Cambridge Urban Forest Master Plan

UFMP Public Meeting #3: Technical Report

November 12, 2019

SUMMARY OF TECHNICAL REPORT

NEXT STEPS

Q & A

OPEN HOUSE

SUMMARY OF TECHNICAL REPORT

NEXT STEPS

Q & A

OPEN HOUSE

URBAN FOREST MASTER PLAN

Process overview

Builds upon **findings of the CCVA**

Attempts to deepen the City's **understanding** of the anticipated risks to the urban forest

Proposes strategies that **support goals of CCPR**: building infrastructural, economic, and social resilience that integrates the built and natural environments.

Task Force met 12 times during 2018-2019 to review progress, pose questions, and provide advice to the consultant team, and the interaction with the Task Force has significantly shaped the content of this report, the approach to the subject, and the components of the response strategies.

UFMP is as a **unique project**, one that other communities are looking to emulate in planning for the future

TASK FORCE MEMBERS

Barbara Murphy-Warrington, Resident
Louise Weed, Resident

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Ahron Lerman, Resident

Kathleen Fitzgerald, Resident

Tessa Mae Buono, Resident

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Randa Ghattas, Resident

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Maggie Booz, Resident, CPP Co-chair

Florrie Wescoat, Resident, CPP Co-chair

Megan Nichols Tomkins, Representative of the Chamber of Commerce

Caitlin Tamposi, Representative of the Chamber of Commerce (former TF member)

Laura Tenny, MIT Representative

Mark Verkennis, Harvard University Representative

Tom Evans, Cambridge Redevelopment Authority Representative

Joe Bendar, Cambridge Housing Authority Representative

Michael Johnston, Cambridge Housing Authority Representative (former TF member)


SENNOTT PARK


MEMORIAL DRIVE

CENTRAL SQUARE

WHAT DO TREES MEAN TO US?



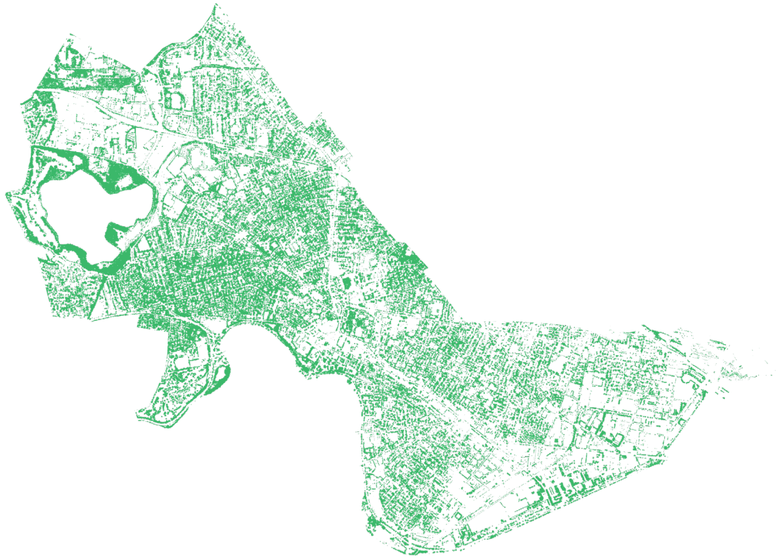






FINDINGS

Average canopy loss has been 16.4 acres per year since 2009



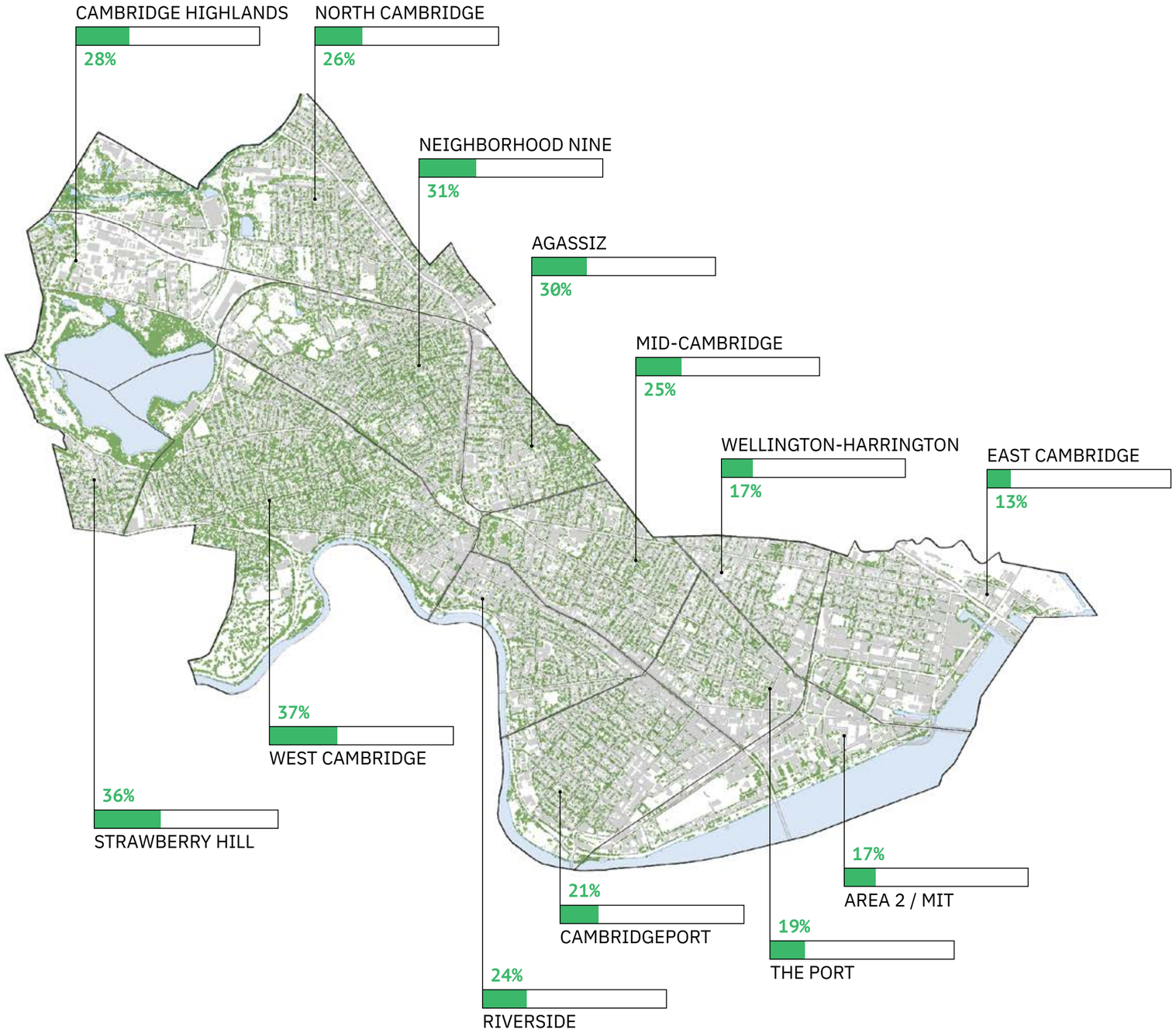
2009 — 30%

2018 — 26%

2030 — 17% to 21%
(PROJECTED)

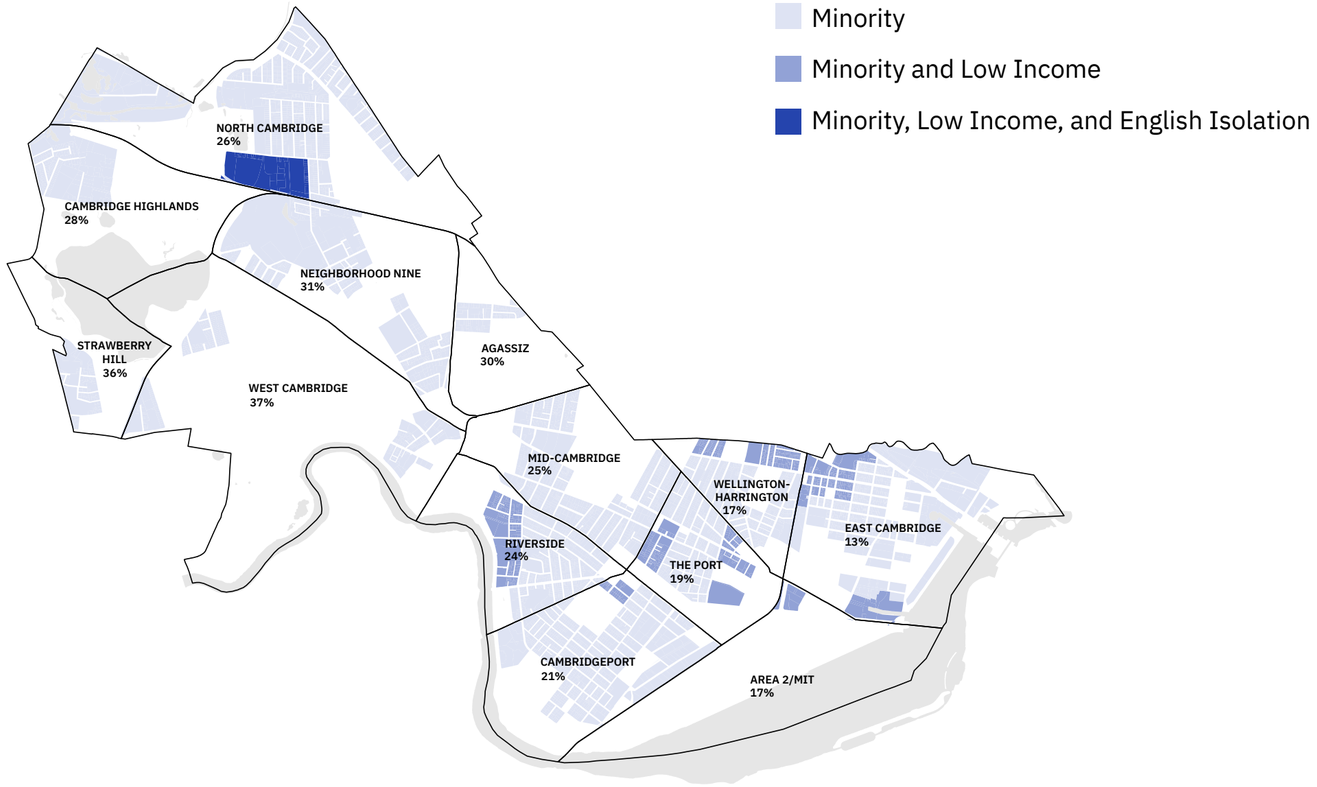
FINDINGS

Canopy cover is not equitably distributed

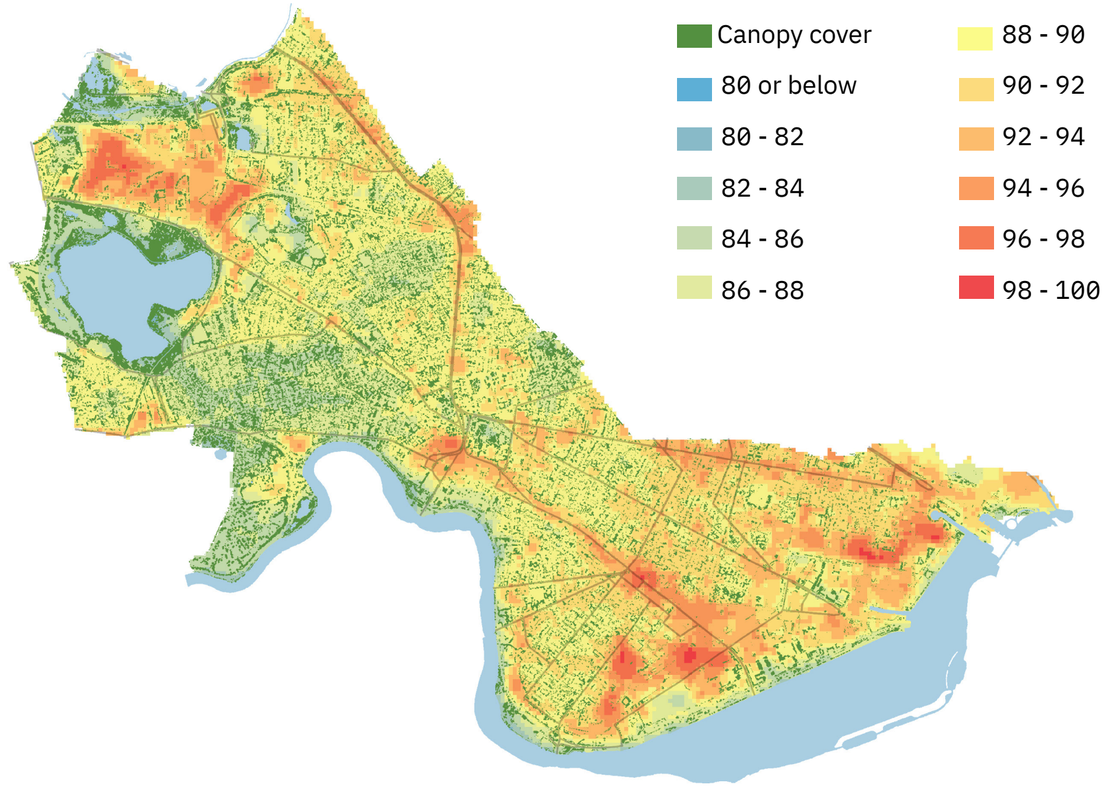


FINDINGS

Canopy cover is not equitably distributed



POPULATIONS AT RISK



COMPARISON BETWEEN HEAT ISLAND AND CANOPY COVERAGE

Estimated ambient air temperature of a 90° F day

FINDINGS

Canopy cover is not equitably distributed

EAST CAMBRIDGE

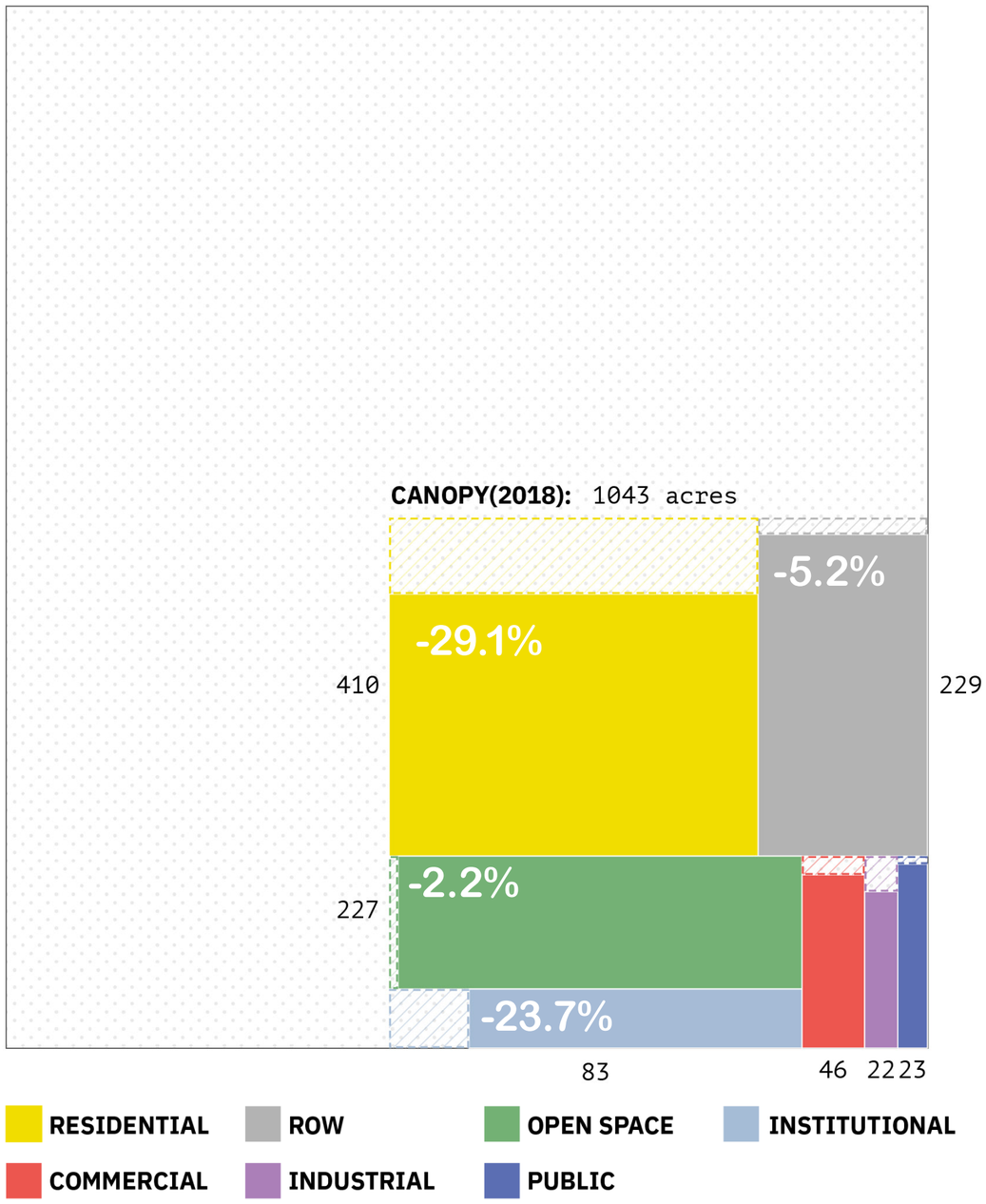
WEST CAMBRIDGE

FINDINGS

Private property represents 72% of the total loss since 2009 and 58% of the total 2018 canopy

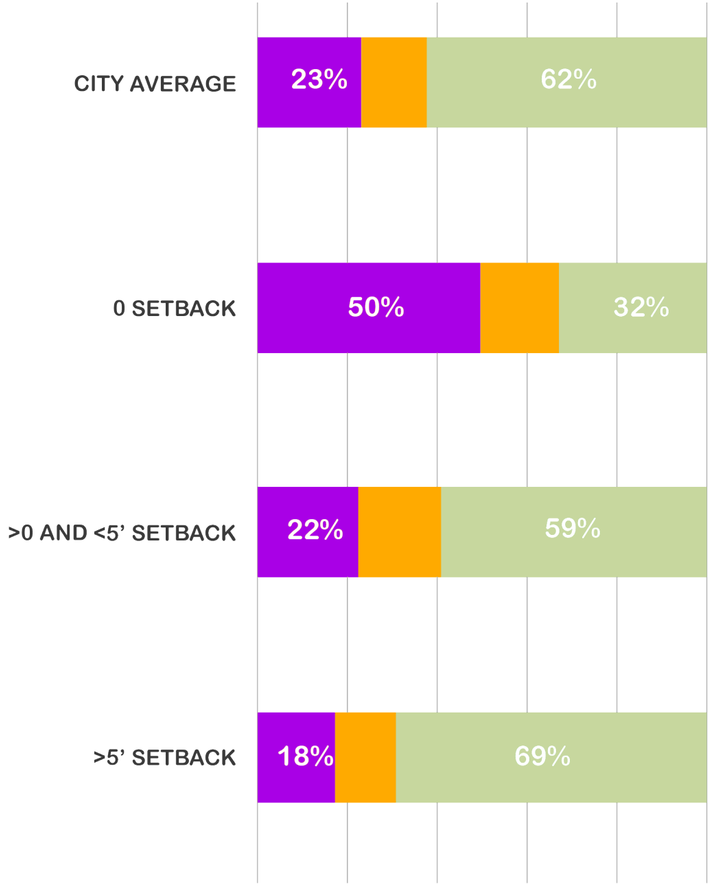
2018 CANOPY

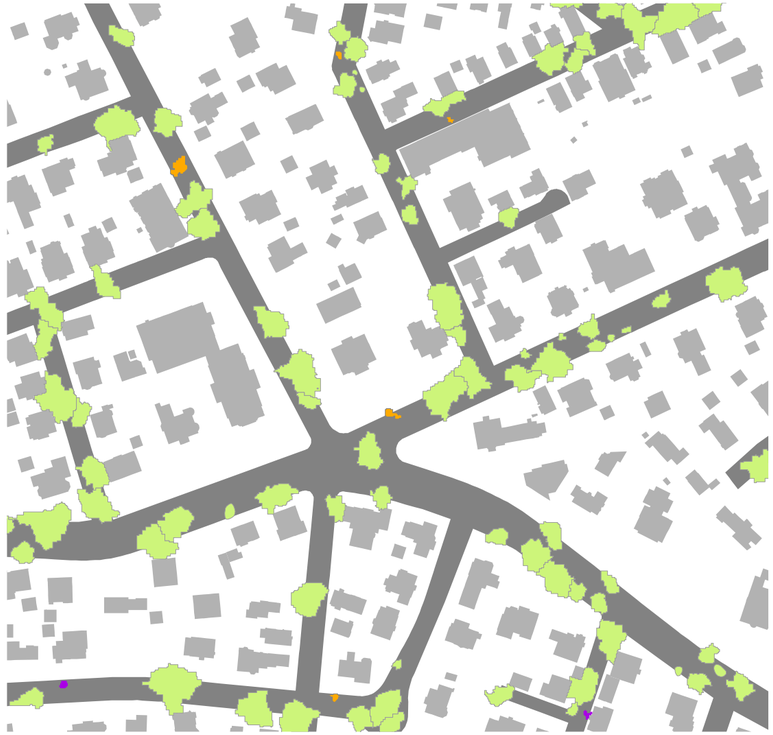
- CITY AND STATE OWNED TREES
- PRIVATE TREES



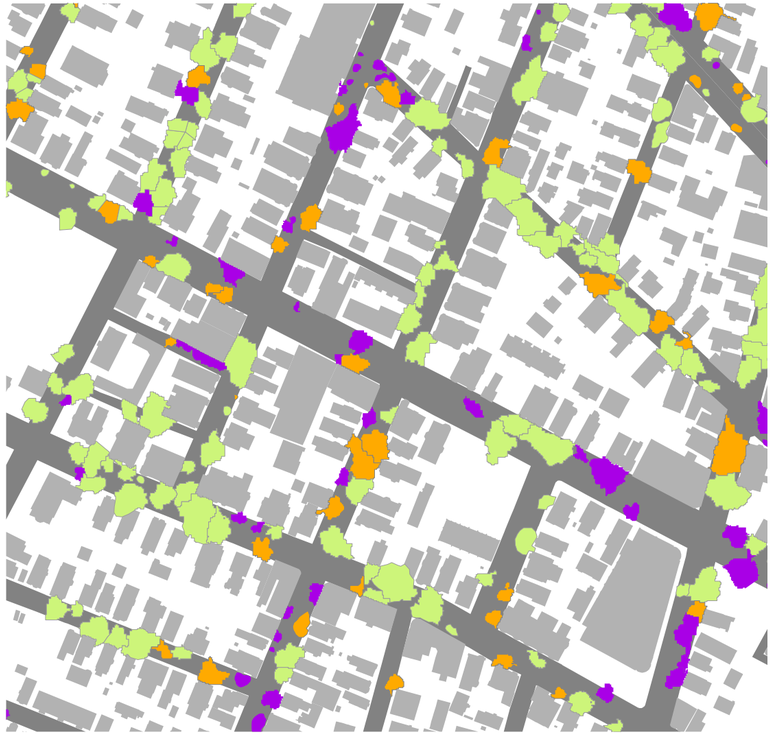
FINDINGS

Areas with front yard setbacks have street trees in better condition





WEST CAMBRIDGE



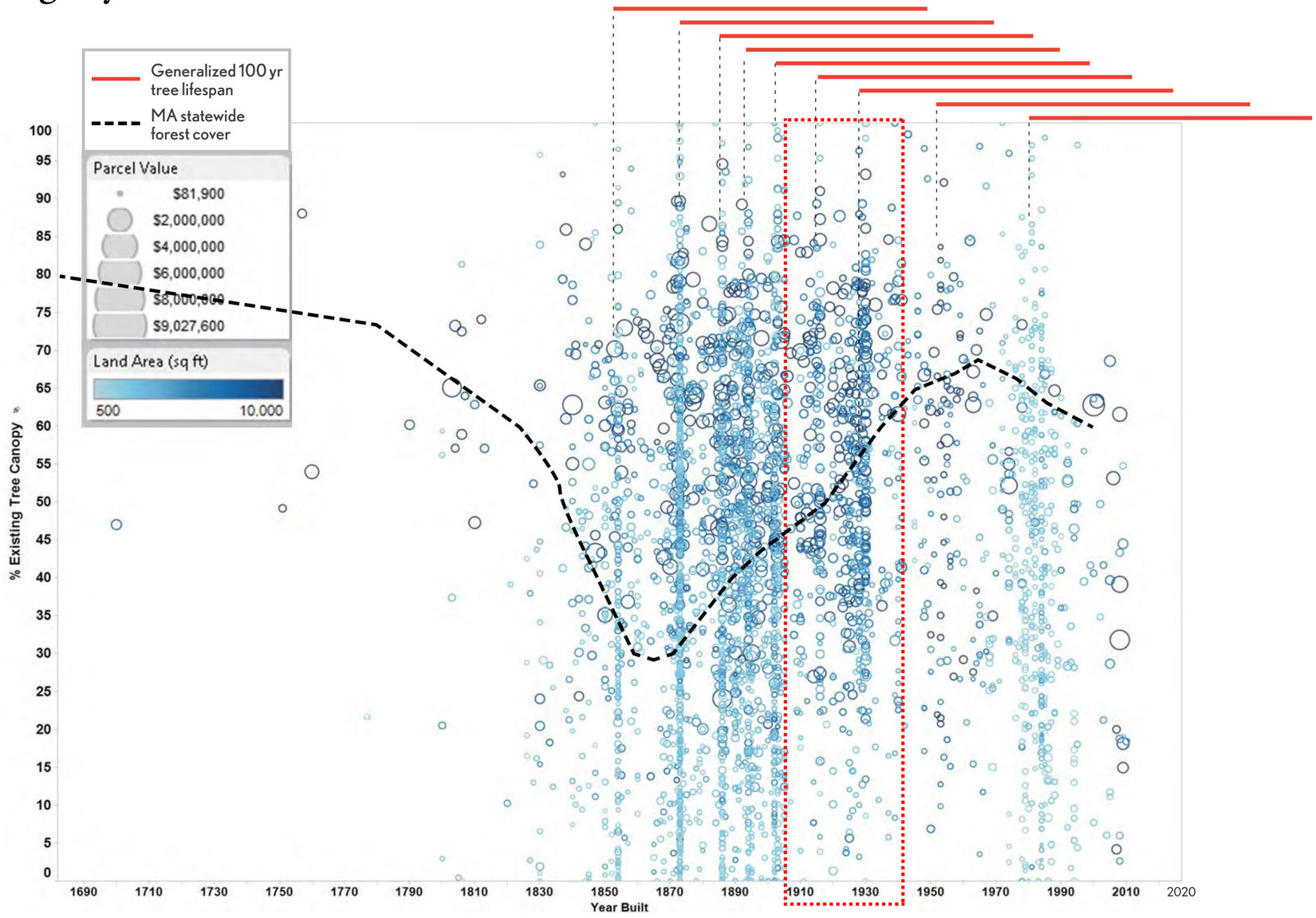
EAST CAMBRIDGE

TREES IN GOOD CONDITION

TREES IN FAIR CONDITION

TREES IN POOR CONDITION

FINDINGS
Urban canopy goes through cycles of boom and bust



Properties containing homes built around 1920 have an unusually high percentage of tree canopy

FINDINGS

Multiple factors impact the future condition of the forest

2030, 2050 and 2070 Baseline Scenario

— existing and potential pests and diseases

— temperature change and hardiness zone shift

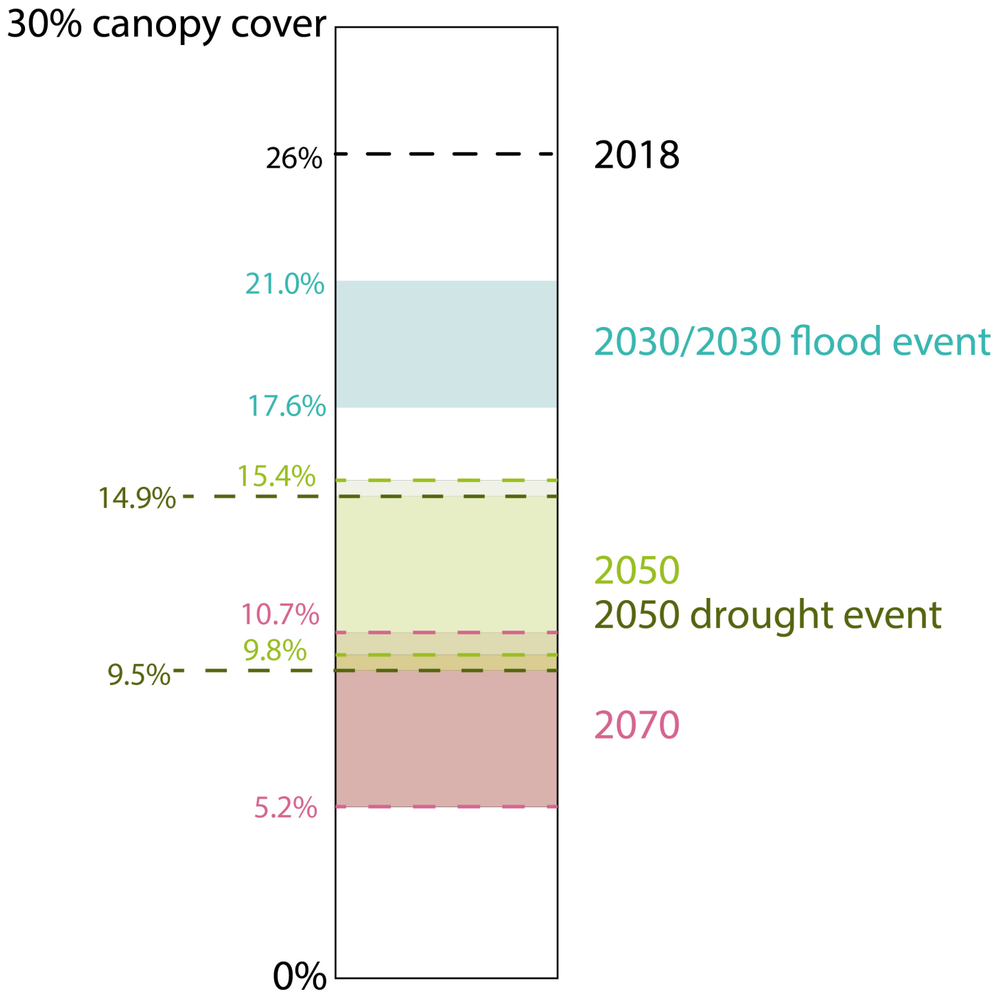
— existing replanting and growth rates

2030 Flooding Scenario

— areas experiencing standing water > 24 hrs in a simulated 100 yr flood event

2050 Drought Scenario

— a moderate drought event projected to occur once every 30 years within the 2035 to 2064 timeframe (Hayhoe et al 2006)



Annual net loss rate in canopy models ranges from 1.8% to 3.2%.

Climate change will alter the character of the forest

The **species composition** of the future forest is influenced by suceptibility of individual species to climate risks, particularly pests and diseases.

Flooding was found to have a potentially **minimal impact** on the canopy.

Drought was found to have a potentially **moderate impact** on the existing tree canopy.

Core Concepts

To maintain, plan, build, and sustain a healthy, connective urban forest

1
Understand the forest as a living system

2
Value the forest as a public resource

3
Invest in canopy in the public realm

4
Share responsibility for a healthy forest

APPROACH

Draft goals and targets

EQUITY

Goal
Minimum 25% cover per neighborhood

Target
Each year, plant X* trees in neighborhoods deficient in canopy

Feasibility Analaysis
Six neighborhoods do not currently meet the target. Will be difficult to achieve in East Cambridge.

SHARED RESPONSIBILITY

Goal
City, residents, universities, developers all to increase their canopy cover by 10 to 25% by 2050

Target
Each year, each constituent plants X* number of trees

Feasibility Analysis
There is enough plantable area to achieve this goal.

RESILIENCE

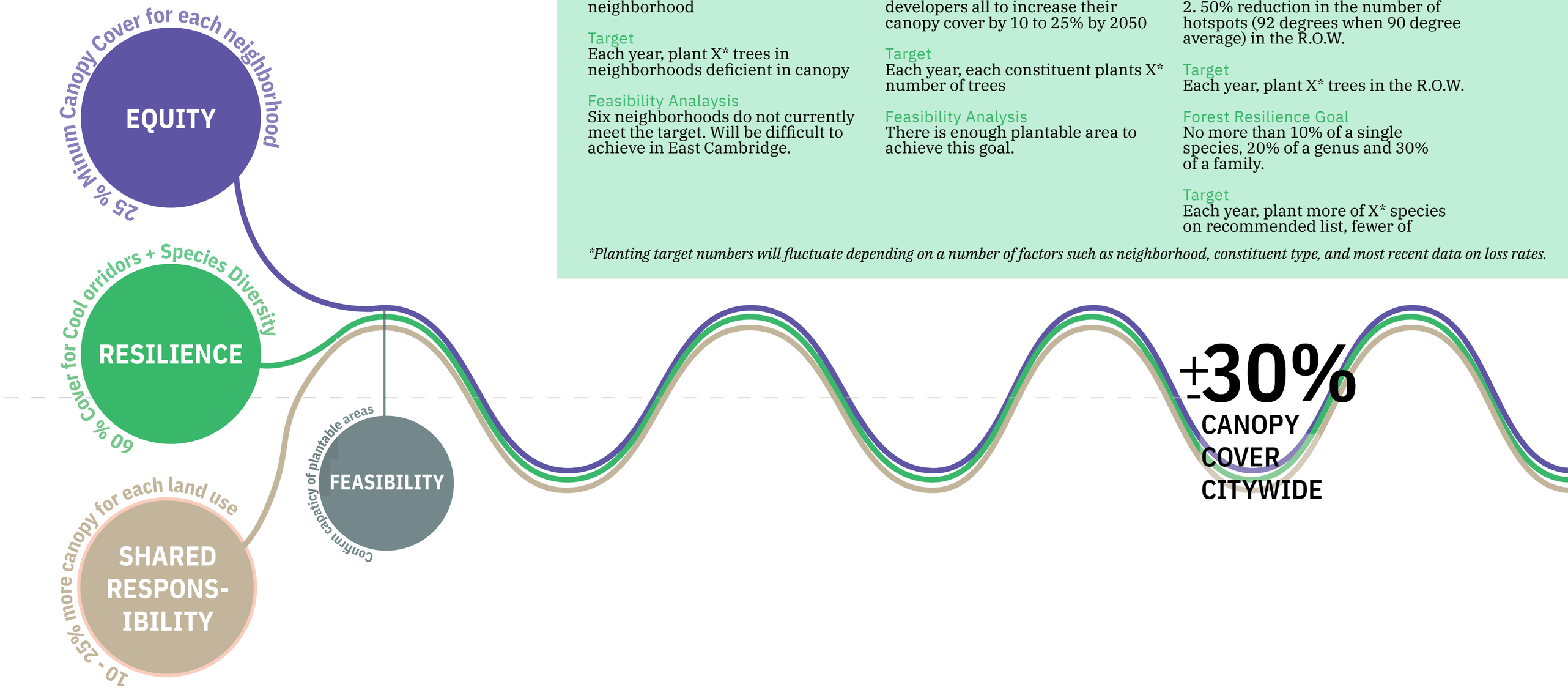
Human resilience goal
1. 60% of sidewalks canopy covered.
2. 50% reduction in the number of hotspots (92 degrees when 90 degree average) in the R.O.W.

Target
Each year, plant X* trees in the R.O.W.

Forest Resilience Goal
No more than 10% of a single species, 20% of a genus and 30% of a family.

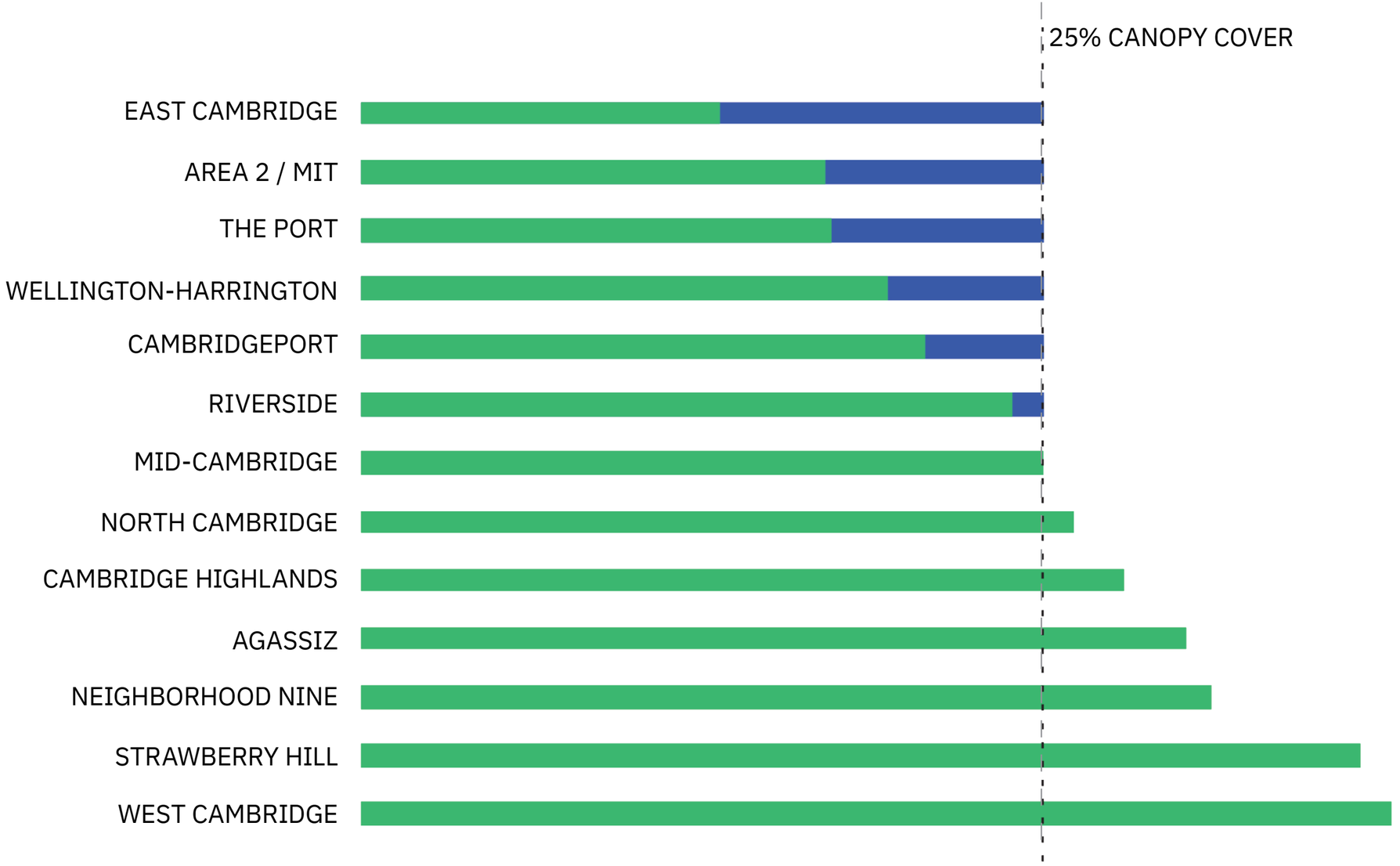
Target
Each year, plant more of X* species on recommended list, fewer of

**Planting target numbers will fluctuate depending on a number of factors such as neighborhood, constituent type, and most recent data on loss rates.*



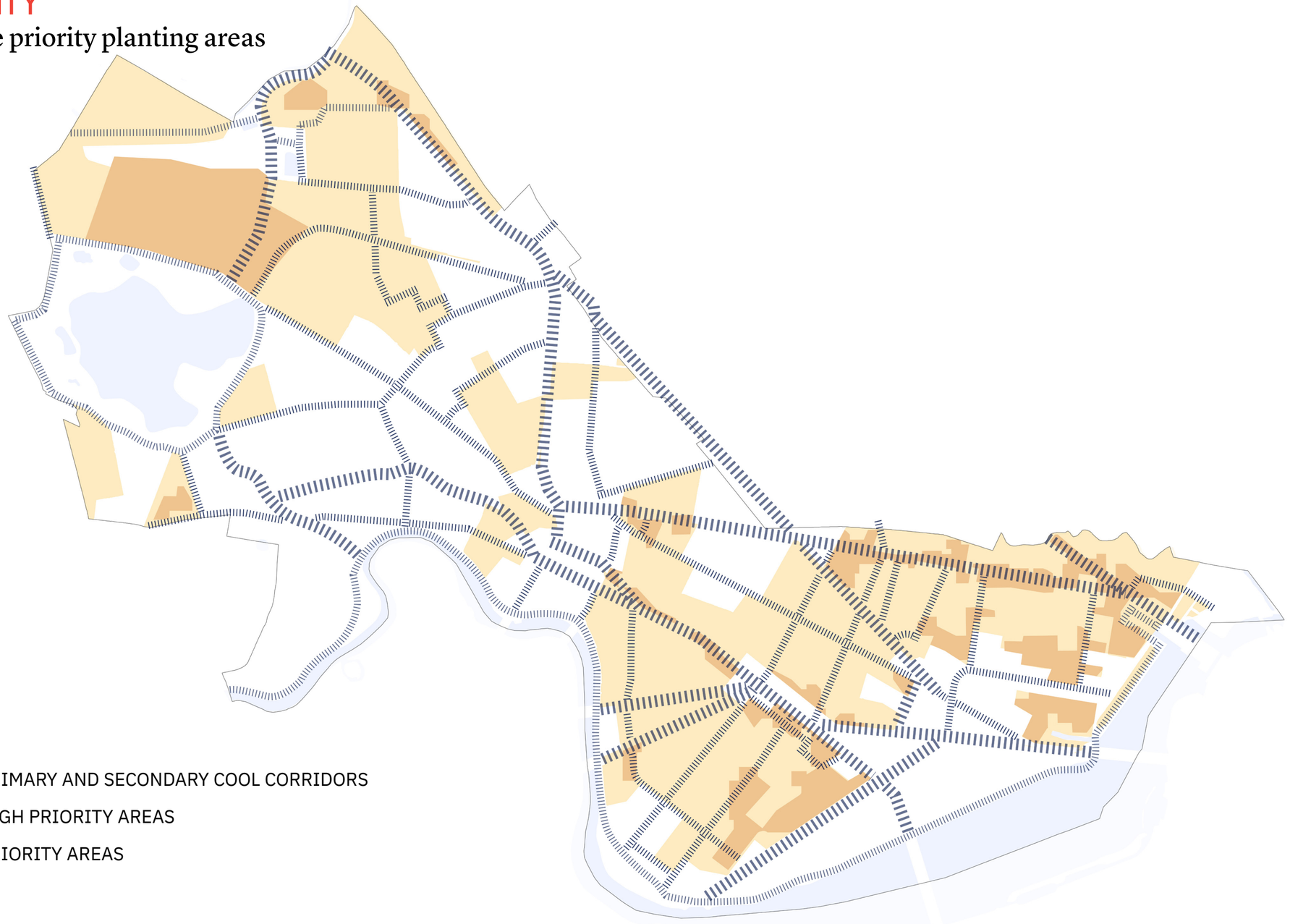
EQUITY

Set a minimum canopy cover goal by neighborhood



EQUITY

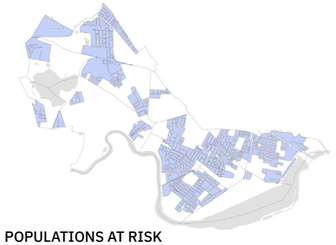
Define priority planting areas



PRIMARY AND SECONDARY COOL CORRIDORS

HIGH PRIORITY AREAS

PRIORITY AREAS

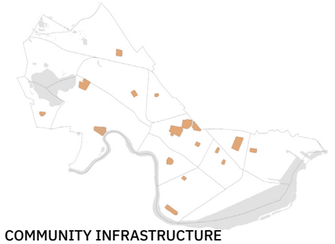


POPULATIONS AT RISK

Minority population, Low Income population, Non-English speaking population

HEAT ISLAND HOT SPOTS

Greater than 92 degrees on a 90° day



COMMUNITY INFRASTRUCTURE

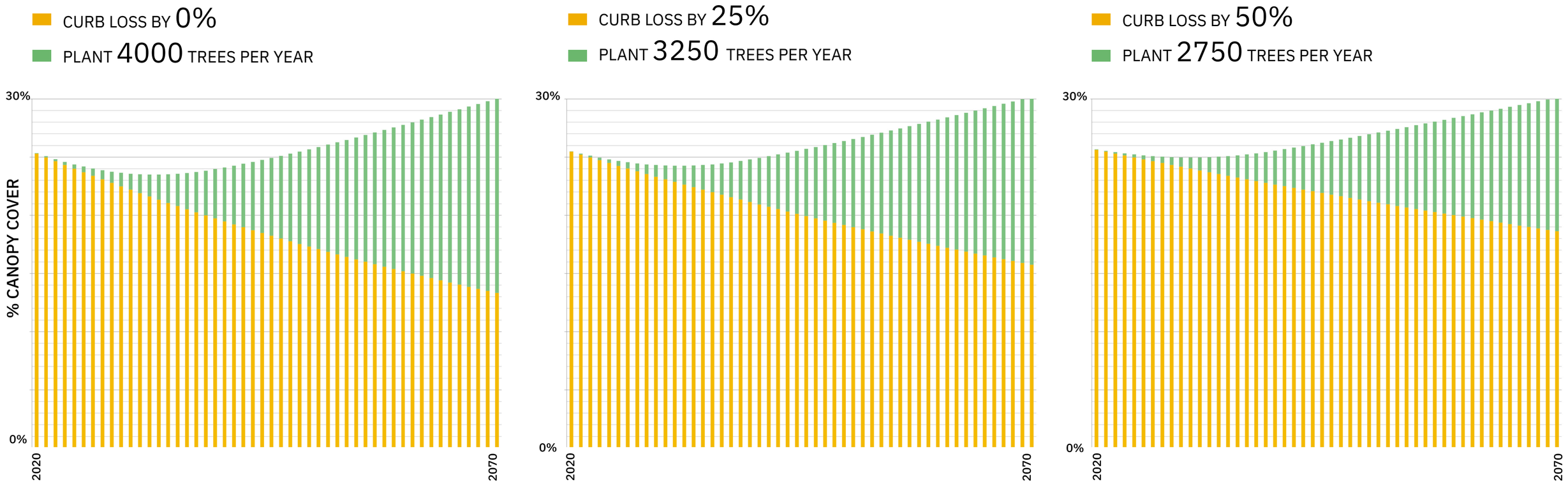
Public Schools and Hospitals

CANOPY CORRIDOR

Primary and secondary traffic routes

SHARED RESPONSIBILITY

Understand the importance of curbing loss to reaching 30% canopy cover



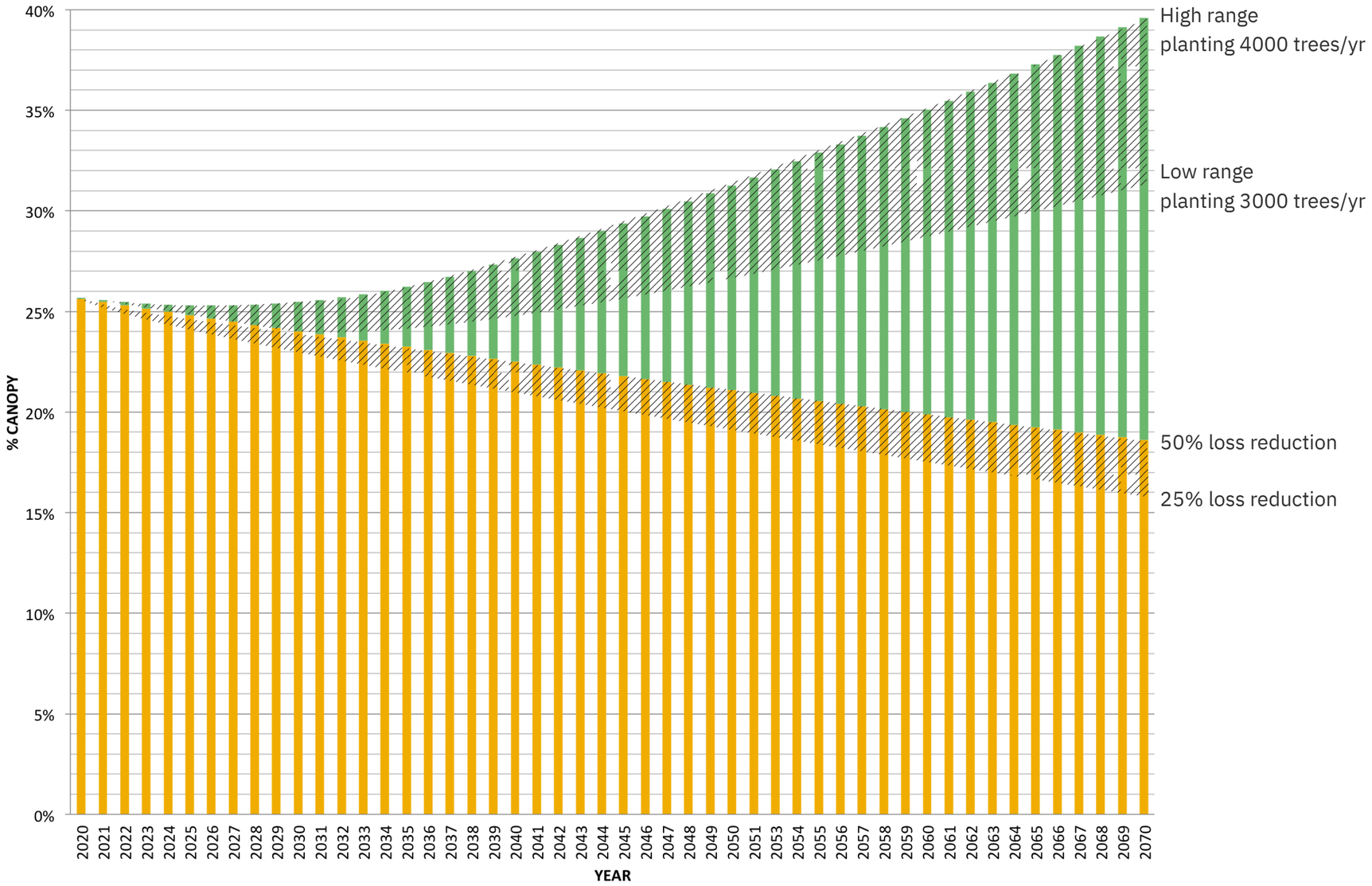
SHARED RESPONSIBILITY

Set targets for curbing loss and planting more trees

Plant ___ Additional New Trees Per Year	Reduce Net Loss by ___%	Canopy Cover In 2030	Canopy Cover In 2050	Canopy Cover In 2070
0 (do nothing scenario)	0%	22.8%	17.5%	13.5%
0	25%	23.5%	19.4%	15.9%
0	50%	24.3%	21.4%	18.7%
2,000	0%	23.4%	22.4%	24.0%
2,000	25%	24.2%	24.2%	26.4%
2,000	50%	24.9%	26.2%	29.2%
4,000	0%	24.0%	27.2%	34.5%
4,000	25%	24.8%	29.0%	36.9%
4,000	50%	25.5%	31.0%	39.7%

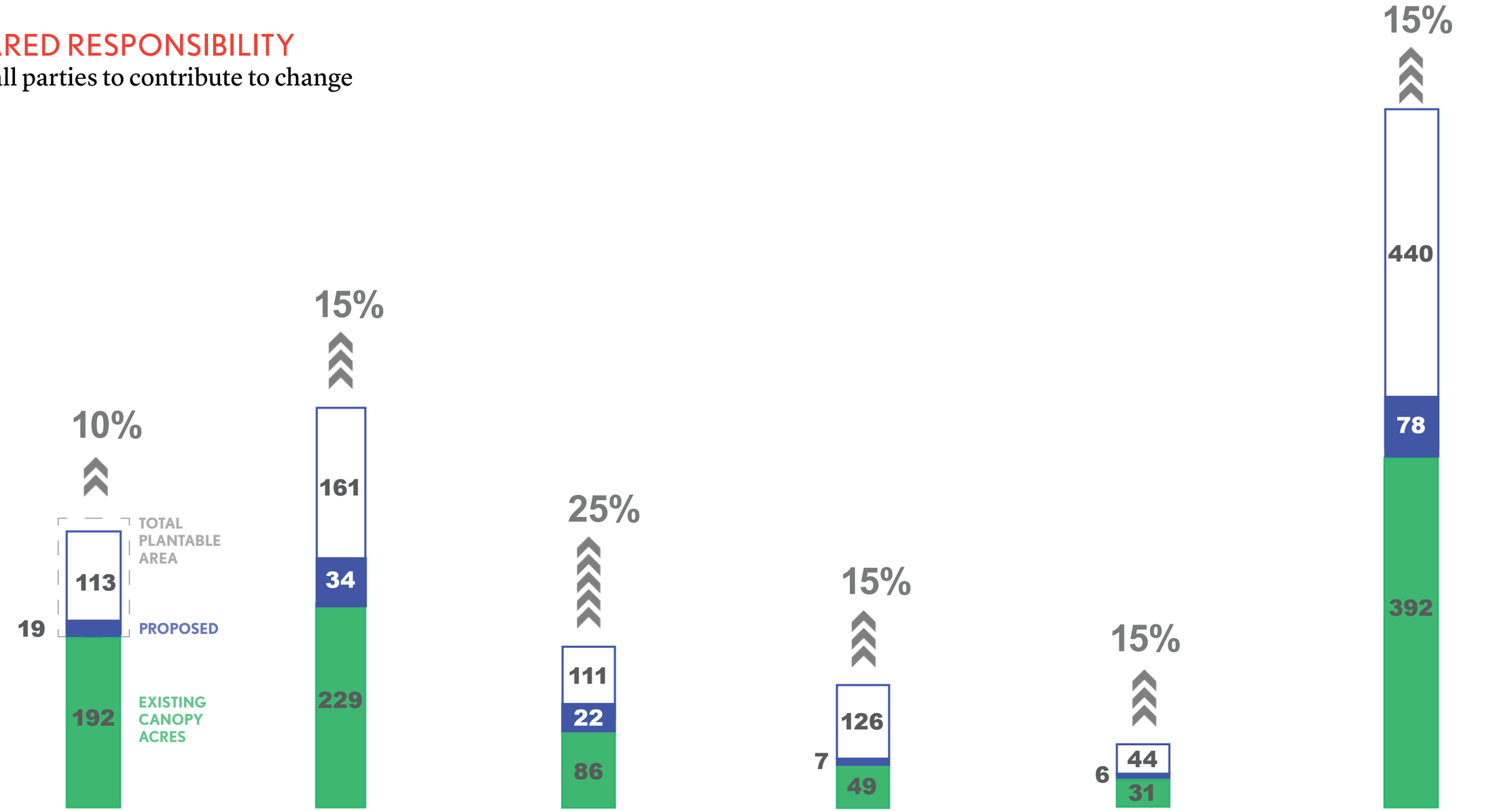
SHARED RESPONSIBILITY

Understand the relationship between loss rate and future canopy cover



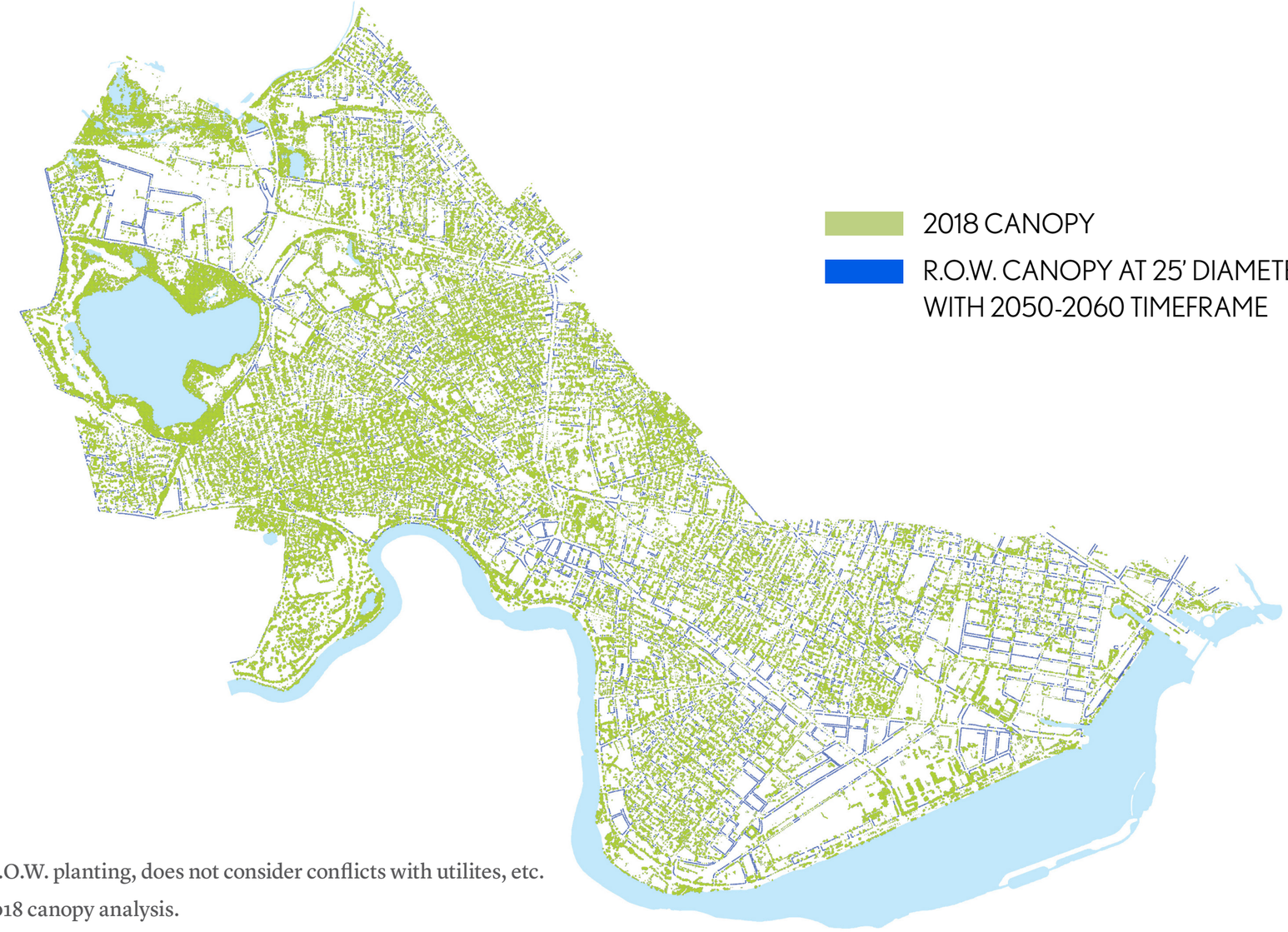
SHARED RESPONSIBILITY

Ask all parties to contribute to change



RESILIENCE
Shade the Public Realm

12,000 new Right of Way trees at maturity increase canopy cover from 26% to 27.5%* citywide

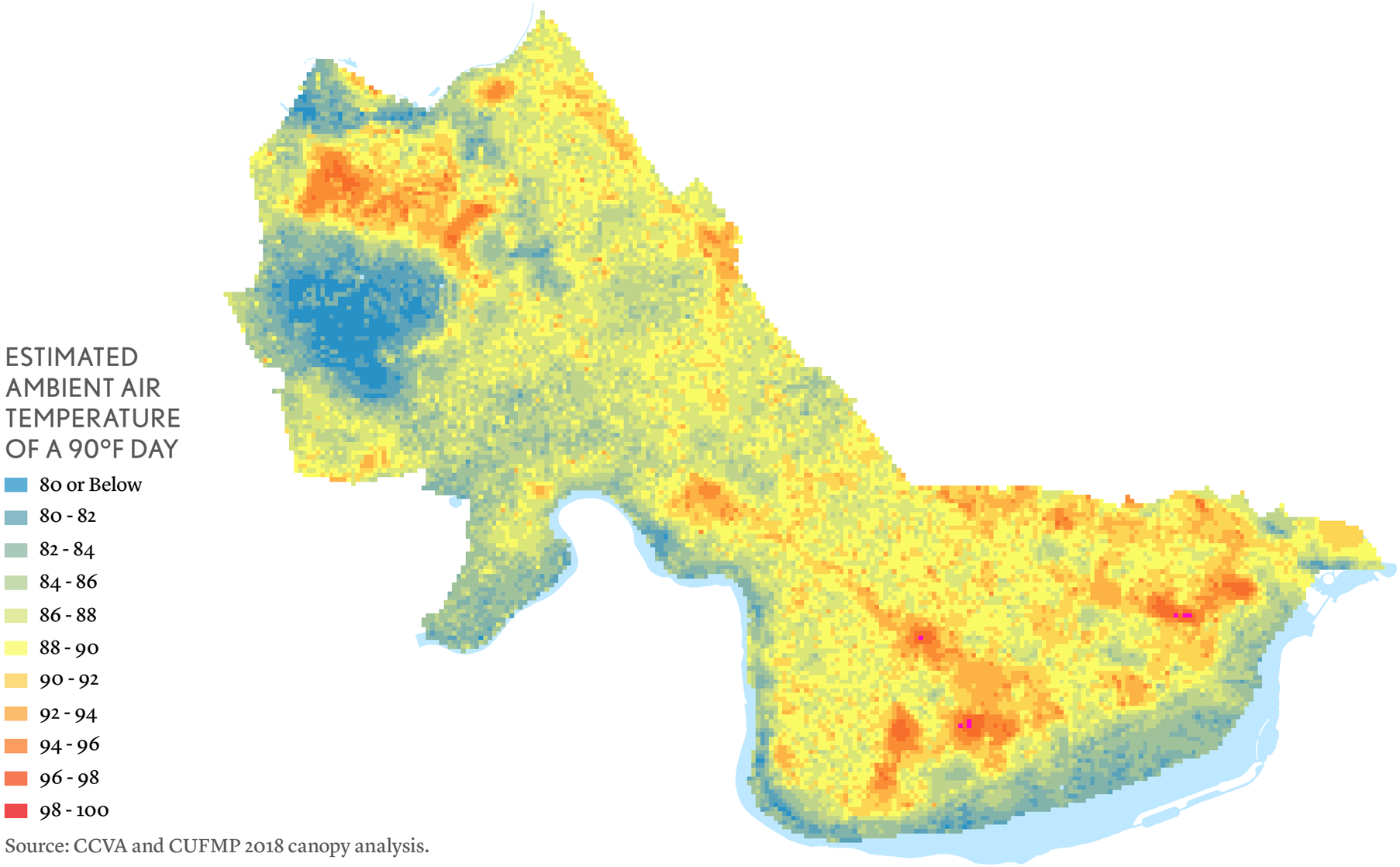


*Idealized scheme of R.O.W. planting, does not consider conflicts with utilites, etc.

Source: and CUFMP 2018 canopy analysis.

RESILIENCE

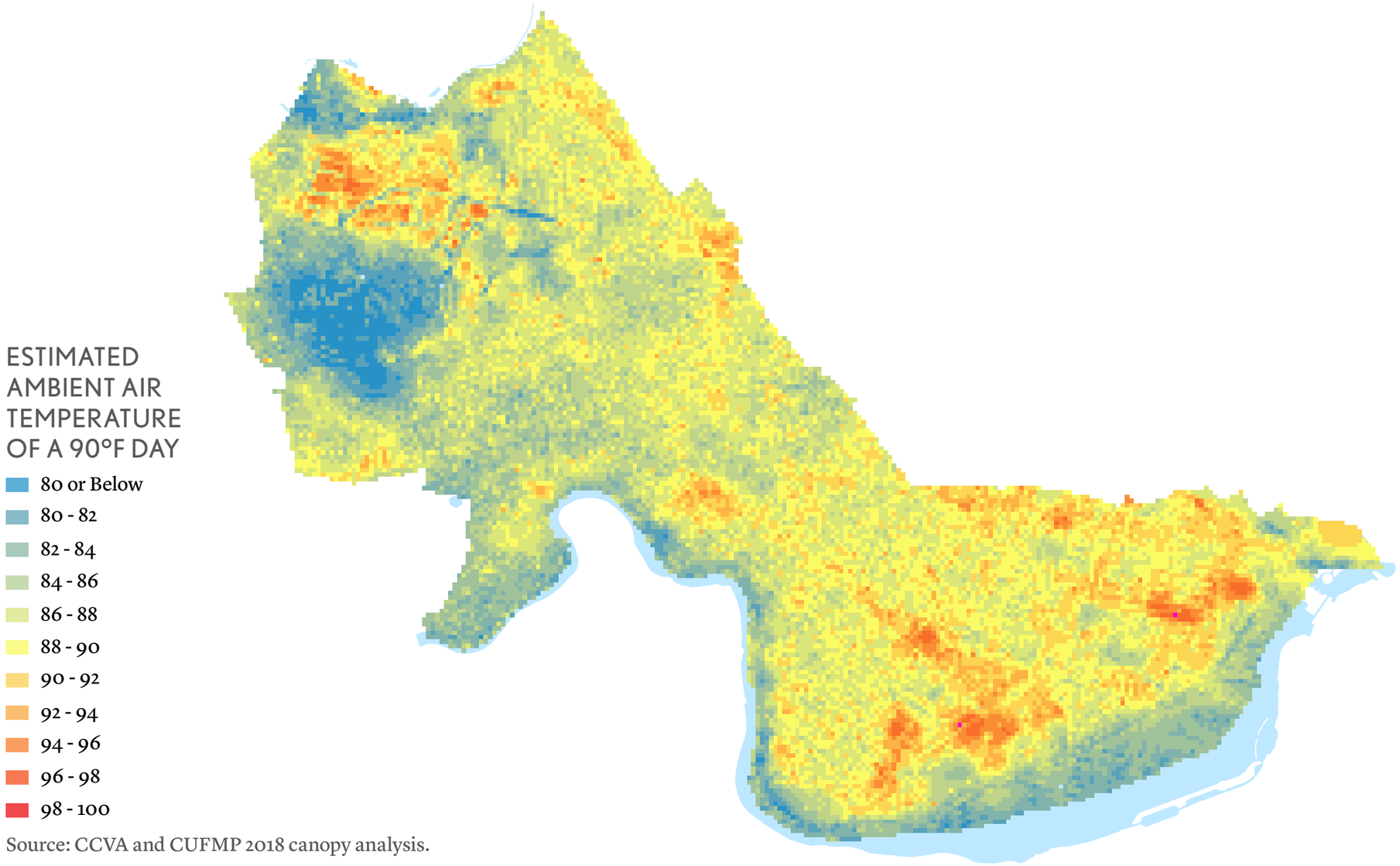
Heat island as felt in 2018 is not evenly distributed



Source: CCVA and CUFMP 2018 canopy analysis.

RESILIENCE

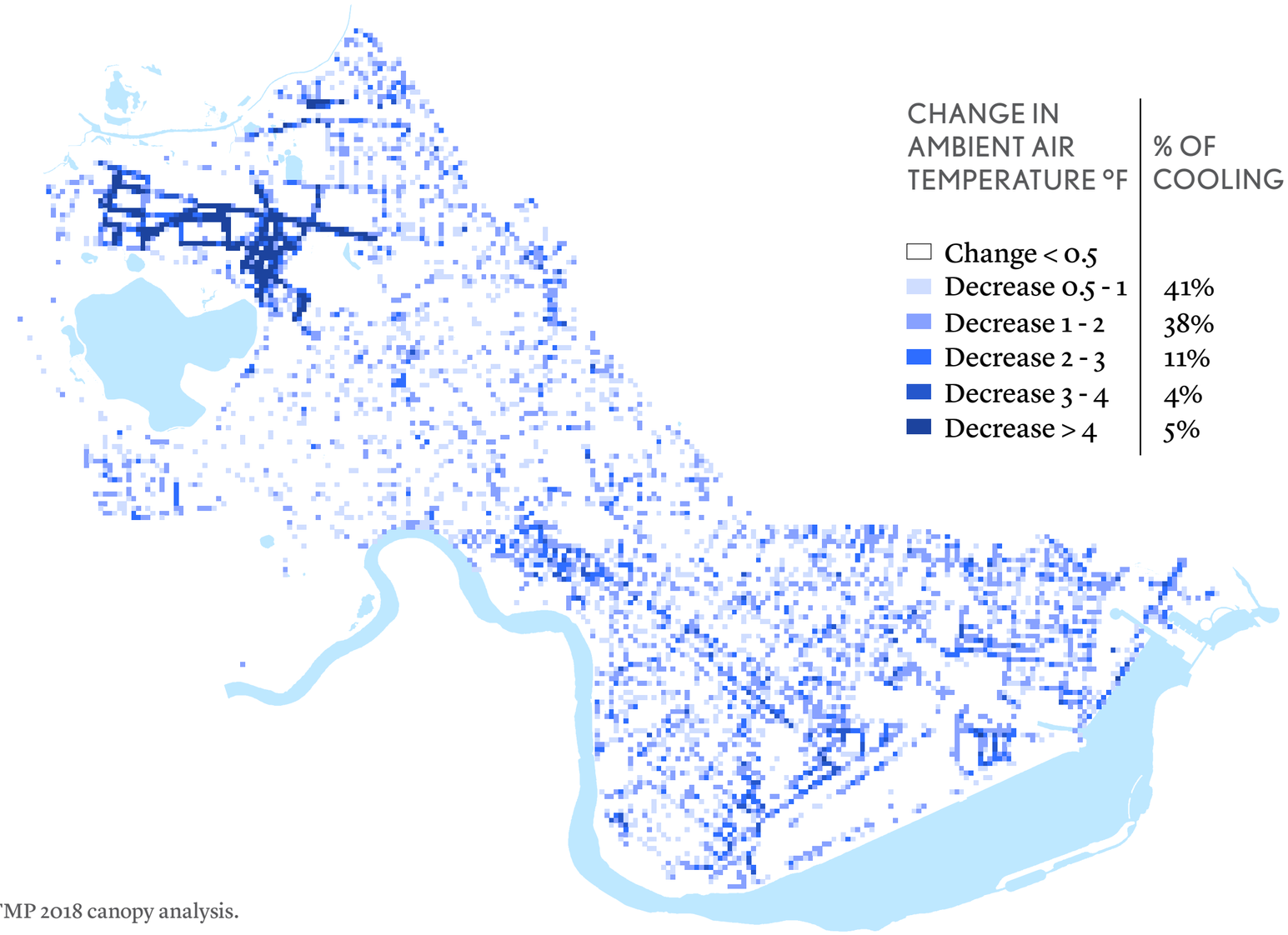
12,000 new ROW trees at maturity reduce heat island along important corridors



Source: CCVA and CUFMP 2018 canopy analysis.

RESILIENCE

25% of the city woud experience 0.5 °F or more decrease in temperature with 12,000 new trees



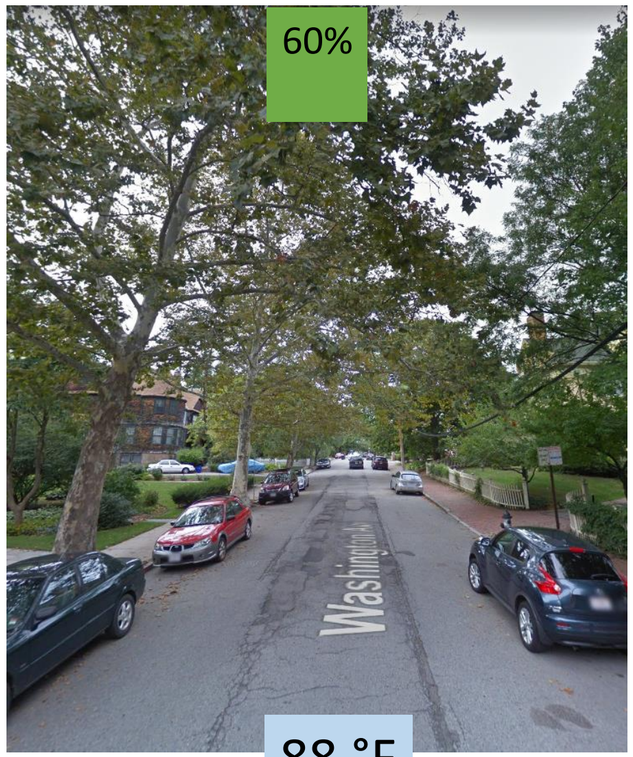
Source: CCVA and CUFMP 2018 canopy analysis.

RESILIENCE

Cooling impact relative to streetscape (90 degree day)

A.

B.



C.

RESILIENCE

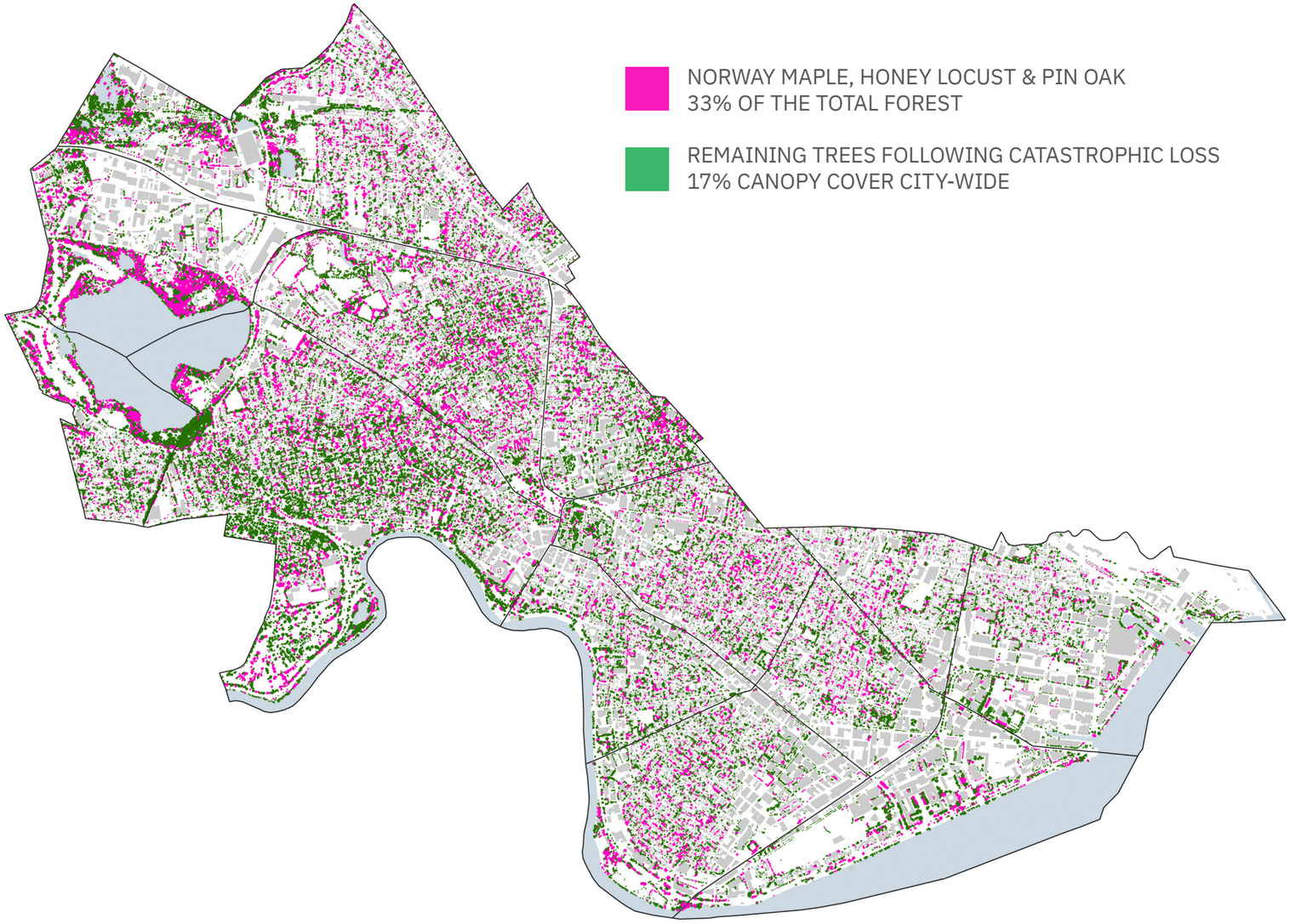
Diversify the Cambridge forest to better withstand catastrophic events

TOTAL FOREST

30 % FAMILY

20% GENUS

10 % SPECIES

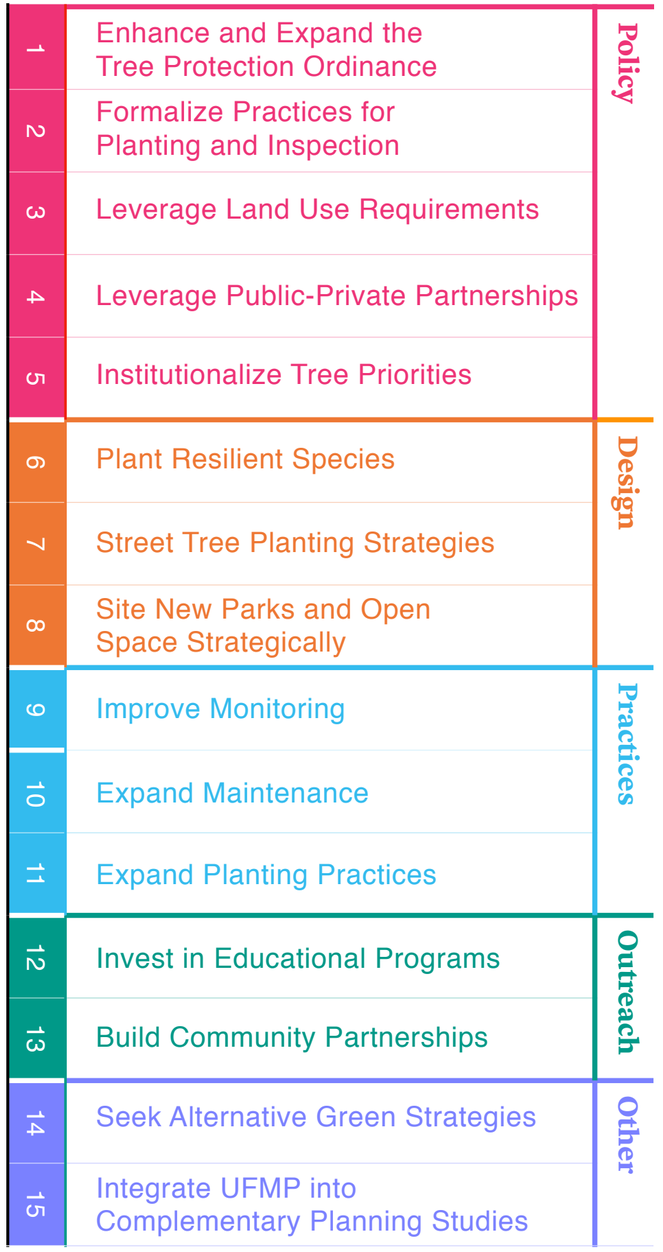


CURB LOSS + GROW CANOPY

An all-of-the-above approach

A menu of 47 strategies:

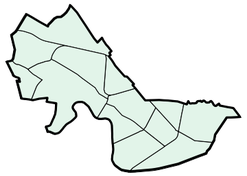
19 Policy
7 Design
9 Practice
12 Outreach & Education



POLICY STRATEGY 3A

Redefine Significant Trees to 6” DBH

IMPACT AREAS



STEM LOSS

GROW CANOPY

SUMMARY

For projects requiring a special permit from the Planning Board or development projects subject to large project review (25,000 sq. ft. or more), the city’s tree protection ordinance provides certain protections. These protections only apply to “Significant Trees,” which are defined as trees greater than 8” DBH.

Other cities and towns locally and across the country offer protections for trees with a lower DBH. In particular, protections for trees with 6” DBH or greater is common.

ANALYSIS

The statistical sample of Cambridge’s tree population completed as part of this study found that of 4,118 trees inventoried, 41 percent measured greater than 8 inch DBH versus 60 percent which measured 6” DBH or greater. If the city were to redefine Significant Trees as 6” DBH or greater, this would increase the number of trees captured under the ordinance for the purposes of new or redevelopment by about 49 percent.

PROS

Increases the number of trees protected by the ordinance

Burdens large projects rather than individual residents or the City

CONS

Applies to more proposed development projects and thus requires additional city resources to review and approve plans

Adds cost to certain projects, including those which provide housing and other community values

PRECEDENTS

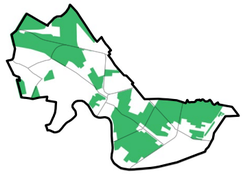
National:
Atlanta, Georgia
Seattle, Washington
Oakland, Florida
Miami, Florida
Anna, Texas

Local:
Concord, Massachusetts
Lexington, Massachusetts
Brookline, Massachusetts

POLICY STRATEGY 3B

Increase front setback and open space requirements in priority areas through Zoning Ordinance

IMPACT AREAS



STEM LOSS GROW CANOPY

SUMMARY

Various tree-related requirements and landscape mandates are currently scattered throughout City zoning. Most of these requirements are tied to narrowly defined site uses (such as parking facilities or townhouses) and limited districts (such as the Parkway or Prospect Street Overlay Districts).

The Zoning Ordinance also includes requirements for setbacks and open space, which have implications for the amount of area available for planting on sites, but do not specifically define the amount of planting required.

The concepts behind this strategy have been taken under consideration by the Resilient Zoning Task Force.

ANALYSIS

The City of Cambridge could increase the minimum front setback and open space requirements for all or certain zoning districts to increase the amount of space available for planting on lots. While many of the City's residential districts have substantial requirements, most industrial and business districts in the city have little or no front setback and open space requirements. This would not require the implementation of a new concept; rather it would simply involve a revision to the existing minimum requirements. The city could coordinate increased requirements to match the areas designated as "high priority" for planting and preservation. The City could customize enhanced planting areas based on building typology, land use, urban form, and other factors.

PROS

Increases plantable area on new development sites

Targets high priority areas

CONS

Conflicts with other City goals of density and consistency with existing urban form

Require amendments to zoning, which is likely to be a complex political process

Places burdens on redevelopment projects

Applies only to new development and construction projects, having impact only over the long term

PRECEDENTS

National:

Baltimore, MD*

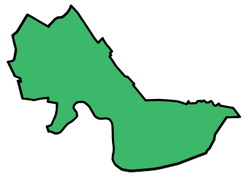
Austin, TX*

*Note that these cities did not increase setbacks and open space requirements for the sole purpose of facilitating planting in high priority areas but did use sociodemographic and other factors to determine high priority planting areas.

POLICY STRATEGY 3A

Establish canopy coverage requirements by parcel through Zoning Ordinance

IMPACT AREAS



STEM LOSS GROW CANOPY

SUMMARY

Today, Cambridge has 26 percent of its land area covered by canopy. Between 2009 and 2018, the canopy declined on average by 16.4 acres every year. At this rate, canopy cover will be 21.6 percent in 2030.

This is also a time period in which significant redevelopment has taken place, and long-term plans such as Envision Cambridge are currently setting out a vision for the next areas of significant development. Zoning is the most effective way to influence development, but currently Cambridge zoning has little specific direction about trees or canopy cover.

The concepts behind this strategy have been taken under consideration by the Resilient Zoning Task Force.

ANALYSIS

If the City amended the Zoning Ordinance to require specific canopy coverage percentages by land use or district, future development would be structured to contribute to overall City-wide goals. Emphasis or higher percentages could be applied to priority areas such as canopy corridors through an overlay district. If cover requirements were to apply citywide, they could be incorporated into the existing requirements/standards for open space or established as a separate minimum requirement alongside the existing setback and open space requirements applied to each zoning district and land use type.

Land Use Type	2018 Acres of Land Use Overall	2018 canopy cover	Canopy cover target (DRAFT)	Plantable area (not currently canopy covered)	New canopy acres to meet canopy cover targets
Residential - no setbacks	192	16%	20%	44	17
Residential - setbacks	1363	29%	35%	440	86
Institutional	436	20%	30%	111	44
Commercial/industrial	558	9%	15%	126	34

PRECEDENTS

National:
Chapel Hill, NC
Providence, RI
Manassass, VA
Augusta, GA

PROS

Creates more consistency and predictability for property owners and developers

Focuses coverage goals in high priority areas

Targets areas where canopy growth is most appropriate

CONS

Conflicts with competing priorities in the zoning/ development processes

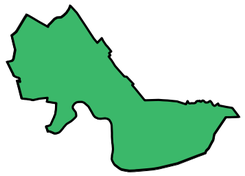
Requires amendments to zoning, which is likely to be a complex process

Applies only to new development and construction projects, having impact only over the long term

DESIGN STRATEGY 2B

Plant bare root trees in expanded and enhanced tree ways where possible

IMPACT AREAS



STEM LOSS GROW CANOPY

SUMMARY

Street trees establish more quickly and survive longer, especially in the face of drought conditions, when they have larger soil volumes. In cases where the back of sidewalk condition is pervious, it is beneficial for the long term health of the tree to connect the tree pit soil to the back of the sidewalk, providing a larger continuous soil volume for the roots to access.

ANALYSIS

Unless infeasible, the City should improve planting pits before installing new trees. New or amended soils should be placed in the open tree pit, with structural soils under sidewalks for root growth into adjacent areas. Bare root trees are field grown and shippped without soil around the roots. Bare root trees are recommended over balled and burlapped trees due to the ability to plant a larger number of bare root trees and bare root trees being quicker to establish.

PROS

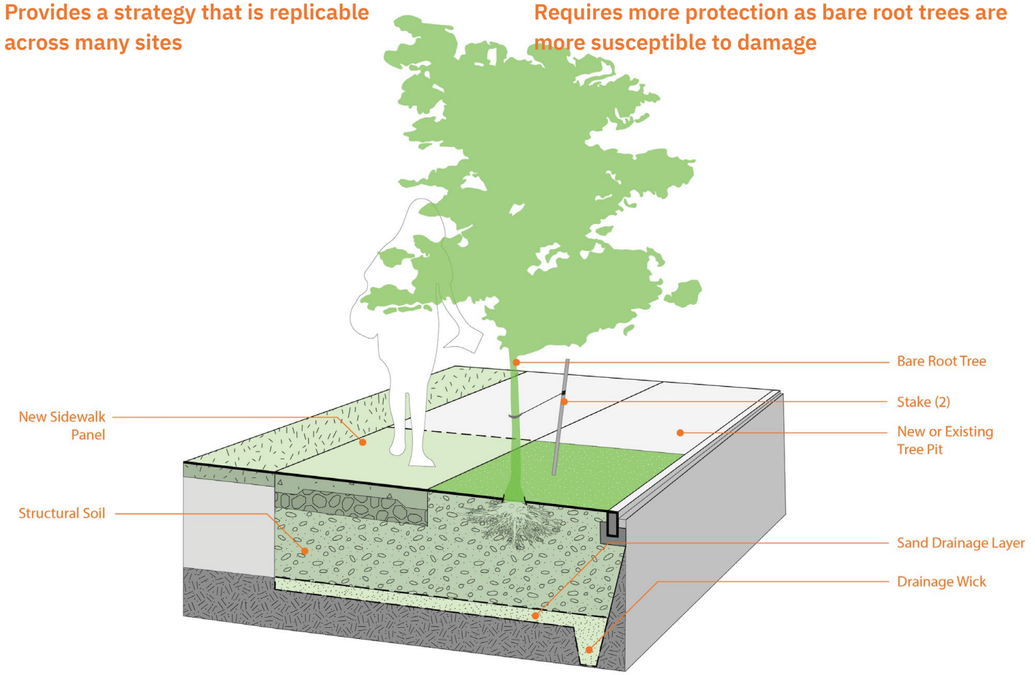
Improves establishment success and life-span

Provides a strategy that is replicable across many sites

CONS

Requires additional investment in each replanting

Requires more protection as bare root trees are more susceptible to damage



DESIGN STRATEGY 2C

Narrow sidewalks: reduce roadway to increase planting

IMPACT AREAS

STEM LOSS GROW CANOPY

RESIDENTIAL STREETS

EXISTING:
Narrow residential streets with no setback

PROPOSED:
Remove street pavement by shifting two-way traffic to one-way; push the curb out to get a wider planting zone

PROS

New space and soil volume for tree planting

More livable street

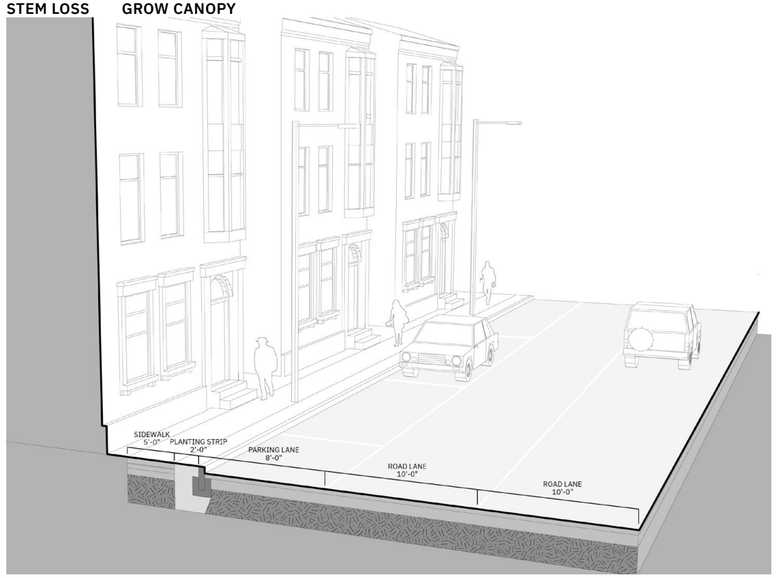
Healthier trees due to greater soil volume

CONS

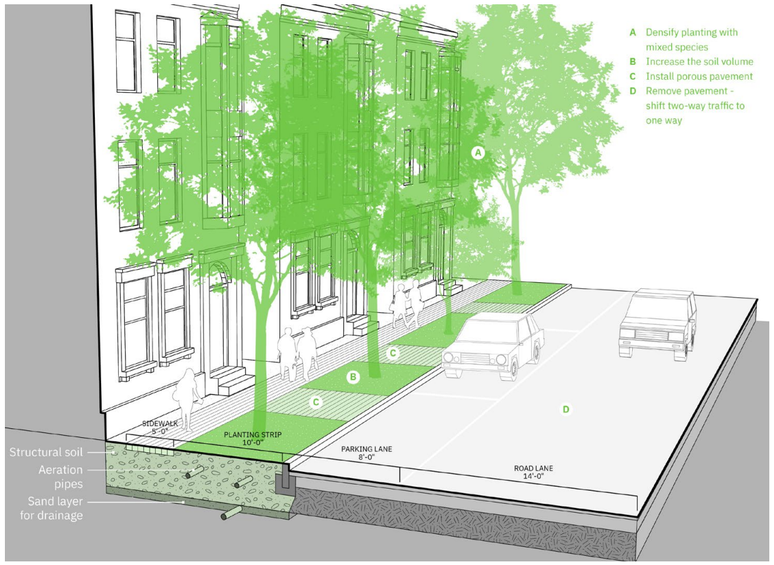
Reduced connectivity for vehicle traffic (one way)

The cost of redesigning the street

Utility conflicts



EXISTING

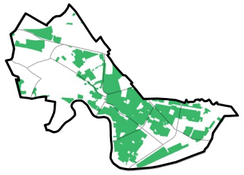


PROPOSED

DESIGN STRATEGY 2C

Average sidewalks: create planting area in parking spots

IMPACT AREAS



STEM LOSS GROW CANOPY

RESIDENTIAL STREETS

EXISTING:
Narrow residential streets with front yards

PROPOSED:
Turn some parking spaces into green spaces to plant trees

PROS

Creates more space for trees

Reduces impervious area

CONS

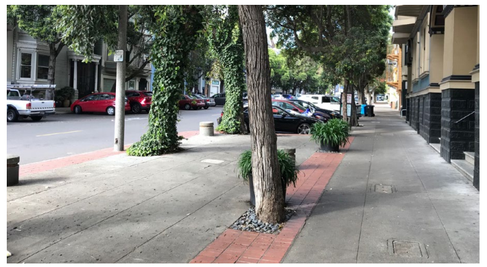
Reduces parking space

The cost of redesigning the street

Utility conflicts

PRECEDENTS

Western Avenue, Cambridge
San Francisco



EXISTING

PROPOSED

DESIGN STRATEGY 2C

Wide sidewalks: integrate bike lanes and tree plantings

IMPACT AREAS

STEM LOSS GROW CANOPY

COMMERCIAL STREETS

EXISTING: Major commercial streets with a wide sidewalk, parking and bike lane

PROPOSED: Relocate the curb, move the bike lane off the street and increase the soil volume

PROS

Incentivizes biking by providing a safer bike lane

Expands continuous soil volume

CONS

Requires complex utility coordination

The cost of redesigning the street

EXISTING

PROPOSED

PRACTICE STRATEGY 2B

Implement structural pruning for young trees

IMPACT AREAS

STEM LOSS

GROW CANOPY

SUMMARY

The City does not currently conduct structural pruning for young trees and this represents a significant opportunity to improve the long term health of street and park trees.

PROS

Avoided long term costs

ANALYSIS

Structural pruning is a type of pruning typically performed on young to middle-aged shade and ornamental trees. The objective is to create a strong and healthy structure so that trees are sturdier under wind, snow and ice loads, and less prone to failures, and so they can live full and useful lives in the landscape. The sooner in the life of the tree that structural pruning is started, the easier and less expensive it is. Waiting until the tree is mature often means larger more disfiguring pruning cuts, cabling and much greater expense.

CONS

New operational costs

PRACTICE STRATEGY 2A

Establish a soils management program

IMPACT AREAS

STEM LOSS

GROW CANOPY

SUMMARY

Currently the City mulches some of its trees on a regular basis, which is a good way to support organic matter renewal and good soil function. The City has also begun to monitor the impact of salts on street tree soil.

Implementing a program to improve soils health represents an important opportunity to reduce tree mortality and increase canopy growth.

ANALYSIS

Injecting liquid biological amendments (compost tea) is an effective method of improving and maintaining soil health. The City is currently in the process of establishing an in-house liquid biological amendment program to treat all newly planted trees. Long term, the City could develop the capacity to treat all street trees once a year on a two year cycle.

PROS

Increased survival rates

CONS

Cost, primarily for staff time

PRACTICE STRATEGY 2C

Expand watering program

IMPACT AREAS

STEM LOSS

GROW CANOPY

SUMMARY

Water availability is the primary determinate of tree health. Providing sufficient water during establishment, when roots are expanding to find additional sources of water is critical to their long term success.

The current tree contract requires the contractor to water newly planted trees for three years, and the City currently utilizes the Tree Ambassador program to water trees for two summers following this initial three year period.

PROS

Increased survival rates

ANALYSIS

Given the increased planting targets, the City will need to increase its watering program to cover an increased number of new trees. In addition, the City should consider emergency watering during drought.

CONS

Increased labor hours

PRACTICE STRATEGY 3

Establish a gravel bed nursery

IMPACT AREAS

STEM LOSS

GROW CANOPY

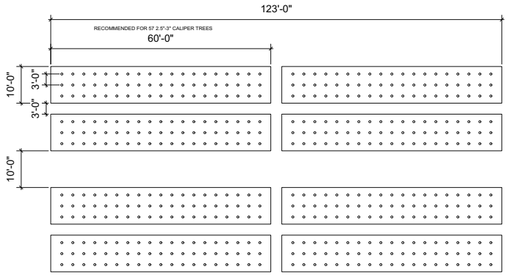
SUMMARY

With municipal tree planting, especially at large scale, there is an inevitable holding period between digging and acquiring the trees and planting them. Balled and burlapped trees are less likely to survive if they have extended periods out of the ground, so their planting season is constrained to a few weeks in spring and a few in the fall. If cared for properly, bare root trees enjoy the benefit of an extended planting season. Root dessication is the most critical disadvantage to planting bare root trees, however, proper care in a gravel bed nursery mitigates the risk.

ANALYSIS

A gravel bed is an irrigated bed of gravel to place and safely hold bare root or washed containerized stock (aka “heeling in”) for up to 3-6 months. Doing this dramatically increases fibrous root volume, decreasing transplant shock and increasing survivability of the plant. Since bare root stock is typically only available during spring, this also allows for staged plantings throughout the year.

8,200 sf of space is required to store 456 bare root trees



PROS

Increases root mass at planting

Increases survival rates

Extends planting season

CONS

Initial capital outlay to build beds

PRECEDENTS

PHS, Philadelphia
Various municipalities in Minnesota

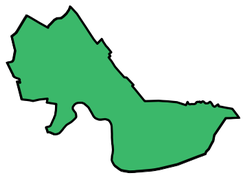
OUTREACH AND EDUCATION STRATEGY 4B

Support community tree planting efforts

SUMMARY
Supporting community tree planting efforts may lead citizens to work together and create more energy and momentum behind planting trees. This may result in groups advocating and planting trees within neighborhoods that are underserved today.

PRECEDENT
Keep Indianapolis Beautiful is a nonprofit organization. They offer a community forestry program which residents can apply for tree planting if they find at least 20 spots for trees in their neighborhood. Applicants need to form a small group and need to agree with their neighbors and local business owners to commit to tree preservation.

IMPACT AREAS



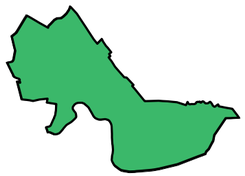
STEM LOSS GROW CANOPY

PRECEDENTS
Keep Indianapolis Beautiful

OUTREACH AND EDUCATION STRATEGY 1C

Educate local businesses about the dangers of pest outbreaks

IMPACT AREAS



STEM LOSS

GROW CANOPY

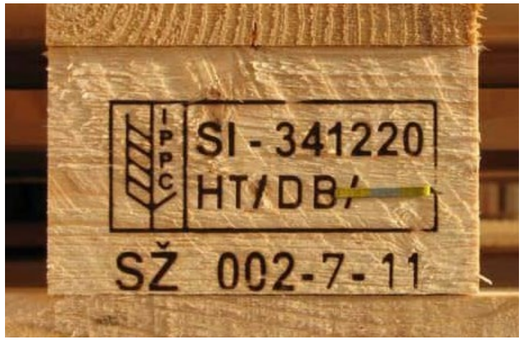
SUMMARY

Businesses can help protect the forest by ensuring all wood products are pest free by using ISPM 15 regulated wood packaging material in international trade.

ANALYSIS

In 2008, the Asian Longhorn Beetle was found in Worcester, MA, presumably brought in through wood pallets. The city lost 35,000 trees either killed by the beetle or felled by foresters working to contain the infestation.

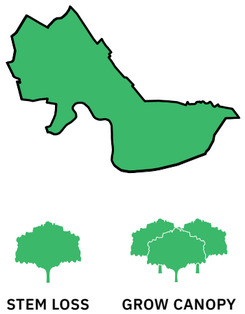
The ISPM 15 standard describes phytosanitary measures that reduce the risk of introduction and spread of quarantine pests associated with the movement in international trade of wood packaging material made from raw wood.



OUTREACH AND EDUCATION STRATEGY 1B

Organize tree tours for citizens to engage with trees

IMPACT AREAS



SUMMARY

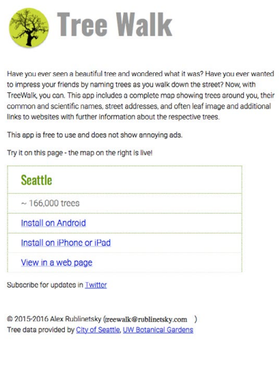
Organizing tree tours could foster good working relationships between the community and DPW. This is something that the City has implemented in the past but currently is not in practice.

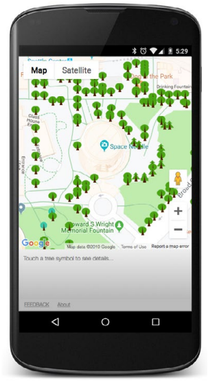
ANALYSIS

There are examples of guided walking and biking tree tours in neighborhoods and parks in various cities. For example, the City of Chesapeake, Virginia, organizes guided tours once every season, or four times a year. There are also self-guided tours that allow citizens to access a tree map by using smart phones in some cities such as Seattle (Tree Walk app), Nevada City, Sacramento, and Atlanta.

PRECEDENTS

Friends of the Urban Forest, San Francisco
Tree Walk app, Seattle





OUTREACH AND EDUCATION STRATEGY 2B

Publish annual reports to document progress

SUMMARY

A yearly report card that evaluates the efforts to expand the urban forest can remind citizens of the state of the forest, communicate the goals of this report, and hold communities accountable for reaching their goals.

ANALYSIS

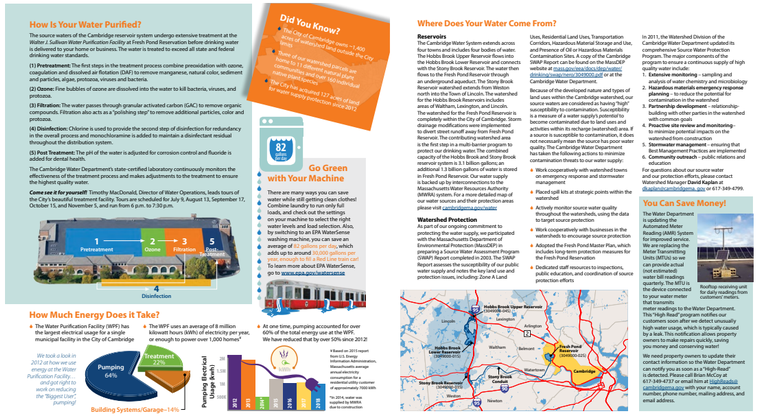
As an example, Casey Trees' tree report card rates Washington DC's urban forest based on four metrics: Tree coverage, tree health, tree planting and tree protection. It also compares previous years' grades.

As with the Cambridge Water Department's Drinking Water Quality Report, the Urban Forest report card could be mailed to all residents.

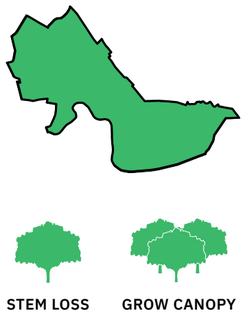
PRECEDENTS

Tree Report Card, Washington, D.C.

Cambridge MA Annual Drinking Water Quality Report

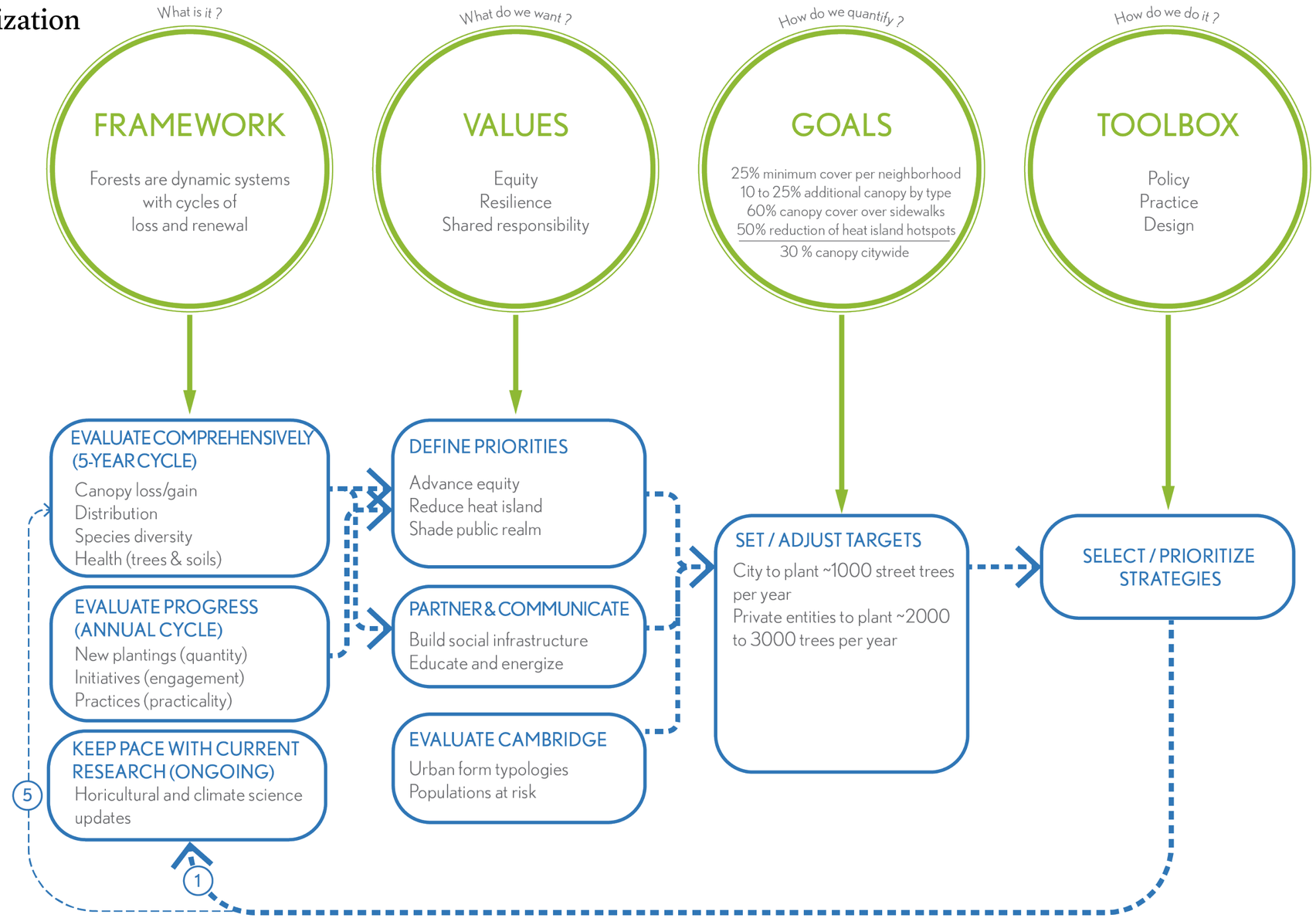


IMPACT AREAS



DECISION MAKING PROCESS

Regular evaluation and prioritization



The current moratorium sunsets in March.

The following concepts are not specific proposals but represent alternative strategies to be considered.

Each strategy has different impacts and potential consequences.

Trees are a shared resource

Trees provide benefits to the city

Not all trees are equal

Replanting in kind is preferred, but not all sites and project types are the same

The process should be simple and objective

The process should be equitable

Commit

Specifically state the City's commitment to the goals of the UFMP
(use the Cambridge bike safety ordinance as a model)

Defend

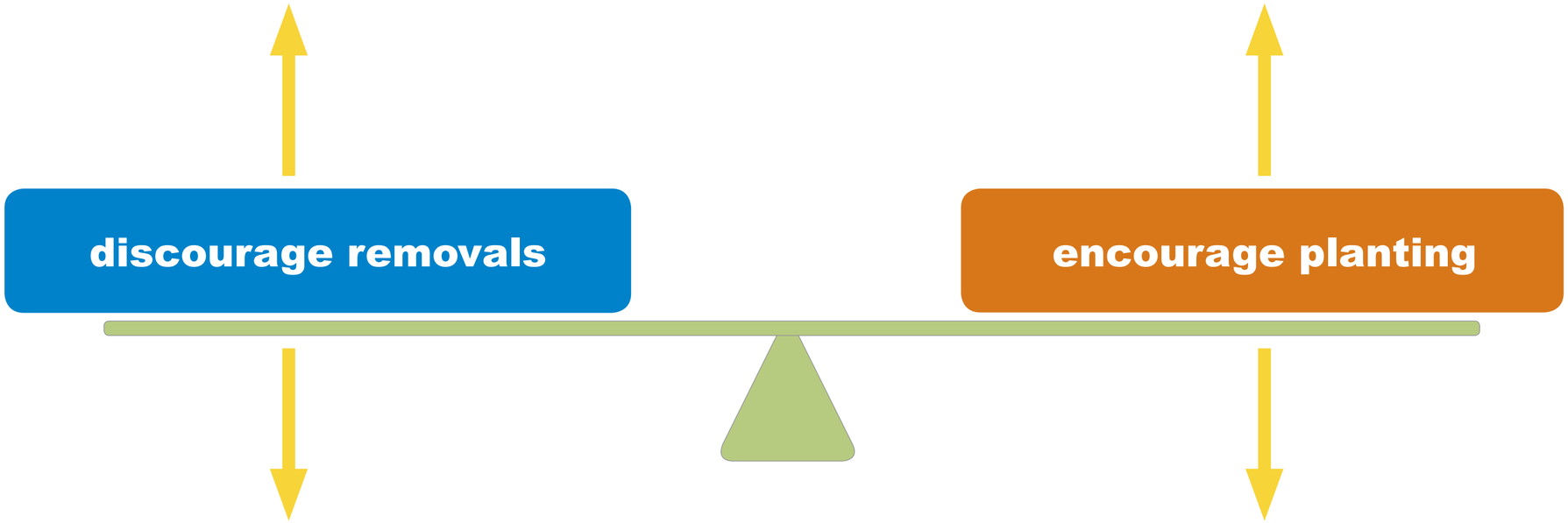
Add language to guard against pruning a tree so as to intentionally shorten its life

Fund

Enable the Tree Fund to be used in more flexible ways
Establish a Tree Trust to give grants for planting on private property

TREE PROTECTION ORDINANCE

Competing interests



Everyone should be subject to the ordinance
All property types are under the jurisdiction of the ordinance

Protect more trees
All trees over 6” dbh are covered by the ordinance (currently 8”)

Protect the largest trees
Increase mitigation for larger trees

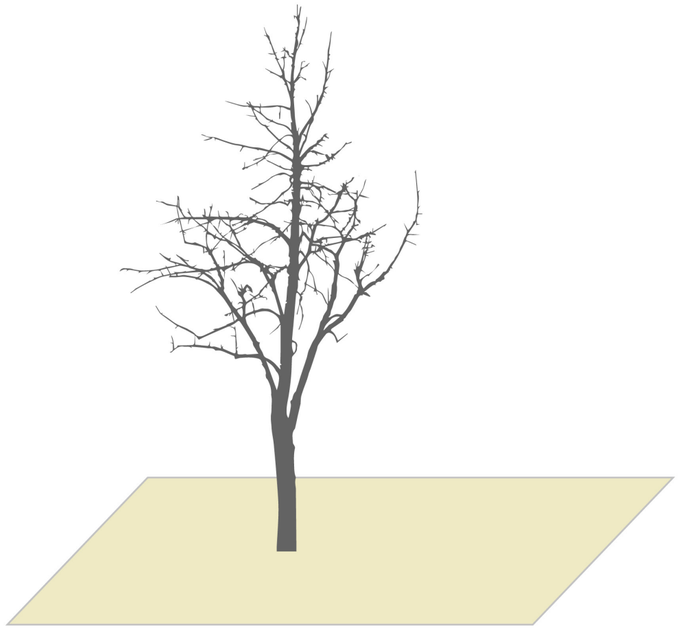
Ensure equitable application of the ordinance
Exempt those on federal assistance from any fees

Encourage replanting on private property
Expand the uses of mitigation funds
(create a Tree Trust that can plant on private property)

IN ALL CASES

Always allow removal of dead or hazardous trees

1. Get Arborist evaluation
2. File permit
3. Receive approval /
   No mitigation required
4. Receive free replacement
   if desired



DEAD TREE ON THE PROPERTY

VOLUNTARY REMOVAL STRATEGY 1

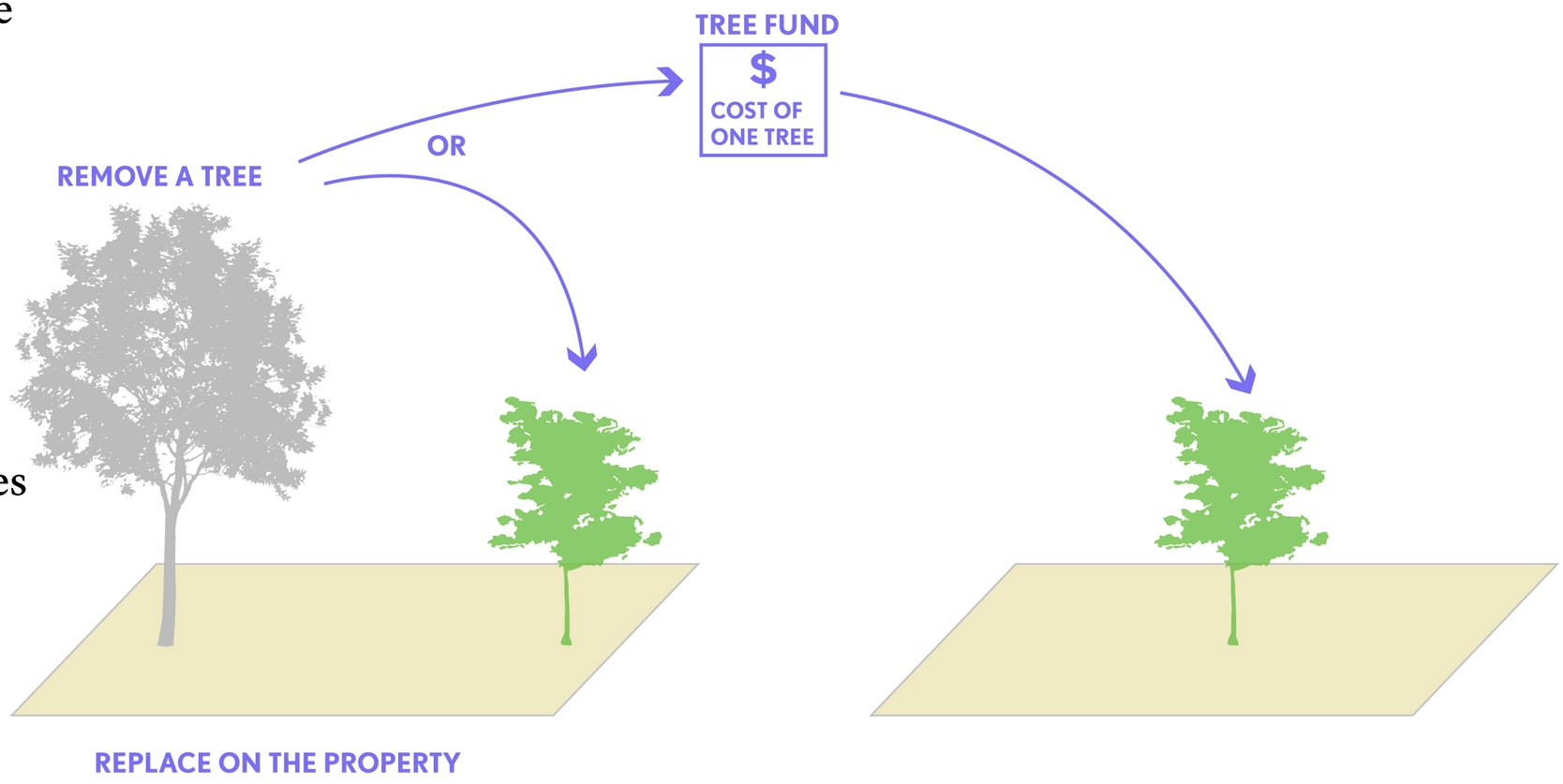
Replace trees One for One

1. File permit
2. Replant on site *or*
   Pay to support replanting elsewhere
3. Receive free replacement
   if on assistance

Notes:

— arborist evaluation is not required

— all trees are treated equally, no special protections for large trees



VOLUNTARY REMOVAL STRATEGY 2

Replace trees based on size

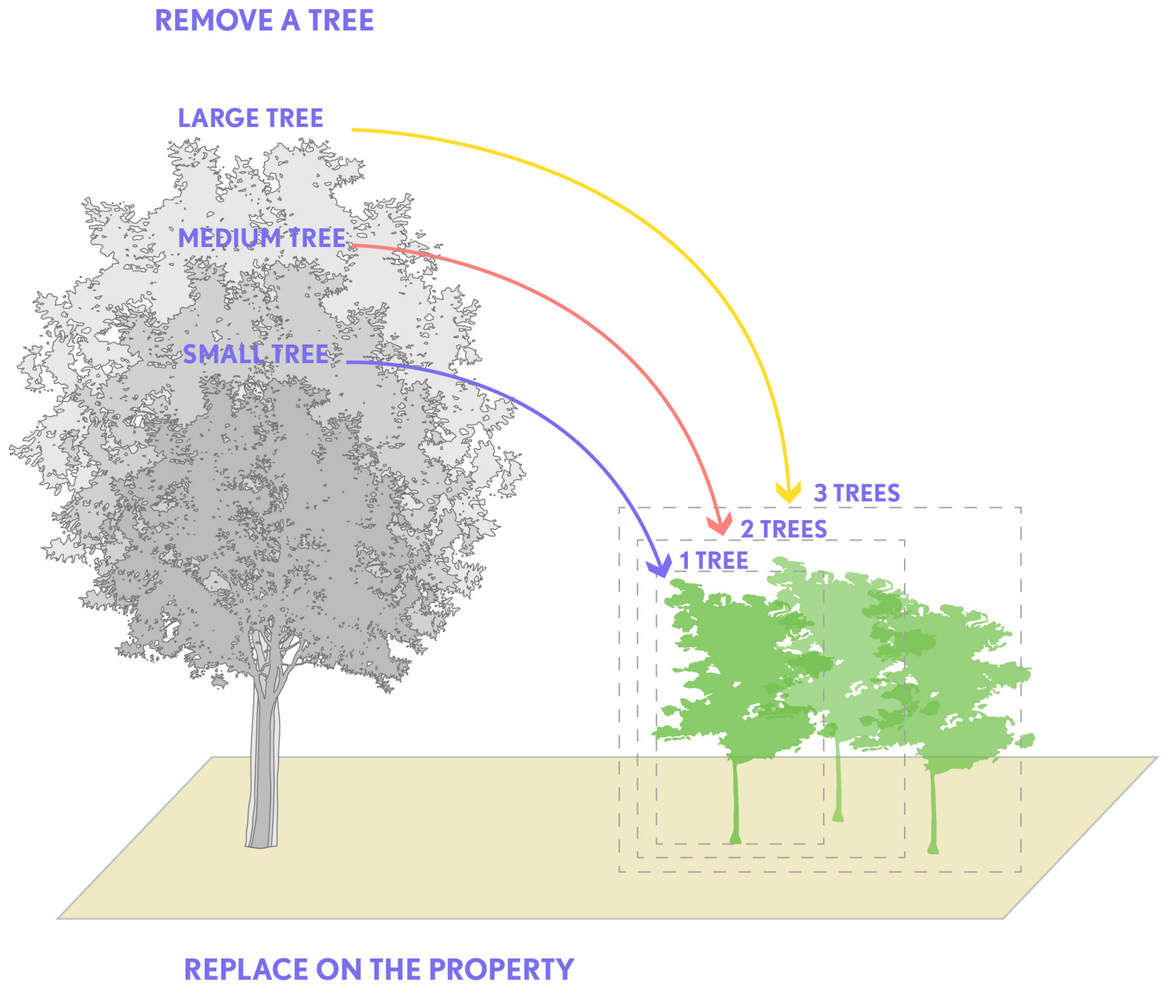
1. File permit
2. Replant on site
3. Receive free replacement if on assistance

Notes:

— arborist evaluation is not required

— larger trees require increased mitigation

— health and location are not considered



VOLUNTARY REMOVAL STRATEGY 2

Replace trees based on size

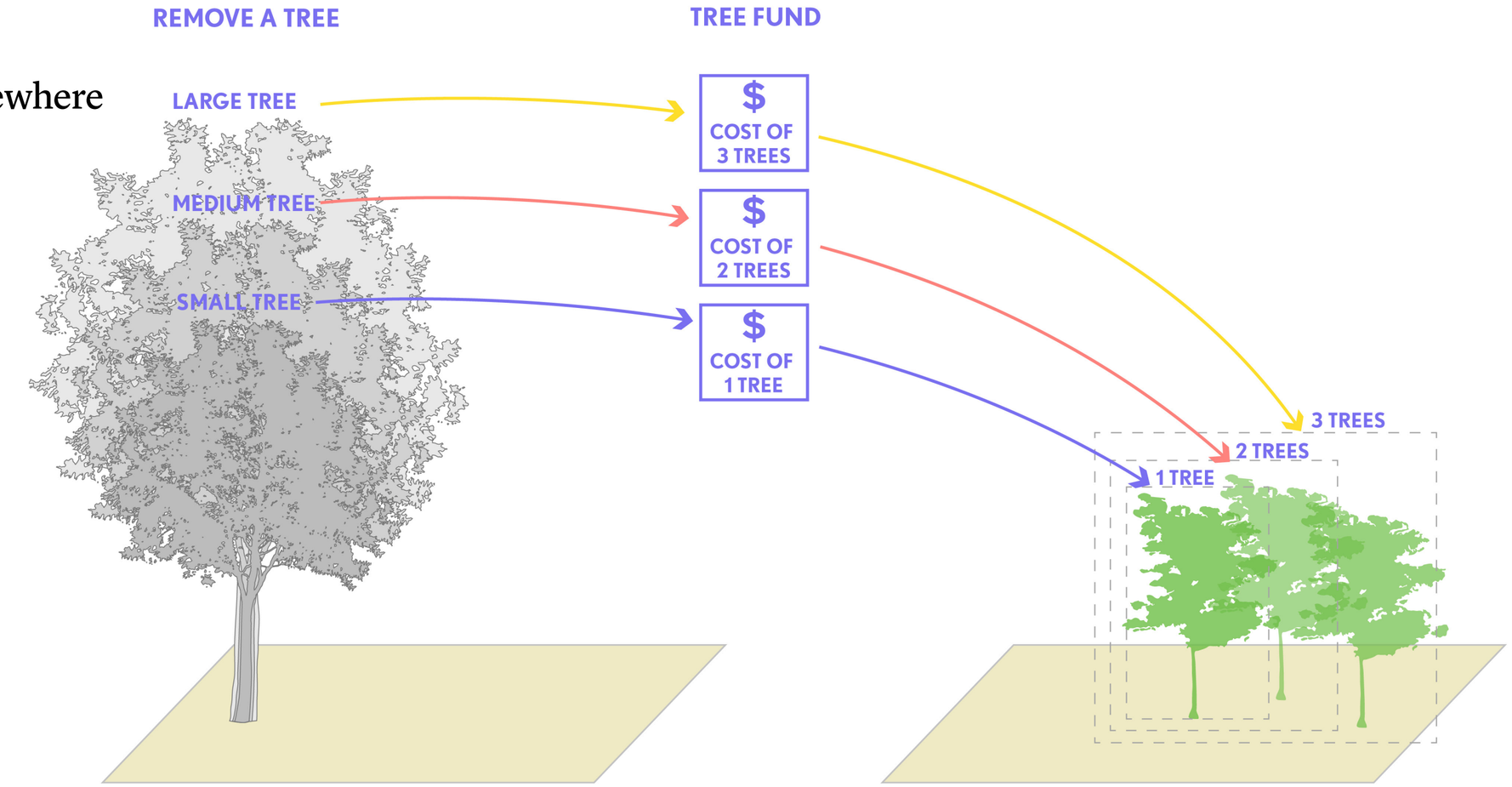
1. File permit
2. Pay to support replanting elsewhere
3. Receive free replacement if on assistance

Notes:

— arborist evaluation is not required

— larger trees require increased mitigation

— health and location are not considered



VOLUNTARY REMOVAL STRATEGY 2

Replace trees based on size

1. File permit
2. Replant on site *and*

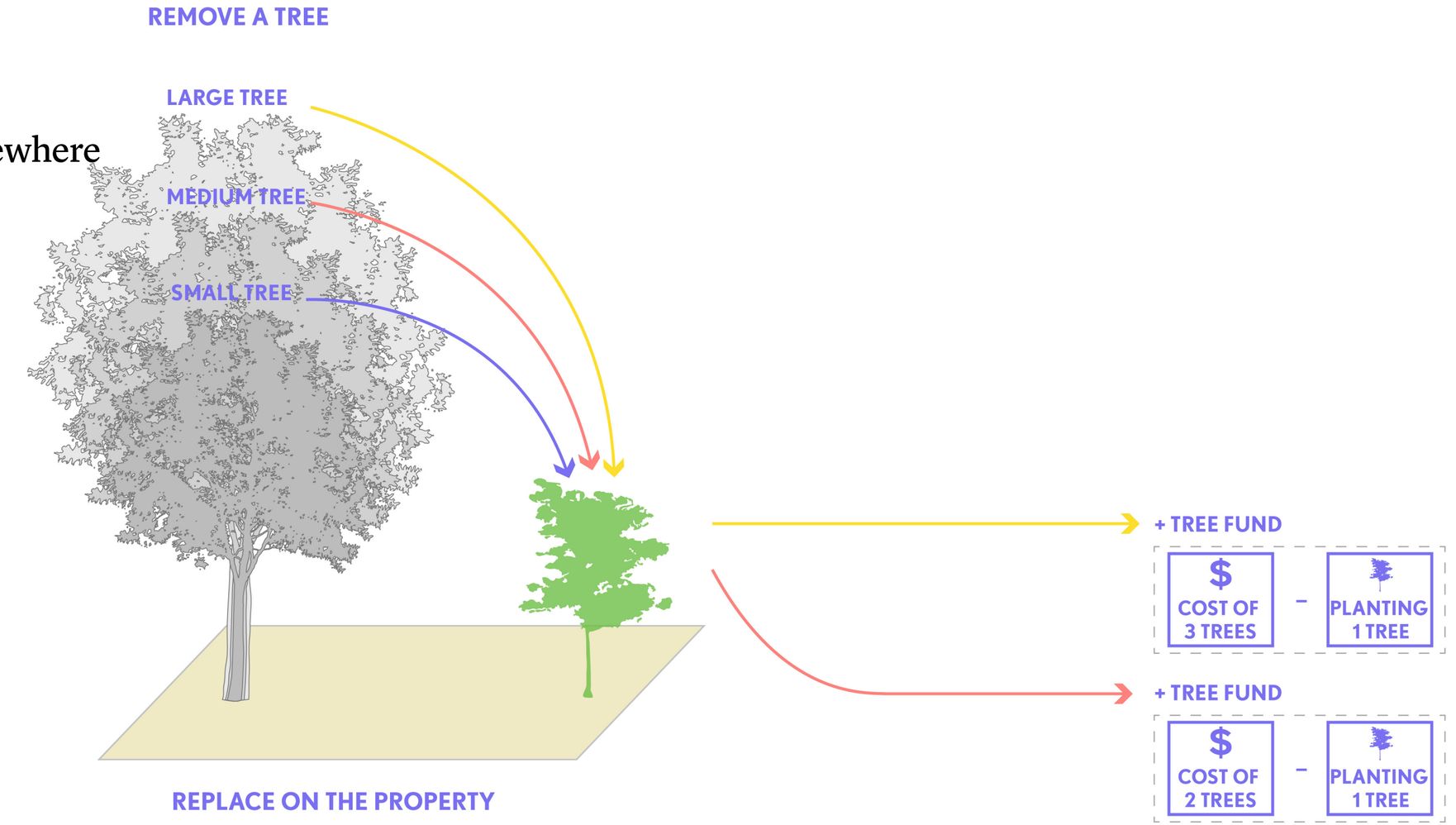
   Pay to support replanting elsewhere
3. Receive free replacement if on assistance

Notes:

— arborist evaluation is not required

— larger trees require increased mitigation

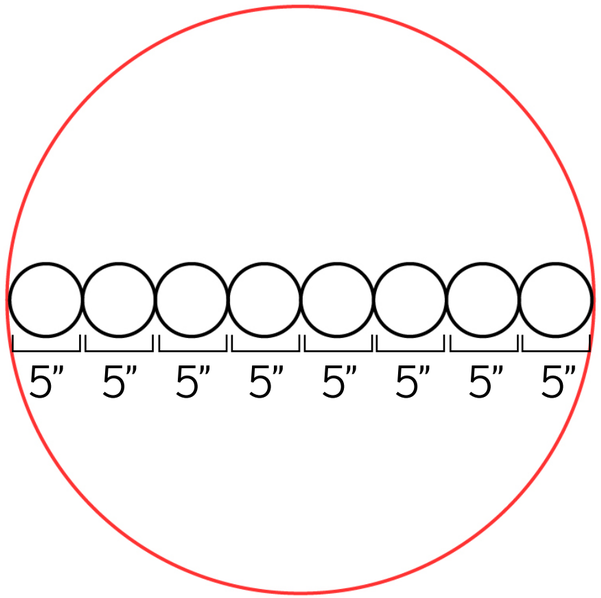
— health and location are not considered



VOLUNTARY REMOVAL STRATEGY 3

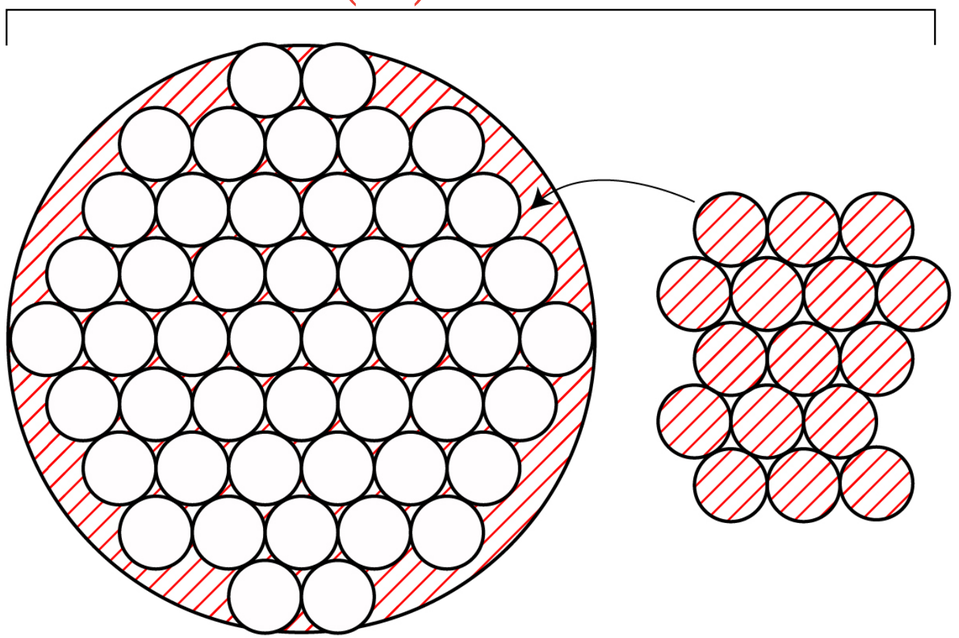
Value trees based on trunk area formula

40” diameter = (8) 5” Trees



Replacing trees by
“caliper inch”

(64) 5” Trees



Replacing trees by
“trunk area”

VOLUNTARY REMOVAL STRATEGY 3

Value trees based on trunk area formula

1. Get arborist assessment
2. File permit
3. Pay to support replanting elsewhere

Notes:

— arborist evaluation is required

— mitigation increases with size

— species, health, location are modifying factors

— homeowner exemption could be significant

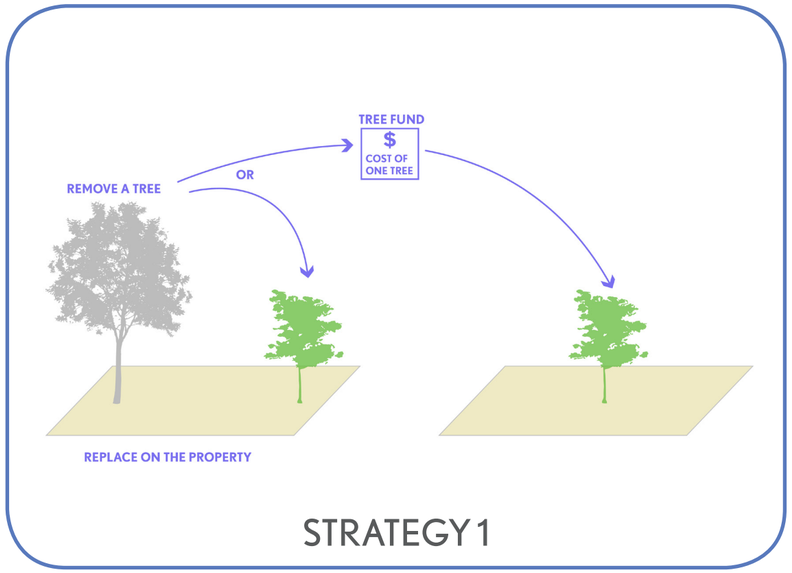
— those on federal assistance could be exempt from any fees

— could only apply to Special Permit projects

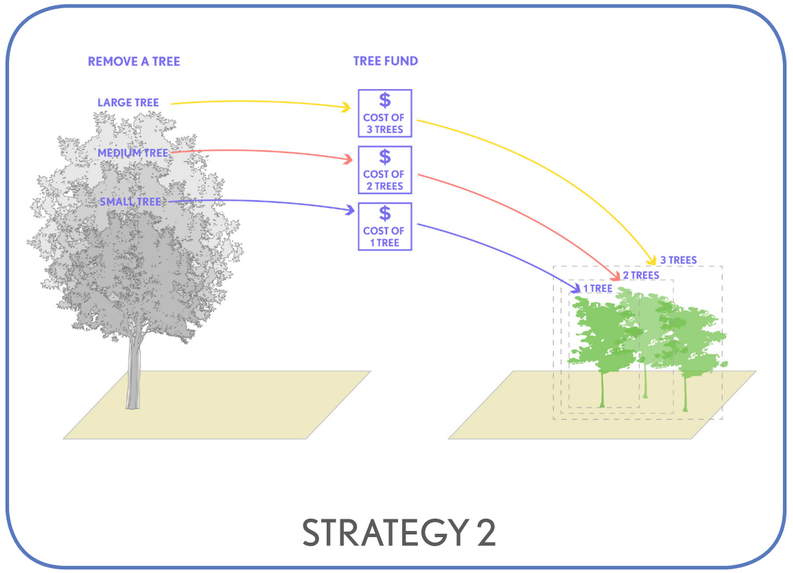
TREE PROTECTION ORDINANCE

Summary of Strategies

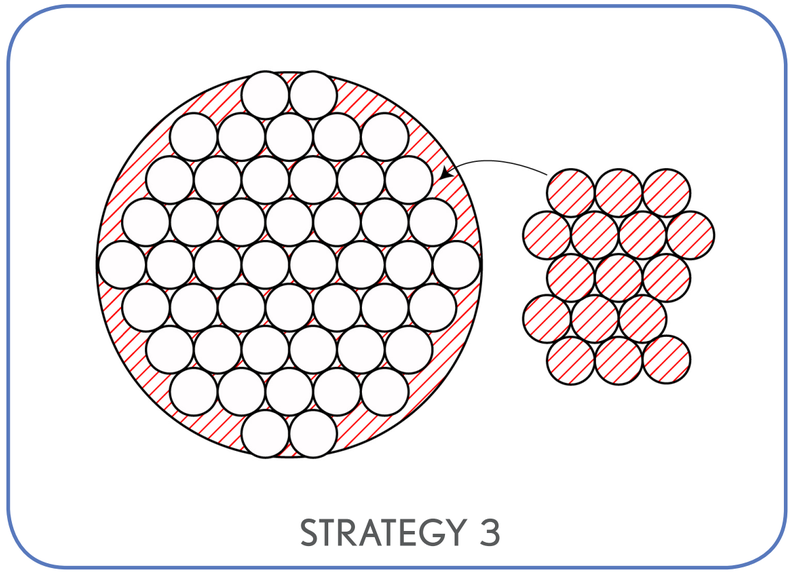
DRAFT FOR DISCUSSION ONLY



STRATEGY 1



STRATEGY 2



STRATEGY 3

SIMPLE — PROCESS — COMPLEX

REPLACEMENT COST — METRIC — INHERENT VALUE

ENCOURAGE PLANTING — IMPACT — DISCOURAGE REMOVAL

SUMMARY OF TECHNICAL REPORT

NEXT STEPS

Q & A

OPEN HOUSE

The consultants will take the Task Force and public comments under advisement and develop a Master Plan document that prioritizes action strategies from the Technical Report for immediate and longer term implementation.

SUMMARY OF TECHNICAL REPORT

NEXT STEPS

Q & A

OPEN HOUSE

www.cambridgema.gov/ufmp

SUMMARY OF TECHNICAL REPORT

NEXT STEPS

Q & A

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