

Cambridge Urban Forest Master Plan

Task Force Meeting #9

February 28, 2019



CAMBRIDGE
DEPARTMENT
OF PUBLIC
**THE
WORKS**



REED HILDERBRAND



PRINCIPLES
PLANNING APPROACH
DESIGN CONCEPTS
PRACTICES

PRINCIPLES

PLANNING APPROACH

DESIGN CONCEPTS

PRACTICES

Vision and Core Values

The Envision Cambridge team worked with the community through workshops, one-on-one discussion, surveys, and more to craft a vision statement for the city.

Following extensive community outreach, the plan identified six core values expressed by the Cambridge community that shape the plan's goals and recommendations. The vision and core values together form the foundation upon which the plan's recommendations for the evolution of Cambridge are built.

Vision

“Cambridge is a forward-thinking, welcoming, and diverse city. We enjoy a high quality of life and thrive in a sustainable, inclusive, and connected community.”

Core Values



Livability

We value a vibrant built and natural environment and support sustainable transportation with affordable and convenient access to daily needs and recreational resources.



Economic Opportunity

We provide opportunity and stability through access to quality jobs, workforce development and training, and livable wages that support economic security for residents.



Community Health and Wellbeing

We promote healthy and active lifestyles in a supportive, safe community with diverse opportunities to connect with our neighbors and nature and to engage in civic life.



Diversity and Equity

We are a welcoming community that celebrates our diversity and ensures access to affordable housing choices and opportunities to succeed.



Sustainability and Resilience

We take responsible action to reduce our impact on the environment and build a resilient city and strong community.



Learning

We embrace lifelong learning and celebrate art and creativity in our culturally rich community.

Core Concepts

To maintain, plan, build, and sustain a healthy, connective urban forest at a time when the urban forest is more important than ever before.

1

Value the forest as a public resource

2

Invest in canopy in the public realm

3

Share responsibility for a healthy forest

1

Value the forest as a public resource

The urban forest is a public resource and has **MEASURABLE VALUE AND IMPACTS EVERYONE**. It provides shade to cool our environment, gives scale and character to our streets, provides habitat for diverse species, improves our air quality, reduces stormwater impacts, and improves our health and well-being.

To shift the trend from increasing loss to sustainable growth, we must manage the urban forest as **URBAN INFRASTRUCTURE** (like water, sewer, power) investing for the long term, managing resources collectively, and understanding the value (i.e., ecosystem services) of the canopy.

To balance the value of the forest with the complex needs of the city, we should focus on the performance of the **FOREST AS A SYSTEM** over the specific value of individual trees.

2

Invest in canopy in the public realm

The urban forest is felt most strongly in our **PUBLIC REALM AND COMMON SPACES** (sidewalks, parks, schoolyards, and commercial and institutional campuses).

Enhancing the canopy within the public realm, where the impact of loss is felt most strongly and the significance of gain is most equitably distributed, deserves **OUR PRIMARY ATTENTION AND INVESTMENT.**

SPECIFICALLY PRIORITIZE ↴

Canopy corridor

A resilient, connected ecosystem that enhances shading and cooling along networks and connects green spaces across the City, which relies on thriving trees within the public right of way, publicly accessible spaces, and front yards and private lands that front on the public realm.

Areas of canopy deficit and inequity

A more evenly distributed forest increases equity in the distribution of canopy cover, reduces disproportionate impacts from urban heat island effects, and increases the well-being of vulnerable populations.

Share responsibility for a healthy forest

A thriving urban forest requires the **MUTUAL CARE OF MANY PARTIES**, including city government, homeowners, businesses, developers, local organizations, institutions and state agencies.

Policy should be **BALANCED AND FAIR**, linking the interests of all parties around smart solutions that encourage tree preservation, planting of new trees, and effective maintenance.

The city should support **EDUCATION** efforts as a catalyst for **PARTNERSHIPS** between interest groups to encourage stewardship of the urban forest.

Enact values through a multi-pronged approach

Curb loss

- Enhance management practices, especially around soil health, that improve tree vitality and longevity
- Protect exceptional trees of unique age and size
- Increase the cost of removals for large projects (de-incentivize removal and increase mitigation when retention is not possible)
- Enhance the city permitting and review process to track and seek alternatives to tree removals
- Educate residents on the value of their canopy as an important ecological/health resource for themselves and their community

Grow canopy

- Increase rate of planting within the public realm
- Enhance soil specifications and planting details to improve establishment and long-term success
- Develop alternative approaches to public realm design that increase opportunities, expand plantable areas, and enhance viability
- Provide resources for planting and maintenance to private landowners, especially in front yards
- Educate the public about the resources that are available and increase trust within the community
- Partner with local institutions and landowners to make commitments, set internal targets, and support community-wide goals
- Implement comprehensive zoning guidelines that represent the value of trees
- Modify recommended species and diversify forest to respond to a changing climate and increased risks of pests and diseases

Encourage alternative approaches that advance the goals of the Urban Forest Master Plan

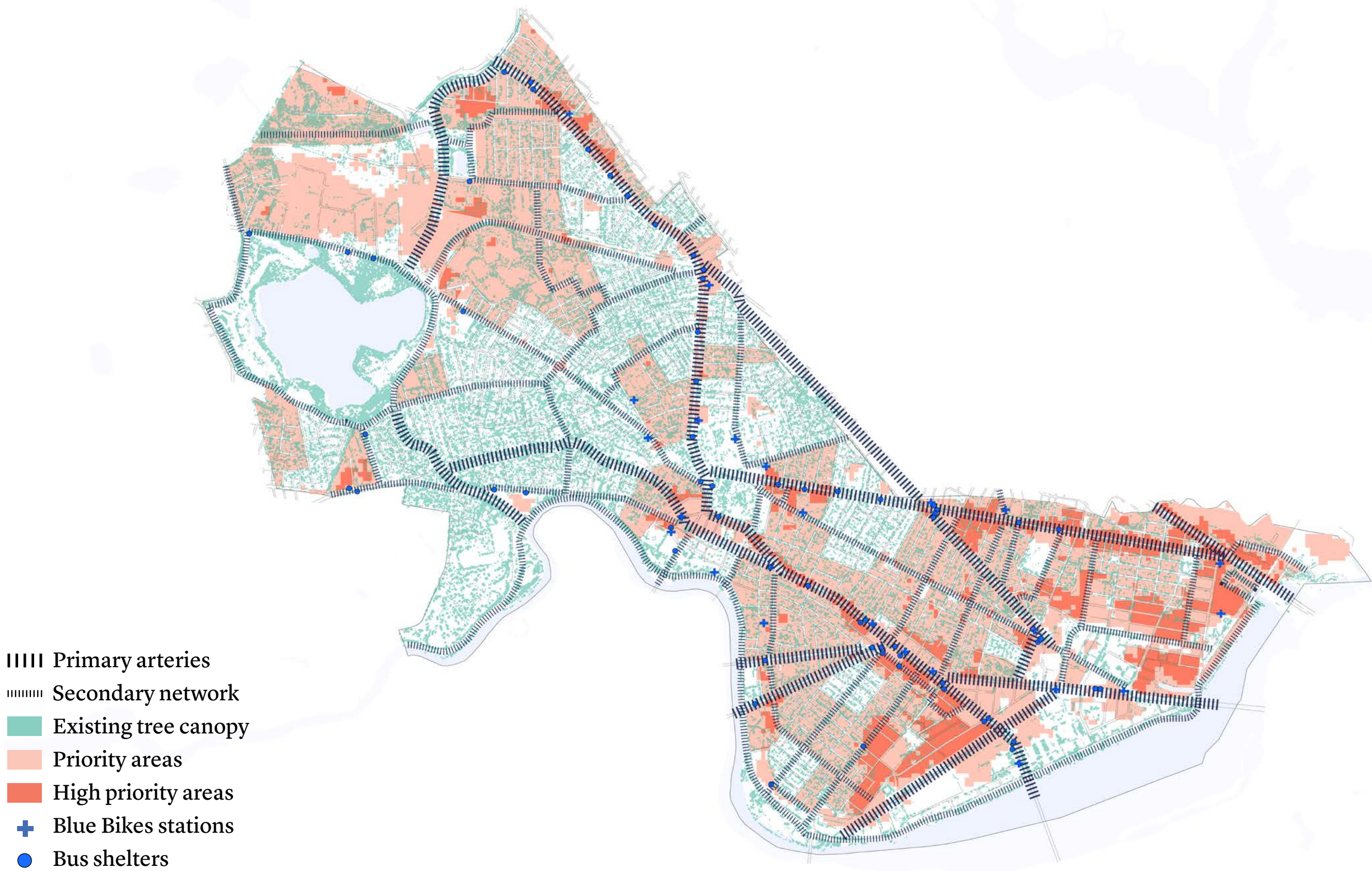
- De-pave and enhance permeability
- Implement green roofs and living structures
- Encourage alternative shade structures where trees are not viable

PRINCIPLES
PLANNING APPROACH
DESIGN CONCEPTS
PRACTICES

WHERE TO APPLY THE STRATEGIES?

		STRATEGIES														
		Policy			Planning/Design					Practices				Outreach/Other		
ACTION	in response to ...	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		Enhance Current Tree Protection Ordinance	Formalize City Practices	Clarify Planning and Zoning	Leverage Envision Cambridge and CCPR planning studies	Restrict Street Tree Planting to Only Suitable Areas	Create New Typologies for Street Tree Planting	Implement City-Wide Planting Plan to Focus Efforts	Site New Parks/Open Spaces Strategically	Improve City Planting Practices	Improve City Maintenance and Care Practices	Implement Soils Management Program	Monitor Tree Canopy and Adapt	Invest in Educational Programs	Build Community Partnerships	Seek Alternative Green Strategies
Curb loss	Mature canopy decline	•														•
	Land conversion	•		•	•							•				•
	Residential removals	•		•										•	•	
	Poor tree condition	•	•	•		•				•	•	•		•	•	
	Narrow sidewalks			•		•										•
	Inadequate soil volume			•		•				•		•				
	Understanding the value of trees													•	•	
Grow canopy	Equity in distribution of canopy cover	•	•	•	•		•	•	•	•	•	•	•	•	•	
	Shading and cooling / pedestrian thermal comfort	•	•	•	•		•	•	•	•	•	•	•		•	
	Environmental quality / wellbeing and public health	•	•	•	•		•	•	•	•	•	•	•		•	•
	Ecological connectivity	•		•	•		•	•	•	•	•	•	•			•
	Diversity of forest composition						•	•		•			•			
	Disaster response preparedness				•			•		•	•		•	•	•	•

BEGIN WITH AREAS OF NEED



PRIORITY AREA CRITERIA



ENVIRONMENTALLY VULNERABLE POPULATIONS

- Minority population
- Low income population
- Non English speaking population



HEAT ISLAND HOT SPOTS

- Greater than 92 degrees on a 90 degree day as modeled by KLF for 2030 ambient air temperature

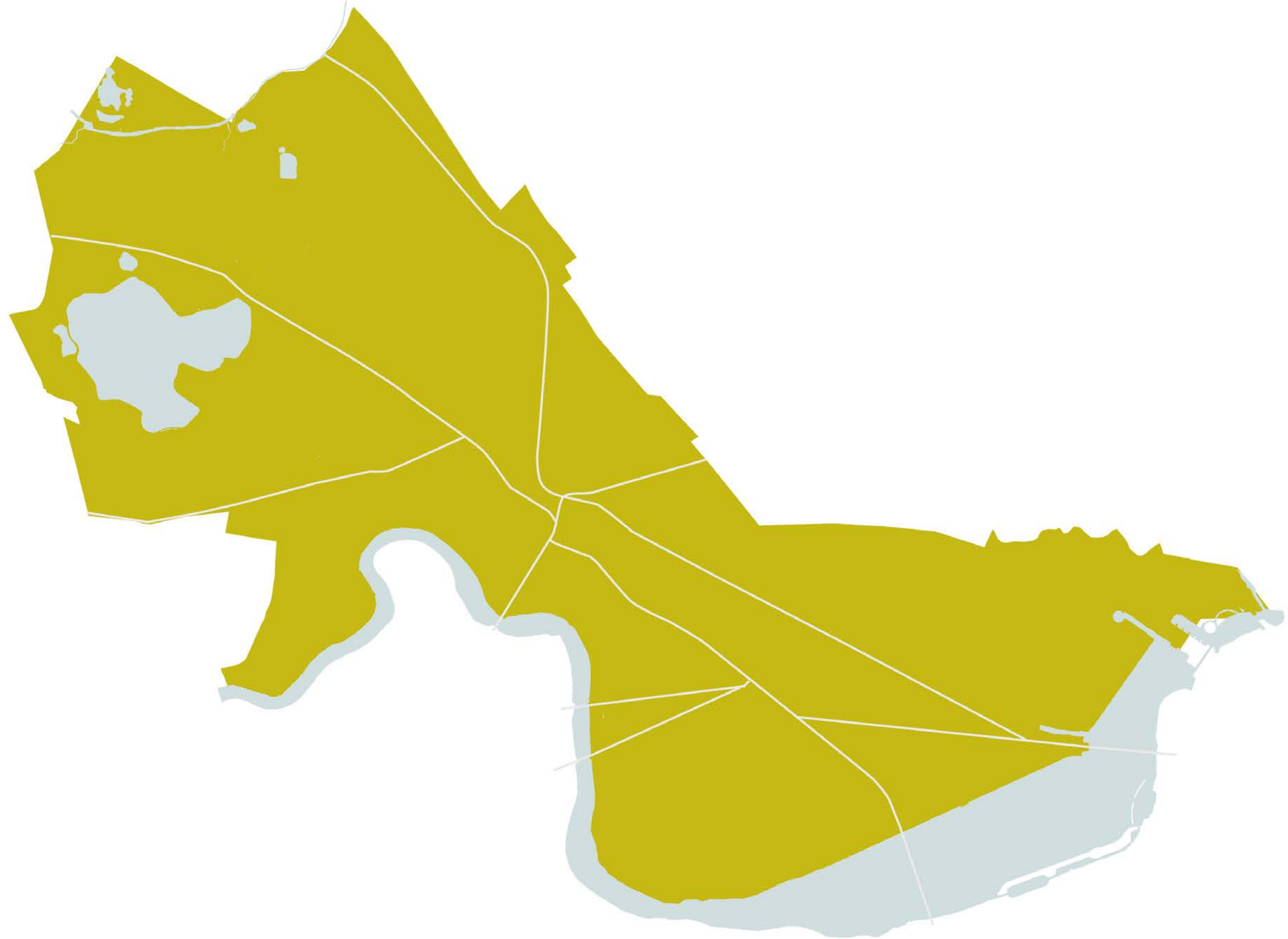


COMMUNITY INFRASTRUCTURE

- Public Schools and Hospitals

PLANNING APPROACH

Curb loss by maintaining existing trees



PLANNING APPROACH

Grow canopy by planting trees in areas of canopy deficit



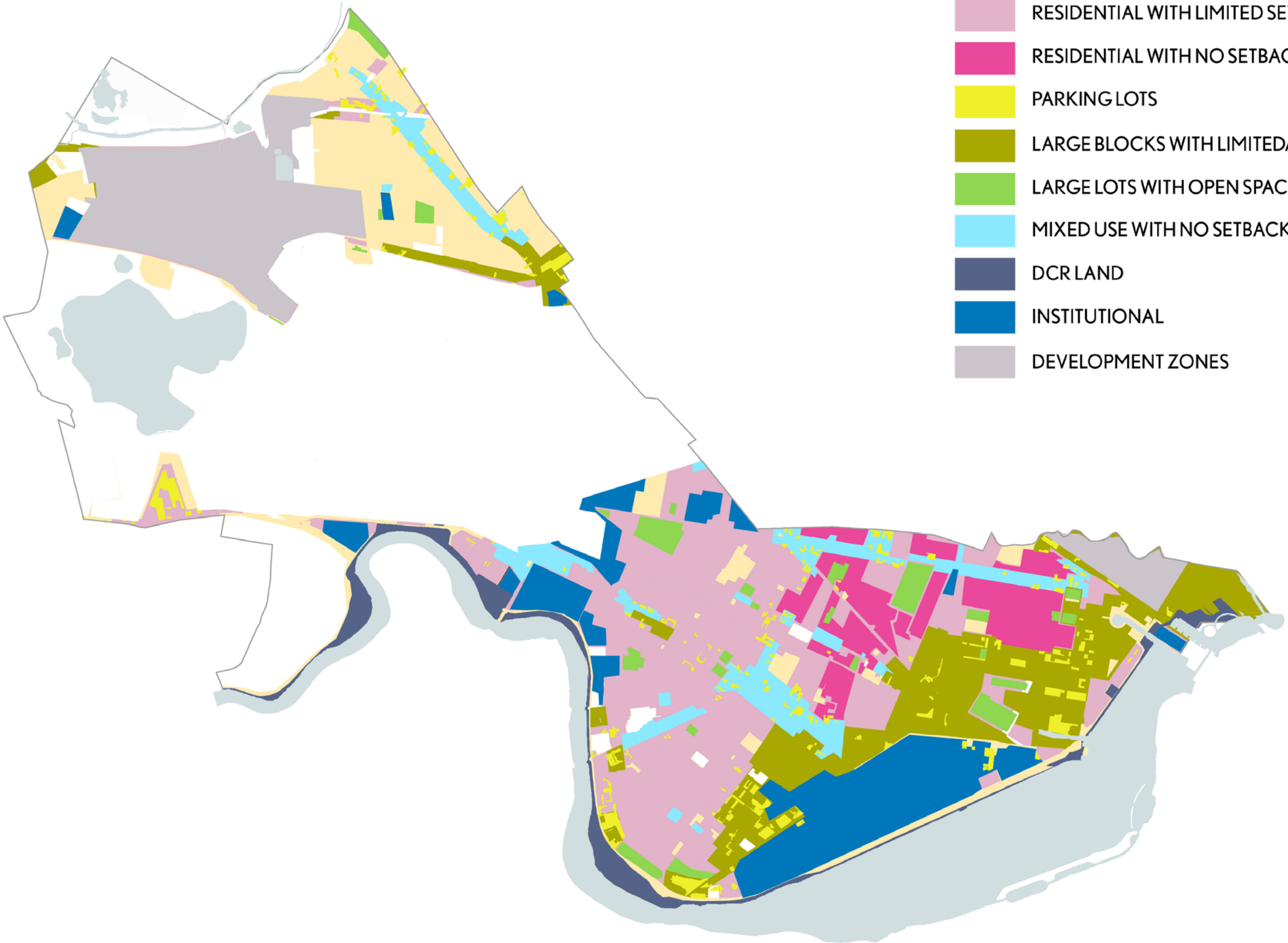
PLANNING APPROACH

Focus on creating robust canopy corridors



GROW CANOPY

Align strategies with site conditions and uses



- MIXED USES WITH SETBACKS 10' OR GREATER
- RESIDENTIAL WITH LIMITED SETBACKS
- RESIDENTIAL WITH NO SETBACKS
- PARKING LOTS
- LARGE BLOCKS WITH LIMITED/NO SETBACKS
- LARGE LOTS WITH OPEN SPACE
- MIXED USE WITH NO SETBACKS
- DCR LAND
- INSTITUTIONAL
- DEVELOPMENT ZONES

MIXED USE WITH SETBACKS GREATER THAN 10'



RESIDENTIAL WITH LIMITED SETBACKS



RESIDENTIAL WITH NO SETBACKS



LARGE BLOCKS WITH LIMITED OR NO SETBACKS



MIXED USE WITH NO SETBACKS



LARGE LOTS WITH OPEN SPACE



INSTITUTIONAL



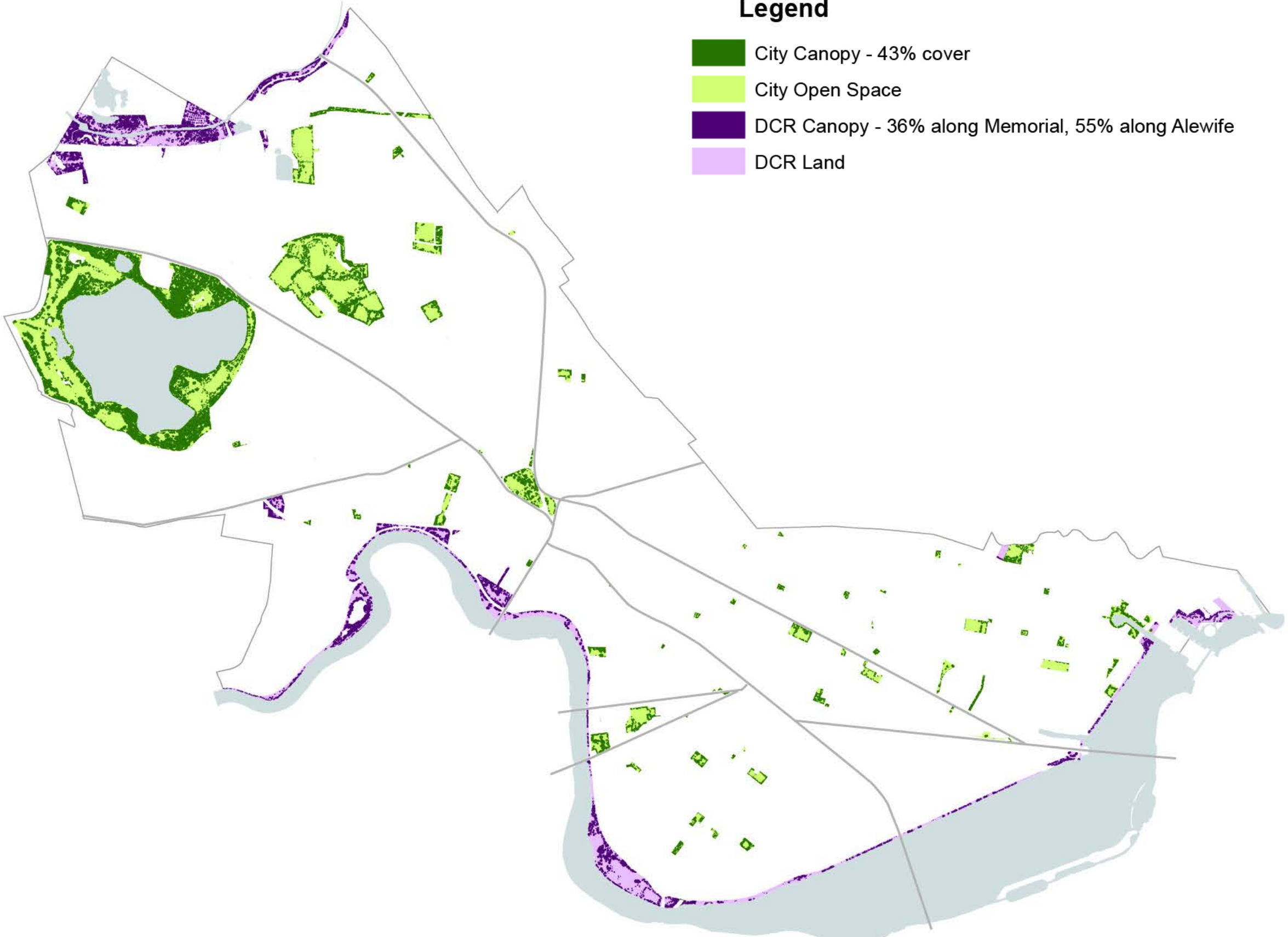
DEVELOPMENT ZONES



DCR LAND



OPEN SPACE



PRIORITIZE STRATEGIES BY CONDITION

ACTION		STRATEGIES														
		Policy			Planning/Design					Practices				Outreach/Other		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	in response to ...															
Curb loss	Mature canopy decline	•														•
	Land conversion	•		•	•							•				•
	Residential removals	•		•										•	•	
	Poor tree condition	•	•	•		•				•	•	•		•	•	
	Narrow sidewalks			•		•										•
	Inadequate soil volume			•		•				•		•				
	Understanding the value of trees													•	•	
Grow canopy	Equity in distribution of canopy cover	•	•	•	•		•	•	•	•	•	•	•	•	•	
	Shading and cooling / pedestrian thermal comfort	•	•	•	•		•	•	•	•	•	•	•		•	
	Environmental quality / wellbeing and public health	•	•	•	•		•	•	•	•	•	•	•		•	•
	Ecological connectivity	•		•	•		•	•	•	•	•	•	•			•
	Diversity of forest composition						•	•		•		•				
	Disaster response preparedness				•			•		•			•	•	•	•

PRINCIPLES
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BUILD ROBUST CANOPY CORRIDORS



TREES IN THE RIGHT OF WAY

Existing street trees often have limited resources

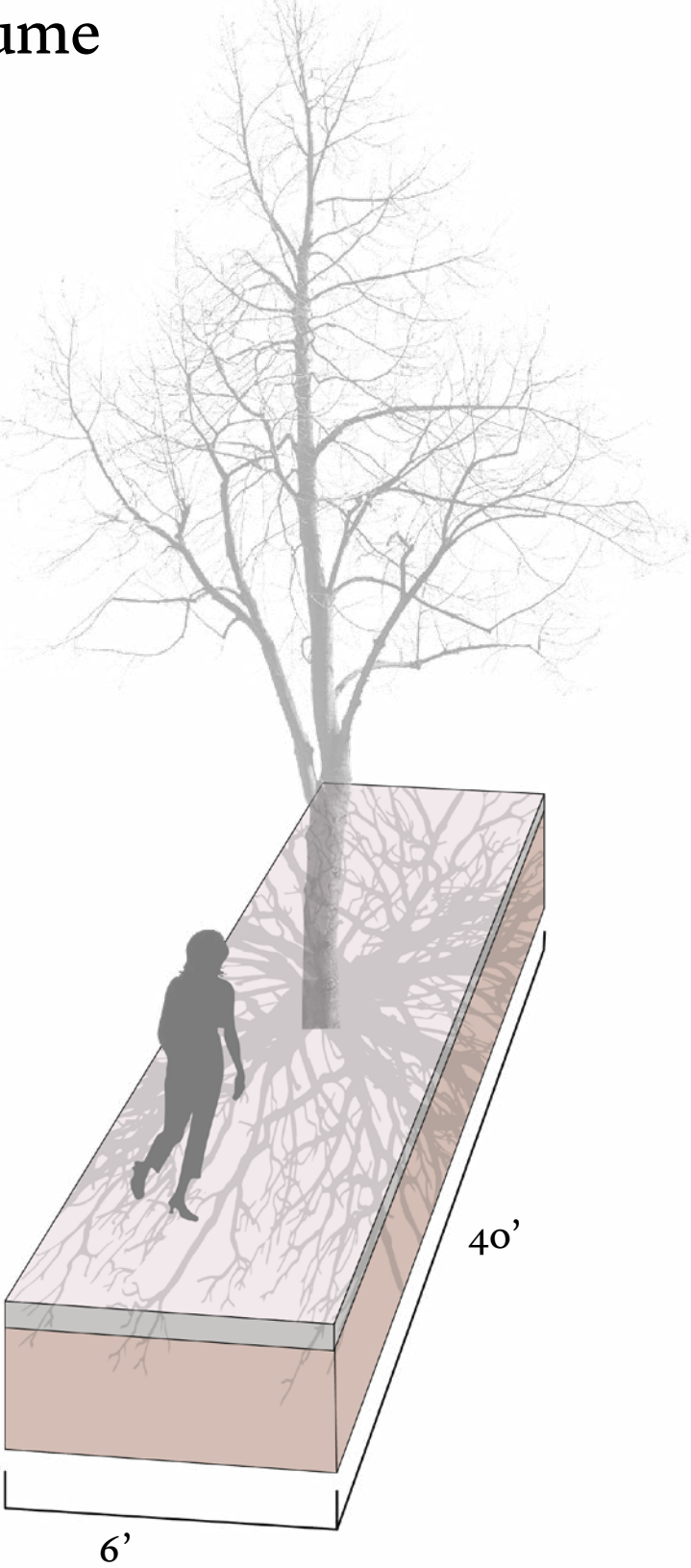


EAST CAMBRIDGE

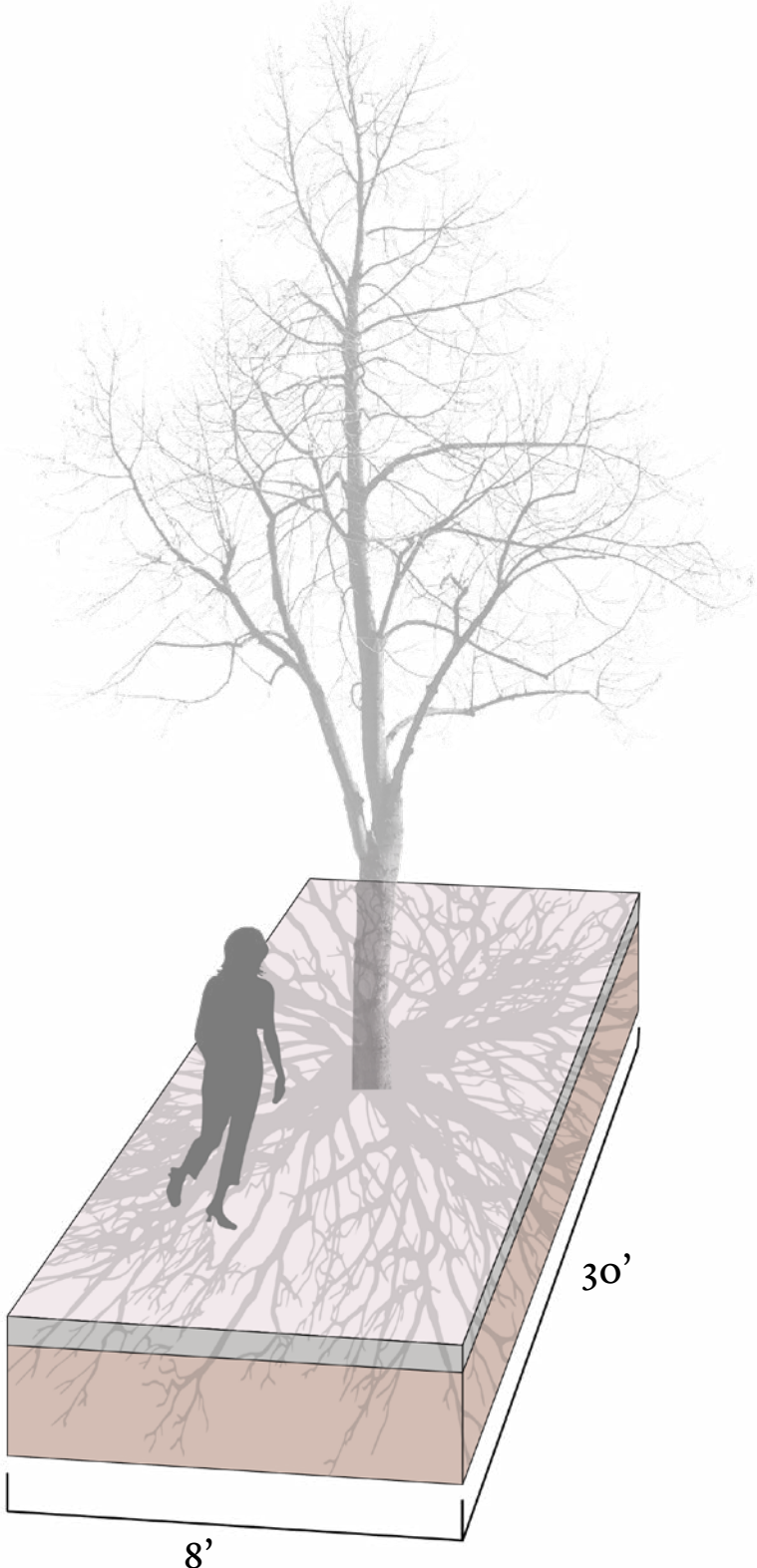
Image from Google Street View

CONDITIONS THAT SUPPORT A THRIVING FOREST

Adequate soil volume



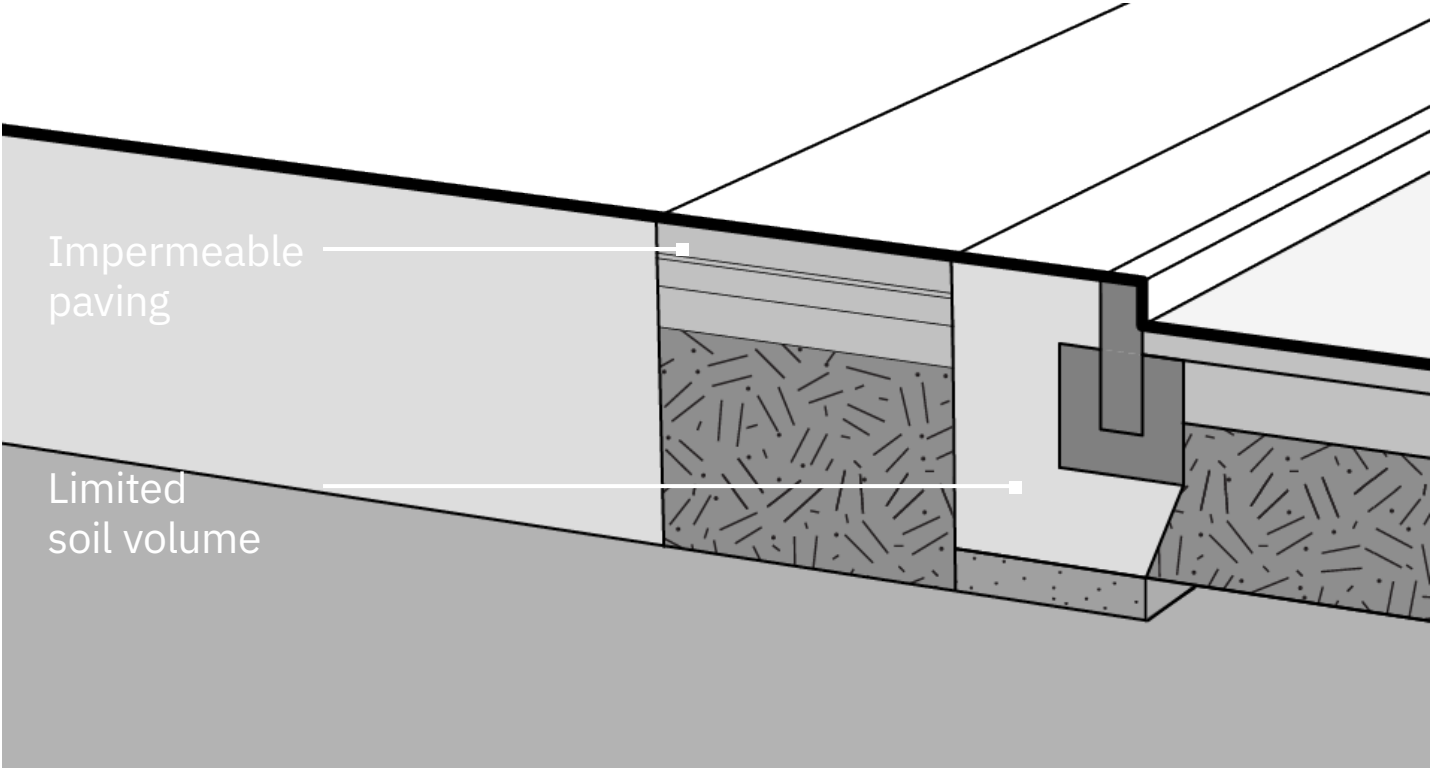
Soil volume: 750 cu ft



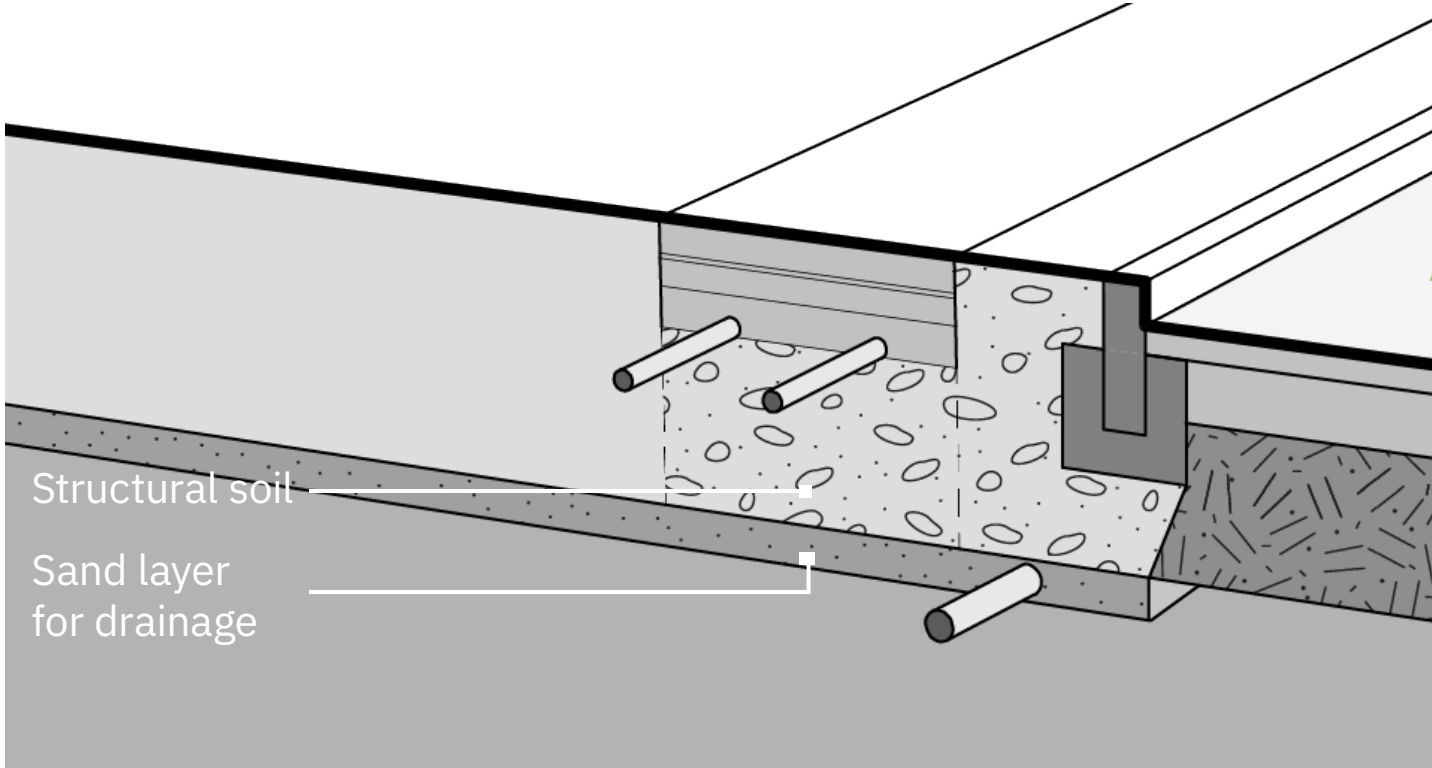
Soil volume: 750 cu ft

CONDITIONS THAT SUPPORT A THRIVING FOREST

Adequate soil volume



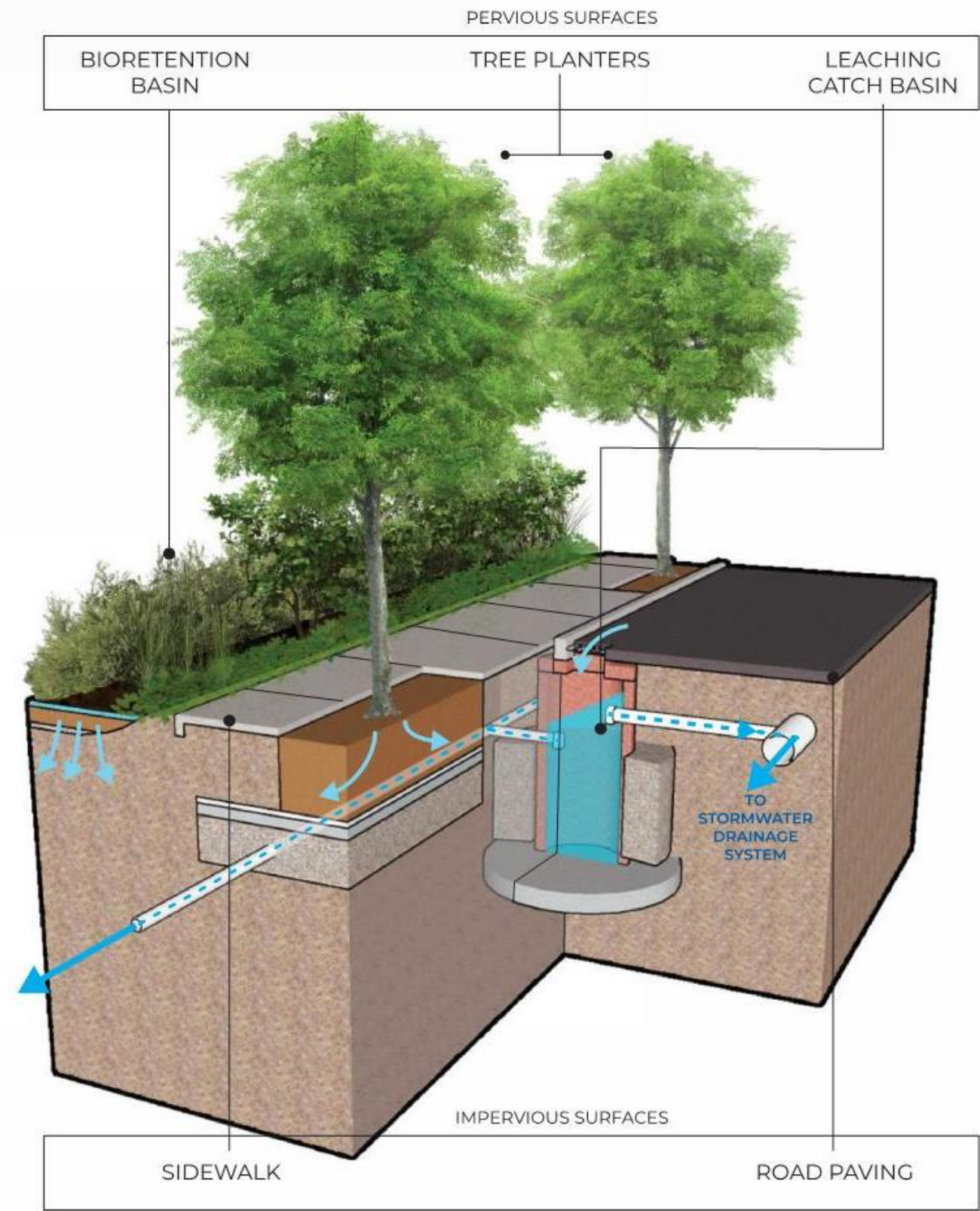
EXISTING STREET TREE SOIL CONDITION



STRUCTURAL SOIL SECTION

CONDITIONS THAT SUPPORT A THRIVING FOREST

Tree plantings as part of stormwater system



CONDITIONS THAT SUPPORT A THRIVING FOREST

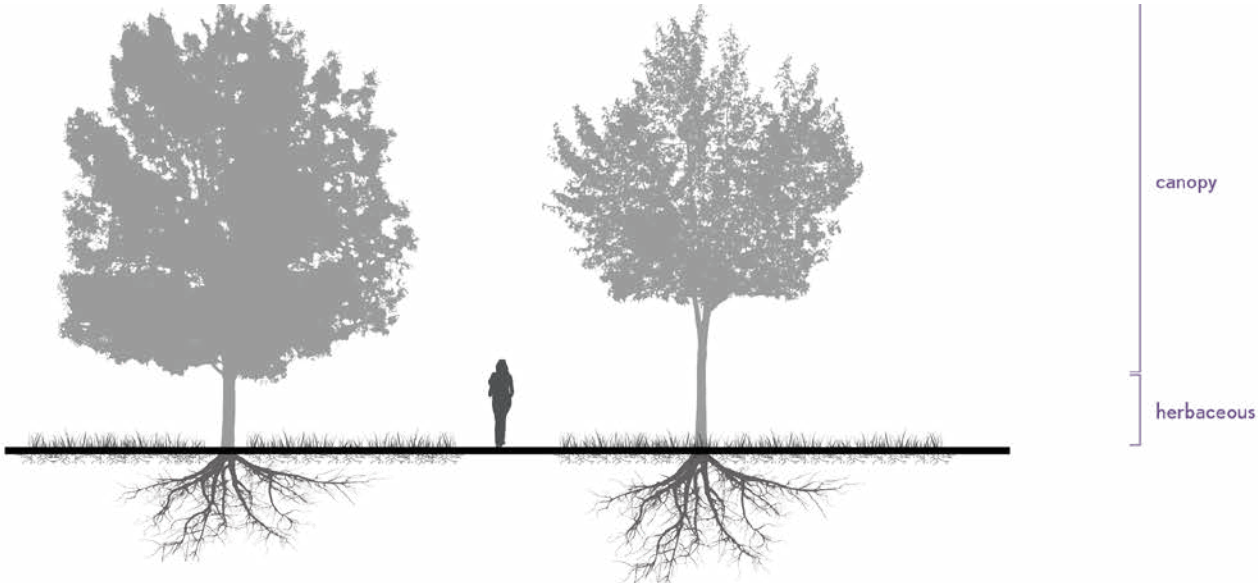
Plant communities

SAVANNA

5-50% Canopy cover

Structure: 2 layers
 canopy
 herbaceous

Little root interaction



FOREST

50-100% Canopy cover

Structure: 4 layers
 canopy
 subcanopy
 shrub
 herbaceous

Significant tree root interaction

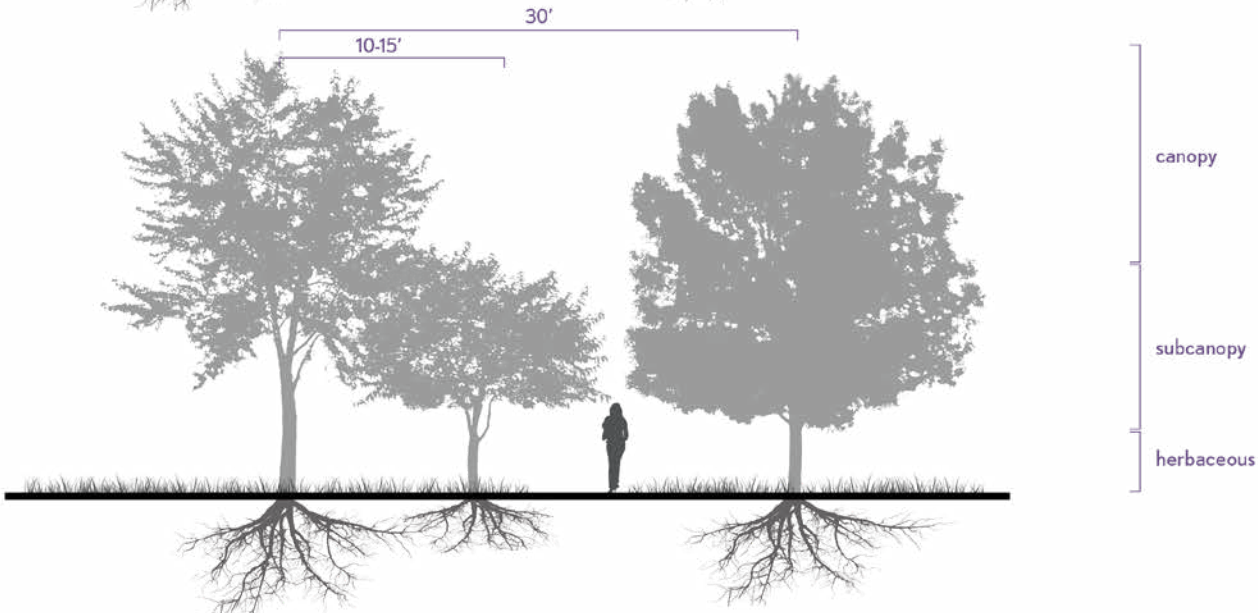


HYBRID

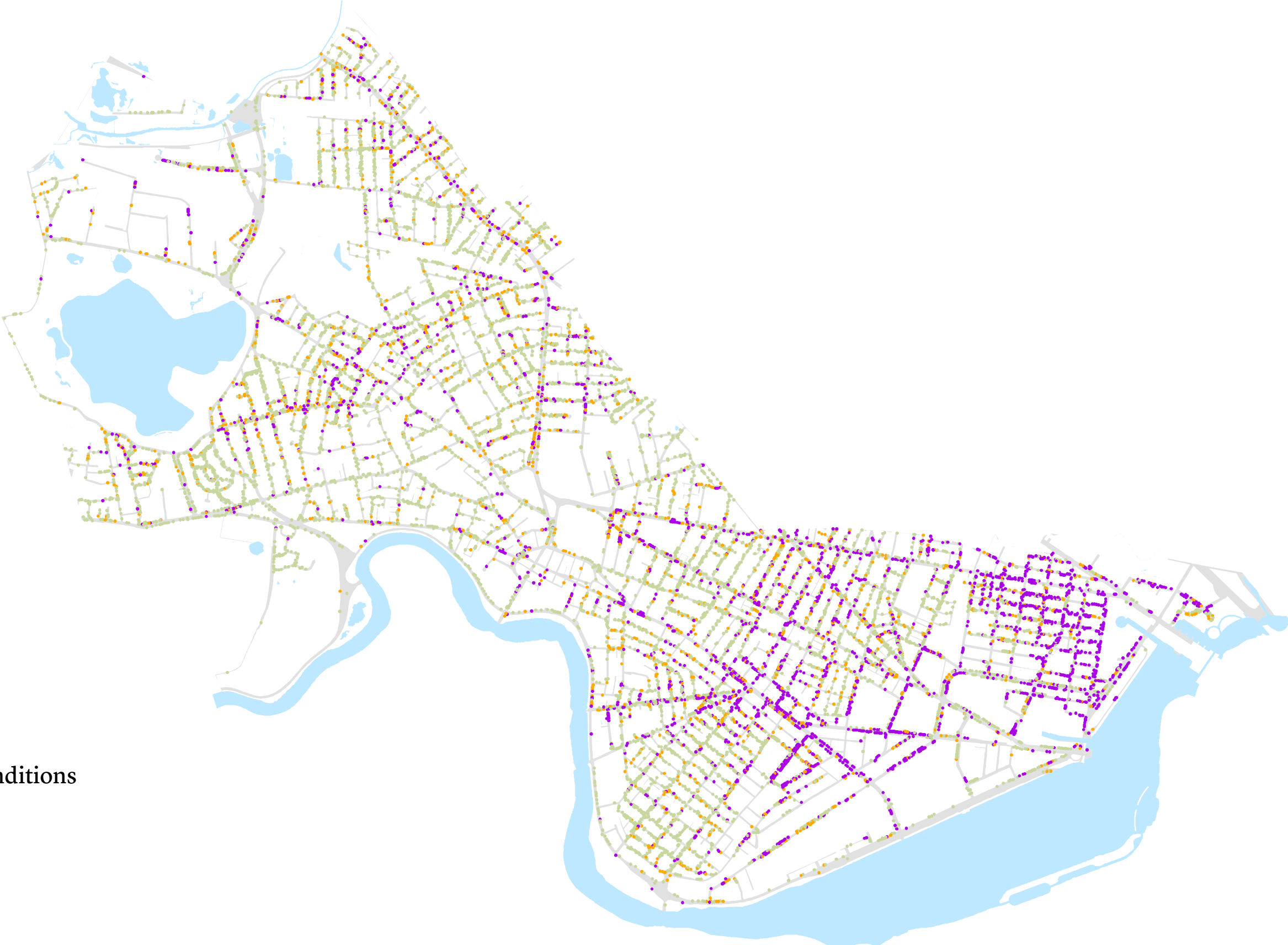
30-35% Canopy cover

Structure: 3 layers
 canopy
 subcanopy
 herbaceous

Continuous soil volume
 to promote tree root interaction



CONDITION OF STREET TREES



Tree Health Conditions

- Fair
- Good
- Poor

CONDITION OF STREET TREES ON SIDEWALKS 8' OR GREATER



Tree Health Conditions

- Fair
- Good
- Poor


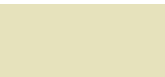

SIDEWALKS LESS THAN 6' WIDE



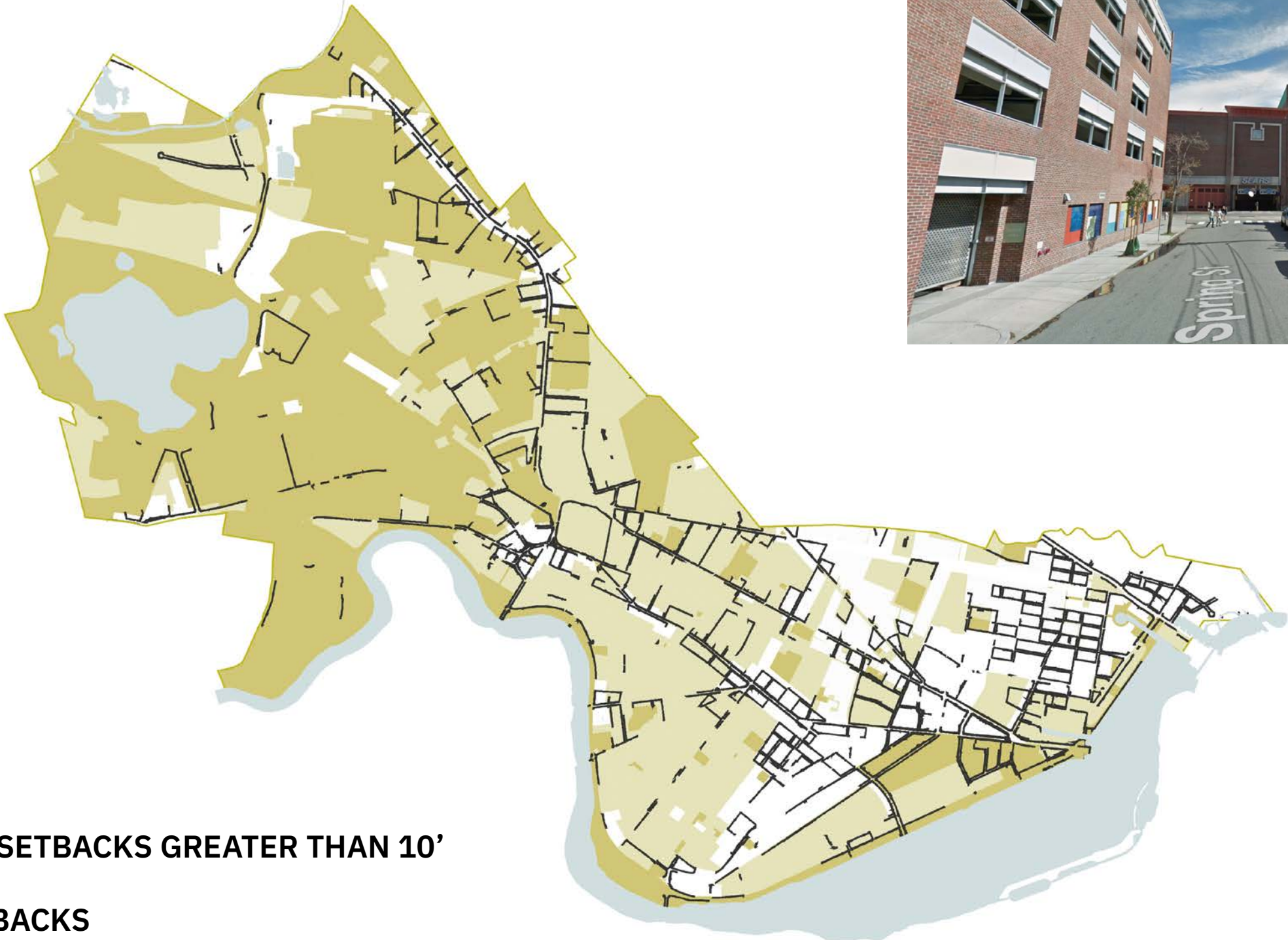
- FRONT YARD SETBACKS GREATER THAN 10'**
- LIMITED SETBACKS**
- NO REQUIRED SETBACKS**


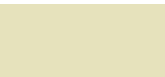

SIDEWALKS BETWEEN 6' AND 8'



-  FRONT YARD SETBACKS GREATER THAN 10'
-  LIMITED SETBACKS
-  NO REQUIRED SETBACKS

SIDEWALKS 8' OR GREATER



-  FRONT YARD SETBACKS GREATER THAN 10'
-  LIMITED SETBACKS
-  NO REQUIRED SETBACKS

ON SIDEWALKS WITH....

SIDEWALK WIDTH	SUFFICIENT FRONT YARD SETBACK		INSUFFICIENT FRONT YARD SETBACK			
	ENCOURAGE FRONT YARD PLANTINGS	NEW STREET TREES SHOULD FOCUS ON PRACTICES	NO NEW STREET TREE PLANTINGS	ALTERNATIVE STREET DESIGN	ALTERNATIVE STRATEGIES	FOCUS ON PRACTICES
< 6' WIDE	✓		✓	✓	✓	
6' to 8'	✓	✓		✓	✓	✓
> 8'	✓	✓		✓	✓	✓

R.O.W. CANOPY

Areas without front yard setbacks rely on street trees for canopy



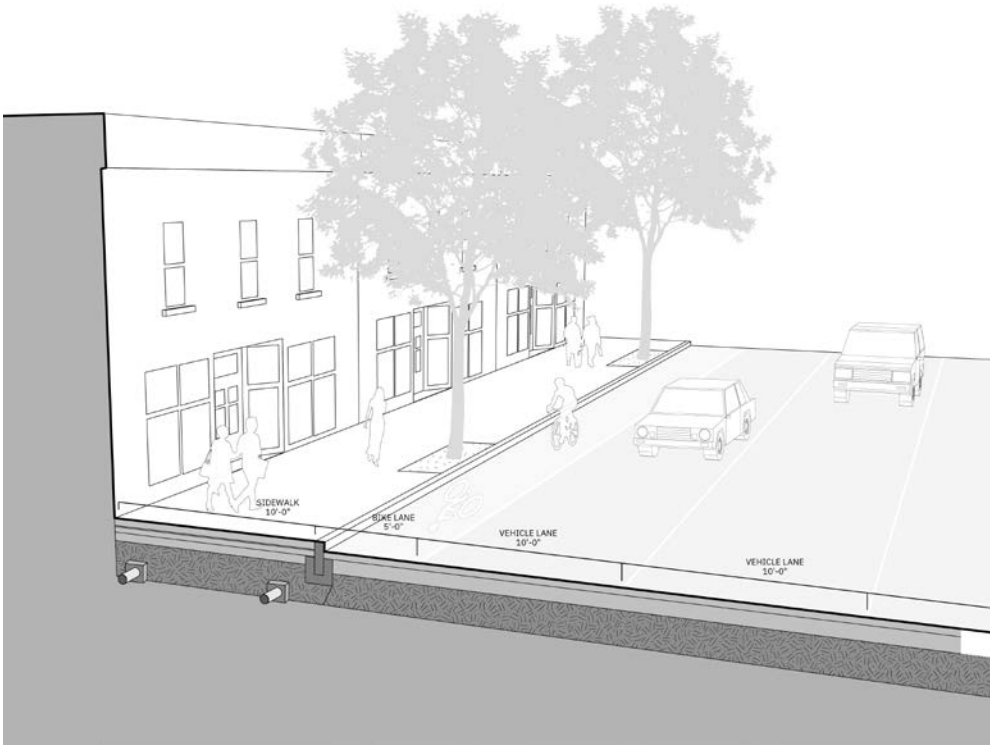
WEST CAMBRIDGE



EAST CAMBRIDGE



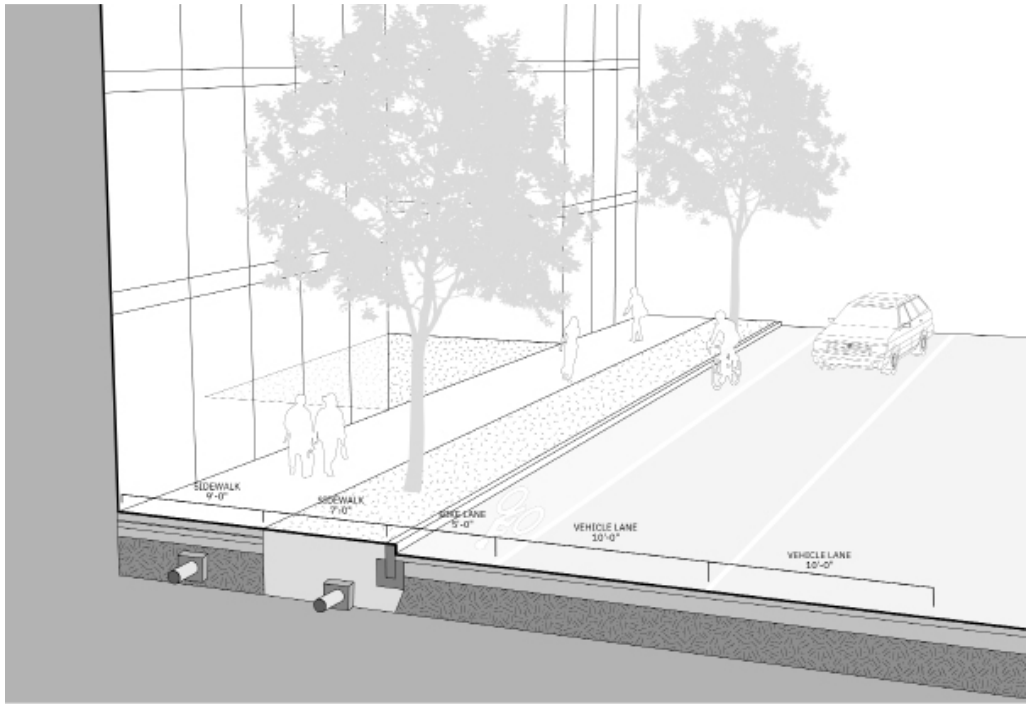
CONSTRAINTS REQUIRE INNOVATIVE APPROACHES



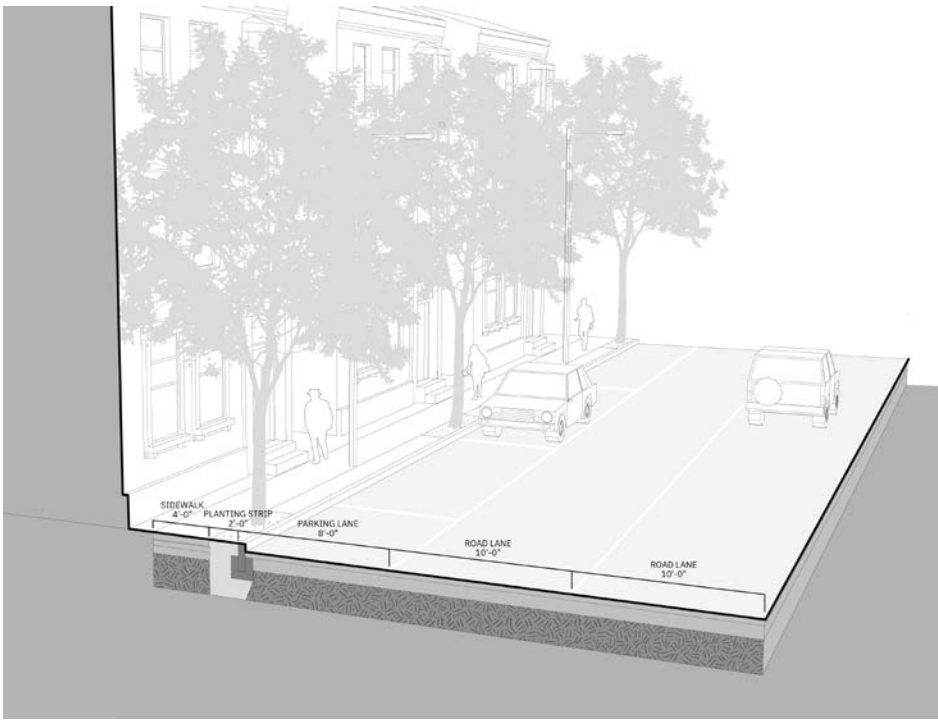
COMMERCIAL STREETS WITH NARROW SIDEWALK



COMMERCIAL STREETS WITH WIDE SIDEWALK



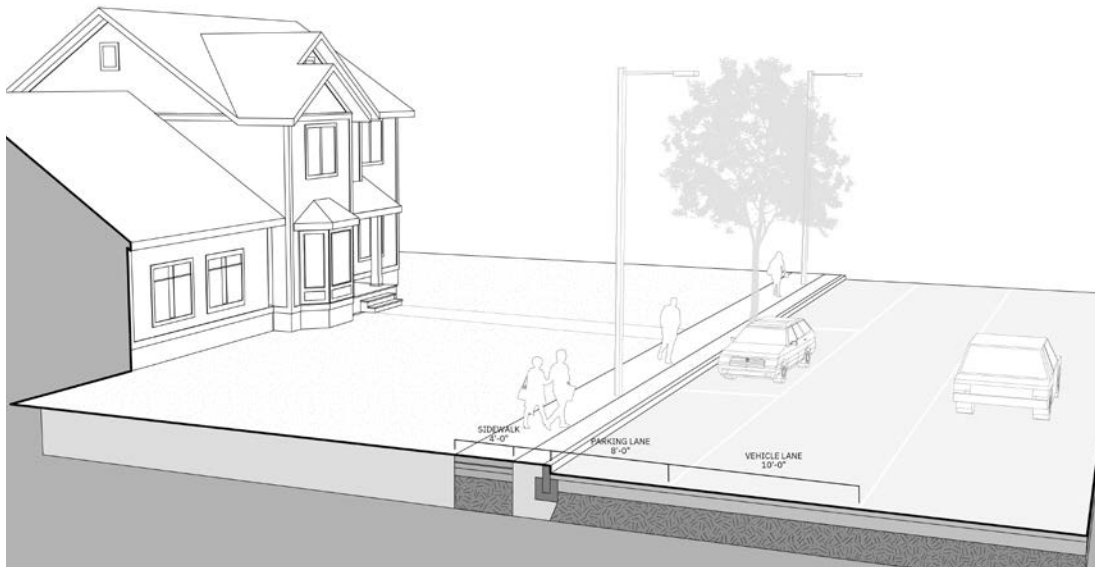
COMMERCIAL STREETS WITH WIDE COURTYARDS



NARROW RESIDENTIAL STREETS WITH NO SETBACK



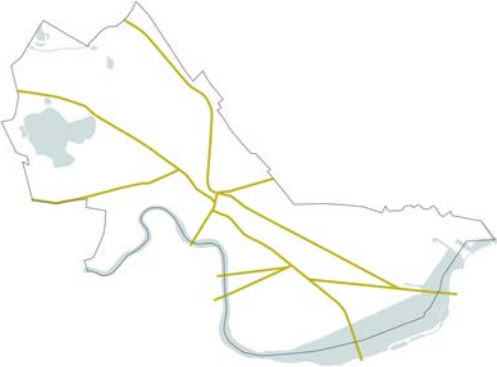
NARROW RESIDENTIAL STREETS WITH FRONT YARDS



NARROW RESIDENTIAL STREETS WITH LARGE FRONT YARDS

MAJOR STREETS, WIDE SIDEWALK

Existing conditions



MAJOR STREETS, WIDE SIDEWALKS

Staggered trees with permeable paving



- A Densify tree planting
- B Install porous pavement
- C Increase the soil volume
- D Extend soil volume to the buildings

MAJOR STREETS, WIDE SIDEWALKS

Mixed scales of trees with permeable paving



- A** Create groves of canopy and understory trees
- B** Install porous pavement in verge
- C** Increase the soil volume
- D** Extend soil volume to the buildings

MAJOR STREETS, WIDE SIDEWALKS

Double row of trees with permeable paving



Boston

MAJOR STREETS, WIDE SIDEWALKS

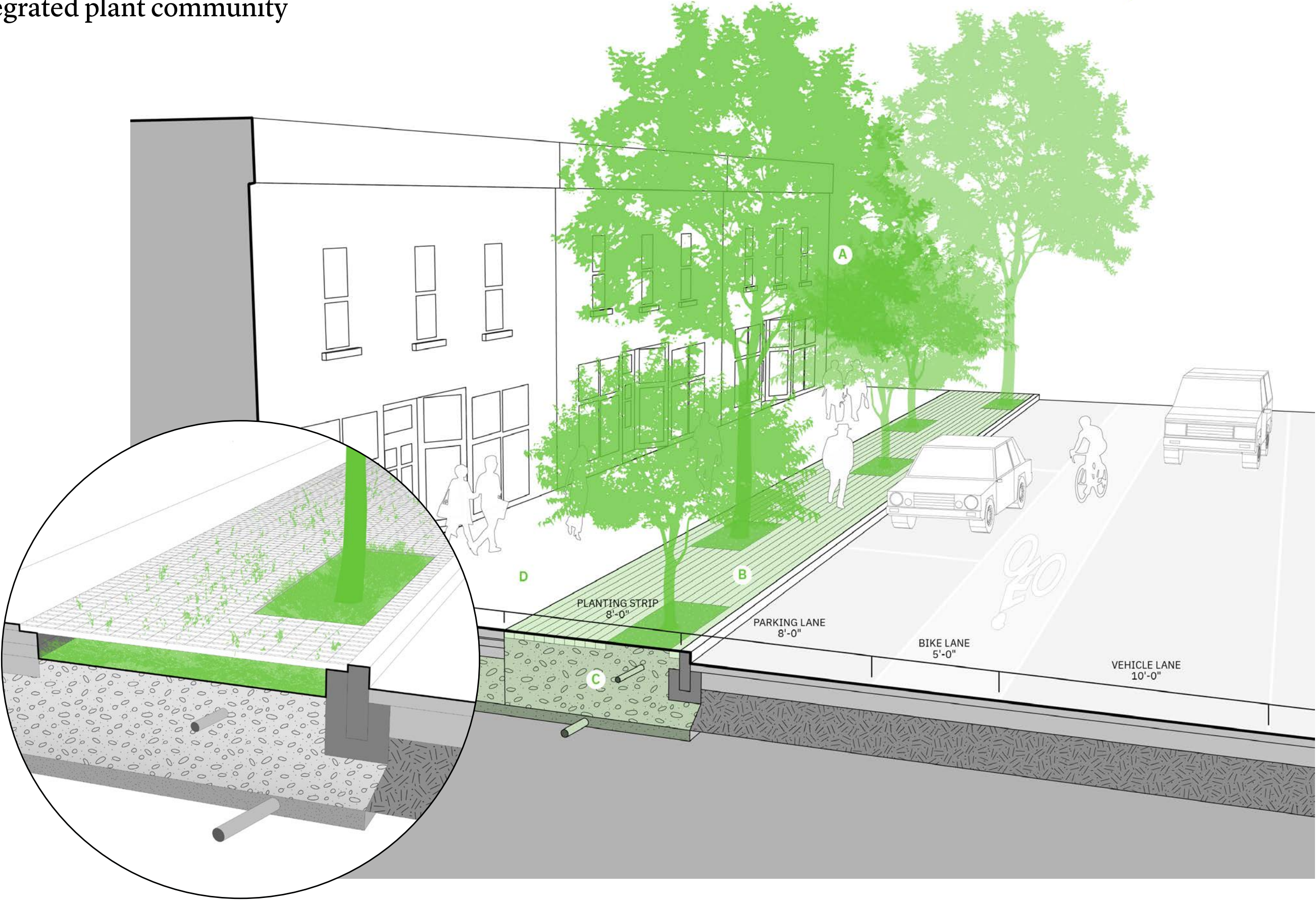
Double row of trees with permeable paving



Passeig de Sant Joan, Barcelona

MAJOR STREETS, WIDE SIDEWALKS

Integrated plant community



MAJOR STREETS, NARROW SIDEWALKS

Existing conditions



MAJOR STREETS, NARROW SIDEWALKS

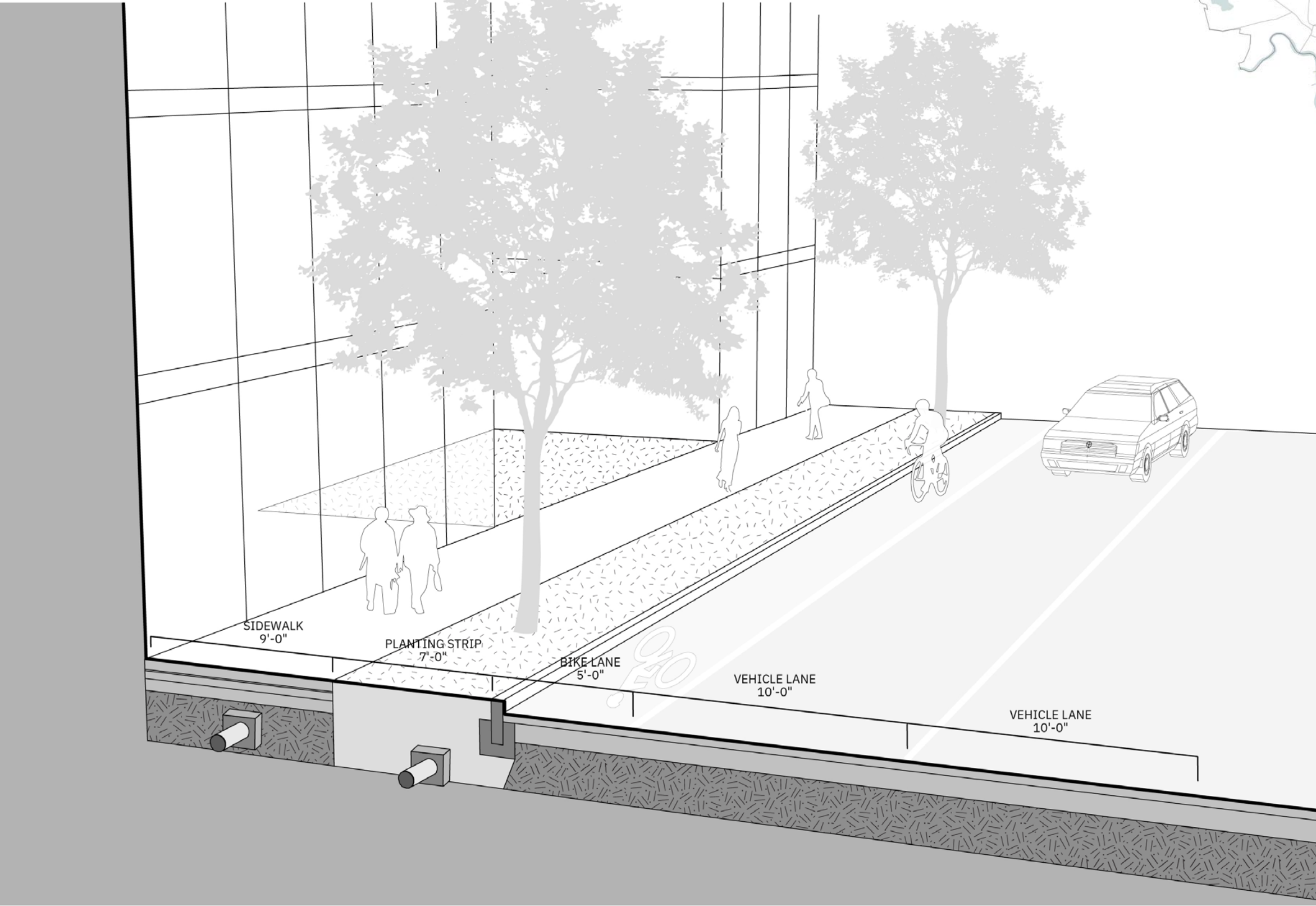
Mixed scale planting and permeable paving



- A** Alternate tree sizes to increase density
- B** Install porous paving
- C** Increase the soil volume
- D** Extend soil volume to the buildings

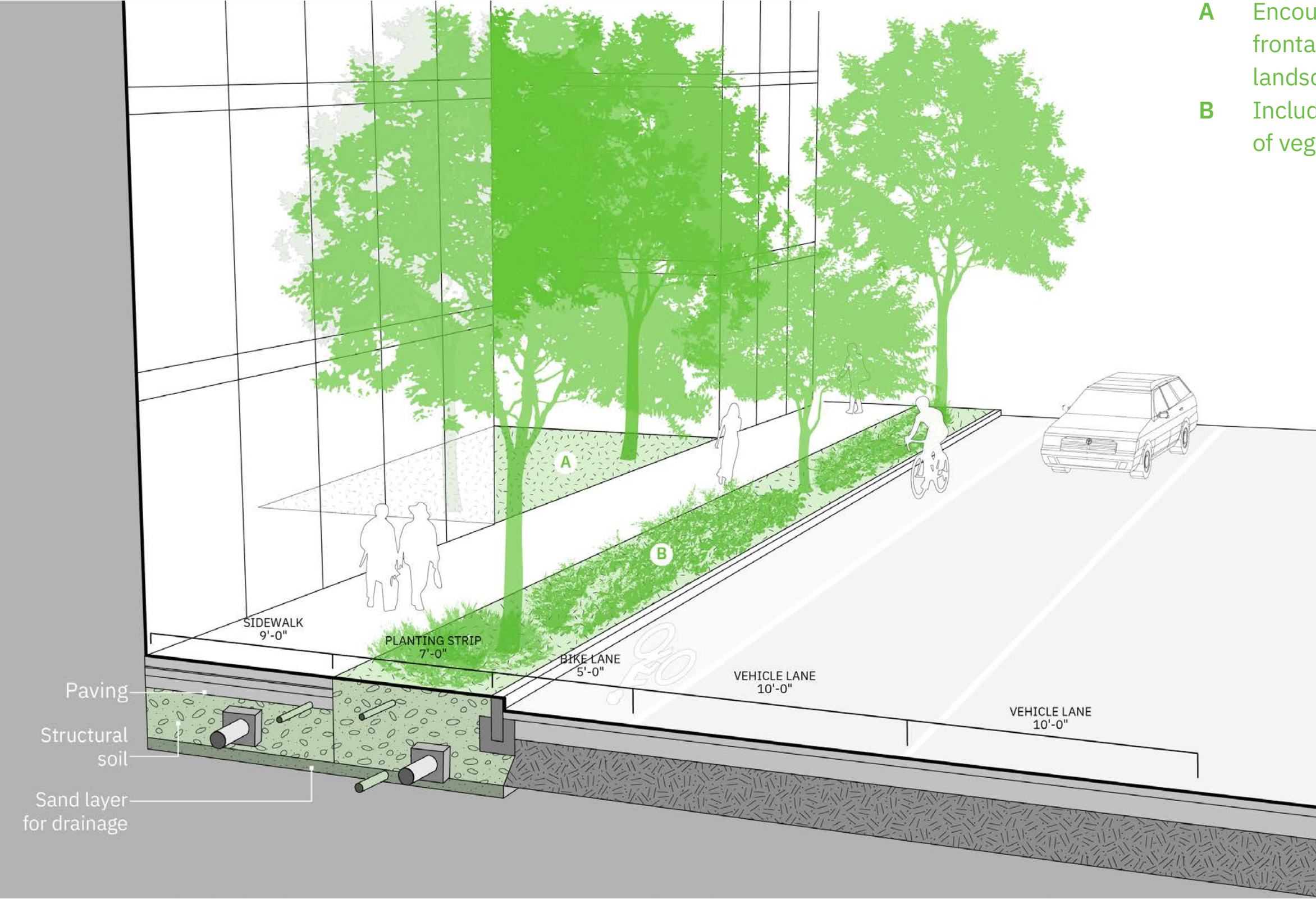
MAJOR STREETS WITH COMMERCIAL BUILDINGS

Existing conditions



MAJOR STREETS WITH COMMERICAL BUILDINGS

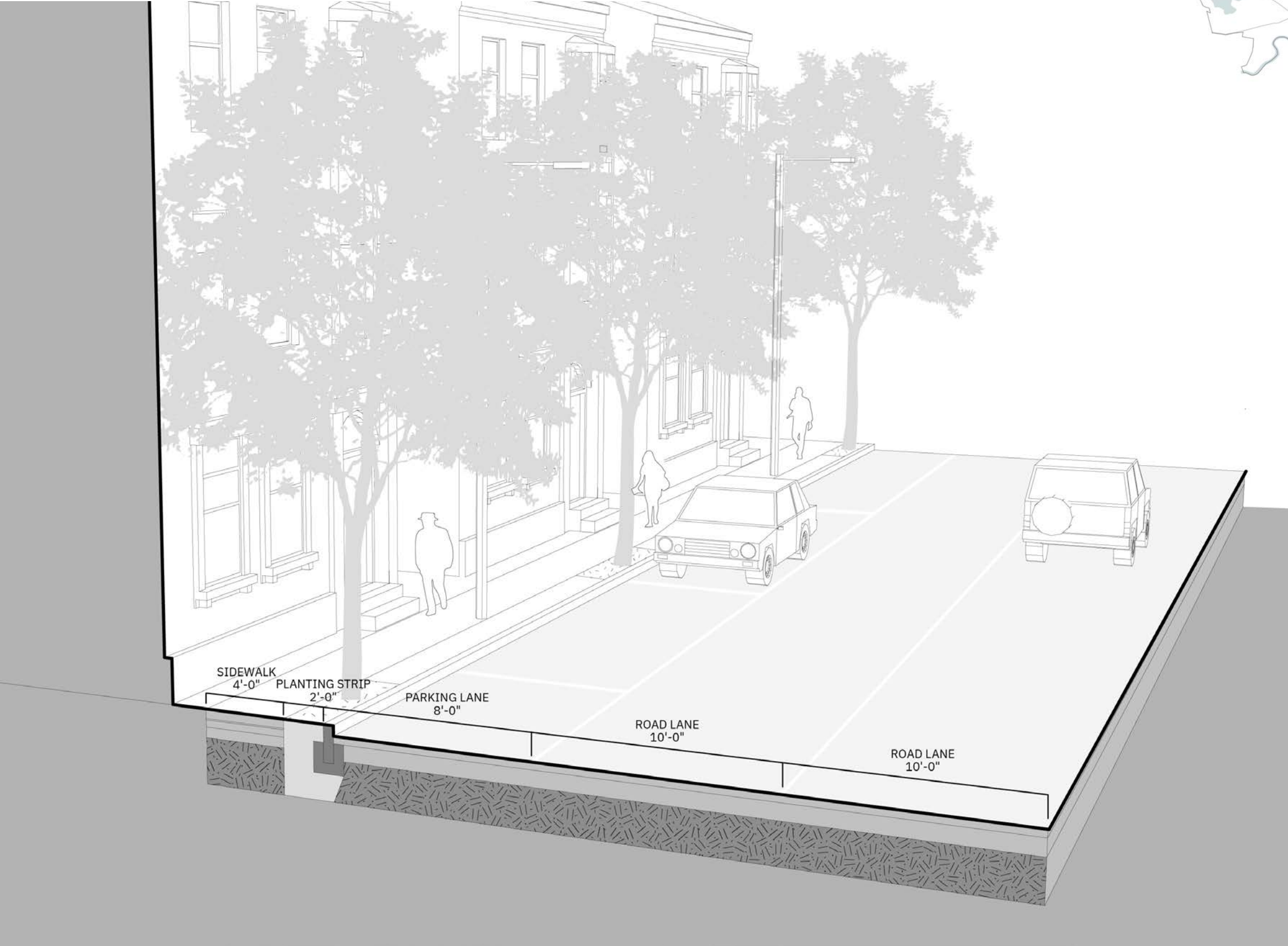
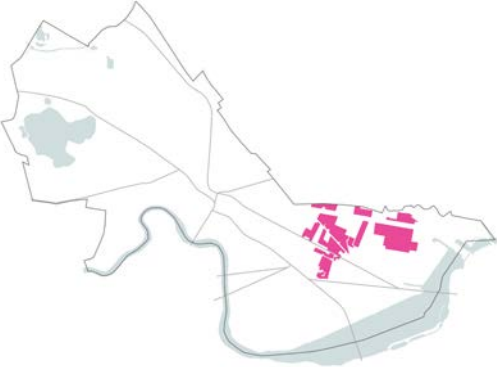
Frontage planting and layered vegetation



- A** Encourage varied frontage and landscaped spaces
- B** Include multiple stories of vegetation in verges

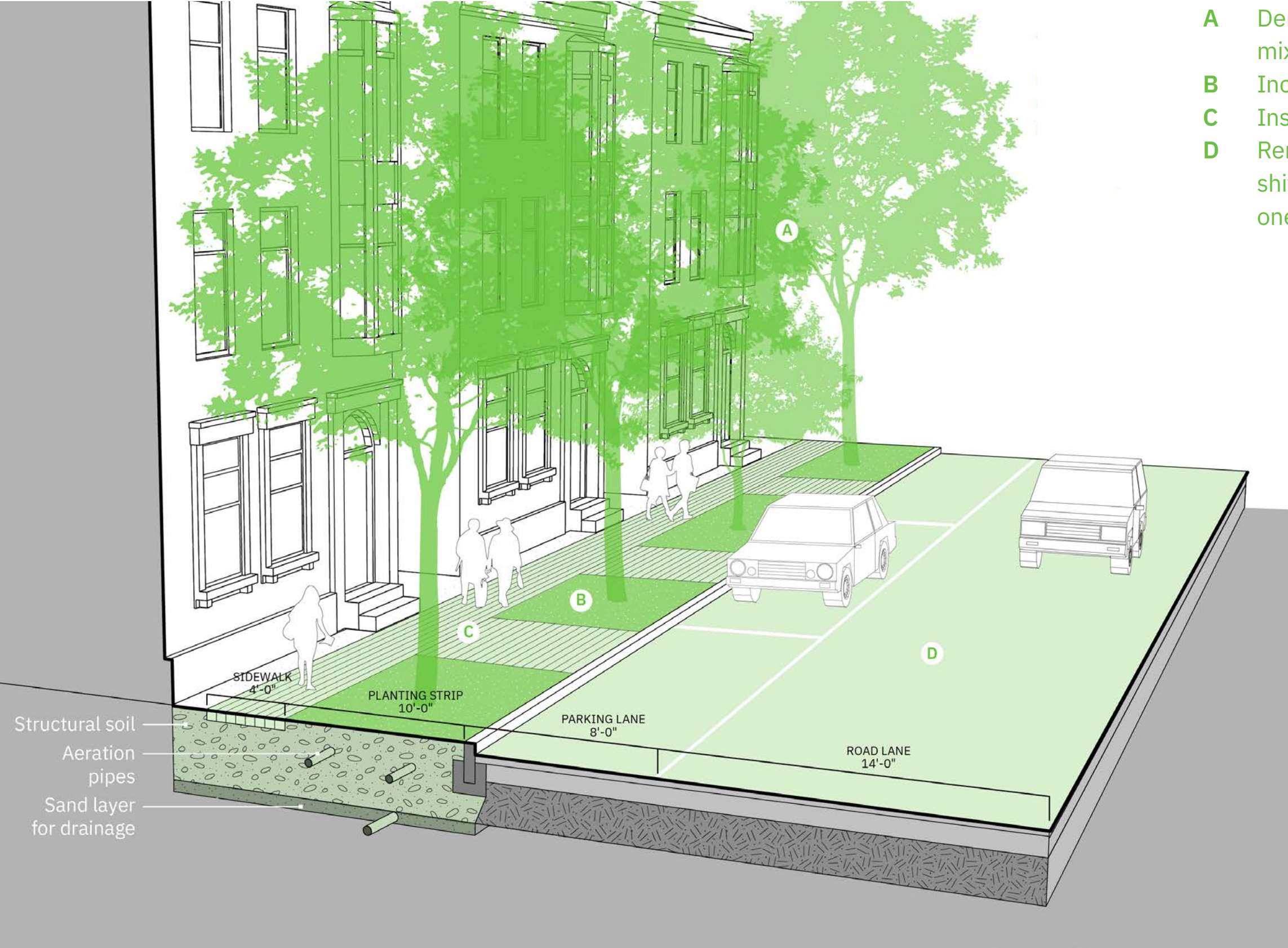
NARROW RESIDENTIAL STREETS, NO SETBACK

Existing conditions



NARROW RESIDENTIAL STREETS, NO SETBACK

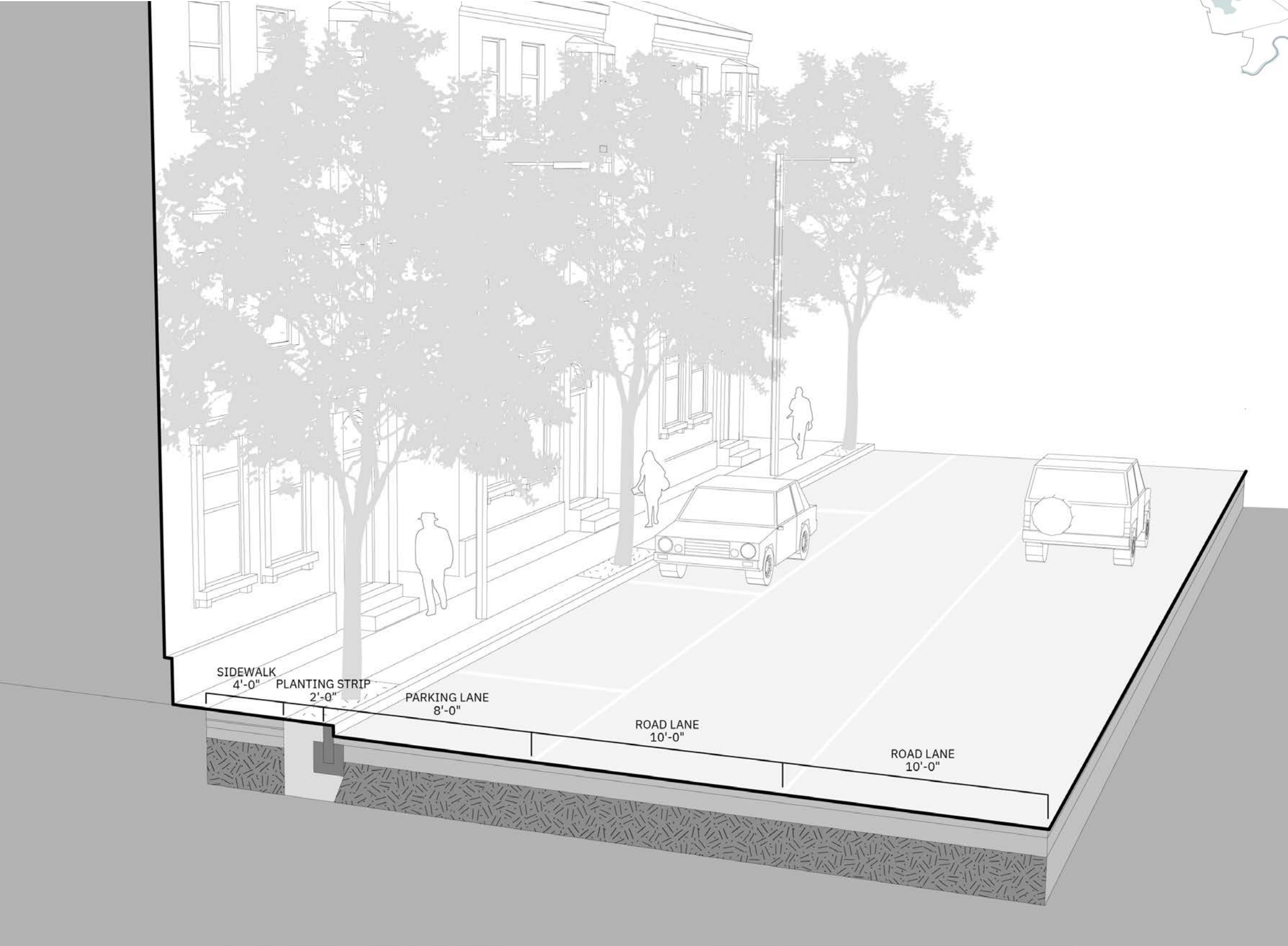
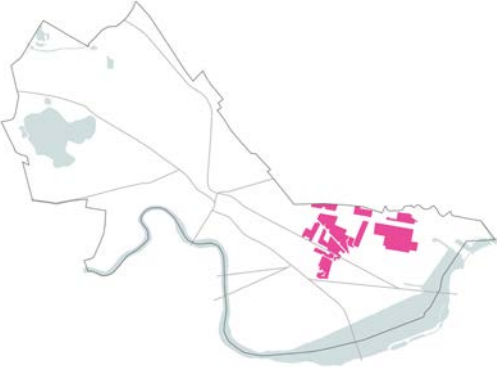
Lane diet, one-way travel



- A Densify planting with mixed species
- B Increase the soil volume
- C Install porous pavement
- D Remove pavement - shift two way traffic to one way

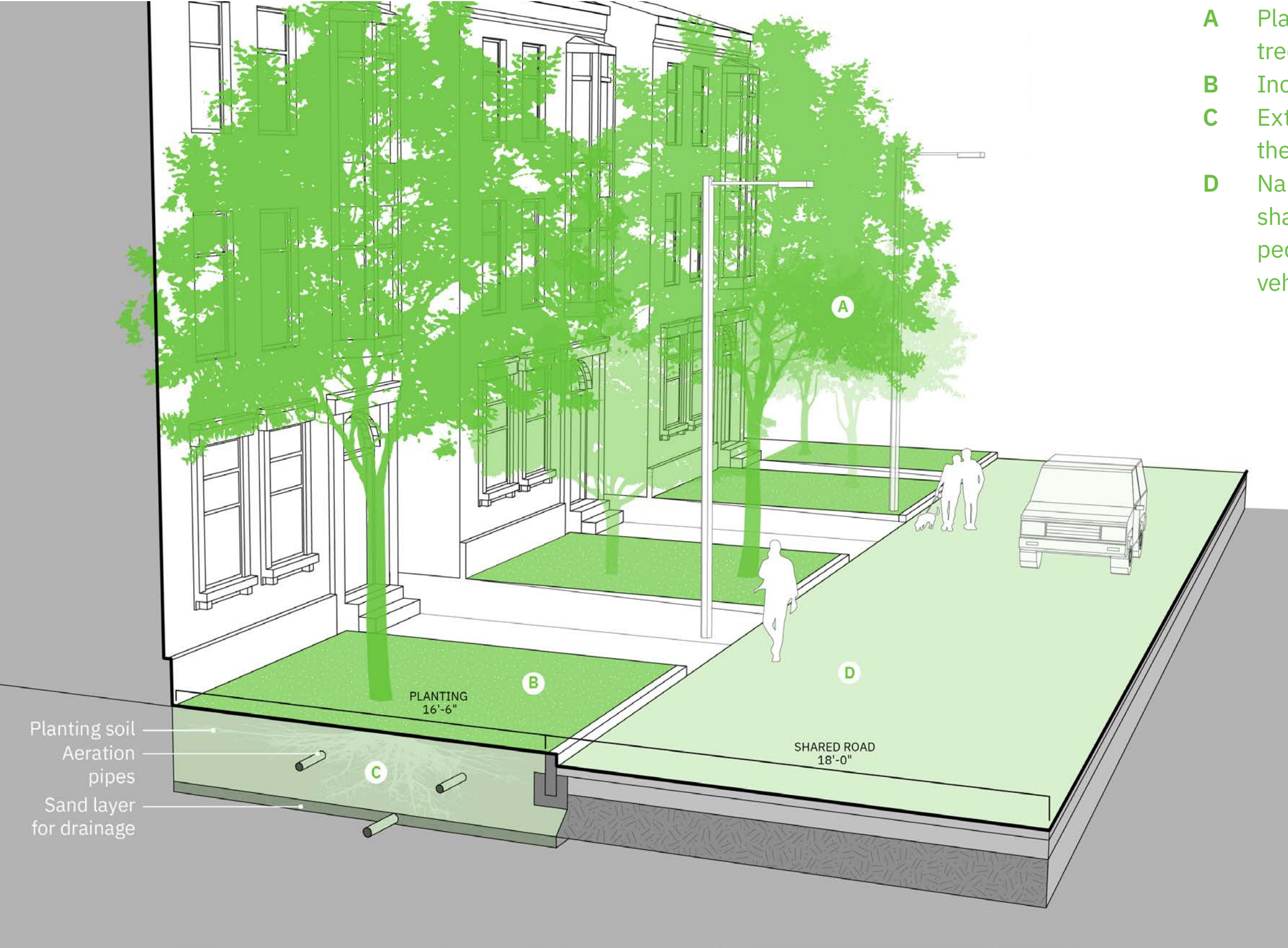
NARROW RESIDENTIAL STREETS, NO SETBACK

Existing conditions



NARROW RESIDENTIAL STREETS, NO SETBACK

Pavement removal, shared street



- A Plant mixed groves of trees
- B Increase the soil volume
- C Extend soil volume to the buildings
- D Narrow pavement - share streets between pedestrians and vehicles

NARROW RESIDENTIAL STREETS, NO SETBACK

Pavement removal, shared street



BEFORE
LONGFELLOW ROAD, CAMBRIDGE

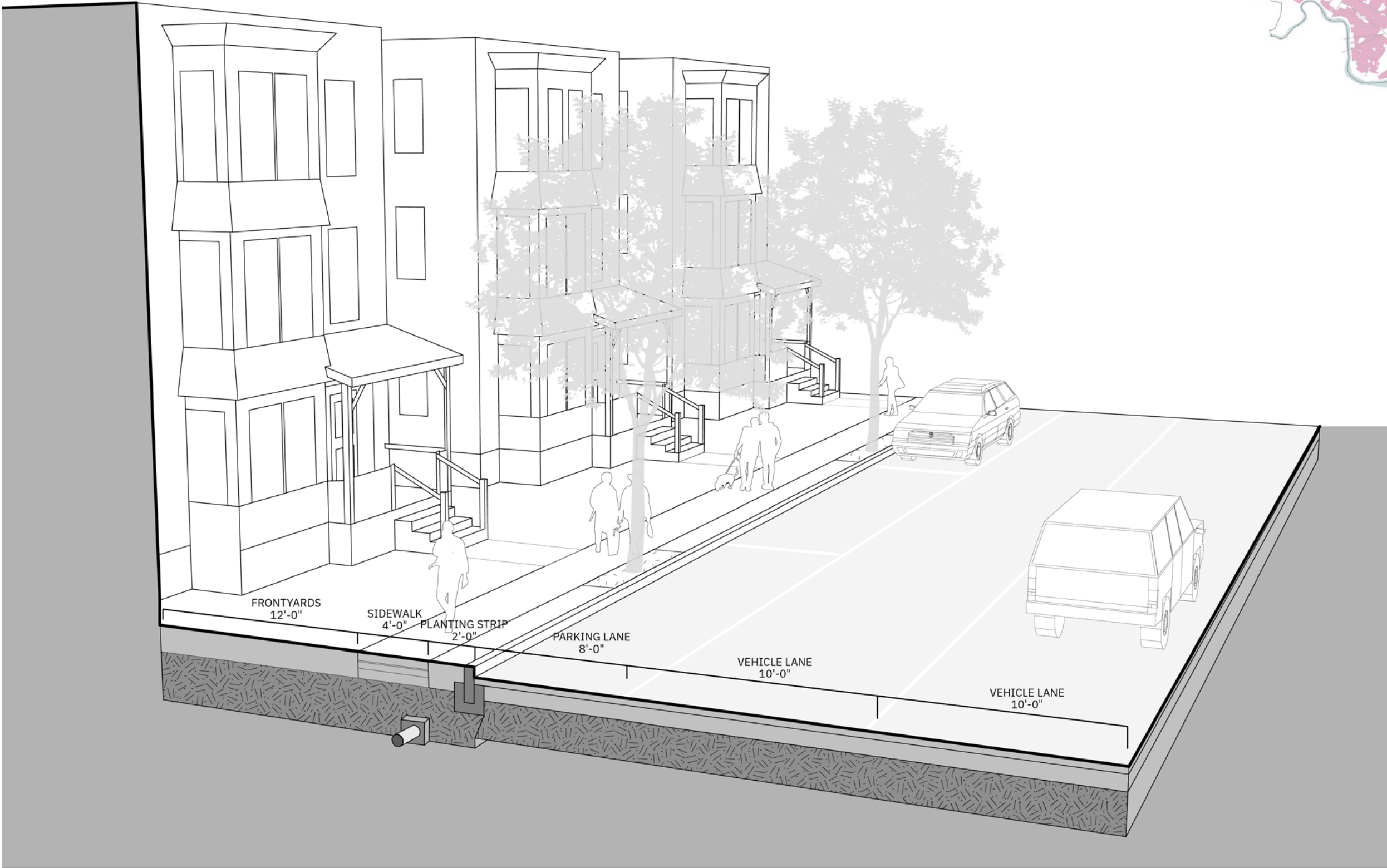
Image from Google Street View



AFTER
Image from Google Street View

NARROW RESIDENTIAL STREETS WITH FRONT YARD

Existing conditions



NARROW RESIDENTIAL STREETS WITH FRONT YARD

De-paved and connected front yards

- A Encourage depaving of front yards
- B Increase the soil volume



NARROW RESIDENTIAL STREETS WITH FRONT YARD

Planting area fit into parking lane



- A** Alternate canopy and understory trees
- B** Increase the soil volume
- C** Remove pavement - bump out planting areas into parking lanes

NARROW RESIDENTIAL STREETS WITH FRONT YARD

Planting area fit into parking lane



Image from Google Street View

Chilton Street redesign as part of sewer separation project in Cambridge



Image from Google Street View

Western Avenue redesign

NARROW RESIDENTIAL STREETS WITH FRONT YARD

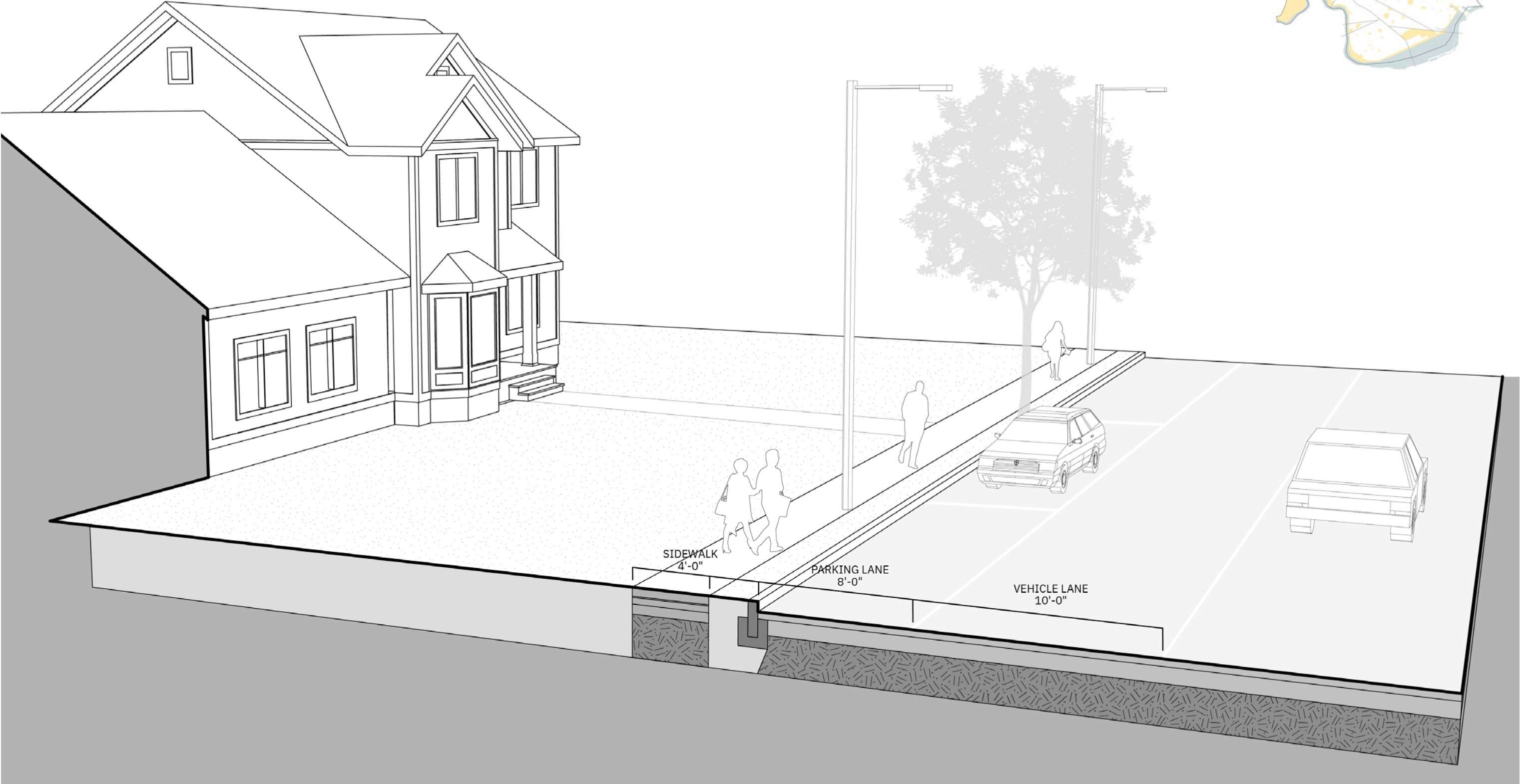
Planting area fit into parking lane



DOUBLE ROW OF TREES IN CURB BUMP OUTS IN SAN FRANCISCO

RESIDENTIAL STREETS WITH LARGE FRONT YARDS

Existing conditions



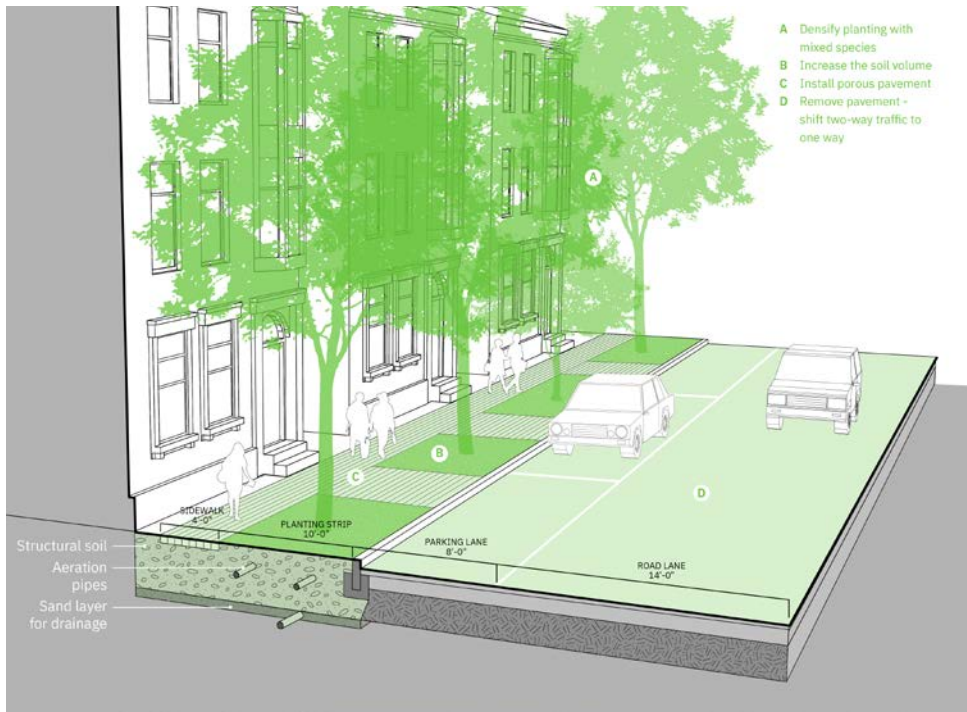
RESIDENTIAL STREETS WITH LARGE FRONT YARDS

More front yard planting

A Encourage front yard planting with expanded back of sidewalk program



CONSTRAINTS REQUIRE INNOVATIVE APPROACHES



PRINCIPLES

PLANNING APPROACH

DESIGN CONCEPTS

PRACTICES

The City of Cambridge forest management practices are generally **aligned with best industry practices.**

To curb loss and grow canopy, enhanced practices fall into four categories:

improve monitoring and responsiveness
remediate causes of decline
improve planting and soils details
expand routine maintenance

ENHANCE PRACTICES | OVERVIEW

MONITOR

- Increase tree assessments
- Expand pest monitoring
- Expand Cartegraph tracking to monitor success of practices

REMEDIATE

- Manage soils
 - Liquid biological amendments
 - Decompaction/Aeration
- Treat private trees during severe pest outbreaks (EAB)

PLANT

- Enhance soil specs
- Ensure proper drainage
- Plant bare root trees

MAINTAIN

- Formalize a City-wide management plan
- Manage soils
 - Mulching
 - Liquid biological amendments
- Structural pruning for young trees
- Expand watering program

Increase frequency of city-wide tree assessments.

BENEFITS

Allows identification of stressed trees for remediation practices

SCOPE OF WORK

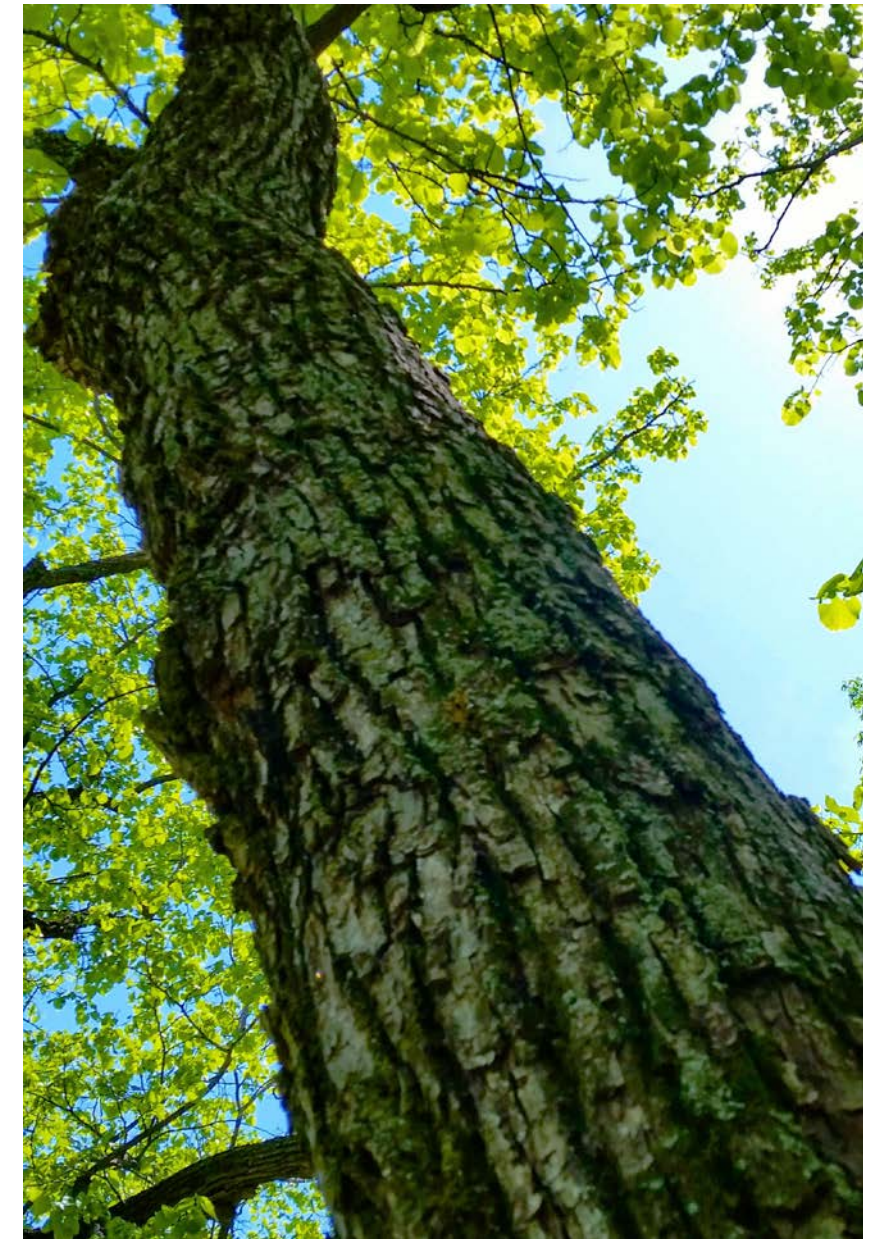
High: 3 zones for annual assessment cycle

Low: 5 zones for annual assessment cycle

FREQUENCY

High: Survey trees on a 3 year cycle

Low: Survey trees on a 5 year cycle



Expand pest/disease monitoring.

BENEFITS

Allows treatment at start of outbreak

SCOPE OF APPLICATION

Monitor specifically for pests/diseases that are systemic city-wide threat
Formalize coordination protocols with surrounding municipalities

SCOPE OF WORK

High: Traps and tree assessments

Low: Traps



Emerald Ash Borer trap

Track all treatments (ie., soil management) in Cartegraph (City inventory software).

BENEFITS

Ability to assess success of treatments

SCOPE OF APPLICATION

All trees when pruned by contractors

All trees treated with liquid biological amendments and decompaction measures

SCOPE OF WORK

Record treatment in Cartegraph through mobile device at time of treatment

Follow up inspection to assess efficacy of treatment

Treat private trees during city-wide pest/disease outbreaks.

BENEFITS

In the case of Emerald Ash Borer (EAB) the City is currently treating 883 City trees, approx. 2% of City canopy

LiDAR survey indicates there are 1,536 Ash in the City, approx. 4% of the City canopy

Expanding EAB treatment to private trees could save additional 2% of canopy

SCOPE

Treat approx. 650 private trees with TreeAzin injections per City spec

650 trees x 12" DBH avg x \$15/caliper inch = approx. \$117,000/year



Treat underperforming trees with liquid biological amendments.

BENEFITS

Improve nutrient availability

Reduce compaction

SCOPE OF APPLICATION

High: all publicly owned trees showing signs of fair-poor condition

Medium: all publicly owned trees showing signs of poor condition

Low: 1/2 publicly owned trees showing signs of poor condition

SCOPE OF WORK

Soil injections of 10 gallon liquid (compost tea) @ 4 points per tree

Approximately 10 minutes per tree

FREQUENCY

High: yearly, half of the trees in spring and half in fall

Low: 1/3 of trees each year, 3 year cycle of treatment



Treat compacted soil through mechanical decompaction.

BENEFITS

Reduce compaction
Enhance moisture retention

SCOPE OF APPLICATION

High: All publicly owned non-street trees
Low: Park trees in areas of high use

SCOPE OF WORK

Treat zones with Aera-vator within dripline of each tree
or group of trees
Incorporate high-quality compost during treatment
Approximately 60 minutes per tree

FREQUENCY

High: each tree every year, half of the trees in spring and half in fall
Medium: each tree every two years, a quarter of the trees in spring and quarter in fall
Low: once, half the trees in the spring, half in the fall



Incorporate drainage measures in new plantings.

BENEFITS

Prevent roots from potentially sitting in water and dying

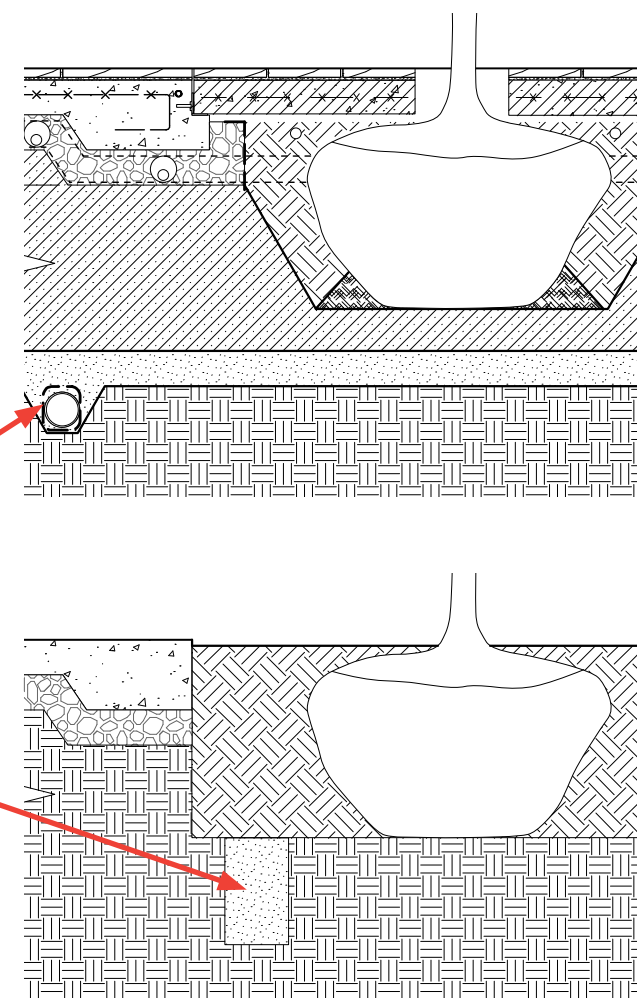
SCOPE OF APPLICATION

Test all new plantings, remediate where needed

SCOPE OF WORK

High: Underdrains at bottom of pits for new trees associated with large projects

Low: Augur sand wicks at bottom of pit for tree pits with poor drainage



Enhance soil specifications.

BENEFITS

- A) Improve tree health and root capacity
- B) Improve survival rates and growth rates

SCOPE OF APPLICATION

- A) High: All publicly planted trees
- B) Low: All publicly planted street trees

SCOPE OF WORK

- A) Develop multiple soils blends to respond to specific conditions
 - i. Structural soils
 - ii. Suspended pavements
 - iii. Parkland Turf
 - iv. Beds and mixed planting



- B) Incorporate biological guidelines into soil specification
- C) Continue to incorporate biochar within soils
- D) Measure compaction by standard proctor
- E) Require compliance testing by contractor

Plant bare root trees and manage a gravel bed nursery.

BENEFITS

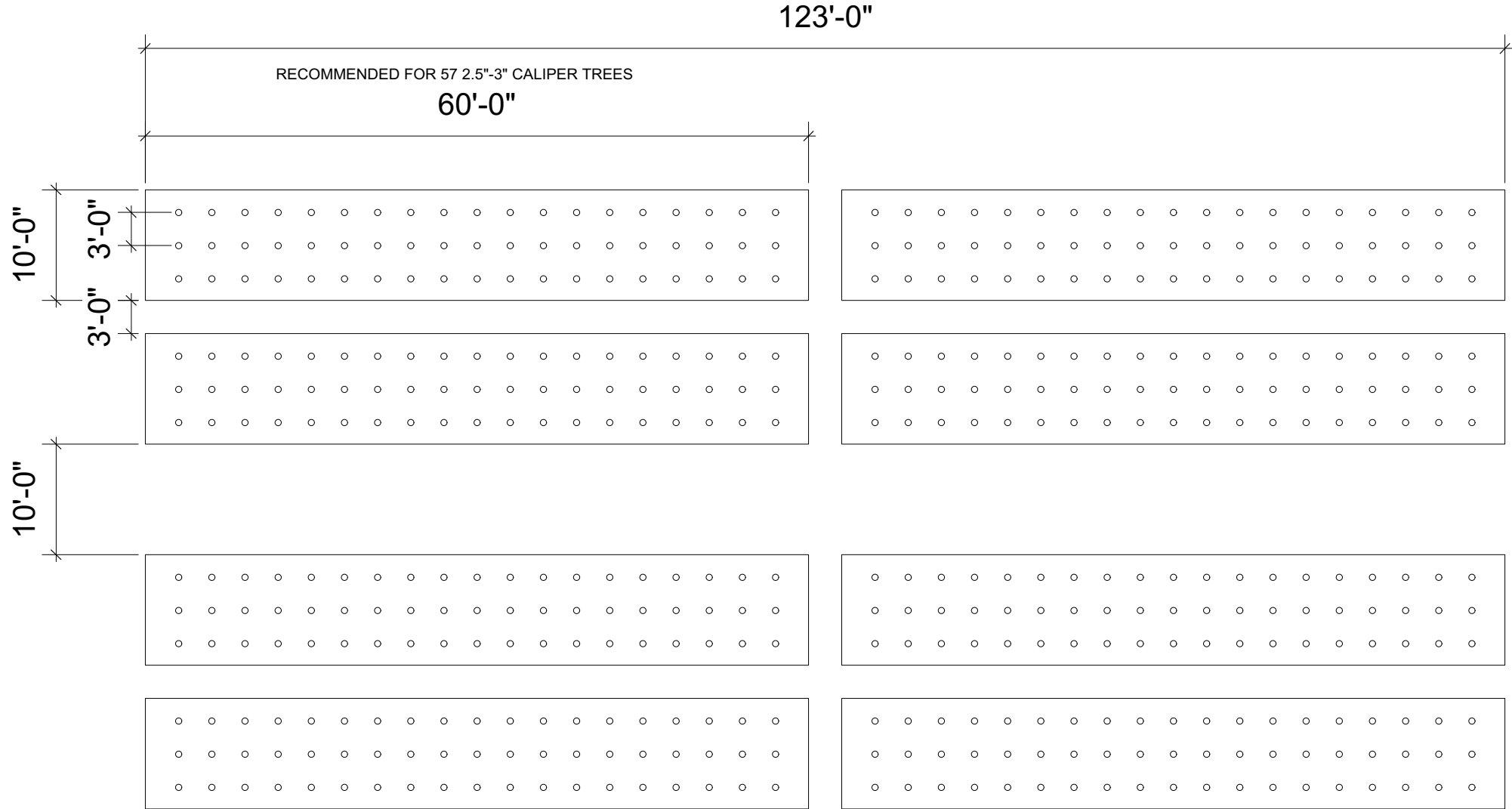
- Increase survival rates
- Increase species selection
- Lower installation costs
- Expand season for planting

SCOPE OF WORK

Manage a gravel bed nursery
on city-owned land



Manage a gravel bed nursery.



8,200 sf required to store 456 bare root trees.

Create City-wide Management Plan

BENEFITS

Clarity of annual goals, ability to track performance

SCOPE OF WORK

Formalize management goals and objectives

Documentation of all aspects of tree management practices

Institute annual assessment of progress

Implement structural pruning for young trees.

BENEFITS

Improve storm resiliency and life span of trees

SCOPE OF APPLICATION

High: All new City plantings +
Require structural pruning of new trees
planted under Special Permits for 6 yrs

Low: All new City plantings

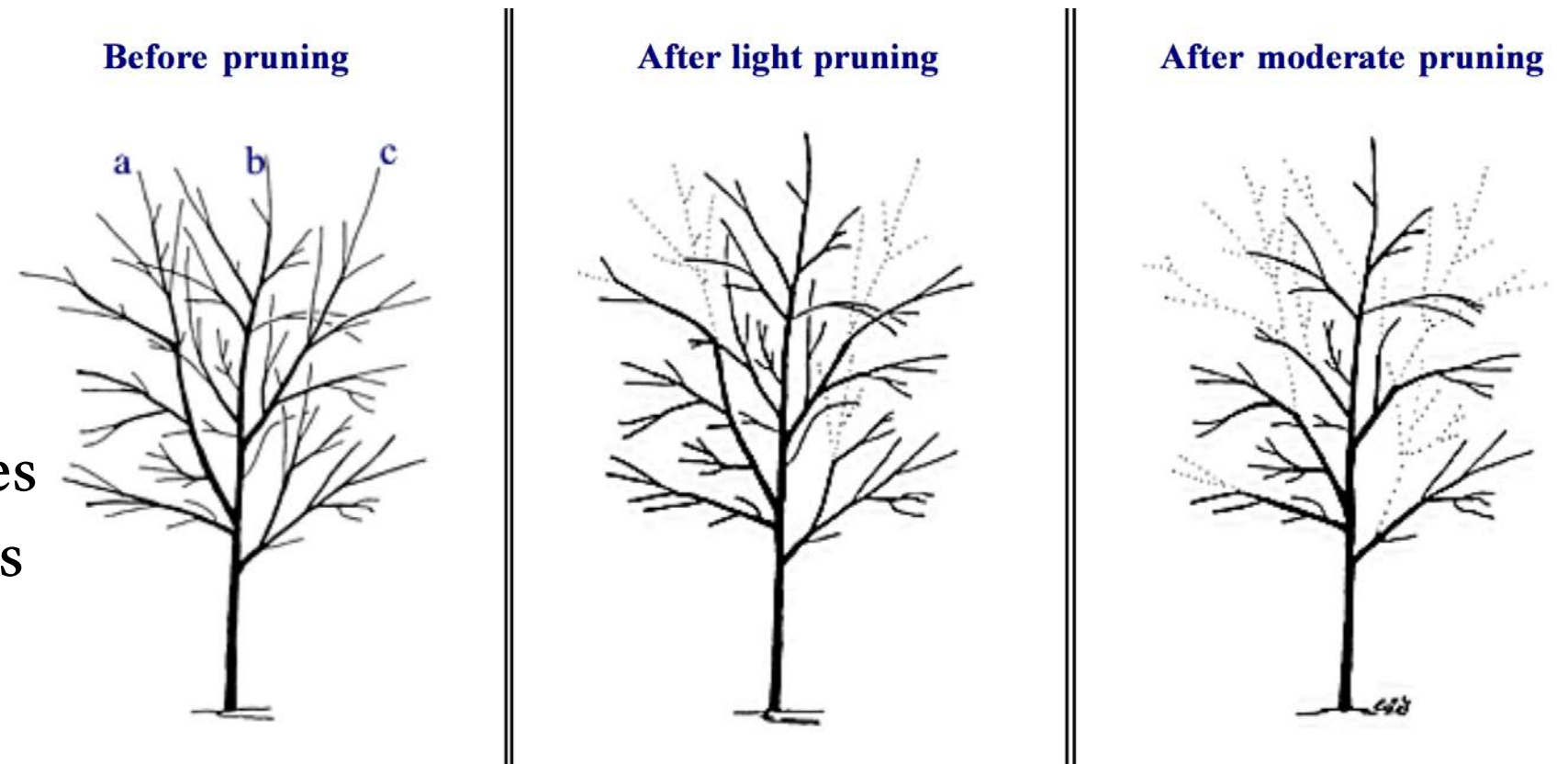
SCOPE OF WORK

Selectively prune branches and stems larger than about half the diameter of the trunk.

FREQUENCY

High: Prune young trees on 3 year pruning cycle for first 6 years after planting (two visits),
5 year cycle for next 15 years (three visits)

Low: Prune young trees on 3 year pruning cycle for first 9 years after planting (three visits)



Graphic from "Structural Pruning of Shade Trees," Gilman and Eisner

Expand watering program

BENEFITS

Improve resistance to pests and disease

SCOPE OF APPLICATION

High: all publicly owned trees

Medium: all publicly owned trees under 20 years of age
(where impacts are believed to be highest)

Low: Trees in high risk areas

SCOPE OF WORK

Soak soil around tree

Approx. 10 mins per tree

FREQUENCY

High: Irrigate each tree in scope once per month during June-August

Low: Irrigate trees when showing signs of stress



Expand mulching program

BENEFITS

Improve soils and tree health

SCOPE OF APPLICATION

High: all publicly owned trees with exposed soil (NIC flexipave, tree grates, etc) (use Bartlett's survey to make an estimate of % bare soil trees)

Medium: all publicly owned non-street trees

Low: all trees showing signs of stress (per yearly city-wide tree assessment)

SCOPE OF WORK

Spread mulch on exposed soil areas

Approximately 15 minutes per tree

FREQUENCY

High: Each tree every year in spring

Med: ¼ of trees per year in spring

Low: Adopt-a-tree mulching with mulch barrels

Liquid biological amendments

BENEFITS

Improve nutrient availability

Reduce compaction

SCOPE OF APPLICATION

High: all publicly owned trees

Low: all publicly-owned trees under 20 years of age

SCOPE OF WORK

Soil injections of 10 gallon liquid (compost tea) @ 4 points per tree

Approximately 10 minutes per tree

FREQUENCY

High: yearly, half of the trees in spring and half in fall

Low: 1/3 of trees each year, 3 year cycle of treatment

De-icing

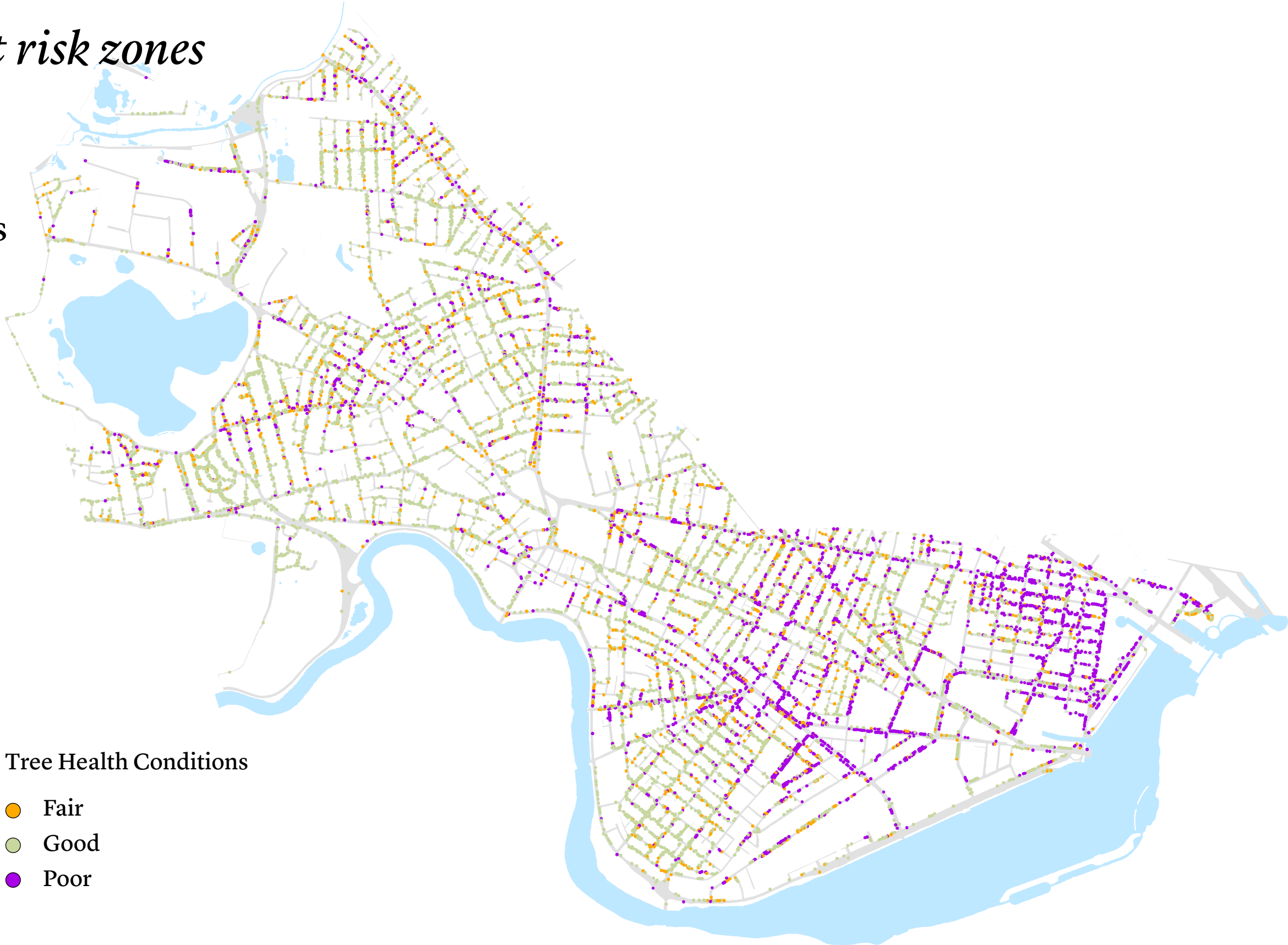
SCOPE OF WORK

Continue to investigate alternative deicing methods, e.g. brine treatments on sidewalks.
After winters with heavy deicer use, flush tree pits in spring

Create management risk zones

BENEFITS

Improve efficiency by tracking most at-risk trees



Tree Health Conditions

- Fair
- Good
- Poor

ENHANCE PRACTICES | OVERVIEW

MONITOR

- Increase tree assessments
- Expand pest monitoring
- Expand Cartegraph tracking to monitor success of practices

REMEDIATE

- Manage soils
 - Liquid biological amendments
 - Decompaction/Aeration
- Treat private trees during severe pest outbreaks (EAB)

PLANT

- Enhance soil specs
- Ensure proper drainage
- Plant bare root trees

MAINTAIN

- Formalize a City-wide management plan
- Manage soils
 - Mulching
 - Liquid biological amendments
- Structural pruning for young trees
- Expand watering program

PUBLIC COMMENT

www.cambridgema.gov/ufmp

TASK FORCE MEETING SCHEDULE

JUNE 12

Introduction

NOVEMBER 29

TESTING: Baseline Change Model

JUNE 28

RESEARCH: Regulation and Management

DECEMBER 20

DRAFT: Policy

JULY 26

RESEARCH: Goal Setting

JANUARY 31

DRAFT: Policy

AUGUST 30

RESEARCH: Ongoing Analysis + Climate Modeling

FEBRUARY 28

DRAFT: Planning and Practice

SEPTEMBER 27

RESEARCH: Summary of Findings

MARCH 28

DRAFT: Outreach, Cost / Benefit

OCTOBER 25

Cancelled

APRIL 25

DRAFT: Prioritization

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