

KEEPING RURAL TEXAS CONNECTED



SEPTEMBER 2022

Founded in 1971, [TRIP](#)® of Washington, DC, is a nonprofit organization that researches, evaluates and distributes economic and technical data on surface transportation issues. TRIP is sponsored by insurance companies, equipment manufacturers, distributors and suppliers; businesses involved in highway and transit engineering and construction; labor unions; and organizations concerned with efficient and safe surface transportation.

Texas' rural heartland is an important source of food, fuel and fiber for the United States and the entire world. Its rural transportation network is critical to the quality of life in Texas' rural communities and provides the first and last link in a regional, state, national and international supply chain that connects the state's rural areas to market.

Over the last decade, Texas has continued to make significant investment in expanding the capacity of its rural roadways. However, with growing population, energy and agricultural production, and economic activities in rural areas, the investments in rural roadways have not kept pace with growth in the movement of people and goods.

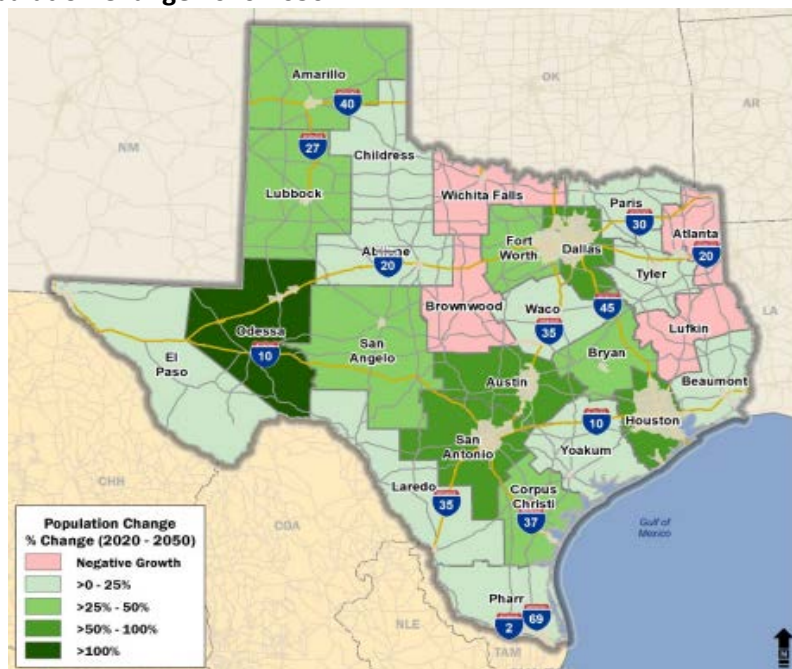
Texas' rural roads face a number of challenges: they lack adequate capacity in some corridors to support growing freight and passenger vehicle travel; they do not provide needed levels of connectivity to some communities; they lack some needed roadway safety features; and they carry a higher share of large trucks than urban roadways, including large trucks needed to support energy and agricultural production, which causes increased wear and tear on these road surfaces. Good transportation is essential in rural areas to provide access to jobs, to facilitate the movement of goods and people, to access opportunities for health care and education, and to provide links to social and recreational activities.

TRIP's "Keeping Rural Texas Connected" report examines critical components of the state's rural transportation system and evaluates, statewide and regionally, their adequacy in providing reliable and safe mobility. Sources of information for this report include the Federal Highway Administration (FHWA), the Texas Department of Transportation, the U.S. Department of Transportation Bureau of Transportation Statistics (BTS), the U.S. Census Bureau, the Texas Transportation Institute (TTI), and the National Highway Traffic Safety Administration (NHTSA).

RURAL TEXAS POPULATION AND ECONOMY

Quality of life and a strong economy continue to attract new residents and businesses to Texas. From 2000 to 2020, Texas' population increased by 41 percent from 20.8 million to 29.4 million.¹ This is the fifth highest rate in the nation and more than double the U.S. average of 17 percent. Texas' population is anticipated to increase by another 60 percent to 47.3 million in 2050.²

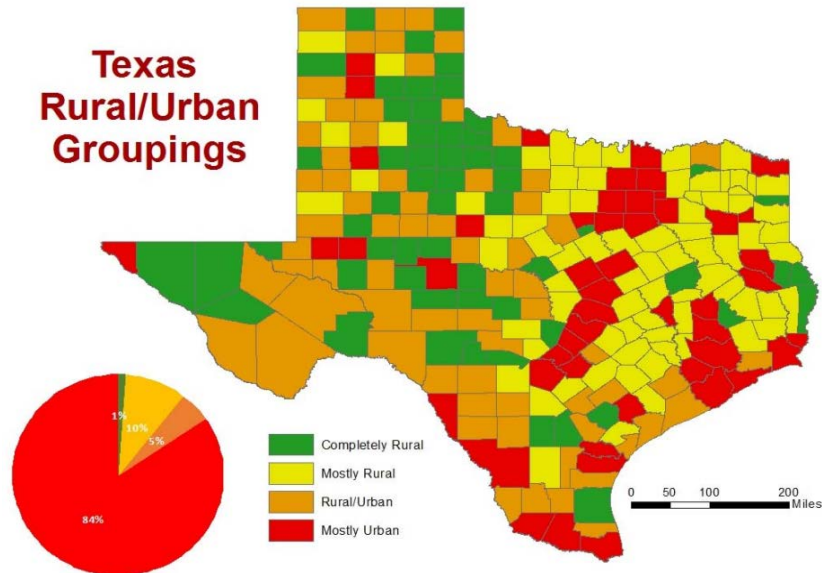
Chart 1. Projected Population Change 2020-2050.



Source: TxDOT

Approximately 16 percent of Texas residents live in predominantly rural counties.³

Chart 2. Texas Rural/Urban Groupings.



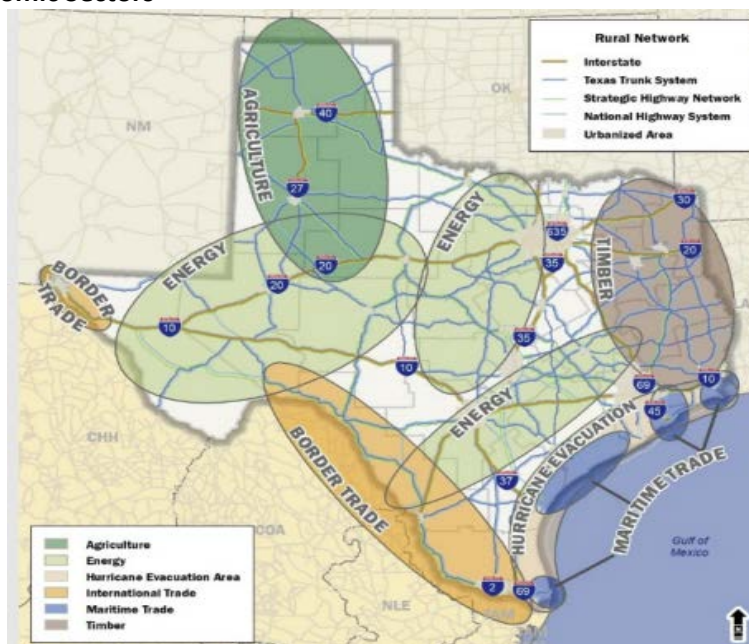
Source: U.S. Census Bureau.

The quality of life in Texas' small communities and rural areas, and the health of the state's rural economy, from the production and transport of energy, food and fiber, to attracting tourism, is highly reliant on the quality of the state's transportation system.

Texas' rural economy is highly reliant on goods production and manufacturing, including farming, forestry and energy extraction. The operation of Texas' international and maritime ports, which are critical to the health of the state's economy, also rely heavily on the quality of the state's rural transportation system.

Statewide agricultural production in Texas generates approximately \$35 billion annually in sales and approximately \$13 billion annually in gross state product (GSP).⁴ Timber and lumber production in Texas in 2021 employed 68,917 workers and contributed approximately \$21 billion to the state's economy.⁵

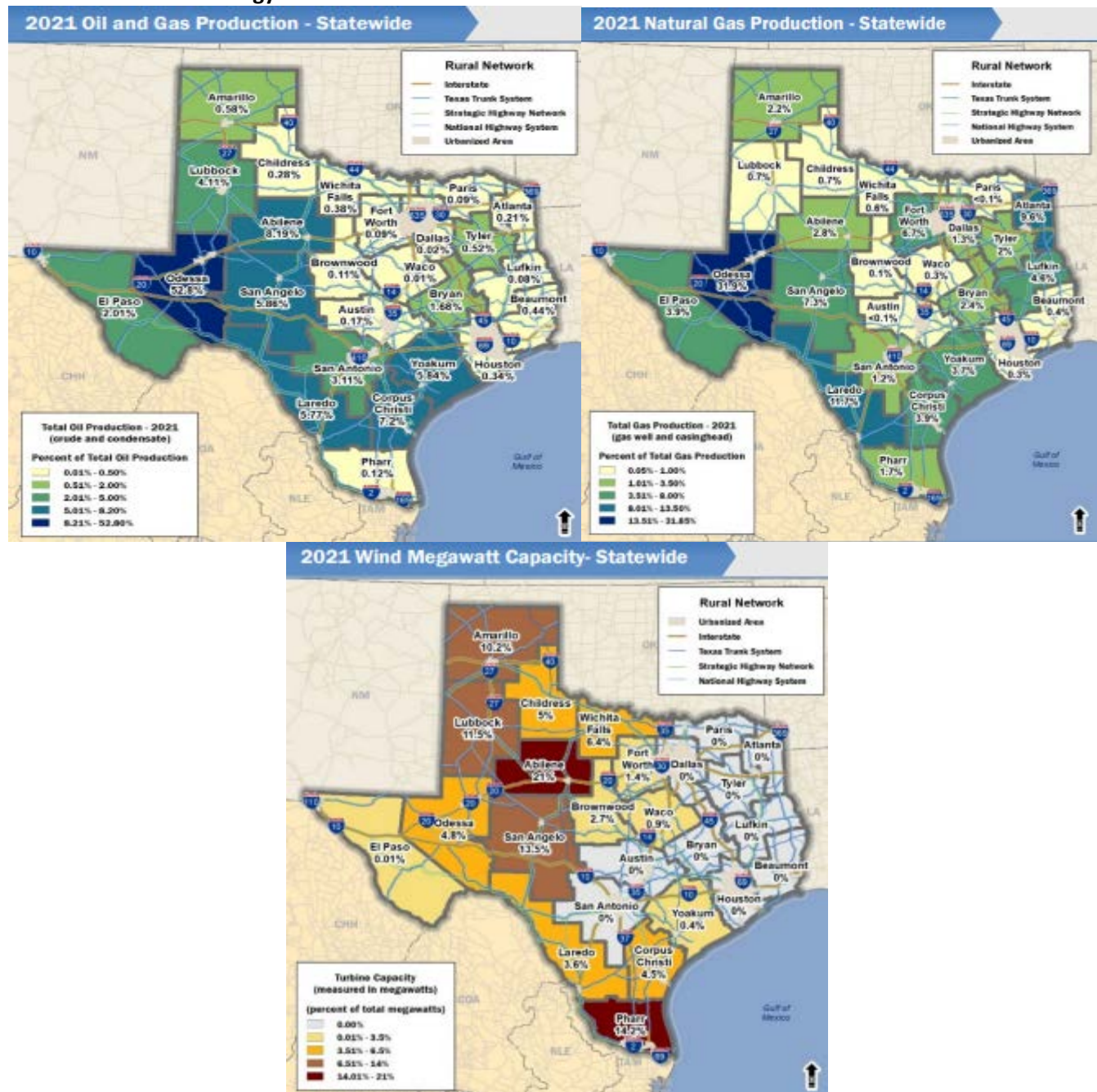
Chart 3. Key Texas Economic Sectors



Source: TxDOT.

Energy production is a critical economic sector in Texas, with the majority of production occurring in rural areas. In 2021, Texas produced 1.6 billion barrels of crude oil, 10.2 billion MCF (one thousand cubic feet) of natural gas and 34,586 megawatts of wind energy.⁶ Rural areas accounted for 74 percent of crude oil production and 64 percent of both natural gas and wind energy production.⁷

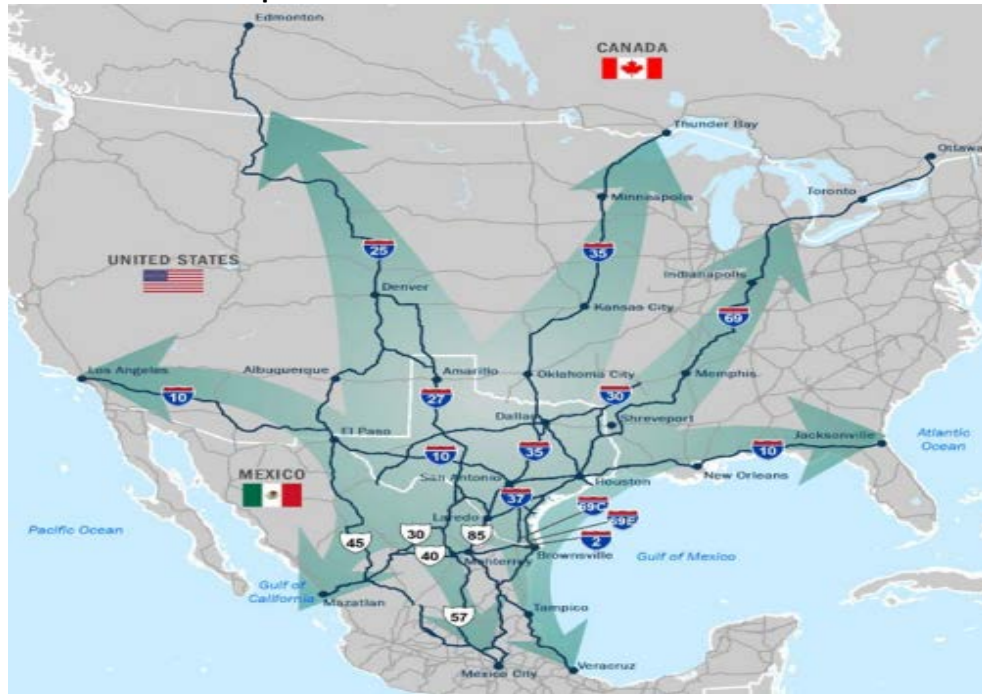
Chart 4. 2021 Texas Energy Production.



Source: TxDOT.

The reliability and functionality of Texas' international and maritime ports are critical to the health of the state and nation's economy. In 2020, Texas' international border crossing supported 65 percent of U.S.-Mexico trade, worth \$352 billion.⁸

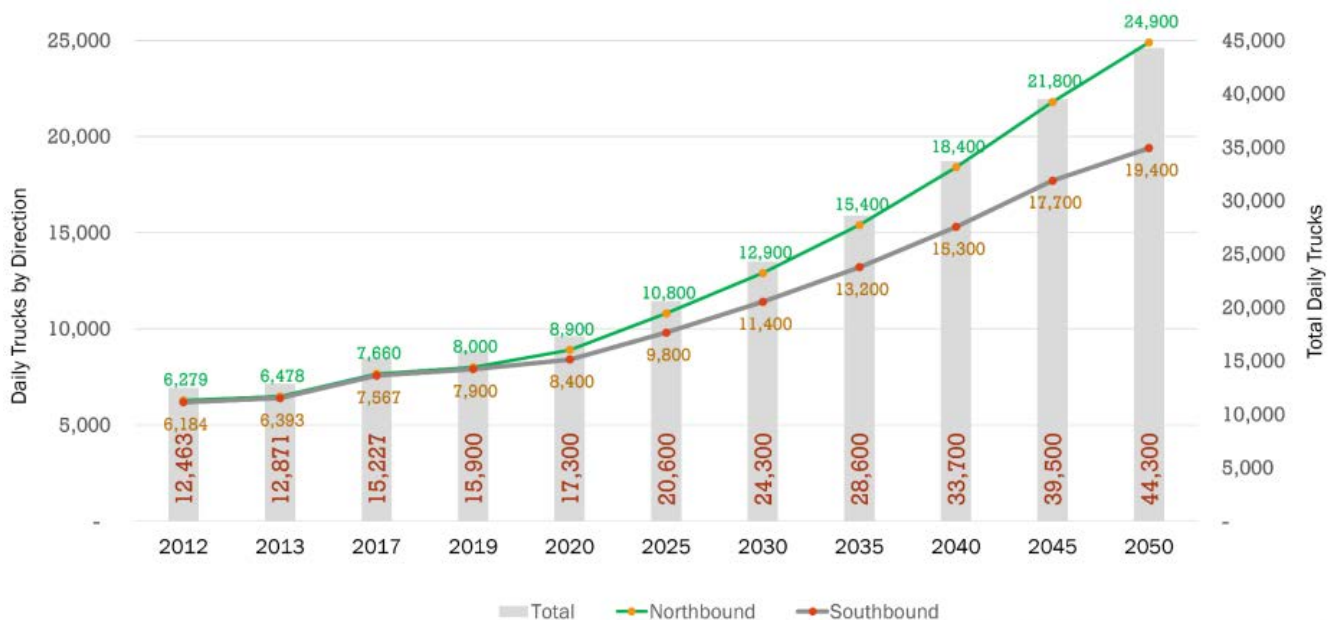
Chart 5. Texas-Mexico Border Transportation.



Source: TxDOT.

Texas' most heavily used commercial border crossing is the Laredo World Trade Bridge, which averages more than 17,000 truck crossing per day.⁹ By 2050, daily international truck crossings at Laredo are expected to increase by 156 percent to 44,300 daily.

Chart 6. Daily Commercial Traffic Projections for Port Laredo.



Source: TxDOT.

Another important economic driver in Texas is the state's 11 deep-draft maritime ports, including five ranked in the top 20 nationally in terms of tonnage: Houston, Corpus Christ, Beaumont, Texas City and Port Arthur.¹⁰ The state's ports move approximately 598 million tons of foreign and domestic cargo annually.¹¹ Approximately 128,000 jobs in Texas are directly related to seaport operations.¹²

Chart 7. Trade with Pacific Rim Countries via Texas Deep Draft Ports Through the Panama Canal.



Source: TxDOT.

RURAL TEXAS TRANSPORTATION SAFETY

Traffic crashes are a major source of fatalities in Texas, particularly in the state's rural areas. Texas' rural, non-Interstate roads have a significantly higher fatality rate than all other roads and highways in the state. Rural Interstate routes were excluded from the safety analysis in this report because they are built to very high safety standards and do not have the significant traffic safety deficiencies common on many rural roads.

In 2020, traffic crashes claimed the lives of 3,874 people in Texas.¹³ Traffic crashes on Texas' non-Interstate rural roads resulted in 1,334 fatalities in 2020-- 34 percent of all traffic fatalities in Texas.¹⁴ Texas' non-Interstate rural roads carried only 21 percent of all vehicle miles of travel (VMT) in 2020.¹⁵

The fatality rate on Texas rural non-Interstate routes in 2020 was 2.48 for every 100 million VMT, approximately double the fatality rate of 1.23 fatalities per 100 million VMT on all other routes in Texas.¹⁶

Traffic fatality rates on rural roads are higher than on urban roads, partly because rural roads are less likely to have adequate safety features and are more likely than urban roads to have only two lanes. Rural routes have often been constructed over a period of years. As a result, they may have inconsistent design features for such things as lane widths, curves, shoulders and clearance zones along roadways. Many rural roads have been built with narrow lanes, limited shoulders, significant curves and steep slopes alongside roadways.¹⁷

The severity of serious traffic crashes could be reduced through roadway improvements, where appropriate, such as converting intersections to roundabouts; removing or shielding roadside objects; the addition of left-turn lanes at intersections; the signalization of intersections; adding or improving

median barriers; improved lighting; adding centerline or shoulder rumble strips; providing appropriate pedestrian and bicycle facilities, including sidewalks and bicycle lanes; providing wider lanes, wider and paved shoulders; upgrading roads from two lanes to four lanes; providing better road and lane markings; and, updating rail crossings.

Investments in rural traffic safety have been found to result in significant reductions in serious traffic crashes. A [2012 report by TTI](#) found that improvements completed by TxDOT on 1,159 miles of rural state roadways that widened lanes, improved shoulders and made other safety improvements resulted in 133 fewer fatalities on these roads in the first three years after the improvements were completed (as compared to the three years prior).¹⁸ TTI estimates that the improvements on these roads are likely to save 880 lives over 20 years.¹⁹

RURAL TEXAS TRANSPORTATION CONNECTIVITY

Growing economic activity in urban and rural communities, if not accommodated with improved and expanded transportation facilities, particularly a network of modern highways, can result in a lack of adequate connectivity within rural areas and between rural and urban communities, which can impede a region's potential for economic growth.

"Maintaining connectivity is essential not only to serve rural communities, but also to support the shifting agricultural and energy extraction and production needs of a growing population and economy," a report by the U.S. Transportation Research Board concluded.²⁰

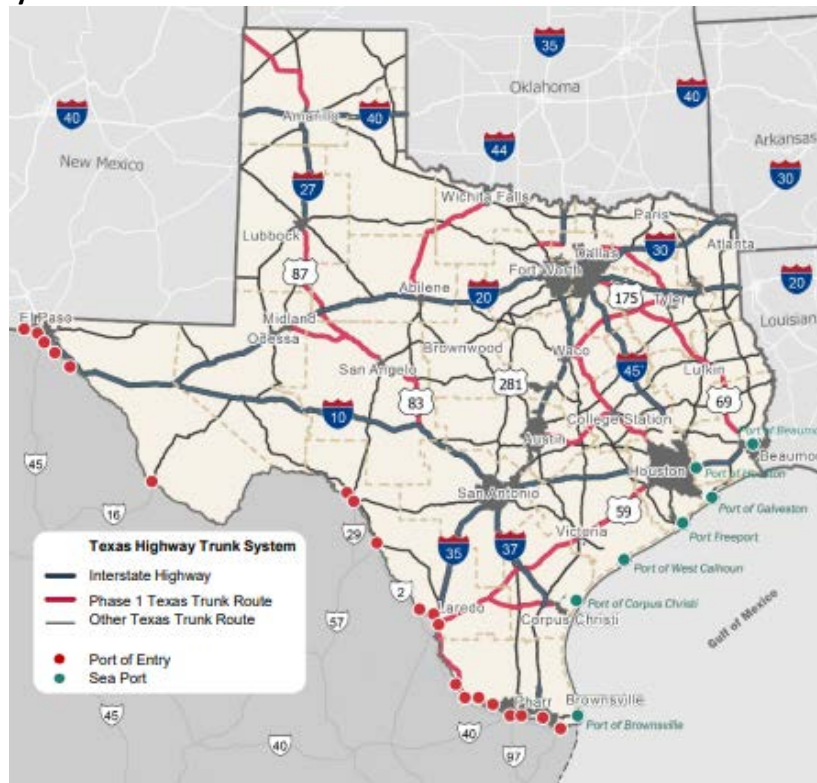
Texas' freight transportation network provides for the movement of raw materials, intermediate goods, and finished products from one location to another.²¹

Annually, 3.5 billion tons of freight, valued at \$3.3 trillion dollars, are shipped to and from sites in Texas.²² The majority of freight shipped in Texas is transported by trucks, which carry 67 percent of freight by value and 54 percent by weight annually.²³ By 2050 freight movement in Texas is expected to increase by 81 percent by value, when adjusted for inflation, and 40 percent by weight.²⁴

Providing an adequate level of safe and efficient access in Texas' small communities and rural areas to support quality of life and enhance economic productivity will require that Texas continue to implement transportation policies that will improve rural transportation connectivity and safety.

A critical component of Texas' transportation system is the Texas Trunk System, a network of rural highways that are vital to rural mobility in Texas because they connect major activity centers and provide access to international and maritime ports in the state.

Chart 8. Texas Trunk System.



Source: TxDOT.

To improve connectivity in the state, Texas has committed to a program to upgrade major corridors statewide to provide safe, reliable, efficient travel between economic activity centers while supporting the economic prosperity of all communities along the corridors and statewide.

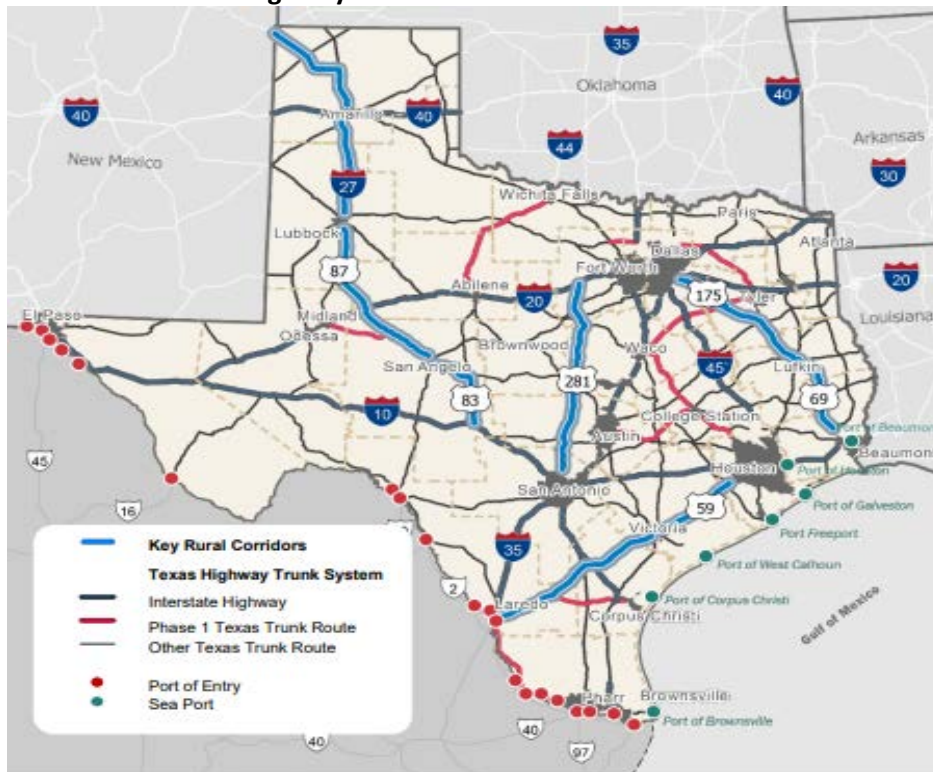
Since 2015, TxDOT has completed 251 major improvements on its rural Texas Trunk System routes, at a cost of \$7.5 billion, and currently has 127 projects underway or planned, valued at \$7.2 billion.²⁵ About half of the projects include expanded highway capacity. TxDOT estimates that its current backlog to fund all needed improvements to the Texas Trunk System is \$27.8 billion.²⁶

KEY TEXAS RURAL CORRIDORS

TxDOT has identified four key rural corridors for expansion to four-lane divided highway capacity as being critical to meeting the state's need for safe and reliable rural connectivity. These routes are US 59 from Laredo to Houston, US 87 / US 83 from the New Mexico border to Interstate 10, US 281 from Interstate 20 to San Antonio, and US 69 / US 175 from Dallas to Beaumont.²⁷

Of the 1,182 miles on the four key rural corridors, TxDOT has completed capacity expansions on 662 miles, has expansion underway on 32 miles, and has funding for expansion to an additional 114 miles.²⁸ Capacity expansions for the remaining 374 miles are unfunded.²⁹ TxDOT estimates that the unfunded backlog to expand the remaining 374 miles of key state rural corridors is \$4.2 billion.³⁰

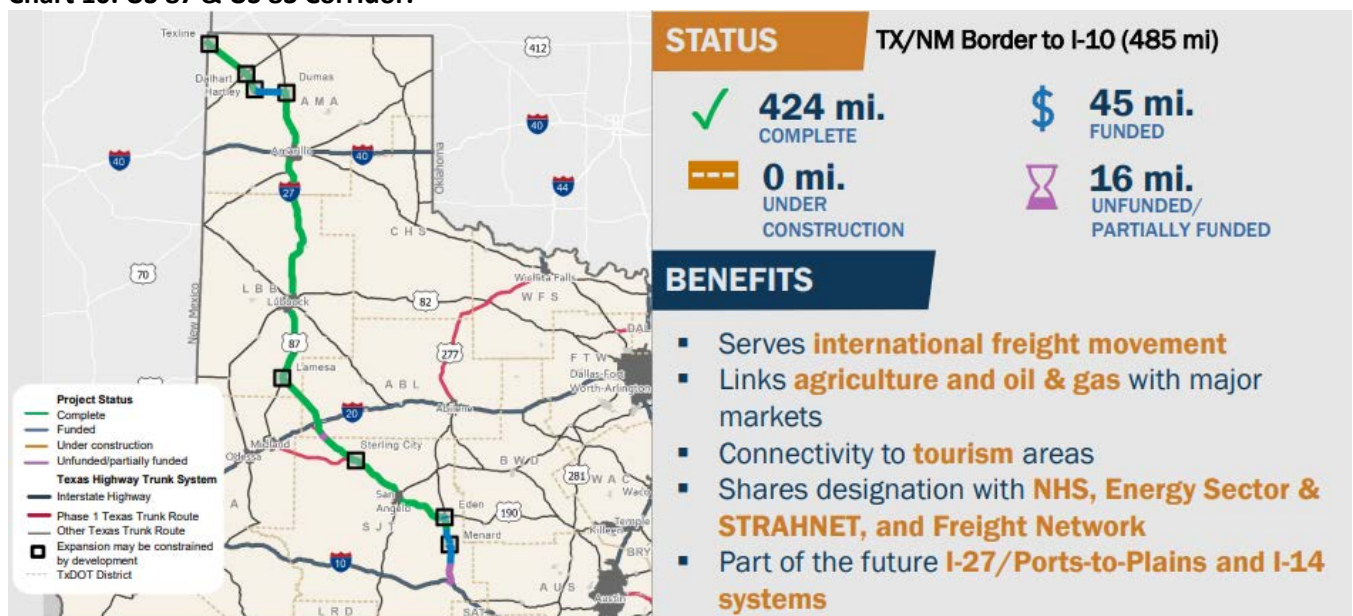
Chart 9. Texas Rural and Statewide Highway Network.



Source: TxDOT.

The 485-mile US 87 and US 83 corridor, stretching from the New Mexico border to Interstate 10, serves international freight movement, links agriculture, oil and gas producers with major markets, and provides connectivity to tourism areas. The route is part of the future Interstate 27/Ports-to-Plains and Interstate 14 systems.

Chart 10. US 87 & US 83 Corridor.



Source: TxDOT.

The modernization of the 239-mile US 69 and US 175 corridor from Dallas to Beaumont will improve the safety and connectivity of the Port of Beaumont, improve economic opportunities for

communities along this corridor, and enhance the state's hurricane evacuation routes. The US 69 and US 175 corridor is also part of the future Interstate 14 system.

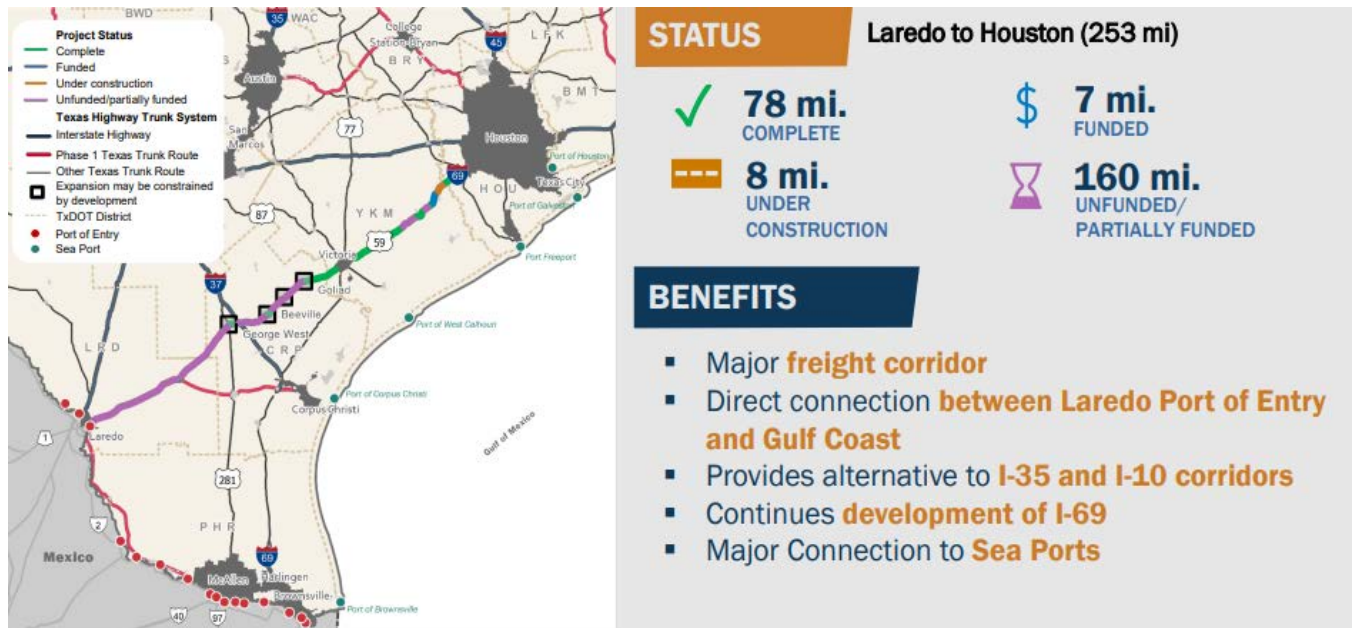
Chart 11. US 69 & US 175 Corridor.



Source: TxDOT.

The 253-mile US 59 corridor from Laredo to Houston is a major freight corridor. Planned expansion along this route will improve safety and connectivity between the Laredo border crossing and seaports on the Gulf Coast. This route will provide alternatives to Interstates 10 and 35 and will continue the development of Interstate 69.

Chart 12. US 59 Corridor.



Source: TxDOT.

The planned expansion of the 205-mile US 281 corridor from San Antonio to Interstate 20 will improve traffic safety and will address anticipated high growth and traffic congestion levels. This route will link north and central Texas communities and provide a truck diversion from Interstate 35.

Chart 13. US 281 Corridor.



Source: TxDOT

IMPROVING TEXAS' RURAL CONNECTIVITY

Rural Texas, a critical source of food, fuel, and fiber, is experiencing economic and population growth that is straining its transportation system, the safety and reliability of which will play a vital role in quality of life and a strong economy in the state's rural communities. The state's rural transportation system faces significant challenges including increasing levels of traffic, a lack of adequate connectivity and the need for additional roadway safety features.

Addressing the state's rural transportation challenges will require increased funding. In August of 2022 the Texas Transportation Commission approved a [Unified Transportation Program \(UTP\) for 2023 to 2032](#) that includes \$14 billion for road, highway and bridge improvements in Texas' rural districts, which includes \$6.9 billion for rural connectivity.³¹ The state's ability to invest adequately in its rural transportation system will be impacted by inflation in the cost of road, highway and bridge repairs. TxDOT's [July 2022 Highway Cost Index Report](#) found that the cost of highway construction increased by 27 percent from July 2021 to July 2022 (based on a three-month rolling average).³²

Providing Texas with a rural transportation network that will support further economic growth and maintain its quality of life will require Texas to continue to invest in a rural transportation system that is safe and reliable and that provides adequate mobility and connectivity to the state's rural communities.

###

ENDNOTES

-
- ¹ TRIP analysis of U.S. Census Bureau data.
- ² Texas Demographic Center (2022). Population for 2010-2050 in one year increments for State of Texas and Counties. <https://demographics.texas.gov/data/tpepp/projections/>
- ³ U.S. Census Bureau, Geography Division (2018). Rural Texas. https://demographics.texas.gov/Resources/Presentations/DDUC/2018/2018_05_23_RuralTexas.pdf
- ⁴ Texas Department of Transportation (TxDOT). [Rural and Statewide Connectivity presentation to the Texas Transportation Commission](#). March 30, 2022.
- ⁵ [Ibid.](#)
- ⁶ [Ibid.](#)
- ⁷ [Ibid.](#)
- ⁸ [Ibid.](#)
- ⁹ [Ibid.](#)
- ¹⁰ TxDOT (2022). Texas Ports. <https://www.TxDOT.gov/inside-TxDOT/division/maritime/ports.html>
- ¹¹ [Ibid.](#)
- ¹² [Ibid.](#)
- ¹³ TRIP analysis of National Highway Traffic Safety Administration and Federal Highway Administration data (2021). Data is for 2020.
- ¹⁴ [Ibid.](#)
- ¹⁵ [Ibid.](#)
- ¹⁶ [Ibid.](#)
- ¹⁷ County Engineers Adopt Rural Road Safety Program. Minnesota Local Technical Assistance Program.
- ¹⁸ Adding Highway Shoulders, Width, Reduce Crash Numbers and Save Lives (August 9, 2012). Texas Transportation Institute. <https://tti.tamu.edu/2012/08/09/tti-study-analyzes-roadway-improvements/>
- ¹⁹ [Ibid.](#)
- ²⁰ National Cooperative Highway Research Program, Transportation Research Board (2007). Future Options for the National System of Interstate and Defense Highways. ES-ii.
- ²¹ U.S. Department of Transportation (2021). Status of the Nation's Highways, Bridges and Transit: Conditions and Performance Report to Congress. P. III-2.
- ²² ²² Federal Highway Administration, Freight Analysis Framework (2021). Data is for 2022. https://ops.fhwa.dot.gov/freight/freight_analysis/faf/
- ²³ Federal Highway Administration, Freight Analysis Framework (2021). Data is for 2022. https://ops.fhwa.dot.gov/freight/freight_analysis/faf/
- ²⁴ [Ibid.](#)
- ²⁵ TxDOT. [Rural and Statewide Connectivity presentation to the Texas Transportation Commission](#). March 30, 2022.
- ²⁶ [Ibid.](#)
- ²⁷ [Ibid.](#)
- ²⁸ [Ibid.](#)
- ²⁹ [Ibid.](#)
- ³⁰ [Ibid.](#)
- ³¹ TxDOT. [Unified Transportation Program 2023](#).
- ³² TxDOT [Highway Cost Index Report \(2012 Base\)](#). August 2022.