

3.0: Social Considerations

Mobility 2045 Supported Goals

Ensure all communities are provided access to the regional transportation system and planning process.

Encourage livable communities which support sustainability and economic vitality.

Preserve and enhance the natural environment, improve air quality, and promote active lifestyles.

Provide for timely project planning and implementation.

Public Benefits of the Transportation System

The transportation system provides residents in the North Central Texas region access to jobs, medical care, education, recreation, and cultural activities. Easy access to daily destinations and multiple transportation options contribute to the quality of life in a neighborhood, city, or region. In coordination with local governments and transportation partners, the North Central Texas Council of Governments aims to develop transportation infrastructure that is accessible to all.

Although most North Central Texans choose to drive, it is crucial to provide other transportation choices. Opportunities to walk, take transit, or cycle are linked to healthy communities. Walking can improve the environment and personal health, reduce traffic congestion, enhance quality of life, and provide economic rewards and other benefits.¹

Mobility 2045 includes policies, programs, and projects that support a range of mobility options that can contribute to healthy, livable communities. By developing active transportation systems such as

SOCIAL CONSIDERATIONS AT A GLANCE:

Engaging the public and addressing their needs is of utmost importance in any public planning process. The North Central Texas Council of Governments proactively seeks to educate North Central Texans and engage them in the transportation planning process. By 2045, over 11 million people are expected to call the region home. Meeting the mobility needs of today and tomorrow requires all stakeholders to coordinate and collaborate. Nondiscrimination also plays a vital role in the transportation planning process. Through public outreach and analysis, the Regional Transportation Council seeks to understand and address the needs of the North Central Texas community.

IN THIS CHAPTER:

- Regional Population and Employment Trends
- North Central Texas Population Profile Changes
- Cultural Trends
- Nondiscrimination Efforts
- Mobility 2045 Policies
- Integrating Nondiscrimination Principles into the Planning Process
- Regional Environmental Justice Analysis
- Travel and Tourism
- Public Involvement

DID YOU KNOW ...

... by the year 2045, the 12-county Metropolitan Planning Area is forecasted to grow to 11.2 million residents, a 55 percent increase in the North Central Texas population?
... all counties in North Central Texas, except for Hunt County, exceed an affordability threshold for the combined cost of housing and transportation: 45 percent of household income? This threshold was identified by the Center for Neighborhood Technology.

“Simple justice requires that public funds, to which all taxpayers of all races contribute, not be spent in any fashion which encourages, entrenches, subsidizes, or results in racial discrimination.”

John F. Kennedy, 1963

¹ Sam Schwartz Engineering PLLC & America Walks, 2012, *Steps to a Walkable Community: A Guide for Citizens, Planners, and Engineers*, americawalks.org

bicycle and pedestrian facilities, Mobility 2045 promotes physical activity and more equitable communities. Additional information on healthy communities is found in the **Environmental Considerations** chapter and appendix.

Considerations for healthy, livable, and sustainable communities should be integrated into the transportation planning process. This chapter analyzes the social impacts of the regional transportation system. The **Environmental Considerations**, **Operational Efficiency**, and **Mobility Options** chapters of Mobility 2045 recommend programs and projects that support healthy, livable, and sustainable communities for the existing and future residents of the region.

Regional Population and Employment Trends

Regional population and employment trends and forecasts analyze where residents live, work, and carry out leisure activities, and predict where residents will do these things in the future. Transportation planners need this information in order to provide facilities and connections that meet the mobility and accessibility needs of existing and future populations.

According to the US Census Bureau, the Dallas-Fort Worth-Arlington Metropolitan Statistical Area (MSA)² is the fourth most populous in the country and the most populous in the state. Between 2010 and 2016, the MSA added about 800,000 residents.

Only one other MSA in the nation – Houston – added a greater number of residents during that period.³ Forecasts project that rapid growth will continue through 2040.

The region has added approximately **ONE MILLION** people per decade since 1970.

Several key demographics transportation planners must consider are the density, size, and profile of the population. These characteristics impact where transportation improvements will be needed in order to curb congestion and affect the land use-transportation connection. These two aspects are explored further in the **Mobility Options** chapter and the *Sustainable Development* portion of the **Operational Efficiency** chapter.

Historical Population Growth

In 2010, the 12-county Dallas-Fort Worth Metropolitan Planning Area (MPA) had a population of approximately 6.4 million.⁴ By the year 2045, these counties are forecasted to grow to 11.2 million residents. This expected growth represents a 75 percent increase in the population of North Central Texas over 35 years. Historical population growth is important to understanding where populations will grow in the future. **Exhibit 3.0-1** shows the population distribution by county for 1990, 2000, and 2010.

The four urban counties – Collin, Dallas, Denton, and Tarrant – had a combined population of 5.6 million in 2010, or 88 percent of the 12-county population. This percentage share has remained stable since 1990; however, the individual population shares for Collin and Denton counties have increased while the shares in Dallas and Tarrant counties have decreased. This change can be attributed to rapidly growing cities in Collin and Denton counties.

² The Dallas-Fort Worth-Arlington Metropolitan Statistical Area is a Census designation that consists of Collin, Dallas, Denton, Ellis, Hood, Hunt, Johnson, Kaufman, Parker, Rockwall, Somervell, Tarrant, and Wise counties. Bureau of Economic Analysis, Statistical Areas, <https://www.bea.gov/regional/docs/msalist.cfm#D>

³ US Census Bureau 2016 Population Estimates

⁴ 2010 US Census, www.census.gov

Exhibit 3.0-1: Historical Population Growth by County, 1990 to 2010

MPA County	Population					
	1990		2000		2010	
	Number	Percent	Number	Percent	Number	Percent
Collin	264,036	6	491,675	9	782,341	12
Dallas	1,852,810	46	2,218,899	43	2,368,139	37
Denton	273,525	7	432,976	8	662,614	10
Ellis	85,167	2	111,360	2	149,610	2
Hood	28,981	1	41,100	1	51,182	1
Hunt	64,343	2	76,596	2	86,129	1
Johnson	97,165	2	126,811	2	150,934	3
Kaufman	52,220	1	71,313	1	103,350	2
Parker	64,785	2	88,495	2	116,927	2
Rockwall	25,604	1	43,080	1	78,337	1
Tarrant	1,170,103	29	1,446,219	28	1,809,034	28
Wise	34,679	1	48,793	1	59,127	1
Totals	4,013,418	100	5,197,317	100	6,417,724	100

Source: 1990-2010 US Census Data, www.census.gov

Population Forecasts

A population forecast is a projection of how many people will live in a certain area based on factors like past growth trends, development potential, and market demand. Mobility 2045 uses the North Central Texas Council of Governments' 2045 demographic forecast to develop transportation recommendations. The year 2017 is used as a base year in the **Social Considerations** chapter to illustrate general trends in population and employment growth through 2045. Based on population forecasts for 2017 and 2045, the total population of the MPA is projected to increase from 7,235,508 in 2017 to 11,246,531 in 2045. **Exhibit 3.0-2** represents this 55 percent increase for the region and the growth by individual counties in the MPA.

Tarrant County is projected to gain the most population – nearly 1.25 million residents – between 2017 and 2045. Dallas, Collin, and Denton counties follow Tarrant County in terms of forecasted population growth in this timeframe. Kaufman County is projected to have the greatest percent increase in population at 95 percent. With the exception of Dallas County, every county in the MPA is expected to grow by more than 50 percent.

Exhibit 3.0-2: Forecasted Population Growth by County, 2017 to 2045

MPA County	2017 Population	2045 Population	Growth	Percent Growth
Collin	951,795	1,689,168	737,373	77%
Dallas	2,600,408	3,445,204	844,796	32%
Denton	804,396	1,346,316	541,920	67%
Ellis	163,695	300,954	137,259	84%
Hood	55,034	85,738	30,704	56%
Hunt	87,279	134,291	47,012	54%
Johnson	158,683	262,865	104,182	66%
Kaufman	114,741	224,203	109,462	95%
Parker	123,181	206,813	83,632	68%
Rockwall	93,430	181,560	88,130	94%
Tarrant	2,020,278	3,263,622	1,243,344	62%
Wise	62,588	105,797	43,209	69%
Totals	7,235,508	11,246,531	4,011,023	55%

Source: NCTCOG 2045 Demographic Forecasts

Population Density

In addition to population forecasts, population density is critical when planning transportation facilities. Denser areas may warrant more multimodal transportation infrastructure to ensure that residents are able to travel efficiently. In the four urban counties (Collin, Dallas, Denton, and Tarrant), population density is projected to increase from 1,845 to 2,820 people per

square mile between the years 2017 and 2045. For the entire MPA, population density is projected to increase from 796 to 1,237 people per square mile.⁵

Exhibits 3.0-3, 3.0-4, and 3.0-5 show the population density by county and by traffic survey zone between 2017 and 2045. Traffic survey zones are a geographic unit used for transportation planning. They are similar in size to Census block groups.

Exhibit 3.0-3: Increase in Population Density by County, 2017 to 2045

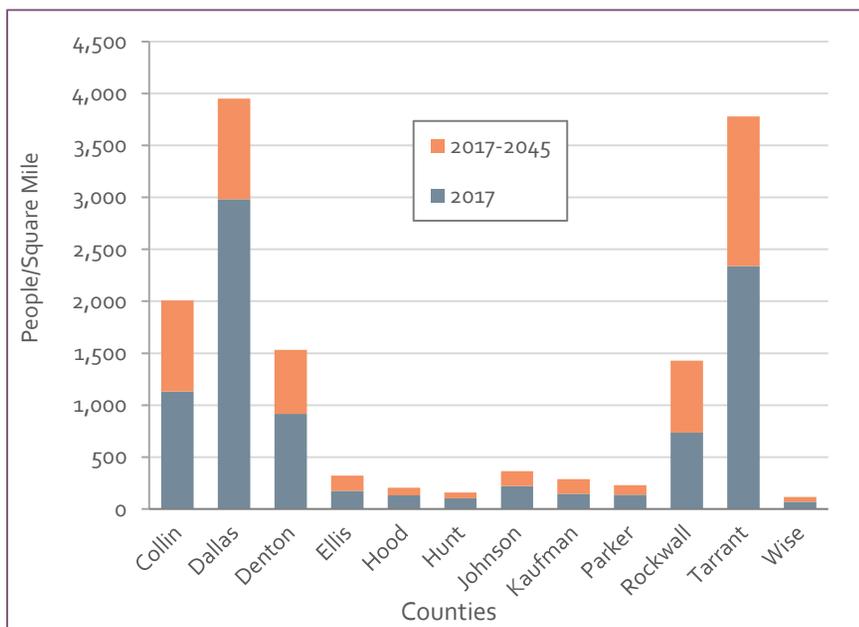
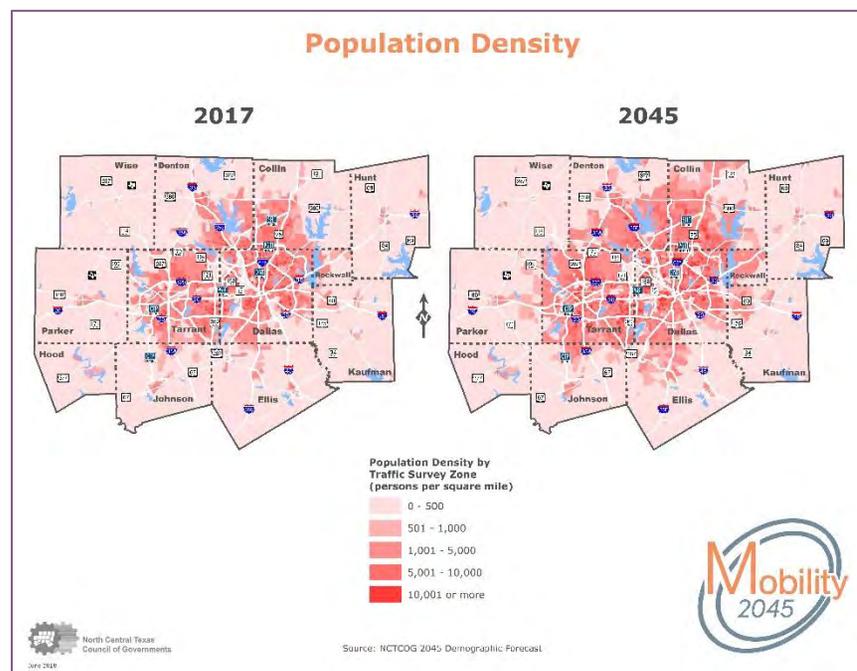


Exhibit 3.0-3 shows increases in population density by county. The counties with the greatest increases in people per square mile are Tarrant – 1,440; Dallas – 969; Collin – 877; Rockwall – 693; and Denton – 617. In 2045, the five most densely populated counties in the MPA will be Dallas with 3,950 people per square mile; Tarrant with 3,779; Collin with 2,008; Denton with 1,532; and Rockwall with 1,428.

Exhibit 3.0-4: Population Density in the 12-County MPA, 2017 and 2045



Historic Employment Growth

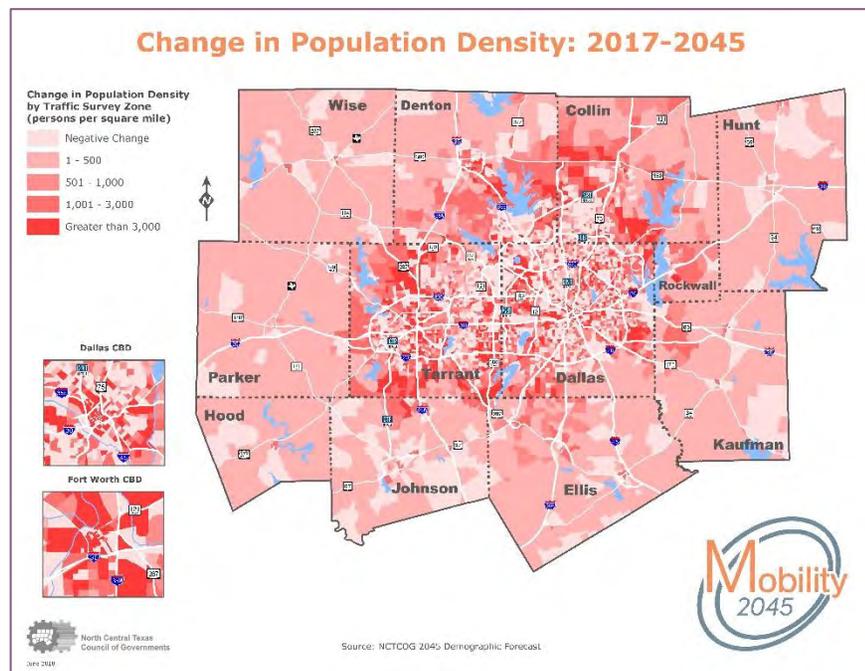
North Central Texas is a major economic, social, and political center of both Texas and the United States. Job growth continues to flourish in the region and state. The North Central Texas region represents 30 percent of the state’s gross domestic product. The region is also home to 22 Fortune 500 companies.⁶ From 2000 to 2015, the number of civilian employees in the region increased by 30 percent, while the number of armed forces employees

⁵ Population density for the Dallas-Fort Worth MPA is calculated by dividing the total regional population by the land area of the region; Exhibits 3.0-4 and 3.0-5 show population density by Traffic Survey Zone.

⁶ North Texas Commission, *Profile of North Texas 2018*, <http://ntc-dfw.org/publications/profile/>

increased by 11 percent.^{7,8} The transportation system is central in supporting job growth because it allows for the efficient movement of people and goods. Understanding not only population growth, but employment growth, is critical to transportation planning and to providing the best system to move people to and from jobs.

Exhibit 3.0-5: Change in Population Density in the 12-County MPA, 2017 to 2045



Employment Forecast

The North Central Texas Council of Governments forecasts employment growth to ensure that transportation facilities provide the region’s residents with access to jobs. Employment within the 12-county MPA is projected to increase 53 percent from 4,584,235 jobs in 2017 to 7,024,227 jobs in 2045.

⁷ 2000 US Census & 2011-2015 American Community Survey 5-Year Estimates, www.census.gov

During the same period, the employment density in the region is projected to increase from 504 to 773 jobs per square mile.

Employment growth in the MPA is shown in Exhibits 3.0-6, 3.0-7, and 3.0-8. The highest increase in the number of jobs is projected to occur in Dallas County with 1,151,186 new jobs for a growth rate of 54 percent. The second-highest increase is projected to occur in Tarrant County with 630,864 new jobs for a 53 percent increase. Denton County is projected to have the highest rate of employment growth with a 61 percent increase.

Exhibit 3.0-6: Forecasted Employment Growth by County, 2017 to 2045

County	2017 Employment	2045 Employment	Growth	
Collin	542,493	835,342	292,849	54%
Dallas	2,147,027	3,298,213	1,151,186	54%
Denton	298,071	479,619	181,548	61%
Ellis	68,913	102,692	33,779	49%
Hood	23,703	31,723	8,020	34%
Hunt	45,548	72,658	27,110	60%
Johnson	75,452	111,301	35,849	48%
Kaufman	46,312	68,285	21,973	47%
Parker	62,665	86,890	24,225	39%
Rockwall	39,879	58,611	18,732	47%
Tarrant	1,196,521	1,827,385	630,864	53%
Wise	37,651	51,508	13,857	37%
Totals	4,584,235	7,024,227	2,439,992	53%

Source: NCTCOG 2045 Demographic Forecasts

Growth in the region’s employment plays an important role in forecasting population. Regions with job growth retain current residents and attract new ones moving to the area for employment opportunities. Transportation planners use this information to forecast future revenue streams for transportation projects and determine areas that will need additional

⁸ Despite these numbers, as a percentage of the region’s total labor force, civilian employment fell from 95 percent in 2000 to 93 percent in 2015. Armed forces employment dropped from 0.15 percent to 0.12 percent during the same period.

infrastructure. The region's employment forecasts show that employment opportunities will continue to grow, leading to long-term economic growth and vitality in North Central Texas.

Exhibit 3.0-7: Employment Density in the 12-County MPA, 2017 and 2045

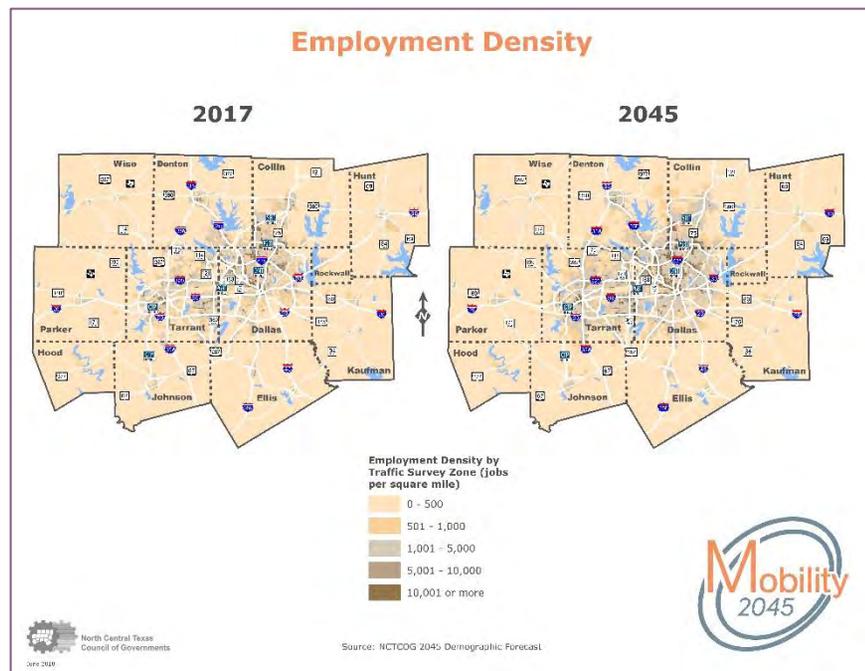
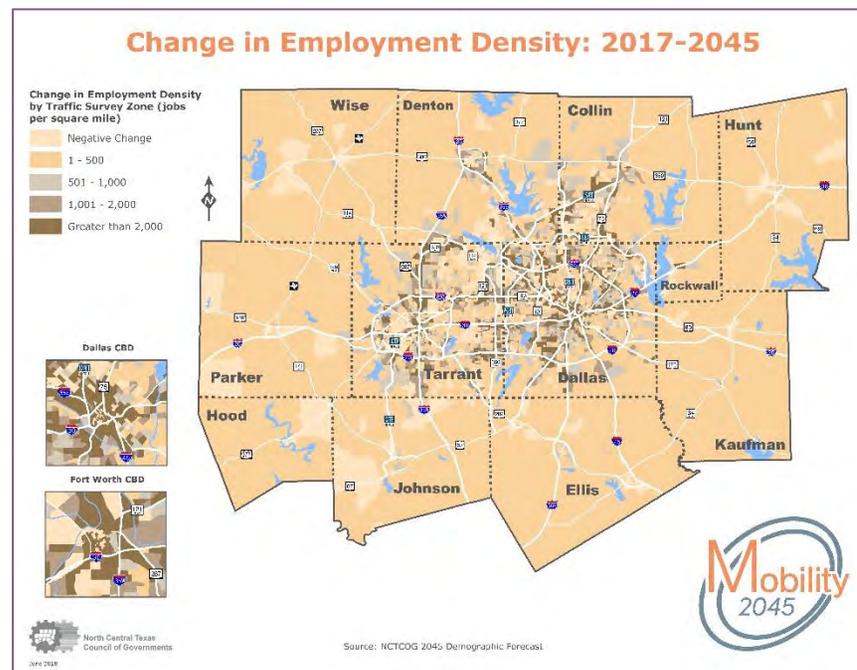


Exhibit 3.0-8: Change in Employment Density in the 12-County MPA, 2017 to 2045



North Central Texas Population Profile Changes

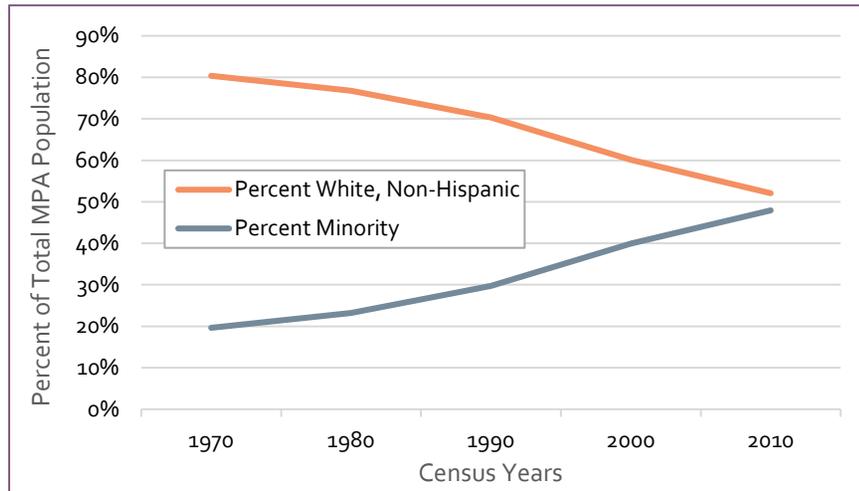
In a region that is demographically diverse, planners must consider how this diversity affects residents' transportation needs. Demographic trends indicate that the region's population profile will change over time in terms of race, ethnicity, income, language, and age. The data source for the majority of the following demographic data in Mobility 2045 is the 2015 American Community Survey 5-Year Estimates, the most recent dataset that included all the applicable data at the time Mobility 2045 was developed.

Changes in Race and Ethnicity

Since the 1970s, both the overall population and minority population have increased in the region. The North Central Texas Council of Governments defines minority as any person who identifies his or her race as Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian or other Pacific Islander, two or more races, or some other race; or who defines his or her ethnicity as Hispanic or Latino. Individuals may identify themselves as one or more races and as ethnically Hispanic or Latino. To avoid double counting people, the total minority population is calculated as the sum of 1) individuals who identify themselves as being a member of any race(s) other than White and who are not Hispanic or Latino and 2) all individuals who are ethnically Hispanic or Latino, regardless of race. The overall population in the region has increased nearly 160 percent, from 2.5 million people in 1970 to more than 6.4 million in 2010. During the same period, the minority population has increased more than 550 percent, from 500,000 in 1970 to over 3 million in 2010. **Exhibit 3.0-9** illustrates changes in the region's racial and ethnic make-up over time.

Today, the region is demographically diverse with a total minority population of 51 percent. **Exhibit 3.0-10** illustrates the racial profile of the North Central Texas region between 2011 and 2015.

Exhibit 3.0-9: North Central Texas Population Change, 1970 to 2010



Source: 2011-2015 American Community Survey 5-Year Estimates, www.census.gov

Historically, the minority population has grown at a faster rate than the overall population. Based on patterns in birth rates and migration, this trend is expected to continue into the future.⁹ A growing number of MPA residents were born in foreign countries. The number of individuals who are not native to the United States and were born in a foreign country increased by 54 percent from 2000 to 2015. As a result, this demographic group's share of the region's total population has increased from 15 percent in 2000 to 18 percent in 2015.¹⁰

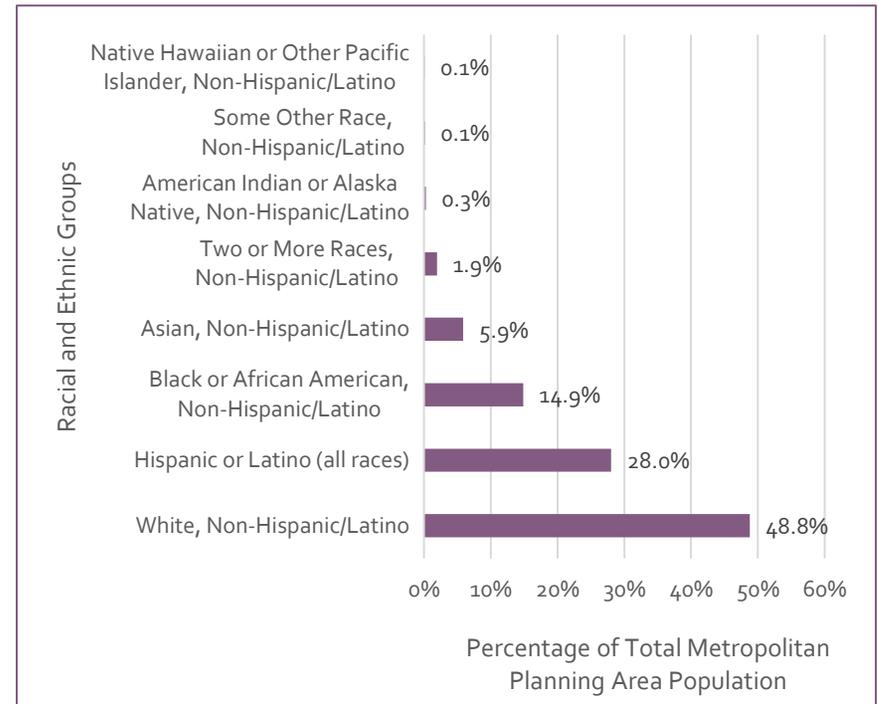
Changes in Income

Income is an additional population indicator that must be considered when planning transportation facilities. Individuals or households with lower incomes may not have access to a working vehicle and may rely on other modes of transportation. From 2000 to 2015, the percent of the region's

⁹ Texas Demographic Center, 2014 Population Projections (0.5 Scenario), <http://txsdc.utsa.edu/Data/TPEPP/Projections/>

population that lives below the poverty level increased from approximately 11 percent to approximately 15 percent.

Exhibit 3.0-10: Regional Population by Race and Ethnicity, 2011 to 2015



Source: National Historic Geographic Information System, www.nhgis.org

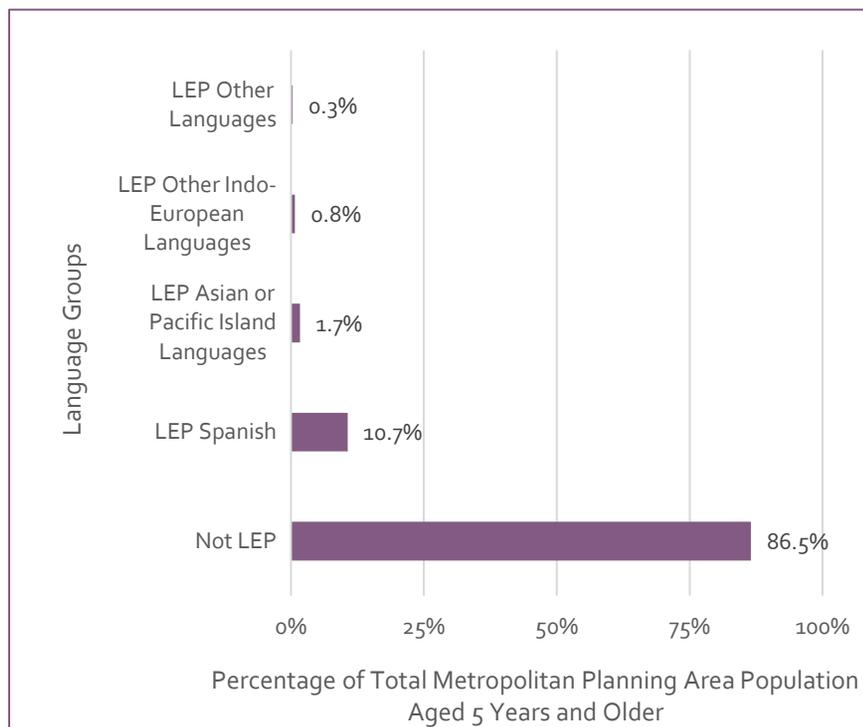
Changes in Language

As North Central Texas continues to become a more diverse region, the number of non-English speaking residents will likely increase. People who identify their ability to read, write, speak, or understand English as less than "very well" are considered Limited English Proficient (LEP). Transportation planners are concerned with how to effectively engage LEP speakers in outreach. According to the 2011-2015 American Community Survey results,

¹⁰ 2000 US Census & 2011-2015 American Community Survey 5-Year Estimates, www.census.gov

the largest LEP language group in North Central Texas is Spanish-speaking individuals, at almost 11 percent of the region’s population.¹¹ When all other languages are included, approximately 13 percent of the regional population has a limited ability to read, write, speak, or understand English. **Exhibit 3.0-11** represents the percentage of LEP individuals by language group in the region.

Exhibit 3.0-11: Limited English Proficiency (LEP) by Language Group, 2011 to 2015



Source: 2011-2015 American Community Survey 5-Year Estimates, www.census.gov

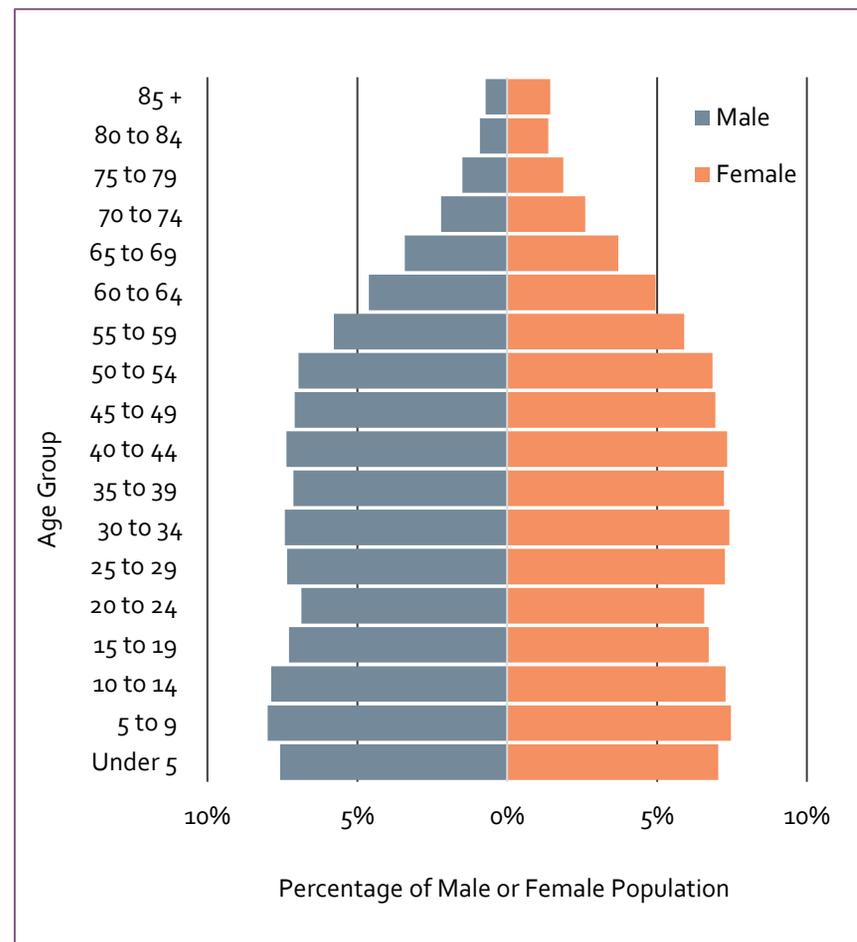
Changes in Age

Changes in age also are important for planners to consider, because different age groups can have different transportation needs. As people age, their travel behavior, preferences for housing location, and service needs may change.

¹¹ In calculating a language group’s share of the regional population, only individuals aged 5 and older are counted.

Exhibit 3.0-12 represents the age profile of North Central Texans for the years 2011 to 2015. The distribution of age groups remained relatively stable from 1990 to 2010. Notably, the 65 and over age group has grown by 63 percent between 2000 and 2015, although this group remains less than 10 percent of the total population.

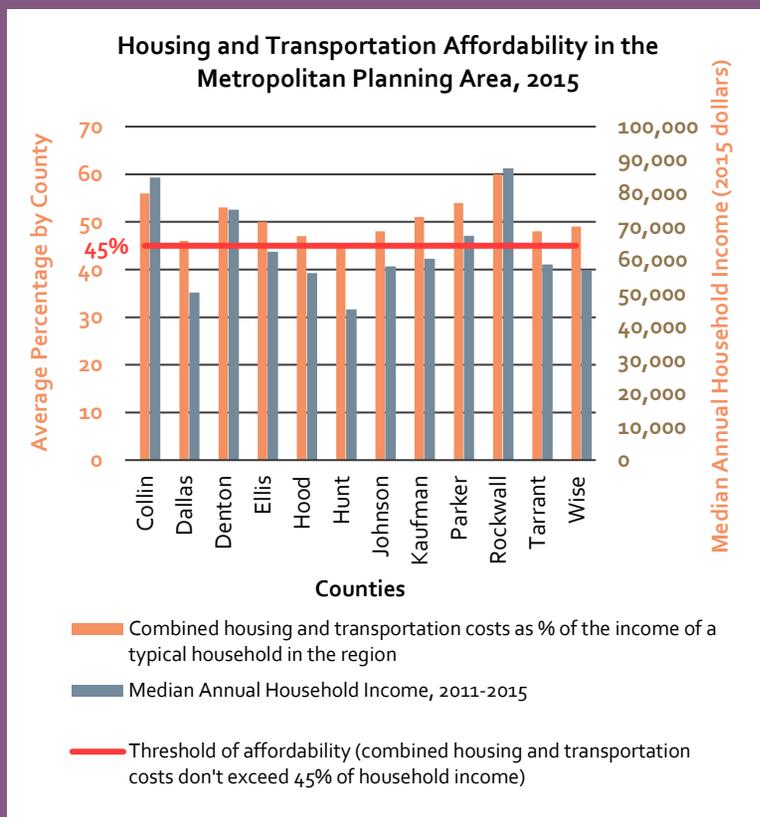
Exhibit 3.0-12: Regional Population by Age and Sex, 2011 to 2015



The North Central Texas Council of Governments strives to understand the current and future demographics of the region to provide an effective transportation system that meets the needs of a diverse region. Planners must understand the region’s demographics to effectively engage the public or to understand how people travel. Current trends, historical Census data, population projections, and economic factors are used to inform decision making. Cultural changes are also important to consider when developing infrastructure recommendations.

Cultural Trends

National trends indicate that residents may be changing their preferences concerning where they live and work; they also show that young people are delaying driving. Although these trends are not as prevalent in North Central Texas as elsewhere, the trends will likely have some impact between now and 2045. The cultural trends discussed below have a direct or indirect impact on how residents may utilize the regional transportation system now and in the future.



THE TRUE COSTS OF TRANSPORTATION

Most people consider housing costs to be the primary indicator of cost of living. However, transportation costs also contribute to household expenses. The Center for Neighborhood Technology (CNT) created the ‘Housing and Transportation Affordability Index’ to measure affordability of an area based on the combined cost of housing and transportation. CNT has defined an affordable range for combined housing and transportation costs as consuming no more than 45 percent of household income. Based on the 2011-2015 American Community Survey, CNT estimates that the average amount spent on housing and transportation costs in the MPA is 48 percent of household income. The graphic to the left shows variation of costs and median household income by county. The affordability threshold is exceeded in every county except Hunt.

With the region’s housing prices on the rise, cost pressure on households may intensify. For example, the average sales price for new homes in Dallas County increased by almost 4 percent in the 12 months ending in June 2017 when compared with the previous 12 months, according to a report from the US Department of Housing and Urban Development (<https://www.huduser.gov/portal/publications/pdf/DallasTX-comp-17.pdf>). Rents in the county increased by almost 7 percent in the same time period. However, the same report found that average sales prices for new homes in northern suburbs in Denton and Collin counties increased less than 1 percent, and rents increased less than 3 percent.

Increase in Telecommuting

A report by the US Census Bureau found that the percentage of US workers who worked at least one day a week from home grew from 7 percent to 9.5 percent between 1997 and 2010. The percentage of US workers who worked the majority of their days from home increased from 3.6 percent to 4.3 percent between 2005 and 2010.¹² In the North Central Texas region, the percentage of workers who worked the majority of their days from home grew from 4.2 percent in 2010 to 4.8 percent in 2015.¹³ Telecommuting can reduce demand on the transportation system and decrease the severity of peak-hour congestion.

Preferences of the Baby Boomer Generation

Baby boomers were born approximately between 1947 and 1965.¹⁴ A 2015 national survey by the Urban Land Institute found that 39 percent of baby boomers currently live in rural or small towns, and the remainder are evenly split between suburbs and cities. When asked about location preferences, 51 percent of baby boomers said they wanted to live in a rural or small town, 24 percent were attracted to the suburbs, and 22 percent preferred cities. However, these location preferences may contrast with quality-of-life preferences baby boomers also identified: 49 percent of baby boomers prioritized walkability and 49 percent would like to live in a place where they wouldn't need to use a car very often.¹⁵ Researchers who compared national Census data to birth and death records found that members of the baby boomer generation left urban counties between 2000 and 2010. The majority of these baby boomers migrated to non-metropolitan counties that featured recreational opportunities and scenic amenities. Dallas County experienced a net loss of baby boomers between 2000 and 2010, while Tarrant County showed a small net increase of younger baby boomers. Rockwall, Kaufman,

and Hood counties saw the greatest increase in baby boomers during that decade.¹⁶

Preferences of the Millennial Generation

The millennial generation includes people born approximately between 1979 and 1997.¹⁷

A national study by the Federal Highway Administration found that the number of vehicle miles traveled by 16- to 30-year-olds fell in 2009 compared with 1995 and 2001. The vehicle miles traveled by young people in 2009 were lower than the miles traveled by other age groups that year. However, economic factors, including the recession, may be responsible for some of this decrease.¹⁸ In the Dallas-Fort Worth-Arlington MSA, Census data show that the percent of workers aged 18 to 34 who carpooled or drove a car, truck, or van to work remained relatively constant between 1980 and 2013 (ranging from 91.5 percent to 93.1 percent).¹⁹

A 2015 national survey conducted by the Urban Land Institute found that most millennials (46 percent) lived in cities, 24 percent lived in suburbs, and 30 percent lived in rural or small towns. Cities were millennials' most commonly preferred location (37 percent) according to the survey, followed by rural or small towns (32 percent), and lastly suburbs (29 percent). Fifty-four percent of millennials considered walkability a high priority in choosing a place to live.²⁰ In a 2014 survey by the American Planning Association, millennials ranked metropolitan features including schools, transit, and safe streets as their third-highest consideration when choosing a place to live, below the cost of housing and transportation, and below jobs and business growth.²¹ These national trends conflict with the high levels of car dependency in the Dallas-Fort Worth-Arlington MSA.

¹² US Census Bureau, 2012, *Home-Based Workers in the United States: 2010*, www.census.gov

¹³ 2006-2010 & 2011-2015 American Community Survey 5-Year Estimates, www.census.gov

¹⁴ Data sources vary when identifying the birth years of baby boomers

¹⁵ Urban Land Institute, 2015, *America in 2015*, americas.uli.org

¹⁶ University of Wisconsin-Madison Applied Population Laboratory's 2013 Age-Specific Net Migration Estimates for US Counties, 1950-2010

¹⁷ Data sources vary when identifying the birth years of the millennial generation

¹⁸ Federal Highway Administration, *The Next Generation of Travel: Research, Analysis and Scenario Development*, https://www.fhwa.dot.gov/policy/otps/nextgen_finalreport.cfm

¹⁹ US Census Bureau, Social Explorer, & Minnesota Population Center, *Young Adults Then and Now*, <https://www.census.gov/censusexplorer/censusexplorer-youngadults.html>

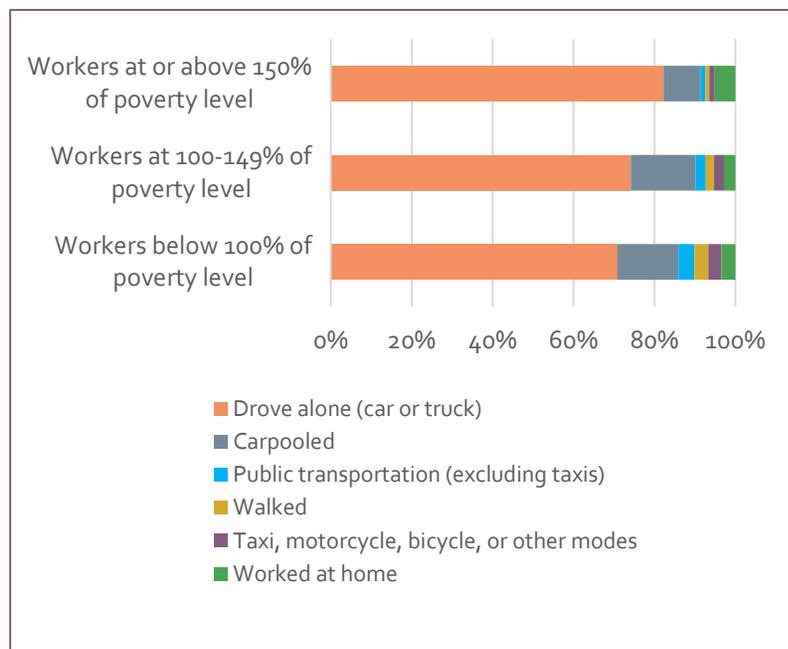
²⁰ Urban Land Institute, 2015, *America in 2015*, americas.uli.org

²¹ American Planning Association, 2014, *Investing in Place*, www.planning.org

Relationship between Income and Mode of Travel

Studies have demonstrated that personal and household income can influence choice of transportation mode. Typically, those with higher incomes more frequently choose to travel by private car.²² While the overwhelming majority of North Central Texas residents drive alone to work, Census data suggests that mode choice does vary by income group, as shown in **Exhibit 3.0-13**. Carpooling is more common among workers with incomes below 150 percent of poverty level. As income decreases, an increasing number of workers choose public transportation, walking, taxis, motorcycles, bicycles, and other modes.

Exhibit 3.0-13: Mode of Travel to Work by Income in the MPA, 2011 to 2015



Source: 2011-2015 American Community Survey 5-Year Estimates. www.census.gov

Nondiscrimination Efforts

The North Central Texas Council of Governments and the Regional Transportation Council are committed to providing an equitable transportation system for all residents. Throughout the development of Mobility 2045, nondiscrimination and environmental justice principles were incorporated so that no person is excluded from participation in, denied benefits of, or discriminated against in planning efforts. NCTCOG seeks to understand the impacts of programs and activities on the region and

ENVIRONMENTAL JUSTICE is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with regard to the development and implementation of plans, policies, and programs.

environmental justice populations through assessment, analysis, and outreach efforts. NCTCOG holds nondiscrimination as a core principle in all efforts, including transportation planning.

Several laws and regulations guide NCTCOG’s Nondiscrimination/ Environmental Justice Program. The first piece of nondiscrimination legislation that shapes NCTCOG’s efforts is Title VI of the Civil Rights Act of 1964. Title VI stated that “No person in the United

States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.” Title VI held all agencies that receive federal financial assistance accountable for their actions and mandated that those agencies ensure their policies and practices were not discriminatory in nature.

The Environmental Justice Movement, as it is known today, started in the early 1980s when low-income and minority populations began to protest the siting of toxic waste landfills in their neighborhoods. These efforts culminated in the signing of Executive Order 12898 in 1994, which mandated federal agencies incorporate environmental justice principles into their activities. The Federal

²² National Center for Sustainable Transportation, 2016, *What Affects U.S. Passenger Travel? Current Trends and Future Perspectives*, ncst.ucdavis.edu

Highway Administration identifies three fundamental principles related to transportation and environmental justice.

Under federal law, agencies must incorporate environmental justice into their activities. The three fundamental principles at the core of environmental justice are to:²³

- Avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations.
- Ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
- Prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

NCTCOG seeks, at a minimum, to meet all state and federal regulations relating to nondiscrimination; however, it is the goal of the agency to go above and beyond basic requirements to create a transportation system that is beneficial to all residents of the region. The following objectives guided the creation of Mobility 2045:

- Encourage community participation in the development of Mobility 2045, including traditionally underserved communities.
- Support data gathering and analysis of projects and programs to identify any potentially negative social, economic, health, or environmental impacts on communities.
- Seek to mitigate disproportionately high and adverse human health and environmental effects when identified through analysis or public comment.

These goals are a reflection of NCTCOG's continual efforts to serve all members of the community throughout the transportation planning process.

Mobility 2045 Policies

Mobility 2045 supports the following nondiscrimination and public involvement policies:

EJ3-001: Evaluate the benefits and burdens of transportation policies, programs, and plans to prevent disparate impacts and improve the decision-making process, resulting in a more equitable system.

EJ3-002: Balance transportation investment across the region to provide equitable improvements.

PI3-001: Meet federal and state requirements to ensure all individuals have full and fair access to provide input on the transportation decision-making process.

PI3-002: Demonstrate explicit consideration and response to the public input received.

PI3-003: Use strategic outreach and communication efforts to seek out and consider the needs of those traditionally underserved by the transportation planning process.

PI3-004: Enhance visualization of transportation policies, programs, and projects.

PI3-005: Provide education to the public and encourage input and engagement from all residents on the transportation system and the transportation decision-making process.

Integrating Nondiscrimination Principles into the Planning Process

Nondiscrimination is an integral concern while planning and developing projects. NCTCOG strives to address the needs of protected populations (low-income and minority individuals) and assess the impacts of activities

²³ Federal Highway Administration Environmental Justice Reference Guide, April 1, 2015, https://www.fhwa.dot.gov/environment/environmental_justice/publications/reference_guide_2015/fhwahep15035.pdf

throughout the span of a project, from planning to implementation. Understanding how populations utilize the transportation system, coupled with the knowledge of demographic trends, helps planners design a system that will accommodate current and future needs.

NCTCOG recognizes that some federally recognized tribal nations have historical and current interests in the region. NCTCOG endeavors to understand and address those interests through distinct processes that respect tribal nations’ sovereignty and the government-to-government relationship.

NCTCOG’s efforts to integrate nondiscrimination principles during planning involve three main components:

- **Assessment:** Identify the location of protected populations in the region. This serves as the first step in identifying potential impacts to protected populations.
- **Analysis:** Analyze the potential impacts of any project, policy, plan, or program recommendation. Staff should identify any disparate impacts of its decisions in the short- or long-term future.
- **Outreach:** Involve all population groups in plans or processes.

The North Central Texas Council of Governments’ Title VI Program documents all nondiscrimination efforts the department undertakes. This document can be found at www.nctcog.org/ej. The following discussion and analysis focuses on specific efforts to support nondiscrimination in all transportation planning programs, policies, and activities.

Assessment: Identifying Protected Populations

Executive Order 12898 states that agencies must collect, maintain, and analyze information on environmental justice populations located near sites that may have a substantial environmental, health, or economic effect on nearby populations. The magnitude and scope of Mobility 2045’s recommendations require population patterns of the entire region be evaluated.

The first step in the process is to identify where the region’s low-income and minority populations are located. These federally designated populations are referred to as environmental justice or protected populations and are defined in **Exhibit 3.0-14**.

Exhibit 3.0-14: Federally Designated Environmental Justice Population Definitions

Population	Definition
Black or African American Race	A person having origins in any of the Black racial groups of Africa.
American Indian or Alaska Native Race	A person having origins in any of the original peoples of North and South America who maintain tribal affiliation or community attachment.
Asian Race	A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian Subcontinent.
Native Hawaiian or Other Pacific Islander Race	A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.
Hispanic or Latino Ethnicity	A person of Mexican, Puerto Rican, Cuban, Central or South America, or other Spanish culture or origin regardless of race.
Some Other Race ²⁴	A person belonging to a race other than White, Black or African American, American Indian or Alaska Native, Asian, or Native Hawaiian or Other Pacific Islander.
Two or More Races ²⁴	A person belonging to two or more of the following racial categories: White, Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, or Some Other Race.
Low-Income	A person whose household income is below the poverty line as determined by the US Department of Health and Human Services.

²⁴ The populations Some Other Race and Two or More Races are not identified by Federal Highway Administration Order 6640.23A as minority populations, but NCTCOG includes these

groups to meet the spirit of protecting groups who may have been historically discriminated against as a result of race, color, or national origin.

The following groups also are considered throughout the planning process in order to meet the requirements of Title VI-related statutes and guidance on transportation-disadvantaged groups:

- People aged 65 years and older
- People with disabilities
- People who are Limited English Proficient
- Female head of household (any female-headed household with children under 18 years old and no husband present)
- Zero-car households

Maps depicting the locations of these populations in the region are found in appendix **B: Social Considerations**.

The Environmental Justice Index (EJI) was developed by NCTCOG to identify Census block groups with concentrations of low-income and/or minority populations for analysis. The resulting map is a starting point for further analysis using additional data provided within the EJI; the Federal Transit Administration states that no threshold should function as a “bright line” to exclude populations from analysis.²⁵ The EJI also is used to examine how recommendations in *Mobility 2045* affect protected populations.

Exhibit 3.0-15 displays the EJI for the North Central Texas 12-county MPA. All calculations are based on the 2011-2015 American Community Survey 5-Year Estimates.

Analysis: Considering Potential Impacts beyond Mobility 2045

Through its programs and policies, the NCTCOG Transportation Department evaluates whether environmental justice and nondiscrimination principles are met for protected populations and transportation-disadvantaged groups. This section provides a broad overview of NCTCOG initiatives that are independent of *Mobility 2045*.

- Following the development of the Metropolitan Transportation Plan, NCTCOG’s Transportation Department develops a Regional Tolling Analysis for use in National Environmental Policy Act (NEPA)

investigations. The Regional Tolling Analysis evaluates the effects of the proposed expansion of the regional priced facility system on environmental justice populations.

- The department works toward equity in transit by providing planning tools and guidance for local municipalities, advancing regional research efforts, and administering federally funded programs that improve transportation options for older adults, individuals with disabilities, and low-income individuals.
- The department’s Sustainable Development Program incorporates equity principles into selection criteria for active transportation, Complete Streets, and transit access projects.
- NCTCOG likewise ensures that equity considerations are integrated into the regional Travel Demand Model, air quality technology improvement projects, periodic reviews of how transportation funding is geographically distributed within the region, and project-level environmental reviews conducted in accordance with NEPA.

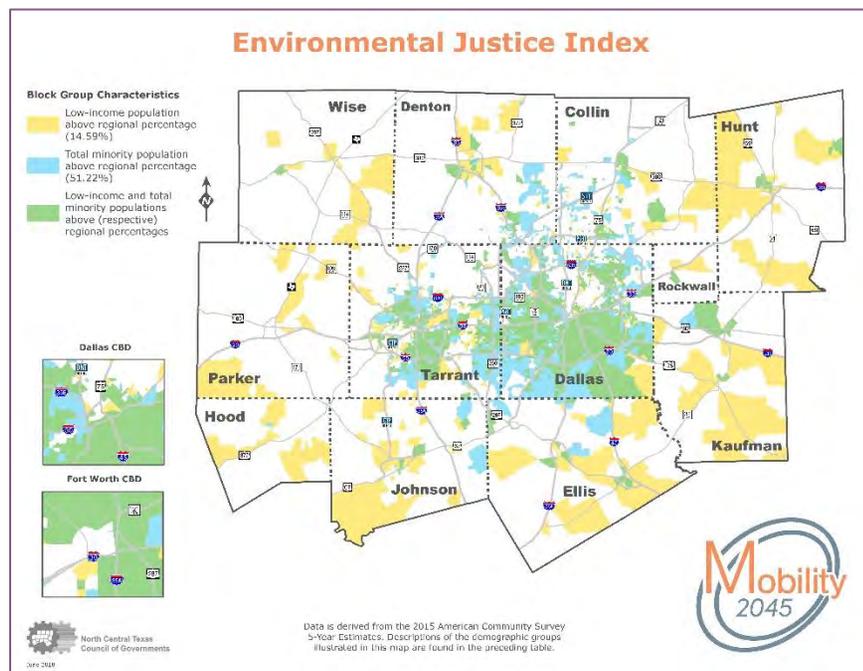
NCTCOG strives to enhance its environmental justice analysis methodology and nondiscrimination efforts by engaging in peer review with other Metropolitan Planning Organizations and Departments of Transportation.

Outreach: Engaging Community Members

Equity considerations play an integral role in NCTCOG’s efforts to continuously improve the outreach methods outlined in its Public Participation Plan and Language Assistance Plan. For example, the Transportation Department has translated several of its written publications, expanded its media list to reflect the region’s diversity, and conducted outreach at community events like back-to-school and health fairs. These efforts extend beyond the Metropolitan Transportation Plan to other departmental programs and projects. Targeted outreach to transportation-disadvantaged groups and protected populations is a critical component of the department’s *Access North Texas* public transportation plan and air quality funding programs like AirCheckTexas.

²⁵ Federal Transit Administration, Environmental Justice FAQs, <https://www.transit.dot.gov/regulations-and-guidance/environmental-programs/environmental-justice/environmental-justice-faqs>

Exhibit 3.0-15: Environmental Justice Index for the 12-County MPA



More information on outreach efforts can be found in the *Public Involvement* section of this chapter. More information on *Access North Texas* can be found in the *Public Transportation* section of the **Mobility Options** chapter.

Regional Environmental Justice Analysis

Nondiscrimination efforts are considered at multiple levels throughout the transportation planning and project development process, from the long-range plan to project implementation. Analysis is conducted at four levels to ensure no one population bears undue burdens of the transportation system and to provide a greater understanding of how the project will impact a community on a macro and micro level.

Projects proceed through the four levels of environmental justice analysis shown in **Exhibit 3.0-16**. This section of *Mobility 2045* analyzes environmental justice at the Metropolitan Transportation Plan level.

Exhibit 3.0-16: Levels of Environmental Justice Analysis during Transportation Planning and Project Development Process

Analysis	Metropolitan Transportation Plan (Mobility 2045)	Regional Priced Facilities	National Environmental Policy Act	Construction/Project Implementation
Scope	All projects proposed in Mobility 2045 on a regional level	All new priced facilities proposed in Mobility 2045 on a regional level	Project/corridor-specific analysis	Disadvantaged Business Enterprise and contractor requirements
Results	Impacts of proposed projects on regional mobility and accessibility	Regional impacts on communities with the addition of all priced facilities	Localized impacts on a community due to the construction and operation of a project, including noise and air quality concerns	Job Opportunities Program, enhancing environmental justice community involvement and outreach

An environmental justice analysis was conducted on three components of Mobility 2045:

- The prioritization of roadway and transit projects to be recommended in the plan.
- The potential system-wide impacts of tollways.
- The system-wide performance of roadway and transit projects recommended in the plan.

Project Prioritization: Environmental Justice Methodology and Results

NCTCOG applied a nondiscrimination analysis following the project prioritization process described in the **Mobility Options** chapter. Roadway and transit recommendations in Mobility 2045 were analyzed to identify whether their staging, or the timing of their construction, may deny, reduce, or significantly delay the receipt of benefits by minority or low-income populations. No discrimination was found.

The transit stations analyzed included rail, streetcar, and high-intensity bus. Because data on plans for traditional bus routes was not available for all areas, these stations were excluded from the analysis. Some high-intensity bus routes duplicate existing traditional bus routes, but they were included in the analysis because they provide the additional benefit of reduced travel times because due to their ability to travel on roadways where congestion is managed through tolls.

The analysis quantified added lane miles and added transit stations for the interim year 2028 and for the plan horizon year of 2045 as compared with 2018. A one-mile travelshed was established for lane miles. A half-mile walkshed was established for transit stations. Added lane miles and added transit stations were overlaid with Census block groups with a concentration of minority or low-income populations using data from the 2015 American Community Survey 5-Year Estimates. However, the locations where concentrations of protected groups reside may change over time; this analysis is unable to project those changes.

For 2028 and 2045, the majority of added lane miles and added transit stations provide a transportation benefit to areas with concentrations of minority or low-income populations (**Exhibits 3.0-17 and 3.0-18**). The benefit is greatest in 2028, indicating the benefit is not delayed. In 2028, 82 percent of added lane miles are located within the one-mile travelshed for protected groups. Thirty-one percent of the Metropolitan Planning Area is in a block group considered protected for this analysis. Therefore, 82 percent of added lane miles serve this 31 percent of the region where a concentration of protected populations reside. This comparison holds true for 2045, and for added transit stations in 2028 and 2045.

However, from 2028 to 2045, a decreasing, though still majority, percentage of added lane miles and added transit stations provide a benefit to minority or low-income populations. NCTCOG will repeat this analysis in future Metropolitan Transportation Plans to ensure recommendations do not deny, reduce, or significantly delay the receipt of benefits by minority or low-income populations.

Exhibit 3.0-17: Project Prioritization Nondiscrimination Analysis of Roadway Lane Miles

Year	Total Lane Mileage	Lane Miles Near Protected Groups		Total Added Lane Miles*		Added Lane Miles Near Protected Groups	
	Number	Number	%	Number	%	Number	%
2018	5,950.70	5,204.39	87%	n/a	n/a	n/a	n/a
2028	6,943.34	6,017.34	87%	992.63	100%	812.95	82%
2045	7,896.35	6,666.30	84%	1,945.65	100%	1,461.91	75%

*Roadway projects included as recommendations in Mobility 2045

Exhibit 3.0-18: Project Prioritization Nondiscrimination Analysis of Transit Stations

Year	Total Transit Stations	Transit Stations Near Protected Groups		Total Added Transit Stations*		Added Transit Stations Near Protected Groups	
	Number	Number	%	Number	%	Number	%
2018	91	88	97%	n/a	n/a	n/a	n/a
2028	122	115	94%	31	100%	27	87%
2045	177	162	92%	86	100%	74	86%

*Stations included as recommendations in Mobility 2045

Tollways: Environmental Justice Methodology and Results

The results of the environmental justice analysis of tollways indicate that implementing the policies, programs, and projects of Mobility 2045 would not have disproportionate impacts on environmental justice populations.

For the system-wide tollway and tolled managed lane analysis, the origins of the trips drivers make are estimated and reviewed to determine whether protected populations and non-protected populations experience similar levels of mobility and accessibility. This analysis is performed for the No-Build (of tolled facilities) scenario versus the Build (including tolled facilities) scenario for the system of toll roads and tolled managed lanes. System-level performance such as overall congestion, vehicle miles of travel, and speeds are reviewed to determine what regional impacts would occur if the tollways or tolled managed lanes were not constructed. The results of these analyses are shown in **Exhibit 3.0-19** which compares travel information for three categories of traffic survey zones (TSZ):

1. The percentage of individuals in the TSZ living in a household below poverty is greater than the region’s percentage of individuals living in a household below poverty.

2. The percentage of individuals in the TSZ belonging to a protected class is greater than the region’s percentage of individuals belonging to a protected class.
3. TSZs that do not meet the requirements of 1 or 2.

For each of these TSZ categories, **Exhibit 3.0-19** shows the number of jobs within 30 minutes by auto, the average roadway speed in the zones, and the number of minutes it would take to travel 20 miles from the zones.

As **Exhibit 3.0-19** shows, a Build scenario of the tolled and tolled managed system would benefit all North Central Texas commuters regardless of TSZ category. A Build scenario of the tolled and tolled managed lane system would result in more jobs within 30 minutes by car, a higher average speed, and shorter times required to travel 20 miles for all commuters regardless of their TSZ category. These results indicate that construction of this toll road and tolled managed lane system creates no disproportionate impacts on environmental justice populations.

Future analyses, including the Regional Tolling Analysis described earlier in this chapter, will evaluate trips at the corridor level for individual roadway studies in accordance with the National Environmental Policy Act.

Exhibit 3.0-19 Results of Tollways Environmental Justice Analysis

	Traffic Survey Zone Category					
	Below Poverty		All Protected Classes		Non-Protected Classes	
	No-Build (of Tolloed Facilities)	Build (including Tolloed Facilities)	No-Build (of Tolloed Facilities)	Build (including Tolloed Facilities)	No-Build (of Tolloed Facilities)	Build (including Tolloed Facilities)
Jobs Within 30 Minutes by Automobile	667,698	686,394	634,685	654,315	362,123	376,509
Average Speed (mph)	24.99	26.41	23.71	25.15	23.88	25.07
Minutes to Travel 20 Miles	48.02	45.43	50.60	47.70	50.25	47.87

Metropolitan Transportation Plan: Environmental Justice Analysis Methodology

Mobility 2045 has identified \$135.5 billion in transportation projects spread over approximately 9,500 square miles. Because of the magnitude of projects to be analyzed, an environmental justice assessment of each project is infeasible. For this reason, the Travel Demand Model is used to perform a regional environmental justice analysis on the entire transportation system proposed in Mobility 2045.

One goal of Mobility 2045 is to make transportation options more available for people and goods. This is achieved through enhancing mobility and accessibility. Mobility is the ability for people and goods to travel from one place to another. Mobility can be affected by factors such as design, road capacity, or Intelligent Transportation Systems such as electronic toll collectors and dynamic message signs that inform drivers about traffic conditions. Accessibility describes how well the system provides access to locations and opportunities. Accessibility can be affected by factors such as the cost in time and dollars and the number of modal choices available to reach a location.

Six performance indicators that identify quality-of-life factors affected by accessibility and mobility are used to evaluate the Mobility 2045 recommendations. These performance indicators are shown in **Exhibit 3.0-20** and the results of the Mobility 2045 evaluation are shown in **Exhibits 3.0-21 through 3.0-33**.

The Mobility 2045 recommendations were evaluated using the established performance indicators and demographic data from the 2011-2015 American Community Survey (ACS) 5-Year Estimates. In 2010, the decennial Census discontinued reporting income data. Moving forward, the North Central Texas Council of Governments EJI and Metropolitan Transportation Plan Environmental Justice Analysis will acquire this data from ACS estimates. The ACS data is based on a sample of the population and therefore has a larger margin of error than the decennial Census data; however, this is the most complete data available for this analysis. More information regarding data considerations can be found at www.census.gov.

Exhibit 3.0-20: Environmental Justice Performance Indicators

Accessibility	Mobility
<ul style="list-style-type: none"> • Number of jobs accessible within 30 minutes by automobile* • Number of jobs accessible within 60 minutes by transit* • Population within 30 minutes to university and regional shopping center special generators • Population within 15 minutes to hospitals 	<ul style="list-style-type: none"> • Average level of congestion • Average travel time

The following four steps were used to complete the Environmental Justice Analysis for Mobility 2045:

Step 1. Identified Protected Populations: Traffic survey zones with a percentage of low-income or total minority population above the percentage for the total region were identified as protected. These zones are referred to as the “EJ Aggregate Protected Population” in the results. Traffic survey zones above the regional percentage for any single population listed in **Exhibit 3.0-14** were also identified as protected. These results are documented in appendix **B: Social Considerations**. When a traffic survey zone is included as a protected zone, the entire population of the zone is considered protected for this analysis.

Step 2. Calculated Performance Indicators: Protected traffic survey zones were compared to non-protected traffic survey zones for the identified performance indicators. A detailed description of how the performance indicators were calculated can be found in appendix **B: Social Considerations**.

Step 3. Analyzed Network and Demographic Scenarios: The six performance indicators were compared across several scenarios that combined existing or planned transportation networks and current and future demographics:

- **2018 Current Network:** Existing roadway and transit facilities with 2018 population.
- **2045 Build Network:** All roadway and transit facilities recommended in Mobility 2045 with 2045 demographics.
- **2045 No-Build Network:** Existing roadway and transit facilities with 2045 demographics.
- **2045 Priced Facilities No-Build Network:** All roadway and transit facilities recommended in Mobility 2045, excluding new or expanded priced facilities, and 2045 demographics (results detailed in *Tollways: Environmental Justice Methodology and Results* section above).

Step 4. Compared Results: Current, Build, and No-Build scenarios were compared for protected and non-protected populations.

The Current network forms the baseline for assessing the impacts of building the Mobility 2045 roadway and transit recommendations. Rerouting current facilities to remedy potential disparities between protected and non-protected groups is not a realistic option; therefore, Mobility 2045 compares the Current and Build scenarios to see the rate at which any disparities are being perpetuated in future plans. Comparing the Current and No-Build scenarios establishes that improvements to the current transportation system are

essential to accommodate population growth. The results are compared across the different scenarios to provide a complete picture of how changes in the transportation system impact mobility and accessibility in North Central Texas.

Due to the rapid population growth that is forecast to continue through 2045, some of the performance indicators worsen even in the 2045 Build scenario. The primary purpose of the Regional Environmental Justice Analysis is to determine whether the recommendations in the plan have a disproportionate or adverse impact on protected groups when compared to non-protected groups. The following discussion summarizes the results of the environmental justice performance indicators. Appendix **B: Social Considerations** provides the detailed regional environmental justice analysis results, including performance indicator outcomes for the aggregate and individual protected populations.

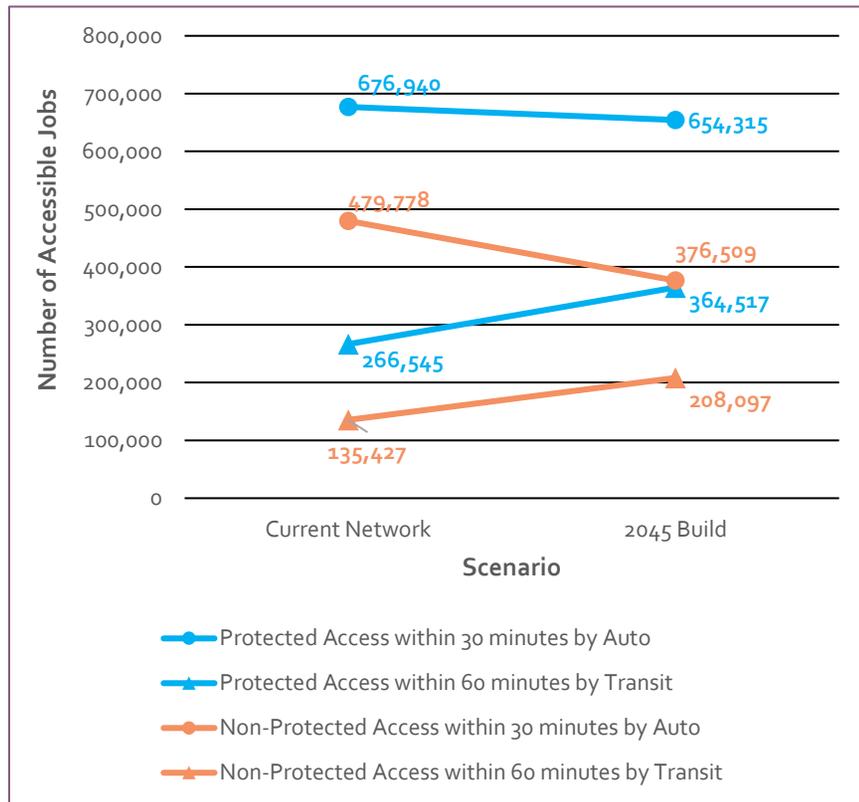
Metropolitan Transportation Plan: Environmental Justice Analysis Results

The results of the environmental justice analysis show that even if the Mobility 2045 roadway recommendations are built (2045 Build), the transportation system provides protected populations access to 3 percent fewer jobs by car within 30 minutes. This reduction is caused by the increased congestion that results from population growth. However, the results of the analysis show that if Mobility 2045 transit recommendations are built, protected populations will gain access to 37 percent more jobs by transit within 60 minutes. Both protected and non-protected populations are expected to experience a decrease in jobs accessible within 30 minutes by auto, but protected populations are expected to experience less of a decrease. Both groups are expected to experience an increase in the number of jobs accessible within 60 minutes by transit. **Exhibits 3.0-21 and 3.0-22** reflect the number of jobs accessible for both protected and non-protected populations between the Current, 2045 Build, and 2045 No-Build scenarios. It is important to note that the analysis does not include demand-response transit services and does not fully reflect the potential expansion of bus routes in the region.

However, if the transportation system remains as it is today, as illustrated by 2045 No-Build, both protected and non-protected groups are expected to experience a decline in the number of jobs accessible by both auto and transit.

The decrease in access to jobs by auto, even with the 2045 Build scenario, can be attributed to increased regional congestion. Exhibits 3.0-23 and 3.0-24 display congestion changes for protected and non-protected populations across the three scenarios. In the Current, 2045 Build, and 2045 No-Build scenarios, the protected populations experience more localized congestion than the non-protected populations. This may be because the majority of protected populations live close to the urban core where congestion tends to be worse. Congestion will worsen at a faster rate for non-protected populations, however, in both the 2045 Build and 2045 No-Build scenarios.

Exhibit 3.0-21: Job Access by Auto and Transit, Current to 2045 Build



With increased congestion, the length of time to travel a set distance increases. To relate the localized congestion displayed above to everyday travel, the average trip time and length for each scenario was determined. An average mile per hour was calculated to determine the time it would take both protected and non-protected populations to travel 20 miles across all three scenarios. Twenty miles was used as the threshold because it represents an average commute length in the Dallas-Fort Worth area.

Exhibit 3.0-22: Job Access by Auto and Transit, Current to 2045 No-Build

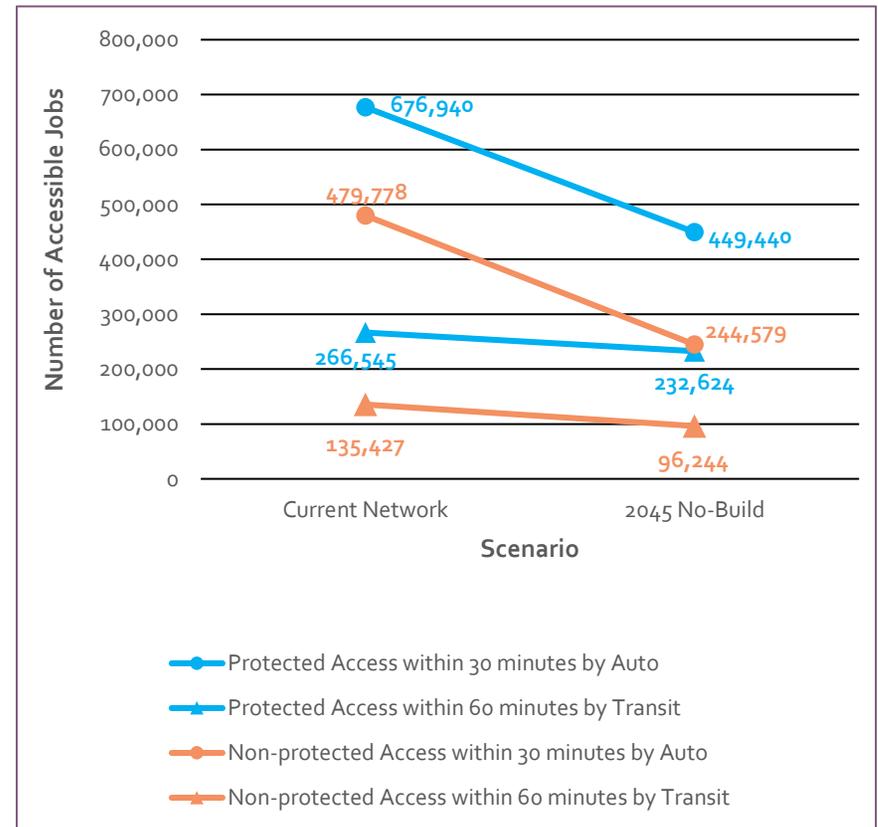


Exhibit 3.0-23: Localized Congestion Change, Current to 2045 Build

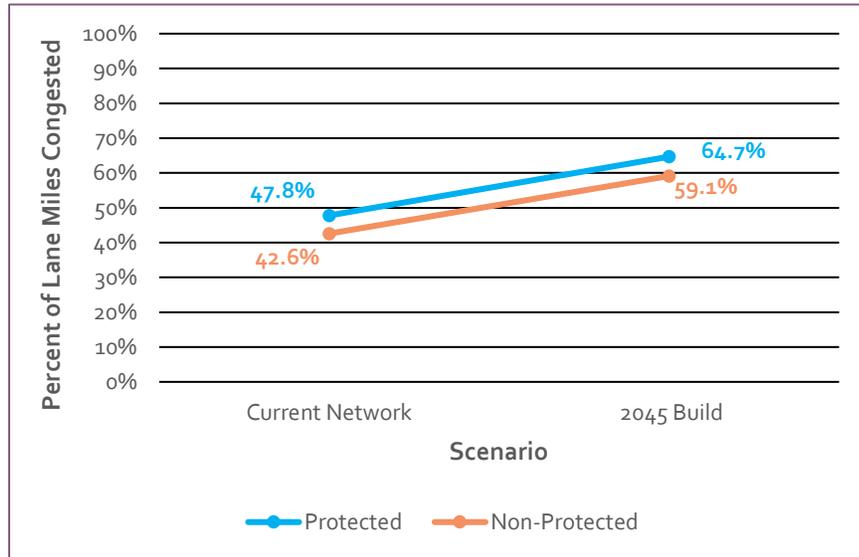
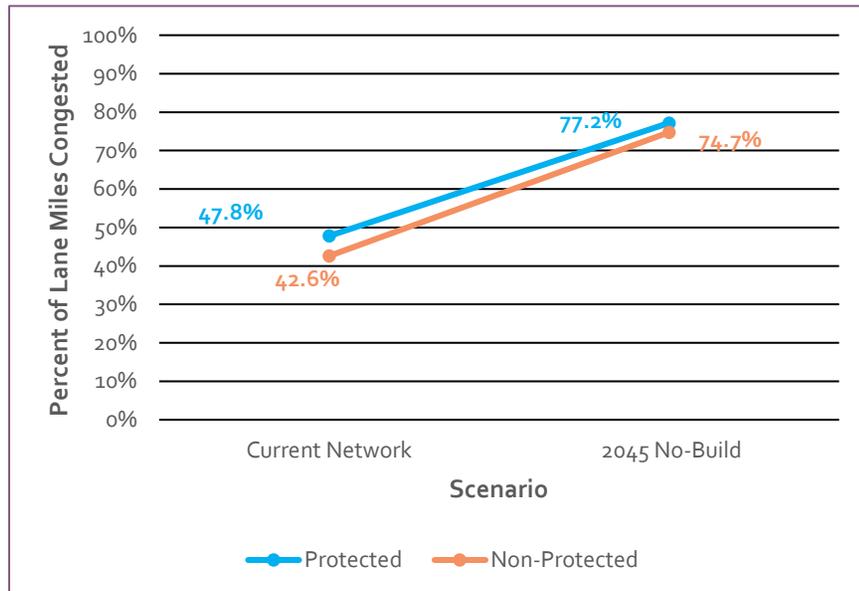
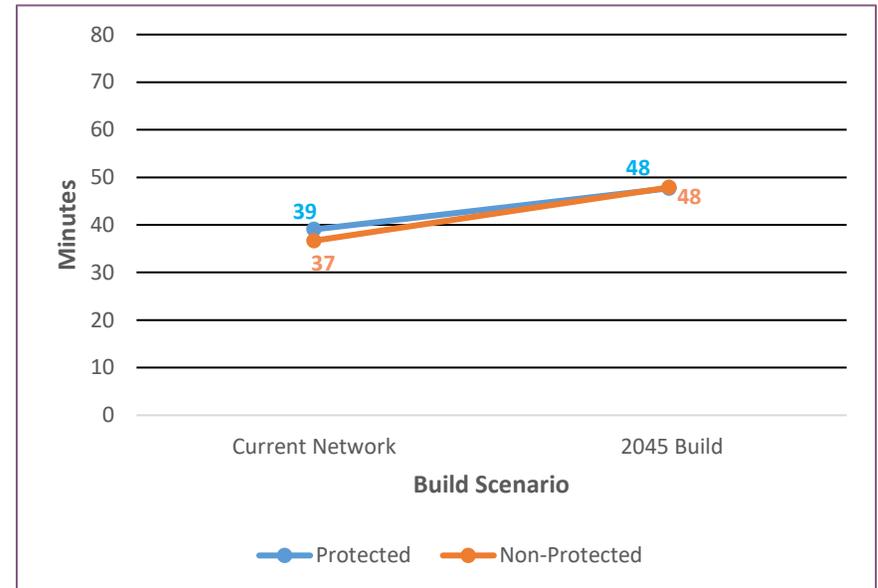


Exhibit 3.0-24: Localized Congestion Change, Current to 2045 No-Build

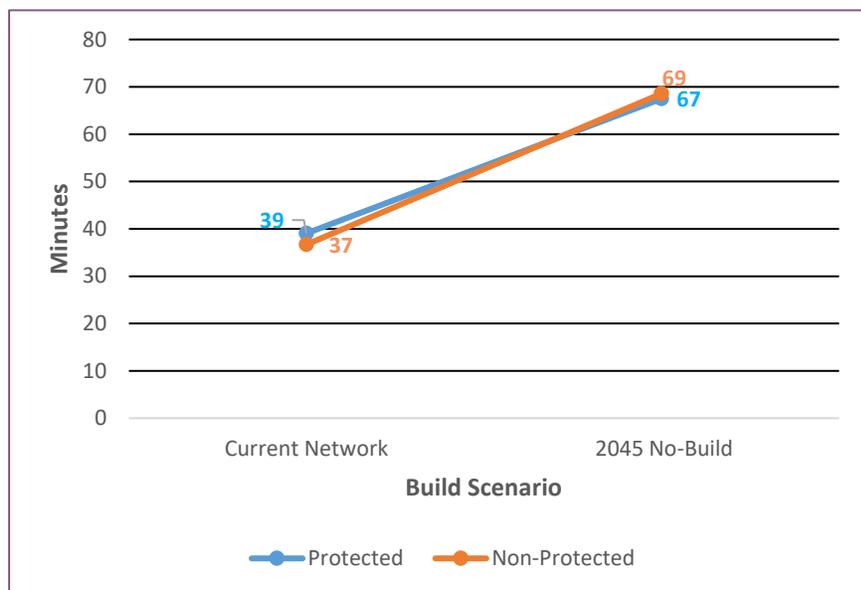


The results in Exhibits 3.0-25 and 3.0-26 reflect the outcome of this congestion. Both protected and non-protected groups are expected to experience similar increases in the amount of time it takes to travel 20 miles by auto in the 2045 Build scenario and the 2045 No-Build scenario. However, the rate of increase for both groups is higher with the 2045 No-Build scenario.

Exhibit 3.0-25: Average Time in Minutes to Travel 20 Miles by Auto, Current to 2045 Build

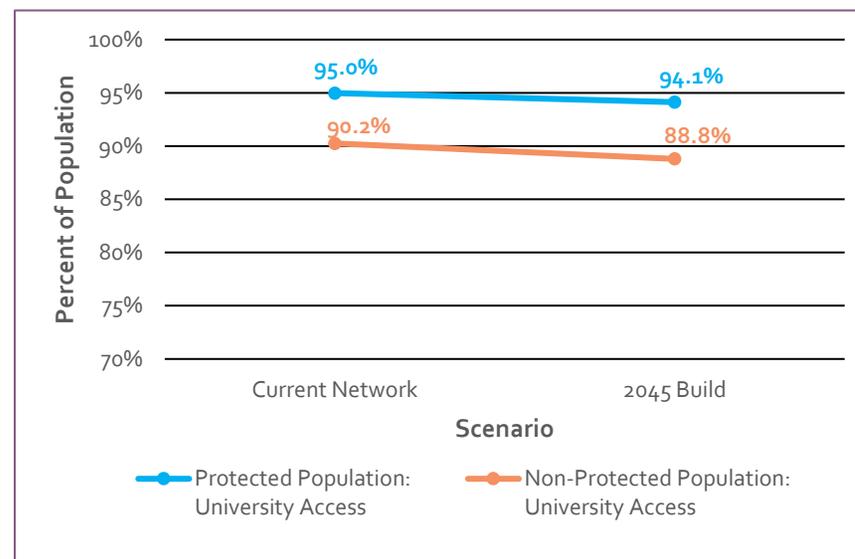


To determine accessibility to regional attractions, the environmental justice analysis calculated percent of populations residing within 30 minutes of universities or regional shopping centers by auto and within 15 minutes of hospitals by auto. The lower time threshold of 15 minutes was used for hospitals due to the critical nature of accessing emergency care.

Exhibit 3.0-26: Average Time in Minutes to Travel 20 Miles by Auto, Current to 2045 No-Build


Access to Universities: A greater percentage of the protected population lives within 30 minutes of a university across all scenarios (**Exhibits 3.0-27, 3.0-28**). Both populations see a decline with the 2045 Build scenario, but 94.1 percent of the protected population remains within the 30-minute threshold. Both populations see greater declines with the 2045 No-Build scenario, but non-protected populations' access declines at a greater rate.

Access to Regional Shopping Centers: A greater percentage of the protected population lives within 30 minutes of a regional shopping center across all scenarios (**Exhibits 3.0-29, 3.0-30**). Both populations see a decline with the 2045 Build scenario, but 93.5 percent of the protected population remains within the 30-minute threshold. Both populations see greater declines with the 2045 No-Build scenario, but non-protected populations' access declines at a greater rate.

Exhibit 3.0-27: Percent of Population within 30 Minutes of a University, Current to 2045 Build


Access to Hospitals: A greater percentage of the protected population lives within 15 minutes of a hospital across all scenarios (**Exhibits 3.0-31, 3.0-32**). Both populations see a decline with the 2045 Build scenario, and less than 70 percent of the protected population remains within the 15-minute threshold. Both populations see greater declines with the 2045 No-Build scenario, but non-protected populations' access declines at a greater rate. With both the 2045 Build and 2045 No-Build, the percent of population within the 15-minute threshold declines at a higher rate for non-protected populations than for protected populations.

Exhibit 3.0-28: Percent of Population within 30 Minutes of a University, Current to 2045 No-Build

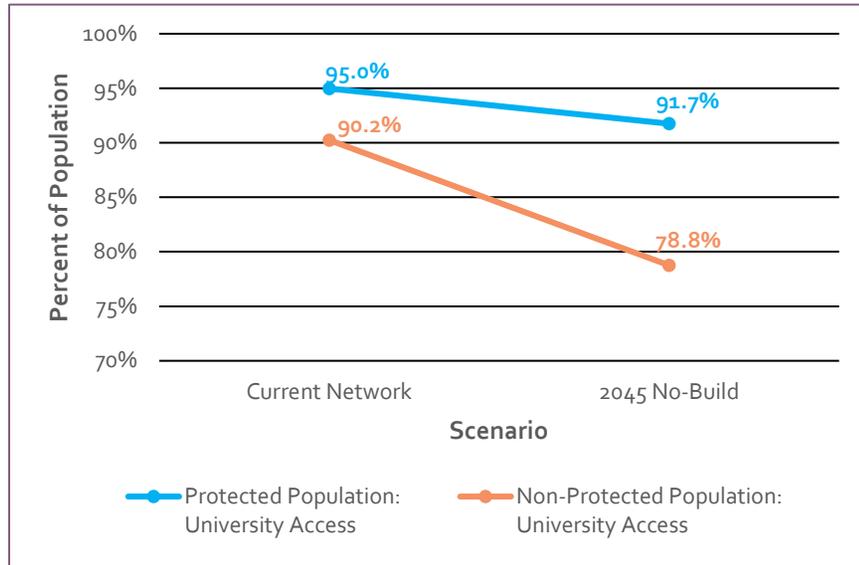


Exhibit 3.0-30: Percent of Population within 30 Minutes of a Regional Shopping Center, Current to 2045 No-Build

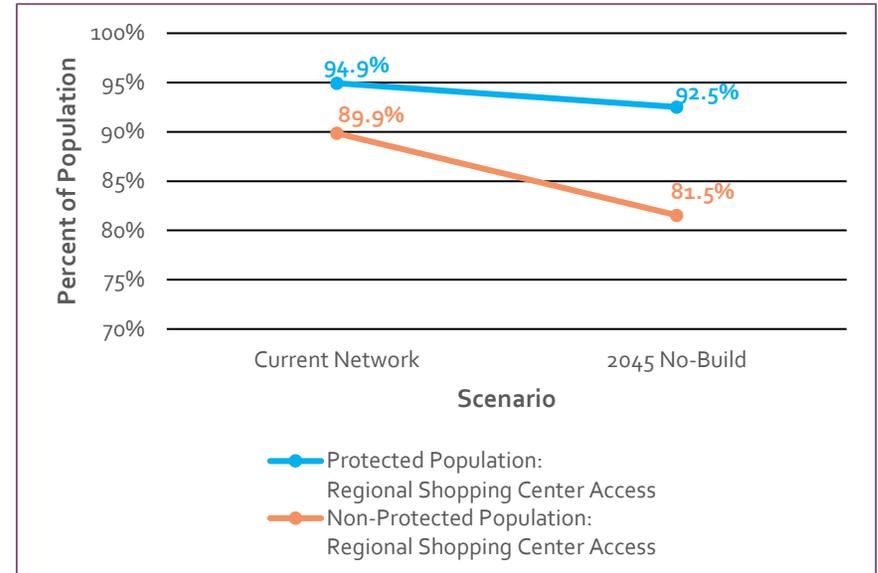


Exhibit 3.0-29: Percent of Population within 30 Minutes of a Regional Shopping Center, Current to 2045 Build

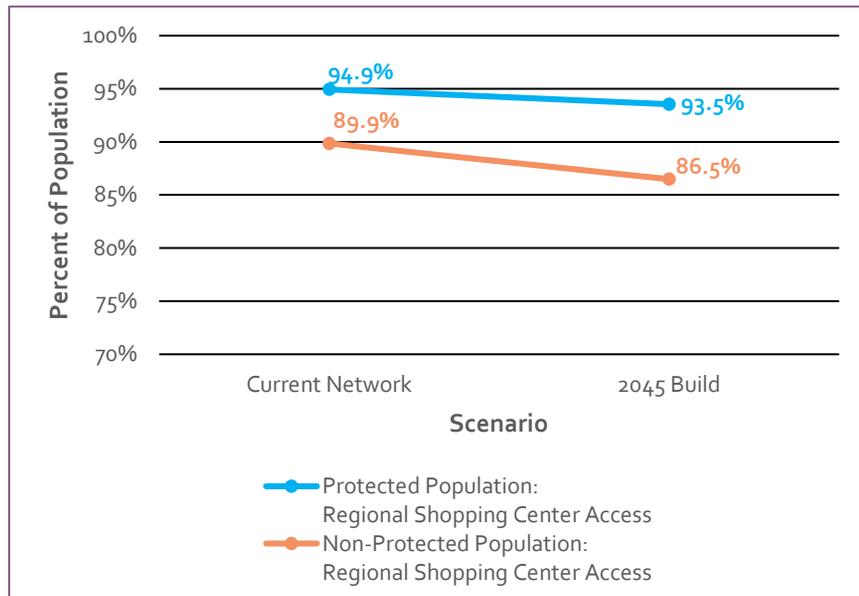


Exhibit 3.0-31: Percent of Population within 15 Minutes of a Hospital, Current to 2045 Build

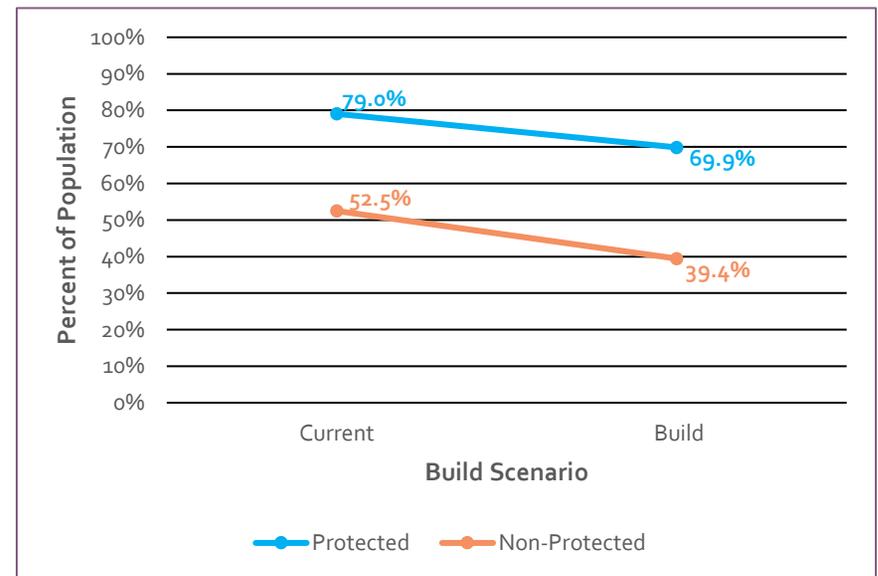
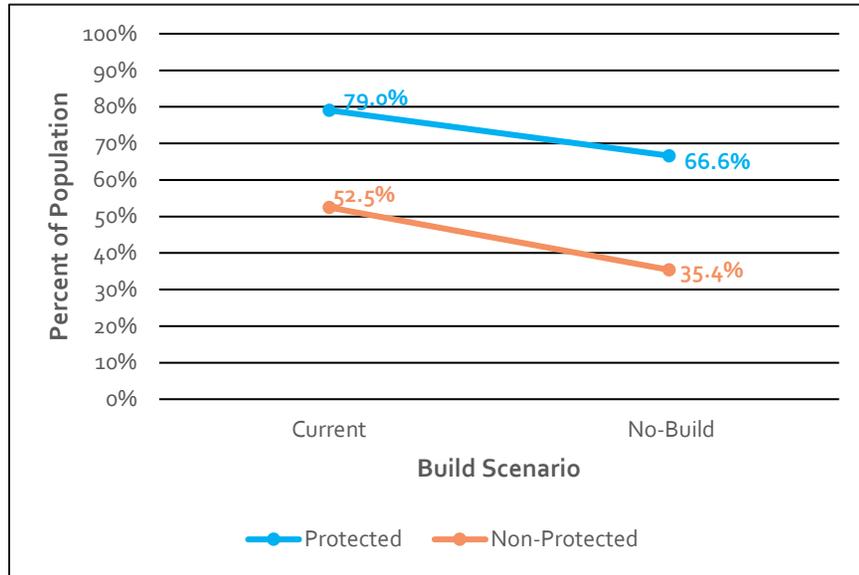


Exhibit 3.0-32: Percent of Population within 15 Minutes of a Hospital, Current to 2045 No-Build



Summary

As a whole, Mobility 2045 roadway and transit recommendations do not have disparate impacts on protected populations. **Exhibit 3.0-33** illustrates the overall results of the three main performance indicators for the environmental justice aggregated population compared with the non-protected population. Because expected population growth will increase congestion, overall mobility and accessibility by auto decrease in the 2045 Build scenario, but they decrease at a slower rate for protected populations. Mobility 2045’s multimodal recommendations contribute to offsetting these declines. The plan’s transit recommendations yield increased accessibility. While this access is expected to increase at a greater rate for non-protected populations, protected populations are expected to continue to have access to more jobs by transit than non-protected populations. The North Central Texas Council of Governments will continue to analyze accessibility in future Metropolitan Transportation Plans to ensure disparate impacts do not develop. Appendix **B: Social Considerations** contains the complete methodology and results for all protected populations for the environmental justice analysis.

**Exhibit 3.0-33: Environmental Justice Analysis Performance Results for Environmental Justice
Aggregate Protected Population Compared to Non-Protected Population**

Performance Measure	Population	2018 Current Network	2045 Build	2045 No-Build	Percent Change (Current vs Build)	Percent Change (Current vs No-Build)	Difference Between Current-Build and Current-No-Build
Protected Population vs Non-Protected Population	Protected	3,998,817	5,555,650	5,555,650			
	Non-Protected	3,430,906	5,690,881	5,690,881			
	Totals	7,429,723	11,246,531	11,246,531			
Number of Jobs Accessible within 30 Minutes by Auto	Protected	676,940	654,315	449,440	-3.3%	-33.6%	30.3%
	Non-Protected	479,778	376,509	244,579	-21.5%	-49.0%	27.5%
	Difference	197,162	277,806	204,861			
Number of Jobs Accessible within 60 Minutes by Transit	Protected	266,545	364,517	232,624	36.8%	-12.7%	49.5%
	Non-Protected	135,427	208,097	96,244	53.7%	-28.9%	82.6%
	Difference	131,118	156,420	136,380			
Percent of Lane Miles Congested	Protected	48%	65%	77%	35%	61%	26%
	Non-Protected	43%	59%	75%	39%	76%	37%
	Difference	5%	6%	2%			

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3.1: Travel and Tourism

The Importance of Travel and Tourism

Travel and tourism continue to be one of the biggest contributors to the economy in North Central Texas. Each year travelers and tourists spend over \$20 billion on hotels, meals, shopping, and attractions.²⁶ Both Dallas and Fort Worth are in the top five destinations in Texas for visitors within the US. These visits translate into billions more in indirect spending and support nearly 700,000 jobs in the region.²⁷

The majority of visitors to the region are from Texas and other states within the US,²⁸ with 12 percent of visitors coming from international destinations.²⁹ The majority of international visitors are from Mexico.³⁰ Most other international visitors come from Canada, United Kingdom, Germany, China, Australia, and Brazil.³¹

Some of the most popular tourist destinations in North Central Texas are:

- The Fort Worth Stockyards National Historic District
- The Sixth Floor Museum at Dealey Plaza in Dallas
- Southfork Ranch in Parker
- The Dallas Arts District
- The Fort Worth Cultural District
- Fair Park in Dallas
- Dallas and Fort Worth zoos
- Deep Ellum, Uptown, Greenville Avenue, Inwood, Knox-Henderson, Victory Park, the Design District, the Bishop Arts District, and Trinity Groves in Dallas
- Sundance Square, West 7th Street, and Magnolia Avenue entertainment districts in Fort Worth

TRAVEL AND TOURISM AT A GLANCE

North Central Texas welcomes millions of visitors from all over the US and the world. Who they are and how they spend their time during their visit is of great interest to tourism and transportation planning professionals.

DID YOU KNOW ...?

... the top tourist activities for most visitors to Texas are dining and shopping?

... people from Los Angeles, New York, Oklahoma City, Chicago, Atlanta, and Denver are the top out-of-state travelers to Texas?

... most visitors to Texas are employed, married couples with no children?

... most visitors drive by auto and drive less than 250 miles?

... most visits to Texas are for business or are family related?

... almost \$200 million is spent each day by travelers in Texas?

... travel from Mexico is expected to increase by 21 percent by 2020?

... almost 500,000 Canadians visited Texas in 2015?

... the top expenses for travelers to Texas are food, transportation (excluding airfare), lodging, and shopping?

Source: Office of the Governor – Economic Development and Tourism (2016). Year-End 2015 Texas Visitor Profile. Maclean, Virginia: D.K. Shifflet and Associates, Ltd., & Fink, J. (22 Dec. 2016). Dallas Sees Big Increase In Overseas Visitors. CBS DFW, Retrieved from <http://dfw.cbslocal.com/2016/12/22/dallas-sees-big-increase-in-overseas-visitors/> & Texas Tourism FY 2017 Marketing Plan. Retrieved from <https://www.travel.texas.gov>

²⁶ Office of the Governor – Economic Development and Tourism (2017). The Economic Impact of Travel in Texas 1994-2016. Portland, OR: Dean Runyan Associates, p. 46-47

²⁷ 2016 Overview: Texas Economic Development and Tourism (2017, February 6). Retrieved from https://businessintexas.com/sites/default/files/02/06/17/edt-2016review_o.pdf

²⁸ Office of the Governor – Economic Development and Tourism (2016). Year-End 2015 Texas Visitor Profile. Maclean, Virginia: D.K. Shifflet and Associates, Ltd., p. 9

²⁹ Office of the Governor – Economic Development and Tourism (2017). The Economic Impact of Travel in Texas 1994-2016. Portland, OR: Dean Runyan Associates, p 11

³⁰ Robinson-Jacobs, K. (2015, November). 25 million travelers visited Dallas-Fort Worth in 2014. The Dallas News, Retrieved from <https://www.dallasnews.com>

³¹ Texas Tourism FY 2017 Marketing Plan. Retrieved from <https://www.travel.texas.gov>

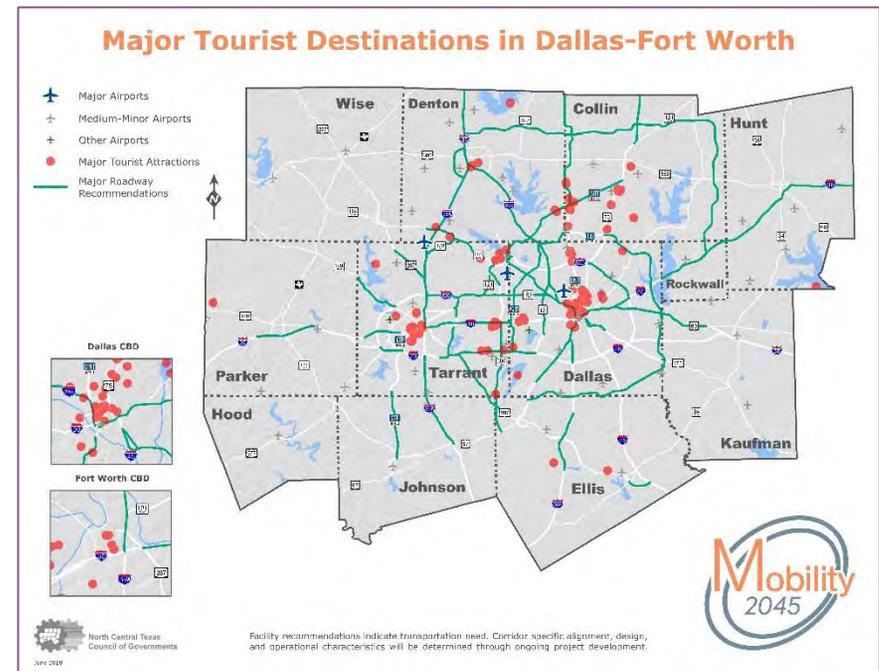
- AT&T Stadium, Six Flags Over Texas, Globe Life Park in Arlington, and Six Flags Hurricane Harbor in Arlington
- Main Street, Grapevine Mills mall, Great Wolf Lodge, and the Gaylord Texan Resort & Convention Center in Grapevine
- The Legacy entertainment district in Plano
- The Addison entertainment district
- NorthPark Center and The Shops at Park Lane in Dallas
- Allen Premium Outlets
- Lone Star Park and Verizon Theatre at Grand Prairie
- Stonebriar Centre, Toyota Stadium, Dr Pepper Ballpark, Dr Pepper Arena, and the Ford Center at the Star in Frisco
- Texas Motor Speedway in Fort Worth and Texas Motorplex in Ennis

Tourists visiting North Central Texas are well served by its multimodal network. Some services, like the McKinney Avenue Trolley and the Grapevine Vintage Railroad, are attractions by themselves. The majority of tourist destinations are easily accessible by public transit or rideshare services.

Exhibit 3.1-1 shows major tourist destinations in the region.

Travel mode for tourists may be dependent on income and/or destination. Generally speaking, tourists place a high value on travel time and are willing to take more expensive modes of travel while on vacation.

Exhibit 3.1-1: Major Tourist Destinations



3.2: Public Involvement

Introduction

A proactive public participation process is vital to ensuring that the transportation planning process fosters meaningful involvement by all users of the system, including the business community, community groups, environmental organizations, freight operators, and the traveling public. Informing stakeholders of critical issues facing the region and providing opportunities to contribute ideas and offer input is important to developing a plan that represents a wide variety of interests and mobility needs without harming air quality.

The overall objectives of the North Central Texas Council of Governments' (NCTCOG) Public Participation Plan are to be proactive and provide:

- Complete information
- Timely public notice
- Full public access to key decisions
- Opportunities for early and continuing involvement

Federal laws and regulations provide some requirements for public involvement. NCTCOG strives to go beyond these requirements and provide a comprehensive program to ensure all residents of the region are provided an opportunity to participate in the decision-making process and are informed about efforts to plan transportation that will be accessible, financially viable, and sustainable.

Public Participation Plan

The NCTCOG 2015 Transportation Public Participation Plan guides how and when public involvement will be carried out on decisions made by the Regional Transportation Council (RTC).

Through the Language Assistance Plan, NCTCOG seeks to ensure that all residents are able to provide input on transportation decisions regardless of their ability to read, write, or understand English. The Language Assistance Plan includes a four-factor analysis to identify limited English proficient (LEP) populations and determine how these individuals are served or are likely to be

served by NCTCOG Transportation Department programs. To better serve the LEP population, several key documents are translated into Spanish, and a Google Translate widget enables website visitors to read basic translations of Transportation Department webpages in more than 100 languages. Notices of public input opportunities describing how to request alternate formats and language translation include text in English and Spanish. Reasonable effort is made to accommodate language translation requests if sufficient notice is provided.

THE PUBLIC PARTICIPATION PLAN addresses the following:

- Public involvement requirements
- Timelines for public comment on various documents
- Environmental justice
- Public notifications
- Public participation and coordination procedures for environmental documents
- Provisions for holding public meetings with abbreviated comment periods of no less than 72 hours and longer
- Provisions for inclement weather
- Title VI complaint procedures
- Language Assistance Plan
- Online comment opportunities
- Inclusion of technology in seeking feedback/comments
- Evaluation of public involvement strategies

Public involvement and outreach for projects included in Mobility 2045 and Transportation Conformity have been conducted in accordance with the 2015 Transportation Public Participation Plan. NCTCOG plans to adopt a new Public Participation Plan in 2018 after the RTC approves Mobility 2045.

Public Involvement Strategies

Regional public input opportunities, including public meetings, are held throughout the year. These opportunities request input on upcoming decisions by the RTC, and they inform the public of other planning activities. The

NCTCOG Transportation Department maintains a database of individuals and groups wishing to receive notice of these public input opportunities. Notice is sent to these individuals before every input opportunity, and advertisements are placed in the Texas Register and in local and minority newspapers. Online advertising also is used. **Exhibit 3.2-1** lists the different types of media outlets that receive press releases announcing public input opportunities and other news related to department programs and projects.

Exhibit 3.2-1: Number of Media Outlets Receiving Press Releases

Local newspapers/magazines (total)	138
Minority newspapers/magazines	15
Television stations (total)	10
Minority television stations	2
Radio stations	9

The Transportation Department also publishes monthly and semiannual newsletters, technical brochures, and required planning documents each year. These are made available to the public in both print and online formats. Fact sheets help educate the public about department projects, air quality, transportation funding, and sustainable development. These publications are listed in appendix **B: Social Considerations**.

Providing information through the internet is an important strategy, and the Transportation Department website is updated regularly to ensure accurate and timely information is available. The department has joined social media networks and streaming video websites to expand opportunities to provide education and make it easier for the public to submit comments. RTC meetings are livestreamed from the department’s website and are archived there. Video recordings of public meetings are posted online, allowing greater access and convenience for the public to learn about and provide input on plans.

As the Transportation Department’s online presence has grown, it has sought to adapt its public involvement procedures to modern communication preferences. Online public input opportunities are a new way for the public and transportation



A public meeting was held in Garland in October 2017. Mobility 2045 was discussed at the meeting. Source: NCTCOG

partners to comment on routine items, such as modifications, minor amendments, and administrative revisions to planning documents. These online public input opportunities are advertised in the same manner as public meetings and meet the comment period requirements outlined in the Public Participation Plan. The Transportation Department is able to better match content, strategies, and audiences by using this tool to inform the public about proposed minor changes to documentation.

The Transportation Department participates in community events to educate the public on transportation and air quality initiatives. As needed, print and



Source: NCTCOG

online surveys are conducted to determine public awareness and/or sentiment with regard to certain planning issues. In addition, communication with the media serves as a strategy for disseminating information to the public through media releases, briefings, and interviews.

The Transportation Department is also building networks of partners that will share information about transportation programs and the planning process with their members, stakeholders, and the broader public. By leveraging existing networks of homeowner associations, business groups, and community organizations,

especially those that engage low-income, minority, disabled, and LEP individuals and communities, NCTCOG is trying to reach greater numbers of people and more diverse audiences.

Finally, visualization tools like animations, maps, renderings, photos, and others are used when possible online, in presentations, and in publications to increase understanding among all audiences. Visual elements can also be especially beneficial for LEP persons.



Bicycle and Pedestrian Advisory Committee Workshop

Source: NCTCOG

Public Involvement for Mobility 2045

A variety of strategies were used to encourage public participation during the development of Mobility 2045. Information about goals, demographic forecasts, financial constraints, involvement opportunities, air quality impacts, and overall development was featured in publications, on the NCTCOG website, on social media, and in emails sent to individuals and groups who have expressed an interest in receiving information. NCTCOG also held public meetings and gave presentations to several community groups.

The department used a questionnaire, made available in both English and Spanish versions, to engage the public on transportation issues. The questionnaire was:

- Distributed at public meetings
- Sent to the department’s Transportation Update e-newsletter contacts
- Shared across the department’s social media accounts
- Advertised in print and on Facebook, in both English and Spanish

- Shared with staff at the region’s municipalities, counties, and transportation agencies, and the region’s legislative delegations
- Shared with stakeholders interested in transit, freight, and bicycle and pedestrian planning, and related activities

The results of this questionnaire are included in appendix **B: Social Considerations**.



NCTCOG promoted the Mobility 2045 questionnaire on Facebook in English and Spanish.

In compliance with the Public Participation Plan, public meetings were held 60 days and 30 days prior to RTC approval of Mobility 2045. The following public involvement information is included in appendix **B: Social Considerations**: a list of public meetings and community events at which development of Mobility 2045 was discussed, a summary of public comments received for Mobility 2045, and official responses to those comments.

The 2018 Transportation Conformity document includes public meeting notices, meeting minutes, and comments for all public meetings that featured a Mobility 2045 or Conformity agenda item.

Partner Coordination

In addition to engaging the public, regional transportation and non-transportation partners were consulted through development of the policy, program, and project recommendations in Mobility 2045. Regional transportation partners include the Texas Department of Transportation (TxDOT), North Texas Tollway Authority, regional transit authorities, and environmental resource agencies. These partners were involved through committee, public, and project-specific meetings, phone calls, and other correspondence to coordinate long-range regional transportation efforts. Several transportation committees such as the Surface Transportation Technical Committee, Air Transportation Advisory Committee, Regional Freight Advisory Council, and the Bicycle and Pedestrian Advisory Committee lend expertise and help develop recommendations for the RTC to consider. The RTC guided staff’s development of Mobility 2045 priorities and policies and is ultimately responsible for approving and implementing Mobility 2045.

Tribal Coordination

The North Central Texas Council of Governments recognizes the unique government-to-government relationship that the Federal Highway Administration has with Indian Tribal Governments. **Exhibit 3.2-2** displays all the federally recognized tribes that have an interest in the North Central Texas region. NCTCOG coordinates with the Federal Highway Administration and TxDOT to reach out to Indian Tribal Governments to allow them the opportunity to participate in the transportation planning process. Tribal contacts receive all notices of public input opportunities, as well as electronic copies of NCTCOG’s Mobility Matters newsletter. This allows Indian Tribal Governments to be involved in the transportation decision-making process and informed about transportation planning efforts and ongoing opportunities to be involved and provide input.

In February 2018, TxDOT invited NCTCOG staff to attend a TxDOT-Tribal Planning Group meeting to seek guidance on how to improve communications with tribal nations. Tribal Government representatives have indicated interest in more formal working relationships directly with the Metropolitan Transportation Organization. These relationships would enable early opportunities to provide input on transportation planning and the priorities of

Tribal Governments. Opportunities for these formal working relationships will be explored further.

Exhibit 3.2-2: Federally Recognized Tribes

Absentee Shawnee Tribe of Oklahoma	Kickapoo Tribe of Oklahoma
Caddo Nation of Oklahoma	Kiowa Indian Tribe of Oklahoma
Cherokee Nation of Oklahoma	Mescalero Apache Tribe
Comanche Nation of Oklahoma	Muscogee (Creek) Nation of Oklahoma
Coushatta Tribe of Louisiana	Poarch Band of Creek Indians
The Delaware Nation	Pokagon Band of Potawatomi Indians of Michigan
Eastern Shawnee Tribe of Oklahoma	Quapaw Tribe of Oklahoma
Jena Band of Choctaw Indians	Seminole Nation of Oklahoma
Kialegee Tribal Town	Thlopthlocco Tribal Town
Kickapoo Traditional Tribe of Texas	Tonkawa Tribe of Oklahoma
Kickapoo Tribe in Kansas	Wichita and Affiliated Tribes

Summary

A transportation system must include transportation options for all residents of the region. Mobility is important to residents’ quality of life and the region’s economic vitality. Therefore, the RTC uses several strategies to ensure the social considerations of Mobility 2045.

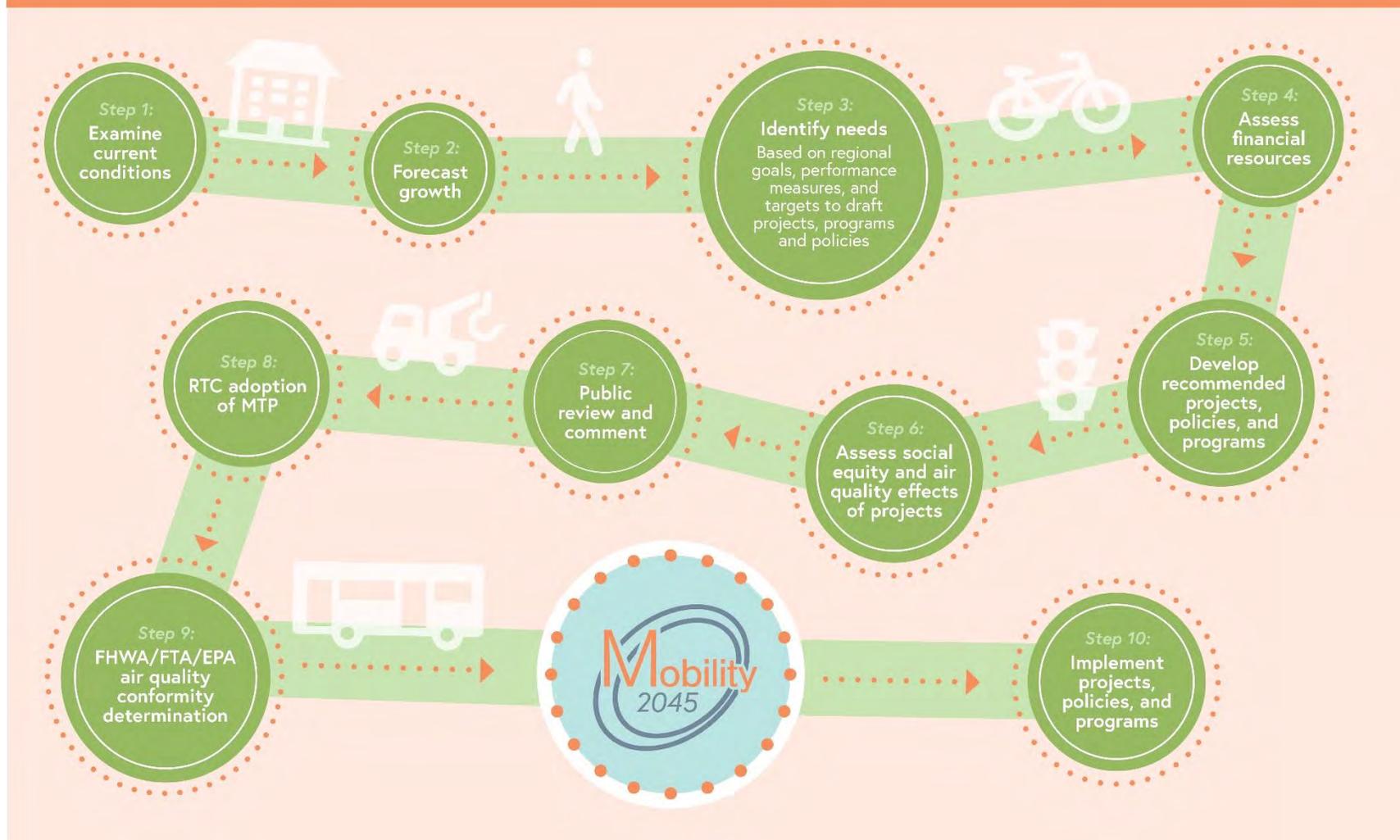
Transparent processes and opportunities for public involvement guide the development of a transportation plan that helps improve air quality while being multimodal and financially viable. This multi-step approach includes seeking the public’s participation in the development of Mobility 2045 recommendations and analyzing those recommendations’ impacts on protected populations.

This process has guided recommendations that manage congestion, provide access to jobs and recreation, and contribute to a high quality of life for the residents of North Central Texas.



METROPOLITAN TRANSPORTATION PLAN

The Process



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