



Connect Dallas

Dallas Strategic
Mobility Plan

Foundations Report

SEPTEMBER 2019



About Connect Dallas

The Dallas Department of Transportation is developing Connect Dallas collaboratively with other City departments. This effort is also being coordinated with partner agencies such as the North Central Texas Council of Governments (NCTCOG), Dallas County, Dallas Area Rapid Transit (DART), the Texas Department of Transportation (TxDOT), the North Texas Tollway Authority (NTTA), and Dallas-Fort Worth Airport.

The planning process is guided by a Mobility Advisory Committee (MAC) and will result in several incremental deliverables, including: Foundations Report, Catalytic Projects Evaluation, Scenario Planning Evaluation Brochure, as well as Policy Modernization recommendations. The final recommendations and implementation strategy will be summarized in a summary document.

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Background

Connect Dallas is the City's first-ever five-year strategic transportation vision, and is led by the Dallas Department of Transportation. Through this planning process, City leadership, residents, planners, and stakeholders will work together to develop a transportation system that supports the City's housing, economic, equity and sustainability goals. *Connect Dallas* is a multimodal plan that will consider all forms of transportation, including biking, walking, transit, automobiles, freight, and new mobility options, such as bikeshare, transportation network companies and e-scooters.

Connect Dallas is one of a series of City efforts to advance equity, sustainability, innovation, and economic development Citywide through targeted policy, programs and project investments. In many ways, mobility lays the foundation for community health, wealth and vibrancy. Communities cannot prosper without convenient and affordable access to jobs, education, and healthcare.

By the end of this twelve-month process, *Connect Dallas* will:

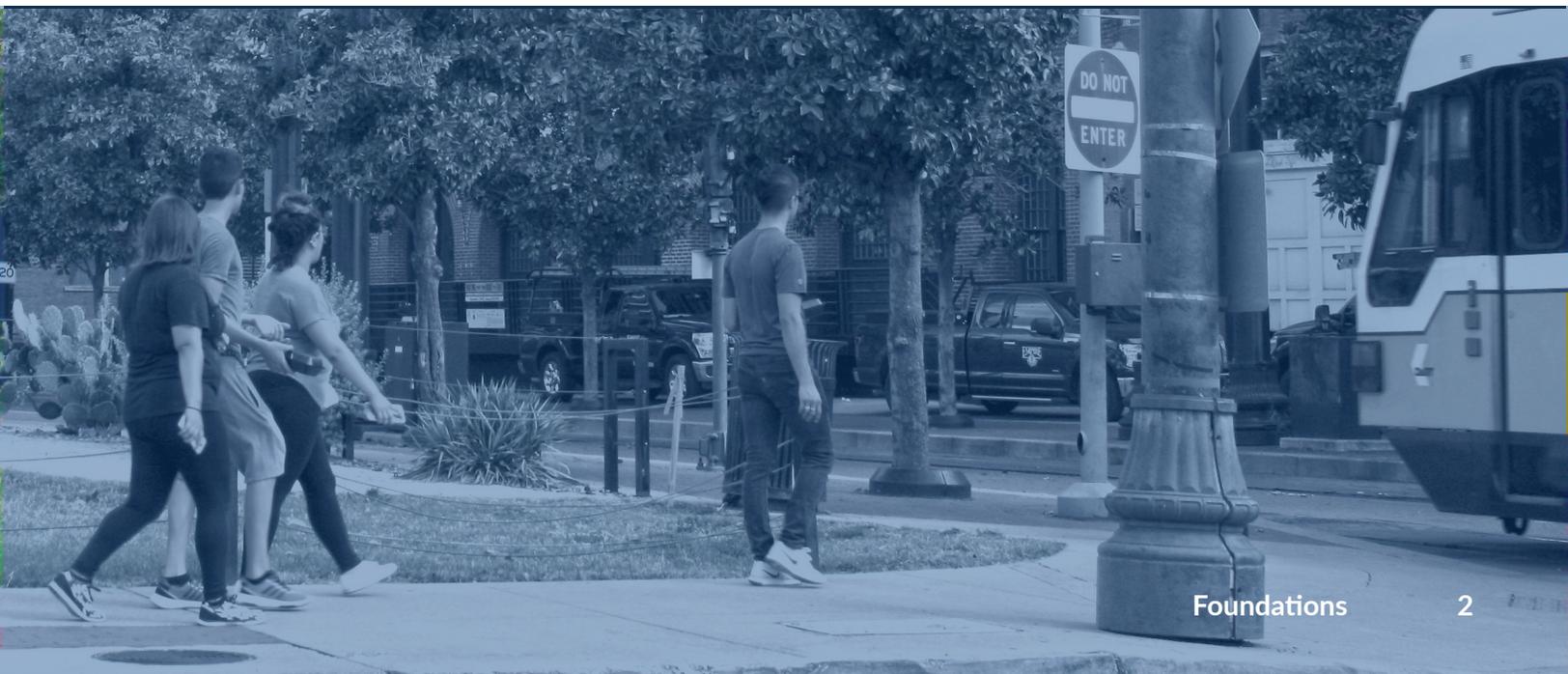
- Establish concrete goals to guide future City transportation investments and policy decisions;
- Recommend ways to modernize City policies to align with today's mobility options;
- Identify catalytic projects that provide the greatest opportunity for community benefit; and
- Lay out a five-year road map to implement the selected strategy.

About this Report

The Foundations Report presents background information on the state of mobility in Dallas, as well as relevant socio-demographic trends that affect transportation and mobility. It is not intended to be a full accounting of the City's infrastructure, nor is it intended to capture all information relevant to the process. This report merely sets the stage for a conversation regarding current conditions, plans and practices, and the importance of mobility in Dallas.

Study Area

Connect Dallas takes a comprehensive look at mobility throughout the entire City. As of 2019, the City had a total population of more than 1.3 million spread over 385 square miles. Dallas is the 9th most populated City in the United States, and is the center of the 4th largest metro area in the country as of 2018. The City of Dallas is a council-manager government, with 14 council districts representing various areas of the City.



Driving Principles

Connect Dallas is rooted in six driving principles that will guide the plan's development. These principles, selected by Dallas City Council and Department of Transportation staff, will be used to measure the effectiveness and appropriateness of plan recommendations and ultimately to develop the final mobility strategy. The principles identify key areas of community life that are inextricably linked to mobility and that should be advanced through thoughtful transportation investments.



Economic Vitality: Integrate transportation investments workforce development goals and economic development priorities.



Environmental Sustainability: Provide a variety of travel options to encourage residents to travel by transit, biking, or walking.



Housing: Support affordability by creating supportive environments where the City's diversified housing strategy can flourish.



Equity: Provide safe, affordable, access to jobs, services, education, and opportunities for all City residents.



Innovation: Leverage existing and emerging technologies to meet 21st century challenges and grow new industries.



Safety: Improve safety for all modes of transportation.

Peer Cities

Throughout this report, comparisons are made to help understand Dallas' performance compared to other major cities. While there is no perfect comparison, there is often something to be learned from other cities facing similar challenges. The five selected cities are all fast-growing major U.S. cities with major transportation challenges, and similar land use patterns. Some have recently made major recent mobility investments, and others are investigating ways to catch up. Looking at mobility in this way provides added depth to the Foundations Report and provides a reference point to benchmark Dallas' performance.



ATLANTA



AUSTIN



DENVER



PHOENIX



SAN ANTONIO

Workforce Connections & Opportunities

Transportation has a profound impact on local workforce development. A connected and complete mobility system facilitates *equitable access to jobs* while emerging technologies and investments create *new workforce opportunities*.

ACCESS TO JOBS

Many in Dallas struggle to earn a living wage, with the median per capita income being just \$31,000. Increasing these challenges is the rising cost of housing and transportation. The Center for Neighborhood Technology estimates an average of 44% of Dallas household income is devoted to housing and transportation costs (25% and 19% respectively). Like many metro areas around the U.S., access to high quality jobs, education, and services continues to be a challenge, especially for transit dependent populations. A 2017 study by the University of Texas at Arlington found that more than 65% of residents living in Dallas' transit-dependent core had access to less than 4% of regional jobs by a 45-minute transit commute. Reducing the gap between housing, jobs, workforce training, and services coupled with increased transportation choices are proven strategies for improving these conditions.

WORKFORCE OPPORTUNITIES

Over the next two decades, there will be billions of dollars of transportation investment in the Dallas region. This will include the maintenance and replacement of existing infrastructure, the expansion of emerging technologies, and the construction of new highways, bridges, and traffic signals and transit. All of this investment leads to jobs and opportunities for local residents. In fact, between 2013-2017 the Dallas-Fort Worth region experienced a 13.5% increase in infrastructure jobs, compared with the national average of 4.4% growth. During this same period, logistics jobs have increased 5.4%, more than twice the national rate. To respond to this growth and harness Dallas' distinct geographic advantages, groups like the Regional Workforce Leadership Council are targeting these specific employment clusters to ensure that our region is better prepared to seize this economic opportunity.

In recent years, the city's reputation as a place of innovation has attracted new investments and emerging technologies. Features like high speed rail, urban air mobility and autonomous transportation systems are creating new jobs that require modern skills and capabilities. Recent investments by emerging industry leaders such as Uber coupled with existing aerospace companies like Bell create opportunities for synergies not easily replicated in other places.

Infrastructure Employment Sector Growth 2013-2017



Source: Regional Workforce Leadership Council 2017 Annual Report

It's not always as simple as posting a "now hiring" sign. As of 2018, it was estimated that 42,000 additional workers per year were needed to fill middle-skill jobs (those with median wages of \$24/hour). Education and training opportunities will be critical to both local residents seeking upward mobility, and local employers seeking to fill middle-skill jobs. Closing this gap and attracting a broader workforce are challenges that need to be overcome for Dallas to secure its status as a 21st Century, smart city and to enjoy economic prosperity for generations to come.



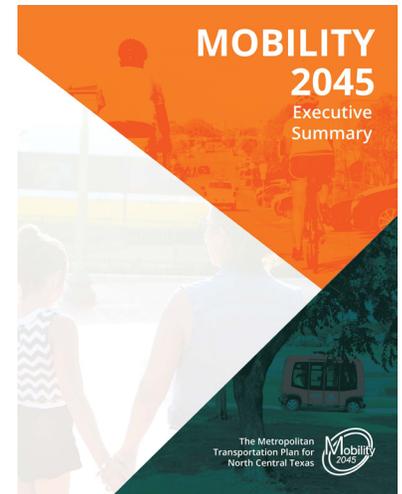
Our region will be investing billions in new transportation infrastructure, maintenance and modernization. This investment, coupled with emerging technologies and new industries will create significant workforce demands.

Other Initiatives

The *Connect Dallas* process does not start from square one. Dallas has a long planning history that has guided transportation decision making and priorities over the past several decades. These documents are important considerations when identifying investments over the next five years:

Mobility 2045 (2018)

Mobility 2045 is the region's long-range transportation plan, developed and maintained by the North Central Texas Council of Governments. Updated every five years, this plan makes multimodal transportation investment recommendations for the region and sets the policy for how state and federal transportation revenues will be allocated through 2045. The most recent plan includes \$136 Billion in recommended transportation investments throughout the region, including \$40 billion for freeways, tollways and managed lanes; \$30 billion for transit expansions; and \$4 billion for bicycle and pedestrian facilities. A full copy of the plan can be found at: <https://www.nctcog.org/trans/plan/mtp/2045>.



Comprehensive Area and Neighborhood Plans

The City of Dallas' Comprehensive Area Plans are a series of district plans that have been adopted by the City since 1999 to guide the development, planning, and policy of specific neighborhoods or small areas. All plans are ultimately adopted by City Council, but many efforts are led by neighborhood associations and advocacy organizations. These plans are meant to augment and support the Citywide vision set forth by the forwardDallas! comprehensive plan in 2006.

In total, 32 Comprehensive Area Plans have been approved since 2000: 21 are City-initiated, three are neighborhood-led, and eight are interagency. Most plans concern geographic areas such as districts and neighborhoods, although some are strictly focused on thoroughfares, such as the I-20 Freeway Corridor Land Use Plan and the Spring Valley/Coit Urban Design Study. For most plans, the impact on mobility includes direction on street design or circulation to complement the focus on land use and policy.

Dallas Thoroughfare Plan (1993) and Central Business District (CBD) Streets and Vehicular Circulation Plan (1988)

The City of Dallas' Thoroughfare and CBD Streets and Vehicular Circulation plans are its two major guiding documents for long-range roadway planning. These plans determine the required right-of-way, design, and operational strategies for many of the roadways in the City. The most recent Thoroughfare Plan document, adopted in 1993 as a successor to the City's 1965 thoroughfare plan, updated the City's transportation planning framework.

The CBD (Central Business District) Streets and Vehicular Circulation Plan, originally adopted in 1971 and updated in 1988, is the master street grid and thoroughfare document for the City's downtown core. The plan classifies streets, prioritizes traffic flows, and provides for the conceptualization of a dual-layered ring road system to circulate vehicles around highly-trafficked pedestrian areas.

Since the adoption of both of these plans, numerous individual thoroughfares have been amended, many under the guidance of the City's Bike Plan and Complete Streets Policy.

forwardDallas! (2006)

ForwardDallas! is the City's comprehensive plan and principal guiding document. It updates the 1994 Dallas Plan and addresses topics relating to six core values: education, public safety, a healthy environment, job growth, convenient transportation, and quality of life.

The plan seeks to accommodate multimodal transportation through improved roadway design, designating Downtown as a transit-oriented development (TOD) hub, improving commuter and light rail access, as well as metropolitan and regional bus services.

The Streetcar Action Plan, which envisioned a downtown circulator that would strengthen linkages to different districts around the center City, set the direction for the eventual opening of the Dallas Streetcar line in 2015.

The forwardDallas! Policy Plan includes transportation recommendations to reduce car trips, increase transit ridership and improve air quality through investment in various transportation modes.

Dallas Bike Plan (2011)

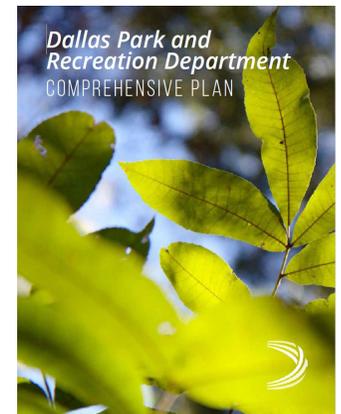
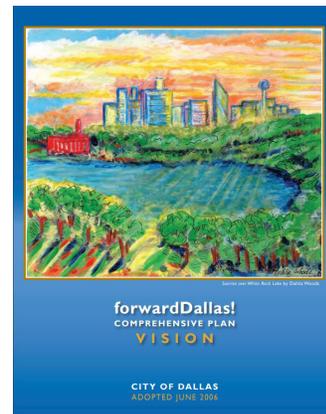
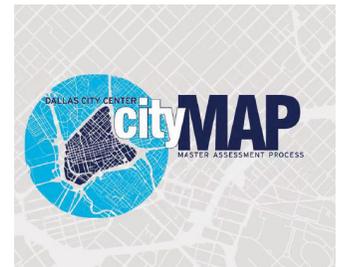
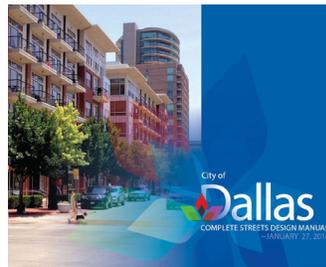
The 2011 Dallas Bike Plan is a policy document focused on improving bicycle facilities, infrastructure, and safety in the City and connections to the region. The document classifies recommendations as near-, medium-, or long-term—through an implementation horizon of 2021.

Overarching recommendations include the drafting of bike-friendly public policy, programming and educational awareness campaigns, further integration with the Dallas Area Rapid Transit (DART) system, installation of wayfinding signage, and general improvement of infrastructure. The plan recommends new and improved links between the state highway system and public transit. Additionally, it advocates for the creation of a 1,300-mile bikeway system, including improvements to existing facilities.

The Bike Plan will be reviewed as part of the *Connect Dallas* process, and key components will be modernized to reflect current best practices and updated standards.

Complete Streets Design Manual (2016)

The Complete Streets Design Manual is designed to encourage and standardize the design of "complete



streets” throughout the City of Dallas. Complete streets are roadways and corridors that are accessible and accommodating to all users, including pedestrians, cyclists, transit users, and drivers. The manual provides policies and design best practice guidelines for use by City agencies, design professionals, private developers, and community groups for the improvement of streets and pedestrian areas throughout Dallas. While focused on Dallas, the manual is written in a regional context that encourages the City to integrate with the North Central Texas Council of Governments (NCTCOG) and state efforts to construct safer, more complete streets.

Parks and Recreation Comprehensive Plan (2016)

The Dallas Parks and Recreation Comprehensive Plan establishes thirteen strategic directions for the City as it looks to maintain and improve its large inventory of parks and open space. Adopted in 2016, the document has a ten-year planning horizon with a scope that includes all of Dallas’ 381 parks and 18,842 acres of green space. The plan also conducts an overview and analysis of the system’s strengths, deficiencies, opportunities, and constraints. Transportation is addressed through demand analyses, capital planning recommendations, and a discussion of the role of trail linkages within the wider, municipal context. The top funding priority of the plan for new facilities is for new trails that can be used for hiking, biking, walking, and jogging, either through public or private funding. The plan recognizes that trail linkages support connectivity between parks, transit, and neighborhoods, as well as support economic development opportunities.

CityMAP (2016)

The Dallas City Center Master Assessment Process (CityMAP) is an assessment of the challenges, opportunities, and potential solutions to deal with the aging interstate corridors and adjacent neighborhoods in and around downtown Dallas. Often considered barriers or eyesores, the plan envisions an interstate system that is better integrated with the neighborhoods surrounding these thoroughfares. The report outlines a set of scenarios, organized by corridor, that provide the framework for an ongoing conversation about the role that roadways play in getting people to and from their

destination while maintaining a sense of community.

Recommendations include a few different scenarios for the removal, burial, enhancement, or modification of highways surrounding downtown. These scenarios include design options for the I-30 Canyon, I-30 East Corridor, I-35E Southern Gateway, I-35E Lowest Stemmons, and I-345/I-45.

Downtown Dallas 360 (2011/2017)

The 2011 Downtown Dallas 360 strategic plan established a vision, transformative strategies, and five-year actions for Downtown Dallas and its immediately adjacent neighborhoods. Continued growth since 2011 necessitated an update, and in 2017 the City completed the 360 Plan to further advance the original vision and guide the future of the City Center for the next five years.

The 360 Plan Urban Mobility principles include:

1. Create a balanced multimodal system that supports transit, bicycles, and pedestrians in addition to automobiles, particularly for short trips.
2. Provide a safe, well-lit, comfortable, and accessible system for a diverse set of users.
3. Improve inter-district connectivity for all modes of travel.
4. Encourage mixed-use, pedestrian-oriented design and development.
5. Ensure regional and local transportation systems support City Center placemaking and livability goals.
6. Deliver a system that responds proactively to trends in technology, demographics, and user preferences.

Comprehensive Housing Policy (2018)

The Comprehensive Housing Policy is a policy document adopted in 2018 to create and maintain affordable housing, improve the variety of housing options available throughout the City, and break down historical barriers of segregation and wealth in Dallas. Linked to the forwardDallas! planning process, the housing policy was born from a vision to “Make Quality Housing More Accessible” in the City. The document establishes and discusses a host of programs for homeowners, landlords, developers, and tenants to incentivize a robust stock of affordable housing in Dallas. Reinvestment strategy areas

are mentioned as priority zones for the plan, possibly leading to increased transportation demands from users in those areas.

Resilient Dallas (2018)

Resilient Dallas is a sustainability and equity plan for the City, drafted through a partnership with the Rockefeller Foundation's 100 Resilient Cities initiative as one of the program's 24 American member cities. The plan offers a path forward for the City as it addresses pressing problems of the 21st century, such as climate change and socioeconomic inequality.

One of the core resilience challenges the City faces is lack of reliable transportation options, which restricts access to jobs, education, and healthy food. The plan also recommends improving streets, sidewalks, and other transportation infrastructure in neighborhoods and communities throughout Dallas. Collaboration between the City and DART is a key component of the Resilient Dallas plan to prioritize transit infrastructure needs and provide first mile/last mile solutions.

Dallas Cultural Plan and Policy (2018)

The Dallas Cultural Plan was adopted in 2018 to better promote the City's diversity and vibrant art scene. The plan lists 31 strategies within the categories of equity, diversity, space, support for artists, a sustainable arts ecosystem, and communication. Transportation is mentioned as playing a key role in improving arts education, offering support for artists, promoting understanding and diversity in the City, and ensuring equitable access to the arts. The plan recognizes that there are barriers in accessing arts and culture due to a lack of transportation options. Specific recommendations of the plan include actively communicating public transportation options for arts and culture in Dallas, as well as ensuring cultural spaces are affordable and accessible.

Age Friendly Dallas (2019)

The Age Friendly Initiative is managed through the American Association of Retired Persons (AARP) and implemented at the community level. The initiative aims to develop the community structure necessary to allow seniors to live independently within the

community. Transportation is a major focus of the plan, with an emphasis on walkability, accessible public transportation, and alternative transport modes that provide independence. Age Friendly Dallas is expected to be adopted by the City Council in 2019.

Comprehensive Environment & Climate Action Plan (Ongoing)

In 2017, Dallas Mayor Mike Rawlings signed the Mayors National Climate Action Agenda, committing the City to reduced greenhouse gas emissions. The Comprehensive Environment & Climate Action Plan (CECAP) outlines the specific activities the City needs to undertake to reduce emissions and improve environmental quality. Transportation is a major component of CECAP, as transportation-related emissions make up over 30% of greenhouse gas emissions within the City. The *Connect Dallas* recommendations will play a significant role in meeting the emissions targets outlined in CECAP.

Strategic Economic Development Plan (Ongoing)

The City's Office of Economic Development is currently developing a strategic development plan, scheduled to be completed in 2019. The plan will provide the city with a guide to leverage its unique assets to build economic growth, as well as identify target industries that have strong potential for the future. The plan will replace the 2006 Economic Development Plan, which was most recently updated in 2013, and will also build upon several efforts such as the Market Value Analysis, and the Comprehensive Housing Policy.



People

The first step to understanding the City's transportation challenges is to understand the people who live, work, and play in Dallas. This section provides a brief overview of the City's demographics, including major shifts and trends that will affect mobility in the coming decades.

Population Growth Trends and Forecast

As of 2017, the population of Dallas was estimated to be 1.34 million, up from 1.19 million in 2010. By 2045, the North Central Texas Council of Governments (NCTCOG) projects the population could be as high as 1.70 million. That's an increase of over 30% in just 20 years.

Although the Dallas-Fort Worth Area is the fastest growing metro area in the country, most of the growth is accounted for in the suburban counties. According to NCTCOG, the City of Dallas grew by over 15,000 residents in 2018, a growth rate of just 1.2% per year, while many of the surrounding communities grew by 10% or more. Cities that received the greatest amount of growth in 2018 include:

1. Fort Worth (19,300 increase)
2. Dallas (15,590 increase)
3. Frisco (10,620 increase)

In 2018, the Metroplex as a whole gained approximately 361 new residents each day. Forty-one residents each day settled within the City of Dallas. Regardless of where they live, as the region's largest employment center, all regional population growth has a strong affect on Dallas' transportation system and mobility.

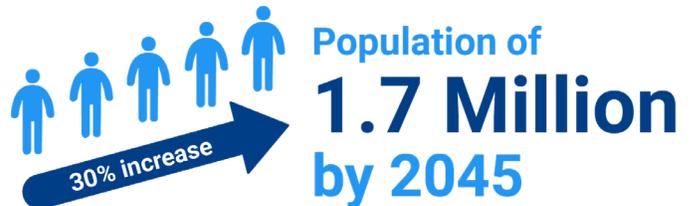


In 2018...

361 new residents moved to the Metroplex each day.

41 new residents moved to the City of Dallas each day.

Source: NCTCOG Population Estimates



Source: NCTCOG Population Estimates

Demographic Trends

Like much of the country, the population of Dallas is aging. According to US Census bureau estimates, the two fastest growing age groups between 2010 and 2017 were "Baby Boomers." The number of residents between 55 and 64 grew by 22%; and those between 65 and 74 grew by over 30%. As the population continues to age, it will be important to focus on providing transportation services that allow these residents to remain mobile, active, and independent.

Many trends in Dallas reveal a high level of disparity.

North Dallas, which is home to a largely white population, has higher median household incomes, educational attainment, and median housing values. South Dallas, which is home to largely black and Hispanic populations, has lower median incomes, educational attainments, and higher poverty rates. This disparity also affects transportation characteristics, such that neighborhoods in South Dallas are less likely to have access to a personal vehicle and more likely to rely on transit, walking and biking for daily errands. One of the *Connect Dallas* goals is to ensure the City's transportation gap bridges this divide, rather than accentuates it.

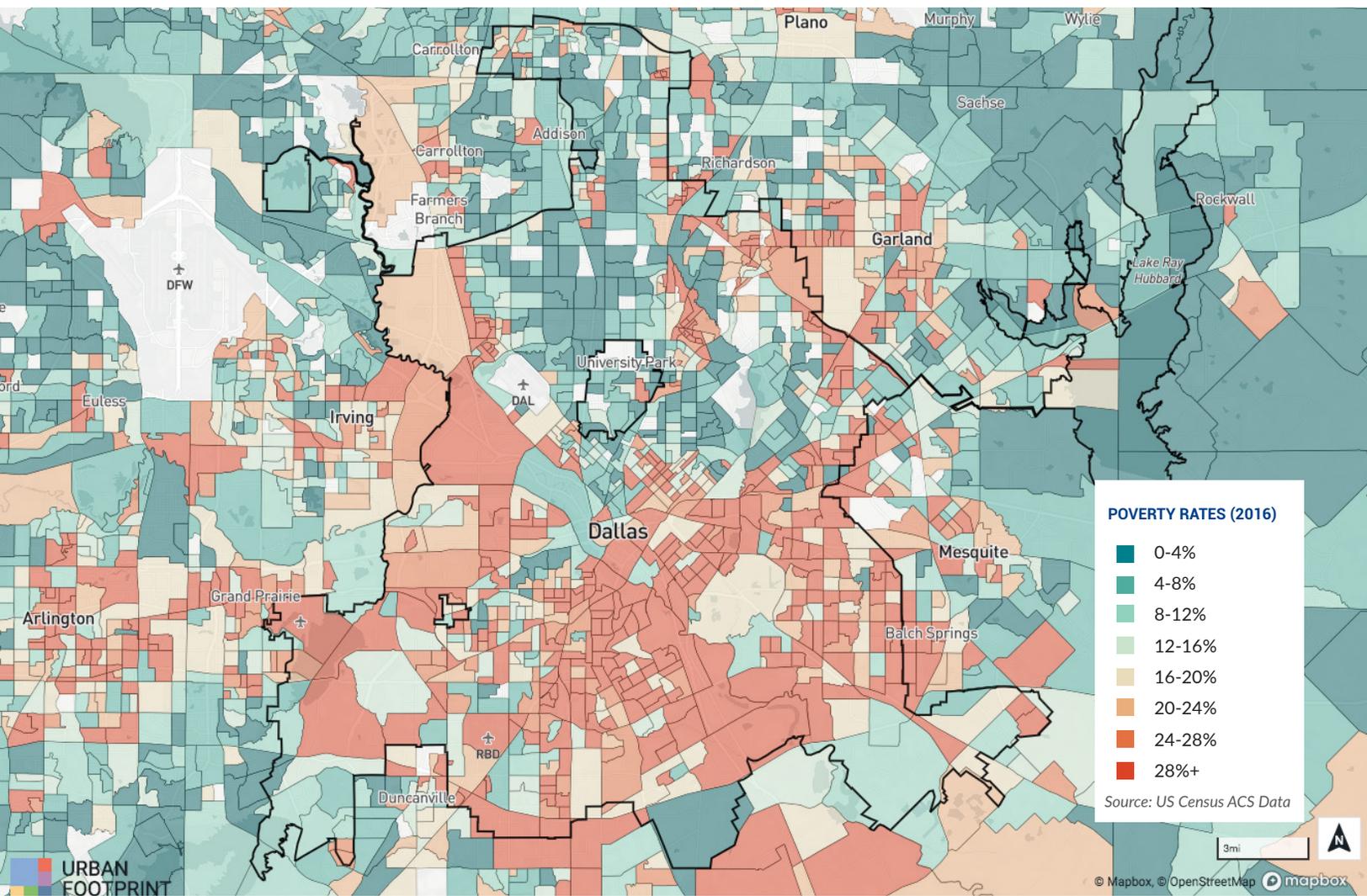
In 2017, an estimated 22.9% of all Dallas residents lived below the federal poverty line. These residents were heavily concentrated in South Dallas, where many census tracts have over 50% of the residents living in poverty. According to a 2017 study, lack of affordable transportation is a major driver of poverty in Dallas. Transportation costs for a typical household cost 19% of total income, largely due to a lack of easy access to destinations.

Just under ten percent of households in Dallas have no access to vehicles. In Dallas, that translates to almost 46,000 households who rely on transit, walking, or biking to get to work, school, healthcare appointments, and to complete daily errands.

About **46,000** Dallas households have no access to vehicles. Households in South Dallas are much more likely not to own a personal vehicle.



Source: US Census ACS Data



This map shows the disparity in poverty rates between North and South Dallas as a general illustration of the socioeconomic divide between the two geographies. Education attainment, wealth, and health outcomes follow much the same pattern.

Employment

Dallas is a major regional employment hub. Differences among various data sources make it difficult to obtain an exact count, but the US Census Bureau estimates the number of total jobs within the City at around 895,000.

Since 2016, 5,760 patents have been assigned to inventors in Dallas according to government patent databases. Dallas has a burgeoning start up scene spanning a range of technologies and business concepts. Digital tools for e-commerce and big data analytics represent a large amount of the start-up activity in Dallas. Dallas is also the 2nd largest City in Texas for National Institutes of Health (NIH) prime award funding with nearly \$200 million. UT Southwestern Medical Center is the 2nd largest recipient of NIH Prime Awards in Texas.

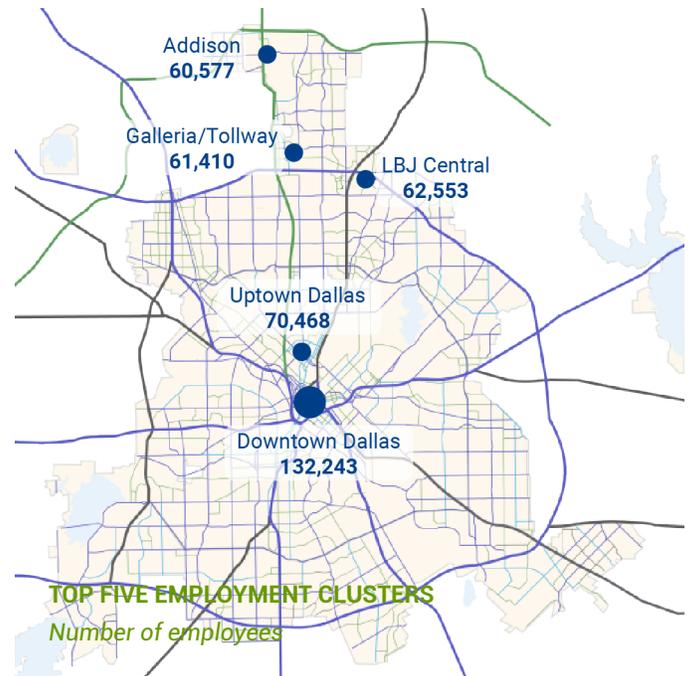
Approximately 575,000 workers live within the City of Dallas. However, despite a relatively large resident labor force, only 28% of jobs within the City are held by Dallas residents, and many Dallas residents leave the City to work. **More than twice as many commuters enter the City each day as residents who stay and work within the City limits.**

The City has multiple job centers. While Downtown Dallas still acts as a major job center and holds a plethora of company headquarters, other major employment centers throughout the City draw many commuters as well. The Medical District is a secondary major employment center, along with various developments all along the US-75 and I-635 corridors in North Dallas.

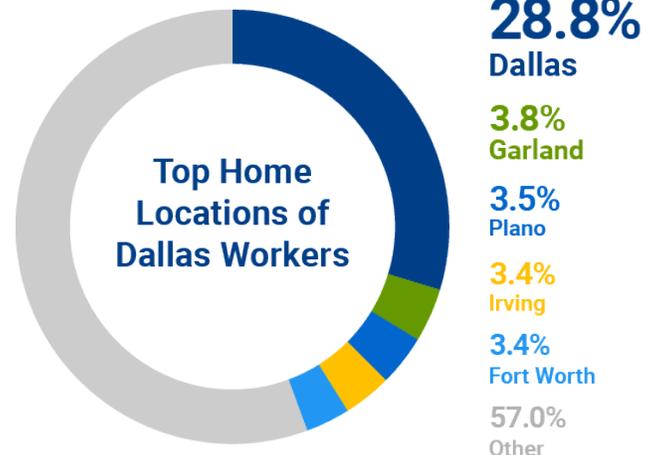
Top Five Private Sector Employers

1. Bank of America (20,000 employees)
2. AT&T (15,800 employees)
3. Baylor Health Care System (17,000 employees)
4. JPMorganChase (13,000 employees)
5. UT Southwestern Medical Center (13,000 employees)

Source: Destination DFW



Top Five employment clusters in Dallas. Source: DART



Source: US Census OnTheMap

Housing

Recent multifamily development. The City of Dallas has approximately 563,000 housing units. Since 2010, Dallas has added more than 46,000 units of housing, a 9% gain. Approximately 9% of that increase, or 3,500 units are single family housing, with the remainder being multi-family complexes. Despite this fast-paced growth, Dallas still has a housing shortage of approximately 20,000 units according to the newly adopted Comprehensive Housing Policy.

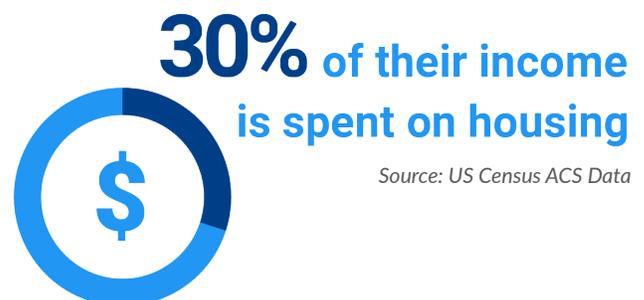
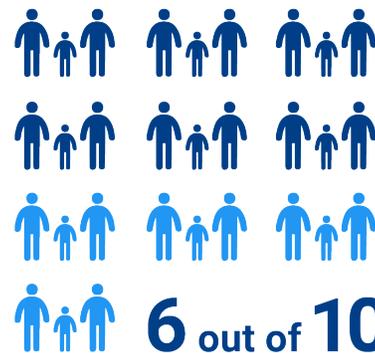
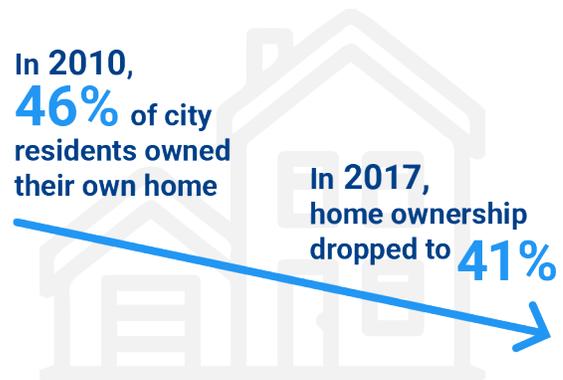
Recovering housing market. Construction of multi-family units began increasing in 2011. Since 2014, the number of new units each year have ranged between 6,000 and 8,000. The northwest quadrant of the City has seen most of the new construction. This area is also closest to most of the job growth in North Texas, and in close proximity to additional job growth in downtown Dallas and Irving. In contrast, most of the City's subsidized housing is located south and southeast of downtown. Several of these areas have subsidized housing in excess of 20% of all housing units.

Increasing renter rates. Just over 41% of City residents owned their own home in 2017, down from almost 46% in 2010. This mirrors a national trend due to a variety of factors, including increasing home prices, millennials delaying home purchases, and the majority of new construction being multifamily properties.

Climbing Costs. According to the City's 2018 Comprehensive Housing Policy, six out of ten families in Dallas are housing cost burdened, meaning they spend more than 30% of their income on housing due in part to wages not keeping pace with housing costs. While the volume of homes in Dallas only grew by 3.6% in 2017, the median sales price grew by 9.1%

Luxury housing prevails. While Dallas has added a substantial number of housing units over the last several years, a 2018 analysis by Yardi Systems (a real estate data analytics firm) found that 100% of new units in Dallas were considered luxury units. Across the metroplex 87% of new units were luxury developments. The lack of new affordable housing units places high demand on the existing housing stock, causing housing prices to rise. This can drive mid-income households to either substantially overpay and become cost-burdened or compete with low-income households for traditional affordable options, ultimately displacing households with fewer options.

Not keeping up. The City set a goal for the 2019 fiscal year to produce 6,650 new housing units for households earning between 30% and 120% of the area median income by September 2019. As of the end of April, only 73 new housing units have been produced.



Mobility

If the 20th Century was focused on building Dallas' core transportation system, the 21st Century should be focused on connecting people to jobs, job to people, and creating great places with lasting value.

Commute & Congestion

Suburban commuting patterns make up a significant portion of Dallas' traffic. Just over half of Dallas residents travel less than ten miles to work. However, only a third of people who work in Dallas live within a mile of their jobs. This illustrates the fact that though many City residents live within close proximity of their work, employment within the City largely serves suburban residents who drive long distances to and from the City each day.

Commuter Inflow & Outflow

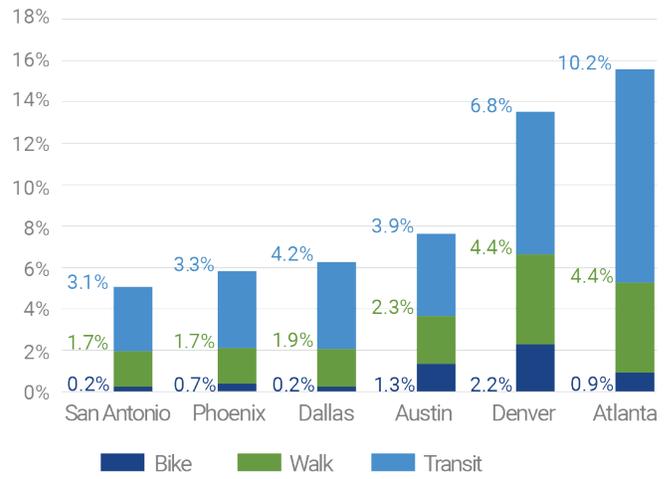


Source: US Census OntheMap

Over 76% of Dallas residents drive to work alone and the share of commuters bicycling and walking to work has remained relatively constant in recent years—approximately 0.2% of people bike to work and about 1.9% of people walk to work. Dallas has a lower share of active commuters than its peer cities. To date, Dallas has not explored mode share targets, though Dallas has committed to the Paris Climate Agreement which intends to combat climate change by reducing greenhouse gas emissions and other related measures.

According to a 2019 report by the Institute for Transportation and Development Policy, the average travel time to work by car in Dallas is just 24 minutes. By contrast, the average travel time by public transit is 52 minutes. That makes transit significantly less attractive to most commuters, especially when only 9.5% of the population lives within walking distance of frequent transit.

Alternative Commute Mode Share



Source: ACS 5-Year 2013-17



Financial Reality

According to NCTCOG’s Mobility 2045 Plan, the region has approximately \$390 billion of transportation needs, and only \$136.4 billion in resources are identified in the current planning cycle. **This represents an approximate shortfall of \$253 billion in transportation funding across the region.**

Transit Service and Trends

Transit service in the City of Dallas is provided by the Dallas Area Rapid Transit authority (DART). DART was established in 1983, and today the City of Dallas and 12 other municipalities contribute a penny sales tax to the agency’s \$500M+ annual operating budget. The agency has aggressively developed a regional rail system, completing the first phase of the regional light rail system in 1997 and opening the most recent expansion – a three mile extension of the Blue Line south to the University of North Texas at Dallas – in 2016.

Today, DART’s Light Rail Transit (LRT) system is the longest in the United States at 93 miles. Despite the extent of rail and bus service offered within the City of Dallas, only 4.2% of City residents used public transportation to commute to work in 2017.

DART 2019 Average Weekday Ridership



Source: DART

DART’s light rail is a “hub-and-spoke” styled system primarily oriented towards suburban commutes into and out of Downtown Dallas. Because of this, the LRT system has one of the lowest numbers of riders per mile in the United States. With 93,400 average weekday riders in 2018, the system carries roughly 1,000 people per mile, placing DART 23rd compared to LRT systems around the United States. As new routes have opened in the past decade, LRT ridership has increased, but growth has slowed down in recent years: in 2018, annual LRT system ridership was actually down by about 2.5% compared to 2017.

Transit Leadership & Innovation

Recently, Dallas has become a national leader in transit and new mobility innovations. DART has approached Transportation Network Companies (TNCs) with an eye toward their potential to complement public transportation services, and has launched several partnerships with Uber and Lyft. The agency’s GoPass mobile ticketing app allows users to book Uber or Lyft trips that start or end at DART stations directly in the app, potentially improving first- and last-mile access to the transit system. In March 2019, Uber launched a new partnership with DART that allows up to two free UberPool rides per day for users starting or ending their trips at DART stations and within several zones in the service area - including Kleberg, Rylie, Inland Port, Park Cities, Lakewood, Lake Highlands, and North Dallas.

In 2019, DART announced that it joined the Automated Bus Consortium (ABC), which is made up of transit agencies around the country as well as the engineering firm AECOM. The goal of the consortium is to research and test driverless buses in real-world scenarios to determine how transit agencies across the country could best deploy the technology as it evolves. The potential of automated or autonomous buses to reduce operating costs could ultimately help the agency improve service frequency and/or coverage.

Additionally, Uber announced plans to launch its “Uber Air” service of on-demand helicopters in Dallas, Los Angeles, and Melbourne by 2023. Uber has recently increased its promotion of the service, also called UberElevate, holding a two-day conference in Washington D.C. in early June 2019 targeted at regulators and other aviation officials. The company sees the concept as being most competitive in regions with long commute times – such as DFW – where the time savings for point-to-point air travel are most dramatic. Four Dallas-area architecture firms are currently designing concepts for “skyports” that will serve as origins and destinations for the service, with the first currently under construction by developer Hillwood in Frisco.

DART's local bus system accounts for much of the system's overall ridership decrease over the past decade.

Overall, nearly ¾ of DART fixed routes have lost ridership since 2012. After peaking in 2012 at 131,000 average weekday riders, the fixed-route bus network has lost some ground in recent years, though some Dallas routes have improved during the same period. The largest improvement has been on Route 404, which connects Westmoreland Ave in Southwest Dallas to Parkland Hospital, which has more than doubled its average weekday ridership since 2012 and currently serves approximately over 3,000 users on an average weekday.

There is a strong disparity in job access for residents in South Dallas. The University of Texas at Arlington Center for Transportation Equity, Decisions & Dollars conducted a transportation equity analysis for the City of Dallas in 2017. Within the "Transit Dependent Core" (mostly South Dallas), the researchers found that 65% of neighborhoods offered access to fewer than 4% of regional jobs within a 45-minute transit trip. The highest regional concentrations of both high-wage and low-wage jobs are located between Downtown Dallas and northern Dallas County – making commutes for transit-dependent populations in South Dallas challenging, if not impossible.

While frequency and service have improved recently on many routes, many bus routes still fail to meet industry standards for "frequent service." Transit industry consensus is that service operating at least every 15 minutes represents "frequent" transit – or transit that most users can arrive at a bus stop without consulting a schedule and still have a reasonable wait time. The

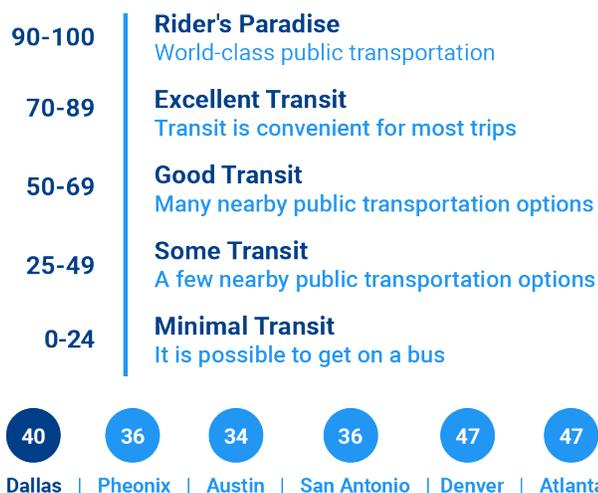
lack of frequent routes in the current system means that most users rely on schedules to plan trips, and any minor service disruptions can have major ramifications in the total trip time (including the waiting time). Currently, several routes meet the 15-minute frequency standard during the peak periods, and offer 20-30 minute headways at other times.

Top 25 Light Rail Systems in the U.S. Ranked by Average Weekday Ridership (2018)

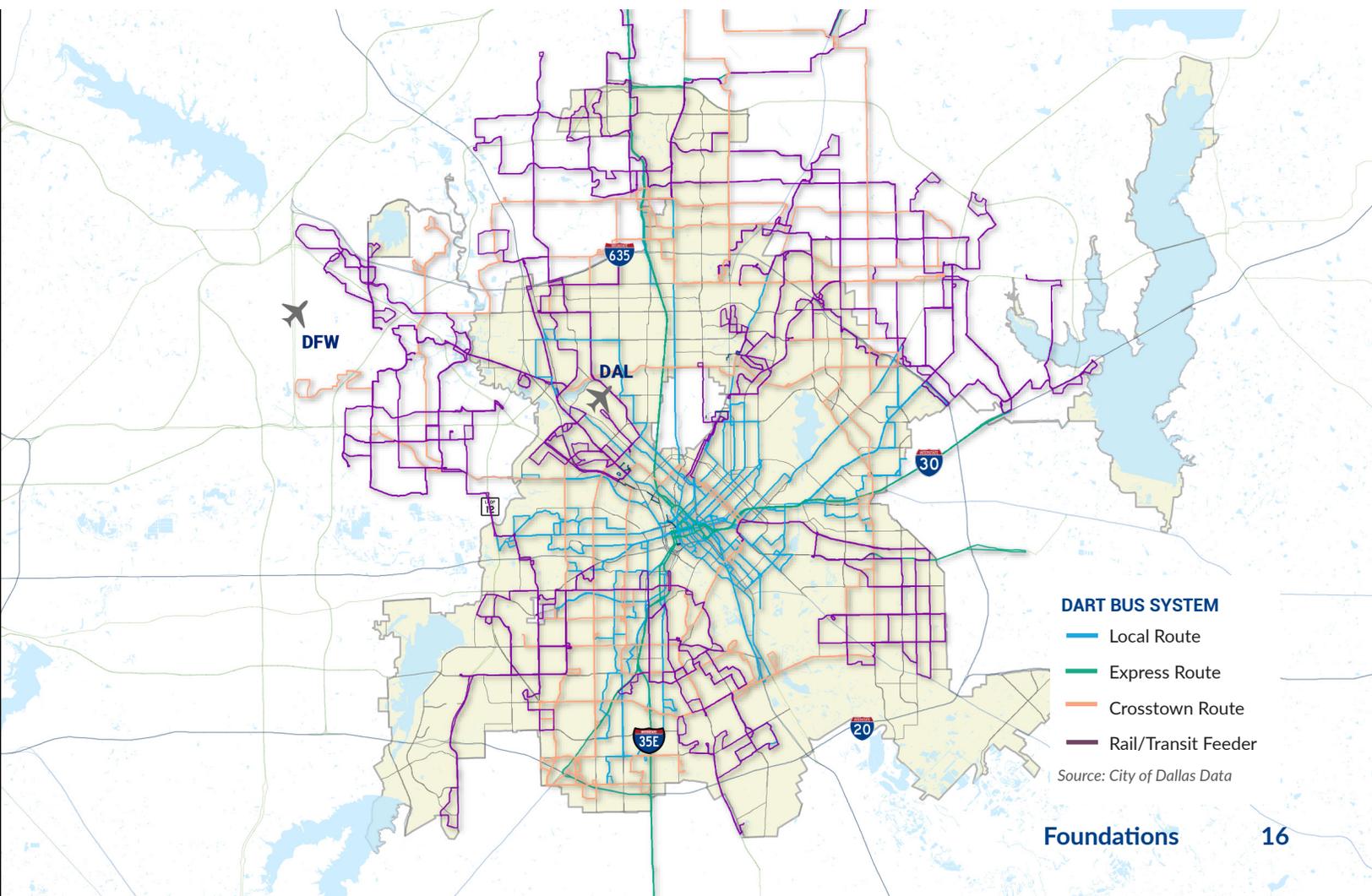
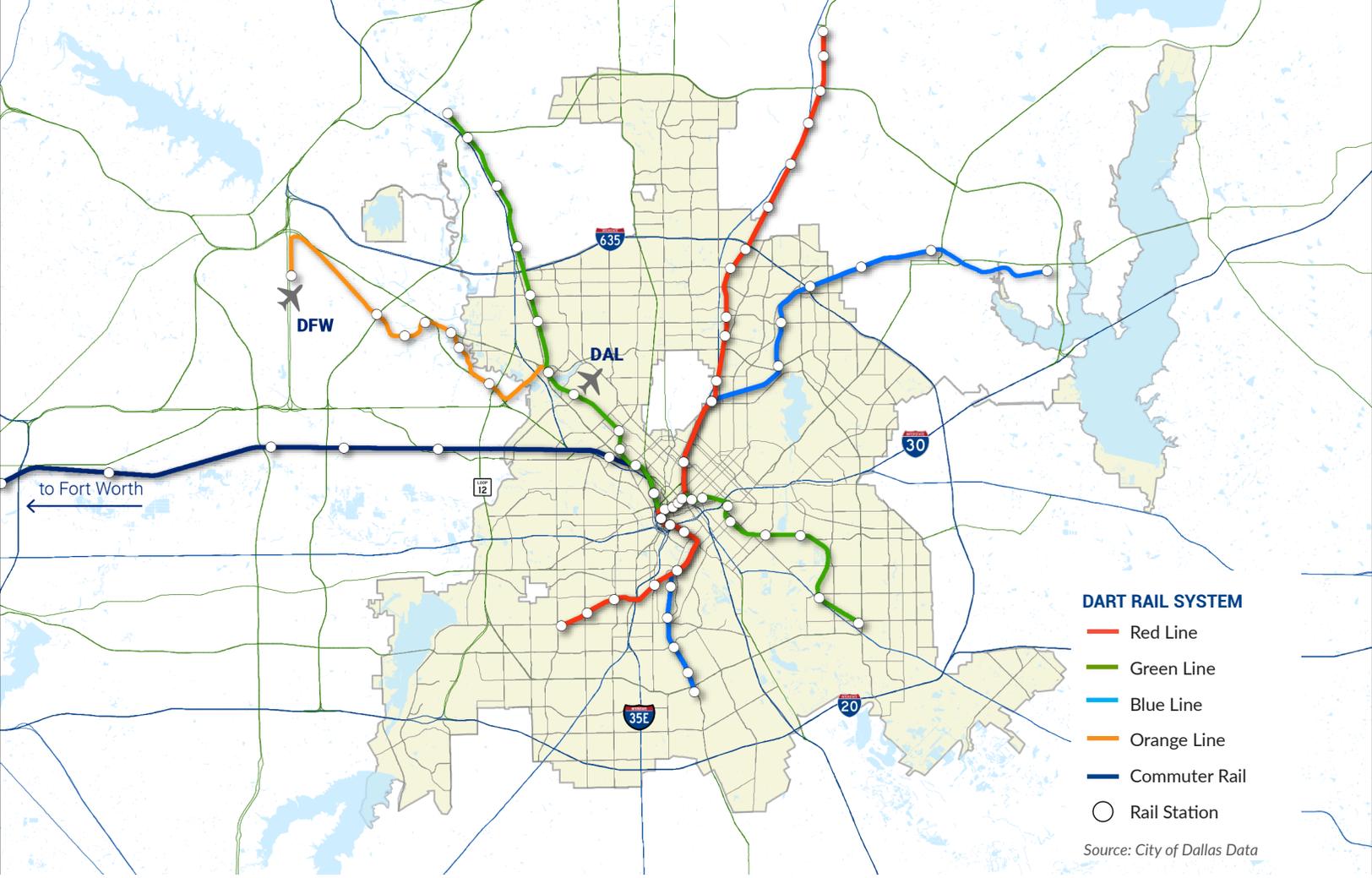
	City	Average Weekday Ridership	System Length (Miles)	Ridership per Mile
1	Los Angeles, CA	210,400	83.6	2,517
2	Boston	162,900	26	6,265
3	San Francisco (MUNI Metro)	159,900	35.7	4,759
4	Portland (MAX Light Rail)	119,600	60	1,993
5	San Diego	115,400	53.5	2,157
6	Denver	101,700	58.5	1,738
7	Dallas	93,400*	93	1,030
8	Philadelphia	91,000	68.4	1,330
9	Minneapolis-St. Paul	76,600	21.8	3,514
10	Seattle	76,042	20.4	3,728
11	Houston	60,700	23.8	2,550
12	Salt Lake City	57,700	46.8	1,233
13	Jersey City	51,336	17	3,020
14	Phoenix	46,800	26.3	1,779
15	St. Louis	39,400	46	857
16	Sacramento	36,800	42.9	858
17	San Jose	27,300	42.2	647
18	Charlotte	23,200	20.8	1,115
19	Pittsburgh	20,077	26.2	766
20	Newark	19,150	6.2	3,089
21	New Orleans	18,800	26.9	699
22	Baltimore	18,400	33	558
23	Buffalo	16,000	6.4	2,500
24	San Francisco (Cable Car System)	15,700	5.2	3,019
25	Portland (Streetcar)	13,344	7.35	1,816

*DART ridership estimate differs slightly from APTA estimate
Source: American Public Transit Association and DART

Peer City Transit Scores



Source: walkscore.com

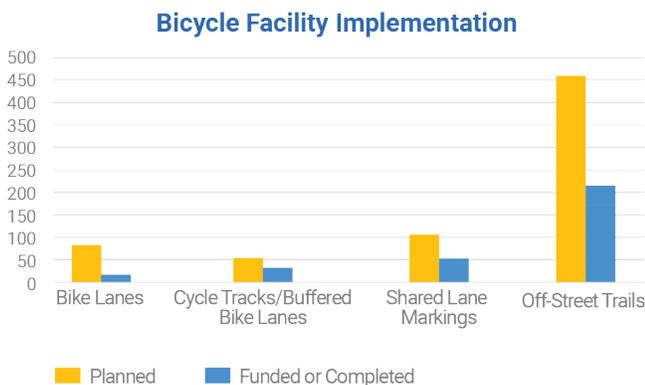


Bicycle and Pedestrian

Dallas has 2,261 miles of sidewalks, and a Walk Score of 46 (out of a possible 100), which is below the national average of 49. Walk Scores are based on the number of destinations near a given location, and as such the score is a function of density and the density of destinations. Block size and residential population density are also factored into the score. Several Dallas neighborhoods are rated as very walkable, with neighborhoods surrounding Downtown and Uptown Dallas receiving scores between 80 and 90. It is important to note that Walk Score is calculated by a private company (walkscore.com) and is heavily dependent on retail amenity locations and does not factor in built environment characteristics or quality of the pedestrian network.

A 2019 study by George Washington University found that the Dallas Fort-Worth region ranked among the least walkable of the nation's largest 30 metropolitan areas, based on the number of what the authors call "Walkable Urban Places." However, the study found the City has potential to improve its future walkability through transit expansion and thoughtful development.

Implementation of the 2011 Dallas Bike Plan has not kept pace with the implementation strategy outlined within the Bike Plan. The Bike Plan called for 363 miles of new on-street bicycle facilities to be installed by 2017. To date, 63 miles of on-street facilities have been installed, and another 31 miles have been funded. The plan also identified 456 miles of off-street facilities to be completed by the full buildout (130 miles of which were existing at the time). To date, 176 miles of off-street facilities have been installed with another 58 miles funded.

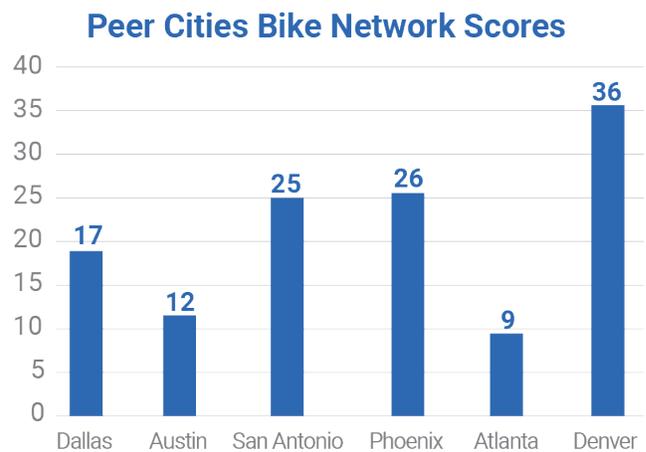


Source: City of Dallas Data

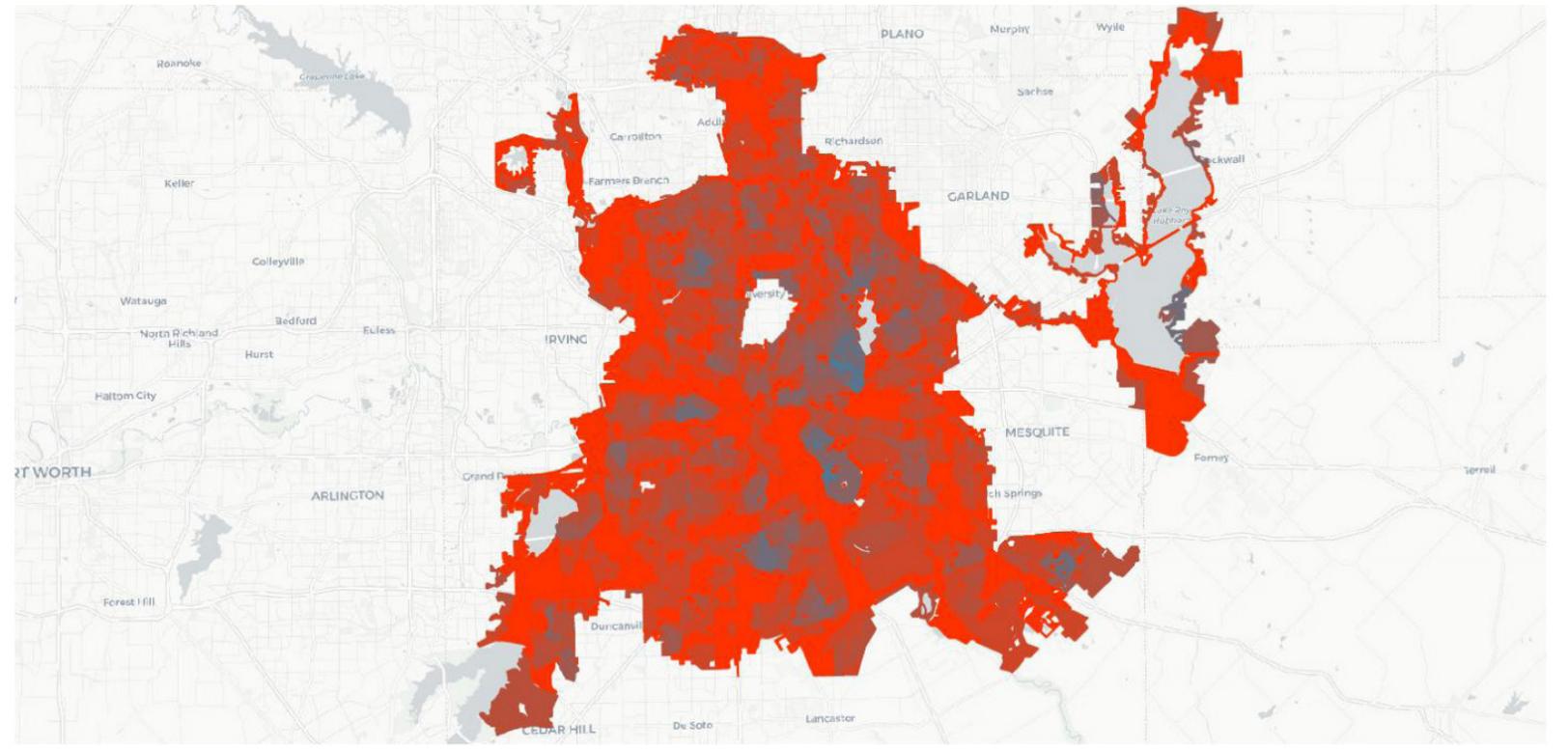
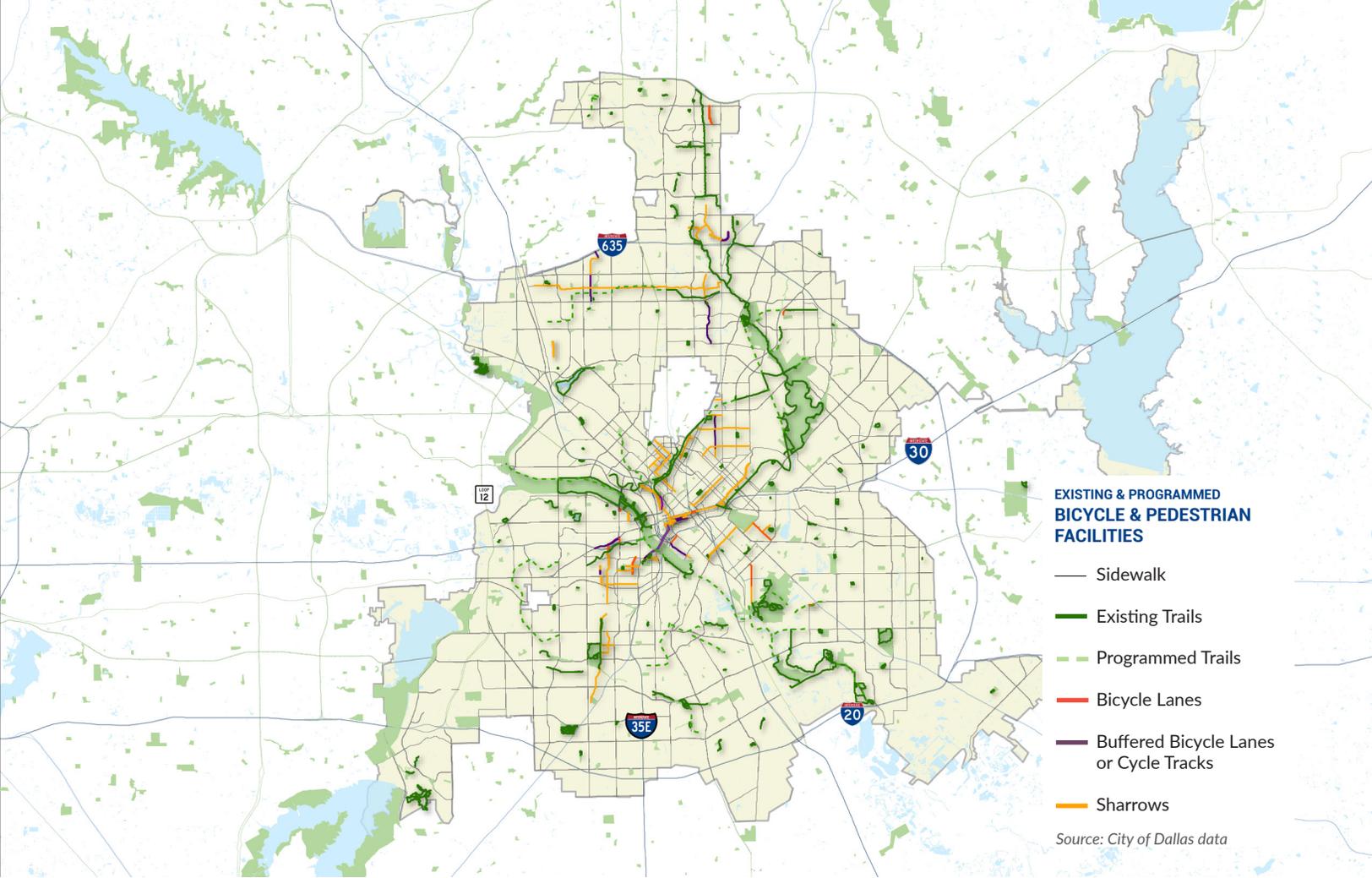
Dallas residents "Interested, but Concerned." In 2017, NCTCOG conducted a statistically valid survey to gather opinions on bicycling in the Dallas region. The survey had 1,909 respondents, roughly 200 of which were in Dallas County. The survey found that 42% of respondents in Dallas County identify as "Interested but Concerned" bicyclists. This segment of the population represents a major opportunity to increase the number of trips taken by bicycle and highlights the potential to increase bicycle trips by investing in high-comfort bicycle facilities.

Room to Improve. When asked about the perceived bicycle friendliness of their communities, Dallas County respondents gave the least positive ratings compared to other counties in the region. A survey conducted as part of the Dallas Bike Plan found that the top factors preventing respondents from bicycling more often included unsafe/unlawful motorist behavior, not enough bike lanes, and not enough bike trails. These responses further indicate that the development of a high-comfort bicycle network has great potential to increase bicycle trips.

PeopleForBikes, a national bicycle advocacy organization, develops Bike Network Analyses (BNAs) for cities across the country to measure how well bike networks connect people with the places they want to go using low-stress bike connections. Much of the City has a low BNA score, reflecting a lack of high-comfort bicycle connections in Dallas.



Source: People for Bikes.



The map above shows a heat map of the City's Bicycle Network Score, as rated by the organization People for Bikes. Red illustrates hostile or unsafe conditions, while blue indicates very bicycle friendly conditions. Source: People for Bikes.

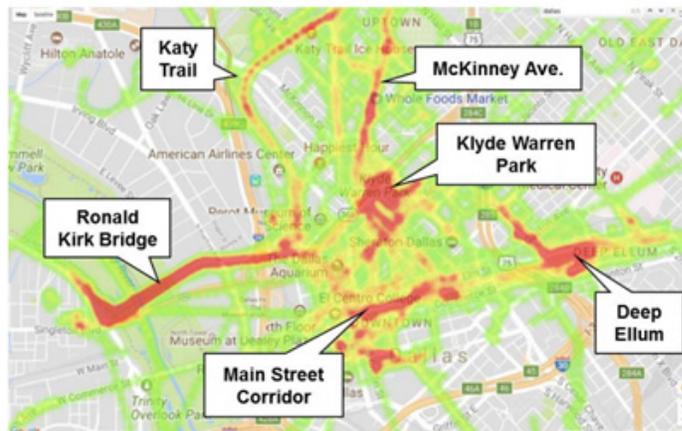
Emerging Trends and Shared Mobility

In August 2017, the City of Dallas launched a six-month dockless bikeshare pilot program. In doing so, Dallas went from having no bikeshare system to having the largest bikeshare fleet in North America with an estimated 18,000 bikes. Data from one provider from February 2018 indicated that 20% of all trips started or ended near a transit station, and that 51% of riders used the service during the evening rush hour.

In June 2018, City Council passed an ordinance requiring bikeshare companies to obtain a permit to operate and to pay an annual fee per vehicle, which varies based on fleet size. The ordinance also removed the ban on motorized scooters (e-scooters). Since the passage of the ordinance, the City has seen a significant reduction in bicycles available, accompanied by the growth in e-scooters. Currently, there are six operators in Dallas—one offering bikes, four offering e-scooters, and one offering both bikes and e-scooters.

Arrival of e-scooters. Over a three-month period following the introduction of e-scooters in June 2018, there were nearly 500,000 dockless vehicle trips. Over 90% of these were scooter trips. While the dramatic swings of the dockless vehicle program in Dallas has been met with some criticism, much of this may be attributable to the overall volatility of the dockless market and the program's unconstrained rollout. E-scooters continue to be popular in Dallas, indicating demand for new, non-motor vehicle based modes and further justifying the need for active transportation network and safety improvements.

Room for improvement. Though Dallas has not kept pace with peer cities on many aspects related to bicycle and pedestrian travel, the City has made progress in several areas that can serve as opportunities to build from moving forward, including the 2016 adoption of the Complete Streets Design Manual; the passage of Proposition A, which secures \$534 million in funding for transportation projects; and voter-approved funding to build trail connections that will tie together the 50-mile trail network known as The Loop.



A LimeBike heat map of dockless bike trips originating in the Downtown area (data presented in February 2018). Source: LimeBike.

Rise of TNCs. Due to the sprawling nature of the Metroplex's built environment and lack of frequent, reliable transit service in large parts of Dallas, Transportation Network Companies (TNCs) – such as Uber and Lyft - have seen a marked increase in the number of trips taken by area residents. The company also recently announced the opening of a Dallas office, which will house at least 3,000 employees - the company's largest hub outside of its San Francisco headquarters.

Top Five Uber drop-off locations in the Metroplex (2018)

1. AT&T Stadium (Top in Texas)
2. Bottled Blonde (Deep Ellum)
3. Happiest Hour (Uptown)
4. Convention Center
5. NorthPark Center

Source: Uber

Air, Rail and Freight

Dallas-Fort Worth International Airport (DFW), located midway between Dallas and Fort Worth, is the region's largest airport, and serves as a major national hub for American Airlines. DFW was the 4th-busiest airport in the country in 2017 based on passenger travel. Almost 32 million passengers departed from DFW that year, a 1.7% increase over 2016. Dallas Love Field (DAL) was the country's 31st busiest airport in 2017, with 7.6 million passenger departures. DFW is also the 9th busiest cargo airport in the country. Over four billion pounds of cargo landed at DFW in 2017, up 7.65% from 2016.

Busiest US Airports (2018)

1. Hartsfield-Jackson (Atlanta) – 107 million passengers
2. Los Angeles International – 88 million
3. Chicago O'Hare – 83 million
4. **Dallas-Fort Worth – 69 million**

Source: Airports Council International

Dallas-Love Field is located within the Dallas City Limits, and is also owned and operated by the City of Dallas.

Southwest, Delta, and Alaska Airlines offer flights out of the airport. Love Field was ranked as the country's fastest growing airport in 2017 based on the previous ten years of passenger traffic.

DART operates direct light rail service to DFW via the Orange Line, and offers a bus bridge to Love Field from the Inwood/Love Field Station.

According to NCTCOG, the region is a national roadway and rail freight hub, and is the national's largest inland port. Trucks leaving from North Central Texas can reach 98% of the US population within 48 hours, making Dallas a key strategic hub for the logistics industry. As the City continues to grow, so too will the regional freight demand and the demand placed on the regional freight network. It will be increasingly important to take part in regional and statewide planning efforts to ensure full coordination in the years to come.



*Dallas Inland Port near the crossing of Interstates 20, 45, and 35E.
Source: Allen Development Company.*

The 2018 Texas Freight Mobility Plan also lays out several strategic goals, including improved safety, economic competitiveness, and travel reliability. According to the plan, freight tonnage through Texas, including North Texas is expected to increase in the coming years over all modes. Strategic planning can help lessen the negative impacts on the region (such as congestion and crashes) and allow the City to harness new opportunities.

Safety

Crash Trends

Based on TxDOT crash records, the City of Dallas experienced 174,560 crashes between 2014 and 2018. While the number of total crashes in the City has declined somewhat since 2016, the number of crashes that resulted in a death has increased each year – with 194 fatal crashes in 2018, up from 145 in 2014. In total, there were 926 traffic-related deaths during this time frame.

Safety Initiatives

The City of Dallas addresses transportation safety through a variety of transportation infrastructure safety improvement programs, including the state's Strategic Highway Safety Plan, and federal funding accessed through NCTCOG.

Statewide, other major cities have taken other proactive measures to mitigate traffic-related deaths, particularly

for pedestrians and bicyclists. In 2015, the City of San Antonio became an early adopter of Vision Zero, a strategy to eliminate all traffic fatalities and severe injuries. The City of Austin followed, with the passage of their Vision Zero Action Plan in May 2016. While the City of Dallas has not yet formally taken action related to Vision Zero, the City has been implementing Complete Streets design improvements, which intend to balance the mobility needs and safety of all road users on City streets.

Bicycle & Pedestrian Safety

Crash data trends demonstrate that pedestrian safety is worsening in Dallas. Although walking trips account for less than two percent of work trips in Dallas, pedestrian fatalities represented 27% of all traffic fatalities in 2017, based on national traffic safety data.

According to the Governors Highway Safety Association, Dallas County had the 4th highest number of pedestrian fatalities among all U.S. counties in 2016.

In Smart Growth America's 2019 national report on pedestrian safety, *Dangerous By Design*, the Dallas-Fort Worth-Arlington region ranks number 28 out of the 100 most dangerous metropolitan areas for people walking. Safety trends in Dallas reflect ongoing statewide trends. Texas had the third highest pedestrian fatalities in the first six months of 2018, which reflects a 12% increase

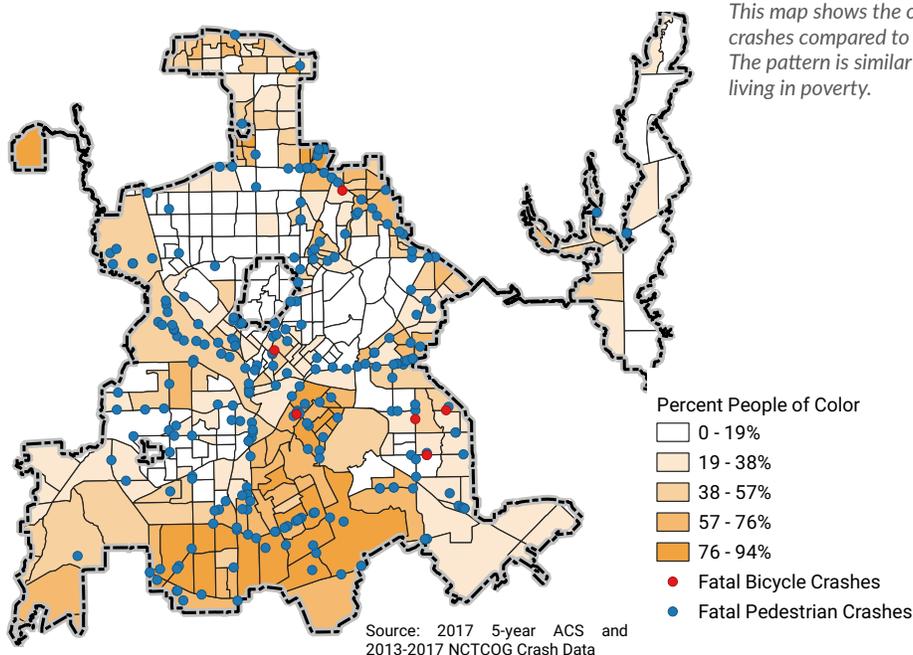
Fatal or Serious Injury Crashes Involving Pedestrians and Bicyclists



Source: TxDOT Crash Records

from those same months in 2017. In 2017, the pedestrian fatality rate was 3.88 per 100,000 residents in Dallas. This rate is higher than the national average of 1.84, and higher than several peer cities.

Fatal pedestrian crashes are not evenly distributed throughout the City. An initial review of crash data suggests that fatal pedestrian crashes are more prevalent in areas of the City that have higher percentages of non-white residents and higher percentages of residents living in poverty. This reflects a national trend documented in the report *Dangerous by Design* that shows people of color are at a disproportionate risk of being killed while walking, even when controlling for differences in walking rates and population size.



This map shows the occurrence of fatal bicycle and pedestrian crashes compared to areas with a high proportion of people of color. The pattern is similar in areas with a high proportion of residents living in poverty.

Technology & Innovation

The 2019 Smart Dallas Roadmap defines a smart City as one that “focuses on improving the quality of life of all citizens by adopting new forms of governance, public participation, process improvements, technology adoption, data-driven decision making and providing sustainable services.” Through innovation, data analytics and technology, there is great potential for Dallas to become a national innovation leader.

The factors driving this opportunity stem from immense economic and population growth, leading to increased strain on aging infrastructure and constrained City resources. City leadership has recognized this challenge, and are investing in technology and smart mobility tools that ask our cities to “do more with less.”

The 2019 Smart Dallas Roadmap announces planned investments in Smart Mobility, including:

- An interactive multimodal transit navigation interface that will provide route options for both public and private transit modes;
- Intelligent congestion and commute reduction metrics;
- Dynamic traffic signal management; and
- Commuter safety technology updates.

In addition to these initiatives, several major social and technological trends are pushing the movement toward Smart Cities around the globe:

Movement away from single occupancy vehicles:

Research conducted by Downtown Dallas, Inc. for the Downtown 360 Plan indicates that the urban core and surrounding neighborhoods are already trending away from car commutes. This decreases the demand for parking, but creates a greater need for curbside management. Implementing plans for curbside ownership for shared rides and delivery vehicles will be critical - as with the pilot approach in Deep Ellum - and wayfinding for drivers as well as sensor-based technology will

aid both citizens and the City to better manage operations and traffic flow. Working towards shared agreements with private-sector providers such as Uber, Lyft, Amazon Prime/grocery deliveries, bike and scooter share companies can allow for in-app direction toward approved parking locations/docking stations to facilitate compliance and eliminate clutter and lane blockage.

Movement toward on-demand deliveries and fleet management: Accommodating drop points and short-term parking for delivery vehicles decreases congestion and blocked traffic flow. This can be accommodated by the sensor networks that communicate with delivery companies and contractors for more efficient route planning. In Europe, they have designed fleets and set regulations limiting the size of delivery and sanitation vehicles to create service efficiencies and mobility throughout their cities.

Planning for autonomous vehicles: Policies around shared lanes for mass transit and autonomous vehicles, or a specific secondary curb/median dedicated to AV drop-offs have been piloted in other cities. This planning will need to include sensors that communicate with AV, and incorporate the initial mapping efforts conducted by these companies to ensure safety as the systems begin to utilize artificial intelligence to adapt to behaviors in our City.

Supporting mass transit efficiency and utilization:

More actionable partnerships with DART can help improve ridership and access to transit service. Many are working towards solutions to these challenges, but coordination and formal partnerships and data sharing agreements bring a critical foundation to drive success. Regional strategy around a coordinated approach is essential. San Francisco has undertaken a shared platform uniting all regional systems, including port activity via a shared, managed platform. This and a similar UK initiative are wise to learn from as we look toward the future.

Sustainability

Travel patterns and access to opportunities have a major impact on greenhouse gas emissions, development patterns, and commute patterns. Dallas seeks to become a world leader in sustainable mobility for the 21st century.

Land Development Patterns

Dallas has very limited centers of compact and urban development, surrounded by sprawling suburban style land use. Urban Footprint, a national data clearinghouse, categorizes land within the City as suburban, compact, urban or rural based on a number of factors such as land use, intersection density, and housing and employment density. This is characteristic of the mid-20th century development patterns when much of the City developed.

The ability to travel around the City without the use of a vehicle is limited. Currently, only 1.6% of Dallas residents have access to high-quality frequent transit within five minutes based on initial analysis. Encouraging transit-oriented development would increase access to jobs, retail, and daily destinations via sustainable transportation methods.

Air Quality

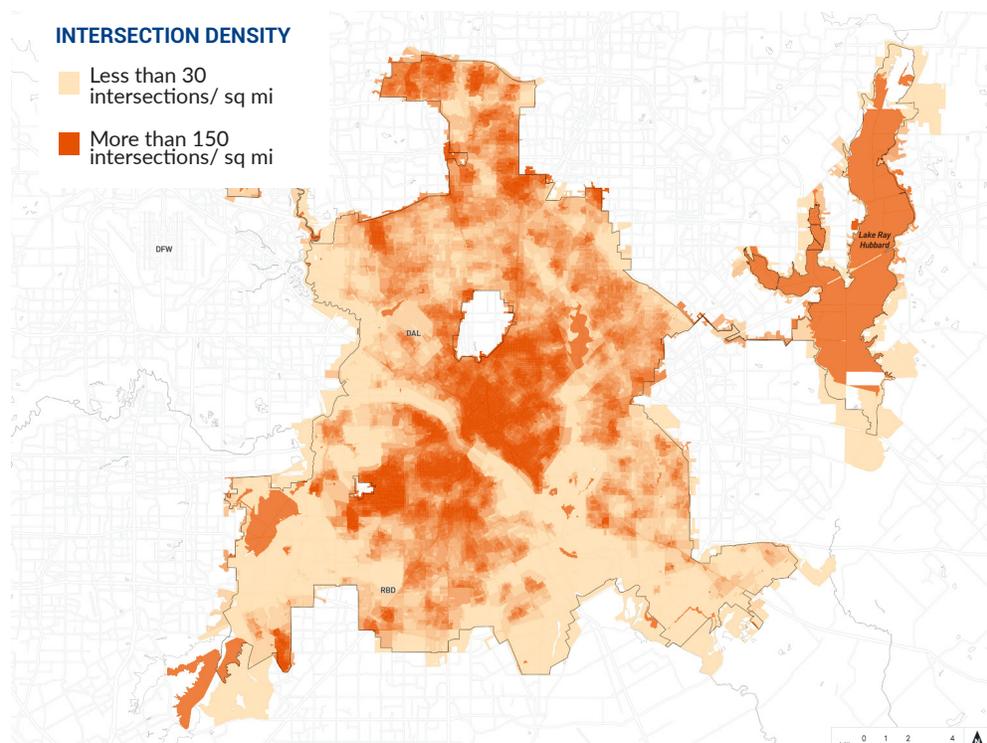
Though air pollution in Dallas and Texas in general is on the decline, the City still ranks among the top most-polluted cities in the country according to the American Lung Association. Dallas ranks as the 17th most ozone-polluted City, placing children, senior citizens, and those with respiratory illnesses at risk.

This map shows intersection density across the City of Dallas. Areas of higher intersection density are reflective of a built environment that supports better walkability and is more transit-friendly.
Source: Urban Footprint

Climate Change

In 2018, Dallas voted to become a national leader on Climate Change by adopting the Paris Climate Accord. To respond to this challenge, the City initiated a Comprehensive Environmental and Climate Action Plan (CECAP) in early 2019, which in part will seek to curb greenhouse gas emissions significantly. Over one third of Dallas greenhouse gas emissions come from transportation sources – higher than the U.S. average of 29%.

In Dallas, municipal emissions account for only 2% of the total community emissions. This means that *Connect Dallas* will have to work to effect real change in community thought patterns to achieve the desired results and move the City toward a more sustainable future.



Dallas ranked 79 of 100 world cities in the 2017 Sustainable Cities Mobility Index. The report ranked cities by a variety of metrics, including access to transit, travel mode split, emissions, and commute trends. Peer cities Atlanta was ranked 78, while Denver came in number 80.

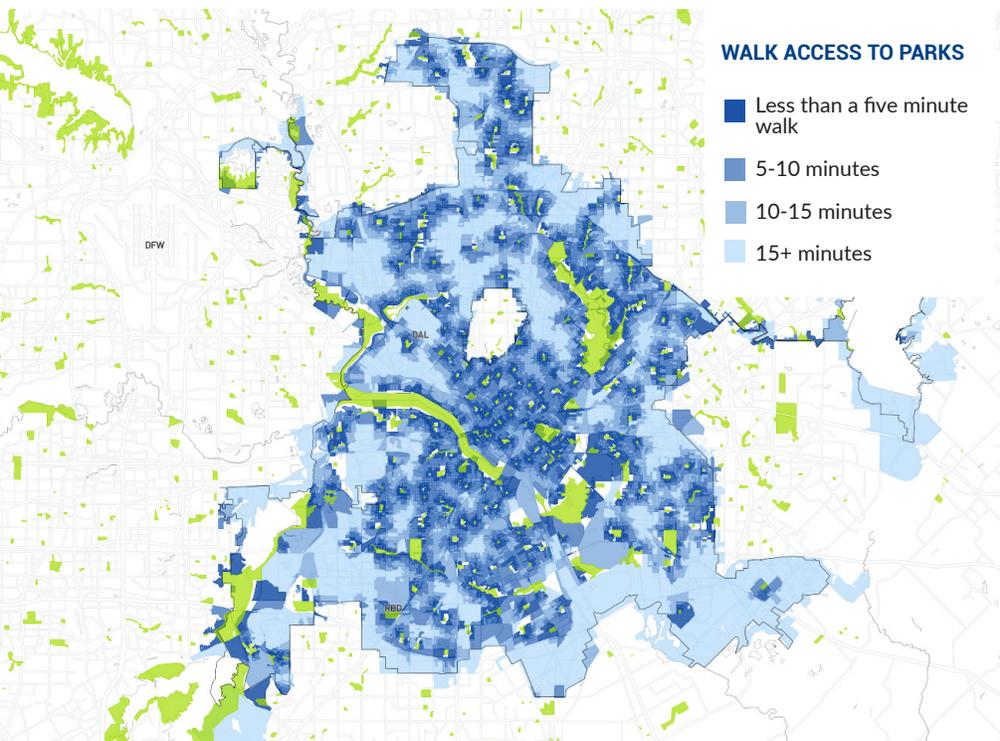
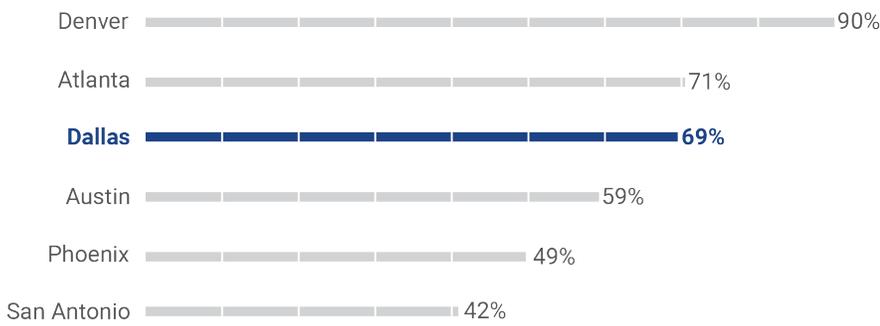
Parks & Open Space

Dallas residents cite transportation challenges and lack of access as major barriers to their use of park and recreation facilities. One of the top reasons mentioned for why Dallas residents do not use Dallas Parks and Recreation facilities includes transportation challenges and lack of access. Only 39 of the City's more than 400

parks are within a quarter mile walk of DART rail along the existing sidewalk and trail network. An additional ten parks are within a quarter mile of rail as the crow flies, but there are no adequate pedestrian connections between these parks and the rail stations. Over 80% (312) of the City's parks are within a quarter mile of DART bus along the existing sidewalk and trail network.

According to the Trust for Public Land's 2019 ParkScore Report Card, Dallas ranks 55 out of the top 100 cities for park access. 69% of residents live within a ten minute walk to a park. This proportion is fairly equal across different income levels, age groups, and various races.

Percent of Population Within 10 Minute Walk to Park



This map shows the population within walking distance of Dallas parks. Source: Urban Footprint



City of Dallas