



# $\substack{ \text{MANAGING THE} \\ \textbf{NEED}_{\text{BE}}^{\text{TO}} \\ \textbf{TREED} }$

DALLAS TREE EQUITY
PLANTING MAP

2022

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### **From Mayor Eric Johnson**

Increasing the number of trees across Dallas is vital to keeping our neighborhoods cool, healthy, and beautiful. But currently, too many of our historically underserved and overlooked communities lack even an adequate tree canopy. The Equity Tree Planting Map provides a strategic guide to prioritizing areas where investments in tree planting would have the greatest impact on our residents' quality of life. Through our partnership with Texas Trees Foundation on this effort, we can build stronger, healthier, and more vibrant communities.

Eric Johnson 60th Mayor of Dallas

### FROM THE DESK OF OUR CEO Janette Monear

Trees in neighborhoods often mirror the investment that has, or has not, been made in neighborhoods. Tree equity and inclusion are critically important if we are to create a sustainable and resilient Dallas. Critical infrastructure in lowincome neighborhoods often lack trees to mitigate the urban heat island effect, poor air quality, climate change, crime rates, and a myriad of other challenges that they face but lack the resources to address. By making tree canopy more equitable, we are balancing the playing field for those who have not had a strong voice or discretionary income to invest in their yards and neighborhoods that improve the quality of life for all.

The Dallas Tree Equity Planting Map 2022 pulls back the curtain on where there is a need for an investment of trees in the City of Dallas. Texas Trees Foundation is committed to working with the City of Dallas in addressing equity issues and has developed this tree planting priority map, so together we can strategically plant, protect, and care for trees, ensuring that equitable access to tree canopy is available across the whole spectrum of Dallas.

This report provides a roadmap, through data-driven research, of where investments are needed to increase tree cover for a more equitable urban forest. When trees are left out of the equation of urban planning and tree planting decision-making, risk rises especially for health. Higher concentrations of CO<sup>2</sup>, particulate matter, and urban heat result in a spike of health issues, even death. Addressing tree equity gaps is an opportunity to improve people's health, address or meet environmental challenges, reduce energy costs, reduce crime, and invest in neighborhoods that are marginalized and desperately need support.

An intentional, focused approach to expanding the tree canopy in areas of need must be a priority for the City of Dallas. Texas Trees Foundation is here to support and help with this effort. Let us begin, together, to plant trees in places that need this vital green infrastructure and continue to build a cooler, greener, cleaner, and healthier Dallas.

This report was produced with the help of these generous sponsors:

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Research consistently demonstrates trees provide a wide range of human health benefits, including improving mental and cognitive health, lowering stress and anxiety, reducing obesity and cardiovascular disease, and boosting longevity. Trees have been empirically shown to improve air and water quality, mitigate the urban heat index, and alleviate noise pollution.

# The relationship between trees and human health is undeniably strong.

Trees also shield people from ultraviolet (UV) radiation, the cause for three types of skin cancer. Commenting on the breadth and depth of research that supports the positive connection between nature and human health, Dr. Peter James, School of Public Health at Harvard University, notes: "These days, the link between cumulative time spent in natural settings and health outcomes–including the big one, longevity–is solid."



# **About Urban Heat**



Urban areas, sparse vegetation, and lack of green space correlate to significantly higher temperatures. A growing corpus of research demonstrates that extreme heat is a major public health problem, particularly in urban areas. Urban heat is linked to multiple negative health outcomes, including increases in emergency room visits, hospital admissions, and premature deaths.

**Studies show that extreme heat causes** more deaths annually than hurricanes, floods, tornadoes, and lightning combined.

Children and the elderly are particularly at risk and vulnerable. Heat exposure has been shown to exacerbate underlying chronic conditions, including pulmonary, cardiovascular, and kidney conditions. Additionally, epidemiological data shows that motor vehicle collisions, violence, suicide, and workplace injuries increase during extreme heat events. Trees have been shown to be vital for reducing heat stress and decreasing the size and effect of the urban heat island.

References: Kalkstein, L.S., Eisenman, D.P., de Guzman, E.B. et al. "Increasing trees and high-albedo surfaces decreases heat impacts and mortality in Los Angeles, CA." Int J Biometeorol 66, 911-925 (2022). s00484-022-02248-8. "Urban Nature and Human Health and Well-Being," Forest Service, FS-1096.



The Comprehensive Environmental Climate Action Plan (CECAP) states Dallas needs approximately 735,000 trees to reach the CECAP goal of 37% tree canopy cover and specifically, to mitigate the urban heat island effect. Dallas temperatures are predicted to get hotter, and the 40% impervious surface in Dallas, left unshaded, will radiate even more heat into our neighborhoods, shopping areas, and throughout the city, affecting the health and quality of life for Dallas residents and visitors, especially those where there are few trees and numerous heat islands. Research has proven that tree shade brings many benefits, including improving human health and social behavior. The cooling benefits of trees reduce temperatures by up to 15 degrees in Dallas (TTF Urban Heat Island Management Study, 2017). Trees save over 850 lives and prevent 670,000 incidents of acute respiratory symptoms in the U.S. annually (Nowak et al., 2014). A 10% increase in neighborhood tree canopy has been associated with a 12-15% reduction in violent crime and property crime (Gilstad-Hayde, 2014; Troy, 2012).

### **Executive Summary**

To invest in a more equitable tree cover canopy in the City of Dallas, Texas Trees Foundation, with the support of our sponsors, Alliance Data and Texas A&M Forest Service, created Dallas Tree Equity Planting Map 2022. This report provides a guide for decision-makers, city staff, developers, builders, and other stakeholders to better identify where trees should be strategically planted, using five key categories **1**) **Demographic**, **2**) **Health**, **3**) **Urban Heat Island**, **4**) **Economic Development**, and **5**) Air Quality.

The Dallas Tree Equity Planting Map 2022 illustrates how we can rectify longstanding inequities concerning tree canopy, benefiting selected neighborhoods and the entire city. It also shows tree planting priority maps from both a city view and a council district perspective, and fulfills Recommendation 8 of the Dallas Urban Forest Master Plan 2021 (Texas Trees Foundation), unanimously adopted by Dallas City Council in June that same year. Recommendation 8 urged the City to address tree canopy inequities by strategically planting and caring for trees, particularly in underserved parts of the community. The Dallas Tree Equity Mapping Report 2022 is the first of its kind and marks a major step forward for the City to enhance its urban forest through equitable tree planting. The City of Dallas hosts an impressive, yet underappreciated resource in its trees, forests, and greenspace known collectively as the urban forest. The urban forest is a capital infrastructure asset and, like any other capital infrastructure asset, requires management input and sustained action. However, unlike other infrastructure, the urban forest's value increases over time, returning on average \$2.25 dollars per dollar spent (McPherson et al., 2005).

### **Dallas Urban Forest Examined**

Trees produce a myriad of important benefits to Dallas's environment, residents, and visitors. These benefits, including cooling, air quality regulation, improved human health and well-being, and stormwater mitigation, are enhanced with proper urban forest management action.

In the City of Dallas, there are an estimated 14.7 million trees (Texas Trees Foundation, 2015) producing \$239 million in quantifiable environmental benefits annually (Texas Tree Foundation, 2019). In addition, these trees also provide aesthetic, social, and spiritual benefits that go beyond monetary value. The recognition of our urban forest and its importance was confirmed in 2021 when Dallas City Council unanimously adopted the Dallas Urban Forest Master Plan 2021. This progressive step has assured that the City of Dallas will continue to view trees as a priority for managing existing tree canopy and increasing overall tree canopy. The Dallas Tree Equity Planting Map 2022 serves as a guide to increasing this overall tree canopy and ensures trees are planted and distributed equitably.









City decision-makers must recognize these values in the context of decisions made around funding allocations, infrastructure such as sidewalks, zoning, and development. Dallas decision-makers need to ensure the health and longevity of the urban forest and that Dallas constituents realize equitable tree planting.

# **Dallas Urban Forest and Equitability**

With equitable challenges examined and support from decision-makers realized, many challenges such as human health, climate change, poor air quality, crime rate, and rapid development will be combatted through equitably expanding Dallas' urban forest. To provide the City of Dallas with evidence-based/data-driven research, Texas Trees Foundation will assist the City in its continued efforts to increase tree canopy, improve human health, decrease urban heat, improve air quality, and address tree equity issues. Texas Trees Foundation, in conjunction with PlanIT Geo, has developed tree planting priority maps, which form the substance of this report. The report provides a rationale and analysis explaining why and how these planting priority maps were developed and illustrates the results on both City and council district levels.

Through this prioritization process, the City of Dallas will now be able to precisely identify the most urgent areas across the City and districts where new tree canopy should be grown to increase tree benefits for Dallas residents.









This tree planting prioritization assesses the level of need for tree planting across the City and then within each of Dallas' 14 city council districts. Tree planting priority was assigned to 929 census block groups within the City of Dallas<sup>\*</sup>. All census block groups in Dallas and within each council district were evaluated and used to create an overall planting priority by council district.

# What is Tree Planting Prioritization?

### Five tree planting priority categories were used in the analysis:

This report is based on the need for trees to increase benefits in Dallas council districts, based on these 5 categories, rather than the areas' actual suitability for the tree. Therefore, further ground-truthing is required. (Ground-truthing involves foresters examining the actual tree planting site for planting suitability.)

### Demographic

Population density People of color (% non-white) Educational attainment

### Economic Development

Home ownership rates Median income Median home value Poverty percentage

### Health

Vulnerable populations Heart disease and obesity

**Air Ouality** Future traffic congestion

Urban Heat Island Average maximum temperature

14 \*Block groups are used by the U.S. Census Bureau to assure statistical consistency when tracking populations across the United States and can be valuable indicators of environmental justice as they are linked with sociodemographic data.



# **Planting Priority in Dallas**

Results of this analysis indicated that the council district with the highest overall planting priority or need for tree planting was District 4. Districts 6 and 7 were the next highest overall priorities. Using these results, Dallas can focus its initial tree planting efforts to impact the greatest number of people who are in most need of tree canopy benefits identified through the five aforementioned categories.

### **Data Sources**

Various data sets were used in this analysis including tree canopy and vegetated surfaces from previous projects, sociodemographic data from the U.S. Census Bureau's American Community Survey (ACS), health metrics from the Centers for Disease Control and Prevention (CDC), and future traffic congestion from the Texas Department of Transportation (TXDOT). (A full list of data sources used can be found on page 26 of this report).

### **Assessment Scales**

To best inform tree planting efforts, planting priorities were tabulated across two geographic scales including city council districts and census block groups.

Planting priority was assigned to each of the 14 council districts in Dallas to identify the need for tree planting within individual voter districts and to inform the council members and citizens.

Planting priority was also assigned to 929 census block groups within the City of Dallas. Block groups are used by the U.S. Census Bureau to assure statistical consistency when tracking populations across the United States and can be valuable indicators of environmental justice as they are linked with sociodemo-





The methods used to calculate planting priority scores are widely accepted throughout urban forest management and planning. Many of the data sources included in this assessment have been used to help cities in the United States focus their resource priority planting maps.

To rank the areas for priority planting, tabular data was organized within a common geographic scale. Census Block Groups (CBGs) were used as the common scale for this project, since most source data sets were created at this scale. Socioeconomic and demographic data from the U.S. Census Bureau's American Community Survey were available at the CBG scale and required no modification. Public health data from the CDC were available at the census tract scale. Since tracts contain multiple block groups, all block groups were assigned the same public health values as the tract within which they were contained. All other data sets were overlaid and summarized within the block groups using Geographic Information System (GIS) tools.

The planting priority score of each block group was calculated, then used to create an average score for all city council districts. Census boundaries and city council districts were drawn to serve different purposes and, therefore, are not in alignment with each other. To account for this, each council district's boundary was used to select only block groups which were completely or partially contained within the district's boundary. Only block groups with more than 10 acres of overlap with a council district were included in that council district's averages. An average score for each planting priority criterion was calculated based on the block groups that fell within each district.



### **Addressing Air Quality Concerns**

To address air quality concerns, a data set estimating future traffic congestion on Dallas' major roads was incorporated into each council district's ranking. This data set consisted of lines representing the major roadways in Dallas. Each line was assigned a buffer of a specified distance based on the severity of congestion. Road stretches that were forecasted to have more severe congestion were given larger buffers to give higher priority to the council district in which they fell. The area of the buffer that overlapped each council district was quantified. The larger the area, the higher the priority is to plant trees.

Once the council district averages for each criterion were calculated, the criteria were grouped into categories so that priority scores could be calculated categorically. Larger priority scores represent higher priority areas for tree planting. A rank is then calculated based on these values, and lower rankings represent higher priority areas.

Below is an explanation of how individual priority scores are calculated and combined to create category scores and the overall planting priority score. Each of the planting priority criteria is normalized and combined to create a simple priority index from 0 to 1, where 1 indicates a higher priority.

### The indices, N, are calculated as follows:

Ni = (xi) / (xi,max - xi,min), where, for each criterion, Ni, xi is the value for that block group for that criterion, i; xi,max is the maximum value citywide for that criterion, i; and xi,min is the minimum value citywide for that criterion, i.

### **Prioritization Calculations & Formula**

The Priority index, E, is then calculated as follows: E = (N1 + N2 + N3 + N4 + N5 + N6) where Ni refers to each criterion value (air quality, educational attainment, heart disease, home ownership, home value, etc.)

The categorical priority values and the overall values are the sum of a selected number on all indices.



Over the course of the past several decades, there has been a steep decline in American's level of physical activity, a critical factor in the obesity epidemic. Obesity places people at increased risk for multiple diseases and conditions ranging from high blood pressure to Type 2 diabetes, from coronary heart disease to osteoarthritis, and from sleep apnea to mental illness.

Reference: "Urban Nature and Human Health and Well-Being" (2018). Forest Service, FS-1096.



Research shows that the availability of parks, trees, trails, and nature not only positively impacts peoples' attitudes toward being physically active, but also shows that when people exercise in natural environments, they do so for longer periods of time. In fact, people who use parks and open spaces are three times more likely to achieve recommended levels of physical activity than non-users.

Reference: KL Wolf (2008) "City trees, nature and physical activity: a research review." ArbNews 17(1): 22-24.



### TABLE 2: Descriptions of the data values composing each prioritization criteria and the reason they are included

\*indicates that values were inverted (multiplied by -1) to give smaller numbers high priority

Criteria	Description & Reason for Data Selection	Explanation of Data	
Air Quality	Street rights-of-way corridors and surrounding areas typically have higher concentrations of particulate matter. Trees can be planted along roads to absorb vehicle exhaust and reduce pollution. This data forecasts traffic congestion levels into 2039.	Major highways in Dallas were given a buffer of 300 meters if the forecast was for Moderately Congested and a buffer of 600 meters if the forecast was for Congested. The area of overlap with these buffers within each council district was calculated as a percent of the total council district area.	
Educational Attainment*	Average educational attainment values are the highest average education level within each block group.	None = 1; Primary School = 2; High School No Diploma = 3; High School Diploma or GED = 4; Some College No Degree = 5; Undergrad Degree= 6; Graduate/ Professional Degree = 7	
Heart Disease	Trees clean the air that we breathe, filter the water that we drink, and can lower stress levels. Planting trees can be a cost-effective way of improving a city's overall public health.	The CDC model-based estimate for crude prevalence of coronary heart disease among adults aged ≥18 years, 2017 at the census tract scale.	
Home Ownership Rates*	Homeowners have a longer-term investment in their property and have more control over existing trees and new plantings. Areas where larger portions of the population are renting means a higher reliance on tree canopy on public lands.	Percentage of total population in housing units who are renting.	
Median Home Value*	The presence of trees aligns with increased economic vitality and quality of life.	Median home value.	
Median Income*	Tree canopy cover is often positively associated with income. These data will help to identify areas of low income where tree canopy may be lacking.	Median household income in the past 12 months.	
Obesity	Trees clean the air that we breathe, filter the water that we drink, and can lower stress levels. Planting trees can be a cost-effective way of improving a city's overall public health.	The CDC model-based estimate for crude prevalence of obesity among adults aged >18 years, 2017 at the census tract scale.	
People of Color (% non-white)	Tree canopy is negatively correlated with the percentage of minority residents. Planting trees in communities with higher percentages of minority residents can support environmental equity.	Percentage of the total population who are non-white.	
Population Density	Larger numbers of people will benefit from the ecosystem services that increased tree canopy coverage can provide.	Population density (total population per square mile).	
Poverty Percentage	Tree canopy is often positively correlated with higher income levels. Planting trees in lower income communities can support environmental equity.	Percentage of residents living below 200% of the federally designated poverty level.	
Urban HeatTree canopy that covers impervious surfaceIslandthe urban heat island effect, which is dam to the environment and unhealthy for peop		Average maximum temperature within each census block group.	
Vulnerable Populations	Trees provide many environmental and health benefits, especially to members of the population who are likely to be more sensitive to poor air quality and extreme heat.	Percentage of vulnerable residents who are under the age of 18 or over the age of 65.	

The five planting priority categories included were Economic Development, Health, Demographic, Air Quality, and Urban Heat Island Status. An overall planting priority rank containing all criteria selected in the analysis was also calculated.

# Criteria

### TABLE 1:

### Planting priority categories and the data sets used to calculate them

Category	Incorporated Data Sets
Economic Development	Home Ownership Rates   Median Income   Median Home Value   Poverty Percent
Health	Vulnerable Populations   Heart Disease   Obesity
Demographic	Population Density   People of Color (% non-white)   Educational Attainment*
Air Quality	Future Traffic Congestion
Urban Heat Island	Average Maximum Temperature

### TABLE 3: Criteria Sources

Areas with Low Existing Canopy Cover Source: PlanIT Geo Land Cover; Contact TTF or PlanIT Geo

Non-Tree Vegetation Source: PlanIT Geo Land Cover; Contact TTF or PlanIT Geo

Urban Heat Island Source: TTF Urban Heat Island Management Study; TTF

Median Income\* Source: American Community Survey 2019 5-year estimates; Census Block Group Table: C17002

Poverty Percent Source: American Community Survey 2019 5-year estimates; Census Block Group Table: B19013

Median Home Value\* Source: American Community Survey 2019 5-year estimates; Census Block Group Table: B25107

Population Density Source: American Community Survey 2019 5-year estimates; Census Block Group Table: B01001

Educational Attainment Source: American Community Survey 2019 5-year estimates; Census Block Group Table: B15003

Home Ownership Rates\* Source: American Community Survey 2019 5-year estimates; Census Block Group Table: B25026

Vulnerable Populations (young and old) Source: American Community Survey 2019 5-year estimates; Census Block Group Table: B01001

People of Color (% non-white) Source: American Community Survey 2019 5-year estimates; Census Block Group Table: B03002

Heart Disease Source: CDC Census Tract-level Data (GIS Friendly Format), 2019 release; https://chronicdata.cdc.gov/500-Cities-Places/500-Cities-Census-Tract-level-Data-GIS-Friendly-Fo/k86t-wghb

Obesity

**Source:** CDC Census Tract-level Data (GIS Friendly Format), 2019 release; https://chronicdata.cdc.gov/500-Cities-Places/500-Cities-Census-Tract-level-Data-GIS-Friendly-Fo/k86t-wghb

Air Quality Source: TxDOT Future Traffic Congestion 2039; https://gis-txdot.opendata.arcgis.com/datasets/TXDOT::txdot-future-congestion/about

Public Land Source: Dallas City Hall Parcels; https://gis.dallascityhall.com/shapefileDownload.aspx



### TABLE 4:

### Results of planting prioritization analysis for Dallas City Council Districts

Council District	Overall Planting Priority	Tree Canopy (%)	Non-Tree Vegetation (%)	Average Maximum Temp (°F)
District 1	6	31%	21%	98.19°
District 2	7	21%	17%	98.76°
District 3	8	34%	25%	96.44°
District 4	1	36%	27%	98.34°
District 5	5	38%	26%	96.16°
District 6	2	22%	24%	99.04°
District 7	3	29%	26%	96.96°
District 8	4	32%	34%	96.26°
District 9	11	37%	22%	98.01°
District 10	9	26%	20%	96.47°
District 11	10	27%	16%	96.79°
District 12	12	25%	21%	96.66°
District 13	13	34%	17%	97.12°
District 14	14	25%	14%	98.49°

A redistricting map was adopted by Dallas City Council on June 27, 2022. New maps are not available as of the printing date of this report. District 2 now stretches farther east and includes part of District 9. Most of the outlying suburban areas are relatively similar to Dallas' prior district maps.



# **Tree Planting Priority Ranking** by Census Block Groups

1





### TABLE 5:

Public land totals and trees required for districts to reach an 80th percentile priority score

Council District	Total Council District Acres	Public Land	Public Land Acres	Equivalent Number of Trees (25 ft Crown Diameter)
District 1	7,886	4%	334	55,982
District 2	11,806	5%	544	115,238
District 3	32,322	7%	2,129	200,778
District 4	13,173	6%	807	257,165
District 5	11,756	8%	926	73,027
District 6	26,009	7%	1,949	438,526
District 7	16,954	8%	1,323	255,761
District 8	35,308	7%	2,630	501,310
District 9	13,521	8%	1,123	59,993
District 10	10,218	6%	566	63,473
District 11	10,590	2%	214	46,990
District 12	8,997	5%	439	_
District 13	14,755	3%	454	_
District 14	7,176	3%	223	_

Priority scores help locate areas which will most benefit from Dallas' limited resources for tree planting and maintenance. The overall priority score for each district was examined to determine how much tree canopy is needed to raise the current district priority score into the 80th percentile of priority scores. The number of tree plantings needed to add the additional tree canopy to the district was calculated by dividing by the area of a tree with a 25 ft. crown diameter by the additional acreage totals. Districts which currently have a score within the 80th percentile need limited priority planting.

The council district maps on the following pages display the priority by block groups contained within each district. The 5 highest priority block groups within each district are highlighted on the maps showing individual council districts and labeled from highest overall priority (1) to lowest (5) with numbers correlating to the tables below each map.

These highlighted areas were determined to be the most in need of new tree plantings. Our recommendation is to identify the neighborhoods contained within the highlighted areas, then work with community leaders and planners to identify suitable locations for new tree plantings by using on the ground suitability assessments (ground truthing). Finally, developing policies will preserve existing canopy. Maintenance of existing trees is a crucial part of a healthy urban forest, because a newly planted tree needs years to mature to the point where the benefits it provides can be impactful. Meanwhile, established mature trees already offer significant cooling, stormwater reduction and improvement of air quality. Each district should ensure that trees within public lands are being maintained and new plantings are sufficient to increase tree canopy, despite development and mortality due to disease, pests, or other natural causes.

Use the white numbers in each map to find the tree canopy percentage, possible planting area percentage, temperature, percentage of public land and the overall priority score for the highlighted areas. Each map displays the overall planting priority within each district. The 5 highest priority block groups within each district are noted in the color key above each map. Some districts have more than 5 block groups highlighted. This is due to block groups overlapping multiple districts. Overlapping block groups may present opportunities for collaborative tree plantings.





Canopy is lowest (9%) in the block group 48001 (map label 3). This block group also has 21% non-canopy vegetation. Non-canopy vegetation are areas in which planting could be suitable, such as right-of-ways, but no existing trees are present at this time. Vegetated areas in this block group should be visited to assess their suitability to support tree plantings. Efforts should be made to plant trees and preserve existing tree canopy in the other highlighted high priority areas within District 1.

COUNCIL	GEOID	Urban Tree Canopy %	Non-Tree Vegetation %	Average Maximum Temperature	Public Land %	Overall Priority	Map Label
1	481130050001	22%	14%	98.55°	0%	29.17	1
1	481130047001	16%	9%	98.87°	2%	28.67	2
1	481130048001	9%	21%	98.83°	1%	28.57	3
1	481130064021	23%	24%	97.56°	0%	28.52	4
1	481130062001	38%	24%	98.44°	1%	28.46	5

These data represent U.S. Census block groups in the City of Dallas. Tree planting priority has been calculated only for the block groups within the City of Dallas. Data were derived from existing data sources including the U.S. Census, American Community Survey 5-year 2019 estimates, Centers for Disease Control 2017 500 Cities data, iTree Landscape (U.S. FPA Downscaler model), and City of Dallas Planimetric data. Data were not created for these areas which lay outside the study area.

Dallas, TX Council Districts Tree Planting Priority by Census Block Groups

Tree Canopy: **31%** Non-Tree Vegetation: **21%** Public Land: **4%** Average Temperature: **98.19°**  Priority Ranking for Tree Planting:

Demographic: 3/14 Health: 8/14 Air Quality: 9/14 Economic: 8/14 Avg. Temp: 5/14 Overall Rank: 6/14



Canopy is lowest (5%) in the block group 72022 (map label 1). This block group has 8% non-tree vegetation. Non-canopy vegetation are areas in which planting could be suitable, such as right-of-ways, but no existing trees are present at this time. More planting opportunities are likely to exist in block groups 25001 and 25004 (map labels 2 and 3) because of their higher percentages of vegetated surfaces. These areas should be visited to assess their suitability to support tree plantings. Efforts should be made to plant trees and preserve existing tree canopy in these and other highlighted high priority areas within District 2.

COUNCIL	GEOID	Urban Tree Canopy %	Non-Tree Vegetation %	Average Maximum Temperature	Public Land %	Overall Priority	Map Label
2	481130072022	5%	8%	98.25°	0%	29.65	1
2	481130025001	34%	30%	98.58°	16%	28.72	2
2	481130025004	18%	23%	98.66°	0%	28.69	3
2	481130025003	14%	18%	98.48°	1%	28.63	4
2	481130015032	16%	16%	98.57°	0%	28.60	5

These data represent U.S. Census block groups in the City of Dallas. Tree planting priority has been calculated only for the block groups within the City of Dallas. Data were derived from existing data sources including the U.S. Census, American Community Survey 5-year 2019 estimates, Centers for Disease Control 2017 500 Cities data, iTree Landscape (U.S. FPA Downscaler model), and City of Dallas Planimetric data. Data were not created for these areas which lay outside the study area.

Dallas, TX Council Districts Tree Planting Priority by Census Block Groups

Tree Canopy: **21%** Non-Tree Vegetation: **17%** Public Land: **5%** Average Temperature: **98.76°**  Priority Ranking for Tree Planting:

Demographic: 5/14 Health: 13/14 Air Quality: 3/14 Economic: 5/14 Avg. Temp: 2/14 Overall Rank: 5/14



Canopy is lowest (13%) in the block group 87043 (map label 2). This block group also has 32% non-canopy vegetation making it a suitable candidate for tree planting. Non-canopy vegetation are areas in which planting could be suitable, such as right-of-ways, but no existing trees are present at this time. Vegetated areas in this block group should be visited to assess their suitability to support tree plantings. Efforts should be made to plant trees and preserve existing tree canopy in these and other highlighted high priority areas in District 3.

COUNCIL	GEOID	Urban Tree Canopy %	Non-Tree Vegetation %	Average Maximum Temperature	Public Land %	Overall Priority	Map Label
3	481130110013	14%	32%	97.83°	22%	29.63	1
3	481130087403	13%	26%	98.19°	9%	29.17	2
3	481130108042	35%	18%	97.99°	26%	28.90	3
3	481130108053	14%	16%	98.08°	1%	28.41	4
3	481130110016	39%	22%	98.11°	0%	28.40	5

These data represent U.S. Census block groups in the City of Dallas. Tree planting priority has been calculated only for the block groups within the City of Dallas. Data were derived from existing data sources including the U.S. Census, American Community Survey 5-year 2019 estimates, Centers for Disease Control 2017 500 Cities data, iTree Landscape (U.S. FPA Downscaler model), and City of Dallas Planimetric data. Data were not created for these areas which lay outside the study area.

Dallas, TX Council Districts Tree Planting Priority by Census Block Groups

Tree Canopy: **34%** Non-Tree Vegetation: **25%** Public Land: **7%** Average Temperature: **96.44°**  Priority Ranking for Tree Planting:

Demographic: 8/14 Health: 5/14 Air Quality: 10/14 Economic: 7/14 Avg. Temp: 12/14 Overall Rank: 8/14



Canopy is lowest (17%) in the block group 60011 (map label 2). Block group 86032 (map label 1) contains 38% vegetation and 20% public land. Non-canopy vegetation are areas in which planting could be suitable, such as right-of-ways, but no existing trees are present at this time. Vegetated areas in block groups

should be visited to assess their suitability to support tree plantings. Efforts should be made to plant trees and preserve existing tree canopy in these and other highlighted high priority areas in District 4.

COUNCIL	GEOID	Urban Tree Canopy %	Non-Tree Vegetation %	Average Maximum Temperature	Public Land %	Overall Priority	Map Label
4	481130086032	28%	38%	98.99°	20%	29.79	1
4	481130060011	17%	23%	98.29°	0%	29.32	2
4	481130088023	19%	26%	98.03°	4%	29.23	3
4	481130086031	22%	34%	98.67°	38%	29.18	4
4	481130087042	23%	26%	98.38°	6%	29.07	5

These data represent U.S. Census block groups in the City of Dallas. Tree planting priority has been calculated only for the block groups within the City of Dallas. Data were derived from existing data sources including the U.S. Census, American Community Survey 5-year 2019 estimates, Centers for Disease Control 2017 500 Cities data, iTree Landscape (U.S. FPA Downscaler model), and City of Dallas Planimetric data. Data were not created for these areas which lay outside the study area.

Dallas, TX Council Districts Tree Planting Priority by Census Block Groups

Tree Canopy: **36%** Non-Tree Vegetation: **27%** Public Land: **6%** Average Temperature: **98.34**° Priority Ranking for Tree Planting:

Demographic: 4/14 Health: 1/14 Air Quality: 5/14 Economic: 1/14 Avg. Temp: 4/14 Overall Rank: 1/14



Canopy is lowest (23%) in the block groups 93041 and 91032 (map labels 3 and 4). Block group 18002 has the most vegetated area of the highlighted block groups with 32% non-canopy vegetation. Non-canopy vegetation are areas in which planting could be suitable, such as right-of-ways, but no existing trees are present at this time. Vegetated areas in this block group should be visited to assess their suitability to support tree plantings. The highest priority area in District 5 also has the highest canopy coverage (54%). In this case existing tree preservation should take precedence over

### new tree plantings.

COUNCIL	GEOID	Urban Tree Canopy %	Non-Tree Vegetation %	Average Maximum Temperature	Public Land %	Overall Priority	Map Label
5	481130117013	54%	28%	97.87°	65%	28.79	1
5	481130118002	32%	32%	97.44°	18%	28.65	2
5	481130093041	23%	25%	97.95°	2%	28.55	3
5	481130091032	23%	28%	97.91°	0%	28.50	4
5	481130091053	26%	22%	97.90°	2%	28.28	5

These data represent U.S. Census block groups in the City of Dallas. Tree planting priority has been calculated only for the block groups within the City of Dallas. Data were derived from existing data sources including the U.S. Census, American Community Survey 5-year 2019 estimates, Centers for Disease Control 2017 500 Cities data, iTree Landscape (U.S. FPA Downscaler model), and City of Dallas Planimetric data. Data were not created for these areas which lay outside the study area.

Dallas, TX Council Districts Tree Planting Priority by Census Block Groups

Tree Canopy: **38%** Non-Tree Vegetation: **26%** Public Land: **8%** Average Temperature: **96.16°**  Priority Ranking for Tree Planting:

Demographic: 2/14 Health: 4/14 Air Quality: 12/14 Economic: 6/14 Avg. Temp: 14/14 Overall Rank: 7/14





Canopy is lowest (11%) in the block groups 96101 and 98044 (map label 1 and 4) though each highlighted area has between 11% and 13%. Block group 205002 has the most vegetated area of the highlighted block groups with 55% non-canopy vegetation. Non-canopy vegetation are areas in which planting could be suitable, such as right-of-ways, but no existing trees are present at this time. Vegetated areas in this block group should be visited to assess their suitability to support tree plantings. Efforts should be made to plant trees and preserve existing tree canopy in the other highlighted

### high priority areas within District 6.

COUNCIL	GEOID	Urban Tree Canopy %	Non-Tree Vegetation %	Average Maximum Temperature	Public Land %	Overall Priority	Map Label
6	481130096101	11%	7%	99.13°	0%	29.25	1
6	481130101021	12%	50%	99.20°	53%	28.99	2
6	481130205001	12%	28%	98.78°	5%	28.95	3
6	481130098004	11%	19%	99.37°	0%	28.93	4
6	481130205002	13%	55%	98.93°	30%	28.93	5

These data represent U.S. Census block groups in the City of Dallas. Tree planting priority has been calculated only for the block groups within the City of Dallas. Data were derived from existing data sources including the U.S. Census, American Community Survey 5-year 2019 estimates, Centers for Disease Control 2017 500 Cities data, iTree Landscape (U.S. FPA Downscaler model), and City of Dallas Planimetric data. Data were not created for these areas which lay outside the study area.

> Dallas, TX Council Districts Tree Planting Priority by Census Block Groups

Tree Canopy: 22% Non-Tree Vegetation: 24% Public Land: 7% Average Temperature: 99.04° **Priority Ranking** for Tree Planting:

Demographic: 1/14 Health: 9/14 Air Quality: 1/14 Economic: 4/14 Avg. Temp: 1/14 Overall Rank: 2/14





Canopy is lowest (19%) in the block group 123021 (map label 4). This block group also has 34% non-canopy vegetation. Non-canopy vegetation are areas in which planting could be suitable, such as right-of-ways, but no existing trees are present at this time. Vegetated areas in this block group should be visited to assess their suitability to support tree plantings.
Efforts should be made to plant trees and preserve existing tree canopy in the other highlighted high priority areas within District 7.

COUNCIL	GEOID	Urban Tree Canopy %	Non-Tree Vegetation %	Average Maximum Temperature	Public Land %	Overall Priority	Map Label
7	481130027014	25%	28%	98.60°	6%	29.30	1
7	481130027012	21%	29%	98.57°	24%	29.02	2
7	481130037004	32%	22%	98.30°	0%	28.98	3
7	481130025004	18%	23%	98.66°	0%	28.69	3 (dist 2)*
7	481130123021	19%	34%	98.02°	5%	28.94	4
7	481130086031	22%	34%	98.67°	38%	29.18	4 (dist 4)†
7	481130025001	34%	30%	98.58°	16%	28.72	5

\*3 (dist 2) = Third highest priority block group within District 2 † 4 (dist 4) = Fourth highest priority block group within District 4

These data represent U.S. Census block groups in the City of Dallas. Tree planting priority has been calculated only for the block groups within the City of Dallas. Data were derived from existing data sources including the U.S. Census, American Community Survey 5-year 2019 estimates, Centers for Disease Control 2017 500 Cities data, iTree Landscape (U.S. FPA Downscaler model), and City of Dallas Planimetric data. Data were not created for these areas which lay outside the study area.

**Priority Ranking** 

for Tree Planting:

Demographic: 6 / 14

Air Quality: 6/14

Economic: 3/14

Avg. Temp: 8/14

Overall Rank: 3/14

Health: 3/14

Dallas, TX Council Districts Tree Planting Priority by Census Block Groups

Tree Canopy: **29%** Non-Tree Vegetation: **26%** Public Land: **8%** Average Temperature: **96.96°**  35E 12



Canopy is lowest (12%) in the block group 166073 (map label 2). This block group also has 14% non-canopy vegetation. Block group 167014 (map label 5) has 36% of its area covered by non-tree vegetation. Non-canopy vegetation are areas in which planting could be suitable, such as right-of-ways, but no existing trees are present at this time. Vegetated areas in this block group should be visited to assess their suitability to support tree plantings. Efforts should be made to plant trees and preserve existing tree canopy in the other highlighted high priority areas within District 8.

COUNCIL	GEOID	Urban Tree Canopy %	Non-Tree Vegetation %	Average Maximum Temperature	Public Land %	Overall Priority	Map Label
8	481130109022	17%	17%	97.67°	0%	28.94	1
8	481130166073	12%	14%	97.00°	0%	28.90	2
8	481130109023	19%	35%	97.35°	0%	28.80	3
8	481130093042	32%	29%	97.97°	0%	28.76	4
8	481130167014	18%	36%	98.10°	8%	28.67	5

These data represent U.S. Census block groups in the City of Dallas. Tree planting priority has been calculated only for the block groups within the City of Dallas. Data were derived from existing data sources including the U.S. Census, American Community Survey 5-year 2019 estimates, Centers for Disease Control 2017 500 Cities data, iTree Landscape (U.S. FPA Downscaler model), and City of Dallas Planimetric data. Data were not created for these areas which lay outside the study area.

Dallas, TX Council Districts Tree Planting Priority by Census Block Groups

Tree Canopy: **32%** Non-Tree Vegetation: **34%** Public Land: **7%** Average Temperature: **96.26°**  Priority Ranking for Tree Planting:

Demographic: 7/14 Health: 2/14 Air Quality: 4/14 Economic: 2/14 Avg. Temp: 13/14 Overall Rank: 4/14





Canopy is lowest (11%) in the block groups 78091 and 130103 (map labels 2 and 5). These block groups also have 13% non-canopy vegetation. Non-canopy vegetation are areas in which planting could be suitable, such as right-of-ways,

but no existing trees are present at this time. Vegetated areas in these block groups should be visited to assess their suitability to support tree plantings. Efforts should be made to plant trees and preserve existing tree canopy in the other highlighted high priority areas within District 9.

COUNCIL	GEOID	Urban Tree Canopy %	Non-Tree Vegetation %	Average Maximum Temperature	Public Land %	Overall Priority	Map Label
9	481130122082	23%	16%	98.57°	8%	28.96	1
9	481130078091	11%	13%	98.41°	0%	28.70	2
9	481130125002	33%	25%	97.66°	0%	28.40	3
9	481130130111	21%	10%	97.50°	4%	28.30	4
9	481130130103	11%	13%	97.24°	0%	28.12	5

These data represent U.S. Census block groups in the City of Dallas. Tree planting priority has been calculated only for the block groups within the City of Dallas. Data were derived from existing data sources including the U.S. Census, American Community Survey 5-year 2019 estimates, Centers for Disease Control 2017 500 Cities data, iTree Landscape (U.S. FPA Downscaler model), and City of Dallas Planimetric data. Data were not created for these areas which lay outside the study area.

> Dallas, TX Council Districts Tree Planting Priority by Census Block Groups

Tree Canopy: 37% Non-Tree Vegetation: 22% Public Land: 8% Average Temperature: 98.01° **Priority Ranking** for Tree Planting:

Demographic: 12/14 Health: 7/14 Air Quality: 13/14 Economic: 13/14 Avg. Temp: 6/14 Overall Rank: 11/14





Canopy is lowest (9%) in the block group 185052 (map label 5). The highest priority block group in the district is 130091 (map label 1) and has the most vegetated area (24% non-canopy vegetation). Non-canopy vegetation are areas in which planting could be suitable, such as right-of-ways, but no existing trees are present at this time. Vegetated areas in this block group should be visited to assess their suitability to support tree plantings. Efforts should be made to plant trees and preserve existing tree canopy in the other highlighted high priority areas within District 10.

COUNCIL	GEOID	Urban Tree Canopy %	Non-Tree Vegetation %	Average Maximum Temperature	Public Land %	Overall Priority	Map Label
10	481130130091	10%	24%	97.78°	0%	28.95	1
10	481130078255	14%	16%	98.16°	0%	28.89	2
10	481130190352	14%	13%	97.80°	0%	28.82	3
10	481130190183	16%	22%	97.32°	2%	28.54	4
10	481130185052	9%	12%	97.56°	0%	28.51	5

These data represent U.S. Census block groups in the City of Dallas. Tree planting priority has been calculated only for the block groups within the City of Dallas. Data were derived from existing data sources including the U.S. Census, American Community Survey 5-year 2019 estimates, Centers for Disease Control 2017 500 Cities data, iTree Landscape (U.S. FPA Downscaler model), and City of Dallas Planimetric data. Data were not created for these areas which lay outside the study area.

Dallas, TX Council Districts Tree Planting Priority by Census Block Groups

Tree Canopy: **26%** Non-Tree Vegetation: **20%** Public Land: **6%** Average Temperature: **96.47**° Priority Ranking for Tree Planting:

Demographic: 10/14 Health: 10/14 Air Quality: 7/14 Economic: 9/14 Avg. Temp: 11/14 Overall Rank: 9/14





Canopy is lowest (6%) in the block group 136152 (map label 5). Block group 192122 (map label 2) has the most vegetated area of the highlighted block groups with 25% non-canopy vegetation. Non-canopy vegetation are areas in which planting could be suitable, such as right-of-ways, but no existing trees are present at this time. Vegetated areas in this block group should be visited to assess their suitability to support tree plantings. Efforts should be made to plant trees and preserve existing tree canopy in the other highlighted high priority areas within District 11.

COUNCIL	GEOID	Urban Tree Canopy %	Non-Tree Vegetation %	Average Maximum Temperature	Public Land %	Overall Priority	Map Label	
11	481130192121	25%	18%	97.88°	21%	29.25	1	
11	481130192122	18%	25%	97.77°	0%	28.93	2	
11	481130192801	14%	14%	98.16°	0%	28.82	3	
11	481130192123	29%	14%	98.08°	0%	28.76	4	
11	481130136152	6%	5%	97.89°	0%	28.73	5	

These data represent U.S. Census block groups in the City of Dallas. Tree planting priority has been calculated only for the block groups within the City of Dallas. Data were derived from existing data sources including the U.S. Census, American Community Survey 5-year 2019 estimates, Centers for Disease Control 2017 500 Cities data, iTree Landscape (U.S. FPA Downscaler model), and City of Dallas Planimetric data. Data were not created for these areas which lay outside the study area.

Dallas, TX Council Districts Tree Planting Priority by Census Block Groups

Tree Canopy: **27%** Non-Tree Vegetation: **16%** Public Land: **2%** Average Temperature: **96.79°**  Priority Ranking for Tree Planting:

Demographic: 9/14 Health: 11/14 Air Quality: 8/14 Economic: 10/14 Avg. Temp: 9/14 Overall Rank: 10/14 Addison

635





Canopy is lowest (9%) in the Colin County block group 317121 (map label 5). This block group also has 37% non-canopy vegetation. Non-canopy vegetation are areas in which planting could be suitable, such as right-of-ways, but no existing trees are present at this time. Vegetated areas in this block group should be visited to assess their suitability to support tree plantings. Efforts should be made to plant trees and preserve existing tree canopy in the other highlighted high priority areas within District 12.

COUNCIL	GEOID	Urban Tree Canopy %	Non-Tree Vegetation %	Average Maximum Temperature	Public Land %	Overall Priority	Map Label
12	480850317203	11%	20%	97.58°	4%	28.32	1
12	481210216373	16%	33%	98.14°	8%	28.31	2
12	480850317202	16%	25%	97.39°	0%	28.03	3
12	481210216163	22%	26%	98.25°	0%	27.94	4
12	480850317121	9%	37%	97.90°	0%	27.78	5

These data represent U.S. Census block groups in the City of Dallas. Tree planting priority has been calculated only for the block groups within the City of Dallas. Data were derived from existing data sources including the U.S. Census, American Community Survey 5-year 2019 estimates, Centers for Disease Control 2017 500 Cities data, iTree Landscape (U.S. FPA Downscaler model), and City of Dallas Planimetric data. Data were not created for these areas which lay outside the study area.

**Priority Ranking** 

for Tree Planting:

Demographic: **11/14** Health: **12/14** 

Air Quality: 14/14

Economic: 11 / 14

Avg. Temp: 10/14

Overall Rank: 12/14

Dallas, TX Council Districts Tree Planting Priority by Census Block Groups

Tree Canopy: **25%** Non-Tree Vegetation: **21%** Public Land: **5%** Average Temperature: **96.66°**  Plano Plano Carrollton





Canopy is lowest (7%) in the block group 78192 (map label 2). This block group and its highlighted neighbors have between 7% and 12% vegetated surfaces. Non-canopy vegetation are areas in which planting could be suitable, such as right-of-ways, but no existing trees are present at this time.

Vegetated areas in this block group should be visited to assess their suitability to support tree plantings. Efforts should be made to plant trees and preserve existing tree canopy in the other highlighted high priority areas within District 13.

COUNCIL	GEOID	Urban Tree Canopy %	Non-Tree Vegetation %	Average Maximum Temperature	Public Land %	Overall Priority	Map Label
13	481130078181	14%	12%	98.87°	0%	29.36	1
13	481130078192	7%	7%	98.44°	3%	29.08	2
13	481130078182	10%	10%	99.13°	0%	28.99	3
13	481130078202	13%	8%	98.40°	0%	28.92	4
13	481130078183	12%	9%	98.62°	0%	28.67	5

These data represent U.S. Census block groups in the City of Dallas. Tree planting priority has been calculated only for the block groups within the City of Dallas. Data were derived from existing data sources including the U.S. Census, American Community Survey 5-year 2019 estimates, Centers for Disease Control 2017 500 Cities data, iTree Landscape (U.S. FPA Downscaler model), and City of Dallas Planimetric data. Data were not created for these areas which lay outside the study area.

Dallas, TX Council Districts Tree Planting Priority by Census Block Groups

Tree Canopy: **34%** Non-Tree Vegetation: **17%** Public Land: **3%** Average Temperature: **97.12°**  Priority Ranking for Tree Planting:

Demographic: 14/14 Health: 6/14 Air Quality: 11/14 Economic: 14/14 Avg. Temp: 7/14 Overall Rank: 14/14





59

Canopy is lowest (5%) in the block group 031011 (map label 4). Block group 015041 (map label 2) has the most vegetated area of the highlighted block groups with 22% non-canopy vegetation. Non-canopy vegetation are areas in which planting could be suitable, such as right-of-ways, but no existing trees are present at this time. Vegetated areas in this block group should be visited to assess their suitability to support tree plantings. Efforts should be made to plant trees and preserve existing tree canopy in the other highlighted high priority areas within District 14.

COUNCIL	GEOID	Urban Tree Canopy %	Non-Tree Vegetation %	Average Maximum Temperature	Public Land %	Overall Priority	Map Label
14	481130016002	15%	12%	98.91°	3%	28.21	1
14	481130015041	20%	22%	98.36°	0%	27.93	2
14	481130079024	15%	19%	98.43°	0%	27.91	3
14	481130031011	5%	3%	98.59°	7%	27.70	4
14	481130031012	8%	4%	98.91°	9%	27.56	5

These data represent U.S. Census block groups in the City of Dallas. Tree planting priority has been calculated only for the block groups within the City of Dallas. Data were derived from existing data sources including the U.S. Census, American Community Survey 5-year 2019 estimates, Centers for Disease Control 2017 500 Cities data, iTree Landscape (U.S. FPA Downscaler model), and City of Dallas Planimetric data. Data were not created for these areas which lay outside the study area.

Dallas, TX Council Districts Tree Planting Priority by Census Block Groups

Tree Canopy: **25%** Non-Tree Vegetation: **14%** Public Land: **3%** Average Temperature: **98.49°**  Priority Ranking for Tree Planting:

Demographic: 13/14 Health: 14/14 Air Quality: 2/14 Economic: 12/14 Avg. Temp: 3/14 Overall Rank: 13/14





# **Our Mission**

The Mission of Texas Trees Foundation is (i) to preserve, beautify and expand parks and other public natural green spaces, and (ii) to beautify our public streets, boulevards and right-of-way by planting trees and encouraging others to do the same through educational programs that focus on the importance of building and protecting the urban forest today as a legacy for generations to come.

# 44 If you wish to be happy for a lifetime, plant a tree. ''

- Jim Morris

## **Our Vision**

Texas Trees Foundation has a vision for our community. It is a community comprised of beautiful, well-maintained parks, shady tree-lined streets and boulevards, hiking, biking and nature trails, and other outdoor amenities which combine to form a living and working environment that enhances the economic value of its commercial areas and its neighborhoods, and nurtures the health, safety and quality of life of all its citizens; a community in which its citizens actively participate in building and sustaining its "urban forest." The Foundation will serve as a catalyst in creating such a community. Board Members Dan E. Patterson, Chairman Dr. Bobby B. Lyle, Past Chairman Janette Monear, President/CEO Don Glendenning, Vice President Adam McGill, Secretary Stan Levenson Patrick Little Wendy Lopez Rudy Rodriguez Diane Scovell Bernard Shaw Bridget Wallace Brad Watson

Acknowledgements Planting Map Sponsors Alliance Data | Texas A&M Forest Service

Tree Equity Maps prepared by PlanIT Geo Jeremy Cantor, Director of Geospatial Services Ben Wittman, GIS Specialist

> Graphic Design Rucker & Co

### **Project Team**

Rachel McGregor, Urban Forestry Manager Kristy Offenburger, Sr. Mgr., Comm. & Marketing Ritika Prasai, Urban Forestry Coordinator (GIS Specialist) Eric Wettengel, Urban Forestry Coordinator

> Technical Advisors Janette Monear, President/CEO Norm Daley, COO/Communications

3000 Pegasus Park Drive, Suite 740 Dallas, TX 75247

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