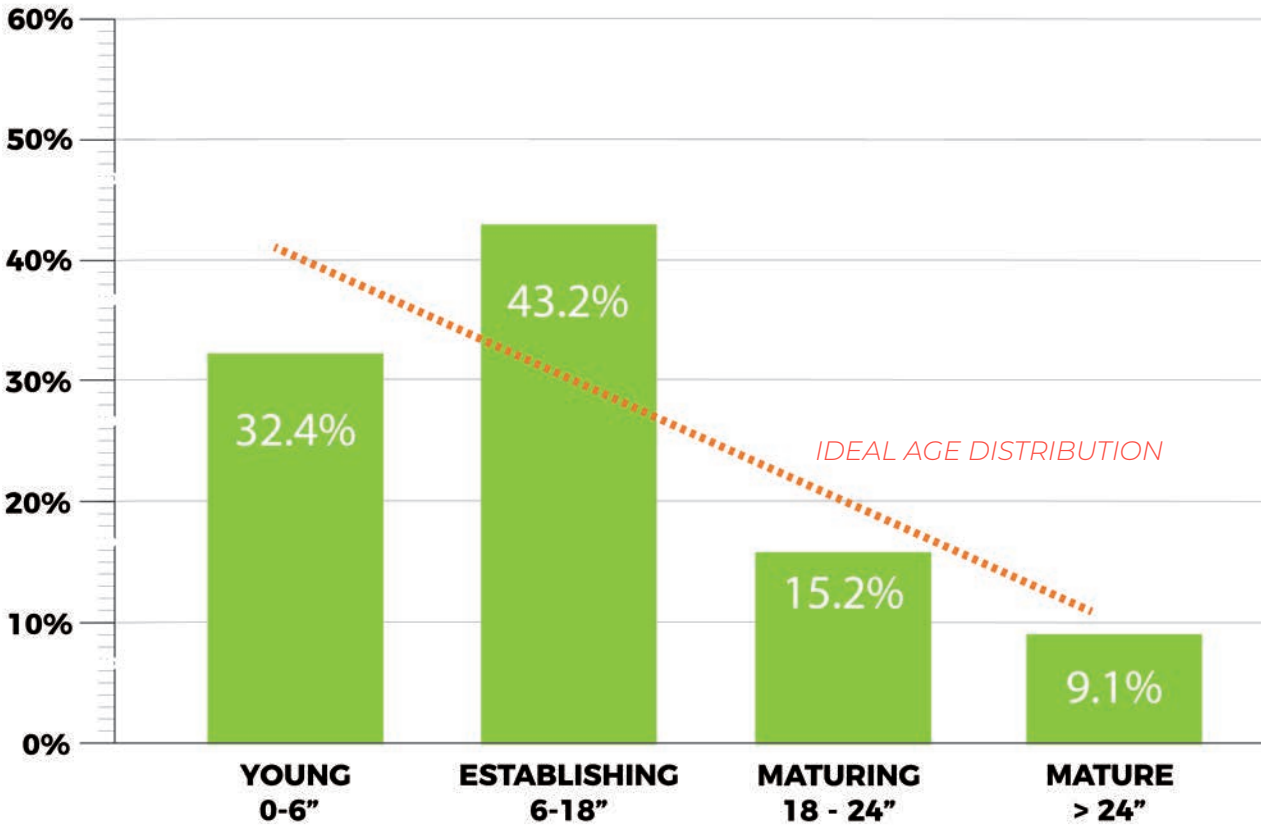
MATTAPAN TOP 10 STREET TREE GENUS COMPOSITION



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

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



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

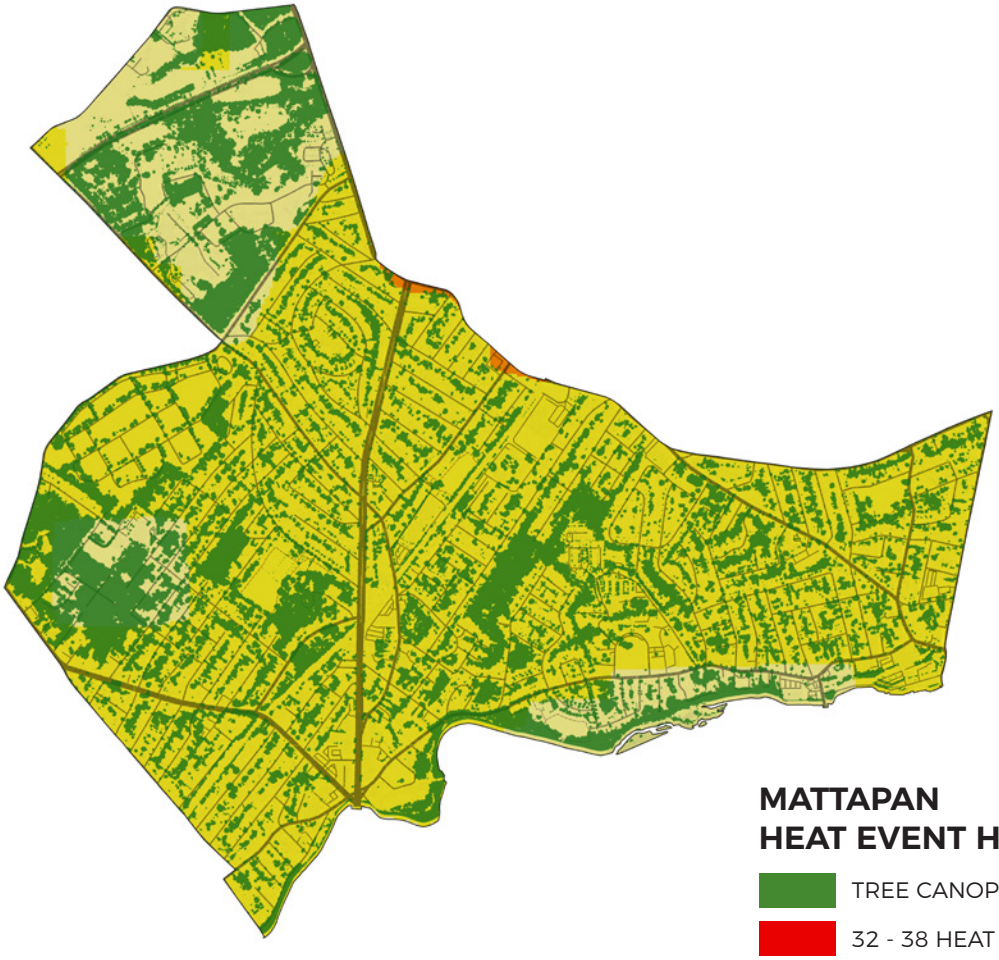
Environmental conditions across the neighborhoods in Boston vary widely. There are coastal conditions, hills, streams and other existing environmental factors which impact plant communities, plant life and health. These maps identify some of the key dynamics in each neighborhood, in particular how climate 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.



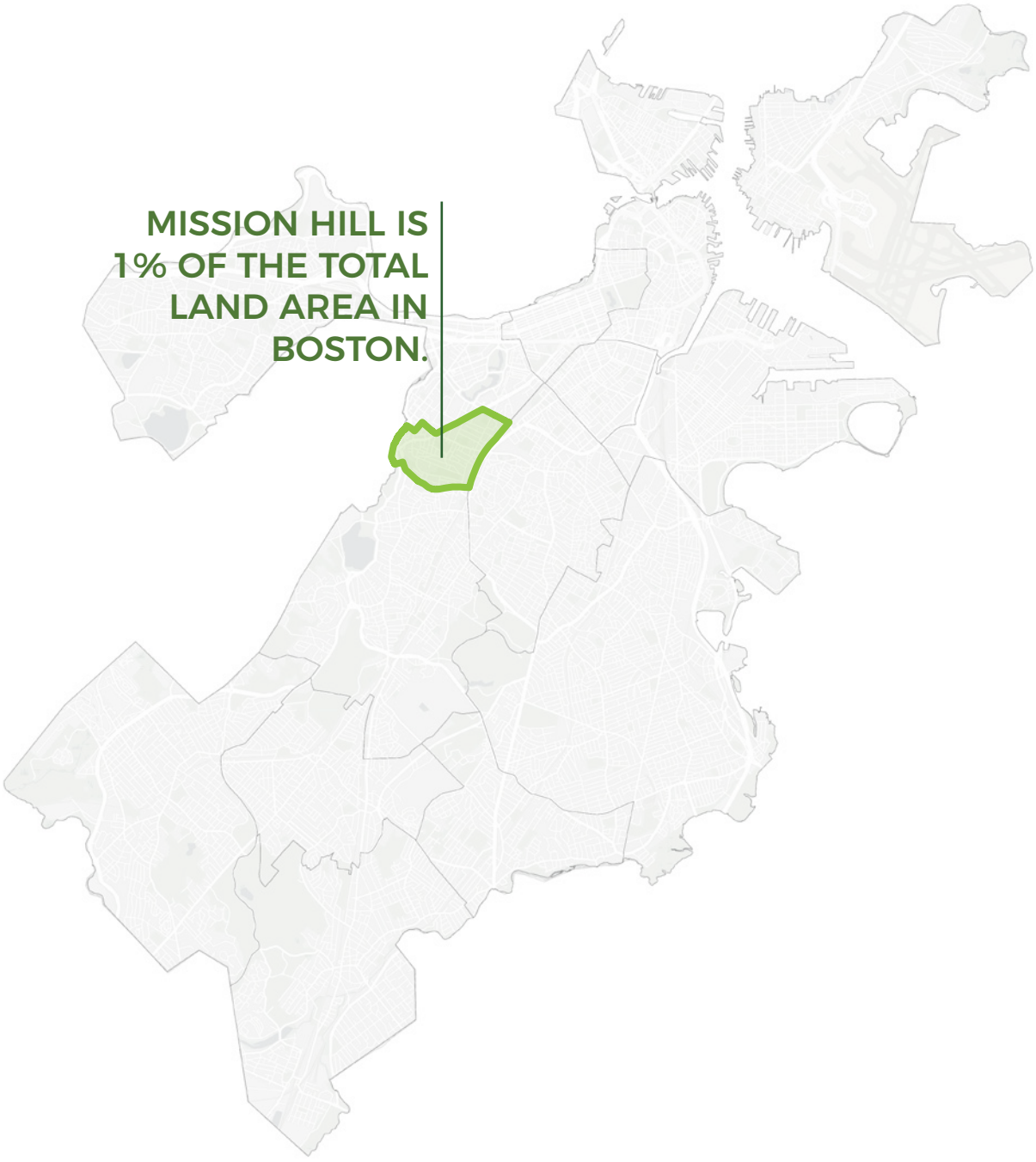
MATTAPAN
HEAT EVENT HOURS*

- TREE CANOPY
- 32 - 38 HEAT EVENT HOURS
- 29 - 32 HEAT EVENT HOURS
- 26 - 29 HEAT EVENT HOURS
- 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.

MISSION HILL

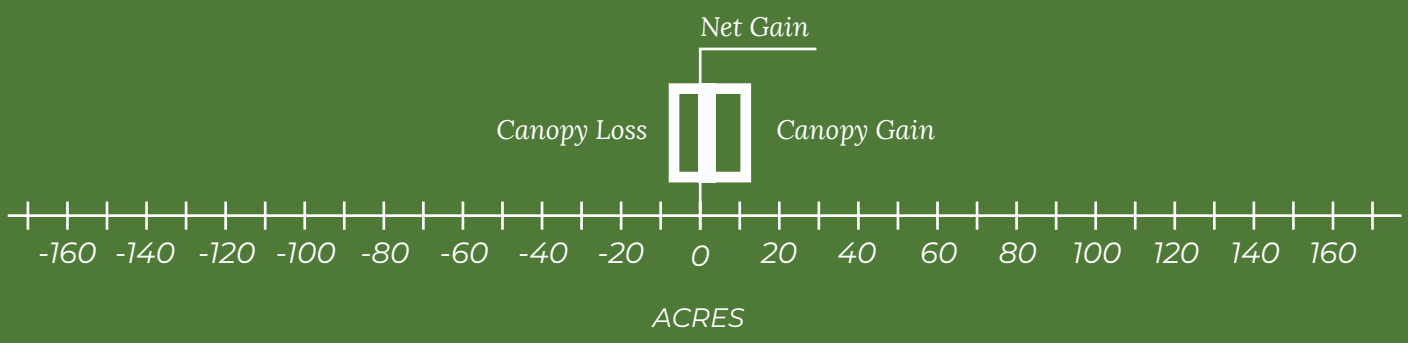


CANOPY AND LAND USE TRENDS

MISSION HILL HOLDS 1% OF BOSTON'S CANOPY.

MISSION HILL HAS 25% CANOPY COVERAGE.

MISSION HILL LOST 9 ACRES AND GAINED 12 ACRES FOR A NET GAIN OF 3 ACRES OF TREE CANOPY FROM 2014-2019. THE GREATEST GAINS WERE IN OPEN SPACES.



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.

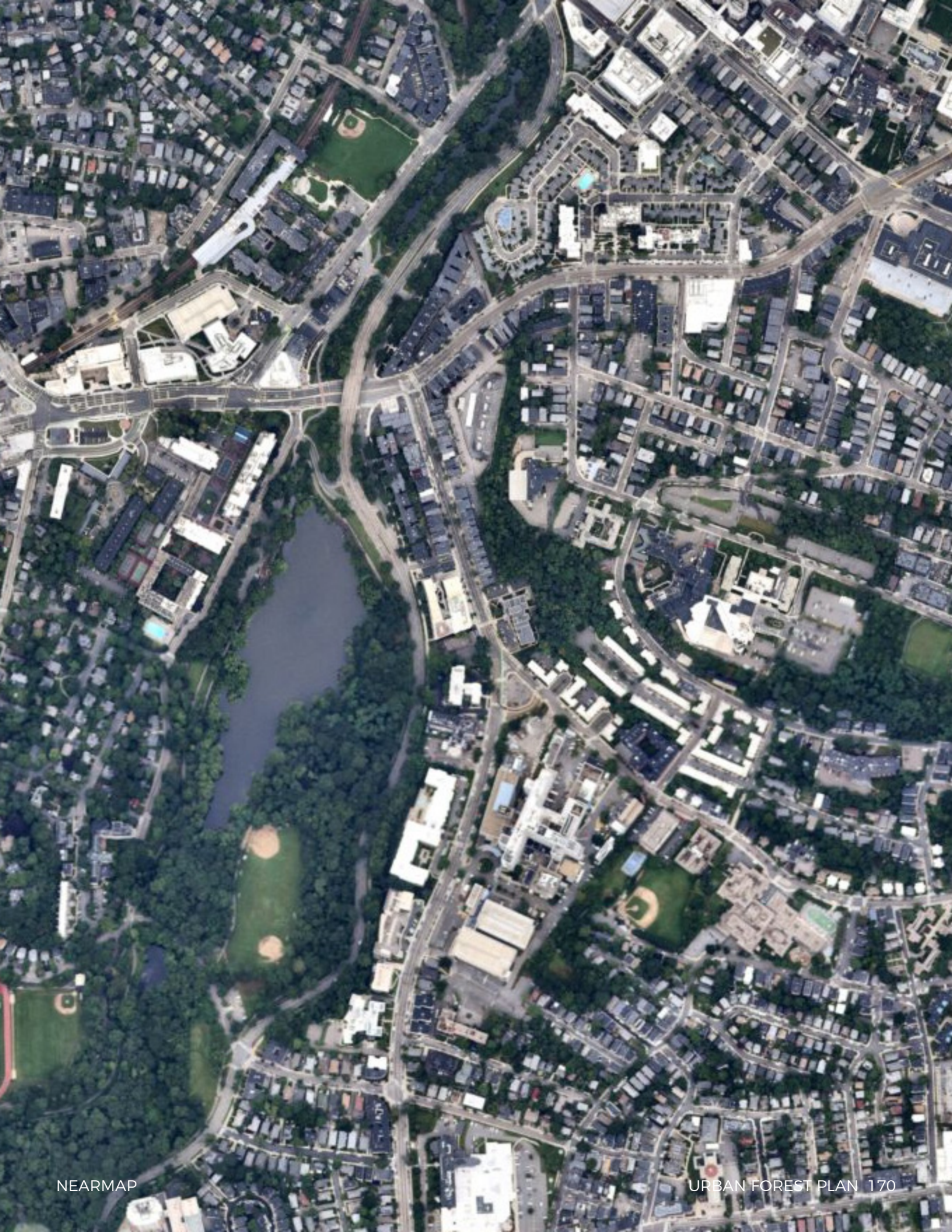
Low Canopy. Using 2019 Tree Canopy Coverage Assessment data, this map identifies census tracts with less than 10% tree canopy coverage.

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.

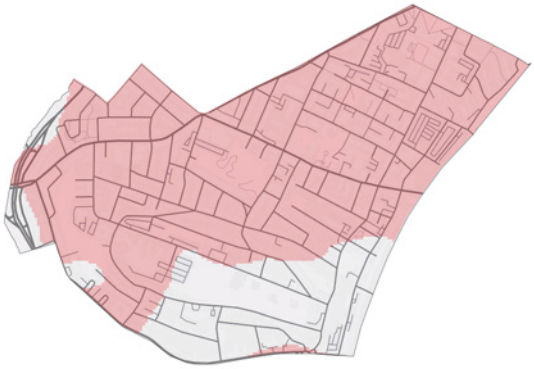
Priority zones should help weight planting canopy expansion focus and attention, but should not be indicative of overall resources and efforts needed. Many priority populations, for example, live in areas with relatively high overall canopy, but in which canopy cover is declining. These areas will need 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

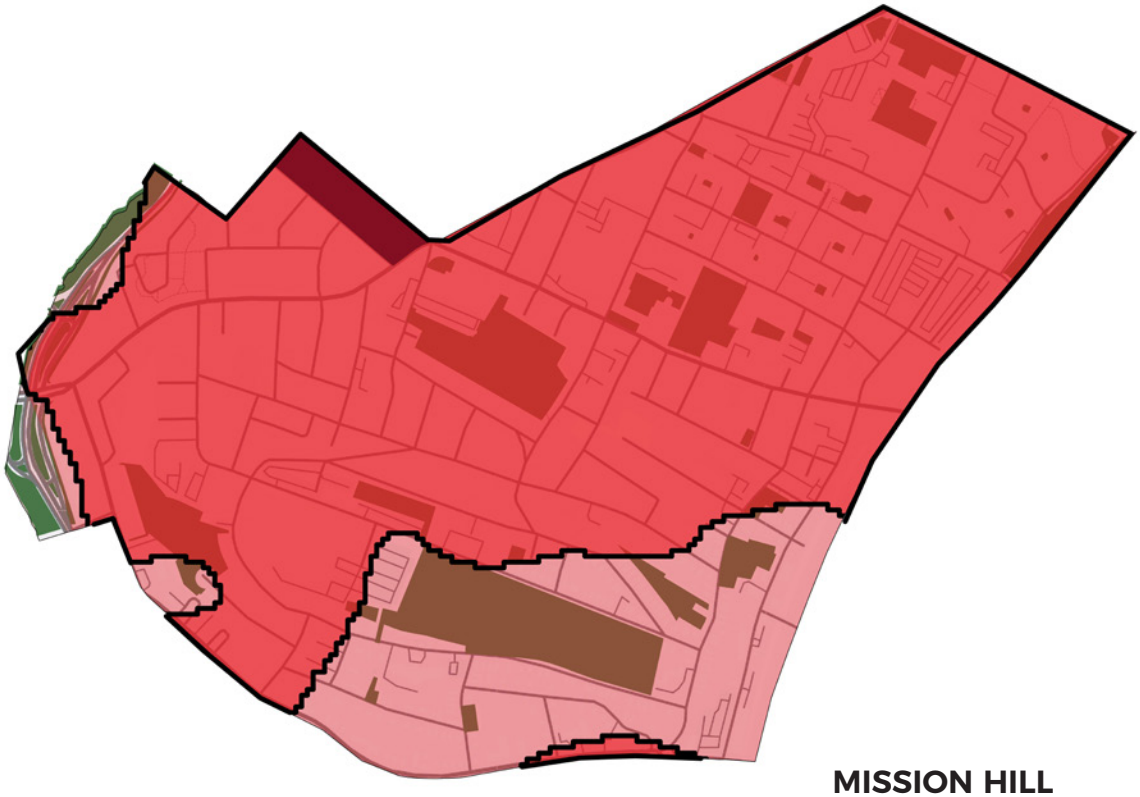
Environmental Justice Communities

Low Canopy



Heat Event Hours

Historic Marginalization



MISSION HILL 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).

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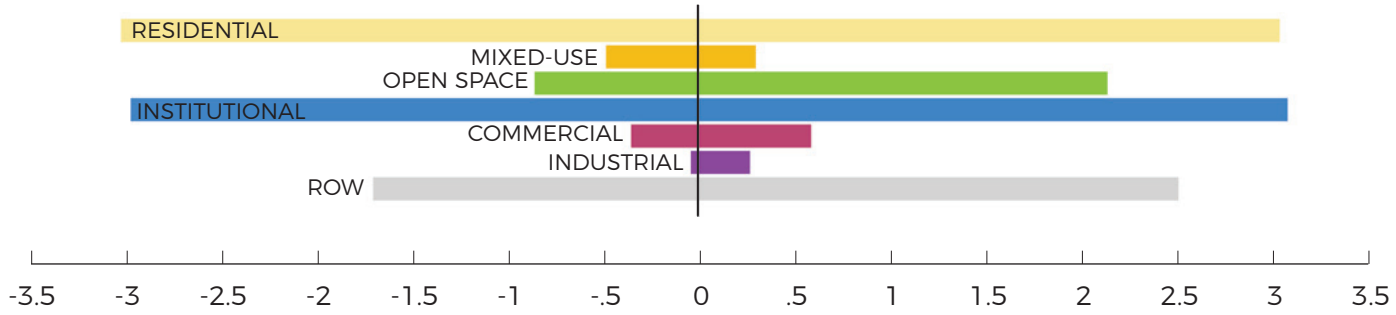
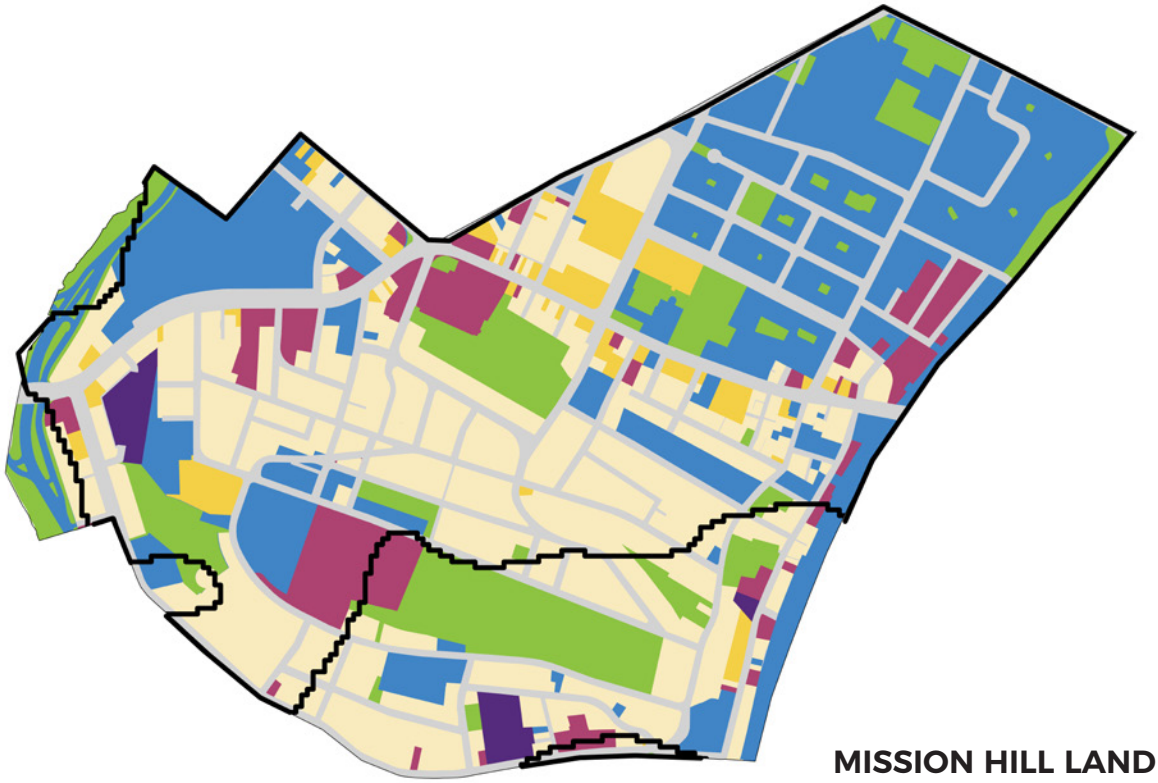
Mission Hill is predominantly institutional (28%) with significant residential (27%) usage. The priority zone includes a combination of primarily residential and institutional designation. Right-of-way and open space are specifically discussed on the following pages.



MISSION HILL CANOPY GAIN & LOSS BY LAND USE (ACRES)



MISSION HILL LAND USE COMPOSITION

- RESIDENTIAL - 27%
- MIXED-USE - 4%
- OPEN SPACE - 13%
- INSTITUTIONAL - 28%
- COMMERCIAL - 7%
- INDUSTRIAL - 1%
- ROW - 20%
- 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.

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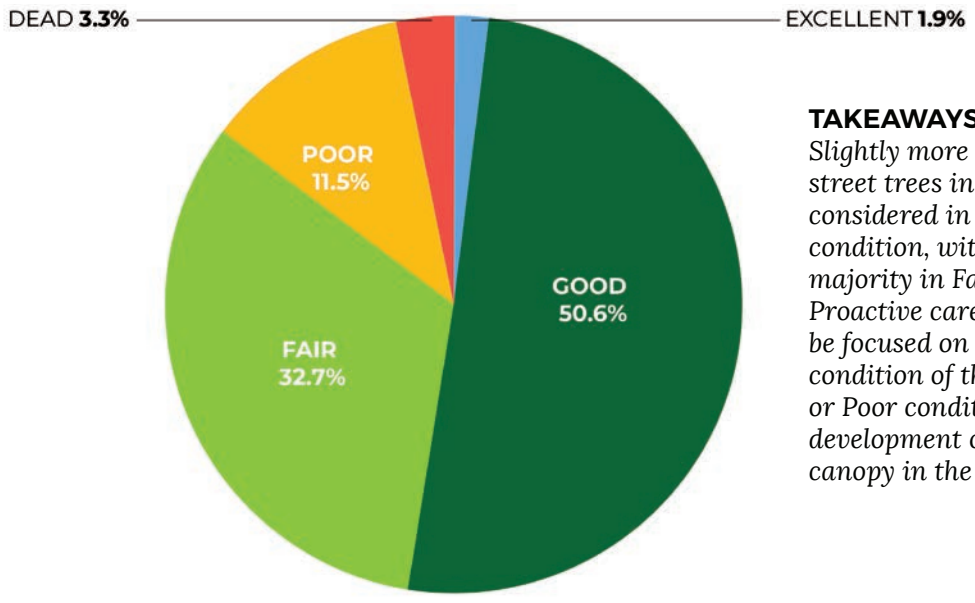
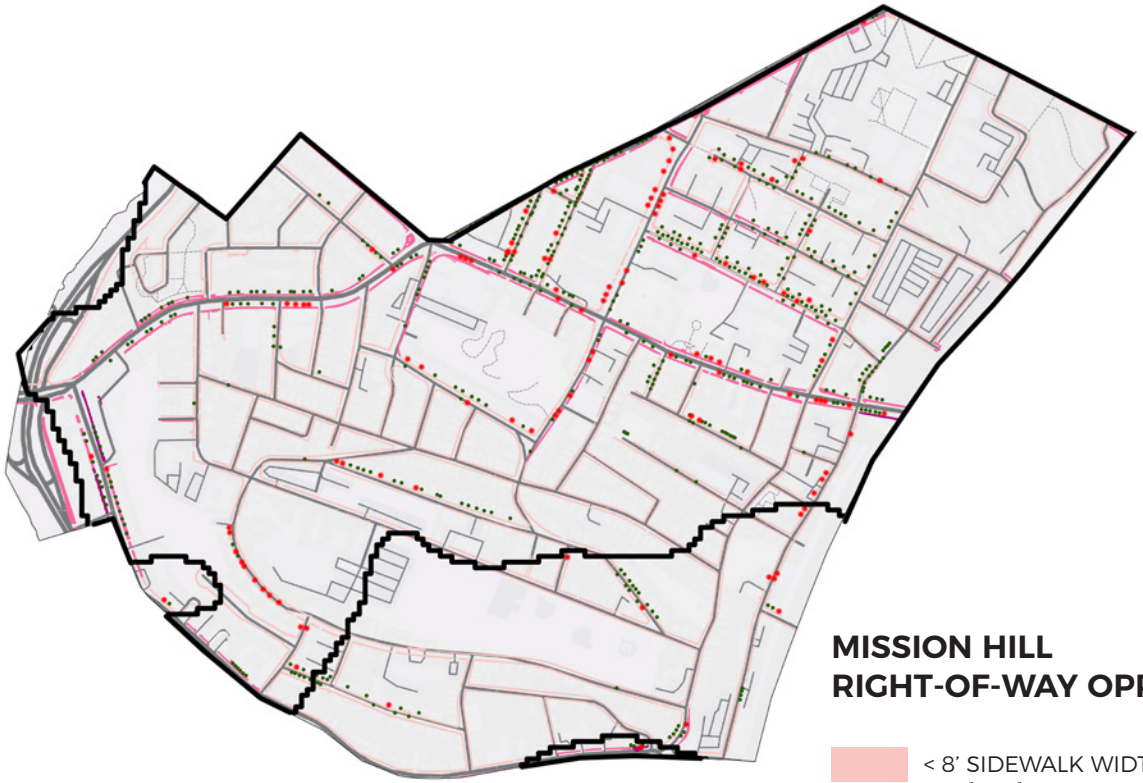
In Mission Hill, an estimated 113 potential street tree planting sites (including existing tree pits with dead trees) were identified during the inventory in May 2021. These sites should be considered for immediate planting, in particular those falling within the priority zones. Potential planting sites all need to be evaluated on a case-by-case basis in the field for suitability.

MISSION HILL STREET TREE CONDITION COMPOSITION



TAKEAWAYS:
Slightly more than half of the street trees in Mission Hill are considered in Good or Excellent condition, with the remaining majority in Fair 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.



MISSION HILL
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

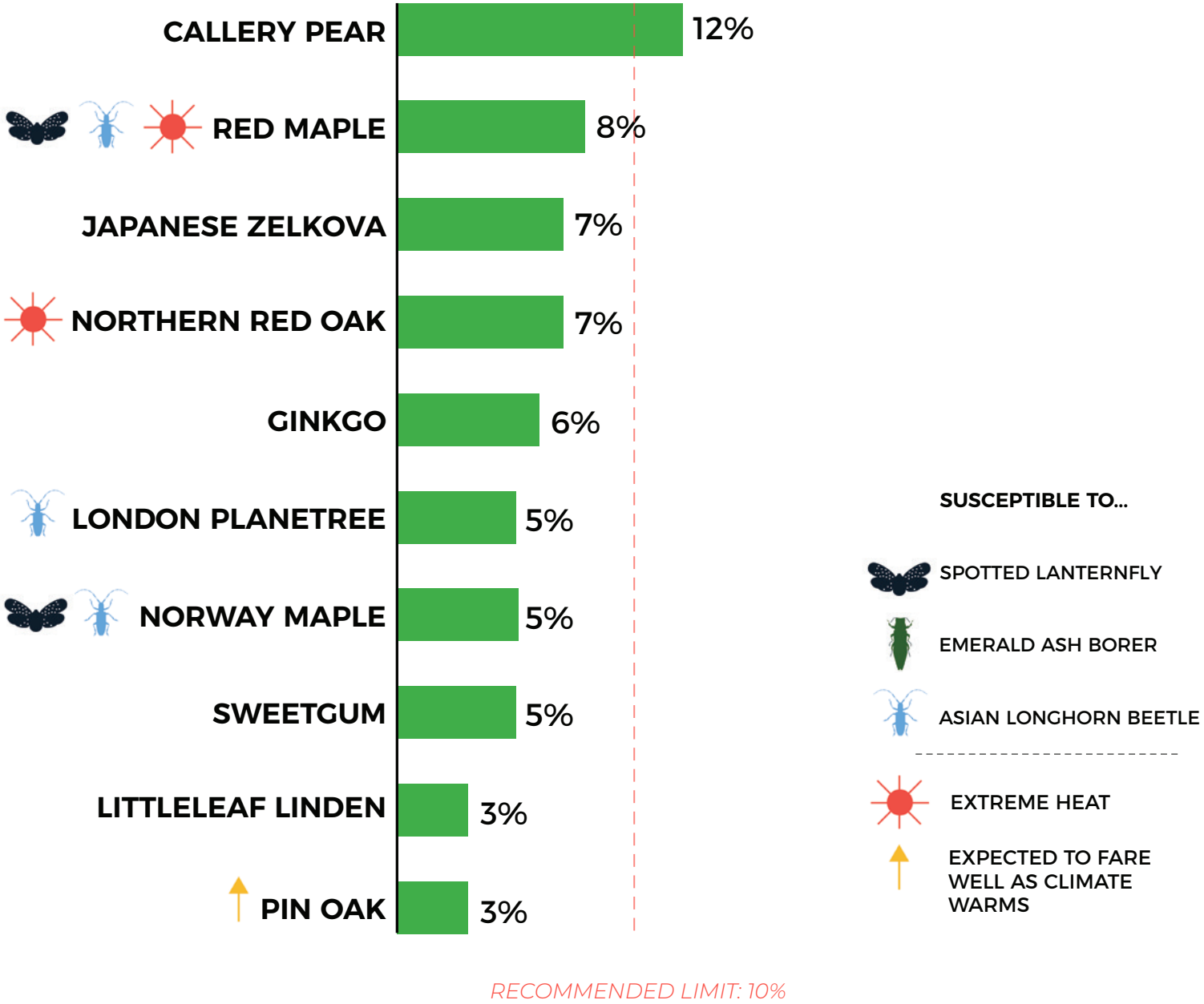
PRIORITY ZONES

2,000 FT.

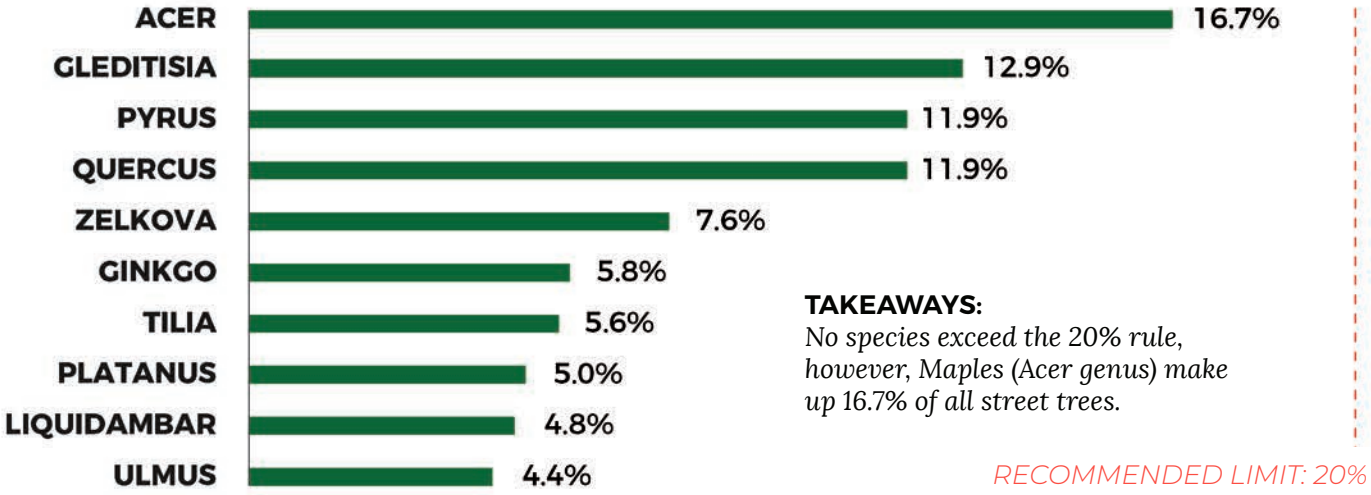
STREET TREE ANALYSIS

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%.

MISSION HILL TOP 10 TREE SPECIES

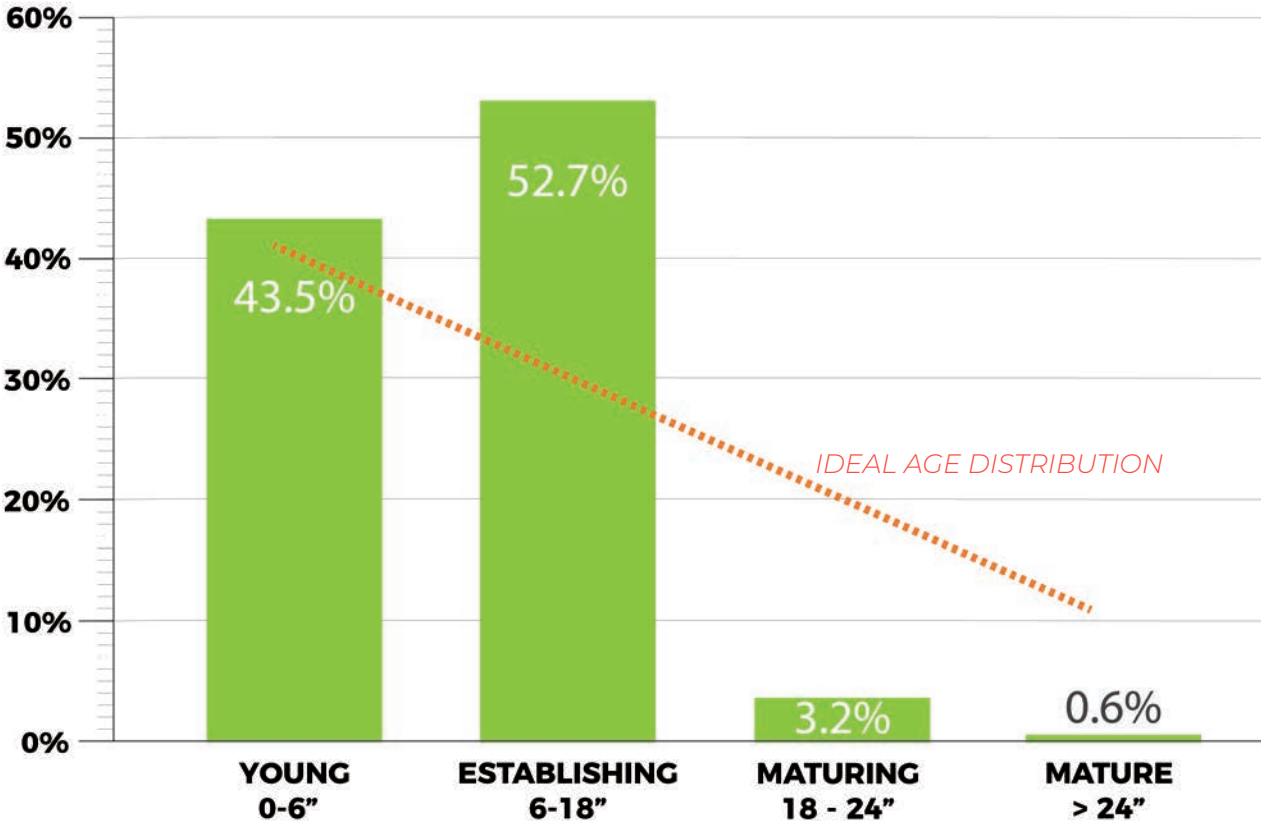


MISSION HILL TOP 10 STREET TREE GENUS COMPOSITION



Additional genera identified in Mission Hill: Amelanchier, Carpinus, Celtis, Crataegus, Cupressocyparis, Eucommia, Fraxinus, Gymnocladus, Koelreuteria, Liquidambar, Liriodendron, Malus, Morus, Ostrya, Platanus, Prunus, Sophora, Syringa,

MISSION HILL STREET TREE AGE COMPOSITION



TAKEAWAYS:
Mission Hill has a very large number of establishing street trees and very few maturing and mature street trees relative to the ideal distribution. Focus should be on proactive care and preservation of existing canopy to improve longevity and continuing to maintain young street trees at current levels.

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.

Mission Hill has numerous protected and unprotected open spaces of varying size, including two urban wilds. Opportunities to increase canopy in the existing open spaces and to create additional open spaces within the priority zone should be considered.

MISSION HILL, MISSION HILL

MISSION HILL
OPEN SPACE OPPORTUNITY

- PROTECTED OPEN SPACE
- UNPROTECTED OPEN SPACE
- TREE CANOPY
- PRIORITY ZONES
- 2,000 FT.

ENVIRONMENTAL CONSTRAINTS

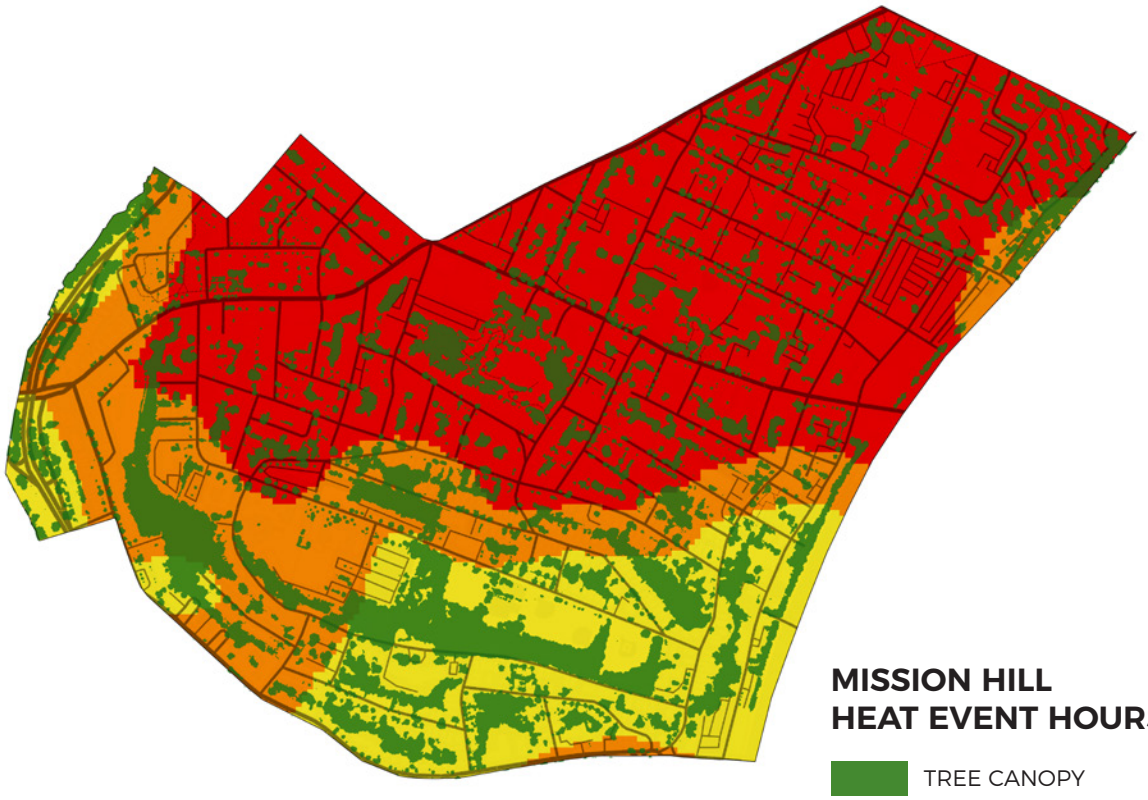
Environmental conditions across the neighborhoods in Boston vary widely. There are coastal conditions, hills, streams and other existing environmental factors which impact plant communities, plant life and health. These maps identify some of the key dynamics in each neighborhood, in particular how climate 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.

  High heat is a priority indicator, therefore, priority planting zones commonly fall within high heat areas as they do in Mission Hill. However, nearly all of Mission Hill experiences high heat levels. This highlights the need to reduce heat through all possible means, care for trees subject to high heat and to select trees for new planting that will fare well in future heat conditions.

- ***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.

  Mission Hill is not anticipated to experience coastal flooding due to sea level rise.



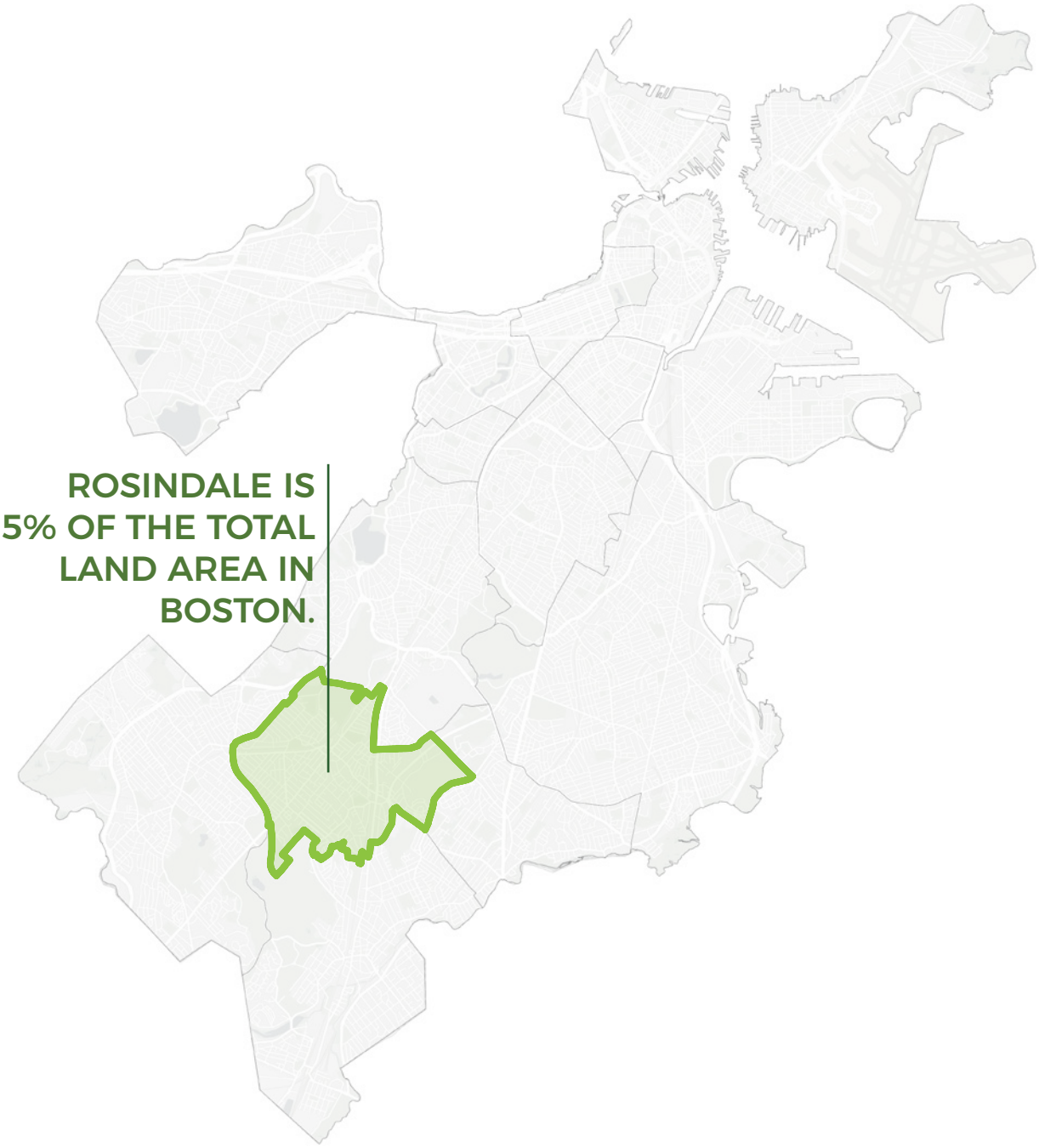
MISSION HILL
HEAT EVENT HOURS*

- TREE CANOPY
- 32 - 38 HEAT EVENT HOURS
- 29 - 32 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.

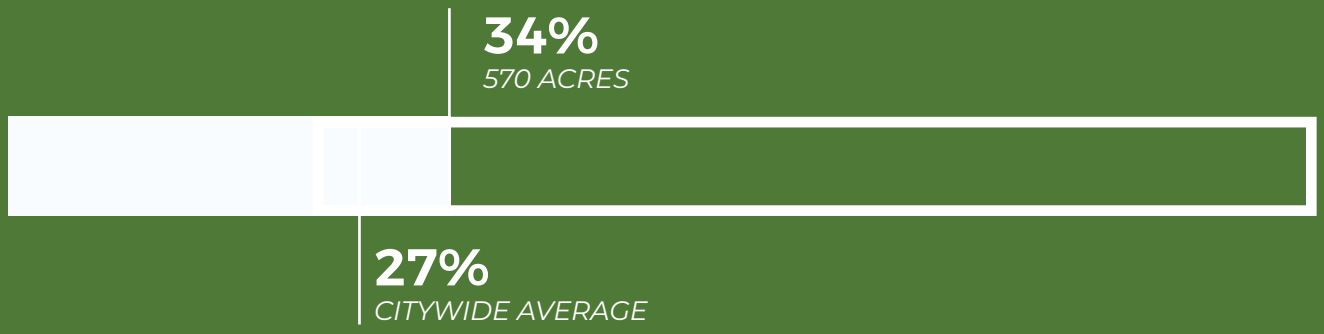
ROSLINDALE



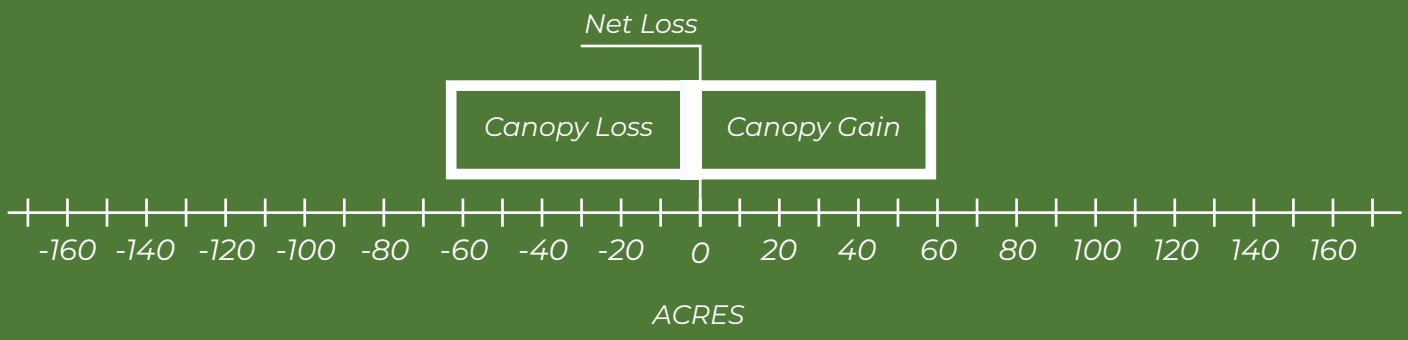
CANOPY AND LAND USE TRENDS

ROSLINDALE HAS 7% OF BOSTON'S CANOPY.

ROSLINDALE HAS 34% CANOPY COVERAGE.



ROSLINDALE LOST 66 ACRES AND GAINED 60 ACRES FOR A NET LOSS OF 6 ACRES OF TREE CANOPY FROM 2014-2019. THE GREATEST LOSSES WERE ON RESIDENTIAL LANDS.



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.

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- 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.

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

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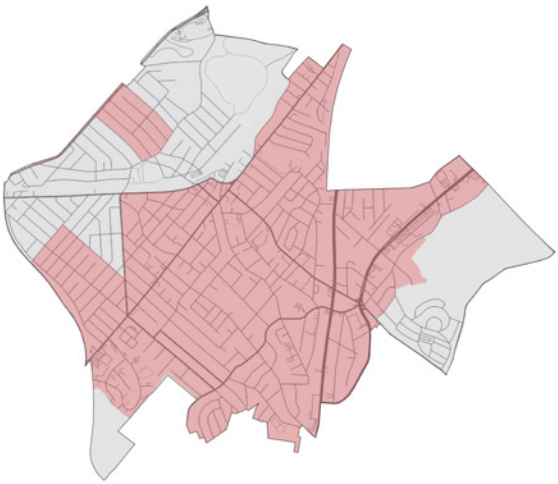
Priority zones should help weight planting canopy expansion focus and attention, but should not be indicative of overall resources and efforts needed. Many priority populations, for example, live in areas with relatively high overall canopy, but in which canopy cover is declining. These areas will need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

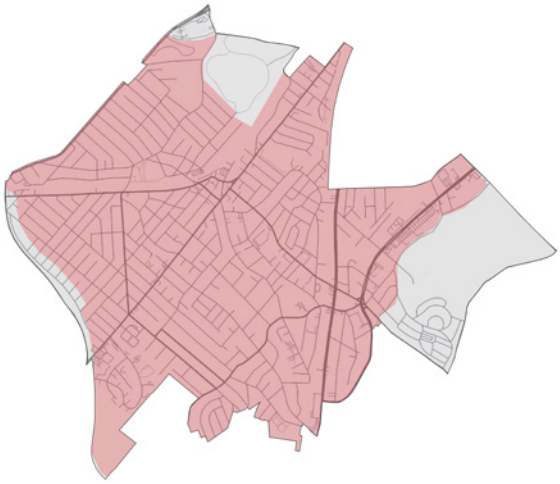
PRIORITY INDICATORS



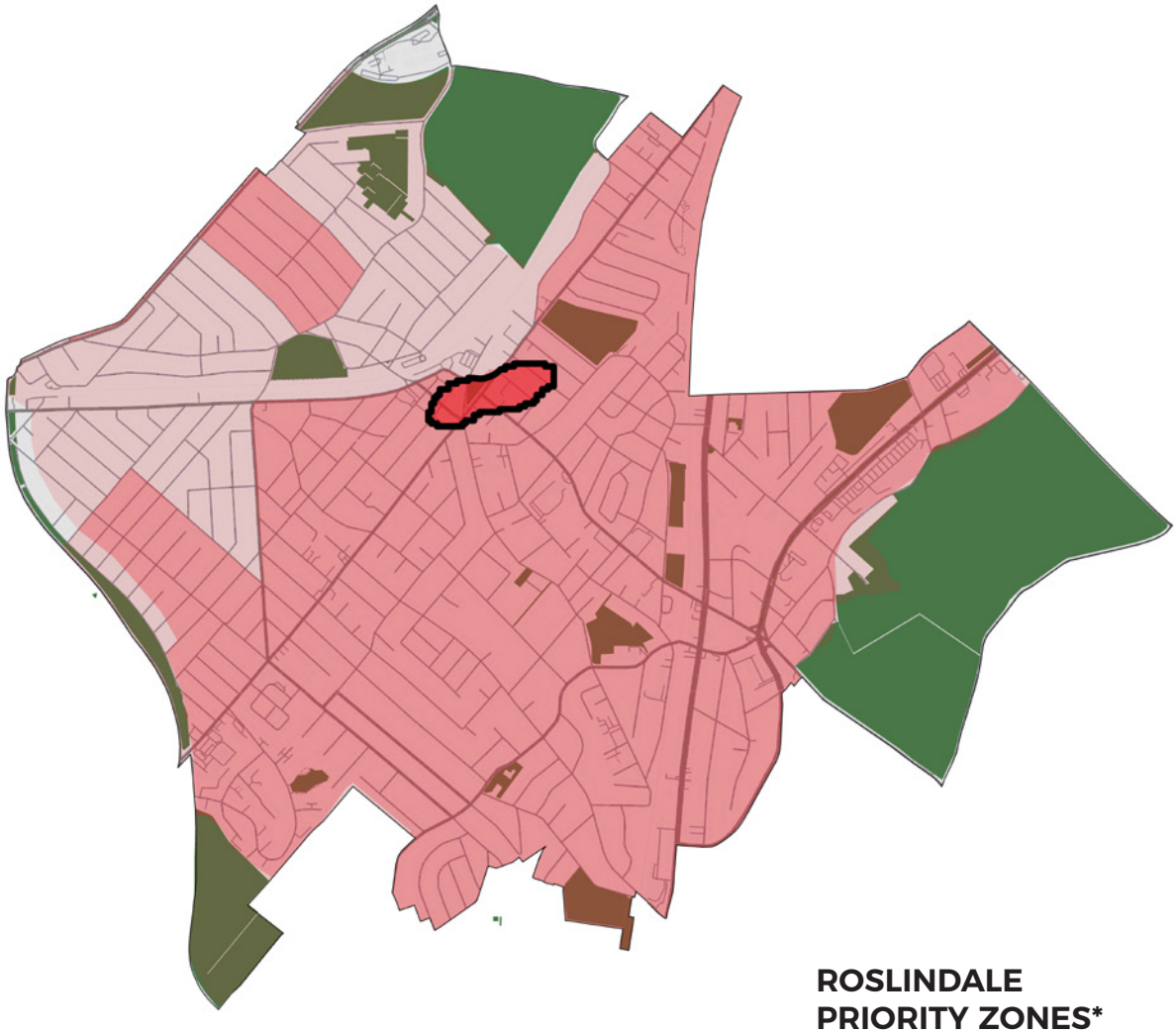
Environmental Justice Communities

Low Canopy

Heat Event Hours



Historic Marginalization



ROSLINDALE 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

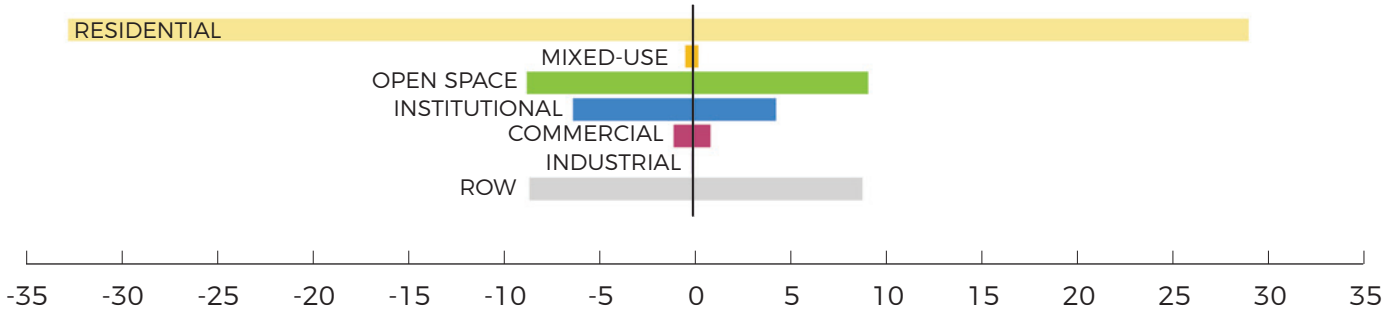
Physical and environmental opportunities and constraints will impact a neighborhood's ability to expand the canopy. It can also determine who has the greatest ability to take action. When used in coordination with the mapped priority zones, these maps can provide greater understanding of where opportunities 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

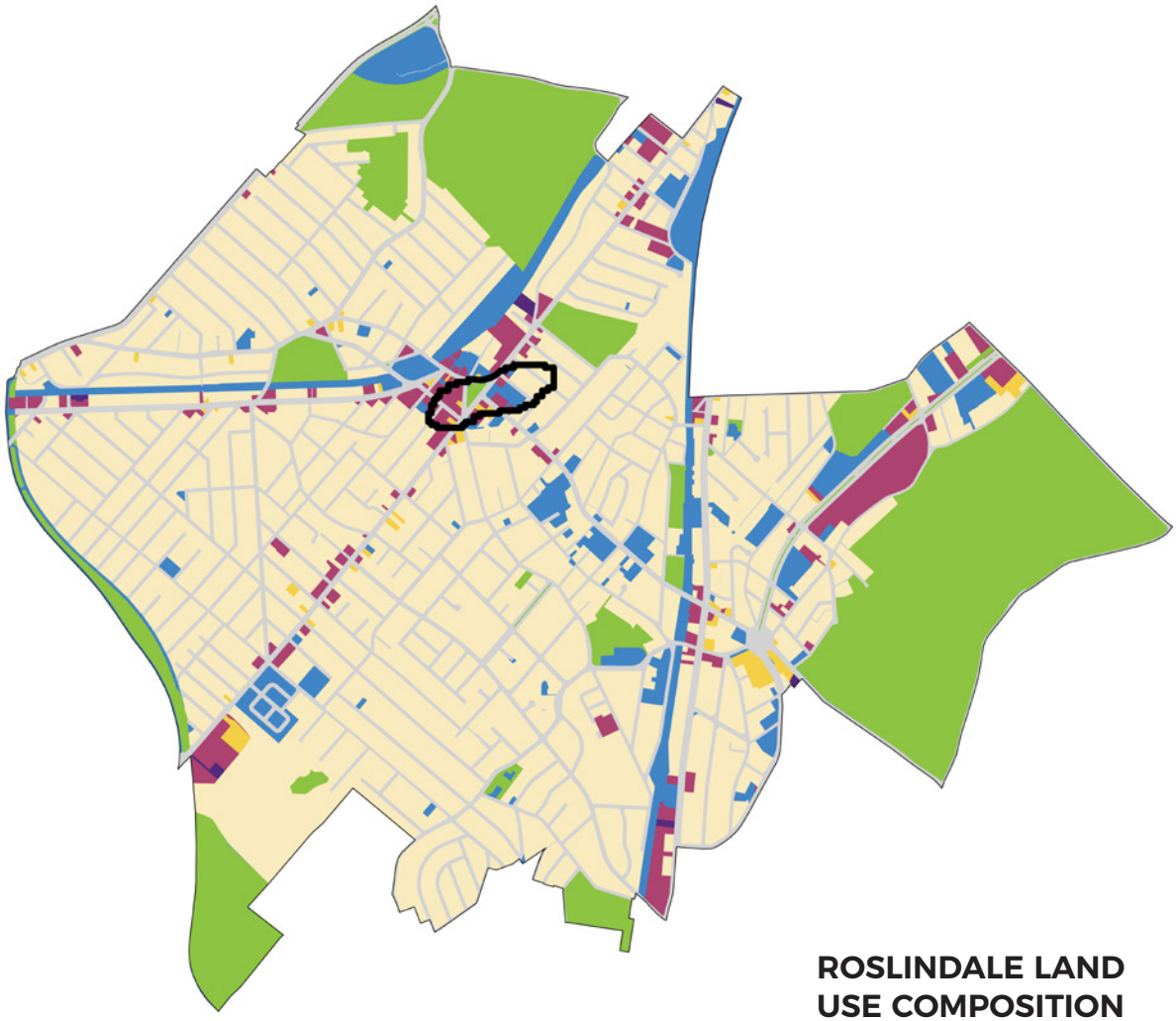
Every neighborhood has a different make-up of private and public land, as well as different key land uses and property owners. The existence of various land uses can affect opportunities for expanding canopy and who in the community has the ability and responsibility to act.

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.

Roslindale is predominantly residential (51%) with significant open space (21%) designation. The priority zone in Roslindale is a mix of commercial, residential and institutional. Right-of-way and open space are specifically discussed on the following pages.



ROSLINDALE CANOPY GAIN & LOSS BY LAND USE (ACRES)



ROSLINDALE LAND USE COMPOSITION

- RESIDENTIAL - 51%
- MIXED-USE - 1%
- OPEN SPACE - 21%
- INSTITUTIONAL - 0%
- COMMERCIAL - 4%
- INDUSTRIAL - 7%
- 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.

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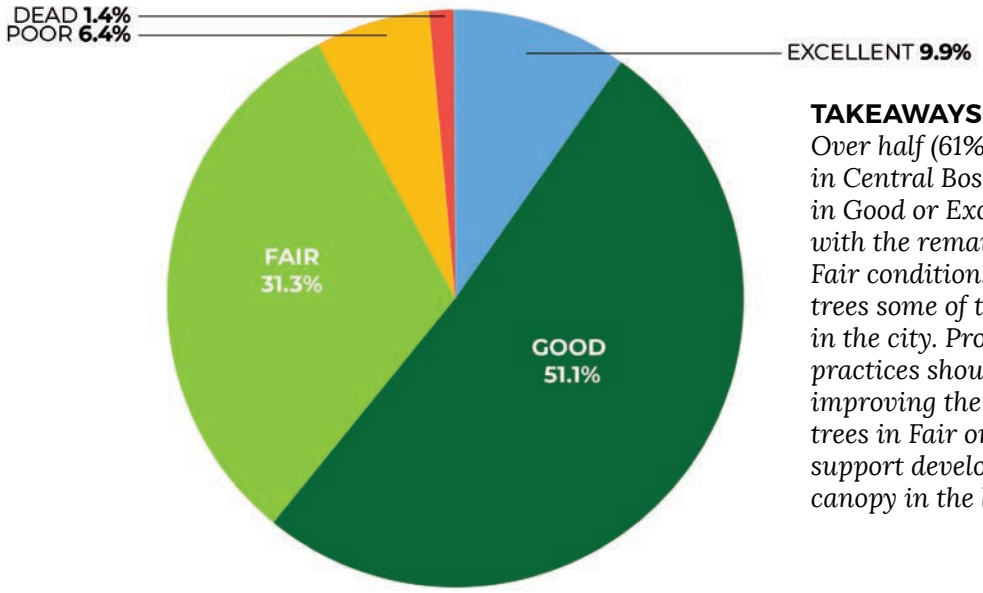
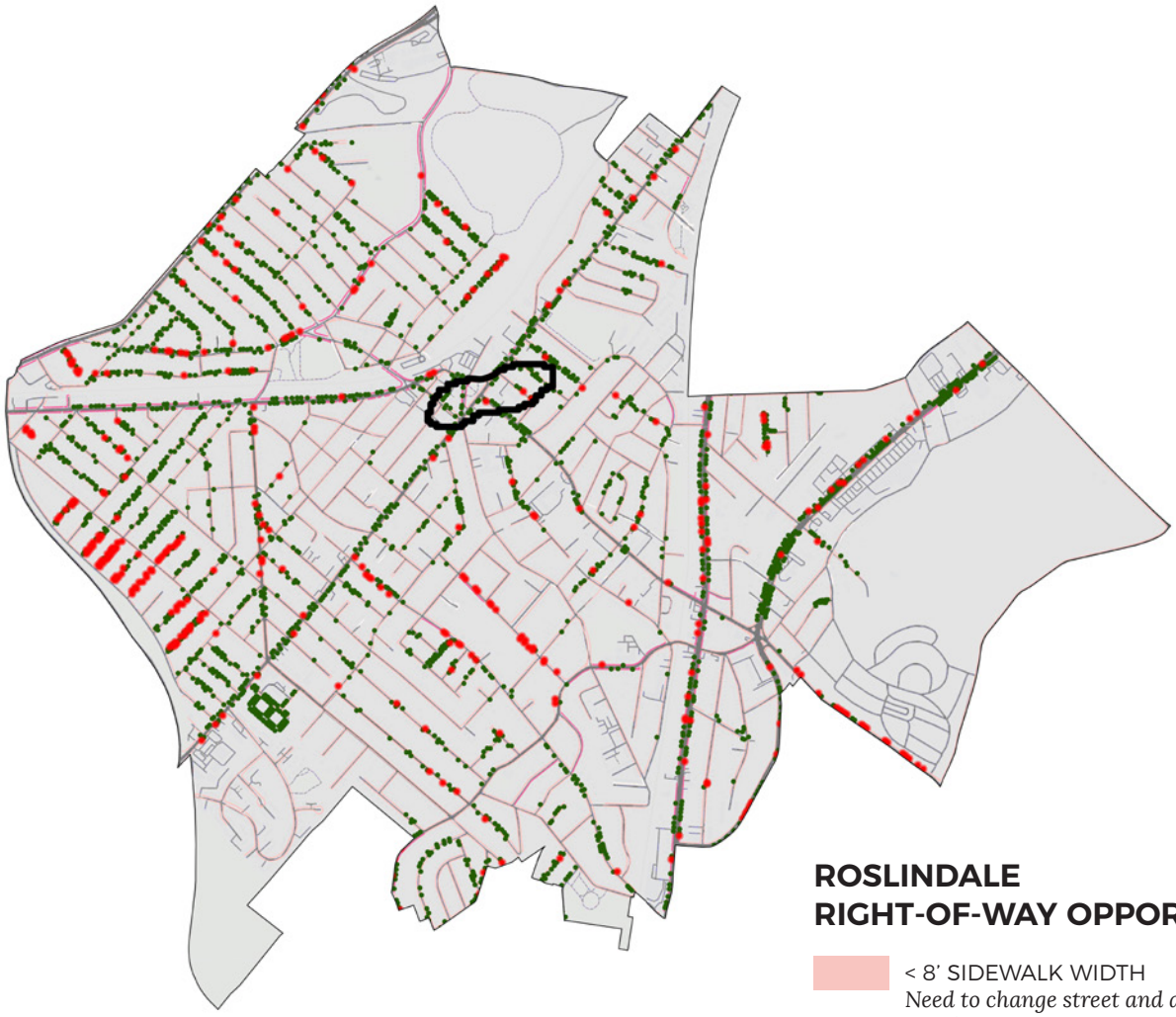
In Roslindale, an estimated 324 potential street tree planting sites (including existing tree pits with dead trees) were identified during the inventory in May 2021. These sites should be considered for immediate planting, in particular those falling within the priority zones. Potential planting sites all need to be evaluated on a case-by-case basis in the field for suitability.

ROSLINDALE STREET TREE CONDITION COMPOSITION



TAKEAWAYS:
Over half (61%) of the street trees in Central Boston are considered in Good or Excellent condition, with the remaining majority in Fair condition, making Roslindale trees some of the overall healthiest in the city. 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.



ROSLINDALE
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

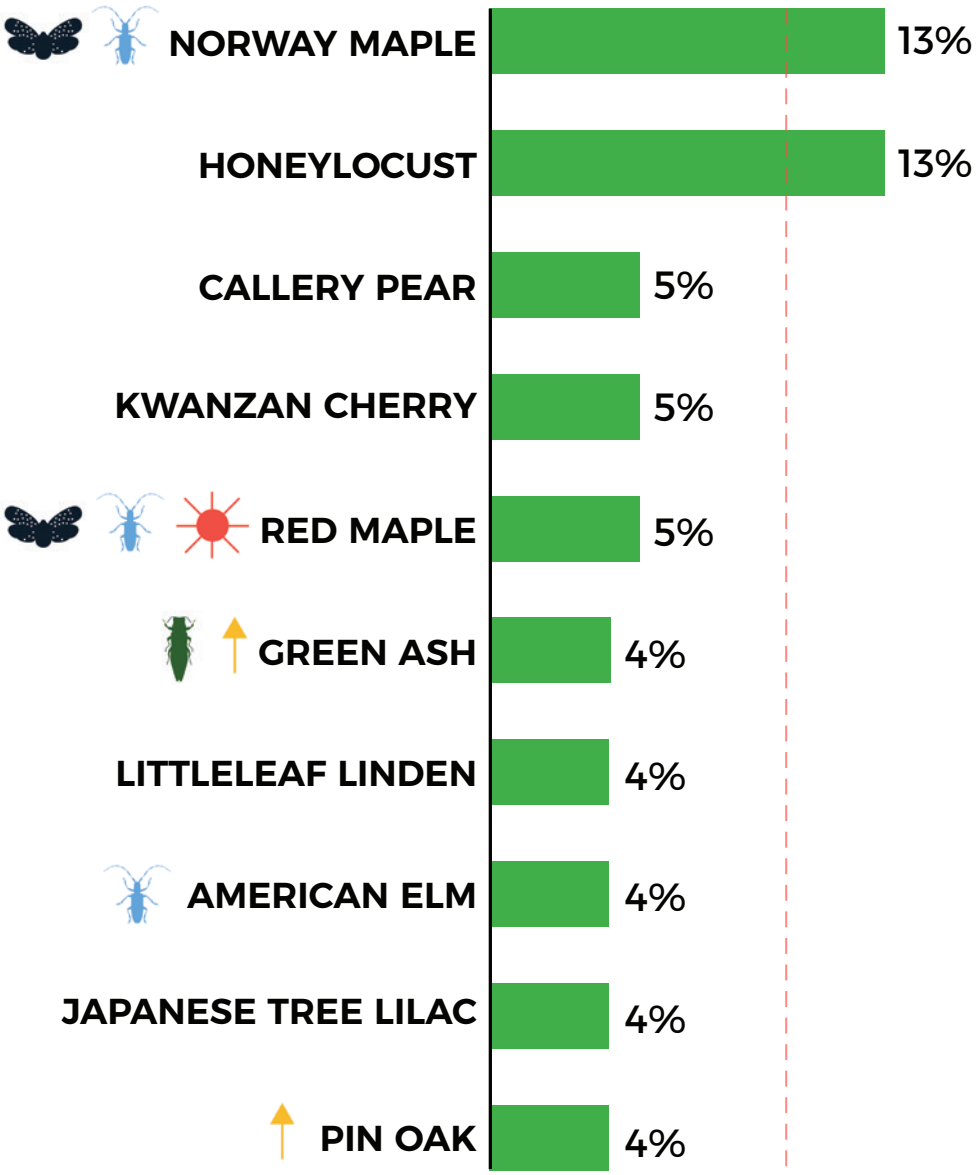
PRIORITY ZONES

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%.

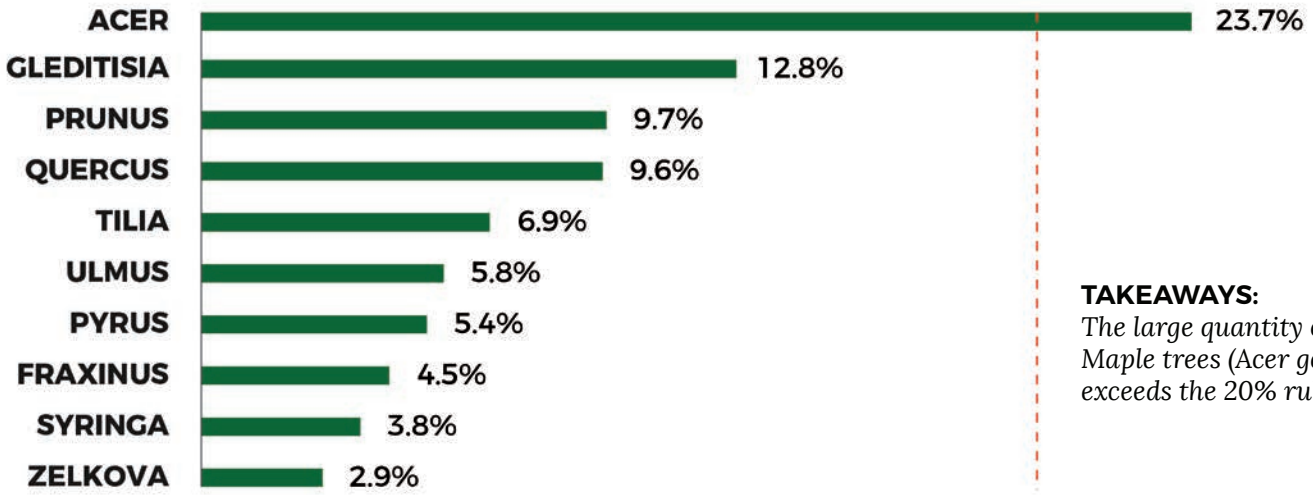
ROSLINDALE TOP 10 TREE SPECIES



SUSCEPTIBLE TO...

- SPOTTED LANTERNFLY
- EMERALD ASH BORER
- ASIAN LONGHORN BEETLE
- EXTREME HEAT
- EXPECTED TO FARE WELL AS CLIMATE WARMS

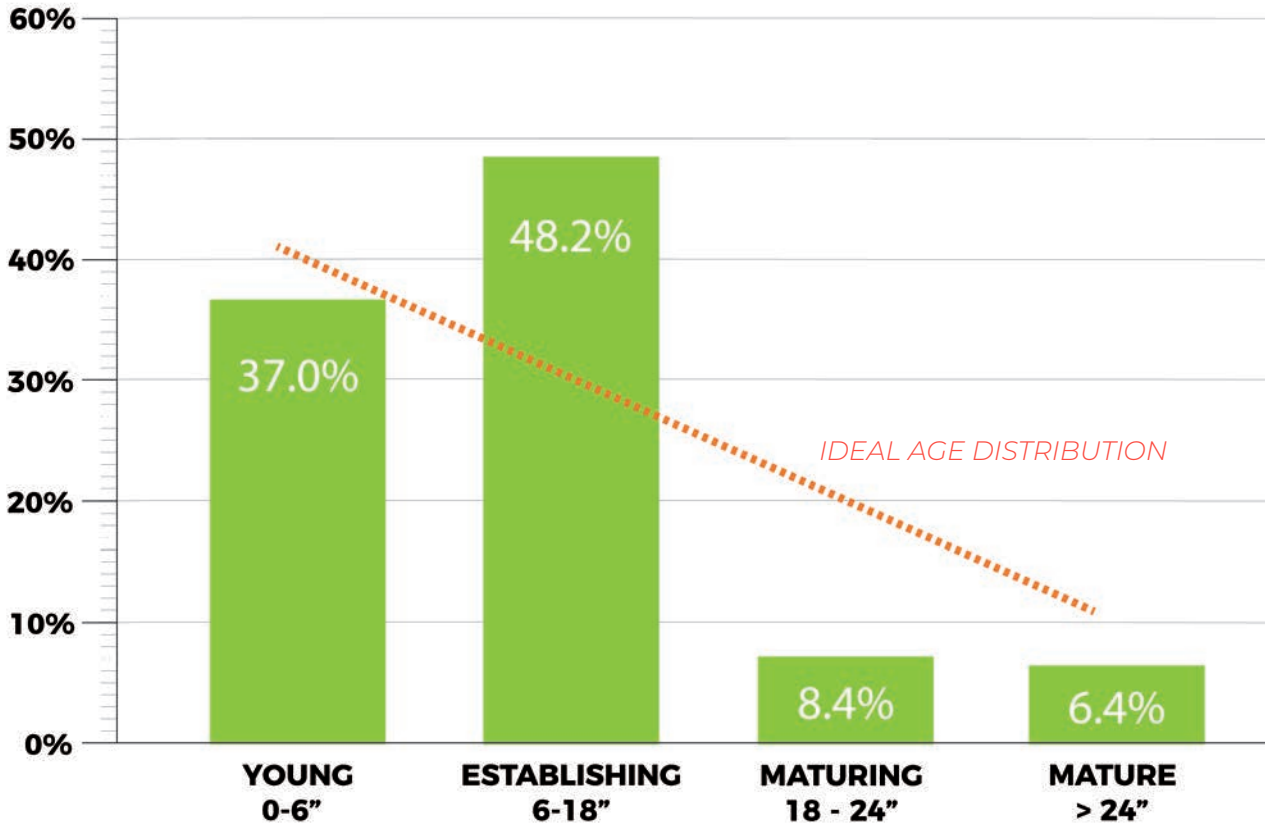
ROSLINDALE TOP 10 STREET TREE GENUS COMPOSITION



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

Additional genera identified in Roslindale: Aesculus, Amelanchier, Broadleaf, Carpinus, Celtis, Cercidiphyllum, Cercis, Crataegus, Fagus, Ginkgo, Gymnocladus, Hamamelis, Ilex, Koelreuteria, Liquidambar, Liriodendron, Maackia, Malus, Nyssa, Ostrya, Parrotia, Phellodendron, Platanus, Salix, Sophora, Syringa, Taxodium, Thuja, Ulmus

ROSLINDALE STREET TREE AGE COMPOSITION



TAKEAWAYS:
Roslindale has a very large number of establishing street trees and too few maturing and mature street trees relative to the ideal distribution. Focus should be on proactive care and preservation of existing canopy to improve longevity and continuing to maintain young street trees at current levels.

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.

Roslindale has a mix of protected and unprotected open spaces. Opportunities to increase canopy in the existing open spaces should be considered.

HEALY PLAYGROUND, ROSLINDALE

ROSLINDALE
OPEN SPACE OPPORTUNITY

PROTECTED OPEN SPACE

UNPROTECTED OPEN SPACE

TREE CANOPY

PRIORITY ZONES

2,000 FT.

ENVIRONMENTAL CONSTRAINTS

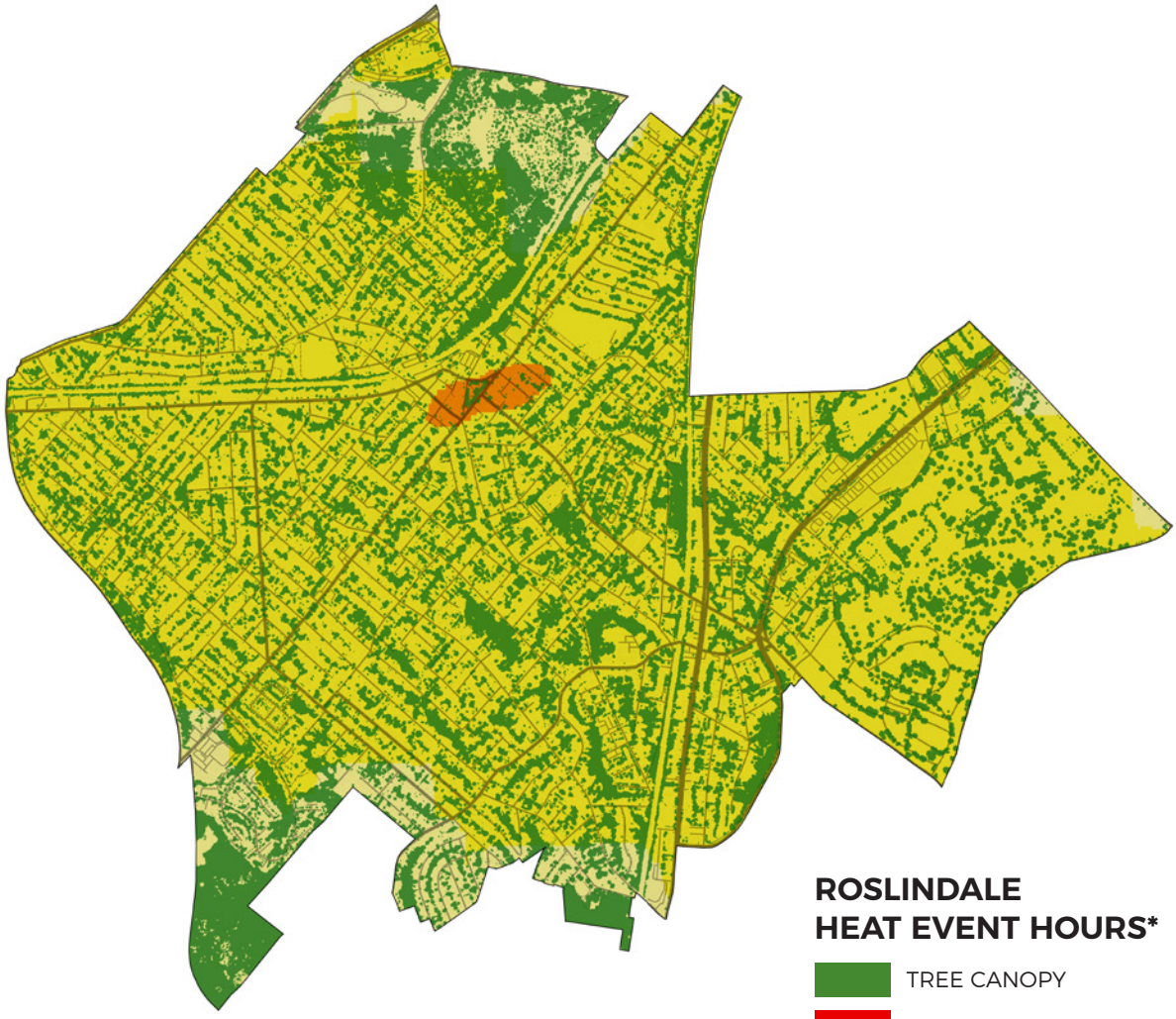
Environmental conditions across the neighborhoods in Boston vary widely. There are coastal conditions, hills, streams and other existing environmental factors which impact plant communities, plant life and health. These maps identify some of the key dynamics in each neighborhood, in particular how climate 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.

  Roslindale 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.

Roslindale is not anticipated to experience coastal flooding.



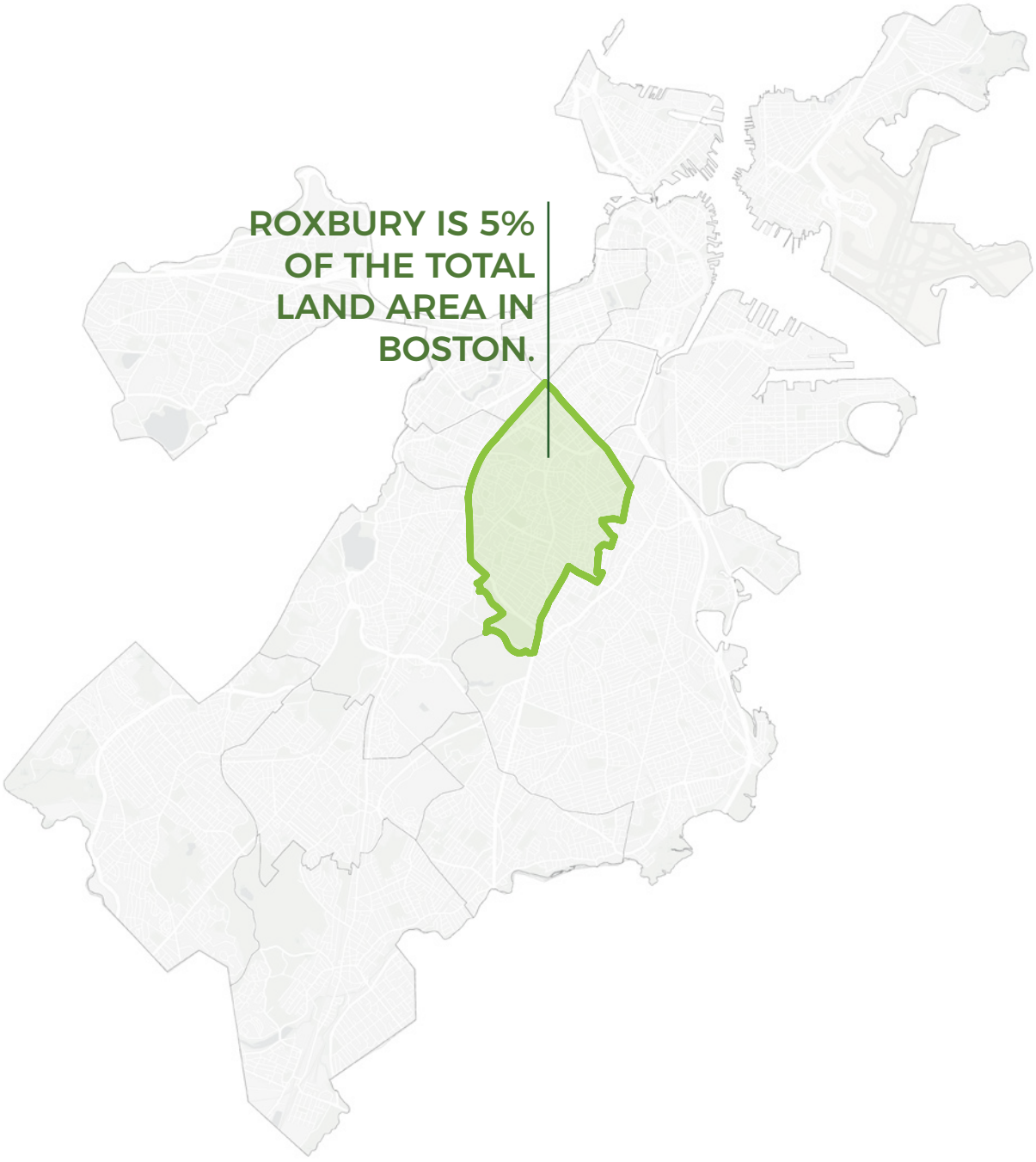
ROSLINDALE
HEAT EVENT HOURS*

- TREE CANOPY
- 32 - 38 HEAT EVENT HOURS
- 29 - 32 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.

ROXBURY

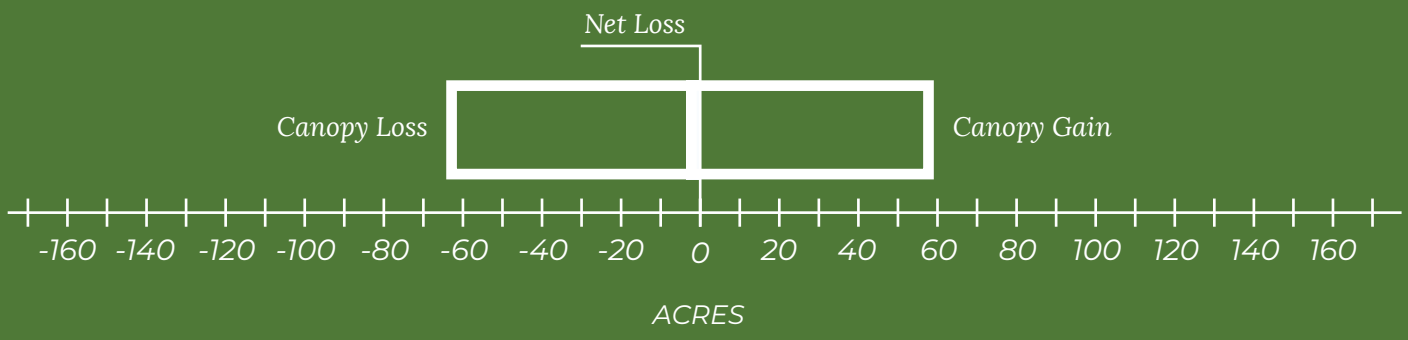


CANOPY AND LAND USE TRENDS

ROXBURY HOLDS 5% OF BOSTON'S CANOPY.

ROXBURY HAS 26% CANOPY COVERAGE.

ROXBURY LOST 62 ACRES AND GAINED 60 ACRES FOR A NET LOSS OF 2 ACRES OF TREE CANOPY FROM 2014-2019. THE GREATEST LOSSES WERE ON RESIDENTIAL LANDS.



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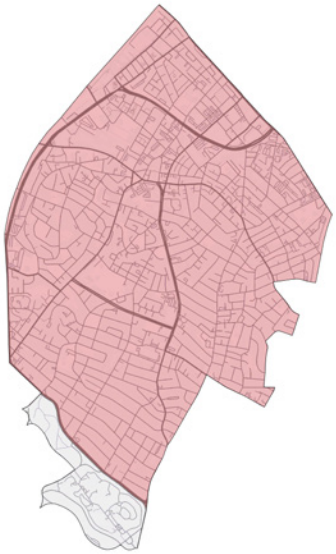
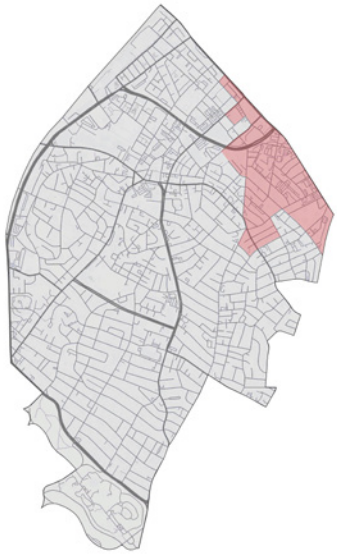
PRIORITY INDICATORS



Environmental Justice Communities



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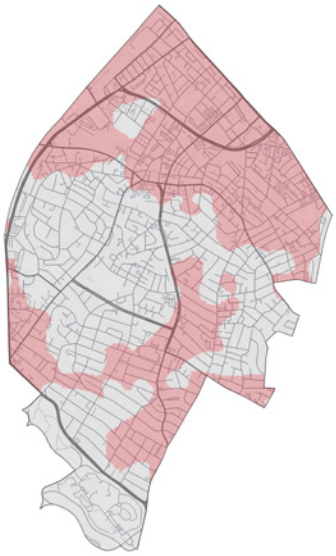
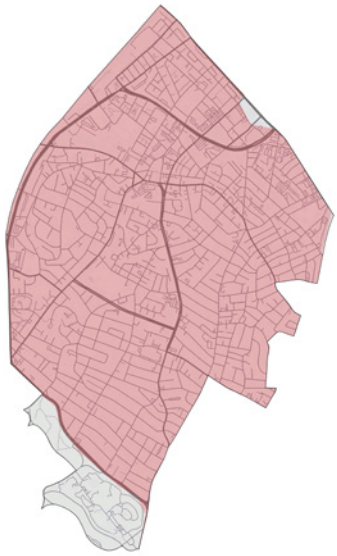


Heat Event Hours



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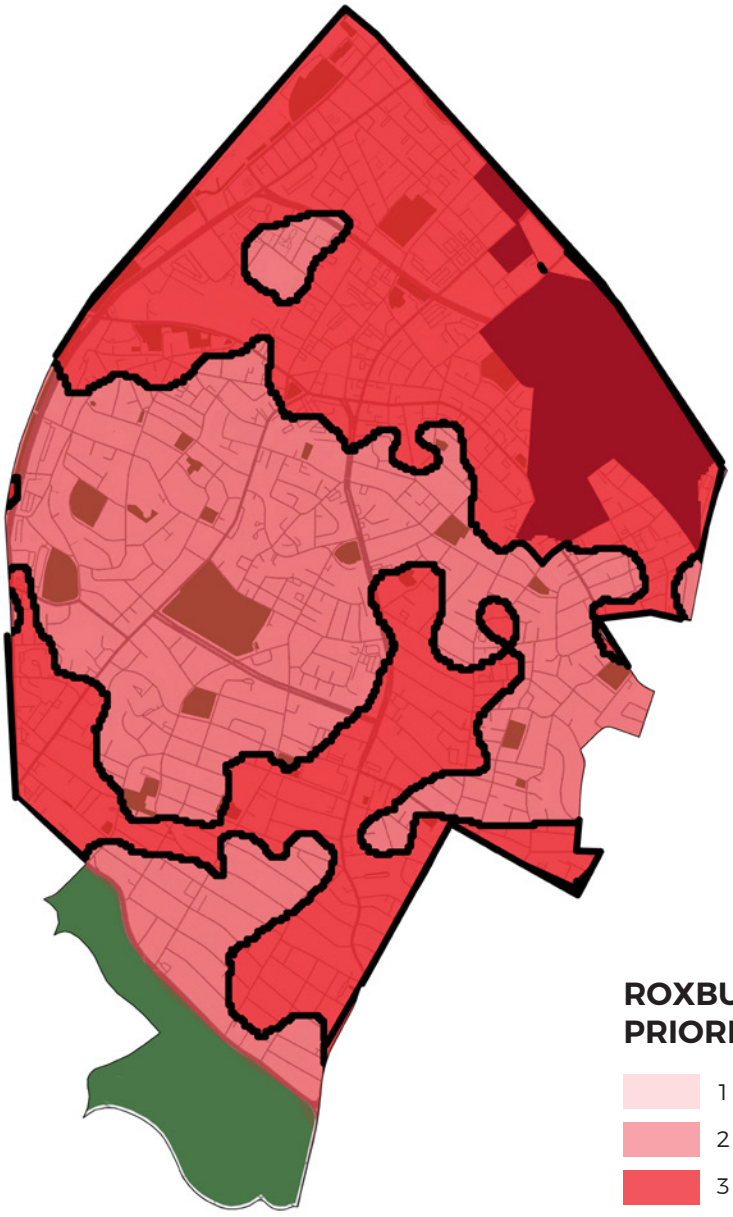

ROXBURY PRIORITY ZONES*

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- 2 OVERLAPPING INDICATORS
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- 4 OVERLAPPING INDICATORS
- OPEN SPACE
- PRIORITY ZONES

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2,000 FT.

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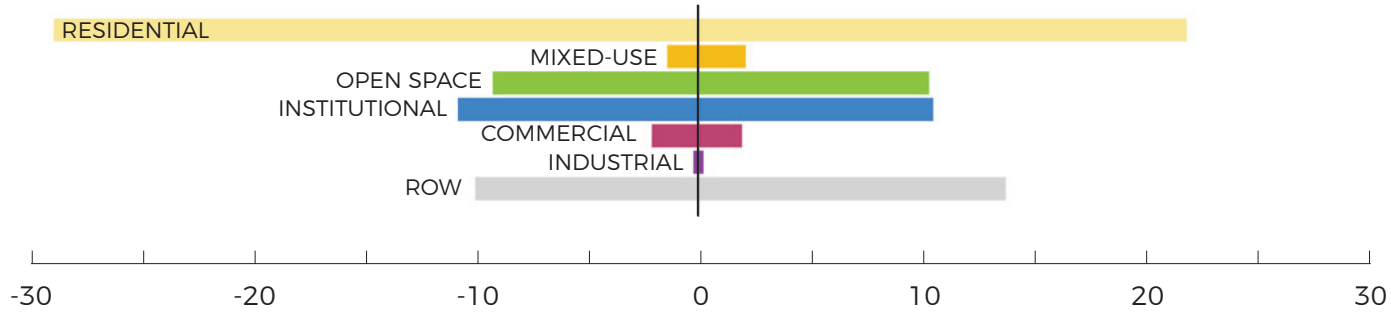
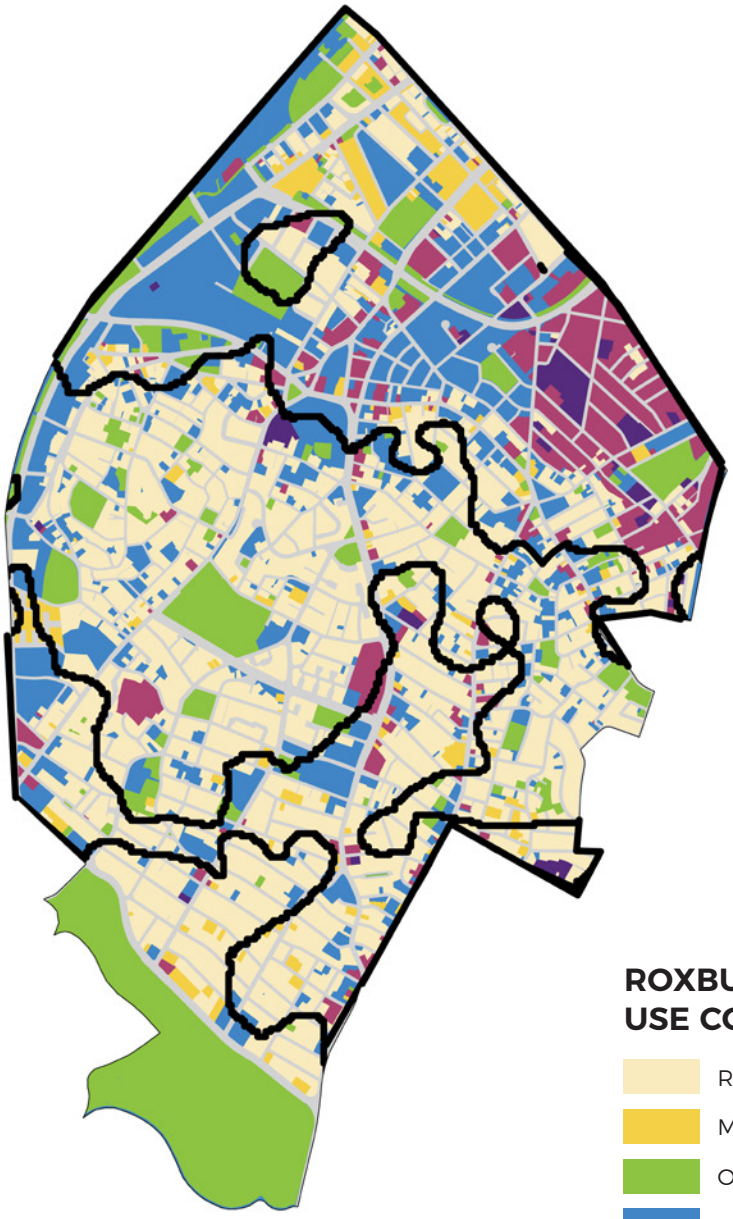
Roxbury is predominantly residential (34%) with significant right-of-way (22%) and institutional (19%) designation. The priority zones include predominantly commercial and institutional and residential land uses. Right-of-way and open space are specifically discussed on the following pages.



ROXBURY CANOPY GAIN & LOSS BY LAND USE (ACRES)



ROXBURY LAND USE COMPOSITION

- RESIDENTIAL - 34%
- MIXED-USE - 4%
- OPEN SPACE - 14%
- INSTITUTIONAL - 19%
- COMMERCIAL - 7%
- INDUSTRIAL - < 1%
- ROW - 22%
- PRIORITY ZONES

2,000 FT.

RIGHT-OF-WAY (ROW)

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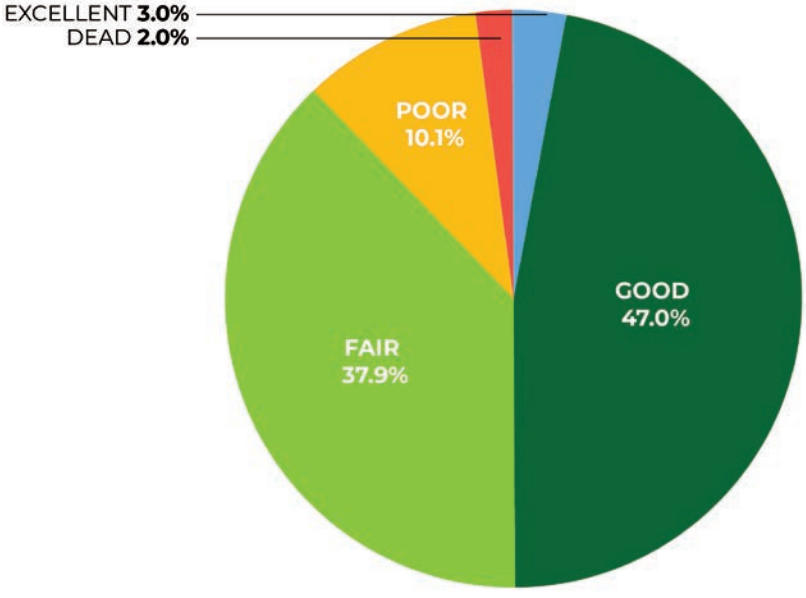
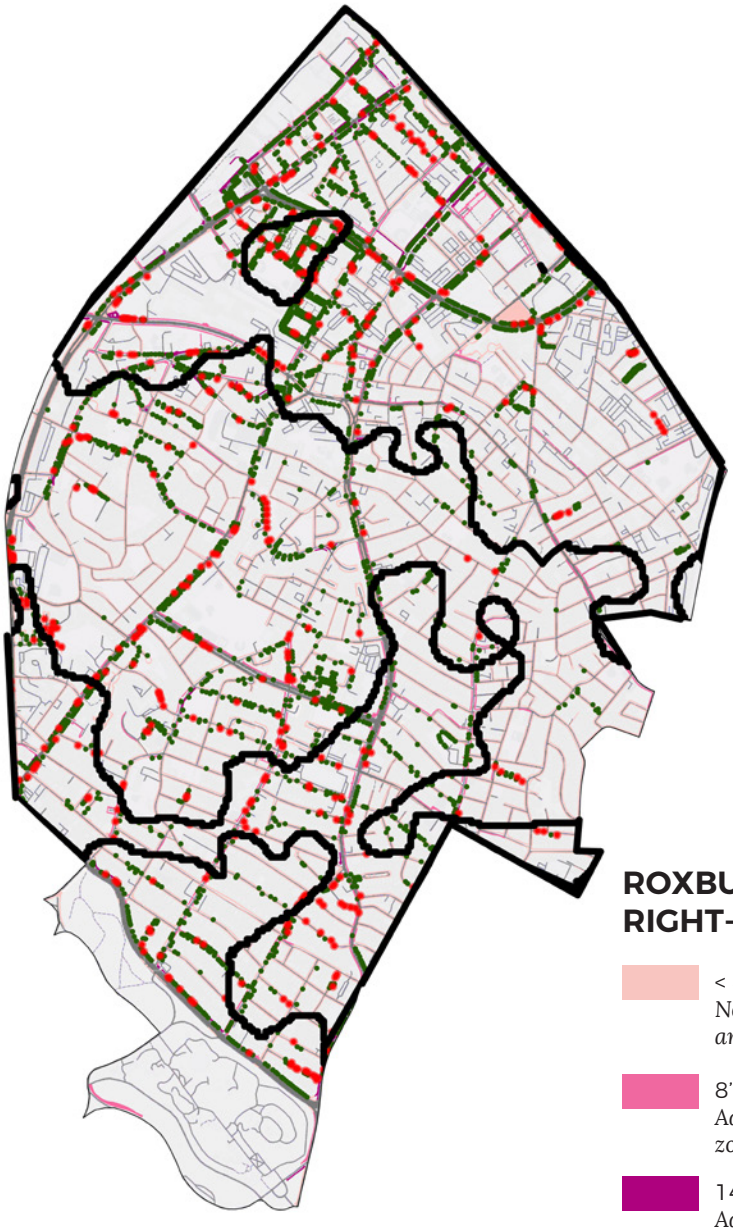
ROXBURY STREET TREE CONDITION COMPOSITION



TAKEAWAYS:
50% of the street trees in Roxbury are considered in Good or Excellent condition, with the remaining majority in Fair 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.



ROXBURY
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

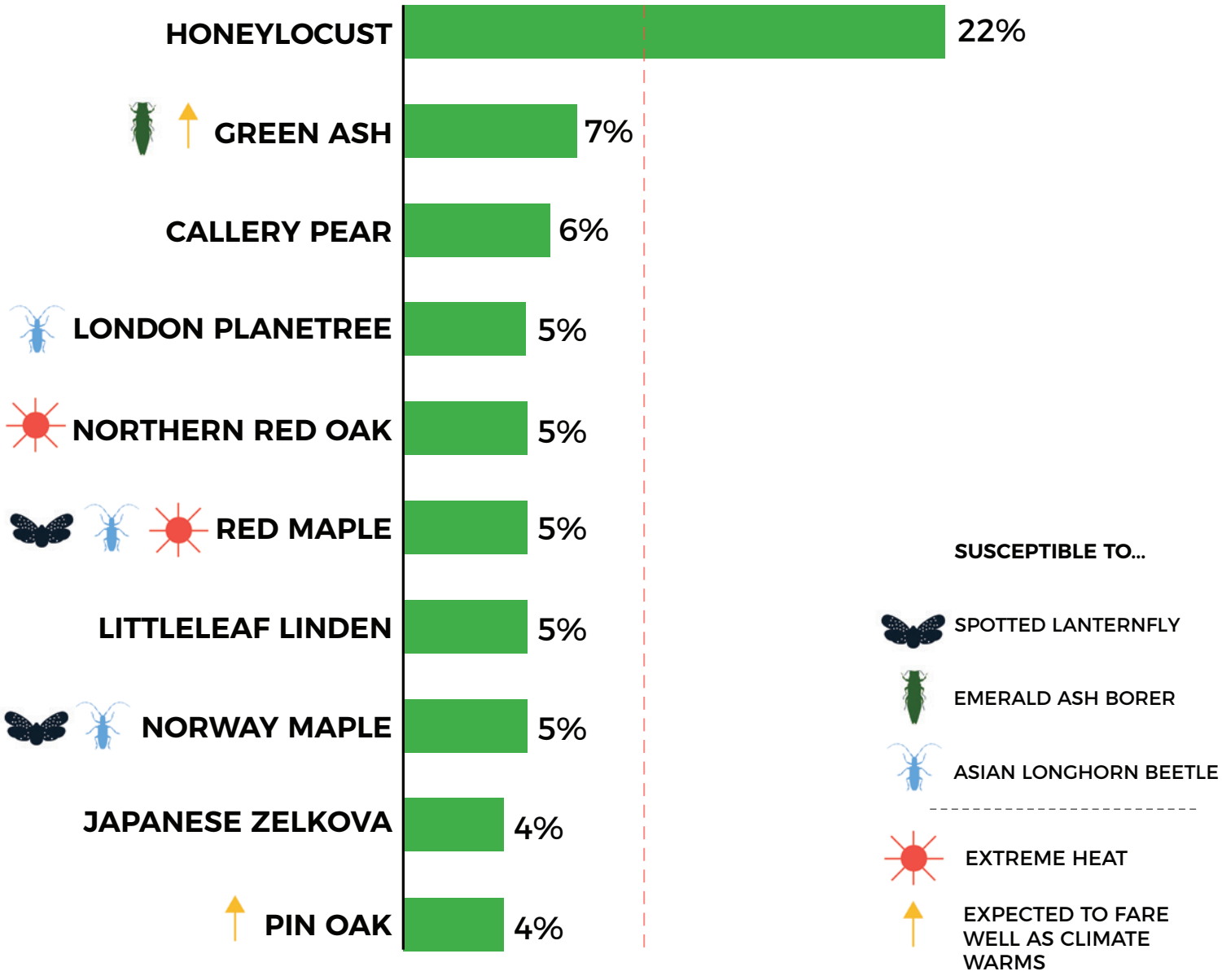
PRIORITY ZONES

2,000 FT.

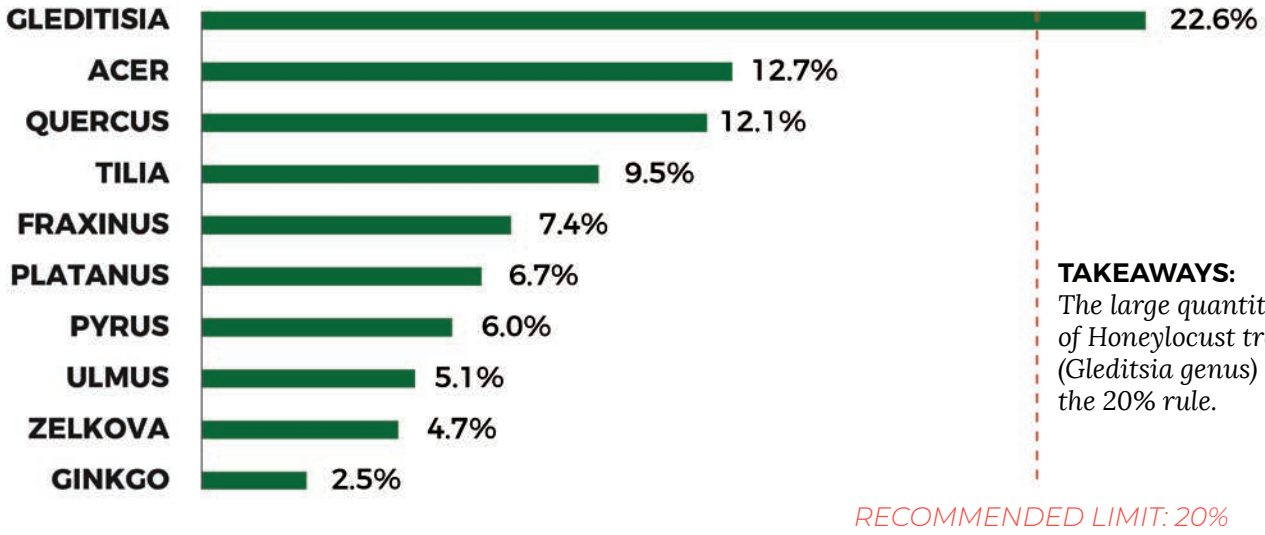
STREET TREE ANALYSIS

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%.

ROXBURY TOP 10 TREE SPECIES



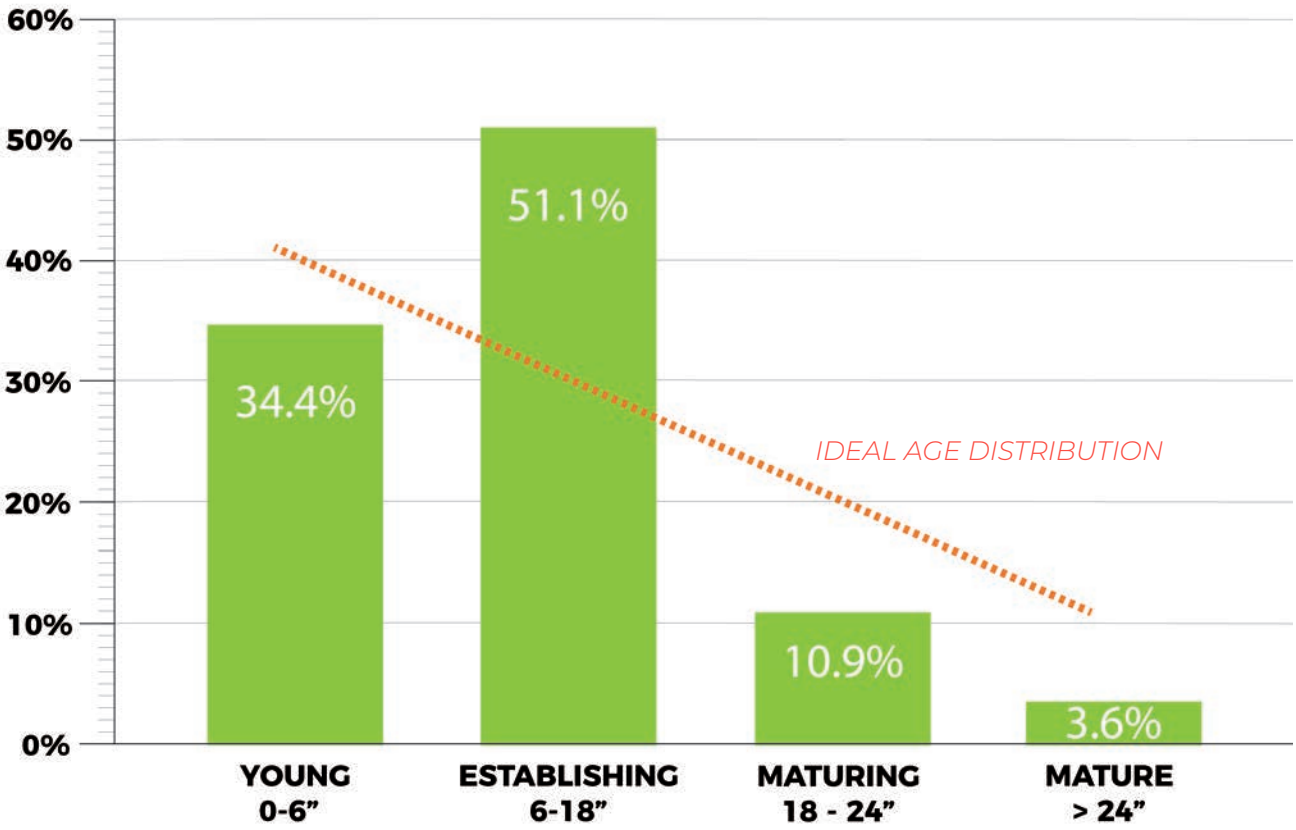
ROXBURY TOP 10 STREET TREE GENUS COMPOSITION



TAKEAWAYS:
The large quantity of Honeylocust trees (Gleditsia genus) exceeds the 20% rule.

Additional genera identified in Roxbury: Aesculus, Ailanthus, Amelanchier, Betula, Carpinus, Celtis, Cercidiphyllum, Cercis, Crataegus, Gymnocladus, Halesia, Hydrangea, Koelreuteria, Liquidambar, Liriodendron, Maackia, Malus, Metasequoia, Nyssa, Ostrya, Prunus, Sophora, Syringa, Taxodium, Taxus, Thuja, Ulmus

ROXBURY STREET TREE AGE COMPOSITION



TAKEAWAYS:
Roxbury has a very large number of establishing street trees and too few maturing and mature street trees relative to the ideal distribution. Focus should be on proactive care and preservation of existing canopy to improve longevity and continuing to maintain young street trees at current or slightly higher levels.

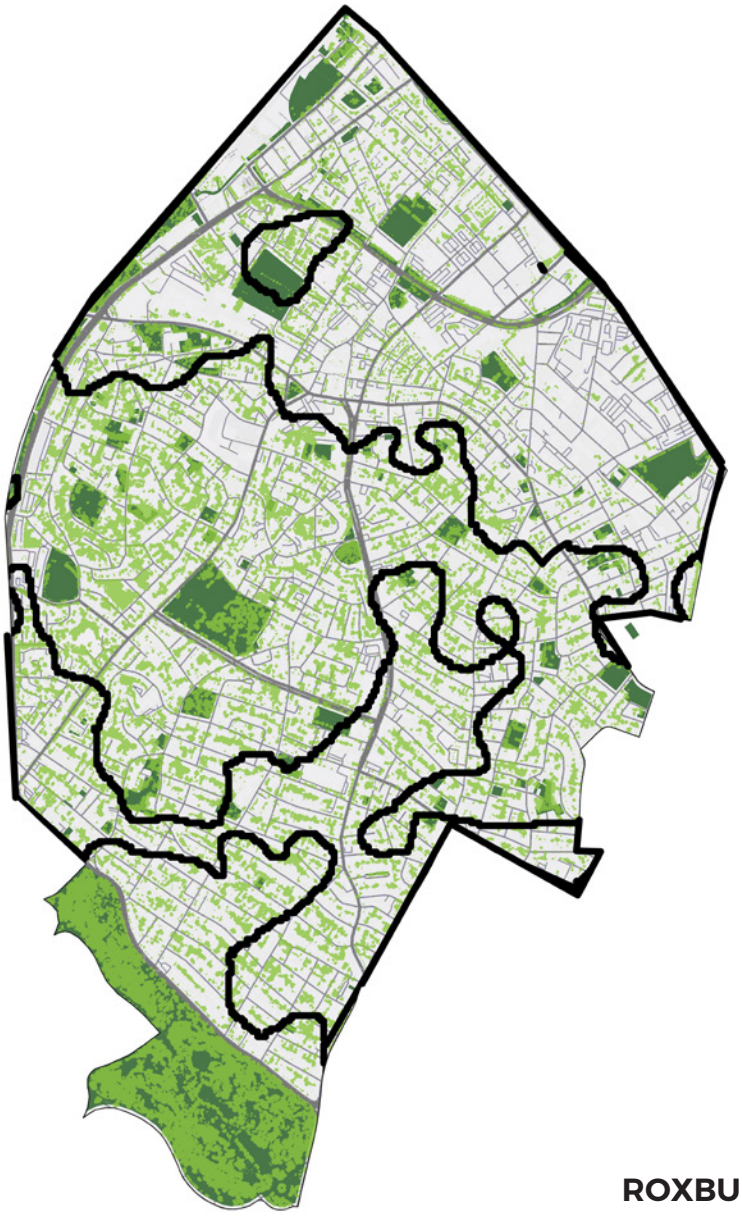
OPEN SPACE

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.

Roxbury has a mix of protected and unprotected open space. The southern portion of the priority zone has little to no open space. Opportunities to increase open space in this area and increase canopy in the existing open spaces should be considered.

SCOBIE PLAYGROUND, ROXBURY



ROXBURY
OPEN SPACE OPPORTUNITY

- PROTECTED OPEN SPACE
- UNPROTECTED OPEN SPACE
- TREE CANOPY
- PRIORITY ZONES
- 2,000 FT.

ENVIRONMENTAL CONSTRAINTS

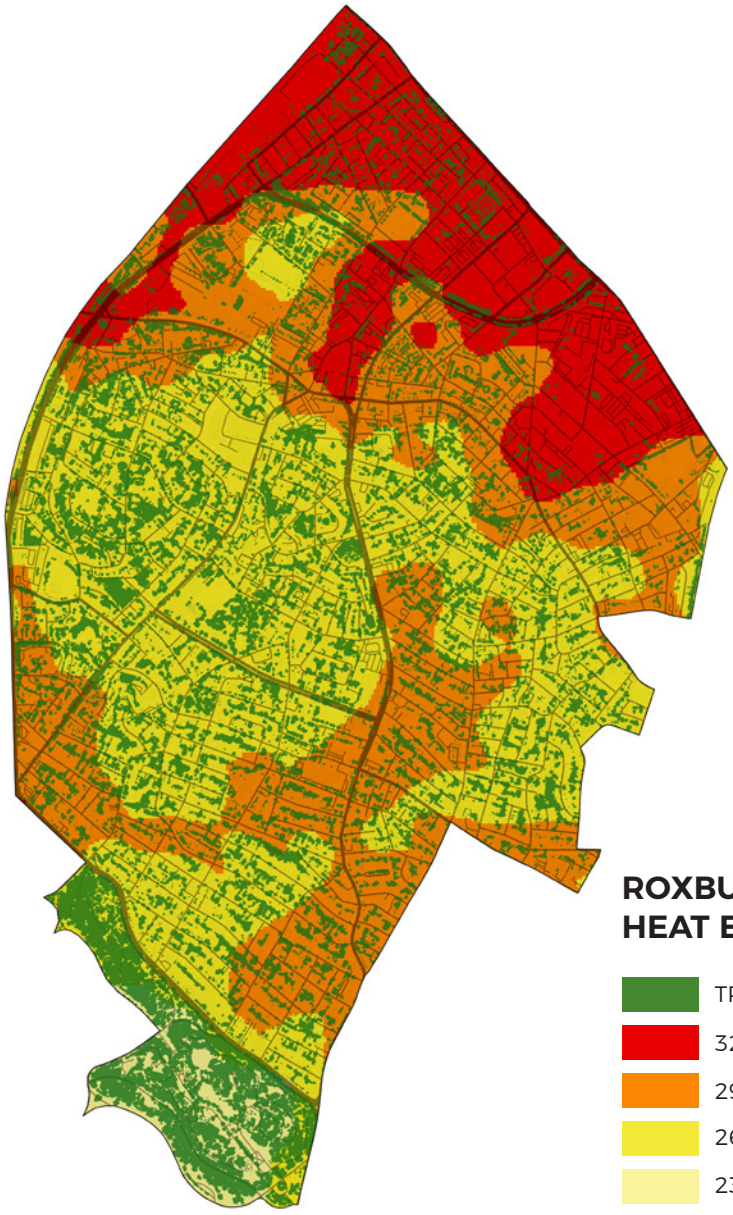
Environmental conditions across the neighborhoods in Boston vary widely. There are coastal conditions, hills, streams and other existing environmental factors which impact plant communities, plant life and health. These maps identify some of the key dynamics in each neighborhood, in particular how climate 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.

  High heat is a priority indicator, therefore, priority planting zones commonly fall within high heat areas, as they do in Roxbury. This highlights the need to care for trees subject to high heat and to select trees for new planting that will fare well in future heat conditions.

- ***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.

  Roxbury is not anticipated to experience coastal flooding.



ROXBURY
HEAT EVENT HOURS*

- TREE CANOPY
- 32 - 38 HEAT EVENT HOURS
- 29 - 32 HEAT EVENT HOURS
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- 23 - 26 HEAT EVENT HOURS
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**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.

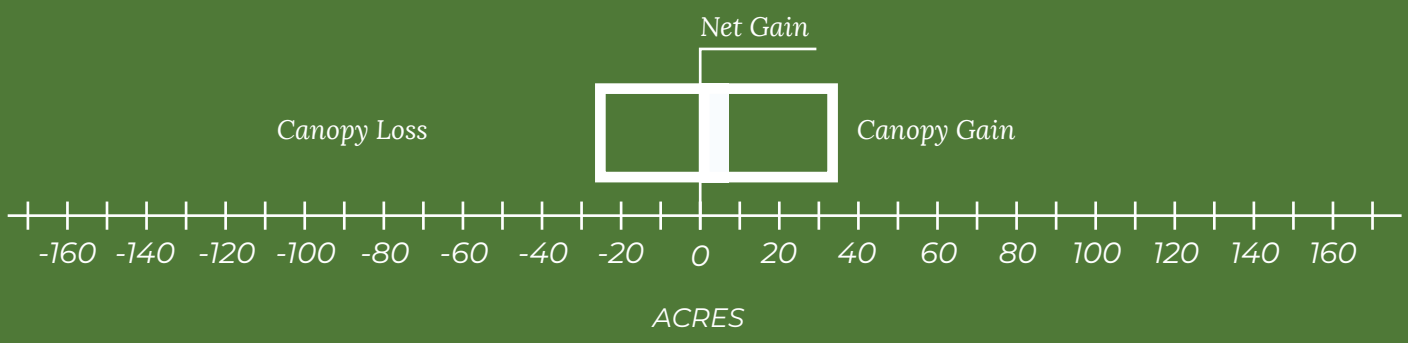
SOUTH BOSTON

CANOPY AND LAND USE TRENDS

SOUTH BOSTON HAS 2% OF BOSTON'S CANOPY.

SOUTH BOSTON HAS 8% CANOPY COVERAGE.

SOUTH BOSTON LOST 28 ACRES AND GAINED 37 ACRES FOR A NET GAIN OF 9 ACRES OF TREE CANOPY FROM 2014-2019. THE GREATEST LOSSES WERE IN OPEN SPACES.



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.

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- 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.

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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.

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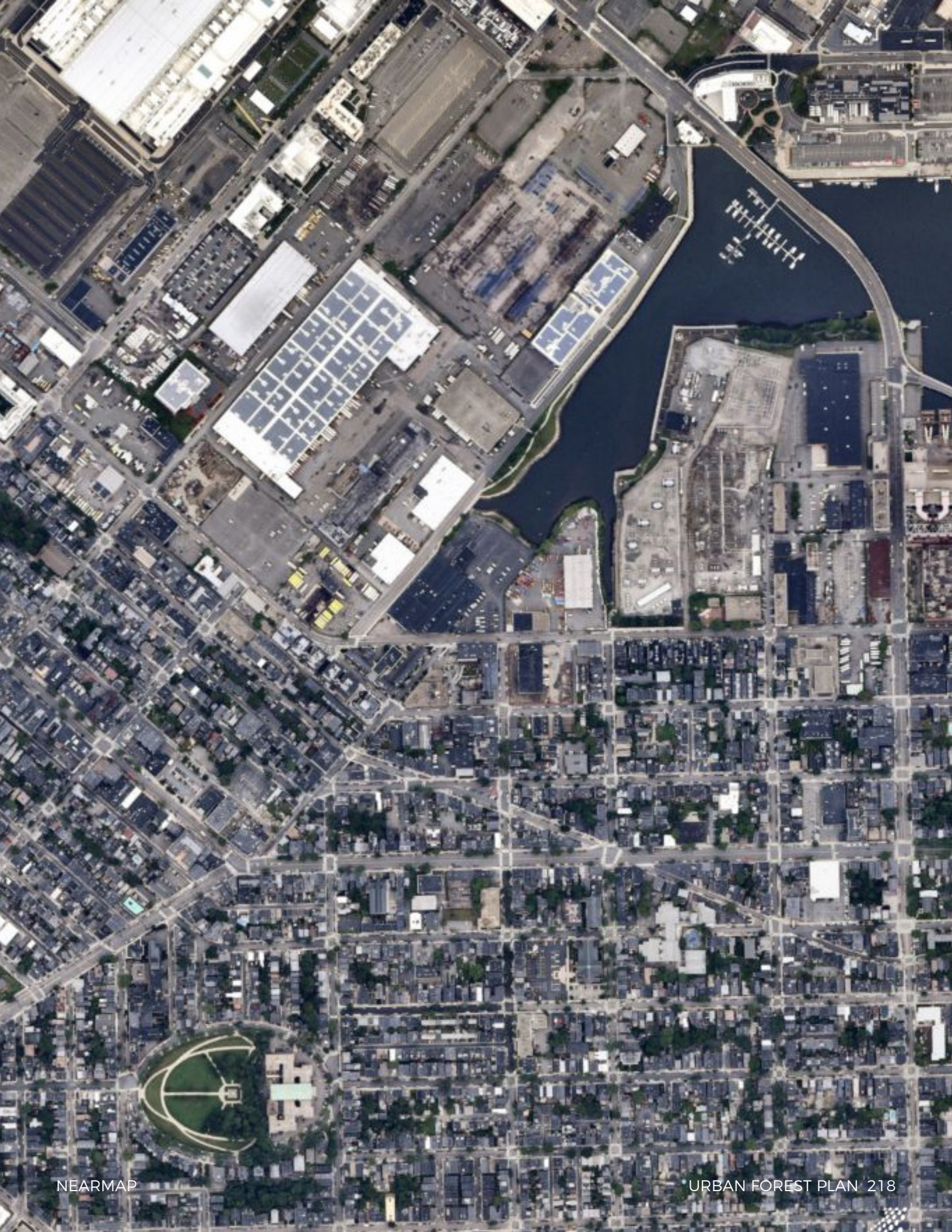
Priority Zones. Zones of highest priority are determined by overlapping prioritization indicators. Those areas with more than three overlapping indicators are highlighted. This map should serve as a starting place for further analysis and community discussions and these zones should be given particular consideration for action in future planning and development proposals.

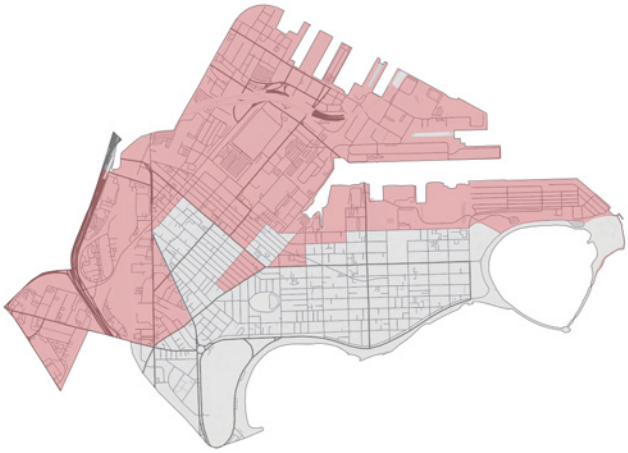
Priority zones should help weight planting canopy expansion focus and attention, but should not be indicative of overall resources and efforts needed. Many priority populations, for example, live in areas with relatively high overall canopy, but in which canopy cover is declining. These areas will need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



NEARMAP

PRIORITY INDICATORS

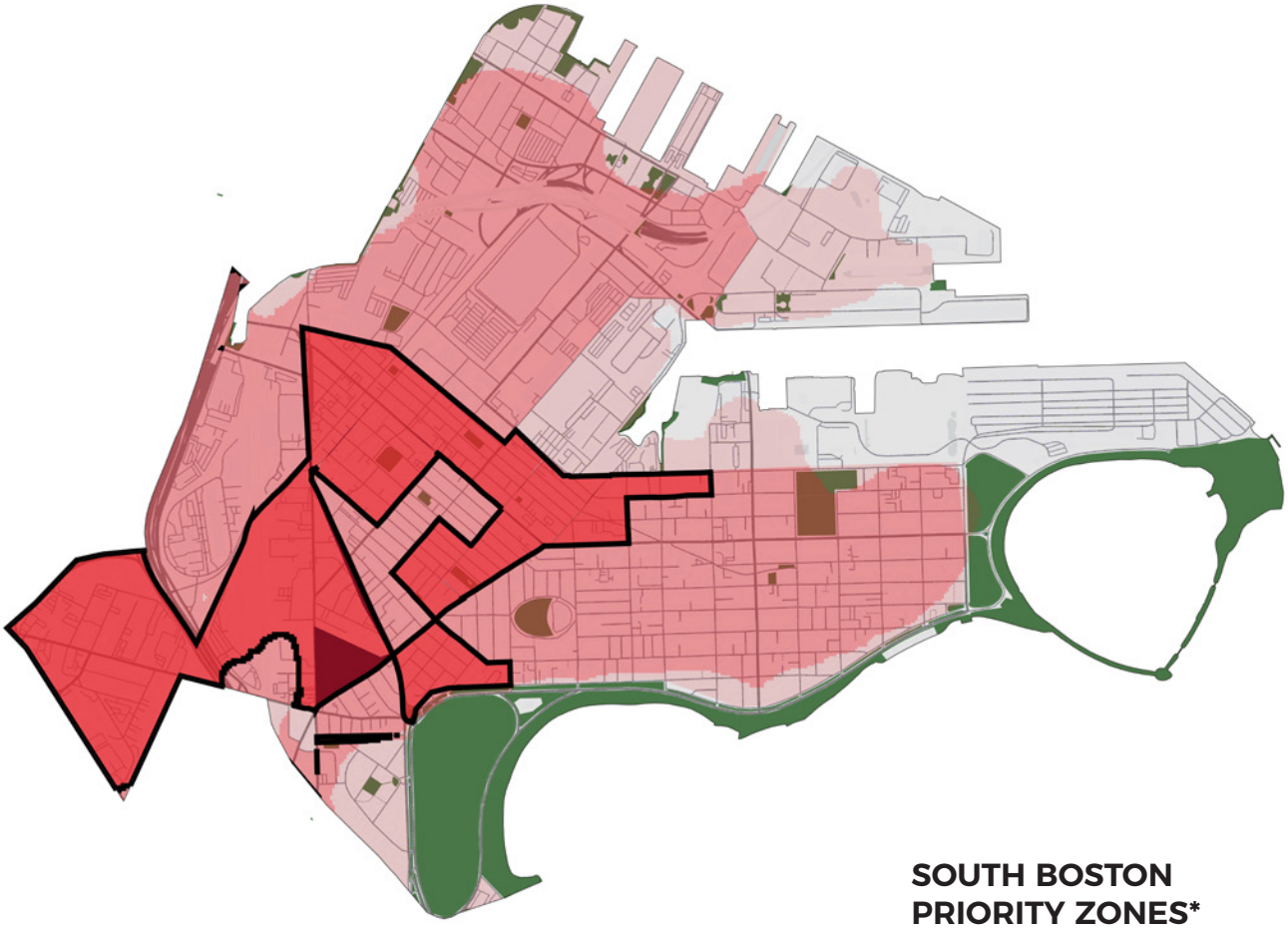
Environmental Justice Communities



Low Canopy

Heat Event Hours

Historic Marginalization



SOUTH BOSTON 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

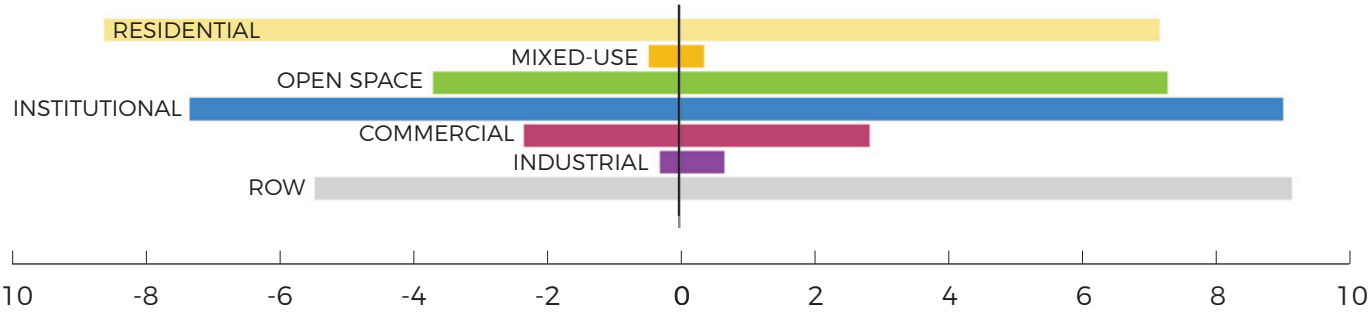
Physical and environmental opportunities and constraints will impact a neighborhood's ability to expand the canopy. It can also determine who has the greatest ability to take action. When used in coordination with the mapped priority zones, these maps can provide greater understanding of where opportunities 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

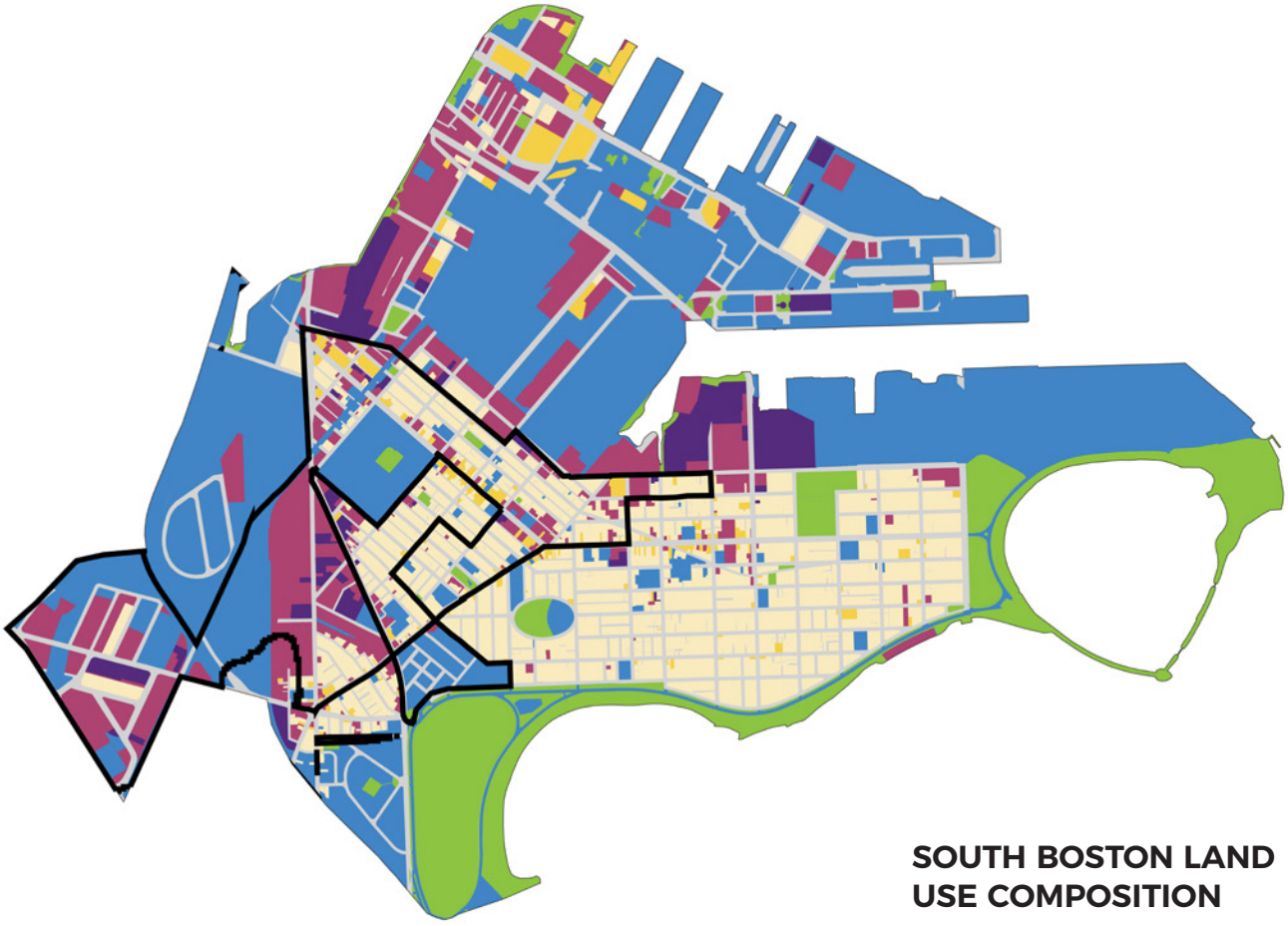
Every neighborhood has a different make-up of private and public land, as well as different key land uses and property owners. The existence of various land uses can affect opportunities for expanding canopy and who in the community has the ability and responsibility to act.

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.

South Boston is predominantly institutional (40%) with significant right-of-way (17%) and residential (15%) designation. The priority zones include a combination of residential, institutional, and commercial designations. Right-of-way and open space are specifically discussed on the following pages.



SOUTH BOSTON CANOPY GAIN & LOSS BY LAND USE (ACRES)



SOUTH BOSTON LAND USE COMPOSITION

- RESIDENTIAL - 15%
- MIXED-USE - 2%
- OPEN SPACE - 11%
- INSTITUTIONAL - 40%
- COMMERCIAL - 13%
- INDUSTRIAL - 3%
- ROW - 17%
- PRIORITY ZONES

2,000 FT.

RIGHT-OF-WAY (ROW)

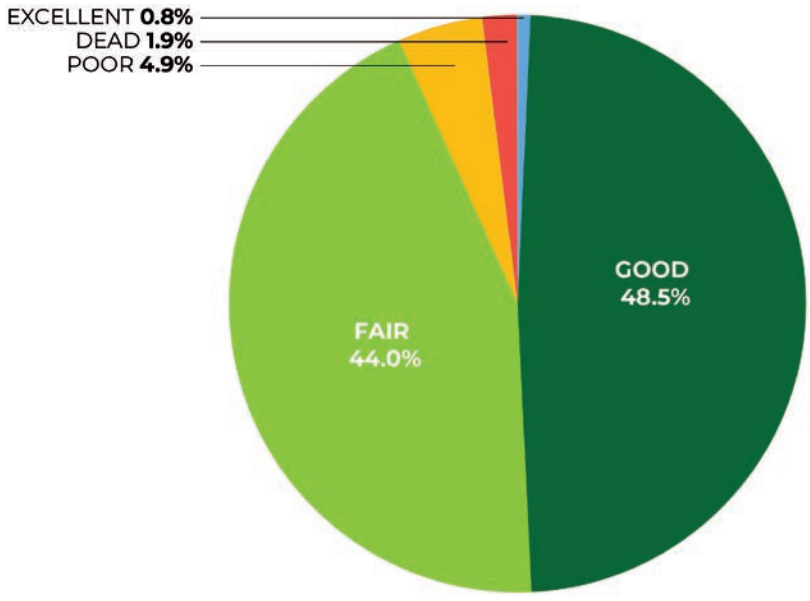
Right-of-way (ROW) refers to property in Boston that is subject to public use for streets, curbs, planting strips, sidewalks, etc. These lands in Boston represent a set of potential planting sites over which the Parks Department and other City departments already have the jurisdiction to expand canopy.

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.

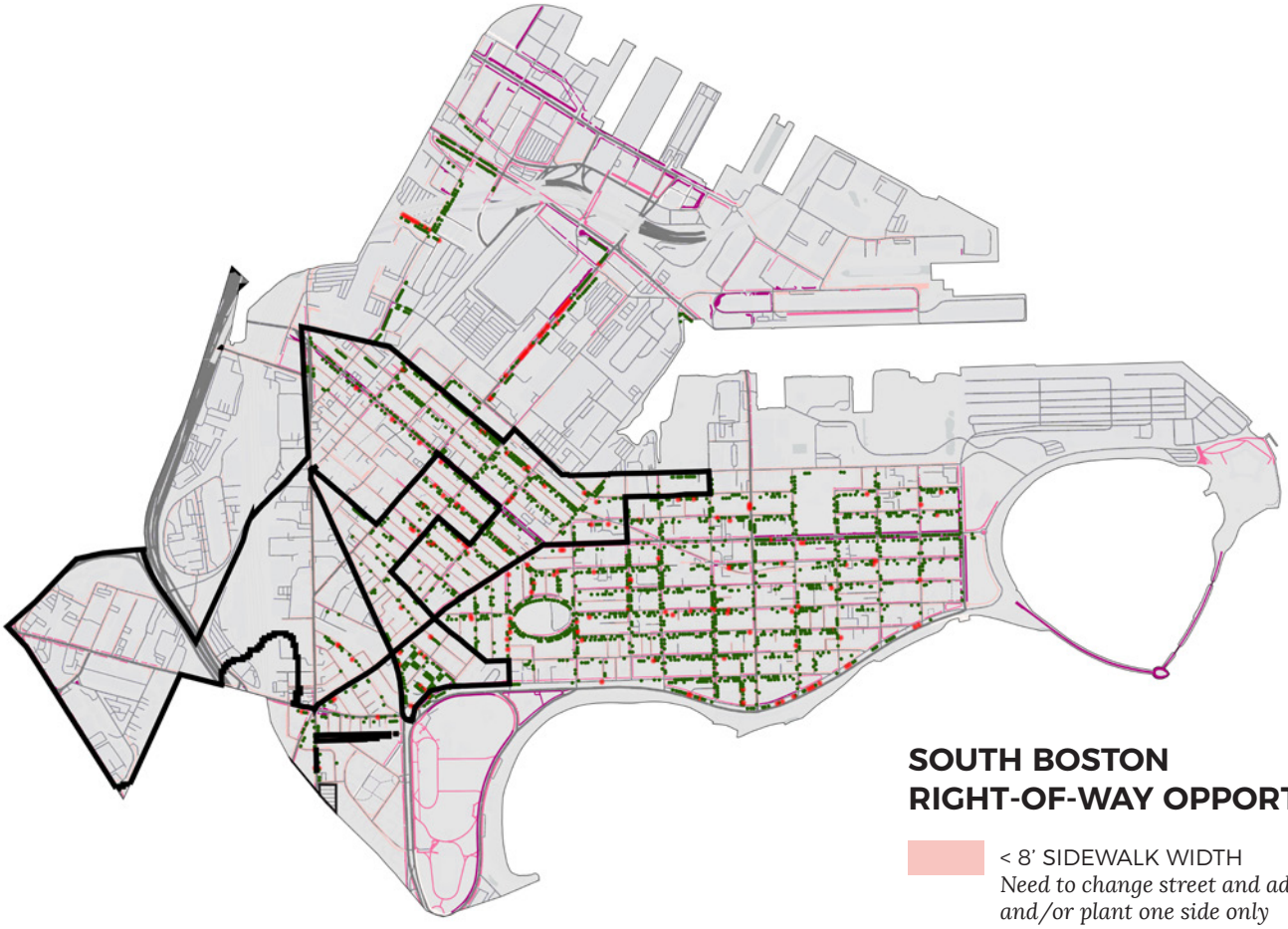
Areas with sidewalk widths over 8'-6" (inclusive of the curb) meet current standards and could be considered for immediate planting, while sidewalk widths less than 8'-0" (inclusive of the curb) would likely require more significant changes to the street or exceptions to current standards. More significant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

In South Boston, an estimated 176 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.

SOUTH BOSTON STREET TREE CONDITION COMPOSITION



TAKEAWAYS:
Nearly half (49.3%) of the street trees in South Boston are considered in Good or Excellent condition, with the remaining majority in Fair 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.



SOUTH BOSTON
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

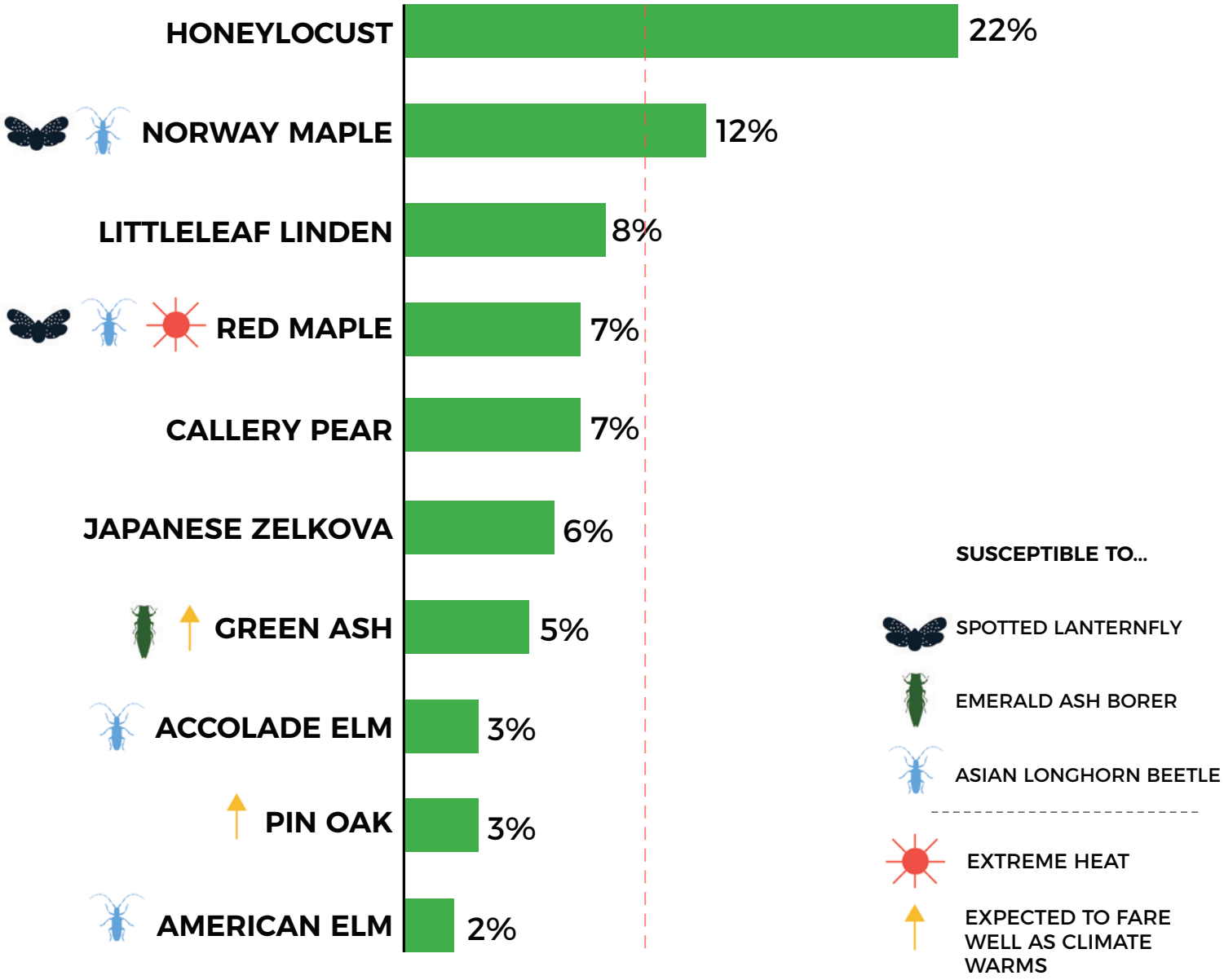
PRIORITY ZONES

2,000 FT.

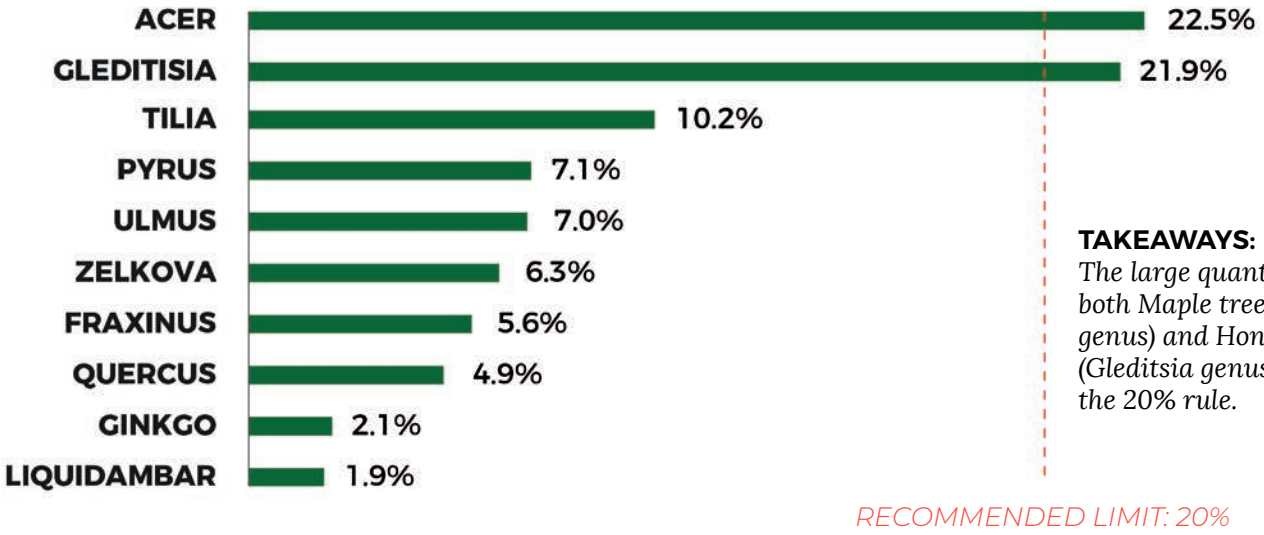
STREET TREE ANALYSIS

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%.

SOUTH BOSTON TOP 10 TREE SPECIES



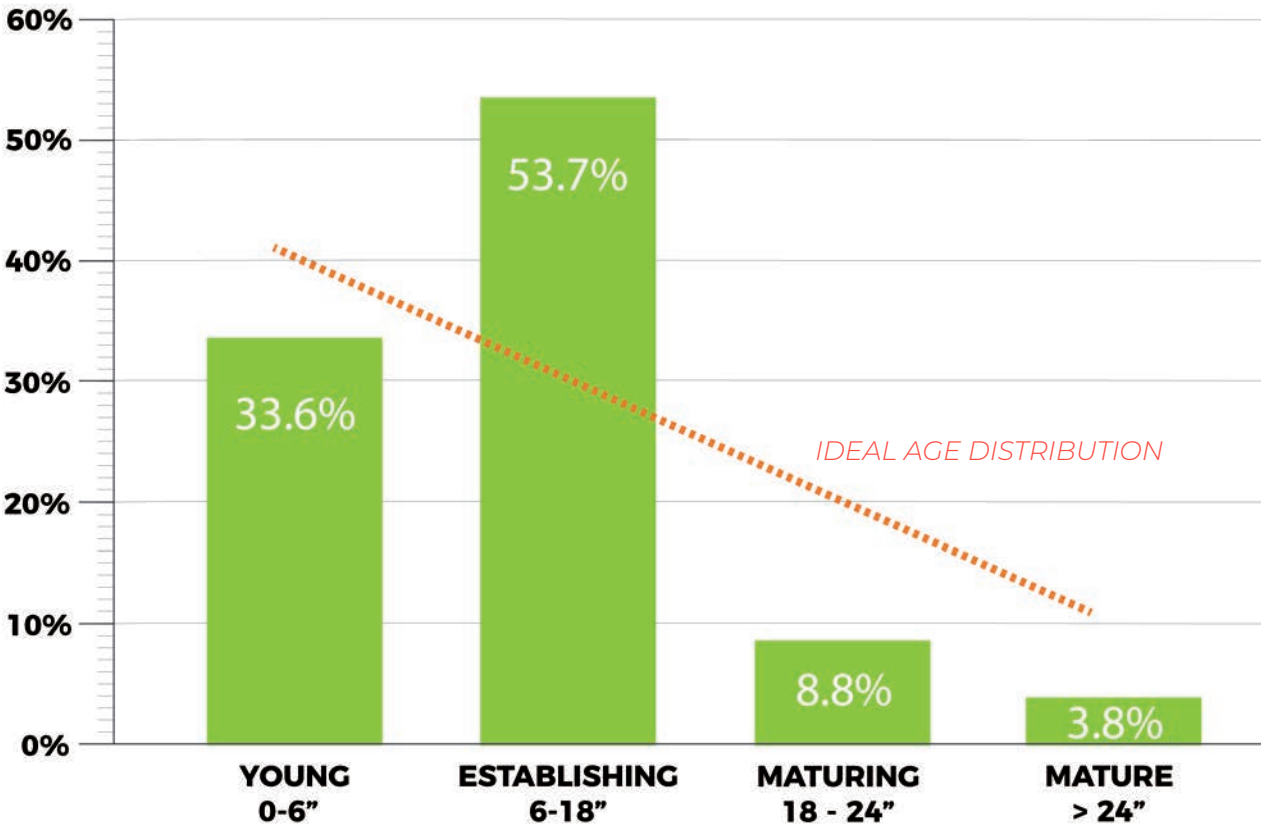
SOUTH BOSTON TOP 10 STREET TREE GENUS COMPOSITION



TAKEAWAYS:
The large quantity of both Maple trees (Acer genus) and Honeylocusts (Gleditsia genus) exceeds the 20% rule.

Additional genera identified in South Boston: Aesculus, Amelanchier, Carpinus, Celtis, Cercidiphyllum, Cladrastis, Crataegus, Gymnocladus, Koelreuteria, Liriodendron, Maackia, Magnolia, Malus, Metasequoia, Nyssa, Ostrya, Platanus, Prunus, Sophora, Syringa

SOUTH BOSTON STREET TREE AGE COMPOSITION



TAKEAWAYS:
South Boston has a very large number of establishing street trees and too few maturing and mature street trees relative to the ideal distribution. Focus should be on proactive care and preservation of existing canopy to improve longevity and continuing new plantings to maintain young street trees at current or slightly higher levels.

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.

South Boston has significant protected open space along the waterfront with a few small parks and plazas distributed throughout the neighborhood. The priority zones have limited open space. Opportunities to increase canopy in the existing open spaces and to create additional open spaces within the priority zones should be considered.

MARTIN'S PARK, SOUTH BOSTON

SOUTH BOSTON
OPEN SPACE OPPORTUNITY

- PROTECTED OPEN SPACE
- UNPROTECTED OPEN SPACE
- TREE CANOPY
- PRIORITY ZONES
- 2,000 FT.

ENVIRONMENTAL CONSTRAINTS

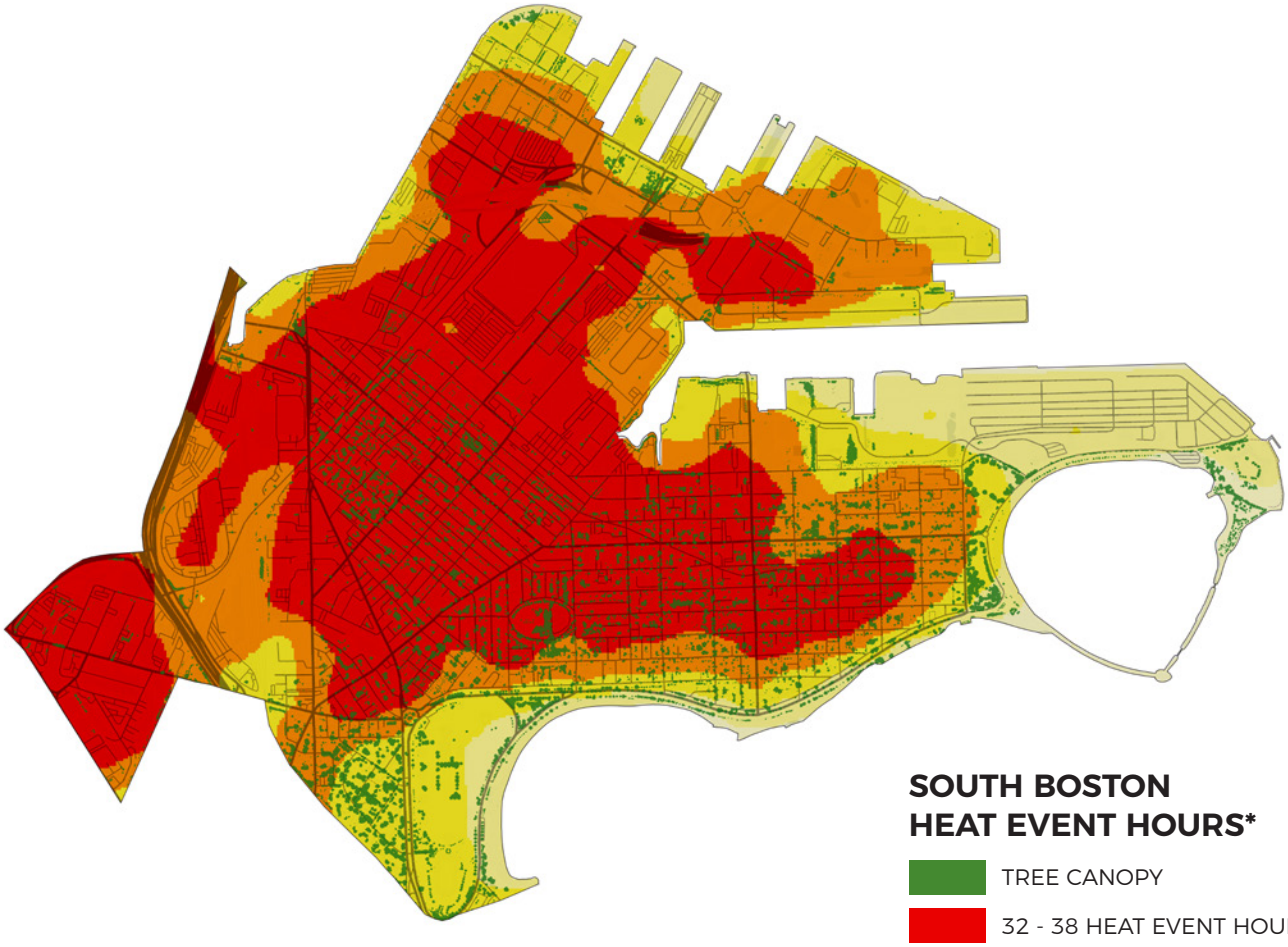
Environmental conditions across the neighborhoods in Boston vary widely. There are coastal conditions, hills, streams and other existing environmental factors which impact plant communities, plant life and health. These maps identify some of the key dynamics in each neighborhood, in particular how climate 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.

  High heat is a priority indicator, therefore, priority planting zones commonly fall within high heat areas, as they do in South Boston. However, nearly all of South Boston experiences high heat levels. This highlights the need to reduce heat through all possible means, care for trees subject to high heat and to select trees for new planting that will fare well in future heat conditions.

- ***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.

  South Boston is subject to significant coastal flooding with projected sea level rise. This flooding puts many existing trees at risk. Ongoing Climate Ready Boston efforts to limit coastal flooding will help reduce this risk, however, species that are flood and saline tolerant should be considered for new plantings. Implementation of flood risk reduction strategies through the Climate Ready Boston initiative should consider inclusion of new plantings and protection of existing trees where possible.



SOUTH BOSTON HEAT EVENT HOURS*

- TREE CANOPY
- 32 - 38 HEAT EVENT HOURS
- 29 - 32 HEAT EVENT HOURS
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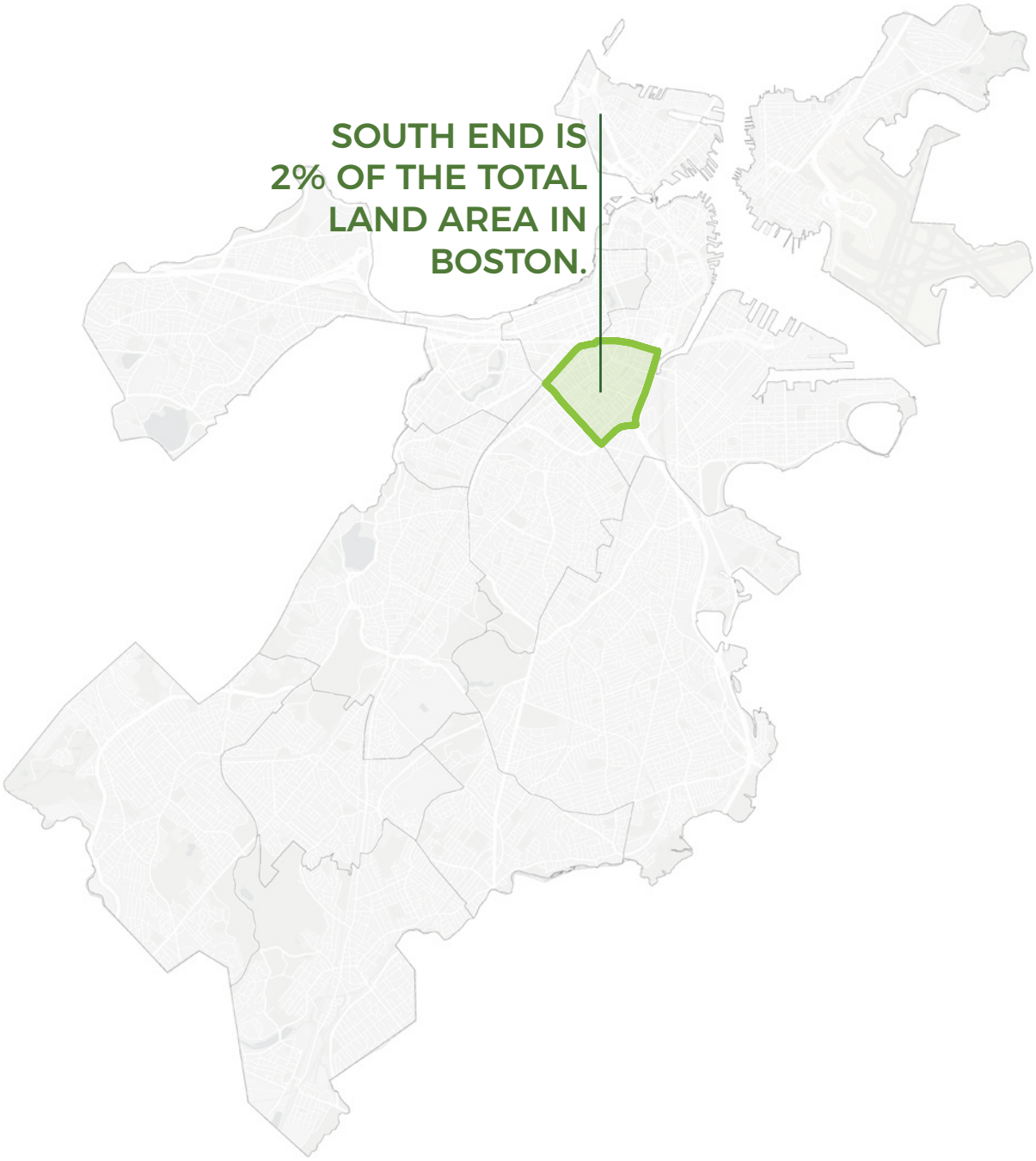
2,000 FT.

SOUTH END



CANOPY AND LAND USE TRENDS

THE SOUTH END HAS 1% OF BOSTON'S CANOPY.

THE SOUTH END HAS 19% CANOPY COVERAGE.

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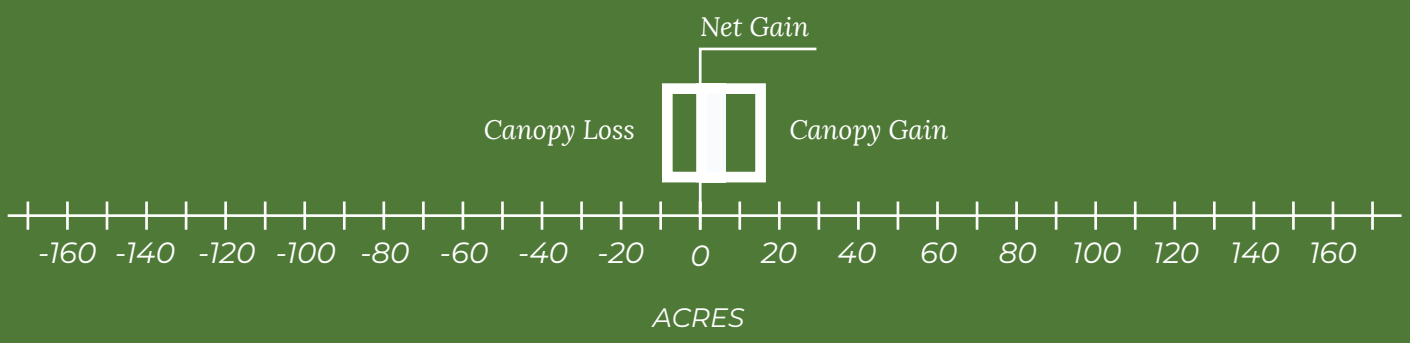

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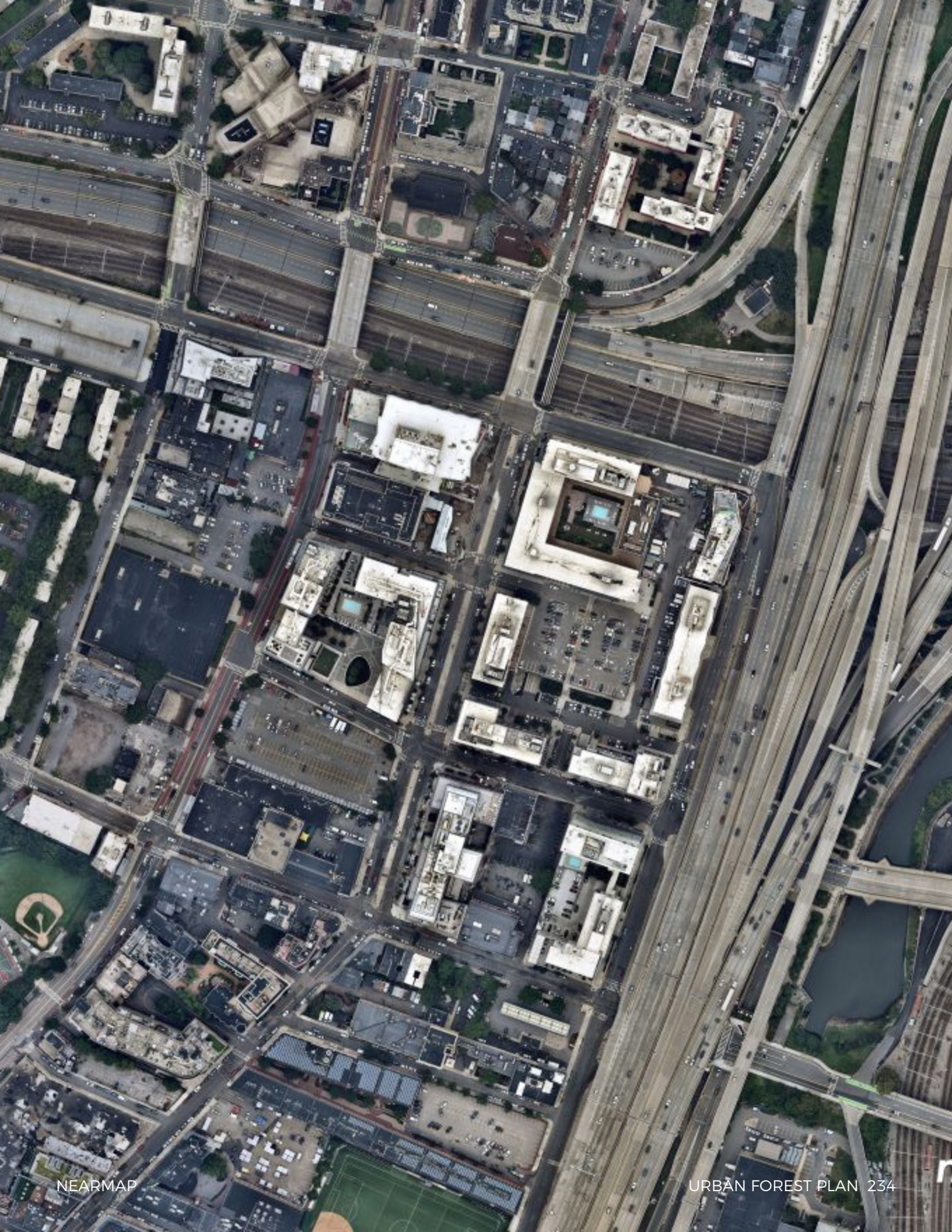
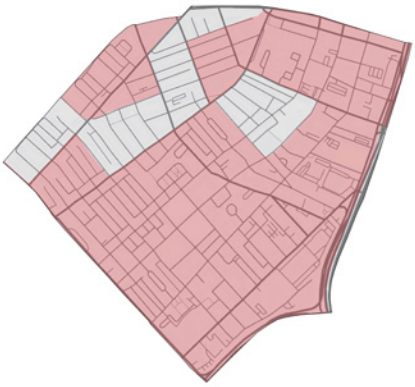
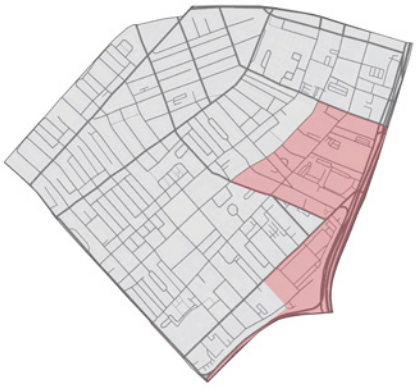


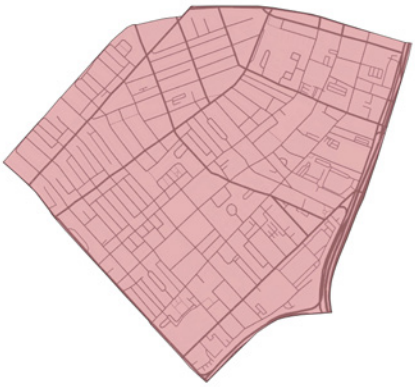
PRIORITY INDICATORS



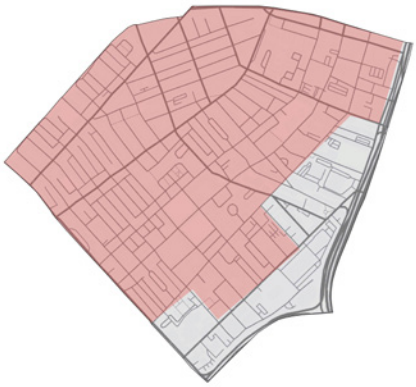
Environmental Justice Communities



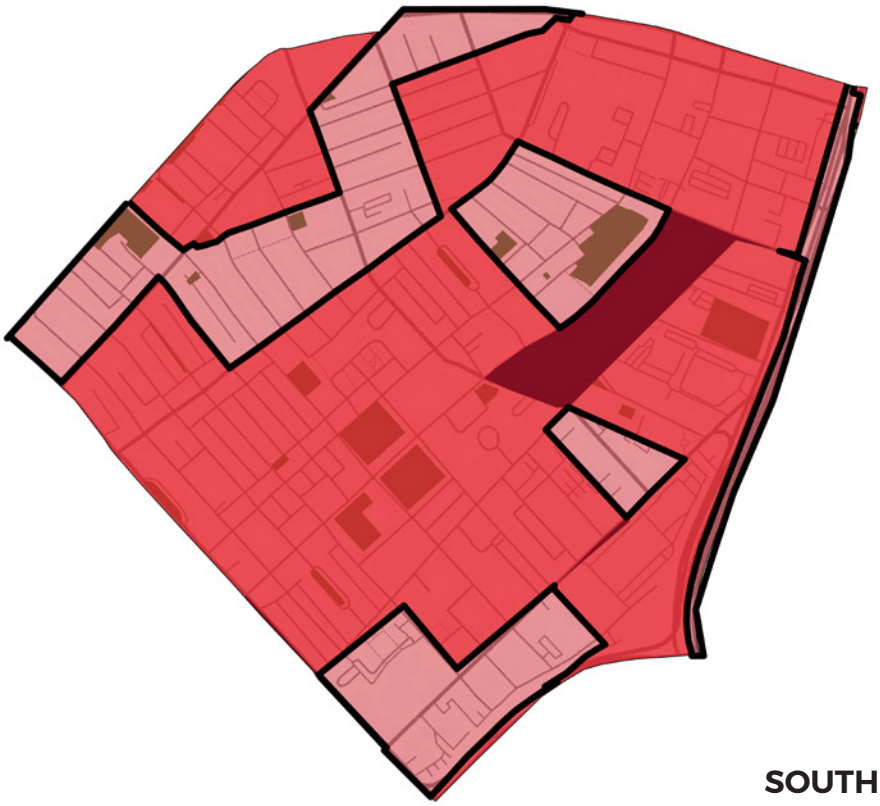
Low Canopy



Heat Event Hours



Historic Marginalization



SOUTH END 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

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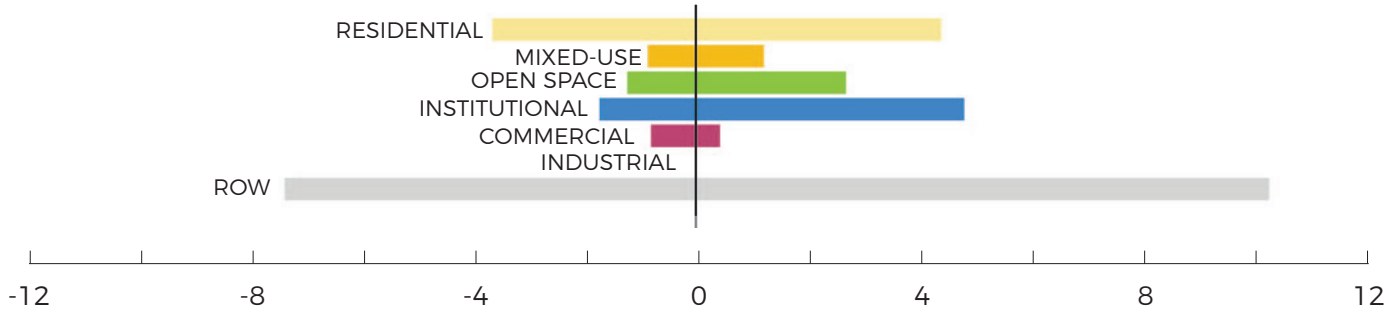
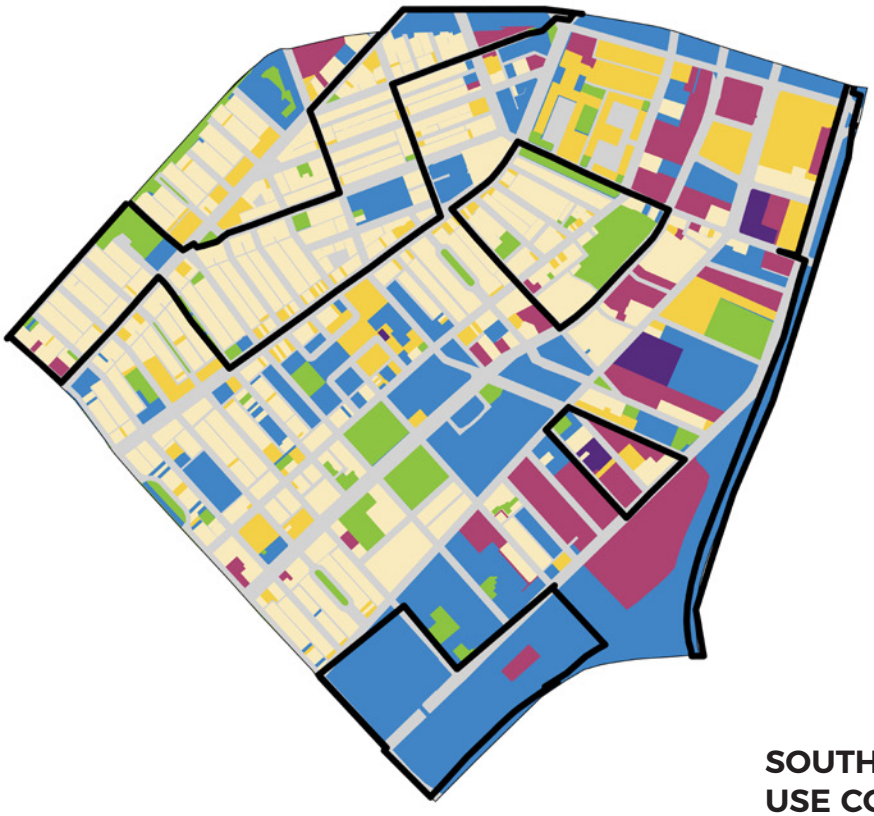
Residential land, which is where most of Boston's canopy lies, requires actions by private owners, who often need education on proper planting and care practices. Commercial land use can provide opportunities for tree canopy additions in parking lots and in pedestrian-heavy business districts. Trees 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.

The South End is predominantly right-of-way (29%) with significant institutional (24%) and residential designation. The priority zones include a combination of institutional, residential, mixed-use, commercial and right-of-way. Right-of-way and open space are specifically discussed on the following pages.



SOUTH END CANOPY GAIN & LOSS BY LAND USE (ACRES)



SOUTH END LAND USE COMPOSITION

- RESIDENTIAL - 23%
- MIXED-USE - 8%
- OPEN SPACE - 6%
- INSTITUTIONAL - 24%
- COMMERCIAL - 8%
- INDUSTRIAL - 1%
- ROW - 29%
- PRIORITY ZONES

2,000 FT.

RIGHT-OF-WAY (ROW)

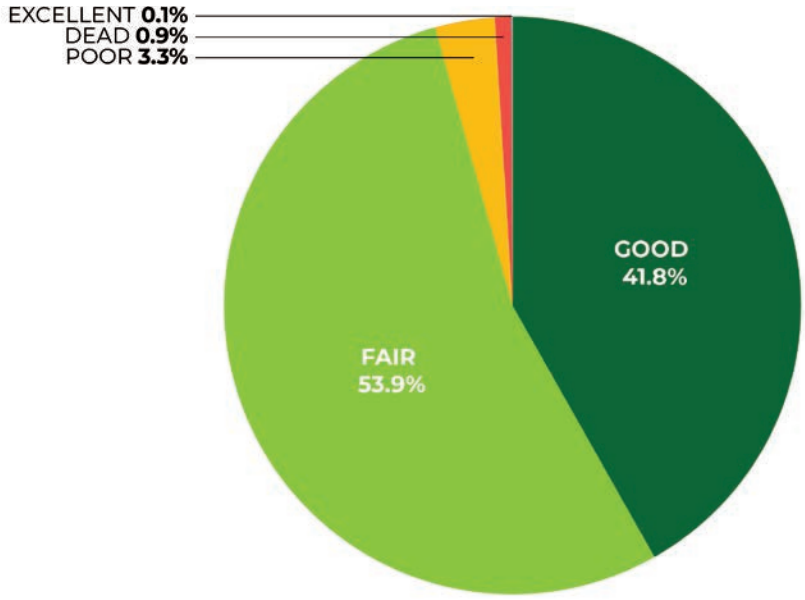
Right-of-way (ROW) refers to property in Boston that is subject to public use for streets, curbs, planting strips, sidewalks, etc. These lands in Boston represent a set of potential planting sites over which the Parks Department and other City departments already have the jurisdiction to expand canopy.

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 the South End, an estimated 201 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.

SOUTH END STREET TREE CONDITION COMPOSITION



TAKEAWAYS:
Less than half (48.9%) of the street trees in The South End are considered in Good or Excellent condition, with the remaining majority in Fair 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.

SOUTH END
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

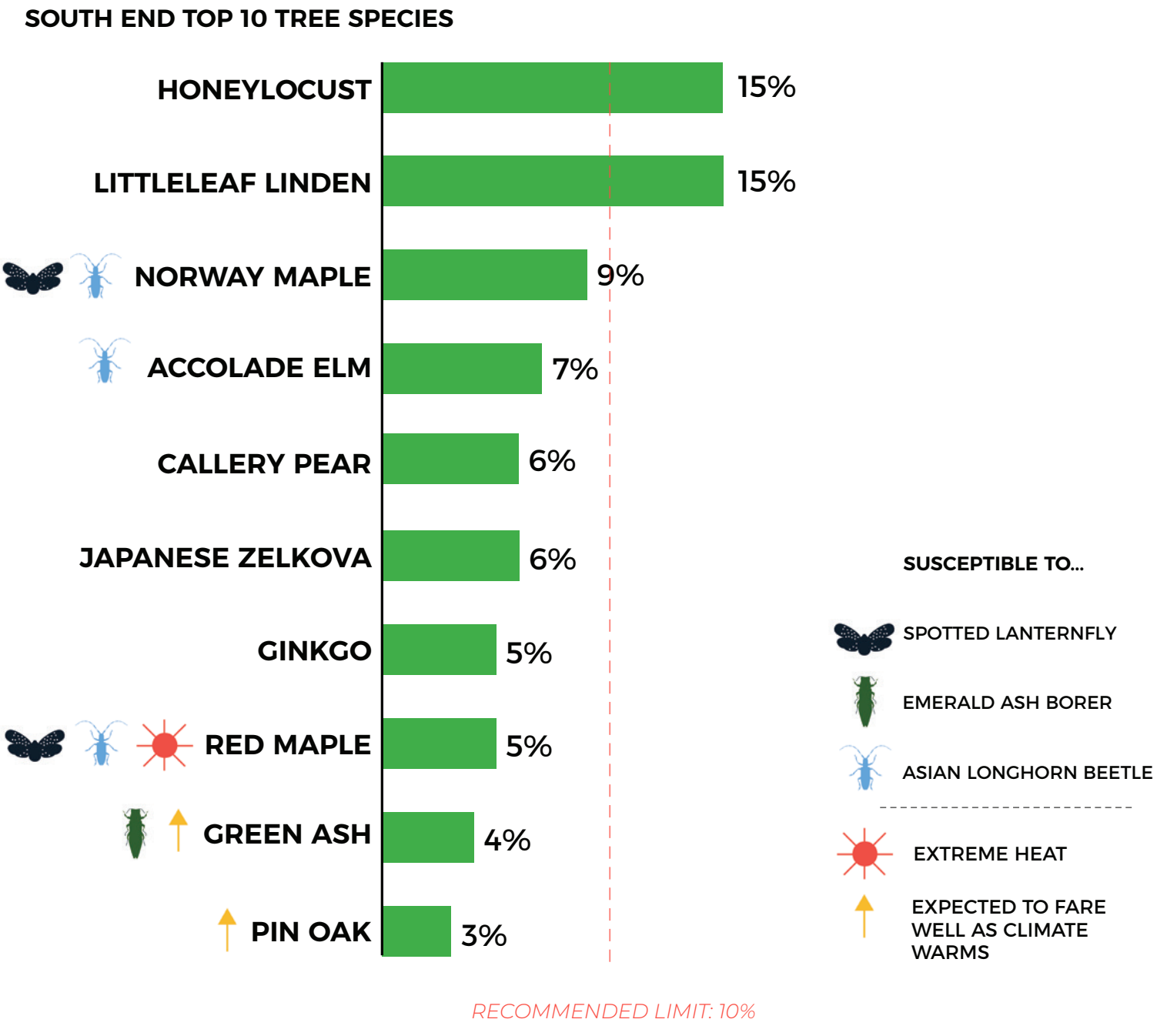
TREE PITS WITH LIVING TREES

PRIORITY ZONES

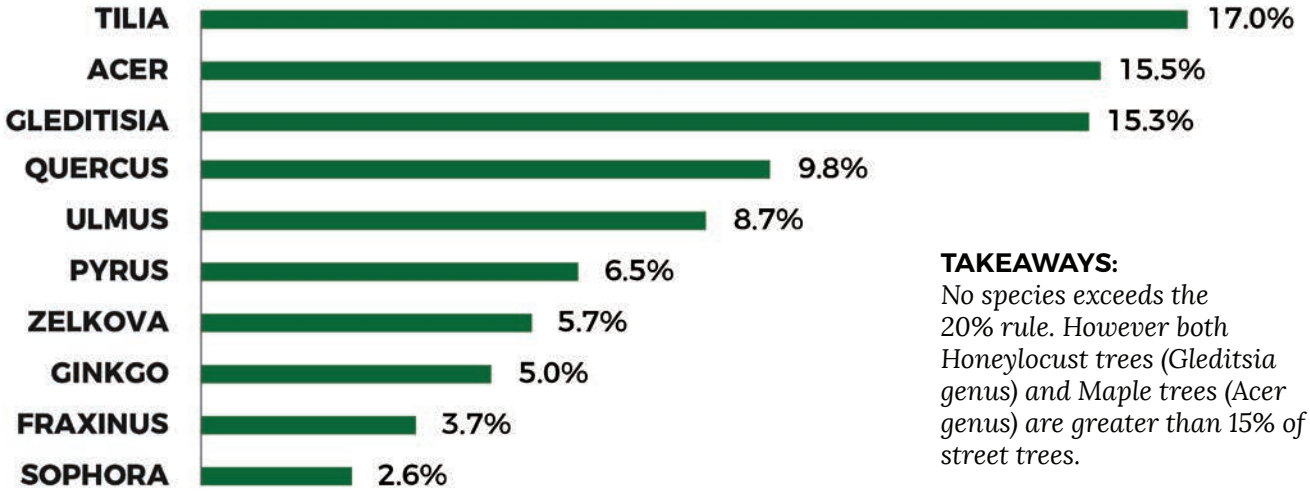
2,000 FT.

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%.



SOUTH END TOP 10 STREET TREE GENUS COMPOSITION

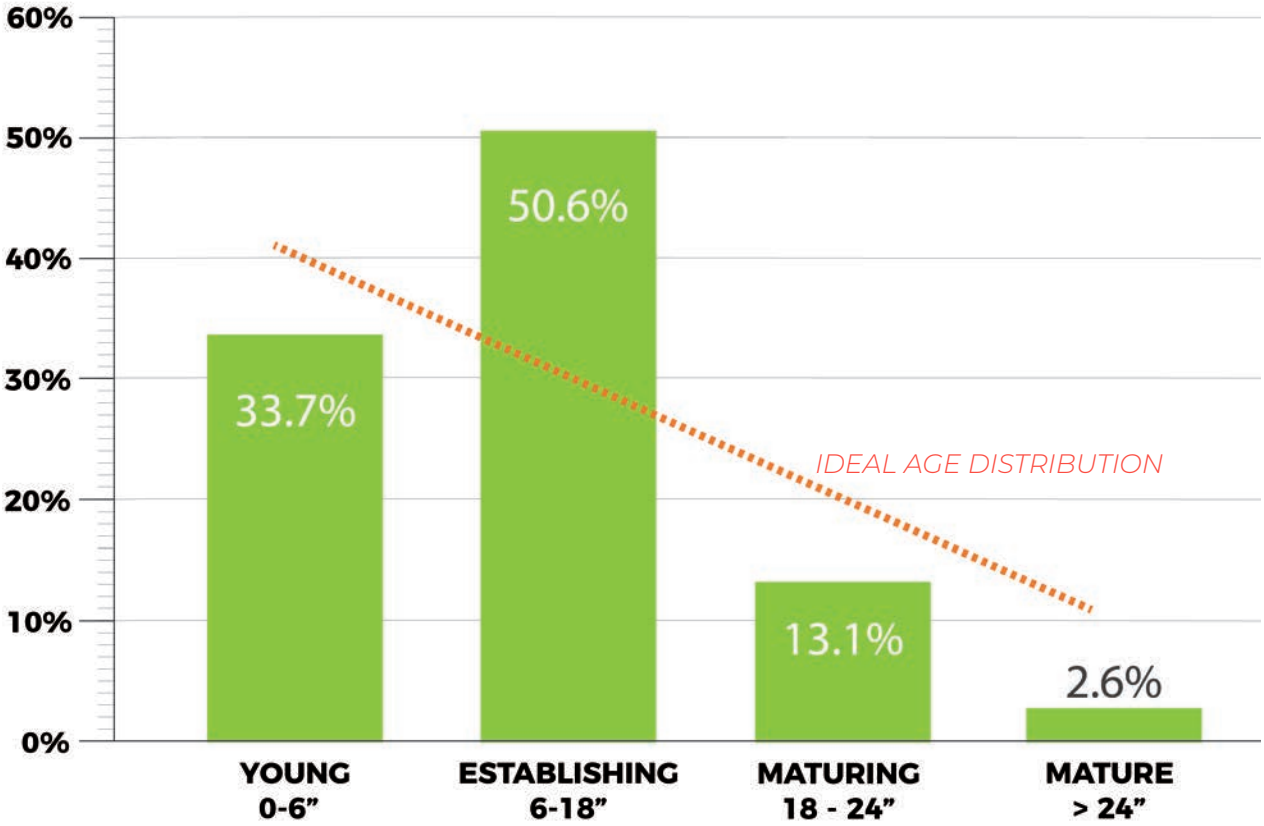


TAKEAWAYS:
No species exceeds the 20% rule. However both Honeylocust trees (Gleditsia genus) and Maple trees (Acer genus) are greater than 15% of street trees.

RECOMMENDED LIMIT: 20%

Additional genera identified in South End: Aesculus, Amelanchier, Betula, Carpinus, Celtis, Crataegus, Eucommia, Gymnocladus, Koelreuteria, Liquidambar, Liriodendron, Maackia, Magnolia, Malus, Nyssa, Ostrya, Platanus, Prunus, Syringa, Taxodium, Thuja,

SOUTH END STREET AGE COMPOSITION



TAKEAWAYS:
The South End has a very large number of establishing street trees and very few maturing and mature street trees relative to the ideal distribution. Focus should be on proactive care and preservation of existing canopy to improve longevity and continuing new plantings to maintain young street trees at current or slightly higher levels.

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.

The South End has a number of small protected and unprotected open spaces. The priority zone includes only a few very small open spaces. Opportunities to increase canopy in the existing open spaces and to create additional protected open spaces within the priority zone should be considered.

PETER'S PARK, SOUTH END

SOUTH END
OPEN SPACE OPPORTUNITY

PROTECTED OPEN SPACE

UNPROTECTED OPEN SPACE

TREE CANOPY

PRIORITY ZONES

2,000 FT.

ENVIRONMENTAL CONSTRAINTS

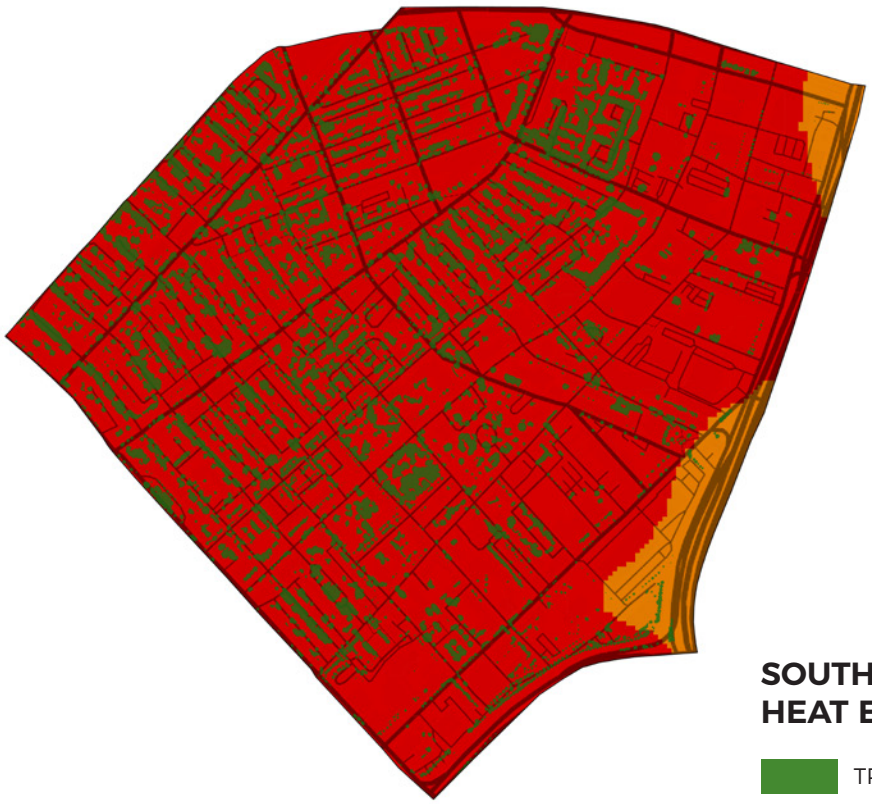
Environmental conditions across the neighborhoods in Boston vary widely. There are coastal conditions, hills, streams and other existing environmental factors which impact plant communities, plant life and health. These maps identify some of the key dynamics in each neighborhood, in particular how climate 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.

  High heat is a priority indicator, therefore, priority planting zones commonly fall within high heat areas, as they do in The South End. However, all of The South End experiences high heat levels. This highlights the need to reduce heat through all possible means, care for trees subject to high heat and to select trees for new planting that will fare well in future heat conditions.

- ***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.

  The South End is subject to significant coastal flooding with projected sea level rise. This flooding puts many existing trees at risk. Ongoing Climate Ready Boston efforts to limit coastal flooding will help reduce this risk, however, species that are flood and saline tolerant should be considered for new plantings. Implementation of flood risk reduction strategies through the Climate Ready Boston initiative should consider inclusion of new plantings and protection of existing trees where possible.



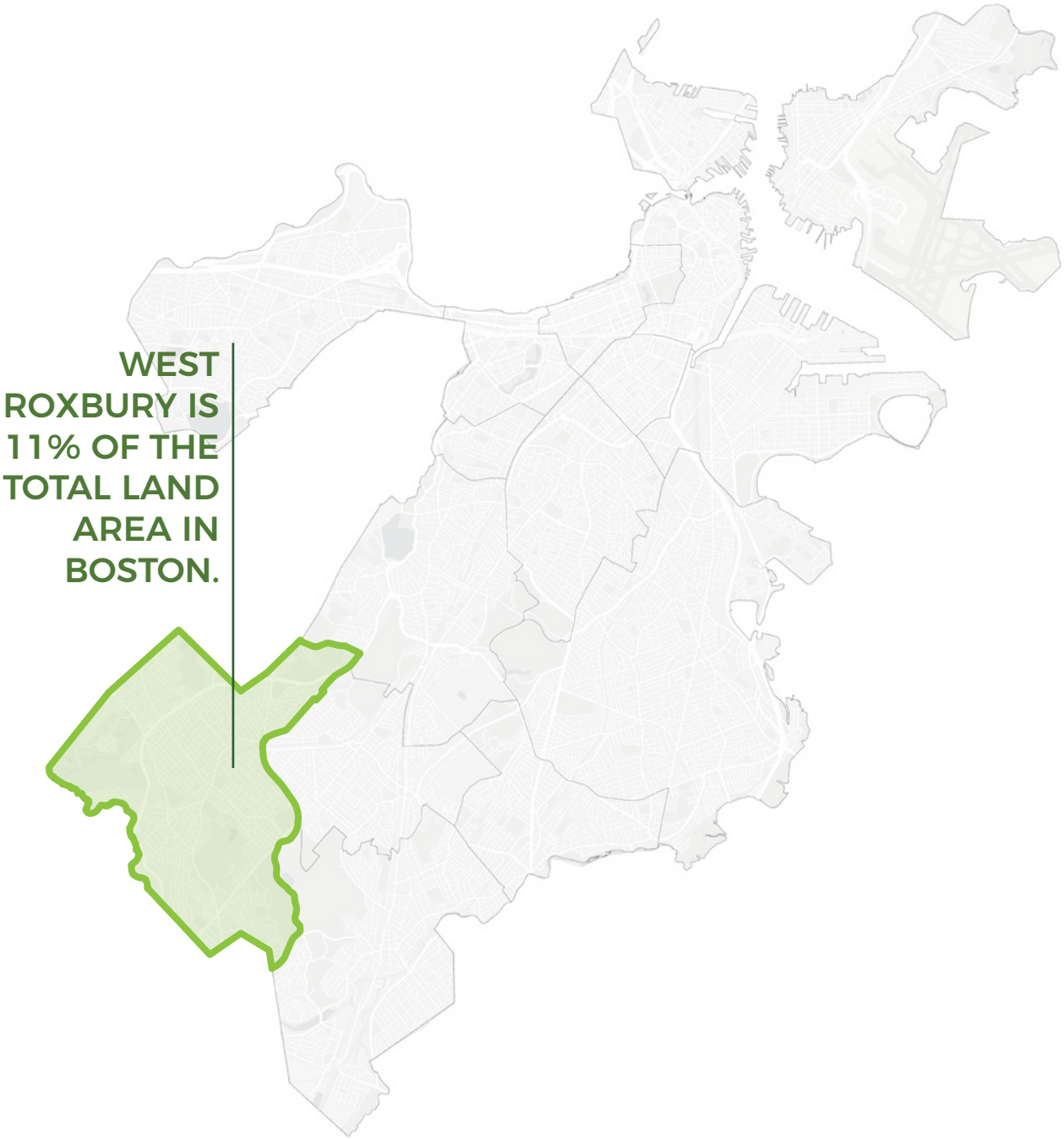
SOUTH END
HEAT EVENT HOURS*

- TREE CANOPY
- 32 - 38 HEAT EVENT HOURS
- 29 - 32 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.

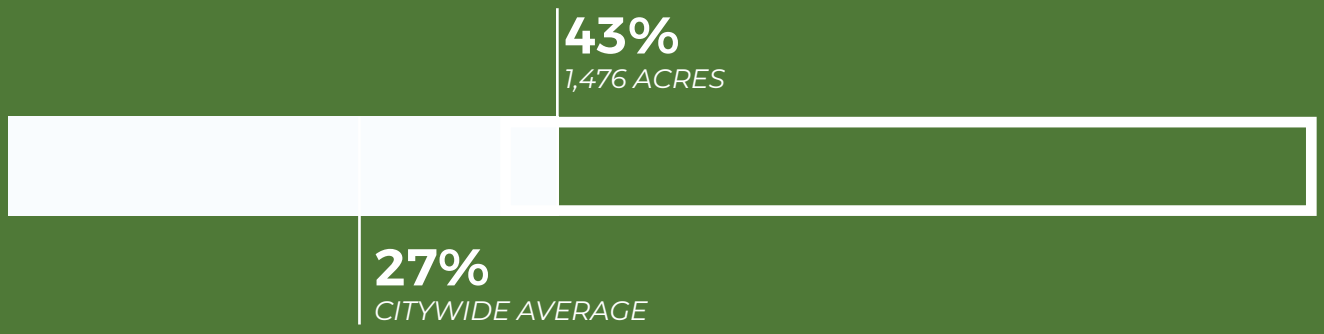
WEST ROXBURY



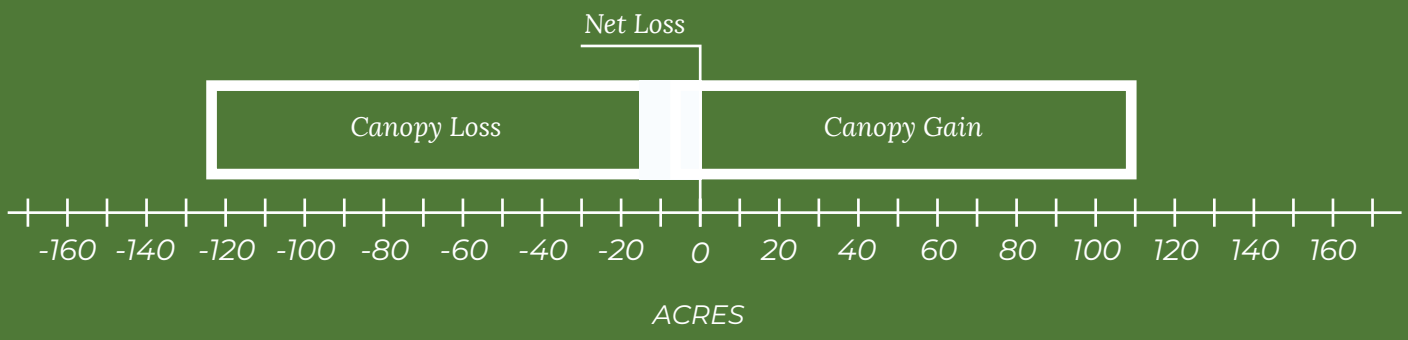
CANOPY AND LAND USE TRENDS

WEST ROXBURY HOLDS 18% OF BOSTON'S CANOPY.

WEST ROXBURY HAS 43% CANOPY COVERAGE.



WEST ROXBURY LOST 126 ACRES AND GAINED 110 ACRES FOR A NET LOSS OF 16 ACRES OF TREE CANOPY FROM 2014-2019. THE GREATEST LOSSES WERE ON RESIDENTIAL LANDS.



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.

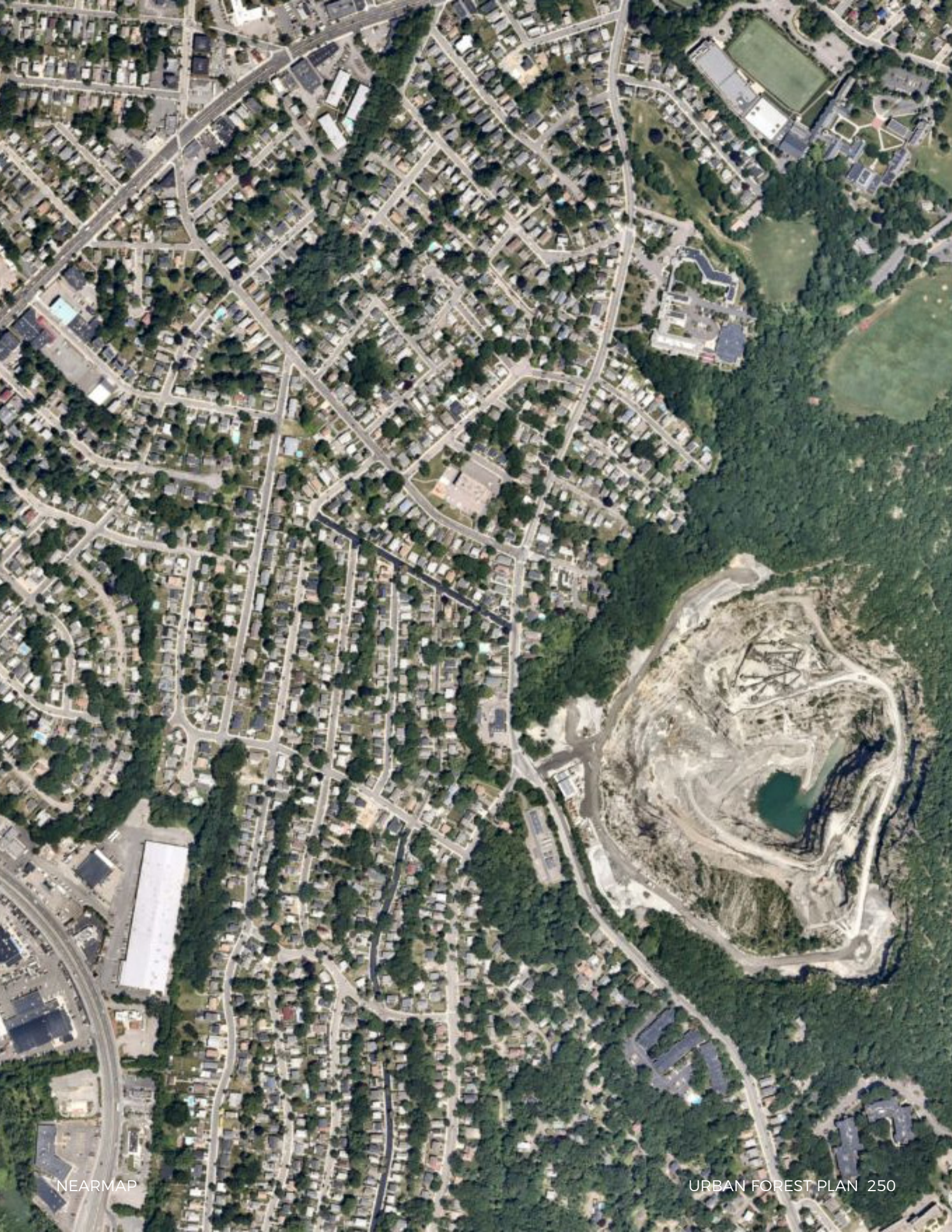
Low Canopy. Using 2019 Tree Canopy Coverage Assessment data, this map identifies census tracts with less than 10% tree canopy coverage.

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.

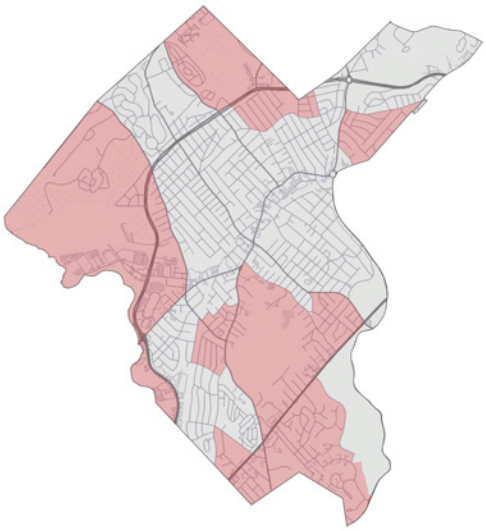
Historic Marginalization This map shows areas that received 'C' or 'D' ratings from the 1938 HOLC 'Residential Security Map'. These areas were subject to housing discrimination, as well as often subject to other practices and policies of disinvestment. Data is provided by the University of Richmond's 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.

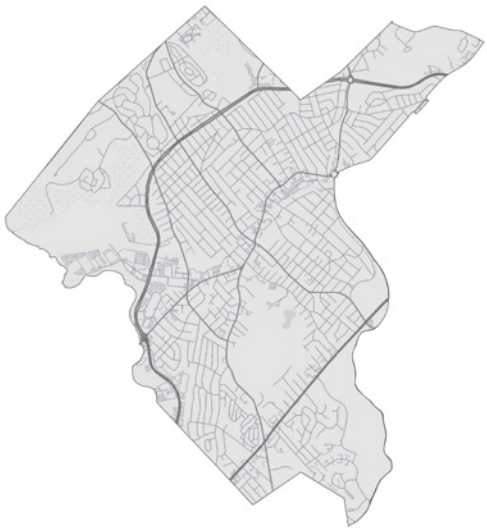
Priority zones should help weight planting canopy expansion focus and attention, but should not be indicative of overall resources and efforts needed. Many priority populations, for example, live in areas with relatively high overall canopy, but in which canopy cover is declining. These areas will need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



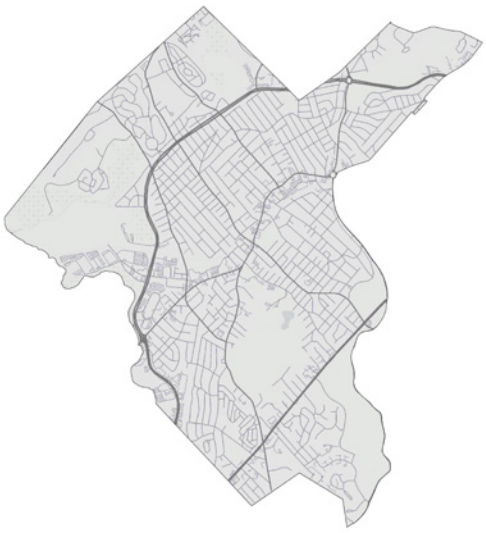
PRIORITY INDICATORS



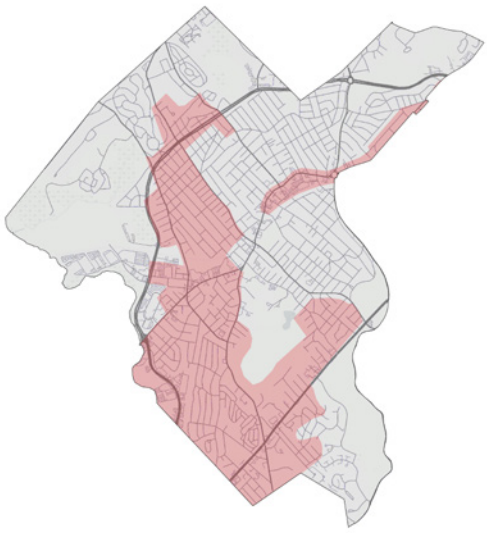
Environmental Justice Communities



Low Canopy



Heat Event Hours



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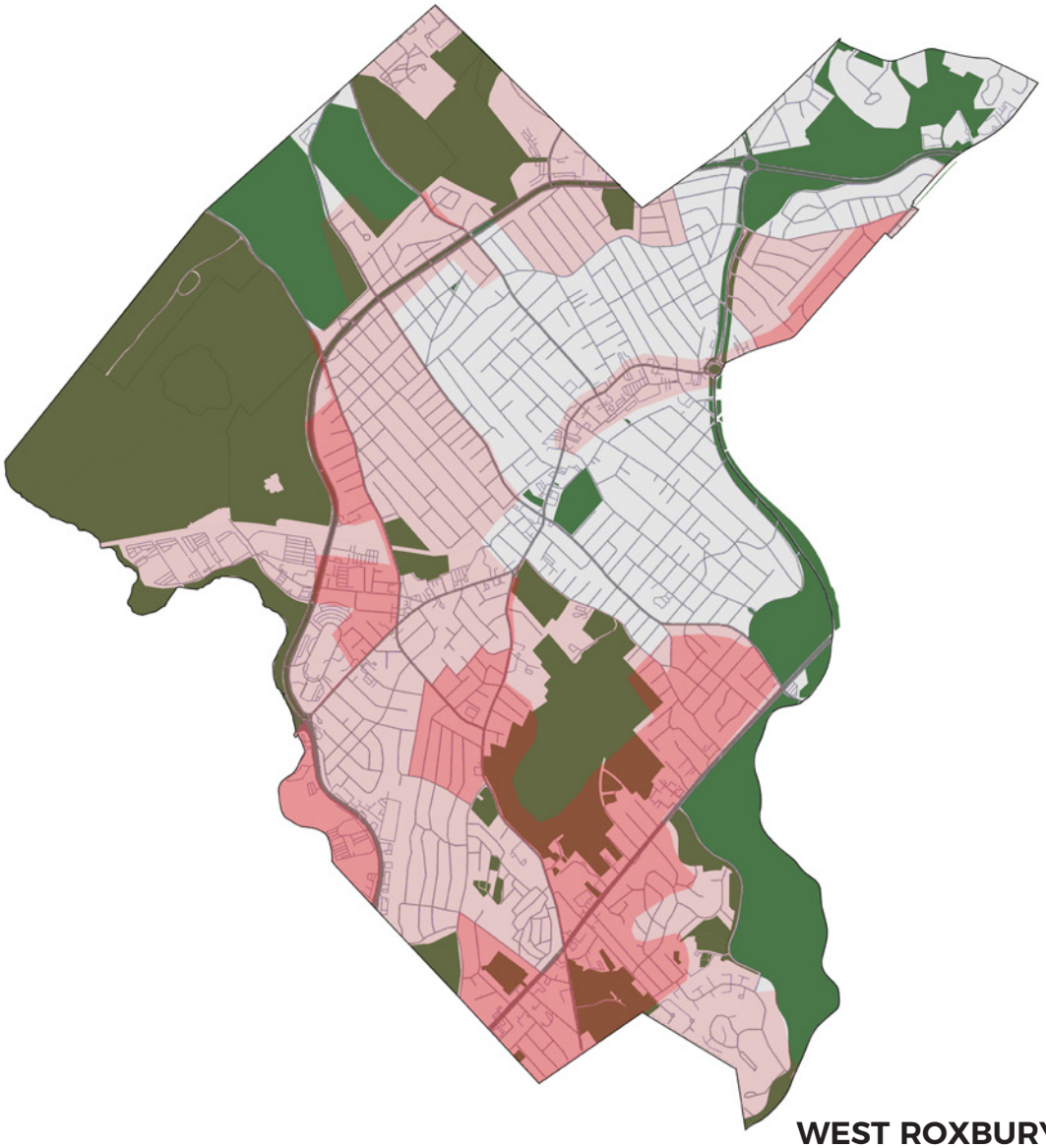


WEST ROXBURY PRIORITY ZONES*

- 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

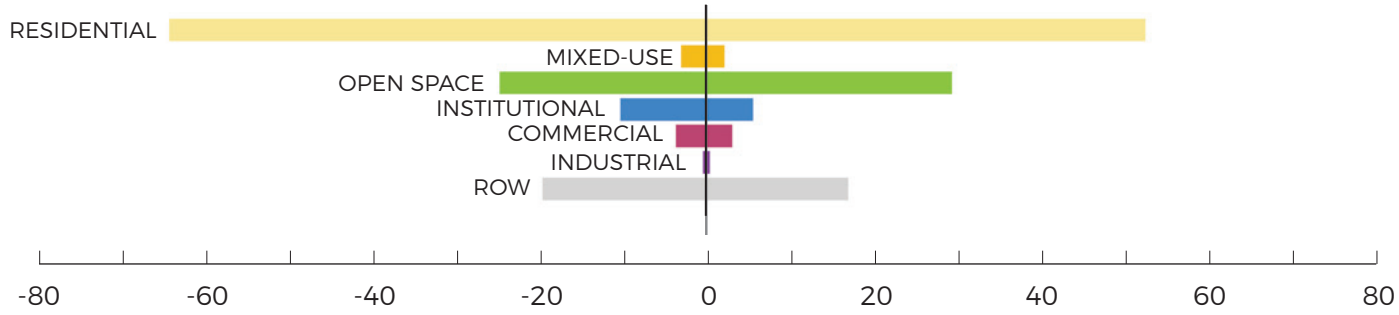
Physical and environmental opportunities and constraints will impact a neighborhood's ability to expand the canopy. It can also determine who has the greatest ability to take action. When used in coordination with the priority zone maps, these maps can provide greater understanding of where opportunities 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

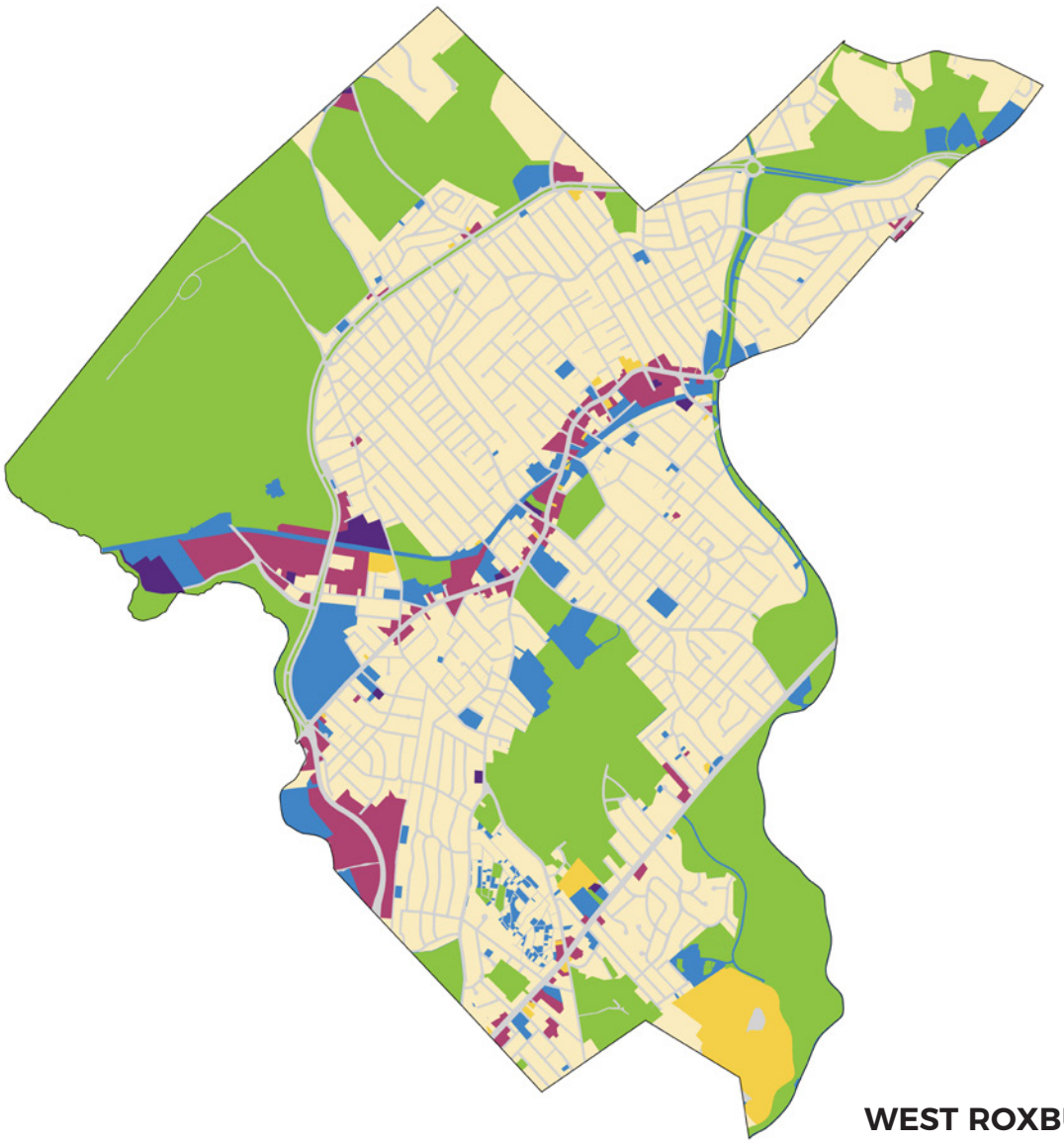
Every neighborhood has a different make-up of private and public land, as well as different key land uses and property owners. The existence of various land uses can affect opportunities for expanding canopy and who in the community has the ability and responsibility to act.

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.

West Roxbury is predominantly residential (40%) with significant open space (35%) designation. There are no priority zones in West Roxbury. Right-of-way and open space are specifically discussed on the following pages.



WEST ROXBURY CANOPY GAIN & LOSS BY LAND USE (ACRES)



WEST ROXBURY LAND USE COMPOSITION

- RESIDENTIAL - 40%
- MIXED-USE - 2%
- OPEN SPACE - 35%
- INSTITUTIONAL - 6%
- COMMERCIAL - 4%
- INDUSTRIAL - 1%
- ROW - 13%
- PRIORITY ZONES

2,000 FT.

EXISTING CONDITIONS

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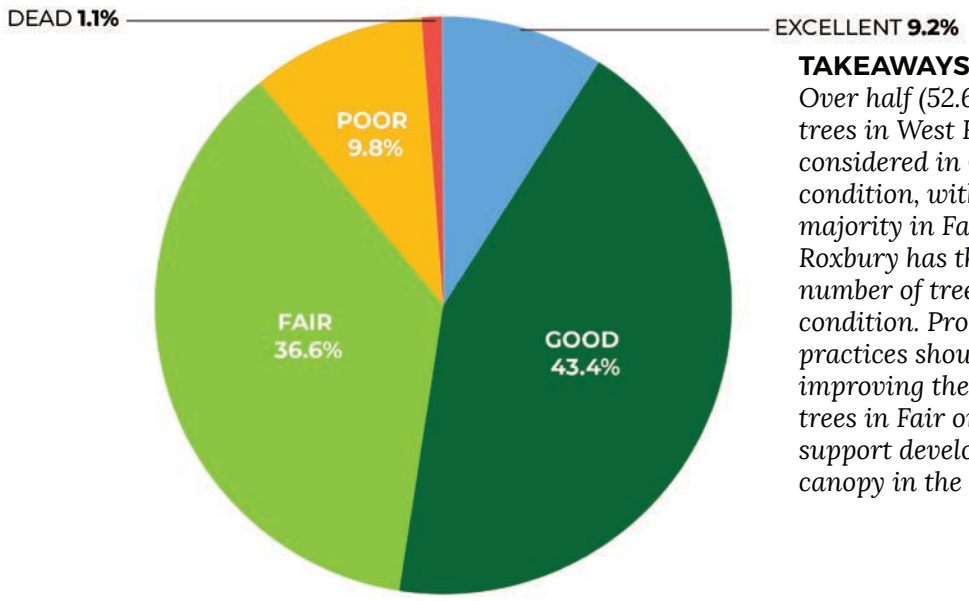
In West Roxbury, an estimated 755 potential street tree planting sites (including existing tree pits with dead trees) were identified during the inventory in May 2021. These sites should be considered for immediate planting, in particular those falling within the priority zones. Potential planting sites all need to be evaluated on a case-by-case basis in the field for suitability.

During the inventory, it was also observed that West Roxbury 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.

WEST ROXBURY STREET TREE CONDITION COMPOSITION



TAKEAWAYS:
Over half (52.6%) of the street trees in West Roxbury are considered in Good or Excellent condition, with the remaining majority in Fair condition. West Roxbury has the second highest number of trees in excellent 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.

WEST ROXBURY
RIGHT-OF-WAY OPPORTUNITY

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Add trees in greenscape/furnishing zone

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POTENTIAL PLANTING SITES

TREE PITS WITH LIVING TREES

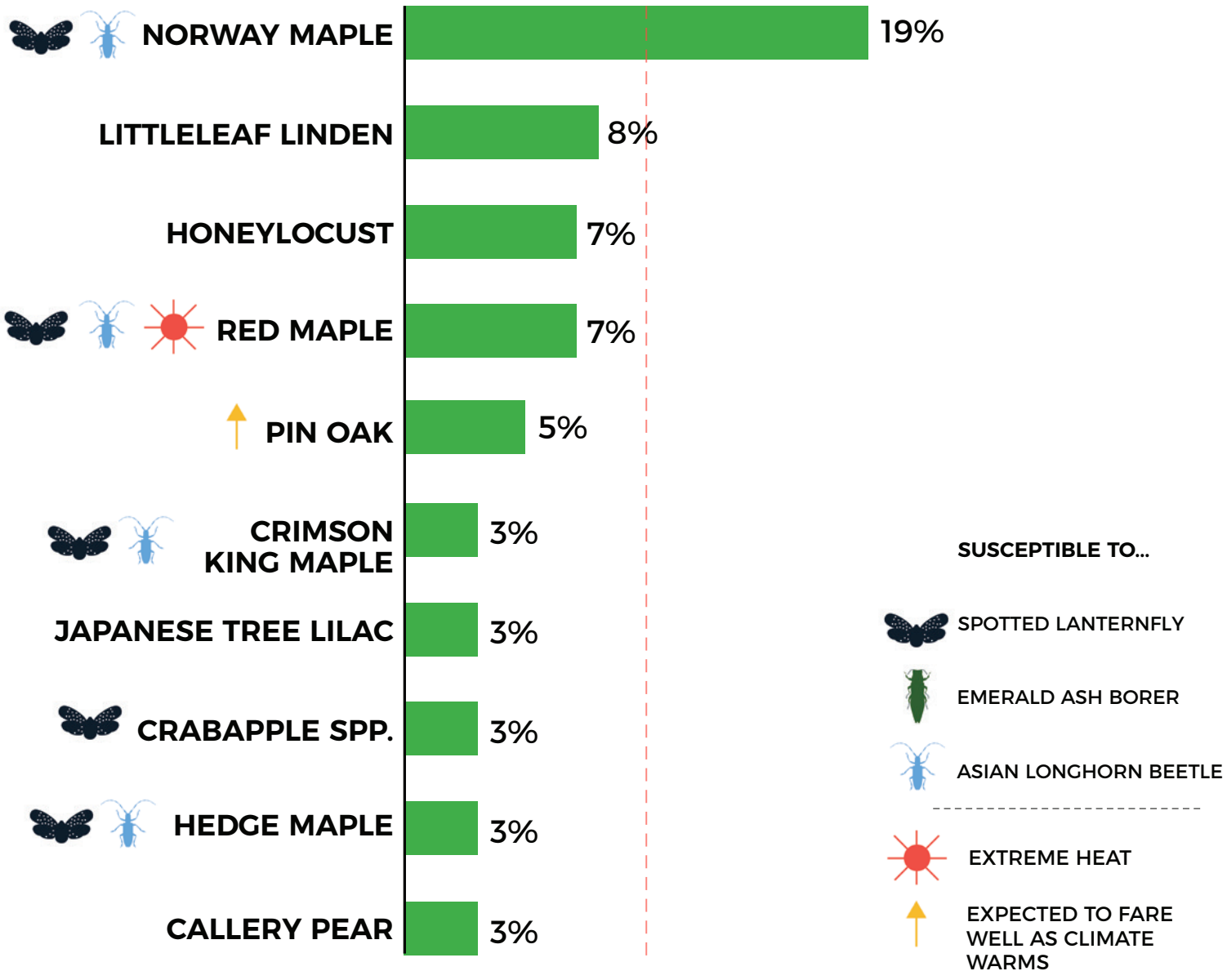
PRIORITY ZONES

2,000 FT.

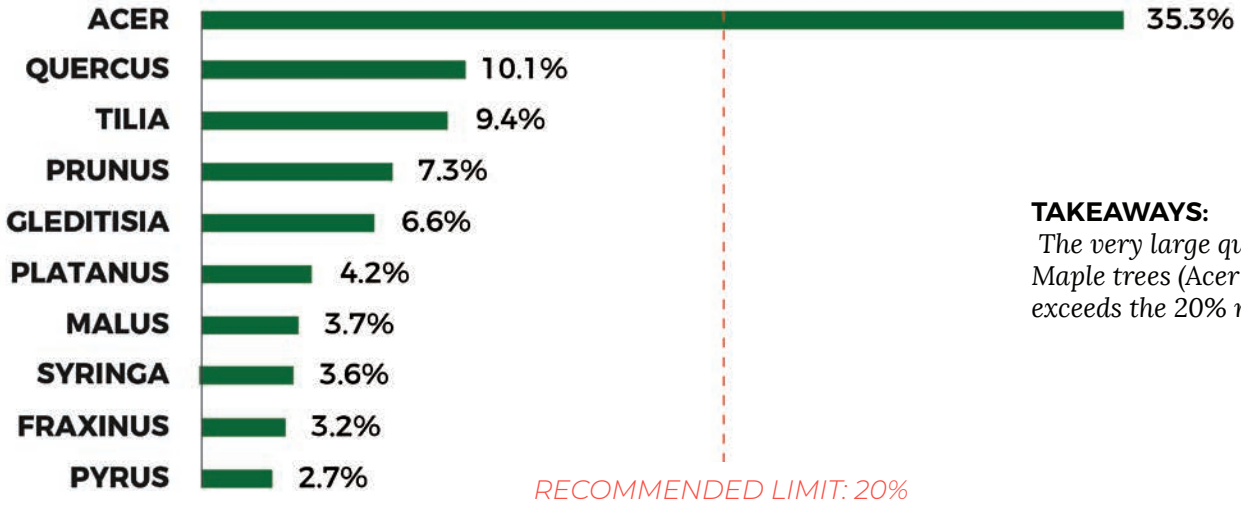
STREET TREE ANALYSIS

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%.

WEST ROXBURY TOP 10 TREE SPECIES



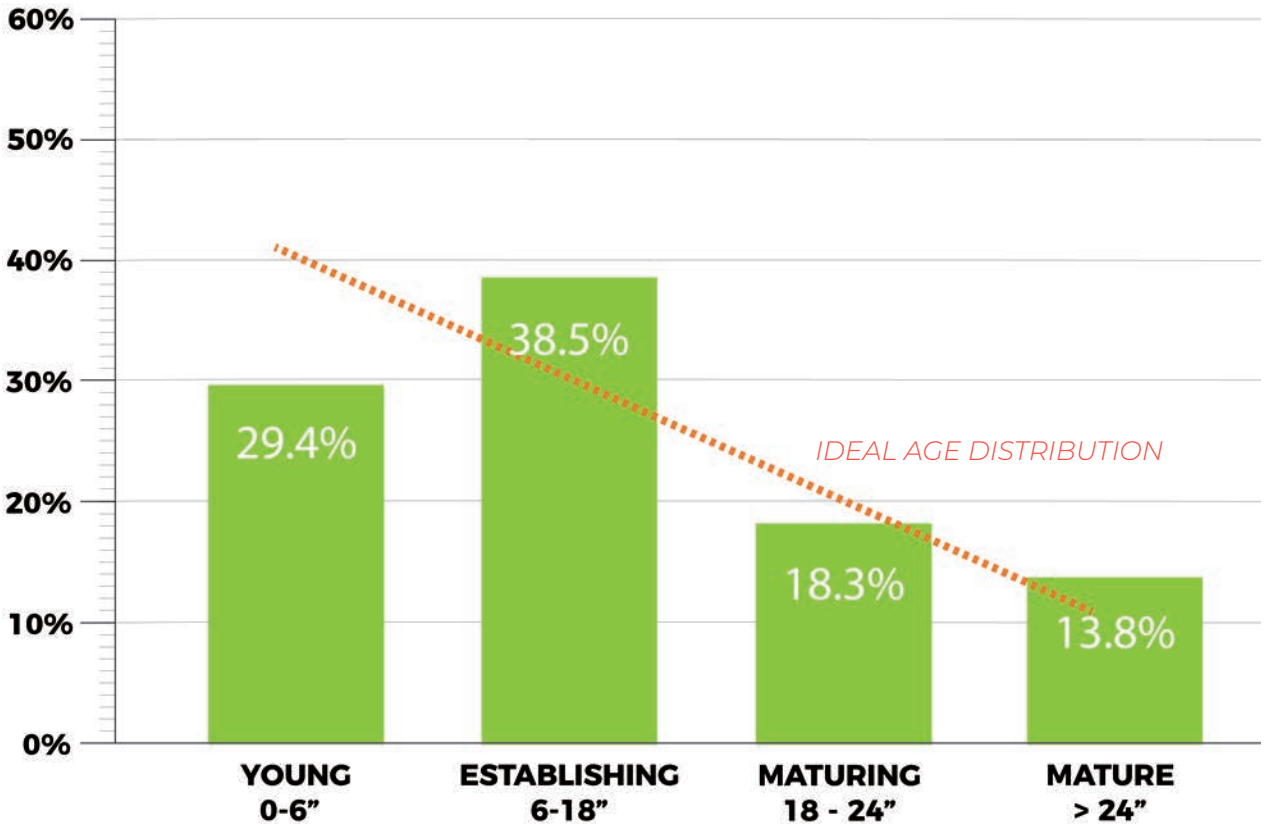
WEST ROXBURY TOP 10 STREET TREE GENUS COMPOSITION



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

Additional genera identified in West Roxbury: Abies, Aesculus, Ailanthus, Albizia, Amelanchier, Betula, Carpinus, Carya, Celtis, Cercidiphyllum, Cercis, Cornus, Crataegus, Eucommia, Fagus, Ginkgo, Gymnocladus, Hibiscus, Hydrangea, Juglans, Juniperus, Koelreuteria, Liquidambar, Liriodendron, Maackia, Morus, Nyssa, Ostrya, Parotia, Phellodendron, Picea, Pinus, Rhamnus, Robinia, Sambucus, Sophora, Taxodium, Ulmus, Zelkova

WEST ROXBURY STREET TREE AGE COMPOSITION



TAKEAWAYS:
The age and size of West Roxbury trees is generally well distributed relative to the ideal distribution with slightly too many establishing street trees and too few young street trees. Focus should be on proactive care and preservation of existing canopy to improve longevity and new plantings to increase numbers of young street trees.

EXISTING CONDITIONS

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.

West Roxbury has numerous large open spaces, both protected and unprotected. There is no priority zone in West Roxbury.

ALLENDALE WOODS, WEST ROXBURY

WEST ROXBURY
OPEN SPACE OPPORTUNITY

- PROTECTED OPEN SPACE
- UNPROTECTED OPEN SPACE
- TREE CANOPY
- PRIORITY ZONES
- 2,000 FT.

EXISTING CONDITIONS

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.

  West Roxbury does not experience extreme 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.

  West Roxbury is not anticipated to experience coastal flooding.

WEST ROXBURY
HEAT EVENT HOURS*

- TREE CANOPY
- 32 - 38 HEAT EVENT HOURS
- 29 - 32 HEAT EVENT HOURS
- 26 - 29 HEAT EVENT HOURS
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2,000 FT.