

DOWNTOWN ATLANTA URBAN TREE PLANTING PLAN

JANUARY 2021



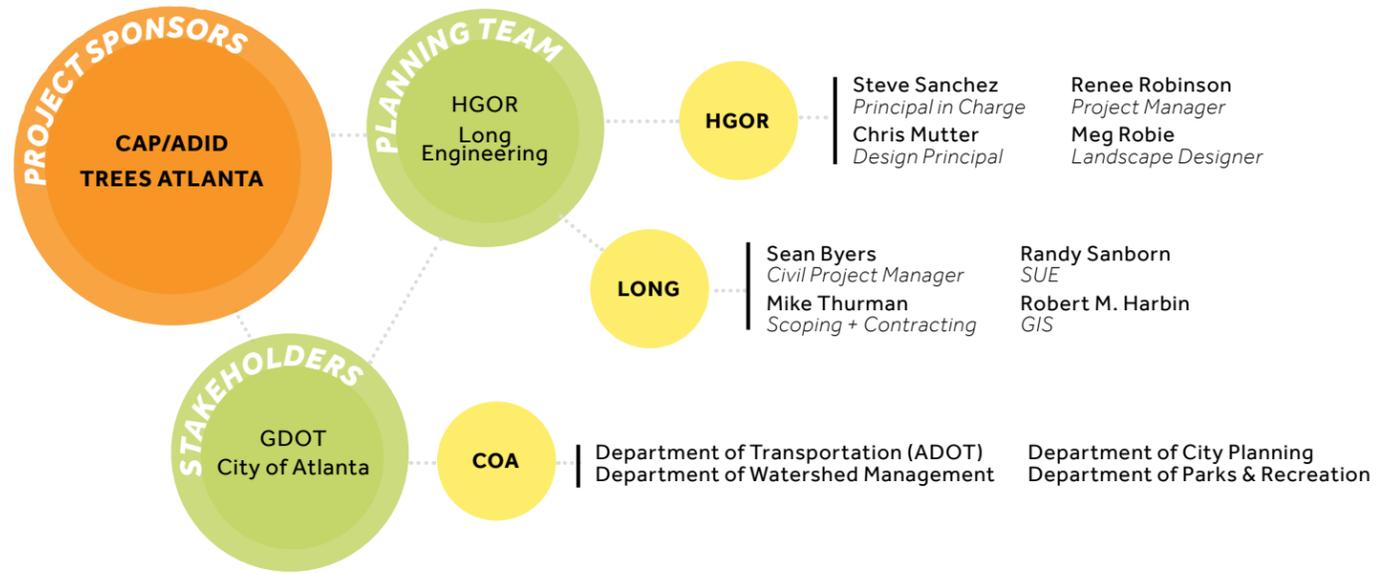


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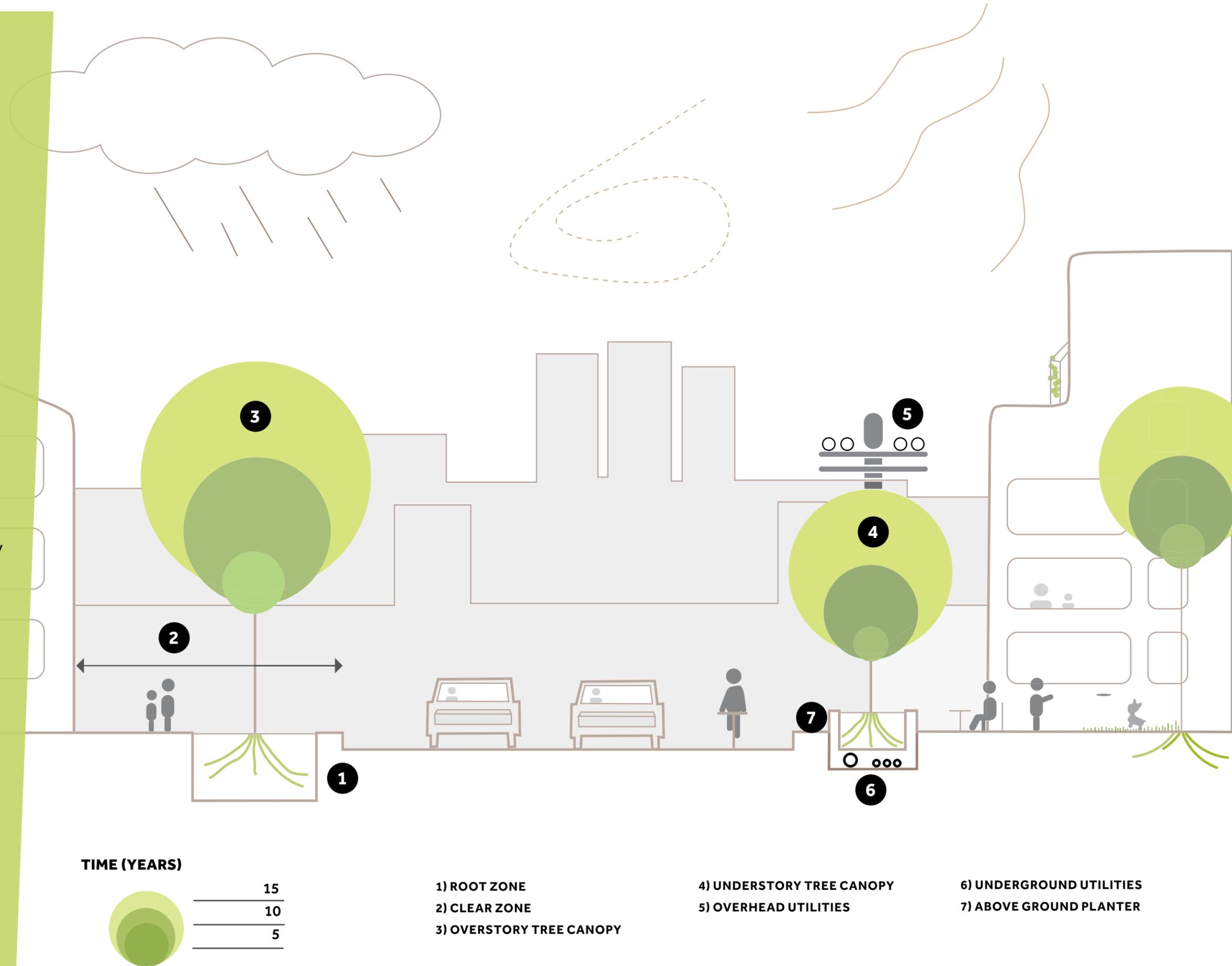
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MISSION

The mission of the Downtown Atlanta Urban Tree Planting Plan centers on increasing tree canopy cover in Downtown Atlanta, subsequently improving air and water quality, creating shade, and enhancing the district's aesthetic. Although lovingly nicknamed the "City in the Forest", the core Downtown area of Atlanta has only a 3% tree canopy coverage compared to the overall City tree coverage of 47.9%. This plan aims to double tree coverage by planting upwards of 8,000 trees phased over ten years. This goal simultaneously reduces the urban heat island effect, mitigates greenhouse gas emissions at the ground level, traps airborne particulate matter, and increases natural carbon sequestration. This urban planting strategy blends research, analysis, and stakeholder guidance to maximize tree canopy coverage via the Downtown streetscape. The project team also identified and capitalized on components such as barren streetscapes, underutilized plazas, and small urban forests situated on underutilized land (e.g., highway buffers and intersections). By enhancing the user experience at a human-scale, these catalytic efforts will create a healthy, comfortable, and safe urban environment for both residents and visitors alike. The Downtown Atlanta Urban Tree Planting Plan will be the blueprint for action and implementation for the next decade.

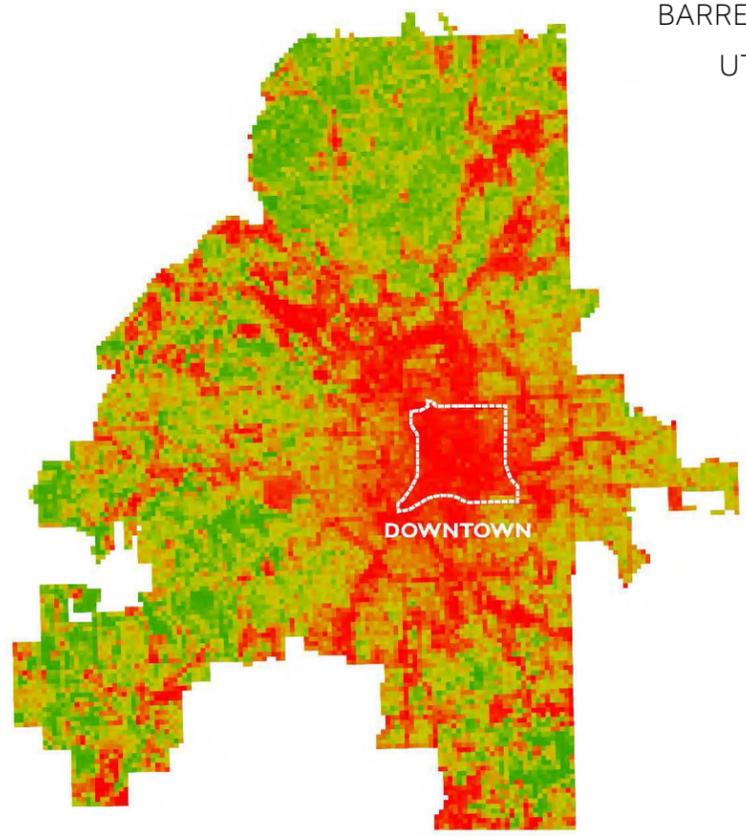




THE CHALLENGE → THE SOLUTION

DOWNTOWN ATLANTA TODAY

- EXTENSIVE AMOUNT OF IMPERVIOUS SURFACES
- DIMINISHED TREE CANOPY (AS LITTLE AS 3%)
- BARREN STREETScape (CONCRETE JUNGLE)
- UTILITIES LIMIT PLANTING CONDITIONS
- PEDESTRIAN SAFETY CONCERNS
- AUTO-CENTRIC STREETS
- FRAGMENTED CANOPY



Forest Cover Map, Downtown Atlanta Master Plan (2018)

THE FUTURE DOWNTOWN

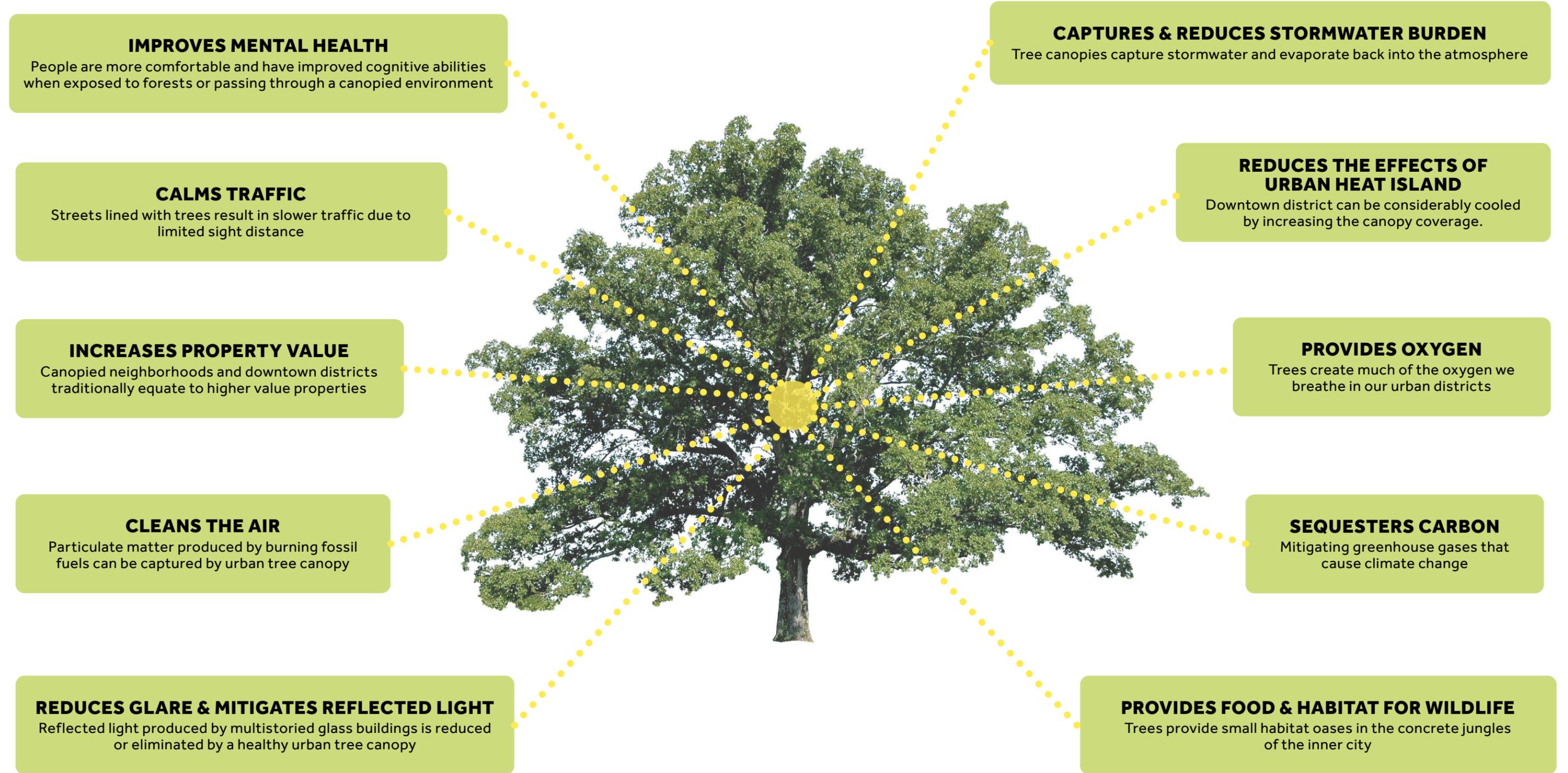
- HUMAN-SCALE, IMMERSIVE EXPERIENCE
- IMPROVED URBAN AIR QUALITY
- TREE-LINED STREETScape
- GREEN INFRASTRUCTURE
- VIBRANT & ENERGETIC
- WALKABLE & BIKABLE
- DOUBLING CANOPY
- LIVABLE



Design for Connections Graphic, Atlanta City Design: Nature (2020)
Photo provided by CAP/ADID

BENEFITS OF URBAN TREES

RESEARCH HAS SHOWN THAT INCREASING THE NUMBER OF URBAN TREES...



ALIGNMENT & ANALYSIS

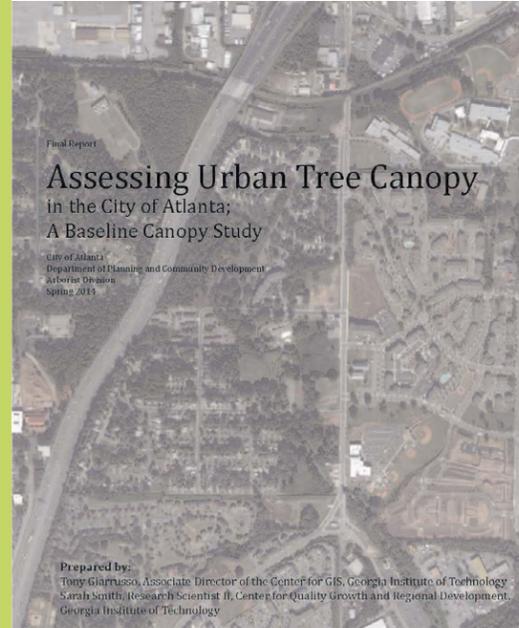
WORKING FROM THE GROUND, UP

The design team established a catalytic vision for implementing a phased planting framework; imperative to the project's success was an understanding of its ultimate benchmark. CAP/ADID and Trees Atlanta provided plans adopted by the City, regional studies, and private efforts relevant to the opportunity at hand. The alignment process began with a comprehensive review of these previous and ongoing efforts. These data sets proved essential for two reasons: 1) They created a comprehensive framework for holistically reinventing perception of the urban experience through environmental stewardship; and 2) They contained unified themes, potential improvements, and recommendations directly important to this Planting Plan. Consequently, this initial analysis helped pinpoint progress regarding the overarching goal: to increase the Downtown tree canopy. Upon initiation, the design team began collecting published data on utilities that pass through public ROWs along the approximate seventy miles of roadways situated within the scope boundaries.

- 2011 "Greening the Connector" Study
- 2013 City of Atlanta Downtown Tree Management Plan
- 2014 Assessing Urban Tree Canopy in the City of Atlanta; A Baseline Canopy Study
- 2017 Downtown Atlanta Master Plan
- 2018 Downtown Tree Replacement Inventory
- 2020 Downtown Atlanta Stormwater Master Plan



Project Study Area, City of Atlanta, Interface Studio



Downtown Tree Management Plan

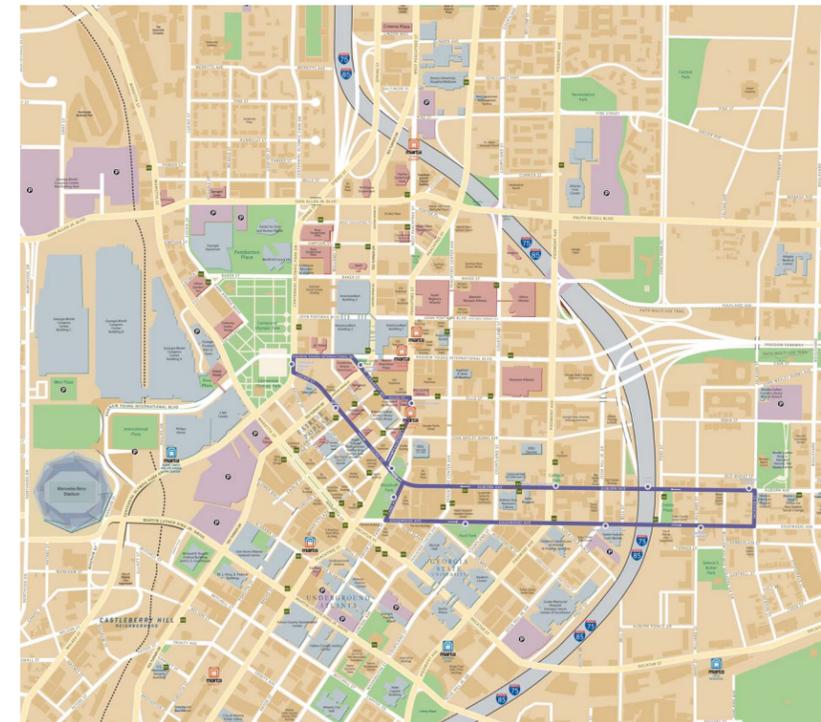
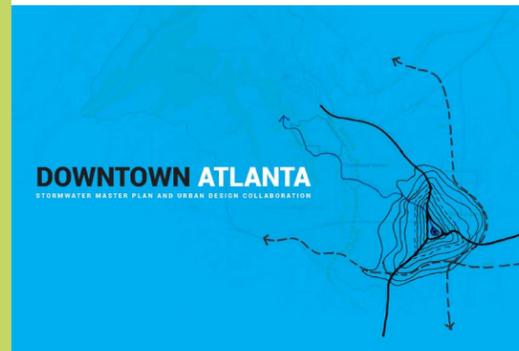
City of Atlanta, Georgia

November 2012



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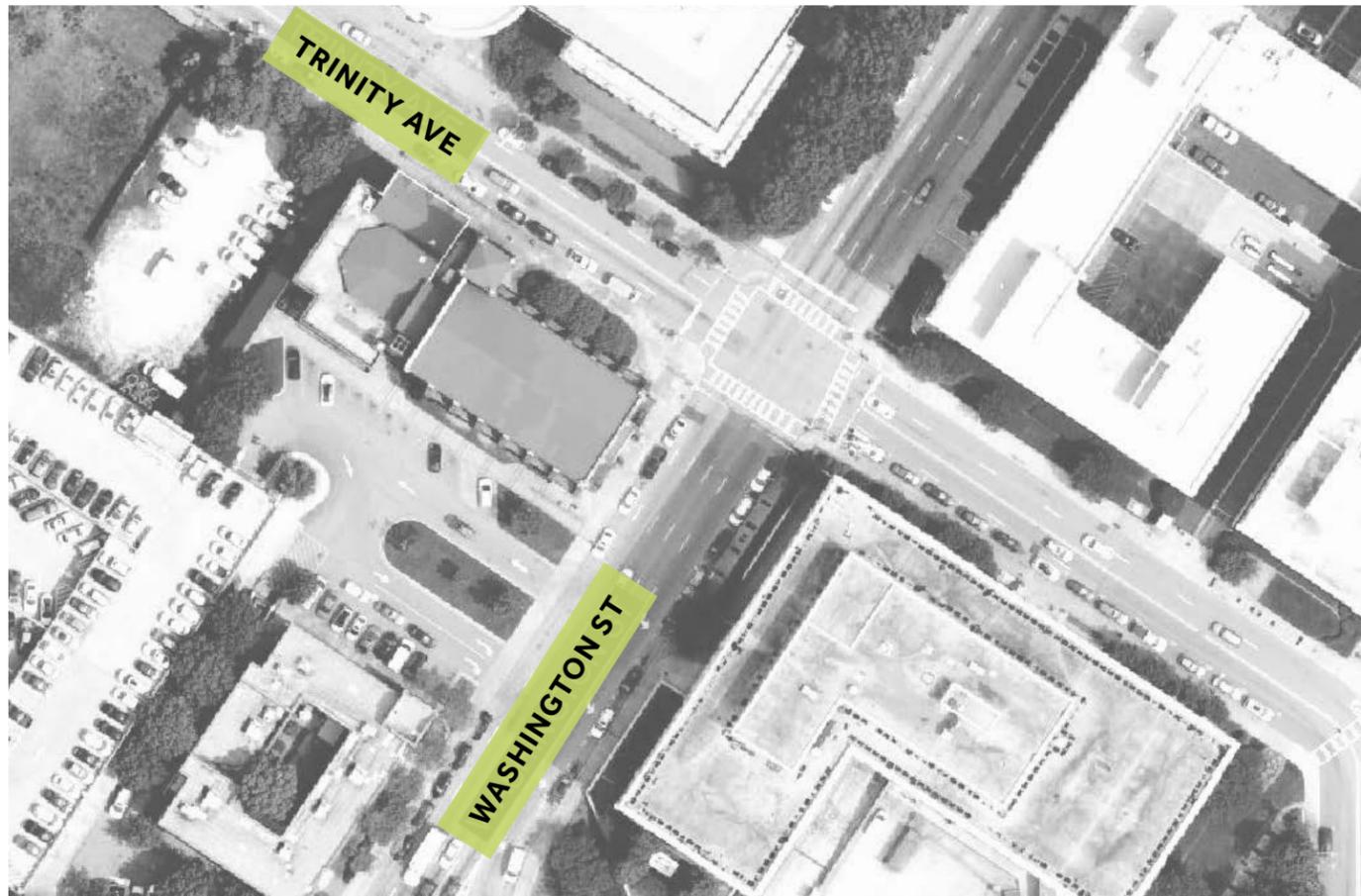
COLLAGE OF PLANS REVIEWED



Trinity Avenue SW



Pine Street NE



EXISTING CONDITIONS ANALYSIS

DATA COLLECTION METHODOLOGY

A project as complex as creating a long-term tree planting plan within the myriad of built conditions of a Downtown area involves extensive data collection to capture as much information on existing conditions as possible. The design team began by collecting all published data on existing trees, utilities in the ROW, pre-planned design projects, and input from targeted public stakeholder entities to guide proposed placement, choice of species, planting style, and phasing.

The first data gathering task involved reviewing existing tree surveys performed within the project's study limits. Two tree surveys served as the bulk of existing tree data and locations. The first one, a Davey Tree survey, was compiled in 2012 and detailed the exact locations and conditions of 9,004 trees throughout the Downtown Atlanta area. Of those 9,004 trees, 7,104 are within the project study limits. The second source was specifically developed for this study in 2020. Long Engineering observed an additional 2,961 trees within the project limits via aerial photography. These tree surveys combined were used to assess the 3% Downtown canopy coverage, as identified in the 2014 Georgia Tech *Assessing Urban Tree Canopy Report*, created by the approximate 10,065 existing trees within the project study limits. The design team then visually identified each tree species and/or conditions within the more prominent streetscape corridors using field observations and Google Street View.

Following data collection, the next task called for examining the voluminous cache of utility information available for the Downtown area. Utility infrastructure analyzed within the study limits is naturally extensive and somewhat approximate. The utility with the most ambiguity involves various fiberoptic cables, which are typically installed with little information about actual depth. This utility will be the most challenging to contend with during future tree installations. Tree sizing and placement on the planting plan take into account typical depths of underground utilities, overhead utility lines, streetlights, and visually verified surface

grates and manhole covers. When the time comes for planning new tree plantings, testing for exact depths and locations of fiberoptic cables and other utilities will need to be performed in the field to avoid damage. The different typologies described in this report are meant to be a guide. Still, actual site conditions should also be verified and modified as needed when planting trees along corridors with extensive existing utilities.

Another component of this project involves the many planned projects slated for construction within Downtown Atlanta. Over twenty site plans with proposed tree locations are included in the overall Plan, adding to the number of potential trees to be planted over the next ten years. Most of these plans are individual sites planned for redevelopment. Others include Downtown streetscape planning projects such as The Gulch Redevelopment Plan (2018) and the South Downtown Atlanta Street Plan (2017). These projects contributed to the tree location and quantity detailed within this report and subsequent plans.

The last significant contributor of the plan was collaboration with targeted public stakeholders engaged by CAP/ADID, Trees Atlanta, and the design team. The purpose of this engagement was to brainstorm ways to refine proposed tree placement, species, and future funding opportunities for plan implementation. Georgia Department of Transportation (GDOT) was instrumental in informing the design team of GDOT planting standards and practices regarding open spaces along interstates and interchanges. The City of Atlanta Department of Transportation emphasized the requirement for all public sidewalks and walkways to be ADA compliant and provided suggestions for potential public funding sources. City of Atlanta Department of Park and Recreation offered funding sources and tree procurement solutions along with a possible recanvassing of the existing tree canopy. These stakeholders, among others, provided essential perspectives to incorporate and consider during the planning process.

UTILITIES IDENTIFIED

The utility investigations and resulting data for this project are a result of a comprehensive records research process and integration of collected available records and drawings within the plan's footprint. As such the utilities shown throughout are to be considered approximate in horizontal location and have not been field verified as a part of this scope of work. Utility records supplied by Georgia 811 member providers to Long Engineering are included within the overall utility data.

The density of the existing underground utility network is key to the overarching project goal. Throughout the project limits extensive underground telecommunications were identified along with street lighting, primary power, water, gas and cable tv facilities. Potential impact to these facilities within the planned scope of work should be evaluated on a per utility system basis regarding relocation costs, typical cover depths and public safety. As the footprint of this plan not only touches public utilities and rights-of-way, but also private utilities, university campus facilities and Georgia World Congress Center utilities, it should be noted and considered that additional underground utilities can and likely do exist within the private property boundaries and easements of these portions of the plan's limits.

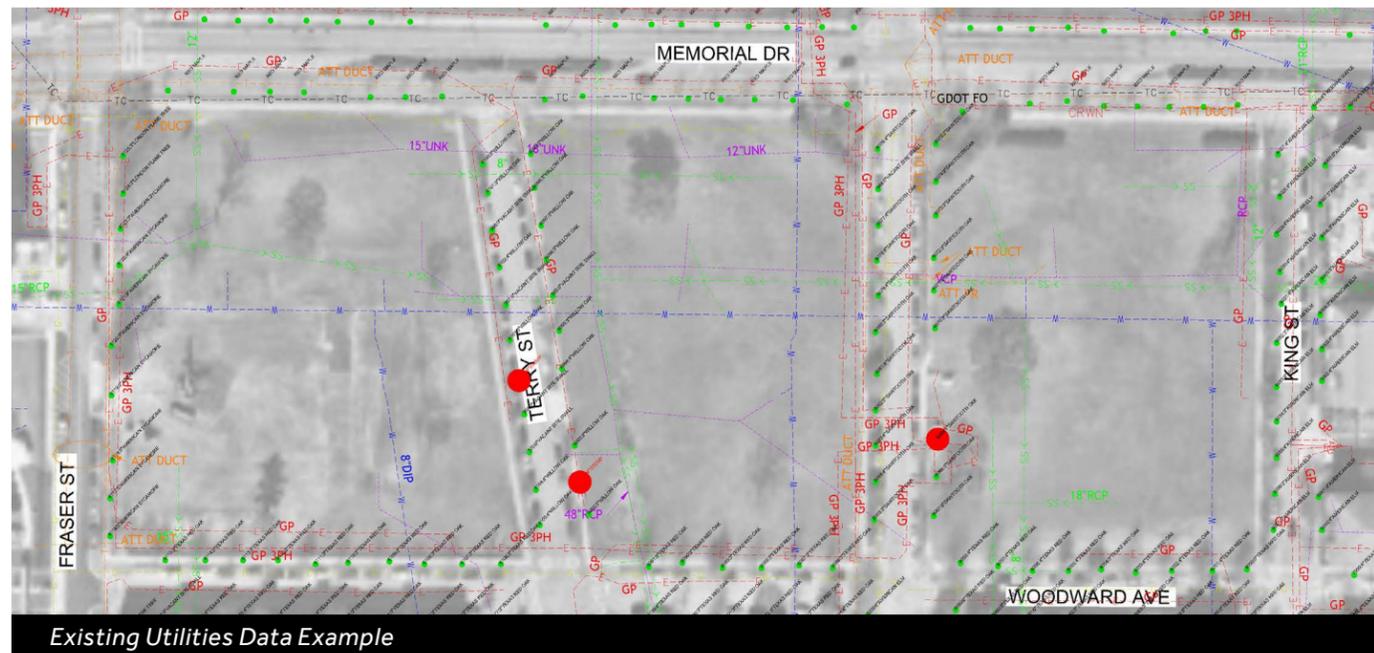
GENERAL UNDERGROUND UTILITY CONDITION ASSUMPTIONS

Water

- General location: Water systems in the City of Atlanta can run in the travel lanes of city streets or within the sidewalks and curblines either as mains or lateral branch lines and services. Meters are generally in right of way and service lines typically follow a direct path from meter to main
- Cover depth: Typical cover depth for mains is 4' -6' and for services 12"-18"
- Material types: Typical material types are ductile iron, cast iron, PVC and transite for mains. PVC, copper and polybutylene for services

Natural Gas

- General location: Natural Gas systems in the City of Atlanta can run in the travel lanes of city streets or within the sidewalks and curb lines either as mains or lateral branch lines and services. Meters are generally on the sides of buildings but can also be in ground in front of an address. Service lines typically follow a direct path from meter to main
- Cover depth: Typical cover depth for water mains is 4' -6' and for services 12"-24"
- Material types: Typical material types are carbon steel and high-density polyethylene (HDPE). Most cast iron



Existing Utilities Data Example

mains have been retired in place by AGL. Steel and HDPE is used for services. HDPE service lines can be easy to damage with a shovel

Sanitary Sewer & Stormwater

- General location: Sanitary and Storm systems in the City of Atlanta can run in the travel lanes of city streets or within the sidewalks and curb lines either as mains and sanitary lateral service lines can run in any direction from manhole or main to service address.
- Cover depth: Typical cover depth for mains is minimum 3'-4' and can run as deep as 20'+ for trunk mains. Service laterals on sanitary can range from 3' cover depth to 12' + depending on grade
- Material types: Typical material types for Sanitary are vitrified clay, cast iron and PVC. Typical material types for Storm are reinforced concrete, corrugated metal and PVC

Telecom

- General location: Telecom systems in the City of Atlanta can run in the travel lanes of city streets or within the sidewalks and curb lines either as main duct banks or lateral cables. Duct banks can be concrete or terracotta encased and run from manhole to manhole. Direct buried cables can run between manholes or from poles, cabinets and vaults. Direct buried cables can be copper or fiber optic
- Cover depth: Typical cover depth for duct banks is 4' -6' and for direct buried cables is 18"-4' but can range up to 8'
- Material types: copper, fiber optic & duct bank with both

Fiber Optic

- General location: Fiber Optic systems in the City of Atlanta can run in the travel lanes of city streets or within the sidewalks and curblines either as bundles in a ductbank or independently. Many fiber optic innerducts which are usually made from HDPE can run together in a 'bank' of different providers and have typically been installed using HDD. Handholes and vaults will house multiple service providers that can split off and travel separately to other handholes, buildings or poles.
- Cover depth: Typical cover depth for innerducts is 4' -6' but can be found shallower or much deeper due to HDD installation methods. There is no base cover depth that is consistent for all due to manner of installation allowed.
- Material types: Typical material types are non-jacketed fiber optic cable inside HDPE innerduct. This can be concrete encased or direct buried.

Power (Primary)

- General location: Primary power systems in the City of Atlanta can run in the travel lanes of city streets or within the sidewalks. Georgia Power network mains typically run in the streets between manhole vaults with the distribution lines running to sidewalk vaults. Additionally, primary power can feed down riser poles to buildings. Network mains are duct banks that are encased in concrete. Separate primary power is typically insulated coax that is installed in PVC conduit and direct buried.
- Cover depth: Typical cover depth for network duct bank & other primary power is 4' -6'
- Material types: Typical material types are insulated coax in conduit and concrete encased duct banks

Power (Secondary & Street Lighting)

- General location: Secondary & Street lighting systems in the City of Atlanta usually run from sidewalk vaults and riser poles to buildings and from light pole base to light pole base for street lighting. Street lighting is typically in a daisy chained path between light pole bases. Most street lighting runs in the sidewalks on affected streets
- Cover depth: Typical cover depth for secondary power is 2'-4' and for street lighting is 12"-18"
- Material types: Typical material types insulated coax in conduit and direct buried

Cable TV

- General location: Cable TV systems in the City of Atlanta typically run in sidewalks or behind curb lines with the exception of crossings. They also feed from riser poles to buildings for services.
- Cover depth: Typical cover depth for cable tv is 18" - 3'
- Material types: Typical material types are insulated coax and fiber optic. Can be installed in conduit or direct buried

EXISTING TREE DATA

The design team received extensive existing tree data, surveys, and reports developed over the past decade. In 2014, researchers at the Georgia Institute of Technology collected and analyzed data, which created the statistical basis of existing urban tree canopy coverage. Other works of note include the Downtown Tree Management Plan (2013) based on actual tree survey data, the most recent ADID Tree Survey for Replacement Inventory (2018), and aerial photography observation of tree canopy to complete the existing tree quantity. These documents provided substantial information while assessing the existing tree canopy coverage and determining the best strategy for additional tree plantings in the Downtown area.

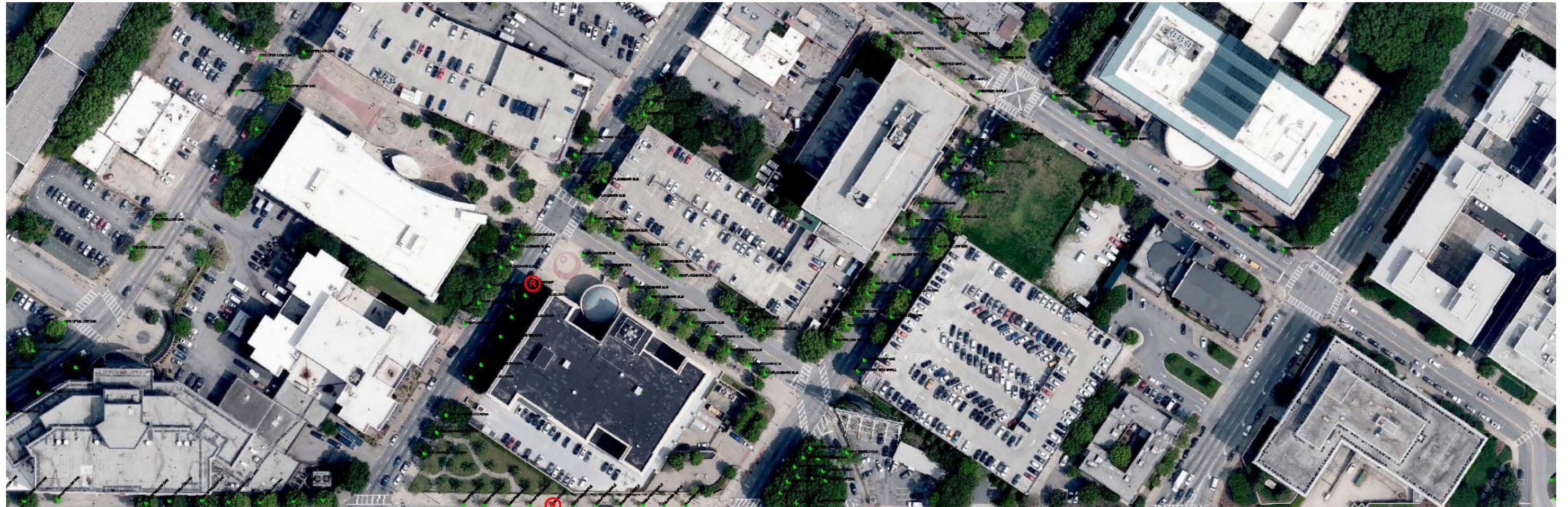
The main goals of the Georgia Tech Assessing Urban Tree Canopy Report were to map urban tree canopy coverage, quantify tree cover for different areas within the city, establish a method for measuring canopy change, identify planting sites, and provide recommendations. As of 2008, the study's extensive data collection reflected that there was 47.9% (40,524 acres) urban tree canopy within the city limits, 22.1% (18,722 acres) of non-tree vegetation including grass, shrubs, and other plants, and 30.0% (25,386 acres) of non-vegetation such as paved surfaces and buildings. However, the concentrated amount of urban tree cover exists within more single-family residential neighborhoods and stream corridors outside Downtown Atlanta, with only 3% of coverage in the Downtown neighborhood. This statistic is mainly due to the district's urban nature and the majority of land covered by roads, sidewalks, and buildings. The Urban Tree Canopy Report uses the 3% Downtown canopy coverage as a the starting point for establishing canopy goals and tracking progress within the study area which includes a few more adjacent neighborhoods that were also analyzed as having poor tree canopy. This report supports focused planting efforts along public rights-of-way, shown in the Urban Tree Planting Plan, which can be utilized to develop partnerships and funding opportunities for future planting implementation.

The most substantial existing tree data to date comes from the Downtown Tree Management Plan, prepared by The Davey Tree Expert Company in 2012. This report lays out maintenance needs for 9,004 inventoried trees and details each of their existing conditions. Trees, stumps, and planting sites were identified along public street rights-of-way and

specified parks within Downtown Atlanta. Existing conditions of each site covered street address and specific location, species, size, spread, visual health condition, grates or planters present, and several other descriptors. The majority of species include Oak, Crape Myrtle, Red Maple, Japanese Zelkova, and Chinese Elm. In terms of relative age, most were younger and in good condition. This data and physical location helped the design team create a full picture of the existing tree canopy, conditions, and immediate needs from a planning perspective. For example, the design team applied this data to identify the location of priority removal trees which were specifically identified in Davey's survey which could result in 495 new tree locations, which include mostly dead, dying, or hazardous (DDH) trees. The Davey report also recommends the City of Atlanta re-inventory trees in the Downtown area every five to seven years to remain up to date on the tree canopy conditions. Therefore, it would be beneficial to initiate a recanvass of all existing trees to date.

In 2018, ADID performed a Tree Replacement Inventory within the project area and identified 63 trees prioritized for replacement. Replacement conditions varied from stumps to empty planters and tree grates at the specified locations. As of 2020, 62 trees have been planted at the identified areas. Any other areas with missing trees are accounted for in the planting plan for future installation. The latest existing tree inventory, conducted for this project by Long Engineering, applied aerial identification to provide an additional 2,961 existing trees within the project limits. These locations, combined with the Davey Tree survey locations, establish the most comprehensive existing tree data of Downtown Atlanta. The design team capitalized on this dataset to interpret and provide recommendations for future tree planting locations and species. The design team visually identified aerial tree species via Google Street View through some of the area's most prominent streetscape corridors. This process assisted in the recommendation of specific species to maintain a consistent streetscape experience. However, determining these trees' health condition will be necessary for any future planning effort as the planting plan is implemented.

All existing tree data provided to and collected by the design team established the baseline to begin identifying priority locations for tree planting. Detailed information from these data, files, and reports greatly contributed to integrating additional tree planting locations, sizes, and species, which will fill in existing gaps and enhance the urban tree cover.



Existing Tree Data Example

PROPOSED PLANTING PLAN:

2,342
ACRE STUDY
AREA

10,065
EXISTING TREES
(3% CANOPY
COVERAGE)

8,016
PROPOSED TREES

18,081
TOTAL FUTURE
TREE COUNT

10 YR
PROJECTED CANOPY COVERAGE

152.22 ACRES
EXISTING TREES
(6.5% CANOPY
COVERAGE)

55.75 ACRES
PROPOSED TREES
(2.38% CANOPY
COVERAGE)

207.97 ACRES
COMBINED
(8.88% CANOPY
COVERAGE)



PLANTING METHODOLOGY

The challenge of planting thousands of new trees in the Downtown district of Atlanta lies in finding opportunities within the narrow corridors squeezed between multistory buildings and busy traffic thoroughfares. At best, trees must share these corridors with a complex array of above and below-ground utilities. Landscape strips along the streets, parks, interstate buffers along with new cut outs in existing sidewalks are all viable options if the proper trees are selected. Even after overcoming these obstacles, tree placement could still be prohibited due to state billboard viewsheds.

To ensure healthy lifespans for the proposed trees, the goal is to give each tree the maximum root zone possible. To achieve a tree's full potential of canopy coverage there are optimal soil volumes recommended depending on the mature size of the species, but urban conditions are usually much less than optimal. Open landscape strips offer one of the best opportunities for maximum root zone volumes in the downtown district. Discounting those areas where an open green space is available, the following parameters demonstrate the benchmarks allowed for tree planting:

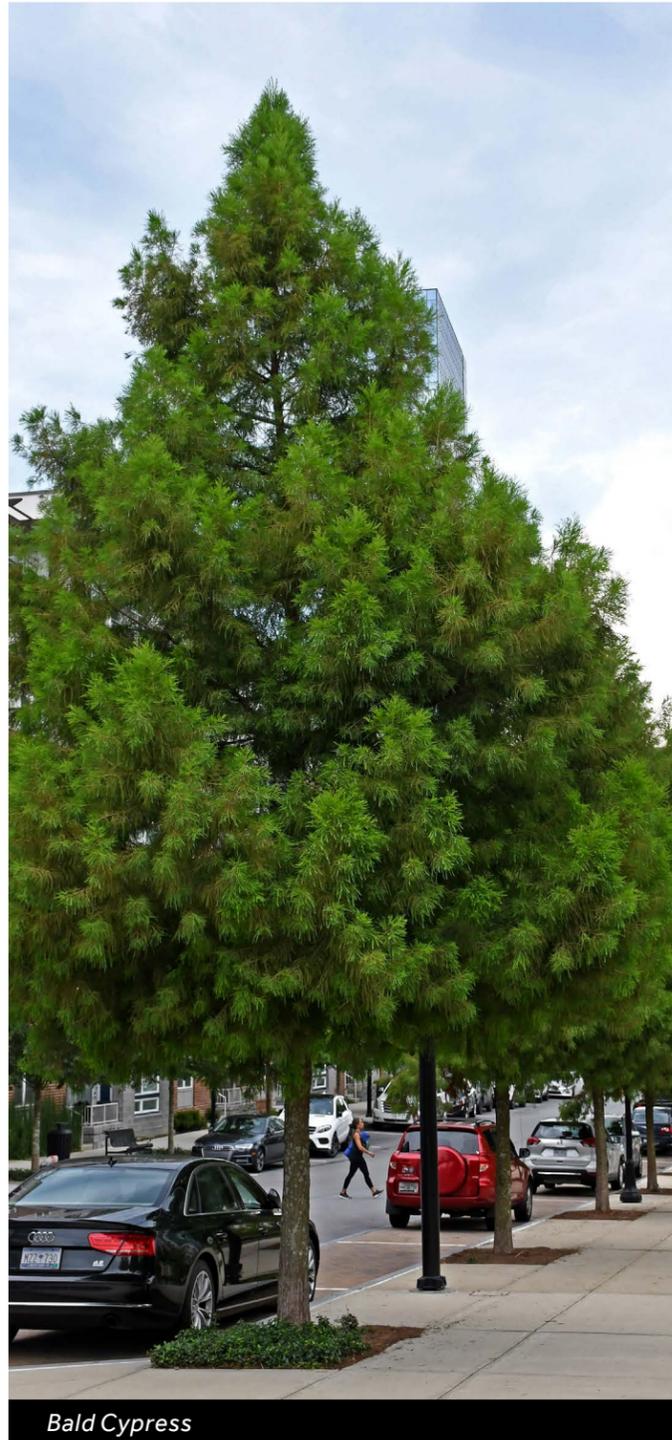
PREFERRED MINIMUM	RECOMMENDED SOIL VOLUME	MAX AVAILABLE SOIL VOLUME	MIN ALLOWABLE SOIL VOLUME
Overstory	1200 cf	735 cf	100 cf
Midstory	1000 cf	525 cf	80 cf
Understory/Evergreen	400 cf	270 cf	45 cf

With the ultimate target to increase the downtown canopy coverage from 3% to more than 10%, planting the highest quantity of overstory trees, with their broad canopies, would be the most preferred solution. Every effort will be made to maximize the root zone volume for each tree to ensure healthy growth and a long life expectancy for all planted trees.

To provide the best possible method for planting trees within the mosaic of existing conditions of the Downtown district, several different typologies are being recommended to accommodate restrictions. These various typologies fit into one of six major categories and 2 subcategories explained on pages 22-25.

TREE SELECTION

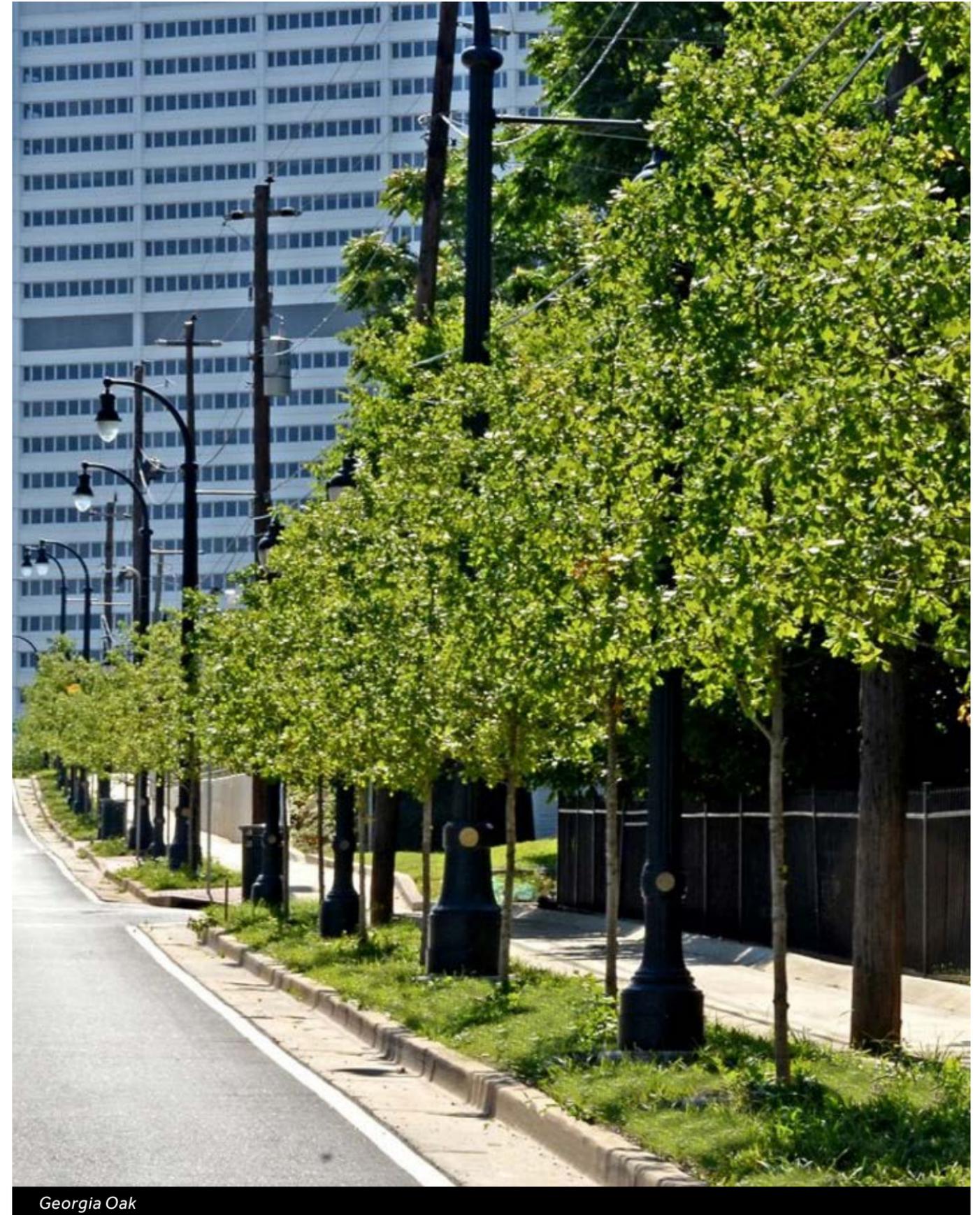
The recommended list of species and cultivar selections was determined by many years of tree planting experience in the Metro Atlanta region and reported successes and failures observed by Trees Atlanta. Trees Atlanta is the preeminent non-profit organization responsible for planting over 100,000 trees in diverse environments around the area. Native trees were given first preference, as they are best adaptable to the local climate. At the top of this list are many native oaks, bald cypress, and elms. Evergreens such as hollies also perform well in urban areas, although their canopies can be somewhat limited in size. While native trees are best adaptable to climate, many non-native trees have proven over decades of growth to also be extremely resilient. Non-native trees must demonstrate no invasive tendencies to be considered for approval.



Bald Cypress



Foster Holly



Georgia Oak

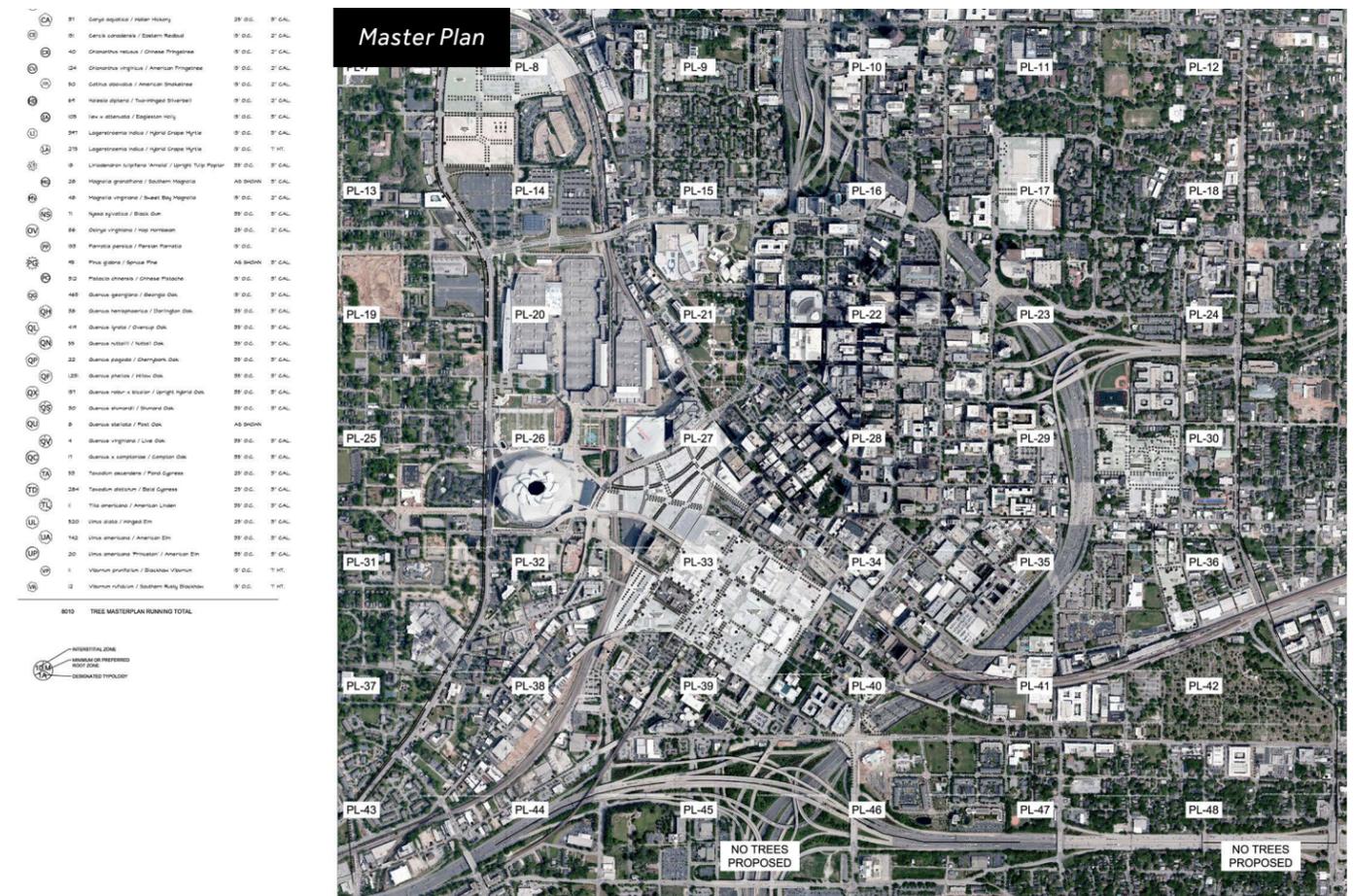
MASTER PLANTING PLAN

The Downtown Urban Tree Planting Plan covers approximately 2,300 acres of downtown Atlanta, it was therefore necessary to subdivide this large district into a legible series of 48 panels, each covering 74 acres. For clarity two series of these 48 quadrants were produced, one identifying existing conditions, most notably overhead and underground utilities along with existing tree locations, and the other, the proposed tree planting plan, identifying future tree locations and species given the restrictions of the existing conditions.

All existing condition information was analyzed to determine the most appropriate location, tree type, and species for future planting opportunities. These tree types are broken out into understory/evergreen, midstory, and overstory, determining their size at planting, spacing, and root zone requirements. This method was used to locate tree planting locations throughout the project limits for consistency.

The proposed tree planting plan contains a two-letter graphic symbol for each tree type. The tree species correlating to each symbol can be found on the legend contained on each sheet. Each street block also displays a symbol identifying critical pieces of information necessary to estimate costs and planting methodology as a typology which is described in the next section.

In addition to the street tree opportunities, open space areas along the I-75/I-85 connector and I-20, particularly at interchanges, were reviewed with information garnered from the stakeholder meeting with GDOT. Placing trees in these areas have the intent to create small urban forests that serve as a green gateway into and through the City of Atlanta, thus perpetuating the "City in a Forest". Another addition came from incorporating proposed tree locations from over twenty future site plans and planning projects that are slated for development in the future. One final opportunity examined the potential of planting within private parking lots, proposing trees to bring them into compliance with City of Atlanta code and further reduce the urban heat island effect. In total, if all recommended planting locations were to be realized, downtown Atlanta could potentially add another 8,000 new trees in addition to the 10,000 + existing trees, almost doubling the urban tree canopy coverage over the next ten years.

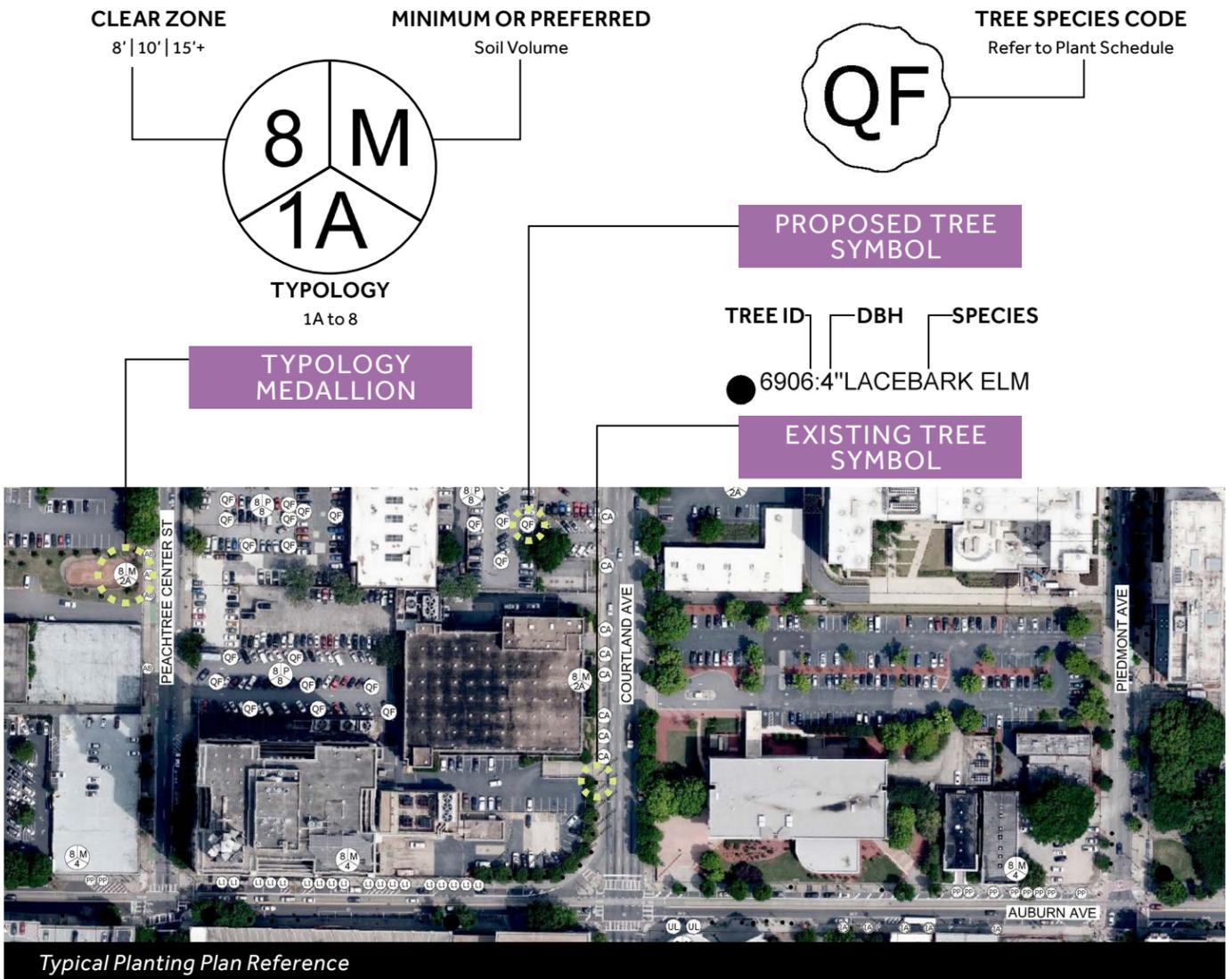


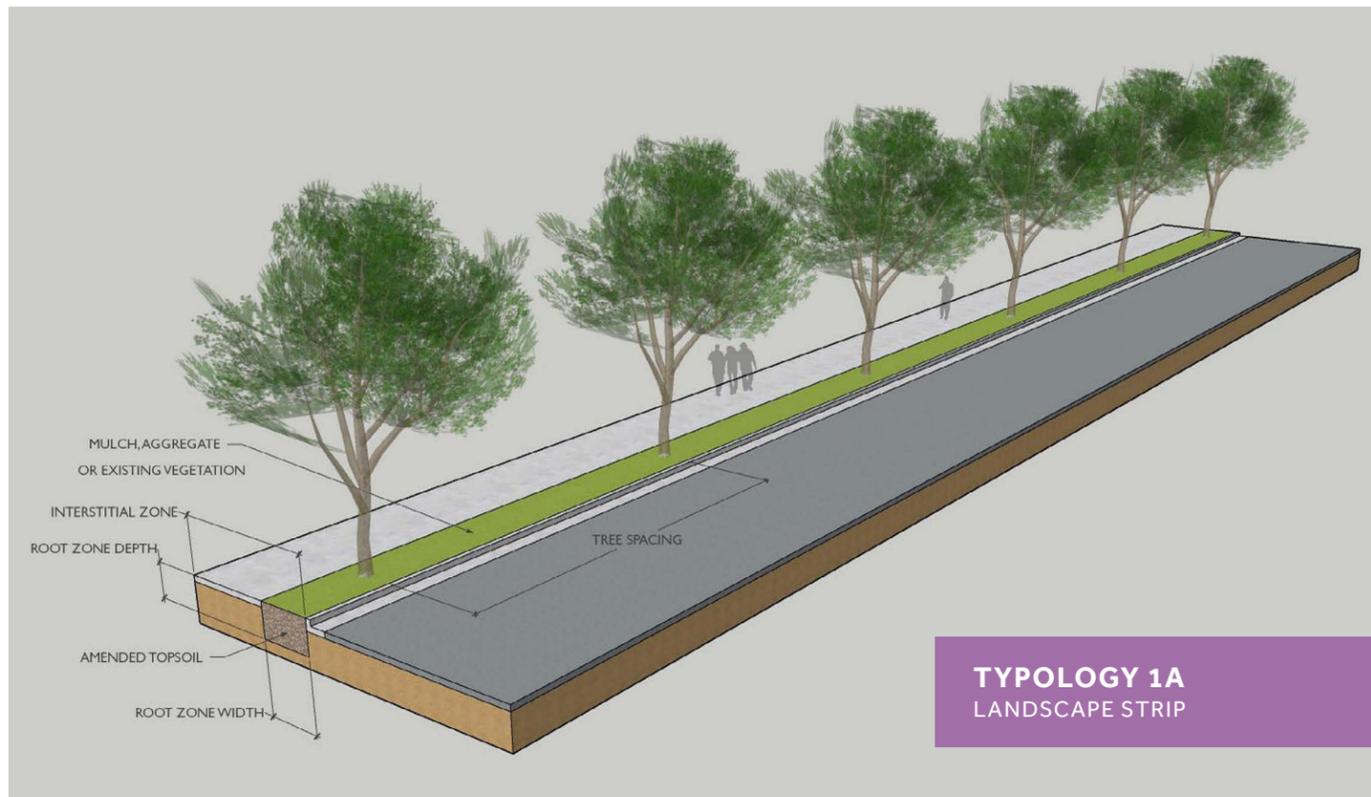
TYOLOGIES

The following typology exhibits represent different planting solutions for the various site conditions anticipated to be found while planting trees in the Downtown district. Each tree shown on the Proposed Tree Planting Plan has an associated typology based on the information discovered in the existing conditions analysis. Any walkway width of eight feet or greater is categorized into a particular typology based on those existing conditions. Within each typology symbol are three identifiers (see below): 1. The width of the clear zone, the area that stretches from the back of the curb to the edge of the right-of-way; 2. A recommendation on the root zone size allowed (preferred or minimum) based on the clear zone width and known utilities; and 3. the most appropriate root zone typology for each location.

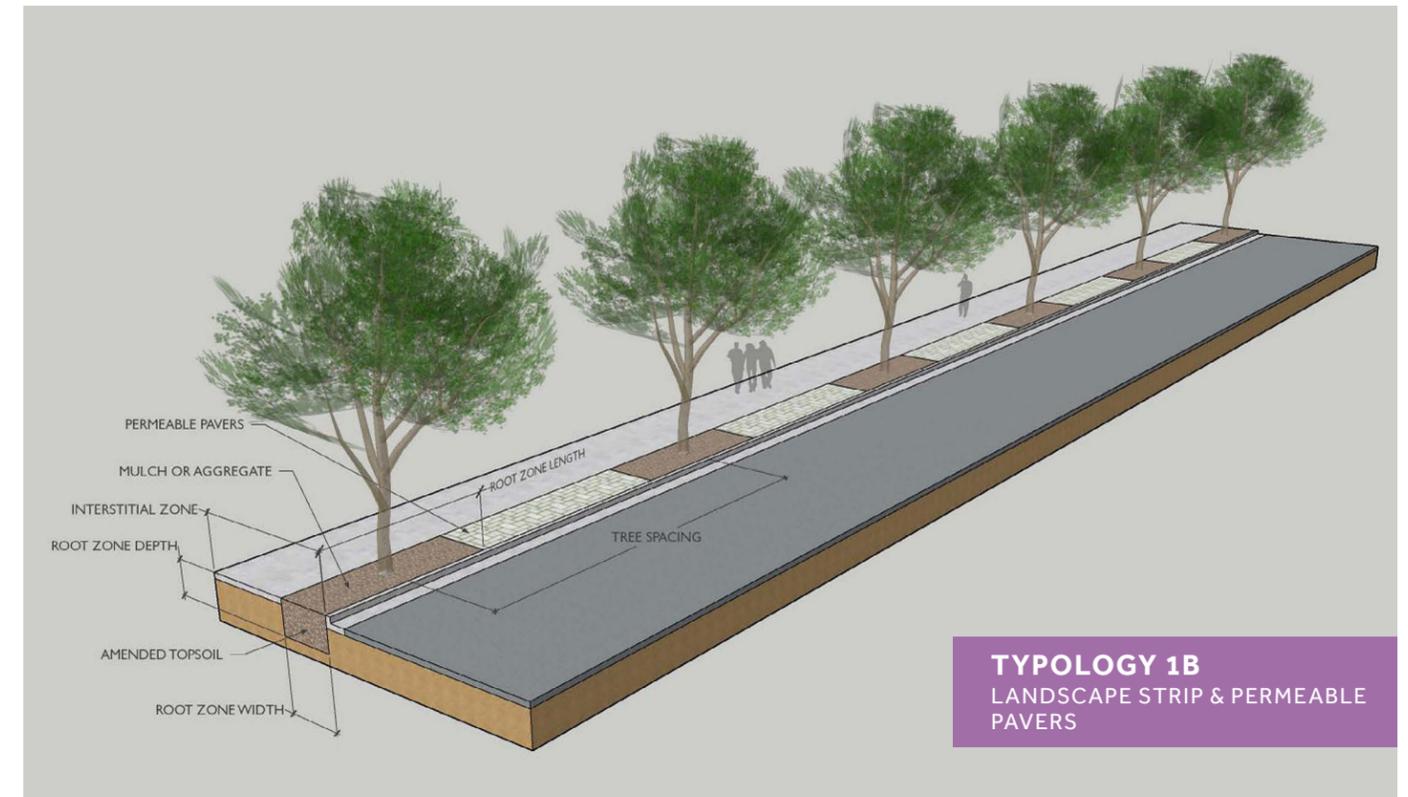
The typology matrix, shown on page 29 and 30, is a guide for determining soil volume and tree well size within each typology. It is represented by the three main clear zone widths starting with the minimum of eight feet, increasing to ten feet minimum and up to fifteen feet or greater. Each subcolumn indicates a tree type of understory/evergreen, midstory, or overstory with respective typical spacing of 15, 25, or 35 feet on center. Typologies 1A through 8 are represented in the rows and broken out into minimum or preferred soil volumes. This matrix can be referred back to when the time comes to implement this planting plan.

The cost analysis worksheet (Appendix B) reflects the quantity and individual costs associated with each typology along with the tree costs. The goal of this document is to be flexible and easily changed to reflect unforeseen site conditions. Determining in the field that a different approach may be needed, the typology, details and costs associated with each tree can be quickly updated and assessed for to reflect the changes.

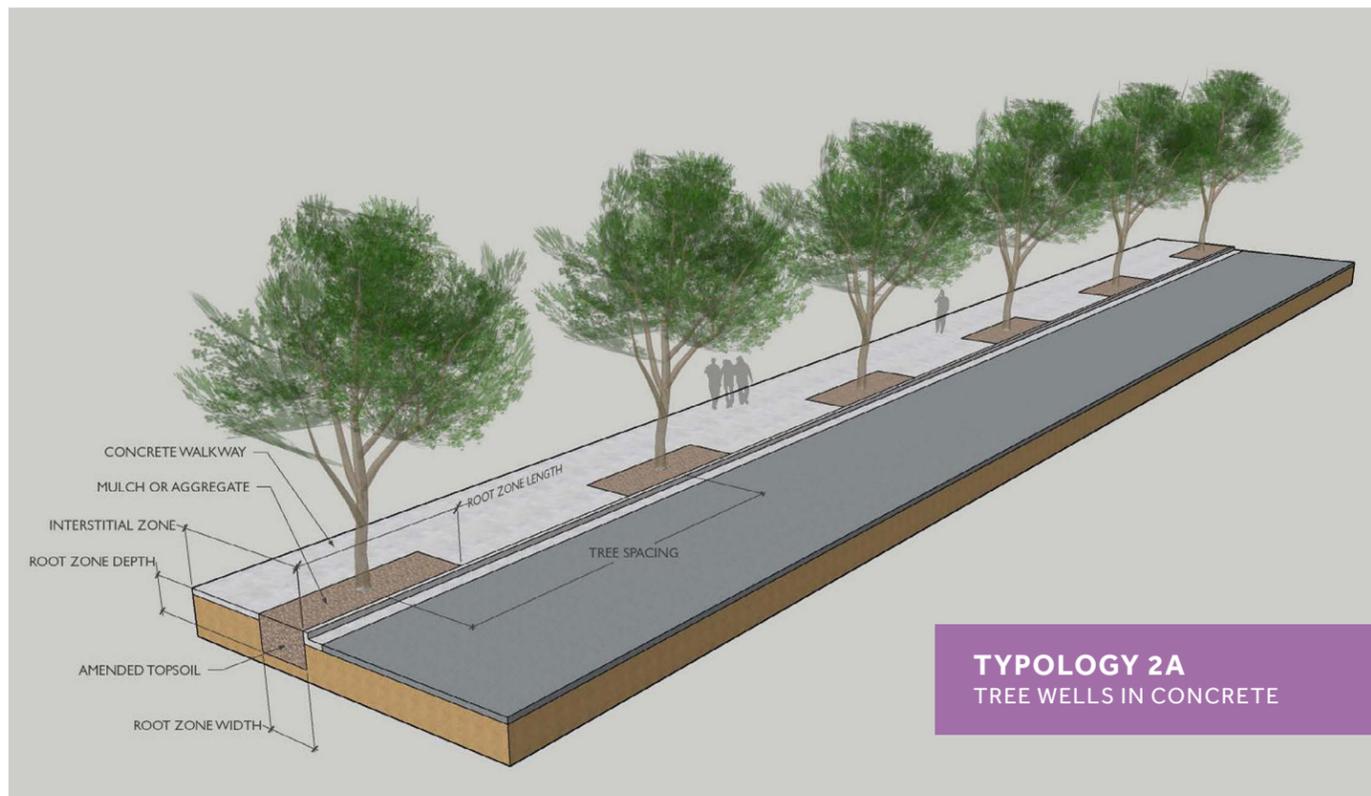




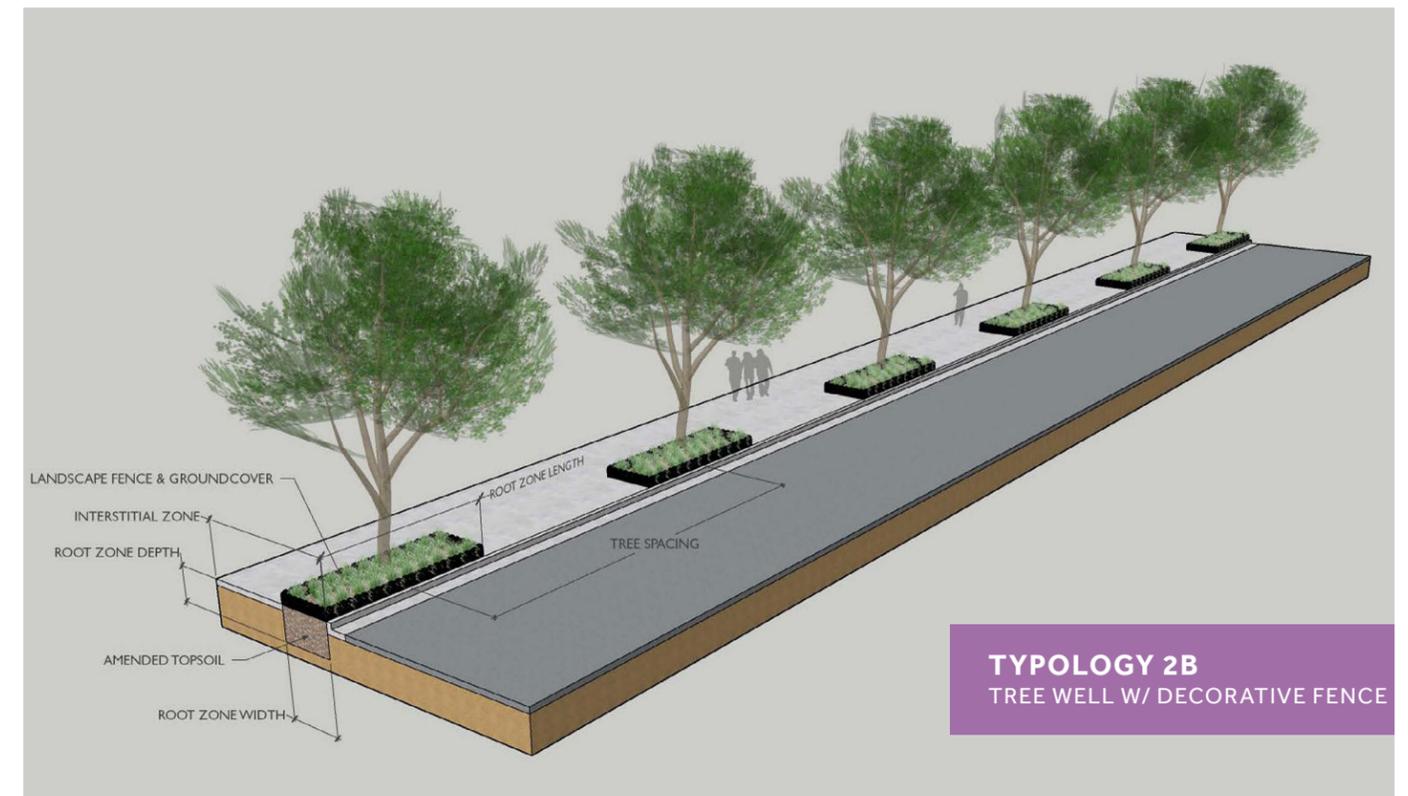
This typology is an existing landscape strip in which to plant trees. This condition would be the least complicated to implement as there is already space available for planting. Some concrete around the immediate area of the tree may need to be removed.



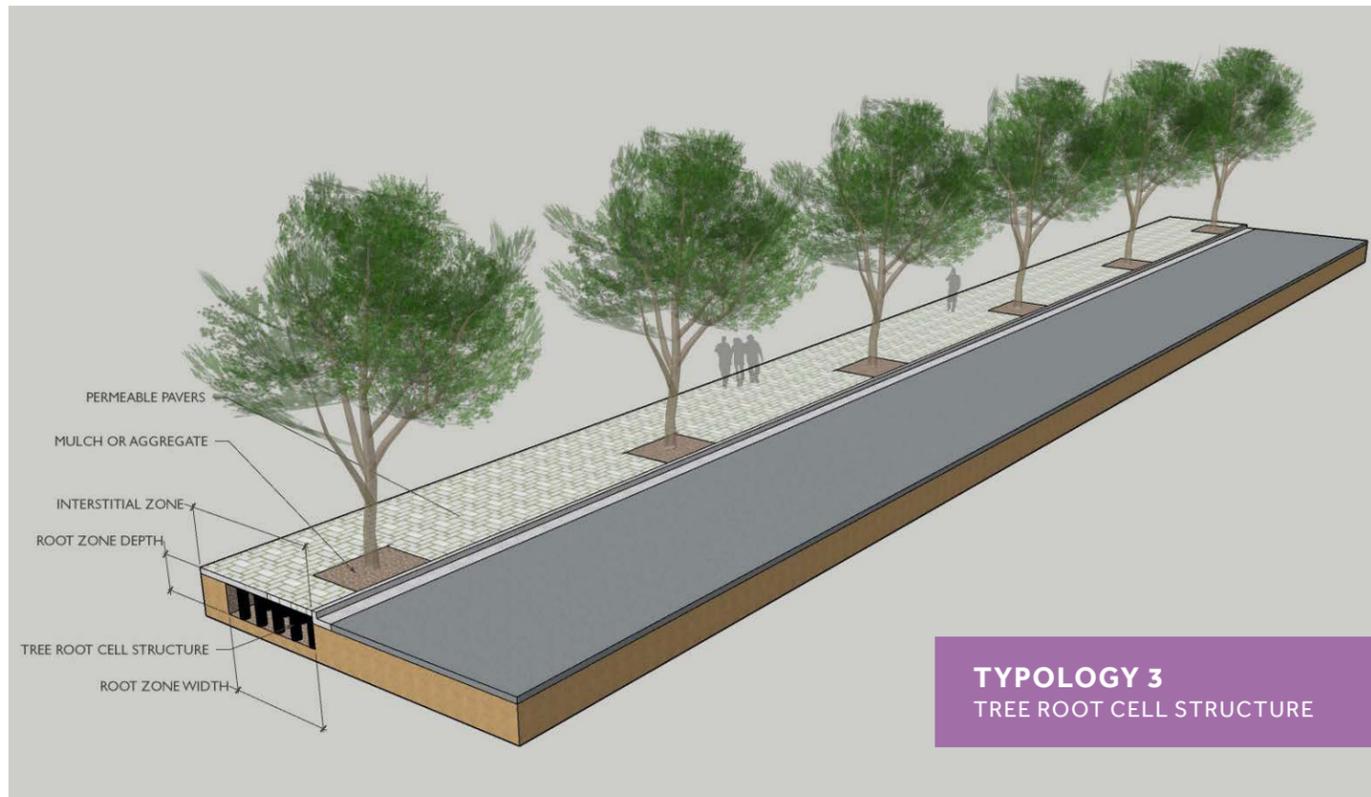
Represents a condition where a landscape strip exists, or where pavers or bricks may already be present, but it may be in a more urban part of the Downtown core. A continuous planting strip exists here as in Typology 1A, but pavers are placed between the trees to provide access for increased foot traffic.



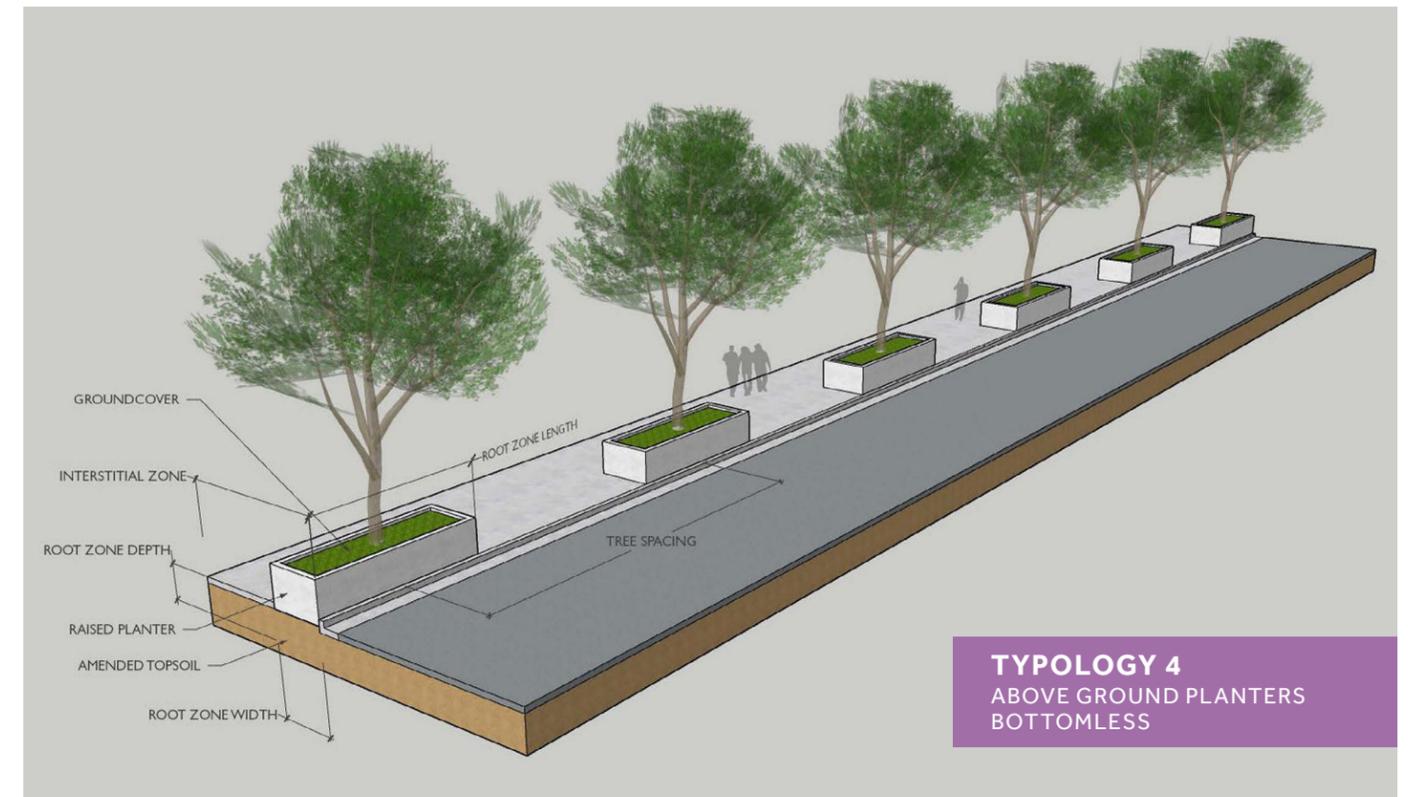
The most common existing condition throughout Downtown which is concrete sidewalks from back of curb to right of way, building, or back of sidewalk. This typology calls for concrete demolition at time of planting to make room for new trees to be planted.



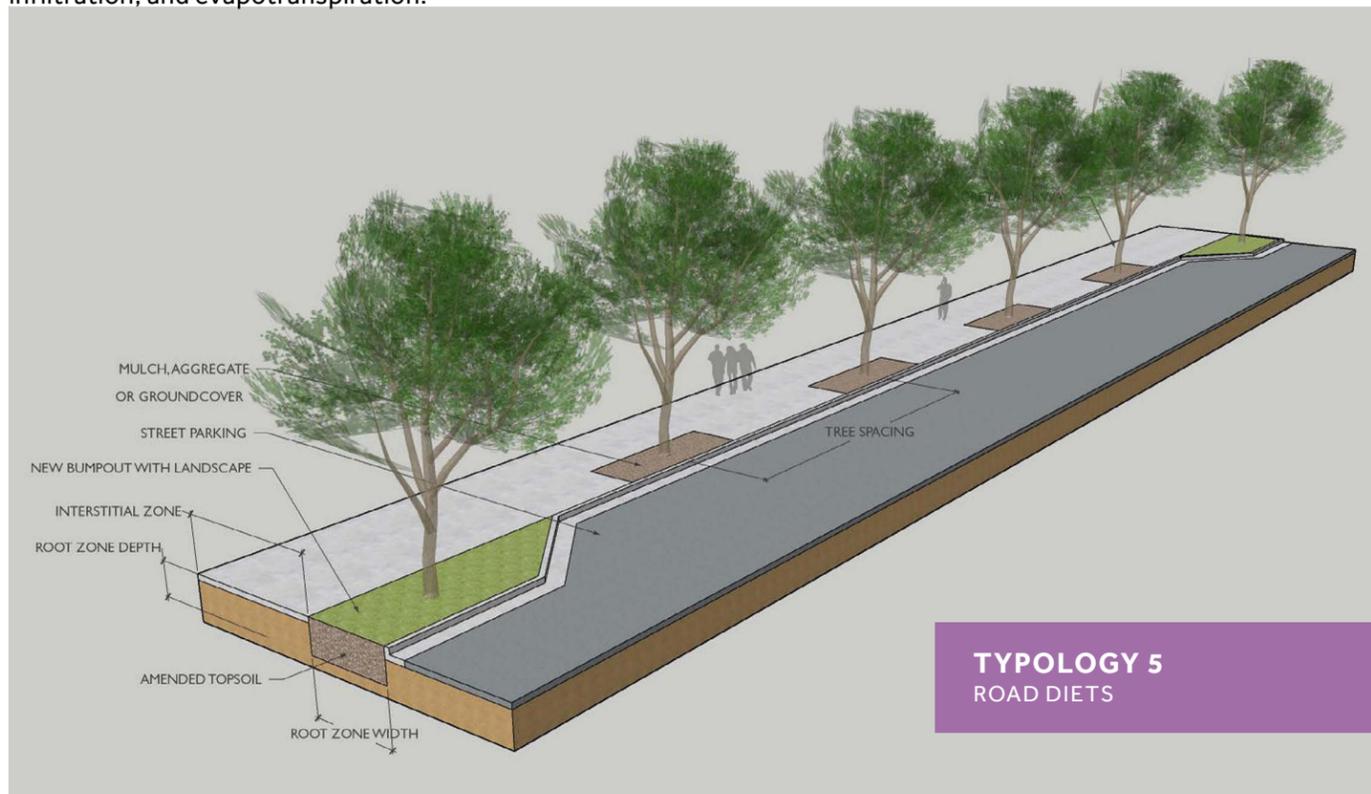
This a modification of '2A' in which groundcover and decorative landscape fence would also be installed. This condition should be reserved for more prominent or highly visible streetscape corridors.



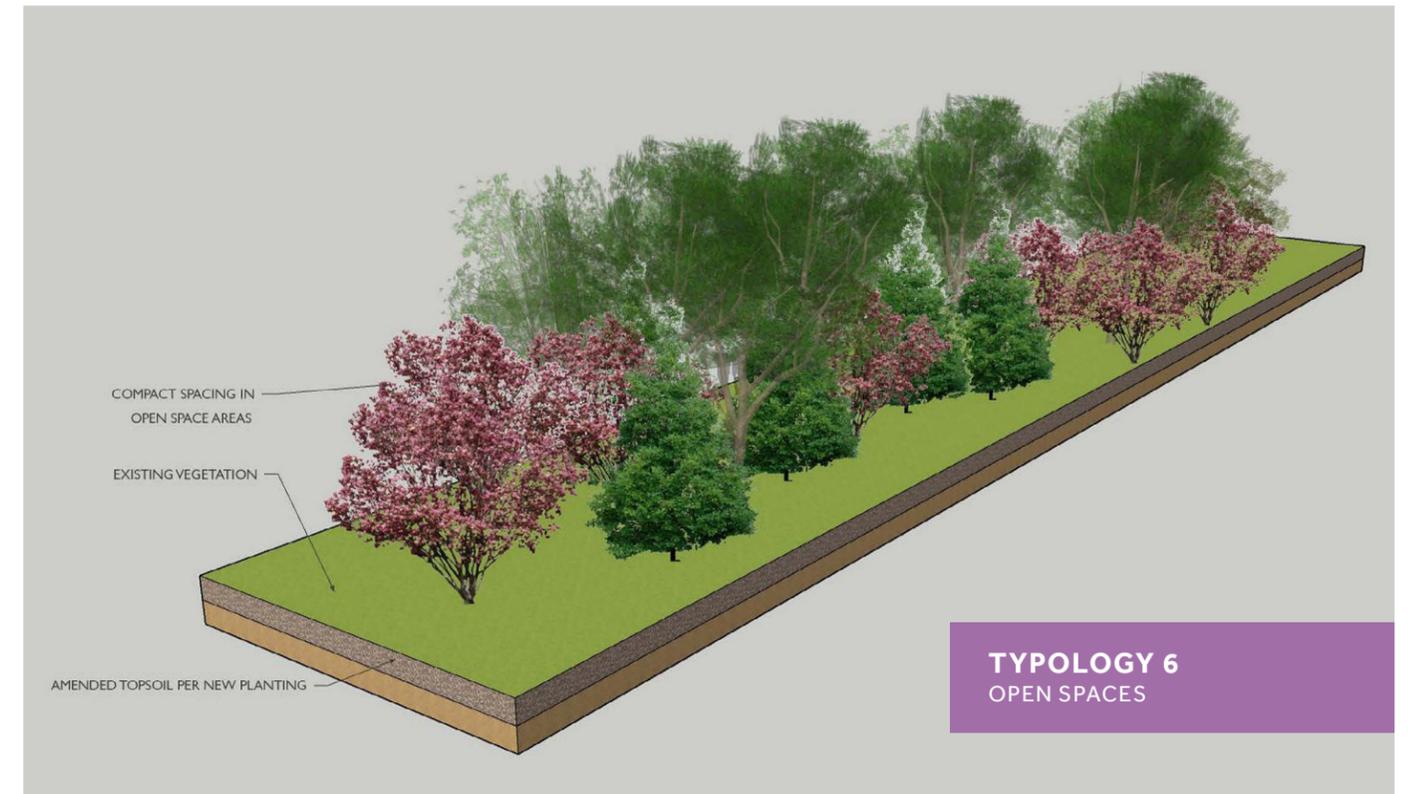
The use of underground root cell structures, to give as much soil volume and stabilization as possible within such utility-riddled corridors as Downtown Atlanta, has the potential to be a very beneficial and cost effective solution to maintain long-term tree health and canopy coverage. Refer to the Typology Matrix for size information and plans for typology locations. Cell structures also offer opportunities for urban stormwater amangement throught capture, infiltration, and evapotranspiration.



Planters could be implemented as another solution where shallow utilities exist that cannot be relocated or double as protective barriers to certain properties that would benefit from added physical security while enhancing beautification. These planters would be bottomless thus connecting the tree root zone to existing soil below.



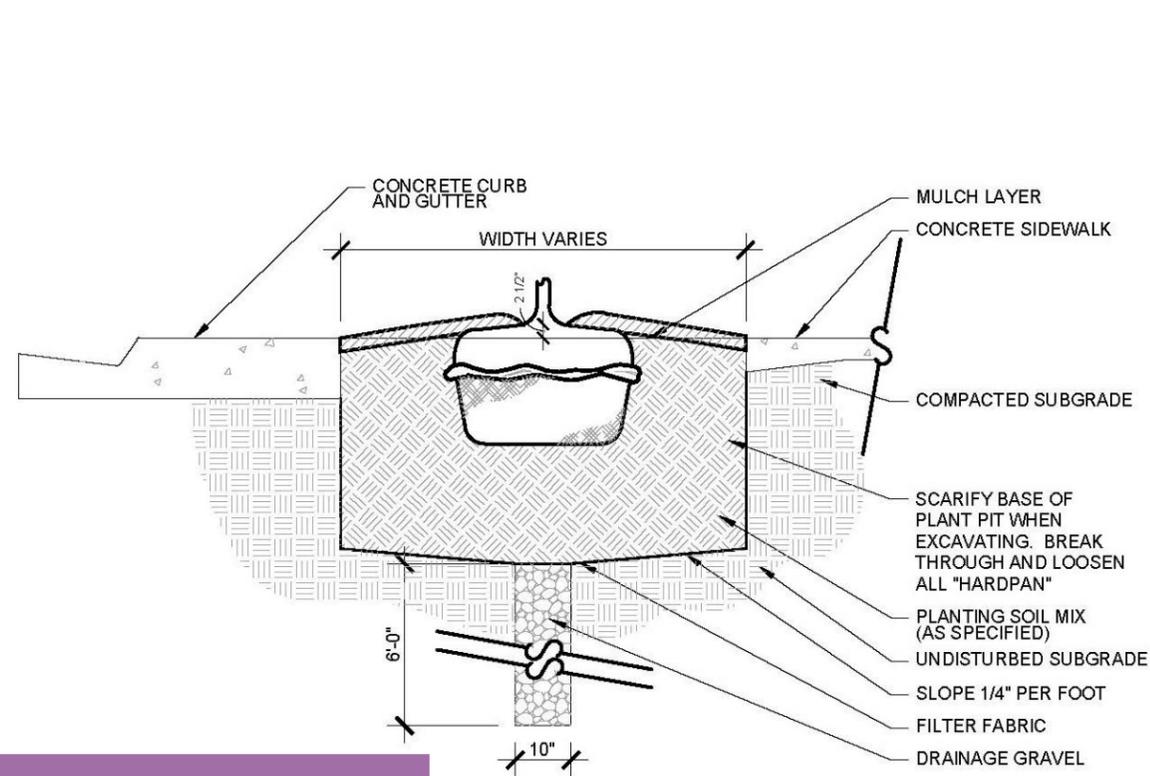
Represents a proposed condition of a road diet, or the creation of curb extension or 'bulb-out' to protect on-street parking, where appropriate, to create adequate space and volume for new trees on either side of street parking.



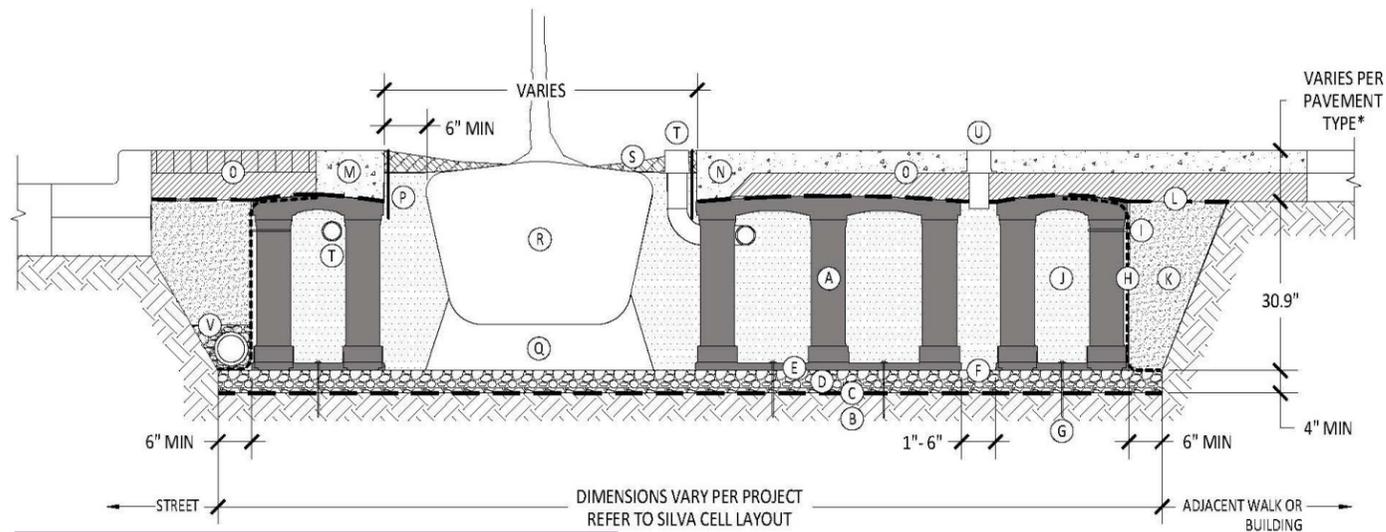
Reserved mainly for interstate open spaces and interchanges to create small urban forests that serve as a green gateway into the city. It could also apply to some park spaces in conjunction with the COA Parks & Recreation Department.

TREE PLANTING DETAILS

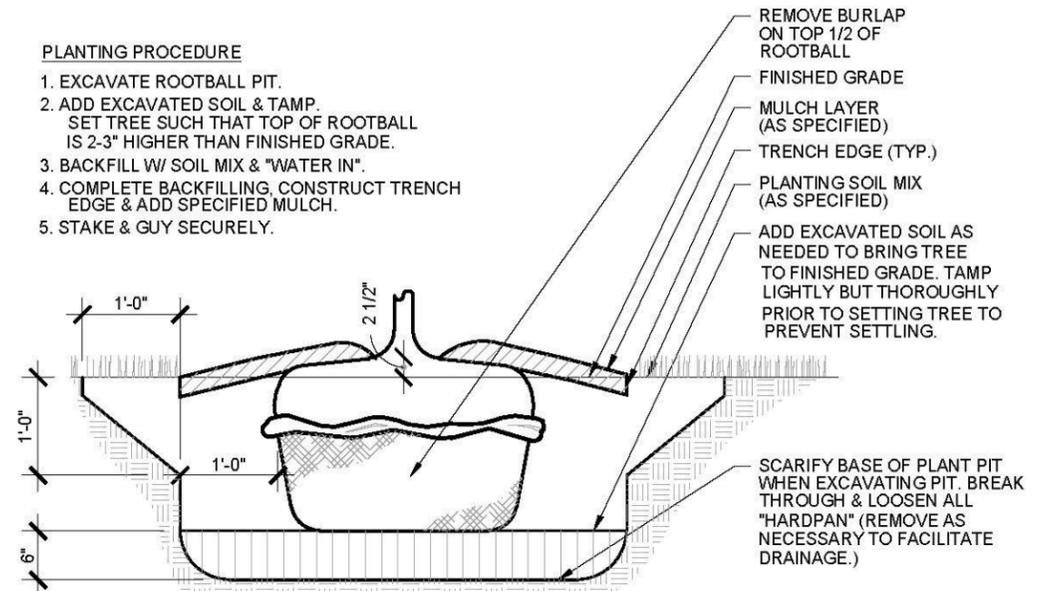
Once the Urban Tree Planting Plan begins to be implemented and detailed construction documents are created, it is recommended to develop and follow a standard of tree planting details for the varying typology conditions. Trees Atlanta has specific tree planting practices that should be followed and the City of Atlanta has previously detailed tree planters that can be reviewed and revised as needed when it's time to plant. The following details provide a blueprint for a typical Downtown tree planting.



ROOTBALL WELL AT SIDEWALK
TYPOLOGIES 1, 2, 5, 7, & 8



TREE ROOT CELL STRUCTURE
TYPOLOGY 3



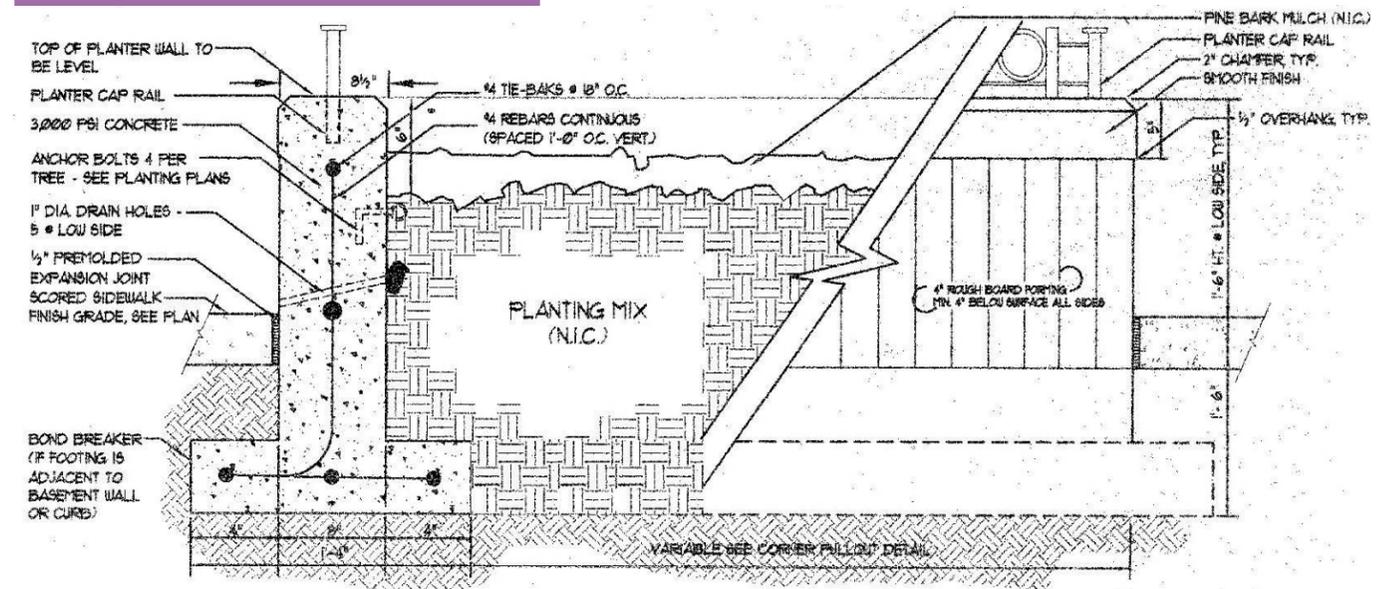
PLANTING PROCEDURE

1. EXCAVATE ROOTBALL PIT.
2. ADD EXCAVATED SOIL & TAMP. SET TREE SUCH THAT TOP OF ROOTBALL IS 2-3" HIGHER THAN FINISHED GRADE.
3. BACKFILL W/ SOIL MIX & "WATER IN".
4. COMPLETE BACKFILLING, CONSTRUCT TRENCH EDGE & ADD SPECIFIED MULCH.
5. STAKE & GUY SECURELY.

GENERAL NOTES:

1. SEE SPECIFICATIONS FOR DRAINAGE TEST REQUIREMENTS PRIOR TO PLANTING. SEC. 02900.
2. DO NOT ALLOW AIR POCKETS TO FORM WHEN BACKFILLING.
3. IMMEDIATELY SOAK WITH WATER.
4. DO NOT BREAK ROOTBALL.

TYPICAL TREE ROOTBALL
TYPOLOGY 6



CAST IN PLACE CONCRETE PLANTER - BOTTOMLESS
TYPOLOGY 4

STREETSCAPE TYPOLOGY MATRIX

		CLEAR ZONE							
		8'		10'			15'+		
TYPOLGY	ROOT ZONE	US/EG (15' OC)	MS (25' OC)	US/EG (15' OC)	MS (25' OC)	OS (35' OC)	US/EG (15' OC)	MS (25' OC)	OS (35' OC)
1A Landscape Strip	M	15X3X2.5	25X4X2.5	15X4X2.5	25X4X2.5	35X5X3	15X5X2.5	25X5X2.5	35X5X3
		112.5cf	250cf	150cf	250cf	525cf	187.5cf	312.5cf	525cf
	P	15X4x3	25X4X3	15X5X3	25X5X3	35X5X3	15X6X3	25X7X3	35X7X3
		180cf	300cf	225cf	375cf	525cf	270cf	525cf	735cf
1B Landscape Strip w/ Permeable Pavers	M	15X3X2.5	25X4X2.5	15X4X2.5	25X4X2.5	35X5X3	15X5X2.5	25X5X2.5	35X5X3
		112.5cf	250cf	150cf	250cf	525cf	187.5cf	312.5cf	525cf
	P	15X4x3	25X4X3	15X5X3	25X5X3	35X5X3	15X6X3	25X7X3	35X7X3
		180cf	300cf	225cf	375cf	525cf	270cf	525cf	735cf
2A Tree Wells in Concrete	M	6X3X2.5	8X4X2.5	6X4X2.5	8X4X2.5	8X5X2.5	6X5X2.5	8X5X2.5	8X5X2.5
		45cf	80cf	60cf	80cf	100cf	75cf	100cf	100cf
	P	12X4x3	15X4X3	12X5X3	15X5X3	15X5X3	12X6X3	15X7X3	15X7X3
		144cf	180cf	180cf	225cf	225cf	216cf	315cf	315cf
2B Tree Well & Decorative Fence in Concrete	M	6X3X2.5	8X4X2.5	6X4X2.5	8X4X2.5	8X5X2.5	6X5X2.5	8X5X2.5	8X5X2.5
		45cf	80cf	60cf	80cf	100cf	75cf	100cf	100cf
	P	12X4x3	15X4X3	12X5X3	15X5X3	15X5X3	12X6X3	15X7X3	15X7X3
		144cf	180cf	180cf	225cf	225cf	216cf	315cf	315cf
3 Tree Root Cell Structure	M	16X4X2.5	26X4X2.5	16X4X2.5	26X4X2.5	36X8X2.5	16X8X2.5	26X8X2.5	36X8X2.5
		160cf	260cf	160cf	260cf	720cf	320cf	520cf	720cf
	P	16X8X2.5	26X8X2.5	16X8X2.5	26X8X2.5	36X12X2.5	16X12X2.5	26X12X2.5	36X12X2.5
		320cf	520cf	320cf	520cf	1080cf	480cf	780cf	1080cf
4 Above Ground Planters (bottomless)	M	10X3X2			15X4X2				15X5X2
		60cf			120cf				150cf
	P	10X3X2			15X5X2				20X8X2
		60cf			150cf				320cf
5 Road Diets	M			12X8X3	12X8X3	20x8x3			
				288cf	288cf	480cf			
	P			15X10X5	25X10X5	35X10X5			
				750cf	1250cf	1750cf			
6 Open Spaces	M								
	P	>300cf	>600cf	>300cf	>600cf	>1000cf	>300cf	>600cf	>1000cf
7 Pre-Planned Projects	M								
	P	15X4x3	25X4X3	15X5X3	25X5X3	35X5X3	15X6X3	25X7X3	35X7X3
		180cf	300cf	225cf	375cf	525cf	270cf	525cf	735cf
8 Existing Parking Lots	M								
	P	12X4x3	15X4X3	12X5X3	15X5X3	15X5X3	12X6X3	15X7X3	15X7X3
		144cf	180cf	180cf	225cf	225cf	216cf	315cf	315cf

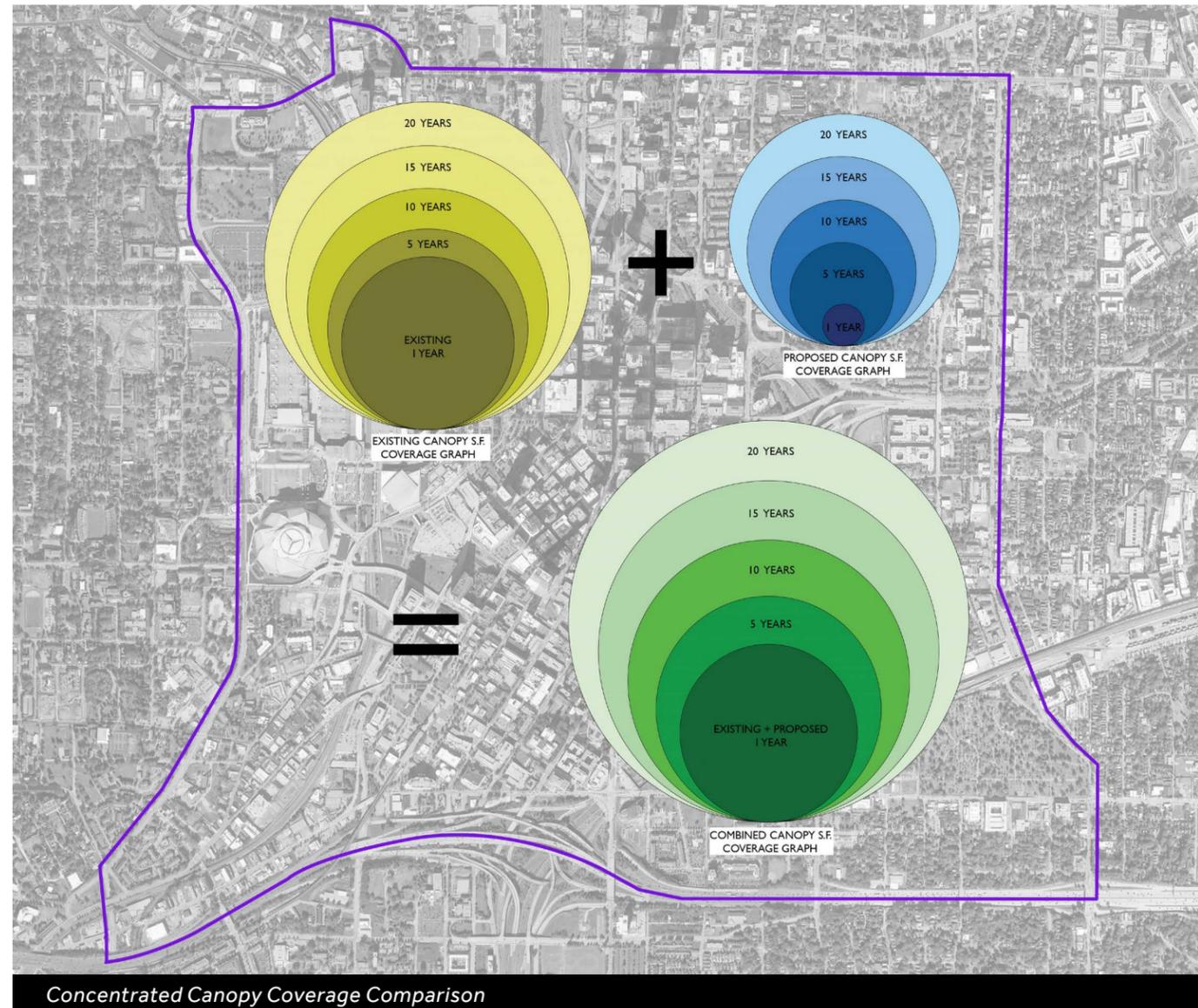
KEY: M = Minimum Dimensions P = Preferred Dimensions US/EG = Understory/Evergreen Trees MS = Midstory Trees OS = Overstory Trees Length x Width x Depth CF = Cubic Feet

PROJECTED CANOPY COVERAGE

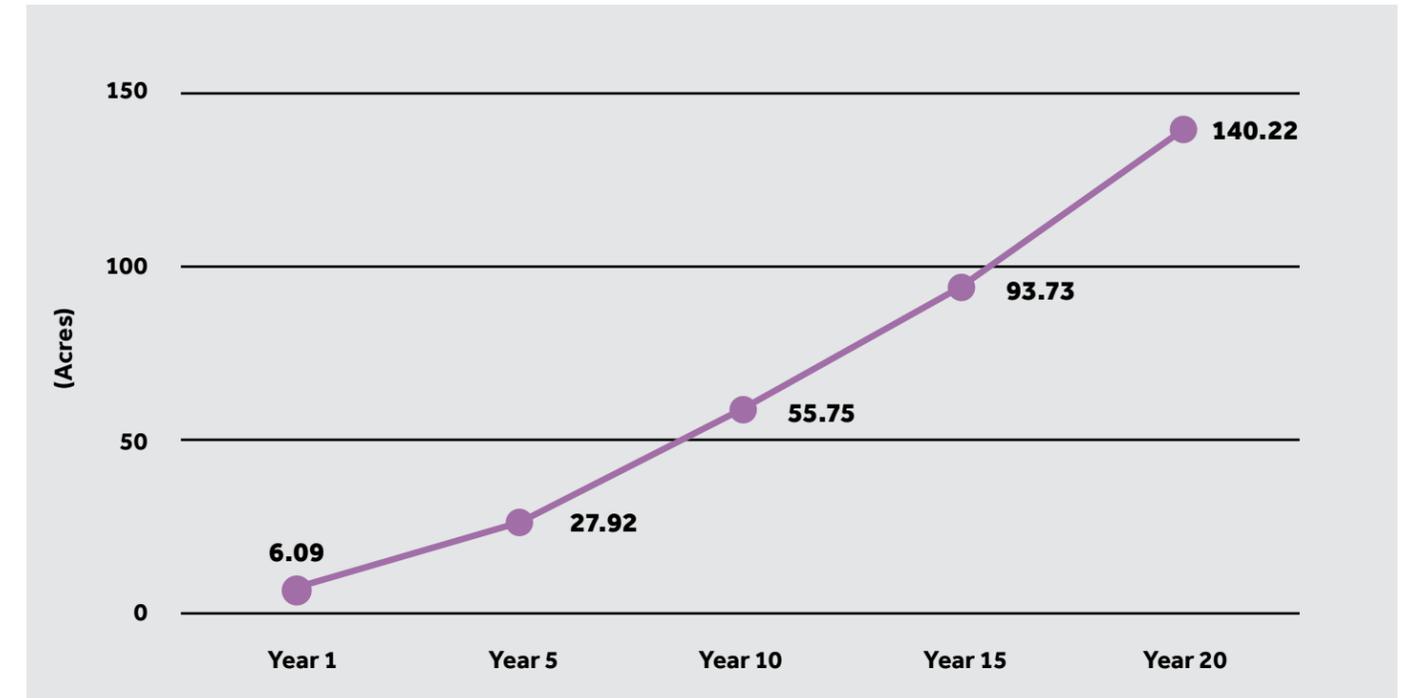
The Downtown district of Atlanta, an area covering 2342 acres, currently has little more than 3% tree canopy coverage as determined by Georgia Tech's Assessing Urban Tree Canopy in the City of Atlanta; A Baseline Canopy Study (2014). With the stated goal of increasing this canopy to levels found in the surrounding districts, this report and associated plans provide a roadmap to planting up to 8016 new trees within the Downtown region. To help guide expectations of how this will affect coverage in the next few years, a growth rate chart (Appendix C) is included which estimates the increase of canopy size for the proposed trees based on years of studying growth rates of these particular species in the greater Atlanta region. The main bulk of this chart displays the projected canopy of the proposed trees at 5 different time intervals starting with the first year of planting (assuming all of the proposed trees are planted in year 1) and followed by years 5, 10, 15, and 20. The canopy coverage of the individual species are then multiplied by the quantity of each tree. Finally, these are all tallied together.

Given the more challenging conditions and limited root zones available for most urban trees, the normal tree growth rates were then reduced by 25% to provide a more realistic goal. This adjusted total canopy area is also displayed as a percentage of the total Downtown district, approximately 2342 acres.

Finally, we add the existing tree coverage, including future canopy growth, to the formula to get a complete look at the potential tree coverage in the Downtown district in the coming years. Aggregate growth rate used for the existing trees is based on the model from the proposed trees.



PROPOSED TREE CANOPY COVERAGE (ACRES)



PERCENTAGE OF DOWNTOWN AREA

	YEAR 1	YEAR 5	YEAR 10	YEAR 15	YEAR 20
PROPOSED	0.00%	1.19%	2.38%	4.00%	5.99%
EXISTING	3.00%	4.50%	6.50%	9.00%	12.00%
COMBINED	3.00%	5.69%	8.88%	13.00%	17.99%

The main objective of stakeholder collaboration is:
To bring all departments on board as partners in the shared goal of increasing the Downtown tree canopy.

KEY STAKEHOLDER ENGAGEMENT

FOUNDATION OF COLLABORATION

CAP/ADID and Trees Atlanta have completed a considerable amount of work to create an enhanced Downtown environment. Building off this strong foundation, the design team engaged with the clients and a range of stakeholders during each phase of the planning process. Kickoff meetings were set up with the core stakeholder group to review processes and expedite plan development. The design team facilitated interviews with City of Atlanta departments to review potential concerns and limitations and evaluate what measures can be anticipated in future plantings. Separate meetings were held with key stakeholders to identify core project interests and garner support moving forward. Preset periodic feedback loops were incorporated to support quick decision making. This feedback helped anticipate potential challenges and guided a clear and concise project.

The goal of stakeholder engagement is:
To obtain targeted input and feedback to refine the planting strategy.

The Downtown Atlanta Urban Tree Planting Plan encompasses a range of stakeholders who have been identified and engaged in the discussion to collaborate during this process. The design team has held separate meetings with these key stakeholders to identify their core interests in the project and garner support moving forward. A summary of each entity meeting is described below.

GEORGIA DEPARTMENT OF TRANSPORTATION

DECEMBER 1, 2020

Team spoke with Landscape Architect Manager Felicity Davis at the State Maintenance Office.

OPPORTUNITIES

- Tree Planting Focus: areas with easy inspection and management with safe access for workers
- 75% of All Proposed Trees = Native, Shade Trees
- Multi-Stem Trees & Evergreens: 8-10 Ft. Tall
- Roadside Enhancement & Beautification Council Grant Program = only GDOT grant awarded
- Possible collaboration with Freedom Park Conservancy + GDOT on interchange & Freedom Parkway tree planting.

CHALLENGES

- No new plantings to be permitted within 500' of existing billboards. GDOT maintains a database of existing permitted outdoor advertising signs throughout the state that can be found on GDOT's public permit search website.
- No Invasive Species Permitted
- Minimum Size for Proposed Hardwood Trees Planted in ROW = 2.5" Caliper



GDOT DRIVEWAY & ENCROACHMENT CONTROL

Clear zone requirements are based on AASHTO design guidelines and depend on road design speed, amount of traffic, and slopes.

"Clear zones may be limited to 30' for practicality..." (Table 4-10)



GDOT POLICY

Policy 6755-9: Outlines Landscaping and Enhancements on GDOT Right of Way including plan requirements, tree clearance requirements, and plant material info

ATLANTA DEPARTMENT OF TRANSPORTATION

DECEMBER 2, 2020

Design team spoke with Deputy Commissioner Douglas Nagy at ADOT.

OPPORTUNITIES

- Department is fairly new; may not be a beneficial funding source, but still willing to advise.
- Possible institutional/county/state collaboration and funding sources for plan(s) implementation.
- Departmental Point of Contact: Calvin Watts, Regarding existing parking lots and tree requirement compliance.

CHALLENGES

- Maintaining ADA accessibility on all sidewalks throughout the project.
- Be mindful of pedestrian experience in regards to outdoor seating/restaurants while coordinating tree placement.
- Continue focusing on high impact planting areas.

COA DEPARTMENT OF WATERSHED MANAGEMENT

DECEMBER 18, 2020

CAP/ADID spoke with Watershed Manager Christina Clay, Cory Rayburn, and Tamara Graham.

OPPORTUNITIES

- Looking for volume; trees can incrementally do that but they're looking for strategies that have an even larger impact in a place like Downtown, such as stormwater bulbouts, rainwater harvesting, stormwater retrofits, green roofs, etc.
- Trees help to offset the density of impervious surfaces in these corridors. The more trees that are planted in Downtown, the less runoff and flooding occurs.
- Interested in green street projects, yet they also recognize how difficult they can be with utilities
- Incorporating trees into DWM green infrastructure is ideal in the Downtown area and helps lessen the impacts on downstream neighborhoods. In some areas, additional storage volume is needed.

CHALLENGES

- Utilities are a huge challenge, but can often times be avoided, worked around, or rerouted with proper upfront analysis.
- DWM would like to promote reforestation in areas of downtown neighborhoods that see repeat flooding and property damage or dilapidated buildings. These efforts complement the sometimes more expensive gray infrastructure solutions to further reduce localized flooding.
- DWM's Office of Linear Infrastructure Operations is trying to get rid of 2" connections and instead connect directly to the main so our effort could help with that.
- Developers and builders currently receive credits for stormwater management on their sites by preserving or replanting trees. Additional credits are being developed for infill residential development that would promote adjusting foundation designs to protect large trees next to building footprints.

COA DEPARTMENT OF CITY PLANNING

DECEMBER 7, 2020

CAP/ADID spoke with Commissioner Tim Keane.

OPPORTUNITIES

- Spend tree trust fund money in impactful ways and since the canopy in Downtown is such a need, this is a great use of tree trust fund.
- Priority should be trees in the public realm because it's a powerful & understandable goal
- Obtain support from Downtown Council members; City administration should be a champion of this.
- Relate the Downtown plan to the City Design in terms of goal for parts of the city (eg, City Design calls out a goal for the core of the city, so we can relate out work to that)
- The COA can fund tree planting up to 20' beyond the ROW on private property with the owner's approval.
- Engage corporate and foundations for fund matching

CHALLENGES

- Surface lots need to be developed rather than just adding a few trees here and there.
- Arborists' review of trees in ROW is likely to move from Parks to Planning, although Parks would continue to maintain those trees.

COA DEPARTMENT OF PARKS & RECREATION

DECEMBER 10, 2020

Design team spoke with Senior Arborist Jasen Johns at the Atlanta Department of Parks & Recreation.

OPPORTUNITIES

- Dept. Parks & Recreation can assist in passing legislation to help fund tree purchasing through existing contracts.
- If TA can assess the value of their tree planting in the Downtown district there is a possibility that the COA can give matching funds for additional planting
- COA can fund stump grinding services
- Use of iTree to calculate benefits of Downtown trees
- All of GSU property is public property and open to be planted.
- Coordinate with the Planning Department on their Urban Ecology Framework

CHALLENGES

- Initiate recanvass of existing Downtown street trees and conditions through Tree Conservation Commission by re-engaging Davey Trees.
- TA should manage implementation. Provide COA the list of materials and resources needed. Needs to secure legislation to tap into Tree Trust Fund. 2-2.5" caliper preferred.

RESILIENT PLANNING SUPPORTS STREETS MADE FOR WALKING.

atlantadowntown.com/cap/areas-of-focus/sustainability

