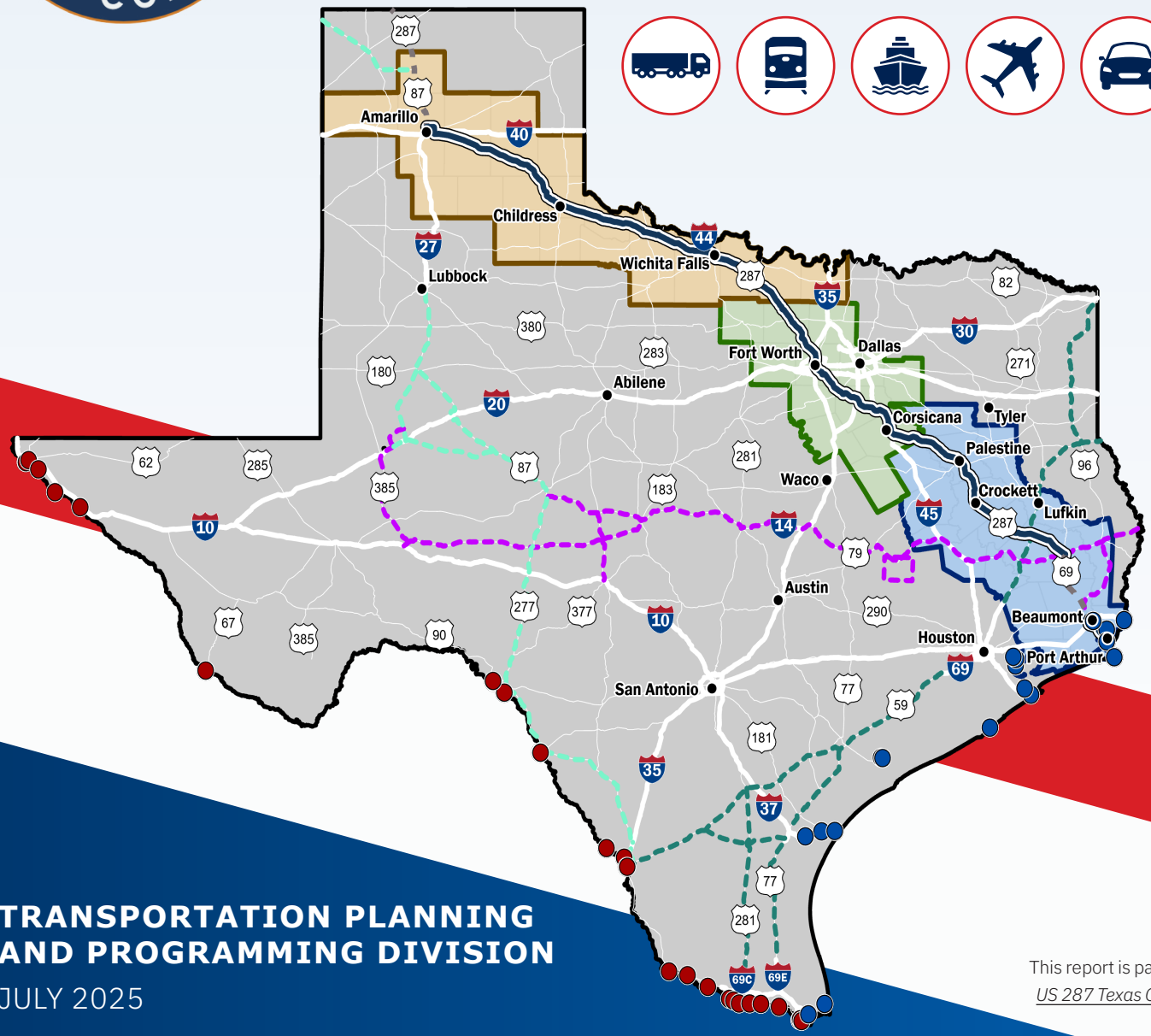
# US 287 INTERSTATE FEASIBILITY STUDY




Texas Department of Transportation

**TRANSPORTATION PLANNING AND PROGRAMMING DIVISION**

JULY 2025

This report is paired with the *US 287 Texas Corridor Study Report*. See the *US 287 Texas Corridor Study Report* for *information on the corridor study.*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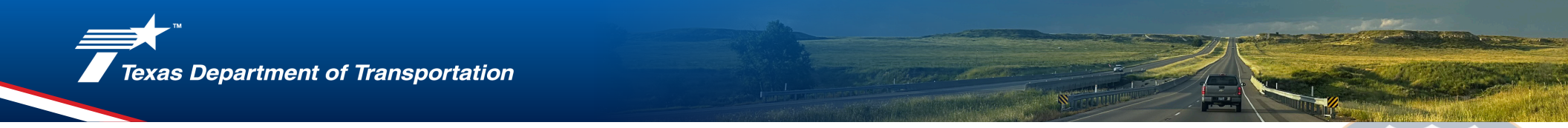
# HOW TO USE THIS REPORT

The purpose of this report is to document the US 287 Interstate Feasibility Study. This report evaluates the potential for US 287 to be upgraded to an interstate. This report compares the no-build scenario with an interstate build scenario and describes the key challenges and benefits of an interstate build scenario. If or when US 287 is designated an interstate by the U.S. Congress, a new interstate implementation plan would be necessary to accommodate the requirements of an interstate highway.

Correspondingly, the US 287 Texas Corridor Study evaluated current conditions and challenges and identified opportunities for future improvement. That report includes a summary of the significance of the corridor, stakeholder engagement results, current and forecasted conditions, and proposed improvements. The US 287 Texas Corridor Study, along with its implementation plan, presents prioritized improvements for the short-, mid-, and long-term to enhance safety, mobility, and connectivity along the corridor. For more detailed information on the corridor study and implementation plan, please refer to the US 287 Texas Corridor Study Report.

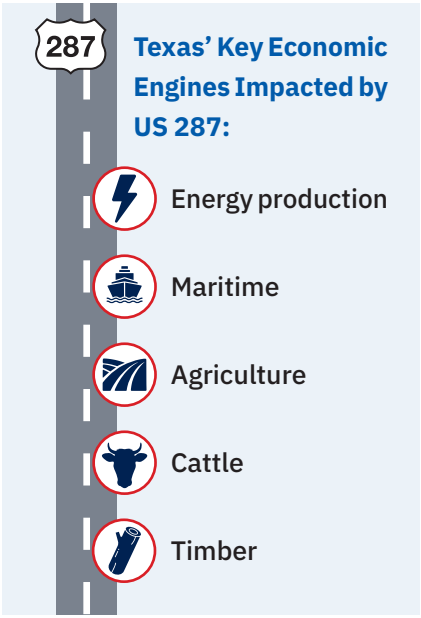


# INTRODUCTION —

*US 287 is a **national and state-significant transportation corridor** that connects and integrates Texas' key economic engines, including energy production, maritime, agriculture, cattle, and timber industries.*

The US 287 Corridor in Texas extends 671 miles from Port Arthur in Southeast Texas to Amarillo in Northwest Texas. It is a national and state-significant transportation corridor that connects and integrates Texas' key economic engines, including energy production, maritime, agriculture, cattle, and timber industries. It plays a vital role in supporting and growing demographic and economic centers along the corridor.

US 287 supports the movement of defense personnel and equipment, especially along the Power Projection Platform (PPP) and Strategic Highway Network (Strahnet) routes. US 287 also connects to two strategic military ports like the Port of Beaumont, the largest in the US, and the Port of Port Arthur, playing a crucial role in national defense.




US 287 is a diagonal route that connects northwest Texas to the major urban areas of Dallas-Fort Worth to the Ports of Beaumont and Port Arthur. Currently, a single interstate does not directly connect these areas within Texas, presenting a unique opportunity to enhance US 287 to interstate standards. Consequently, TxDOT's Transportation Planning and Programming (TPP) division initiated a study to evaluate the feasibility of upgrading US 287 to interstate standards.

US 287 is a freight corridor and plays a critical role in freight movement. In 2022, over 923 million tons of freight moved along US 287 within the study area, highlighting the corridor's significance to the economic infrastructure of the region. Notably, 8.8 million Texans reside within this study area, a figure projected to rise to 12 million, representing 28% of the state's population, by 2050. The study area also supports 4.3 million jobs, which is anticipated to increase to 5.9 million by 2050.

Nationally, US 287 spans approximately 1,791 miles, traversing Texas, Oklahoma, Colorado, Wyoming, and Montana (see **Figure 1**). It reaches its northern terminus in Choteau, Montana, a town 100 miles south of the Canadian border.

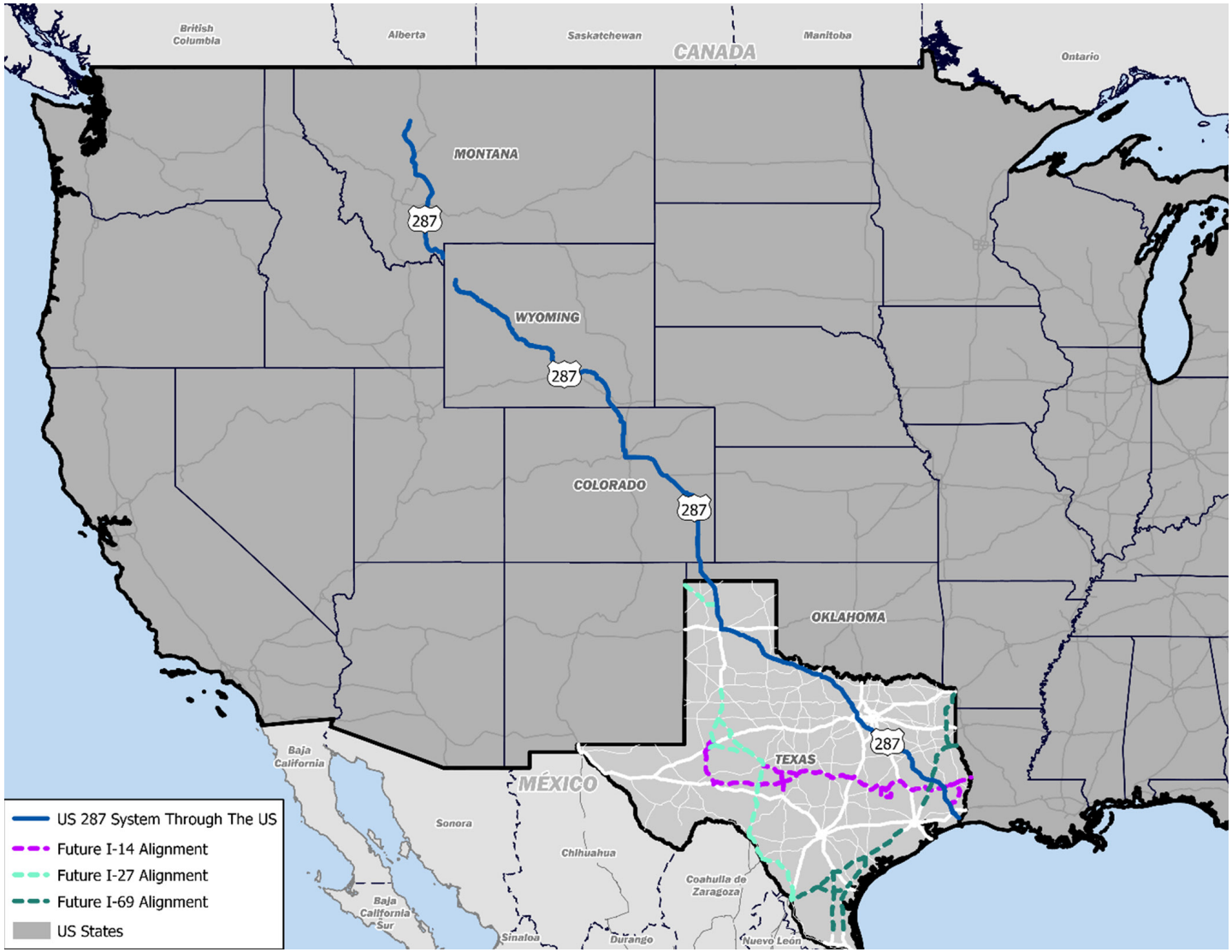



***Figure 1: Extent of US 287 Corridor*** [1]

1 *TxDOT Open Data Portal, 2024*

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# CHAPTER 1

## *Interstate Feasibility Analysis and Findings*

# CHAPTER 1: *Interstate Feasibility Analysis and Findings –*

*This chapter **presents the findings of the US 287 interstate feasibility analysis.** It evaluates whether upgrading the corridor to an interstate facility from Port Arthur to Future I-27 in Amarillo is viable.*

The US 287 interstate feasibility analysis incorporates a technical assessment of the corridor, including an economic analysis. To determine feasibility, the study compared projected impacts from two scenarios, No-Build and Build, for the future year 2050. The No-Build scenario involves existing conditions and committed projects. The Build scenario evaluates US 287 if or when it is upgraded to an interstate.

Three study segments were established for the study area based on county boundaries and TxDOT district delineation (see **Figure 2**):

**Southeast Segment**

This area is shown in blue and includes the **Beaumont, Lufkin, Tyler, and Bryan Districts** (from Port Arthur to Navarro County Line)

**Central Segment**

This area is shown in green and includes the **Dallas and Fort Worth Districts** (from Navarro County Line to Montague County Line)

**Northwest Segment**

This area is shown in orange and includes the **Wichita Falls, Childress, and Amarillo Districts** (from Montague County Line to Future I-27)

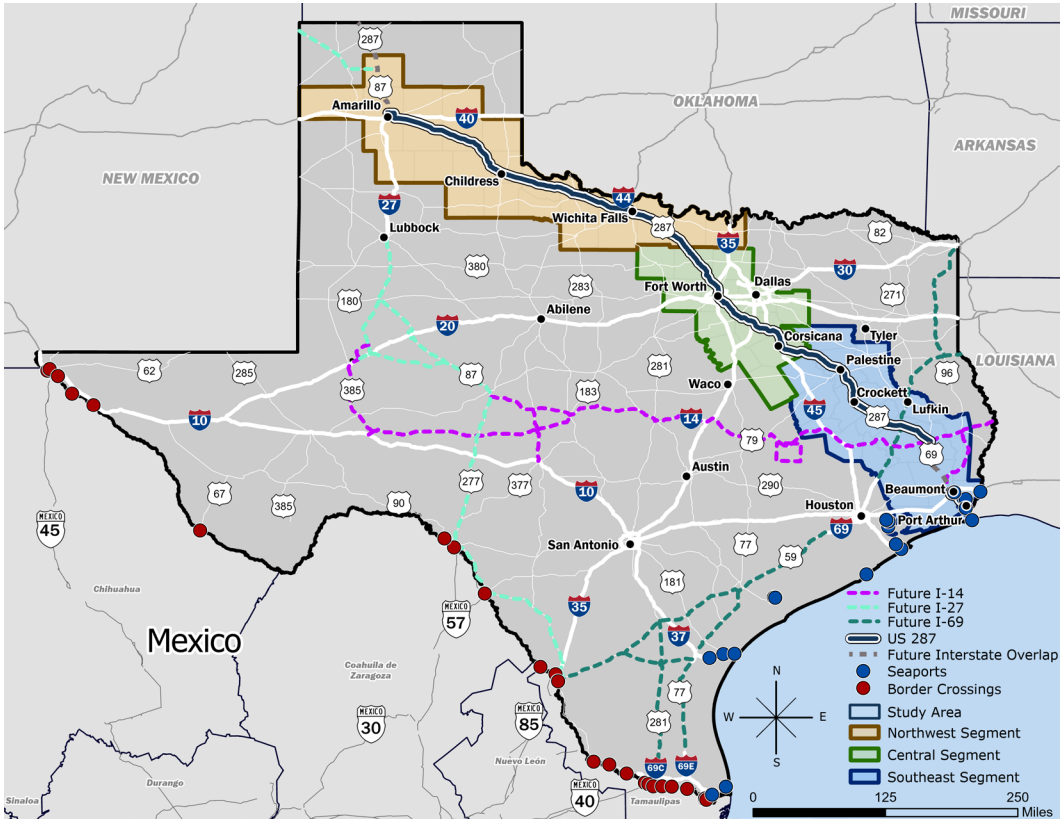



*Figure 2: US 287 Corridor Study Area by Segment*

## 1.1 SCENARIO 1: NO-BUILD (EXISTING PLUS COMMITTED PROJECTS)

Scenario 1 represents no-build condition. This baseline analysis assumes only currently planned and programmed projects are implemented along the Corridor by year 2050.

### 1.1.1 EXISTING ROADWAY CROSS SECTIONS

The US 287 Corridor consists of four primary roadway configurations. The most common is a four-lane cross section, which makes up approximately 66% of the corridor. Two-lane cross sections are the second most prevalent. In urban areas, such as Fort Worth, US 287 expands to six-lane and eight-lane cross sections in certain areas.

Frontage road availability varies along the corridor. 161 miles of US 287 include one-way frontage roads while 20 miles involve two-way frontage roads. Overall, approximately 73% of the corridor lacks frontage roads. The majority of the US 287 Corridor serves rural areas, with 298 miles classified as rural-divided and 195 miles as rural-undivided roadway.

## 1.2 SCENARIO 2: BUILD (INTERSTATE UPGRADE)

Scenario 2 assumes that the US 287 Corridor would be upgraded to meet interstate standards to provide a continuous-flow, fully access-controlled facility with a minimum of two lanes in each direction separated by a median within a typical 300-foot to 500-foot right-of-way. This evaluates if or when US 287 is upgraded to an interstate after designation by the U.S. Congress.

Several key considerations must be addressed to meet these requirements, including complying with American Association of State Highway and Transportation Officials (AASHTO) and Federal Highway Administration (FHWA) interstate design criteria.

A map of existing interstates in Texas is shown in **Figure 3**.

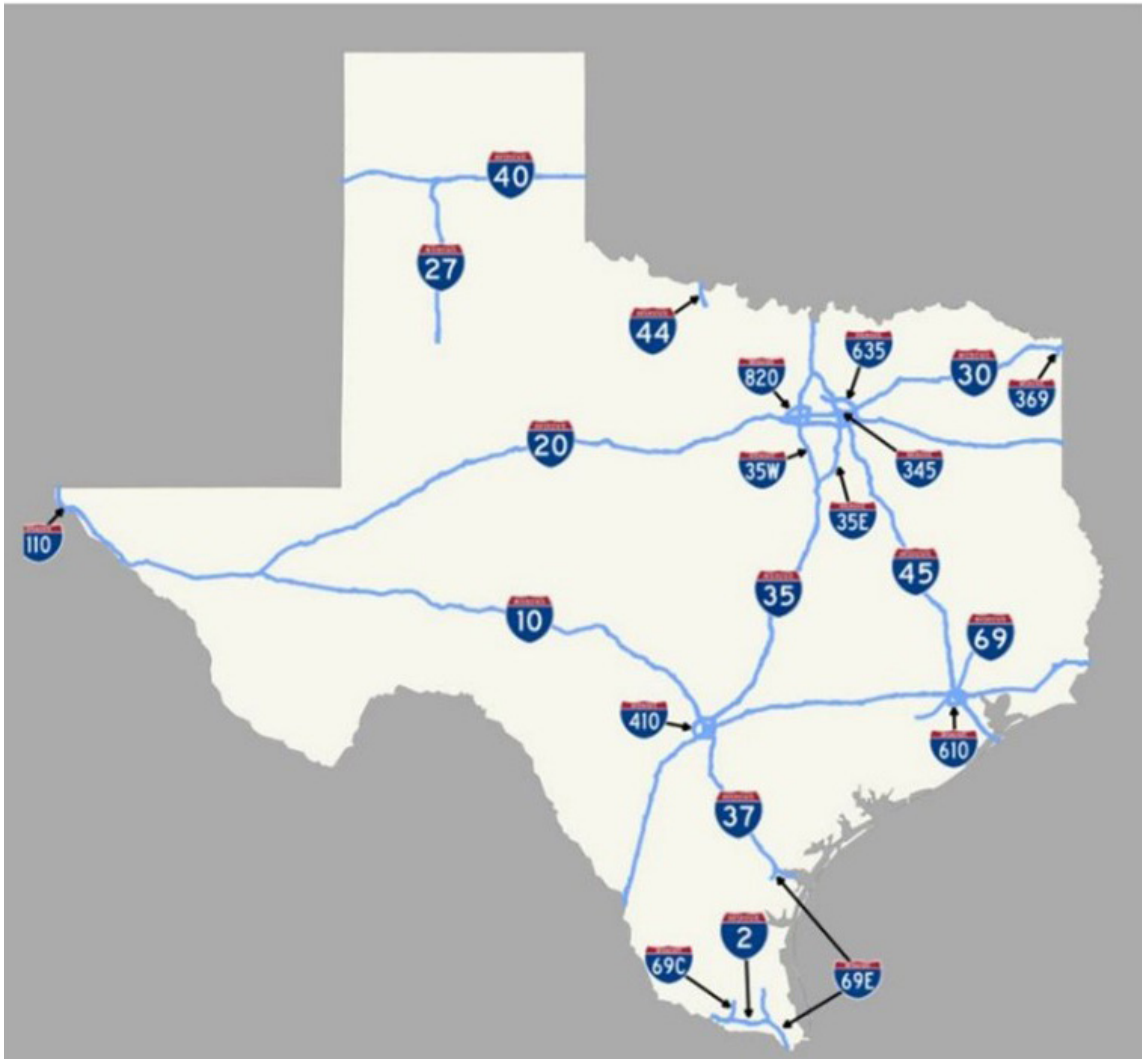



***Figure 3: Existing Interstate Designations in Texas***

### 1.2.1 IMPACT OF INTERSTATE CONVERSION ON TRAFFIC VOLUMES AND TRAVEL PATTERNS

The Statewide Analysis Model (SAM) version 4 was used to assess the potential impacts of upgrading US 287 to an interstate. SAM was used to compare traffic forecasts and Vehicle Hours Traveled (VHT) for both the no-build and interstate build scenarios.

Before conducting the analysis, the SAM v4 base model's traffic volumes were validated against TxDOT's Statewide Traffic Analysis and Reporting System (STARS II) database, comparing model-generated volumes to actual traffic counts collected along the corridor. The results demonstrated a reasonable fit, with differences considered acceptable for planning purposes.

The original model, representing current conditions, served as the no-build scenario. For the build scenario, the base model was modified to include the necessary roadway upgrades for US 287 to function as an interstate. Traffic volumes in both scenarios were then projected to 2050, providing a basis for comparison.

Upgrading US 287 to an interstate would substantially reshape regional and statewide travel patterns. **Figure 4** illustrates roadways expected to experience traffic increases or reductions as a result of the upgrade.

Details of the travel demand model analysis are presented in **Appendix A**.

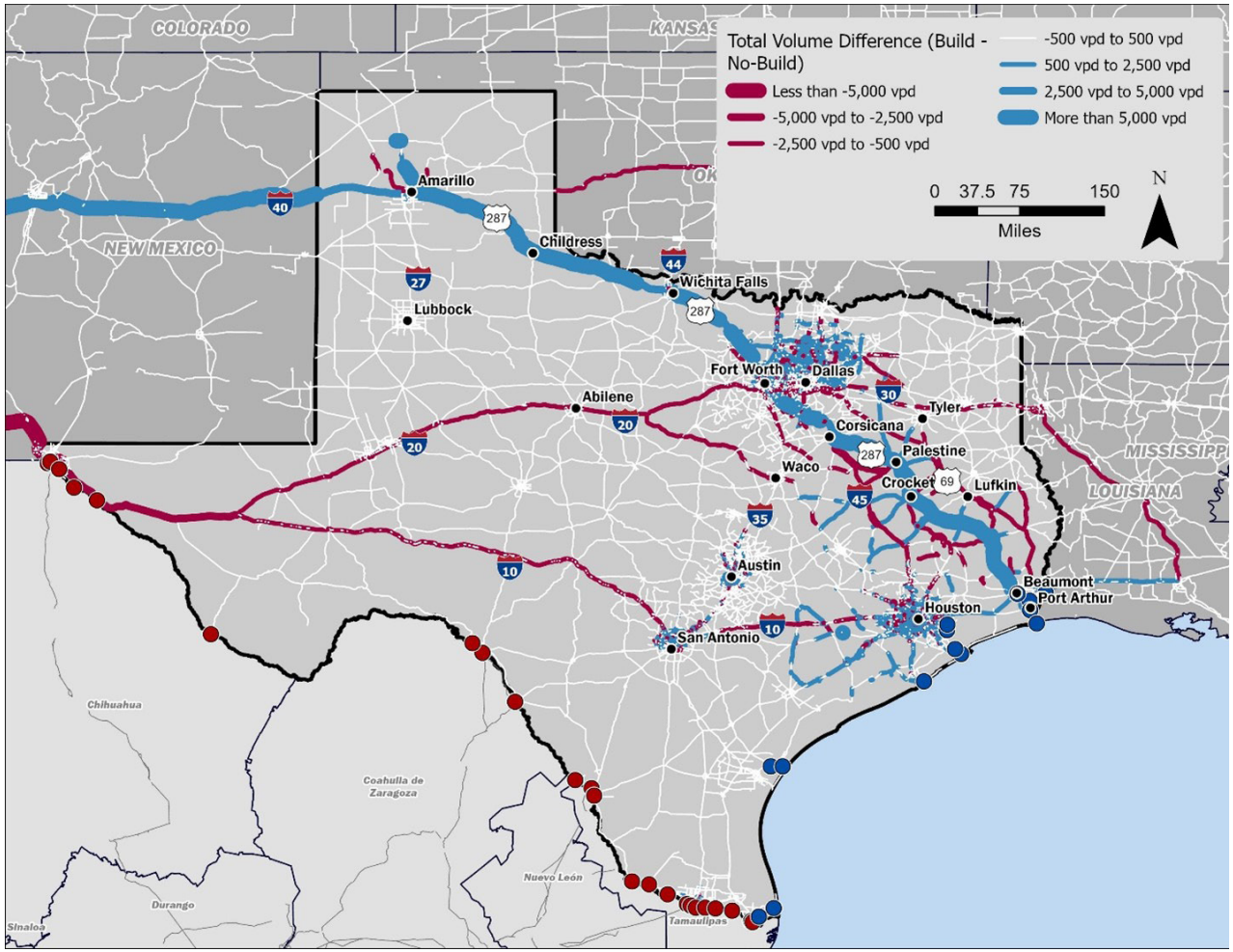



***Figure 4: Impact of US 287 Interstate Upgrade on 2050 Traffic Volumes*** [2]

2 *SAM V4, 2024*

In East Texas, the upgrade would divert traffic from I-45, offering an alternative for travelers moving north through Corsicana and south toward Houston via I-10. The enhanced US 287 interstate would establish a new diagonal, cross-state alternative to I-20 and I-10, positioning the I-40/US 287/I-10 corridor as a viable long-distance travel route. **Figure 5** and **Figure 6** highlight projected traffic volume shifts along the corridor, while **Figure 7** presents estimated VHT changes by 2050.

*The travel demand model indicates that upgrading US 287 to interstate standards would likely increase traffic along the US 287 Corridor, while reducing volumes along I-45, I-10, and I-20.*

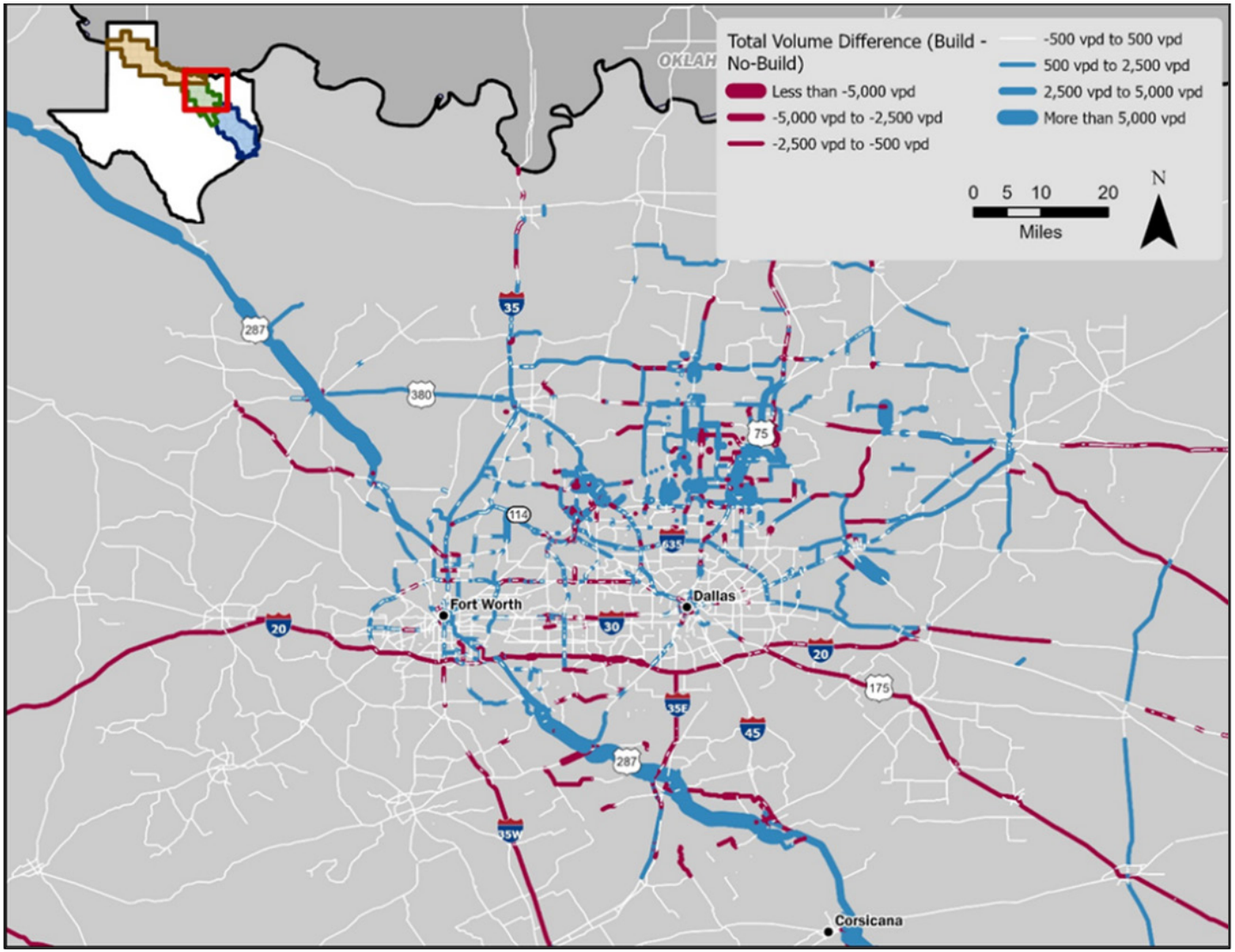



***Figure 5: Impact of US 287 Interstate Upgrade on 2050 Traffic Volumes in Dallas-Fort Worth*** [3]

3 *SAM V4, 2024*

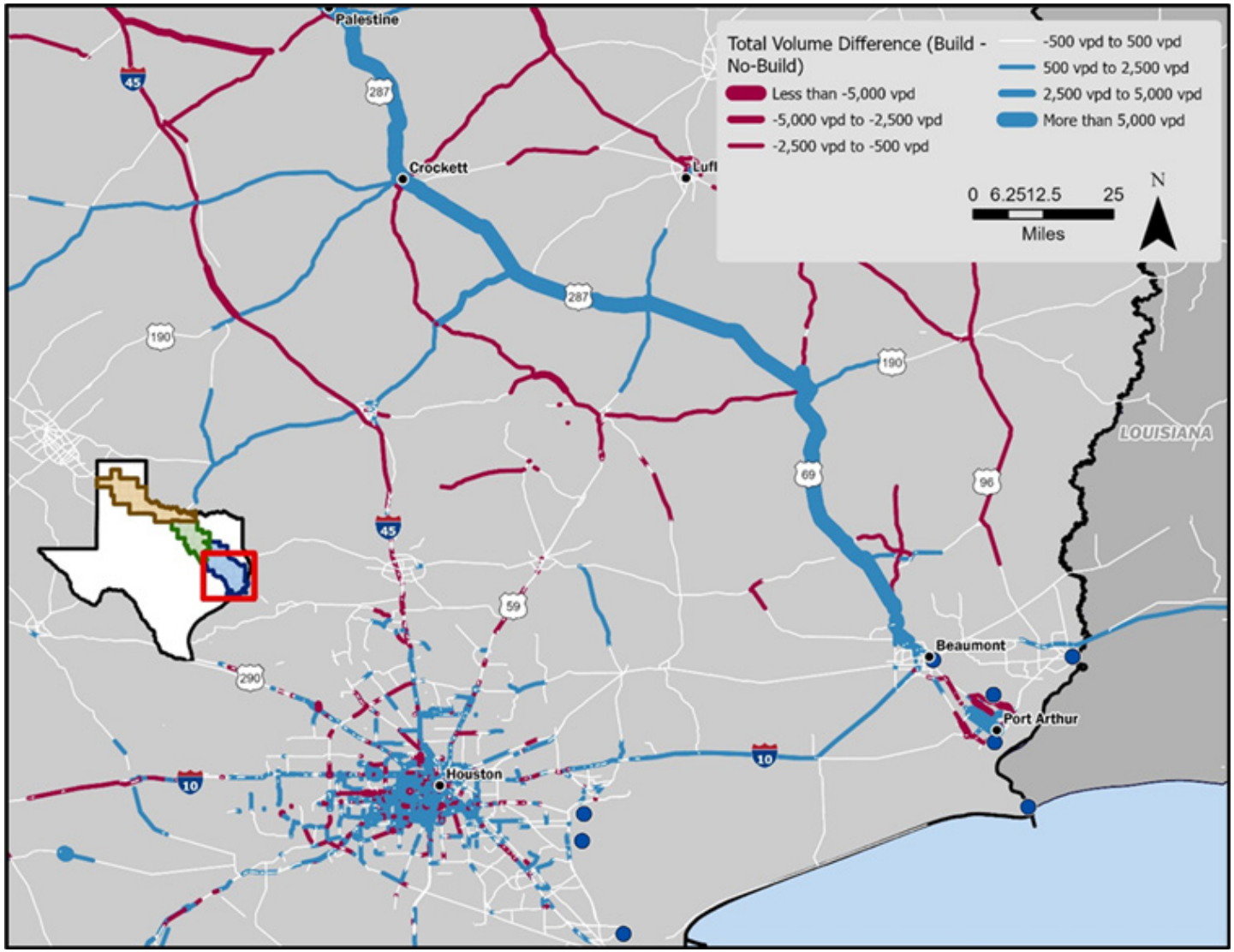



***Figure 6: Impact of US 287 Interstate Upgrade on 2050 Traffic Volumes in Houston and Beaumont*** [4]

4 *SAM V4, 2024*

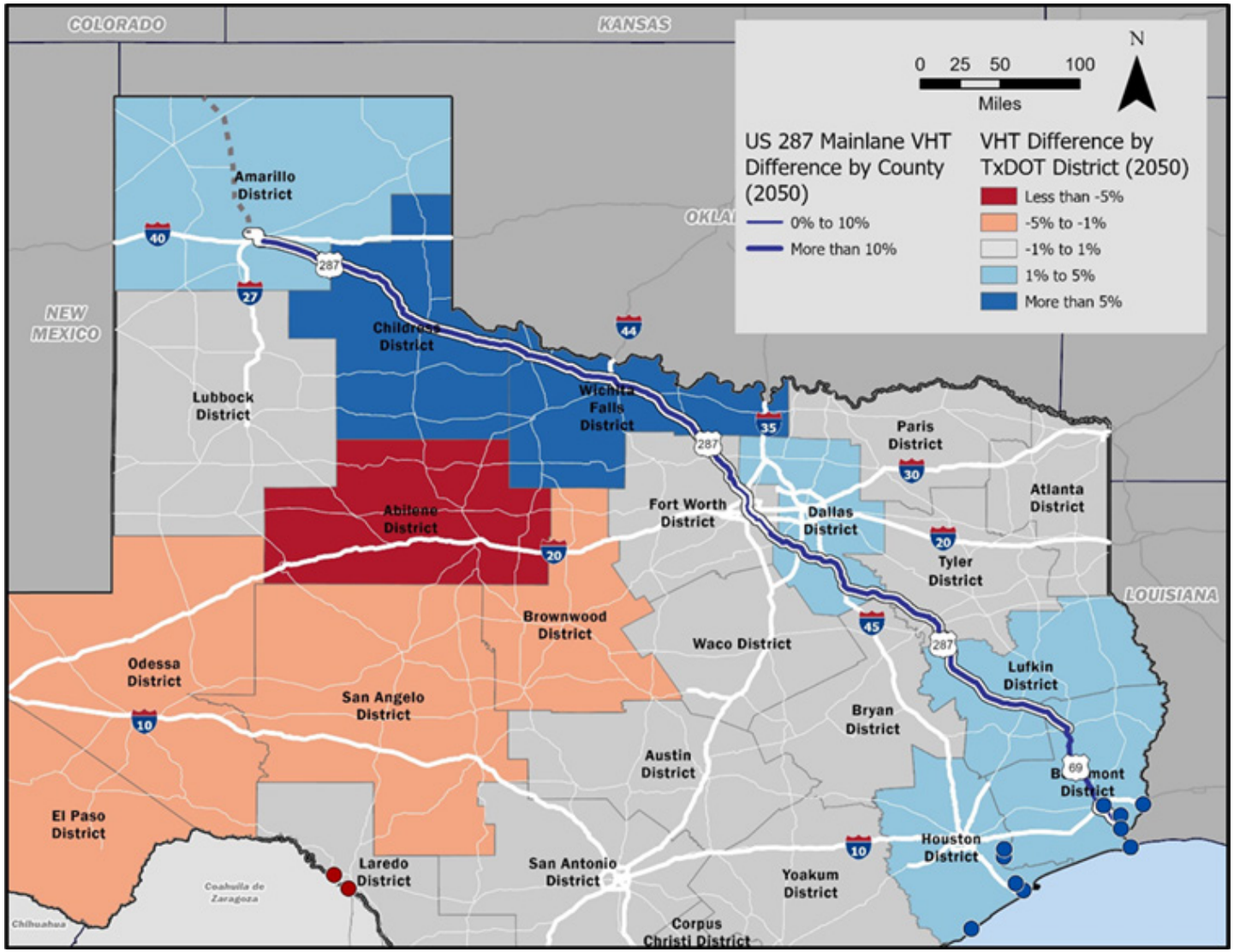
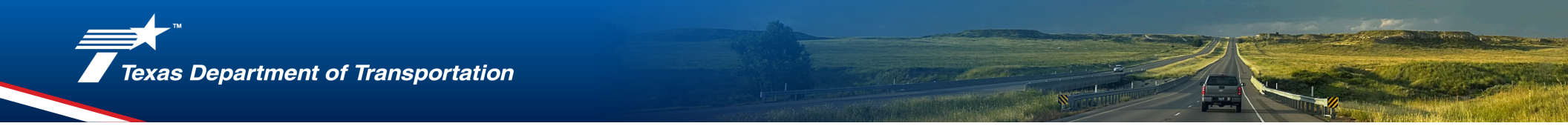



***Figure 7: Vehicle Hours Traveled Difference in 2050*** [5]

5 *SAM V4, 2024*



## 1.2.2 ECONOMIC CONSIDERATIONS

Upgrading US 287 to an interstate is a major investment that would have far-reaching economic implications. This section examines the projected costs and long-term economic impacts of the corridor improvements. This analysis focuses on return on investment (ROI), benefit-cost ratios (BCR), and industry-specific impacts.

**By evaluating these factors, this assessment offers a comprehensive view of how the interstate upgrade would impact:**

- Economic growth
- Key economic sectors
- Regional connectivity

### 1.2.2.1 COST TO UPGRADE THE CORRIDOR TO AN INTERSTATE

Of the 671-mile US 287 Corridor, 39 miles overlap with existing interstates. The remaining 632 miles (94%) of the Corridor are currently a non-interstate facility. A planning-level cost estimate for upgrading the corridor was developed using a methodology commonly applied during the feasibility stage. This approach used planning-level software, available mapping data, and industry standard assumptions.

The estimated high-level, planning cost to upgrade the entire US 287 Corridor to interstate standards is approximately $24.52 billion as presented in **Table 1**. This preliminary estimate, expressed in 2022 dollars, accounts for planned and programmed projects and is intended for planning purposes only. Costs may be refined as more detailed ROW and design information become available in future project development stages.

***Table 1: Preliminary Interstate Cost Estimate***

| Description | Interstate Corridor Cost |
|---|---|
| Constructions | $18.39 billion |
| Project Development | $6.13 billion |
| ***Total Cost*** | ***$24.52 billion*** |

### 1.2.2.2 ECONOMIC IMPACT AND INVESTMENT RETURNS OF UPGRADING TO AN INTERSTATE

The benefits and economic impacts of upgrading US 287 were assessed using the Transportation Regional Economic Development Information System (TREDIS), an integrated tool designed to evaluate benefits, costs, financing, and macroeconomic impacts. TREDIS was used to estimate key transportation benefits—such as vehicle operating cost savings and travel time reductions—as well as broader economic effects, including employment, labor income, and Gross Domestic Product (GDP) growth. It also provided an analysis of the economic return on investment for converting the corridor to an interstate.

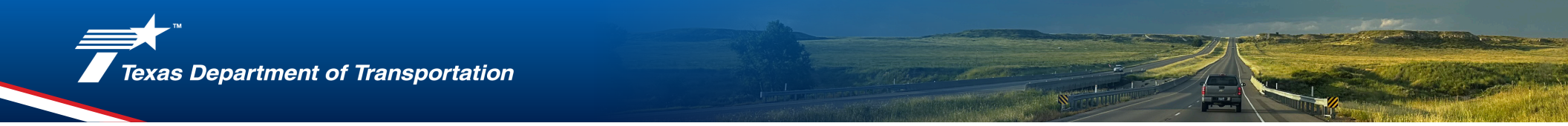
**Table 2** presents the projected economic impact of completing the interstate upgrade by 2050. The results indicate that upgrading US 287 to an interstate would play a major role in supporting economic growth for cities, counties, and communities along the corridor, as well as Texas as a whole.

***Table 2: Projected Economic Impact*** [6]

| 2050 Jobs Created along the Corridor | Increase Average Annual GDP from the Interstate Upgrade in the Corridor (2050) | Total Cost Savings (2050) |
|---|---|---|
| 5,258 jobs in Financial Activities | $1.33 billion in Financial Activities | $16.9 million travel cost reduction in Professional, Business, and Finance |
| 2,400 jobs in Wholesale Trade | $1.43 billion in Wholesale Trade | $23.3 million travel cost reduction in Wholesale Trade |
| 2,327 jobs in Manufacturing | $3.03 billion in Manufacturing | $209.5 million travel cost reduction in Manufacturing |
| 12,302 jobs in Professional and Business | $2.05 billion in Professional and Business | $31.0 million travel cost reduction in Professional, Business, and Finance |
| ***46,885 total jobs**** | ***$11.6 billion total**** | ***$405.6 million total savings**** |

*Includes other industries

6 *TREDIS, 2025*



### 1.2.2.3 LONG-TERM ECONOMIC RETURNS FOR UPGRADING THE CORRIDOR TO AN INTERSTATE

The economic impact outlined in **Table 2** reflects projected outcomes for the year 2050, comparing the interstate upgrade to a baseline scenario. Additionally, the benefits of converting US 287 to an interstate are anticipated to extend far beyond a single year, generating economic gains over the analysis period. Two key measures help evaluate these long-term economic impacts relative to project costs:

***Return on Investment (ROI)***

**ROI is a common metric used to determine whether an investment is worthwhile. It is calculated as the increase in GDP relative to the upfront capital cost.**

In year 2050, the statewide GDP is projected to grow by **$11.6 billion** in the interstate build scenario.

This increase results in a net return on investment of **$39.6 billion.** This translates to an ROI of 161%.

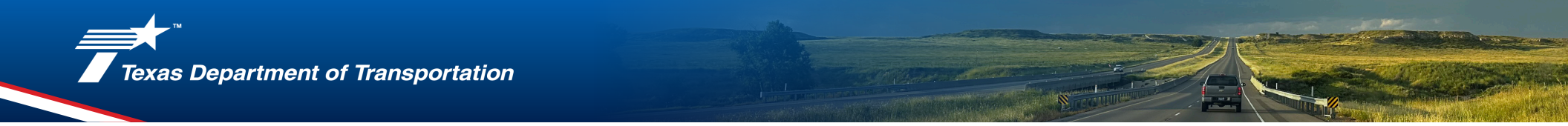
***Benefit-Cost Ratio (BCR)***

**The BCR compares the project's economic benefits. It compares vehicle operating costs, travel cost savings, and crash reductions to upfront capital costs and ongoing operations and maintenance costs.**

Benefits measure the outcomes of the economic value resulting from the project. Costs consist of the resources needed to develop the project. The benefits and cost values are discounted at a specified rate (currently 3.1%) to compute the Net Present Value of the investment being made.

The major components of the benefits include vehicle operating costs (45.6%), safety (27.7%), and time savings (24.3%). Discounted costs include capital investment, ongoing operations and maintenance costs, and is reduced using the remaining lifecycle value (salvage value). The difference between the discounted benefits and discounted costs provides the net present value ($19.4B) and the ratio of both provides the benefit-cost ratio (3.25).

The benefit-cost ratio of 3.25 indicates that every dollar invested yields $3.25 in economic benefits. A BCR above 1.0 suggests a positive return on investment.



### *Additional Economic Impacts*

Beyond long-term operational benefits, the interstate upgrade would generate substantial economic activity during construction and after opening of the facility. **In 2050, the project is expected to contribute $11.6 billion in GDP and support 46,885 jobs.** These include jobs in industries such as:

- Manufacturing
- Wholesale Trade
- Professional & business services
- Financial activities

The economic benefits of upgrading US 287 extend beyond major metropolitan areas, positively impacting small and mid-sized communities. An interstate designation increases demand for the following, creating opportunities for local economic growth along US 287:

- Gas stations
- Restaurants
- Truck Stops
- Lodging
- Other roadside services

A summary of the US 287 corridor benefits is provided in **Table 3** and summarized in **Figure 8**. Details of the economic analysis are presented in **Appendix A**.

***Figure 8: US 287 Statewide Benefits and Return on Investment Interstate Build Scenario***

**US 287 Corridor Statewide Benefits in 2050**

| $5.4 Billion | 46,885 Jobs | $11.6 Billion |
|---|---|---|
| 2050 Travel Cost Savings | Total Increase in Employment | Total Annual Increase in GDP |

**Return on Investment – $11.6 Billion** *in GDP GAINS in 2050*

**$39.6 Billion** net return on investment, representing a return on investment of **161%**

**Benefit-Cost Ratio – 3.25**

***Table 3: Summary of US 287 Corridor Benefits (Opening year 2050)*** [7]

| | | | |
|---|---|---|---|
| **Total Capital Costs** | | **$24.5 billion** | |
| **Operating and Maintenance (O&M) Costs** | | **$2.8 billion** | |
| **Total (O&M) and Capital Costs** | | **$27.3 billion** | |
| **Total Travel Cost Savings** | | **$5.4 billion** | |
| Corridor Travel Cost Savings | | $1.2 billion | |
| Manufacturing | $209.5M (17.9%) | | |
| Professional and Business | $31.0M (2.6%) | | |
| Wholesale Trade | $5.7M (0.5%) | | |
| Financial Activities | $16.9M (1.4%) | | |
| Other Industries & Households* | $910.3M (77.6%) | | |
| Rest of Texas Travel Annual Cost Savings | | $4.2 billion | |
| **Benefit/Cost Ration**/Net Present Value*** | | **3.25** | **$19.4 billion** |
| **Total Increase in GDP** | | **$11.6 billion** | |
| Corridor Annual Increase in GDP | | $10.2 billion | |
| Manufacturing | $2.7B (26.5%) | | |
| Professional and Business | $1.8B (17.2%) | | |
| Wholesale Trade | $1.3B (12.3%) | | |
| Financial Activities | $1.2B (11.3%) | | |
| Other Industries & Households* | $3.3B (32.7%) | | |
| Rest of Texas Travel Annual Increase in GDP | | $1.4 billion | |
| **Return on Investment**** | | **161%** | **$39.6 billion** |
| **Total Increase in Employment** | | **46,885** | |
| Corridor Increase in Employment | | 46,885 | |
| Financial Activities | 2,327 (5.0%) | | |
| Transportation | 12,302 (26.2%) | | |
| Manufacturing | 2,400 (5.1%) | | |
| Professional and Business | 5,258 (11.2%) | | |
| Other Industries & Households* | 24,598 (52.2%) | | |

*Includes travel savings for all other industries and consumers in the Corridor.

**The benefit-cost ratio reflects the opening year of 2050 and is calculated by dividing the total discounted benefits by the total discounted costs ($28.0B/$8.6B), reflecting a value of 3.25. A benefit-cost ratio above one is considered worthwhile.

***The net present value reflects the discounted benefits ($28.0B) minus the discounted costs ($8.6B) over the analysis period.

****The total GDP gains over the analysis period equals $64.1B. These gains are $39.59B more than the upfront capital costs of $24.52B, representing a return on investment of 161 percent ($39.59B/$24.52B) The ROI calculation excludes operating and maintenance costs.

7 *TREDIS, 2025*

### 1.2.2.4 ECONOMIC IMPACTS BY INDUSTRY

Industries that rely heavily on goods transportation would see substantial benefits in the interstate build scenario. **Figure 9** presents employment impact by segment and industry in the US 287 study area. Professional & Business Services sector has the highest employment generation followed by Financial Activities.

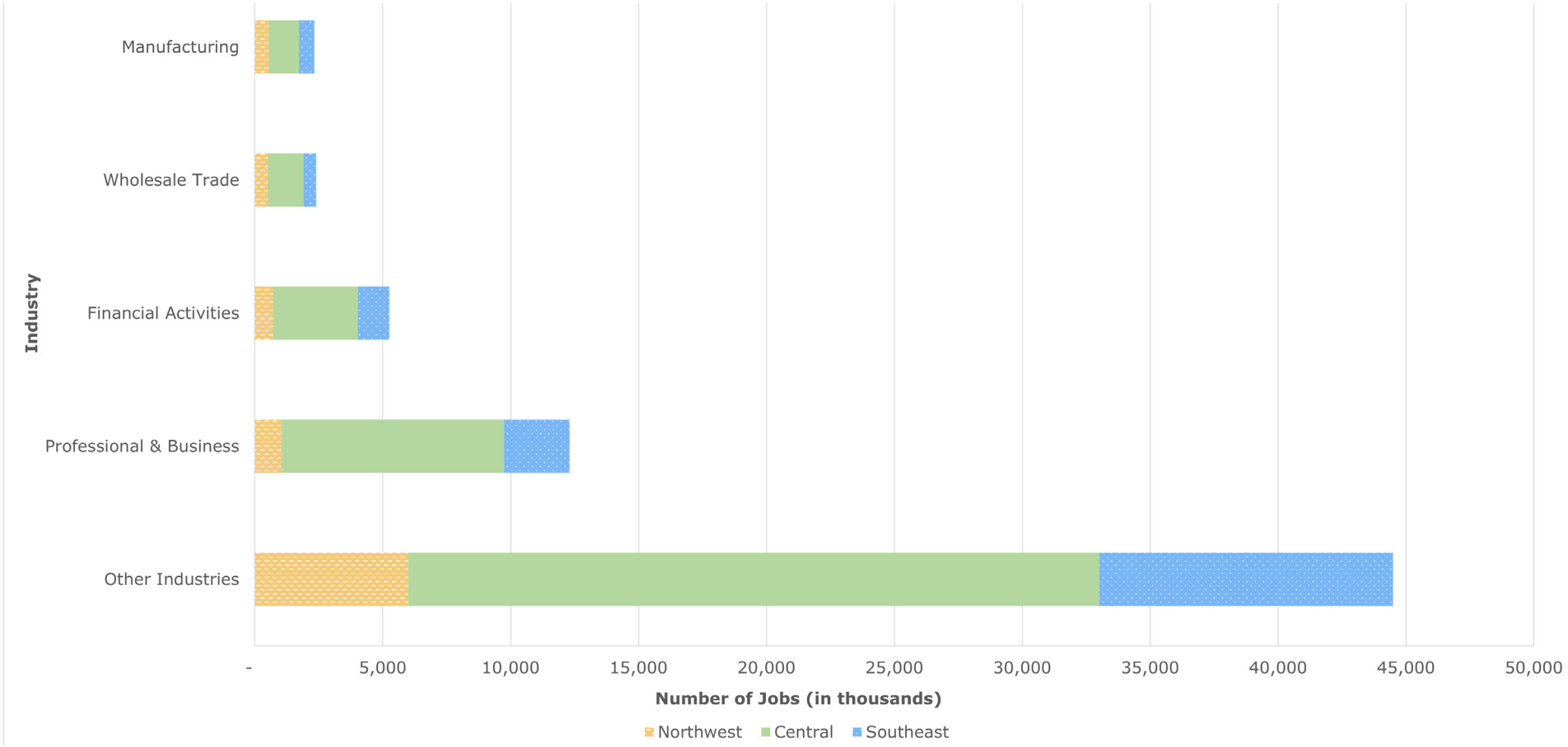



***Figure 9: Employment Growth by Industry, Interstate 2050 Scenario*** [8]

8 *TREDIS, 2025*

Industries expected to experience the greatest economic impact from the interstate upgrade are those that already play a substantial role in the US 287 Corridor's economy, including:

### Manufacturing Industry

US 287 is essential for the movement and shipment of manufactured goods. The interstate upgrade would save manufacturers over $209 million in 2050 by improving travel efficiency and reducing delays. Additionally, in 2050, the manufacturing sector's GDP is expected to grow by $3.03 billion and 2,327 jobs, reinforcing the corridor's role as a major economic artery for manufacturing activity.

*Industrial Plant in Woodville*

### Professional and Business Industry

US 287 serves as a vital corridor for business activities and will remain a key driver of economic growth. The interstate upgrade is projected to save businesses approximately $31 million in travel time and costs in 2050 while enhancing access to both workforce and customers. By making the corridor more attractive for business operations, the upgrade is expected to create 12,302 new jobs in the professional and business sector and boost the sector's GDP by $2.05 billion in the year 2050. These enhancements would strengthen connectivity, benefiting both professionals and consumers.

### Wholesale Trade

As a backbone of economic activity, the wholesale trade sector would benefit considerably from the interstate upgrade. The enhanced corridor would reduce travel times, leading to $5.73 million in savings for wholesale trade-related businesses in the year 2050. The industry is projected to gain 2,400 new jobs, while its GDP is expected to grow by $1.43 billion in 2050.


*Freight in Palestine*

### Financial Activities Industry

Financial activities would experience substantial growth following the interstate upgrade. The corridor improvements would lead to $16.9 million in travel time and cost savings in 2050, making the area more attractive for financial operations. The upgrade is projected to create 5,258 new jobs in the financial sector and increase its GDP by $1.33 billion in the year 2050.

By improving accessibility, reducing costs, and fostering job growth, the interstate upgrade of US 287 would strengthen key industries along the corridor, ensuring long-term economic prosperity.

### 1.2.2.5 ECONOMIC IMPACTS IN GDP BY INDUSTRY

The US 287 Corridor is a diverse corridor with all the major industries accounted for in the study area. This is particularly true with the Dallas-Fort Worth (DFW) metroplex and the Central Segment. The upgrade of US 287 to an interstate would have varied impact on the segments on industry growth when compared to US 287 not being an interstate. **Figure 10** below shows the increased GDP with US 287 as an interstate in 2050 compared to base (without US 287 being an interstate).

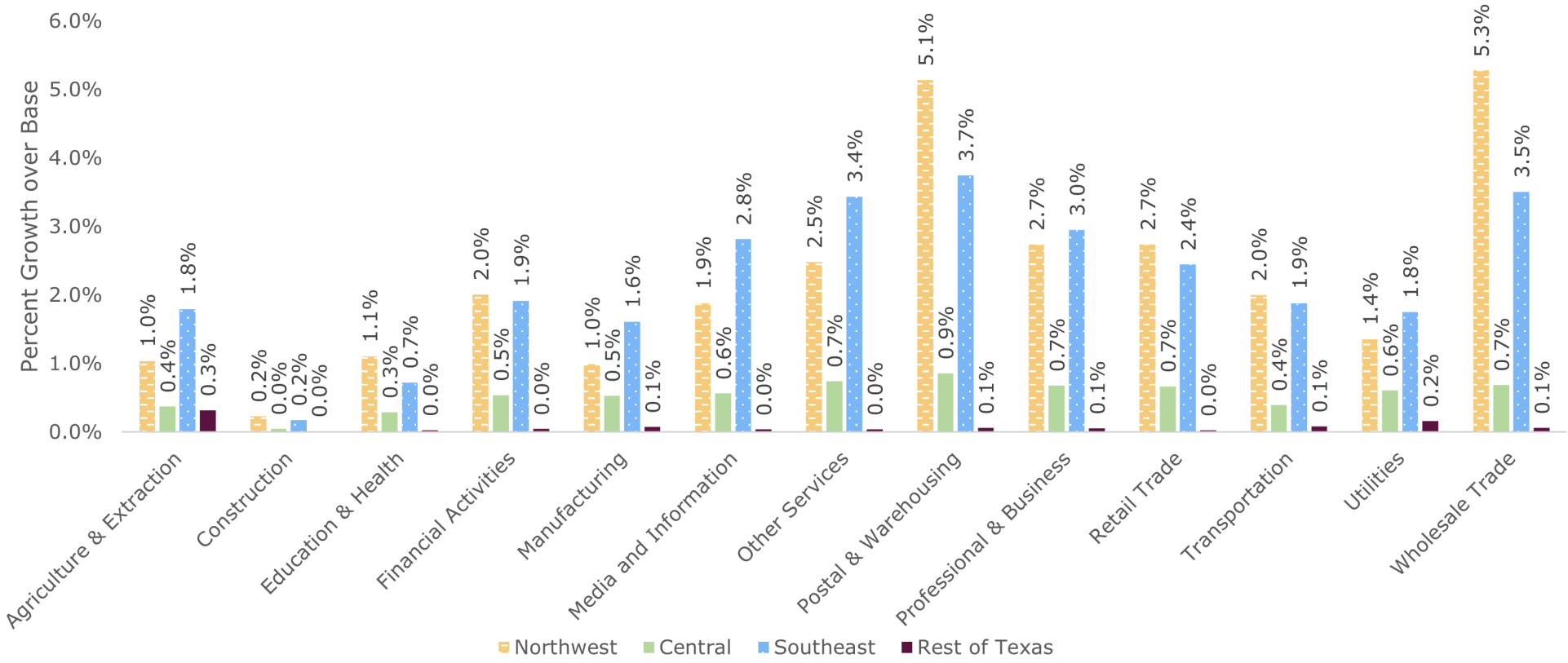



***Figure 10: Economic Impacts in GDP by Industry***

The **Northwest Segment** sees a high growth in industries such as wholesale trade (5.3%) and warehousing (5.1%) because of better connectivity with the DFW metroplex. **The Southeast Segment** sees increased growth in wholesale trade (3.5%), warehousing (3.7%), professional and business (3.0%) as well as other services (3.4%), though it is not as high in terms of percentage as the Northwest Segment. **The Central Segment** is quite diversified, and the industries are considerable in size. Though the Central Segment sees a much higher overall GDP growth in several industries like professional and business and financial activities, the percentage change is much smaller at 0.7% and 0.5% respectively. **The rest of Texas** is large and diverse so it sees changes between 0.0% and 0.3% for agriculture and extraction.

**Figure 11** summarizes the Value Added by industry and segment to the increase in GDP. Contribution of the Manufacturing Industry is projected to be the highest, followed by the Professional & Business Services sector within the US 287 study area.

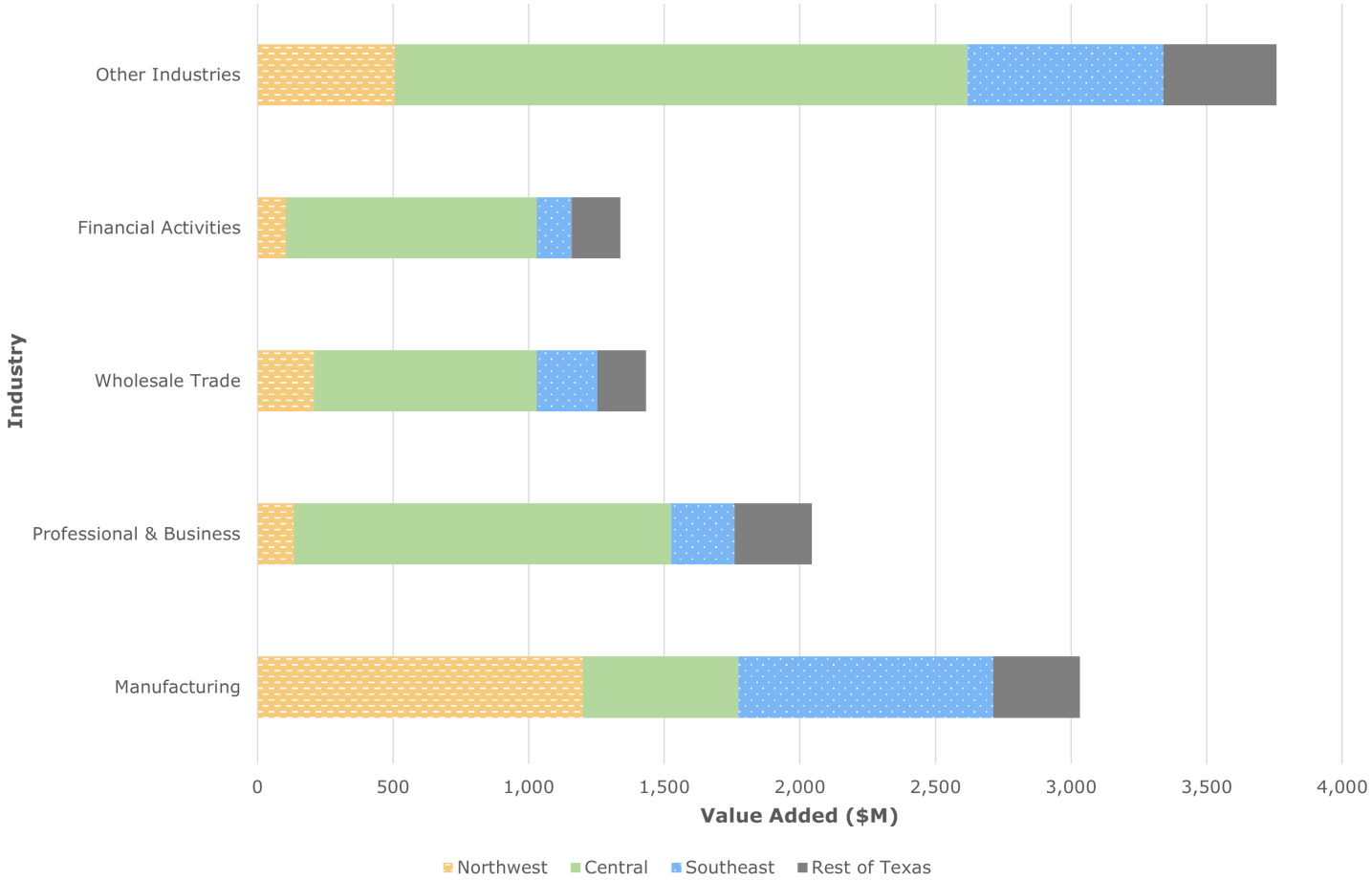



***Figure 11: Value Added by Industry and Segment***

## 1.3 KEY CHALLENGES

**Key challenges behind the upgrade to an interstate found in this study consist of:**

**1** **The complexity of an interstate upgrade**

Achieving interstate designation in the US is a very stringent process that involves meeting or exceeding specific roadway characteristics, political support, designation by the U.S Congress, and funding availability to upgrade roadways to fulfill the federal interstate requirements.

**2** **Age/deficiency of existing bridge structures and vertical clearances**

Many of the existing structures along US 287 are 50+ years old. Dozens of these structures were not designed for current loading requirements for interstates and would, therefore, require complete removal and replacement to comply with the federal interstate requirements. There are 141 structures along US 287, 86 of which have been in place for over 50 years.

*Train Crossing Low Bridge along US 287*

Additionally, the 671-mile corridor contains a total of 54 overpasses that are below the required 18.5-foot vertical clearance requirement for all TxDOT Freight Corridor designated routes. These structures will need to be upgraded to comply with interstate standards.

**3** **Right-of-way (ROW) limitations**

To establish a four-lane divided interstate roadway section with frontage roads, approximately 300-500 feet of ROW width is required. This accounts for requirements as prescribed by the FHWA and the USDOT:

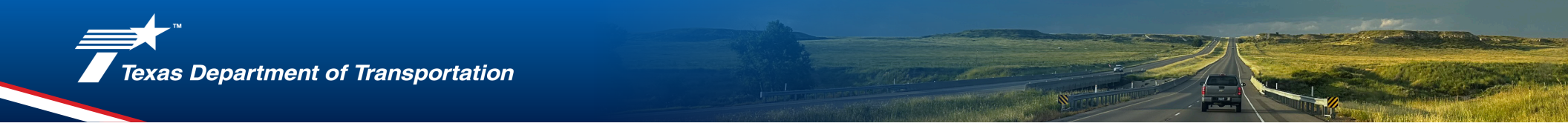
- Lane widths
- Shoulder widths
- Median widths
- Clear zones

The required ROW width can be more than 400 feet when factoring in drainage, ditch capacities, and interchanges.

In its current configuration, nearly 54% of US 287 has a minimum ROW width less than 300-feet. For an upgrade to interstate, the sections making up this 54% are anticipated to need additional ROW acquisition to accommodate the cross section needed to meet interstate standards.

**4** **Considerable number of access points**

To qualify for interstate designation, a continuous route must provide full access control. This means that any connections to or from the main lanes must be facilitated by on-ramps and off-ramps. Driveways, side streets, etc., are not allowed to connect to the main lanes of the facility directly. Currently, almost 74% of the US 287 corridor is not an access-controlled facility. They would need to be addressed with frontage road connections, interchanges, or other grade-separated crossings for US 287 to be considered for an interstate upgrade.



## 1.4 SCENARIO COMPARISON

This section compares the results of two scenarios to evaluate the potential impacts of upgrading US 287 to an interstate.

**Scenario 1**
*(i.e., existing condition plus committed projects)*
**represents No-Build.**

**Scenario 2**
*(i.e., Interstate Conversion)*
**represents Build.**

By analyzing key transportation and economic metrics, this comparison highlights the impacts of if or when US 287 is upgraded to an interstate. Understanding these differences helps assess the overall value of converting US 287 into an interstate and its potential long-term benefits for regional and statewide mobility, safety, and economic growth.

### 1.4.1 MULTIMODAL OPERATIONS

The operational performance of a corridor is a key factor in assessing the impacts of an interstate upgrade. This section compares the operational impacts of Scenario 1 and Scenario 2. The analysis explores how upgrading US 287 to an interstate would affect mobility, freight movement for key economic sectors, travel times, congestion, and military logistics.

#### 1.4.1.1 MOBILITY

Traffic in the Southeast Segment of the US 287 Corridor currently relies on I-10 and I-45 to transport people and goods to and from the Beaumont-Port Arthur area. This is largely due to the existing roadway configurations, including US 287, which can be more challenging to navigate than an interstate facility. The Southeast Segment has more two-lane undivided roadways than four-lane divided highways or roads with a two-way left-turn lane, creating safety and congestion challenges for traffic traveling north and south. Upgrading US 287 to an interstate would provide a more efficient route, drawing traffic away from I-10 and I-45 and offering a direct connection between the Beaumont-Port Arthur area and DFW and beyond. Volume changes were also seen on I-20 within DFW, with US 287 providing a route away from the inner areas of the metroplex.

In the Interstate Build scenario, daily traffic along US 287 is anticipated to increase by 43% across the corridor. This is due to the added capacity on US 287 to handle additional traffic at higher speeds. Diversions and increases in traffic in the interstate build scenario are presented in **Figure 4**. Notable trip diversions to US 287 from other interstates after an upgrade of US 287 to an interstate are below:


**Trips diverted from I-45:**
**3.3K**
*in AADT*


**Trips diverted from I-10:**
**3.1K**
*in AADT*


**Trips diverted from I-20:**
**2.8K**
*in AADT*

### 1.4.1.2 TRAVEL TIME

As Texas continues to grow, traffic volumes on US 287 are expected to rise notably by 2050. This would result in an increase in congestion and travel times. Compared to baseline conditions, travel times along the entire corridor are projected to increase by 16 minutes due to higher traffic volumes. However, upgrading US 287 to an interstate in the Build scenario is projected to save 44 minutes per vehicle. This is due to higher travel speeds, access-controlled facility, and elimination of frequent stops at intersections in towns. The Interstate Build scenario would also create a more efficient route, with increased market access radius and route reliability.

Travel times (the time it takes to travel from one end of the corridor to the other) were compared for US 287 between the No-Build and Interstate Build scenarios. The Interstate Build scenario involves higher speeds. For the daily average travel times, the Interstate Build scenario experiences a 20-minute reduction in travel time in the Southeast Segment and a 12-minute reduction in travel time in the Northwest Segment, as shown in **Figure 12**.

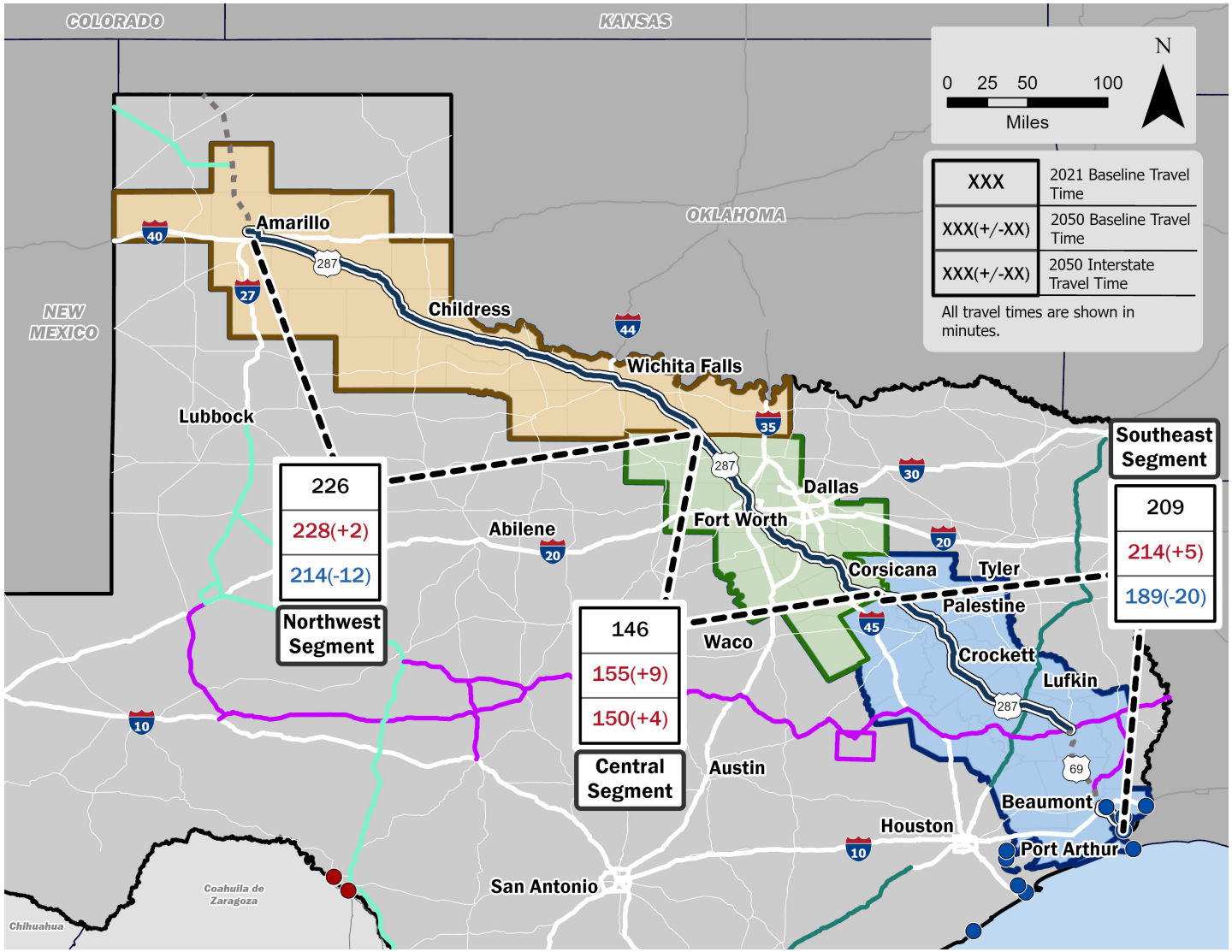



***Figure 12: Daily Average Travel Times*** [9]

9 *SAM V4, 2024; Transearch/IHS Markit, 2024*

For the AM peak hour travel times, the Interstate Build scenario experiences a 21-minute reduction in travel time in the Southeast Segment and a 12-minute reduction in travel time in the Northwest Segment, as shown in **Figure 13**.

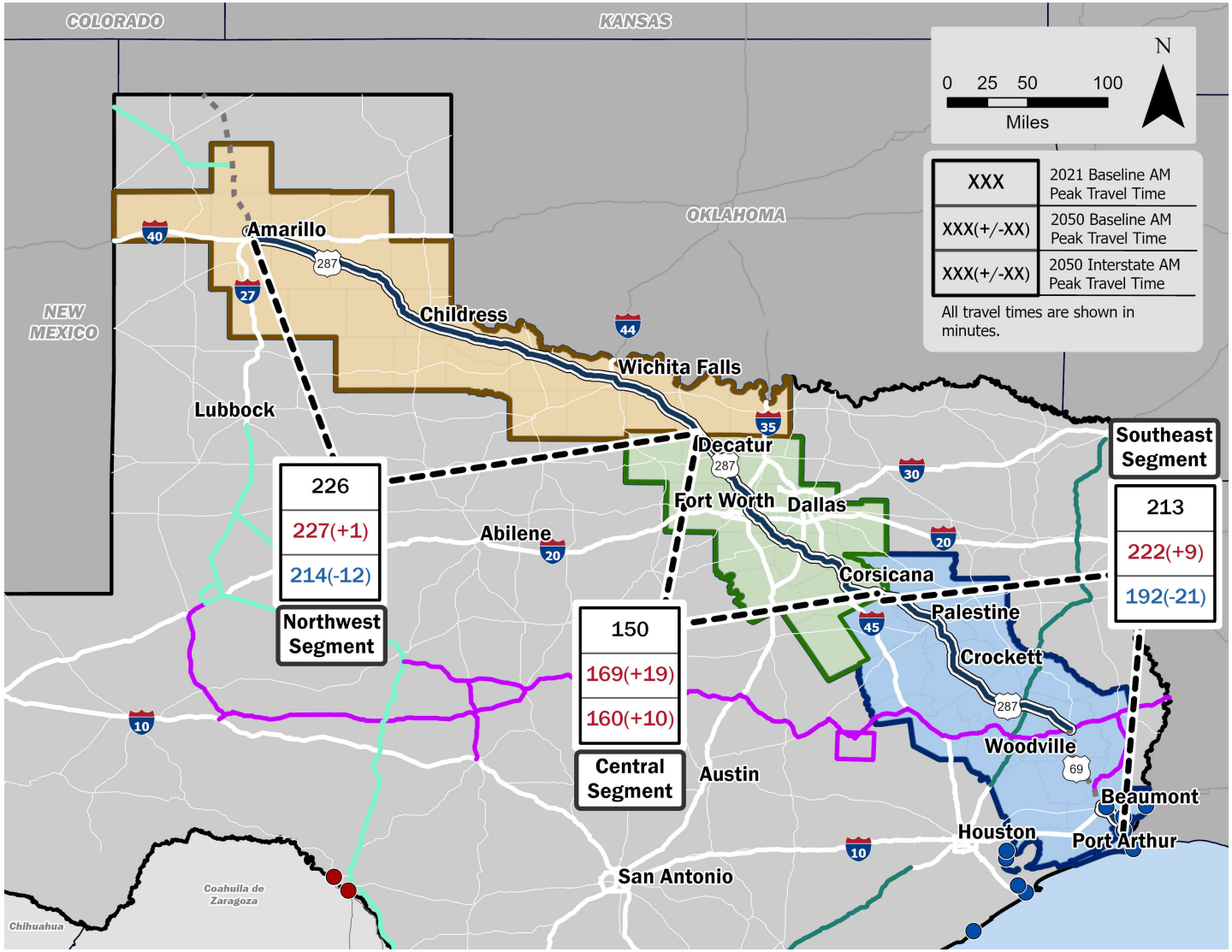



***Figure 13: AM Peak Hour Travel Times*** [10]

10 *SAM V4, 2024; Transearch/IHS Markit, 2024*

For the PM peak hour travel times, the Interstate Build scenario experiences a 9-minute reduction in travel time in the Southeast Segment and a 10-minute reduction in travel time in the Northwest Segment, as shown in **Figure 14**. The Central Segment does not show a reduction in travel time for the Interstate Build scenario when compared to the No-Build scenario, due to high traffic volumes and existing access control.

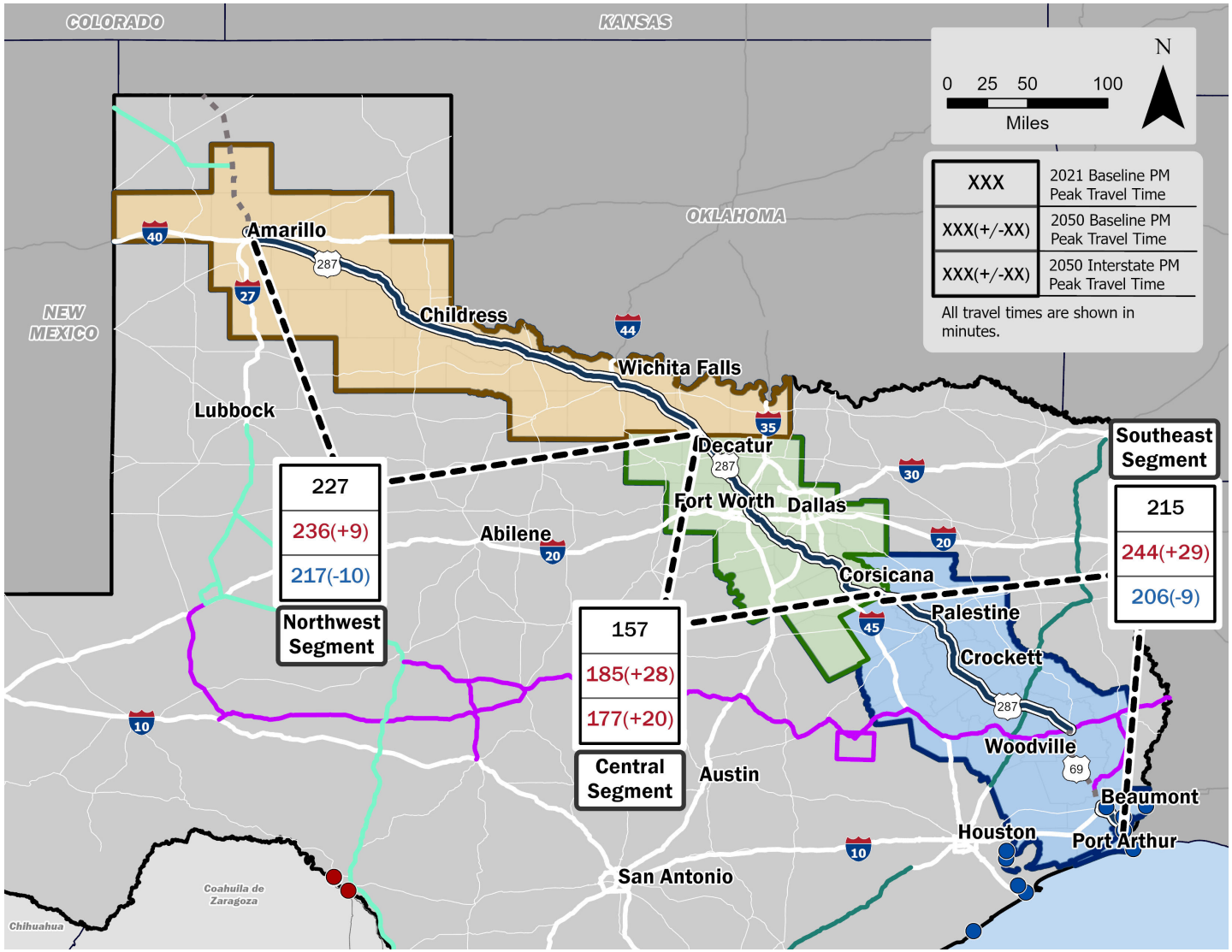



***Figure 14: PM Peak Hour Travel Times*** [11]

11 *SAM V4, 2024; Transearch/IHS Markit, 2024*

**Figure 15** presents travel time benefits of the interstate upgrade for unconstrained (free flow) conditions, average conditions, and peak traffic conditions along US 287.

***Figure 15: Travel Time Comparisons***

| Baseline Travel Time | | |
|---|---|---|
| **575 minutes** | **597 minutes** | **641 minutes** |
| Free Flow Reduced | Average Time Reduced | Peak Time Reduced |
| ↓ **36 minutes** | ↓ **44 minutes** | ↓ **57 minutes** |
| **Interstate Upgrade Travel Time** | | |
| **539 minutes** | **553 minutes** | **584 minutes** |

### 1.4.1.3 FREIGHT MOBILITY

The US 287 corridor is a critical freight route within the state, connecting one of the nation's largest energy and agricultural regions to two major break-bulk seaports, the Port of Port Arthur and the Port of Beaumont. Break-bulk seaports handle cargo that is individually loaded and unloaded. They are typically large and irregular sized and need to be transported to US 287.

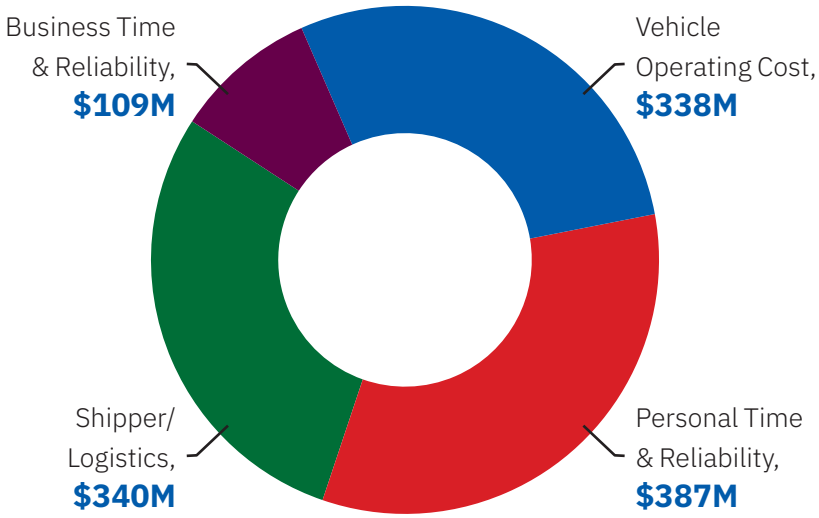
The importance of the US 287 Corridor spans local, regional, state, national, and international markets.

**The following key economic sectors are anticipated to see the greatest benefits from an interstate upgrade:**

- Energy
- Agriculture
- Maritime
- Timber

Converting the corridor to an interstate would introduce an access-controlled facility, improving travel times from end to end. The different elements of travel cost savings for passenger and freight travel amount to $1.2 billion in savings for the Interstate Build scenario. These include savings in personal time and reliability, shipper/logistics, vehicle operating cost, and business time and reliability. **Figure 16** presents a breakdown of the corridor travel cost savings for the interstate build scenario.

***Figure 16: Corridor Travel Cost Savings***



Average daily truck traffic on US 287 would increase by 116% in the Interstate Build scenario. As shown in **Figure 17** and **Figure 18**, expected total freight tonnage is expected to increase from 2022 to 2050. The largest increases in truck tonnage travel through the DFW area in the Central Segment. The truck tonnage flow is expected to increase throughout the study area.

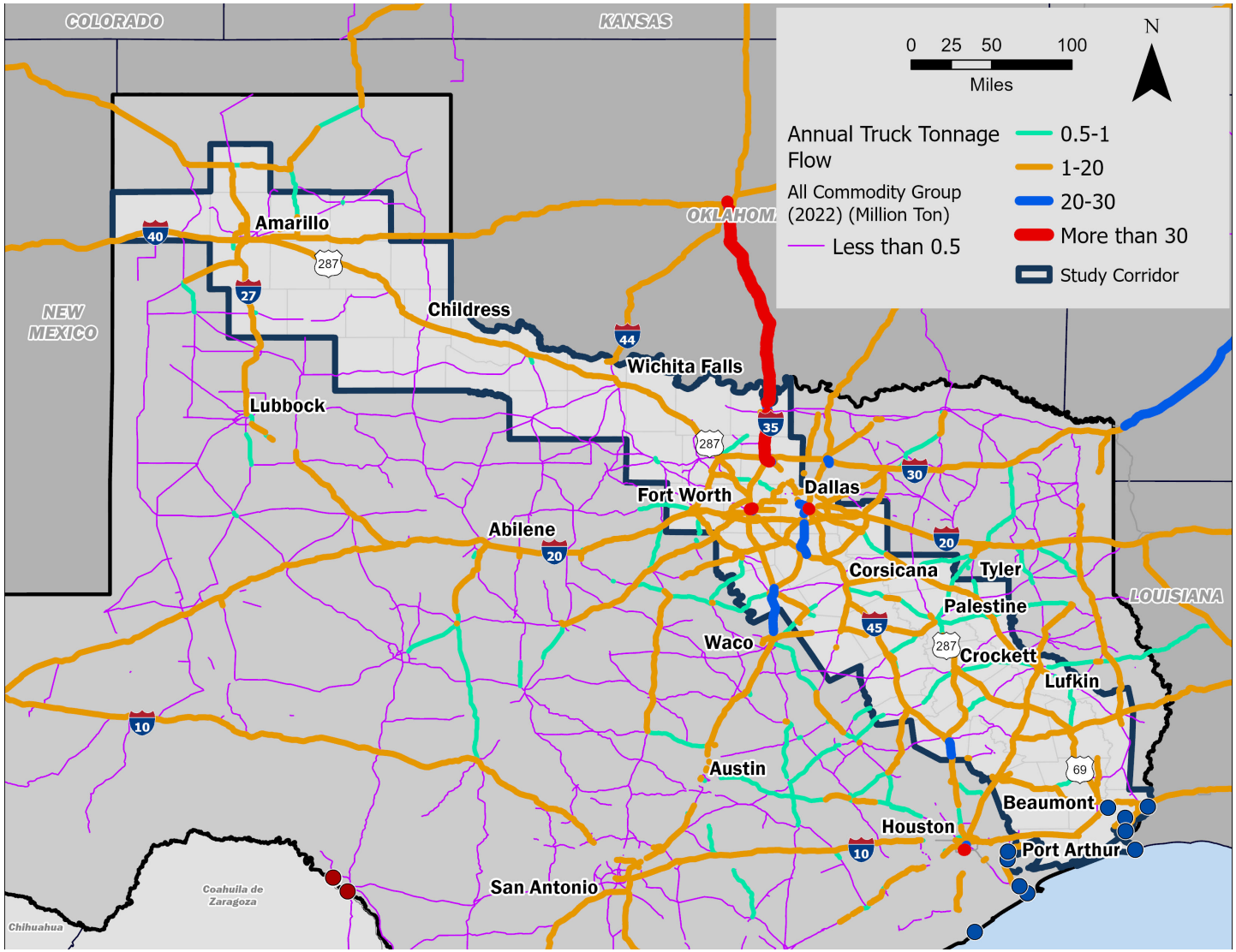



***Figure 17: 2022 Total Freight Tonnage to/from US 287*** [12]

12 *SAM V4, 2024; Transearch/IHS Markit, 2024*

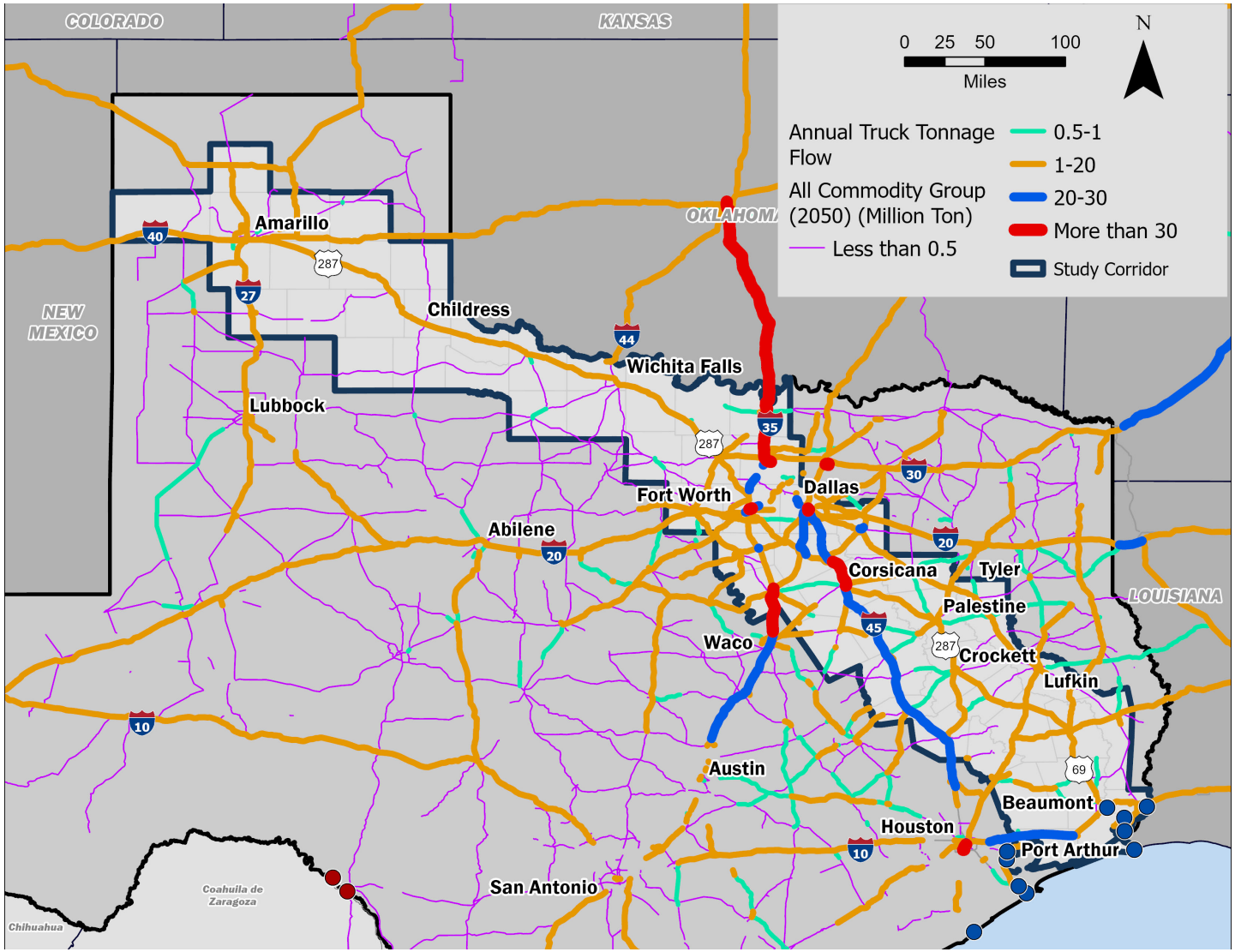



***Figure 18: 2050 Total Freight Tonnage to/from US 287*** [13]

13 *SAM V4, 2024; Transearch/IHS Markit, 2024*

### 1.4.1.4 MILITARY MOBILITY AND LOGISTICS

The US 287 Corridor within the Northwest Segment and part of the Central Segment is on the Strategic Highway Network (STRAHNET) from I-45 in Corsicana to Ennis and from I-35 in Fort Worth to I-40 in Amarillo. It is designated as a key corridor for the Department of Defense (DoD) and US Military to transport troops and equipment across the country. Additionally, this section serves as a Power Projection Platform (PPP) route, facilitating the movement of military assets between multiple Army forts and the strategic military ports, Ports of Beaumont and Port Arthur. US 287 from I-35/US 287 to US 87/US 287/SH 152 is a PPP route. **Figure 19** presents military installations within the US 287 study area and PPP routes along the corridor, emphasizing the importance of US 287 for national defense.

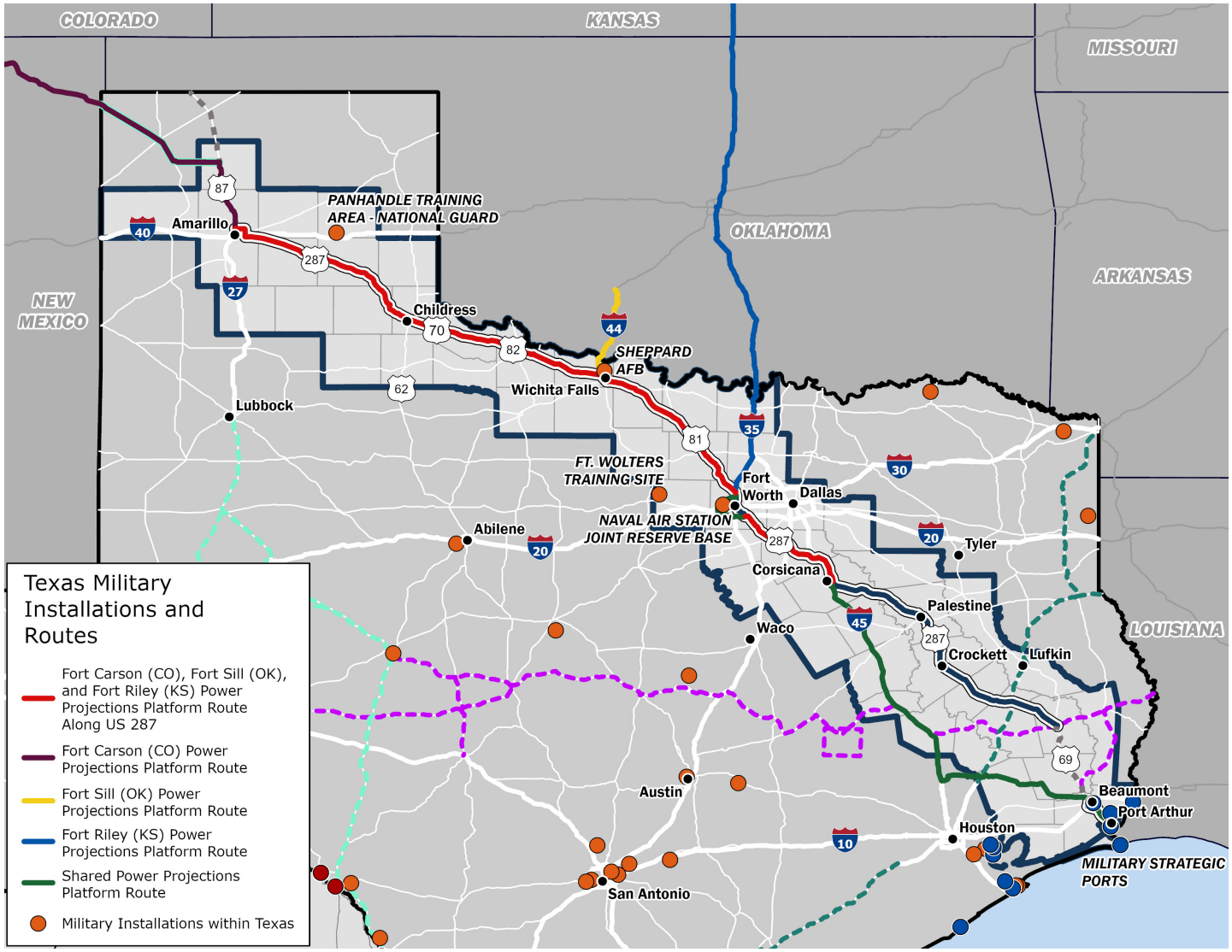
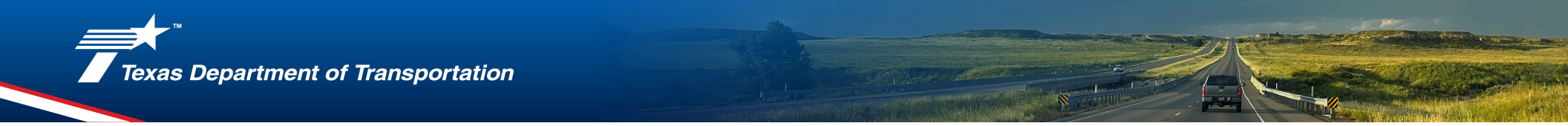



***Figure 19: Texas Military Installations and Power Projection Platform Routes*** [14]

14 *TxDOT Open Data Portal, 2023; Department of Defense — Power Projection Platform, 2024*



### 1.4.1.5 ACCESS TO KEY ECONOMIC SECTORS

**The following key economic sectors are anticipated to see the greatest benefits from an interstate upgrade:**

- Energy
- Agriculture
- Maritime
- Timber

**Increased Access to Markets for Energy, Maritime, Timber, Agriculture Products:**

- Transporting products improved by reduction in travel time and increased market access radius and route reliability
- Fully access-controlled facility benefits travel times and reliability
- A safer and more reliable route for trucks traveling through cities and small towns

The efficient movement of energy products is vital to the US 287 Corridor, where oil field activity supports regional, state, and national economies. Energy products are expected to remain among the corridor's top commodities through 2050. US 287 in the Interstate Build scenario considerably enhances the energy industry's ability to transport products to market by reducing travel time, expanding market access, and improving route reliability. As shown in **Figure 21**, the corridor already experiences heavy energy production flows, with parallel routes that would also benefit from improved interstate access. By 2050, petroleum freight tonnage is projected to increase, as depicted in **Figure 22**.

The current design of US 287 does not offer significant travel time benefits to effectively divert truck traffic. Many sections remain two-lanes with limited passing opportunities and travel through communities not designed for heavy truck movement, leading to slower speeds and reliability concerns. As a result, many trucks seek alternative routes to move energy, agriculture, and timber products to market.

Finally, the Interstate Build scenario would enhance connectivity with other interstates. This would directly and efficiently connect the key economic sectors in Texas in transporting goods and people across the state. **Figure 20** details the largest economic sectors in Texas and how planned interstates and the US 287 Corridor in the Interstate Build scenario could provide better linkages.

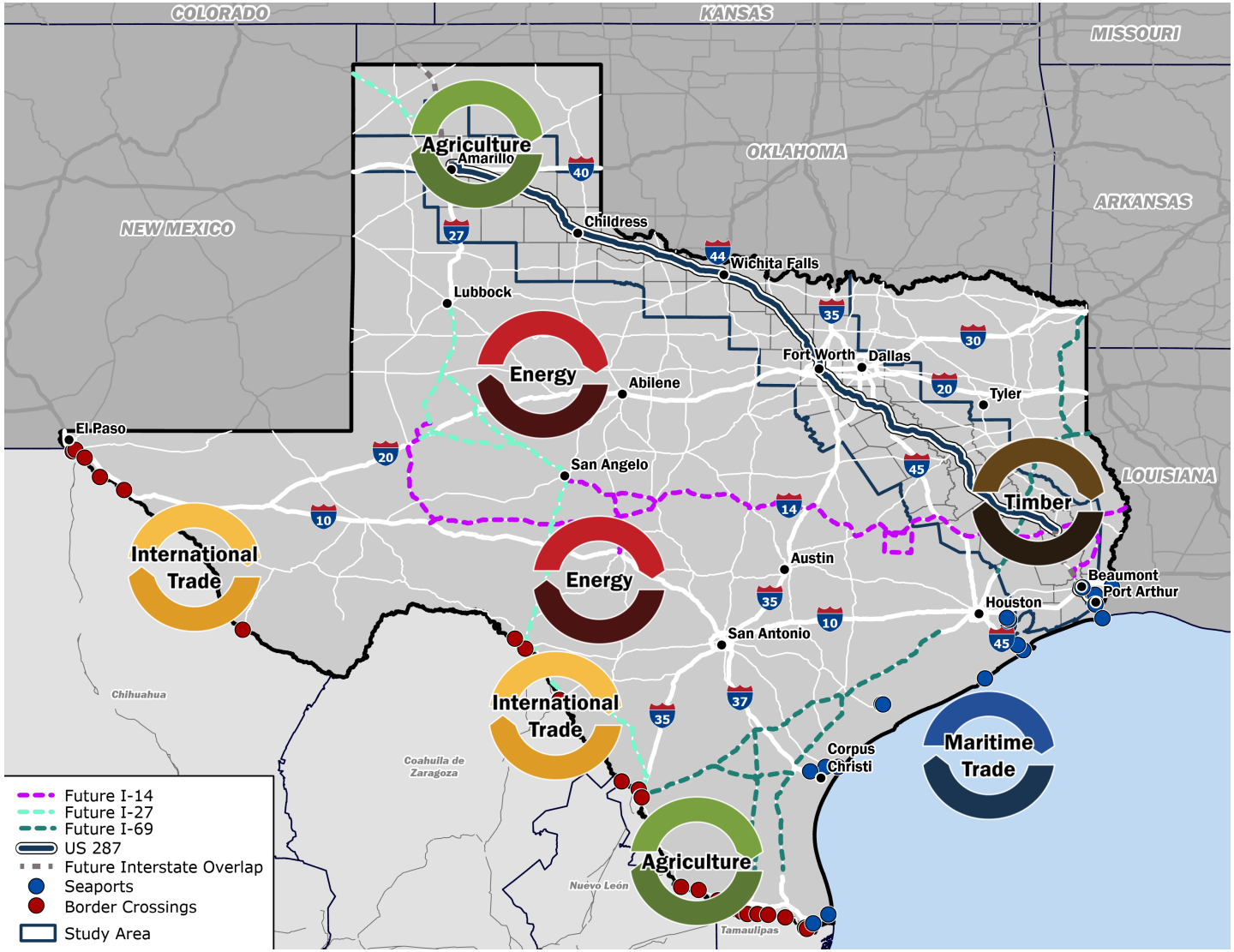
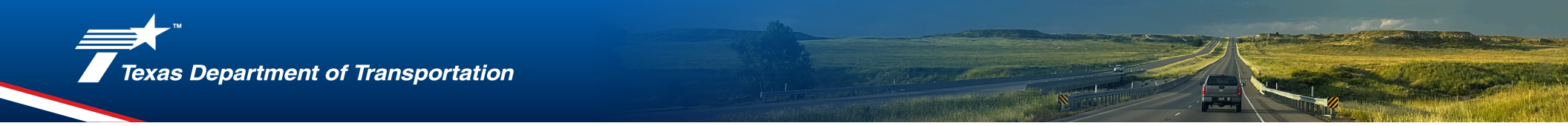



***Figure 20: Economic Sectors of Texas*** [15]

15 *TxDOT Open Data Portal, 2024*



## Oil and Natural Gas Sector

**Texas:**

- $719 Billion of total private sector Texas GSP in 2023

**US 287:**

- 15.7 Million BBL (Barrels of crude oil) produced in study area in 2023.
- 1.1 Billion MCF (thousand cubic feet of natural gas) produced in study area in 2023.

## Timber Sector

**Texas:**

- $41.6 Billion of total industry output in 2021

**US 287:**

- 5.4 Million tons of timber produced in study area in 2022

## Agriculture Sector

**Texas:**

- $32.2 Billion of sales in 2022

**US 287:**

- $12 Billion agriculture produced in study area (more than 1/3 of state)

## International Maritime Trade

**Texas:**

- 19% of US Maritime Trade in 2023
- $261 Billion in exports and $149 Billion in imports
- Port of Beaumont & Port Arthur combined saw $40+ Billion in trade

**US 287:**

- Deploy military equipment and personnel
- Port of Beaumont (#1 Strategic Military Port in the US) 1st & 2nd largest oil refineries in the US nearby
- Port of Port Arthur (Imports biopulp, aluminum, lumber, exports petroleum)

## National Defense and Security

**Texas**

- $89 Billion in GDP in 2023

**US 287:**

- Power Projections Platform (PPP)
  - *Support the movement of DOD equipment*
  - *US 287 from I-35/US 287 to US 87/US 287/SH 152 is a PPP route*
- STRAtegic Highway NETwork (STRAHNET)
  - *Support defense deployment needs*
  - *US 287 is on STRAHNET along I-45 from Corsicana to Ennis and from I-35 in Fort Worth to I-40 in Amarillo*
- Strategic Military Ports
  - *Deploy military equipment and personnel*
  - *Port of Beaumont & Port of Port Arthur are both ports of embarkation and debarkation*
- Military Installations
  - *Wichita Falls – Sheppard Air Force Base*
  - *Amarillo – Panhandle Training Area National Guard*
  - *Mineral Wells – Fort Wolters Training Site*
  - *Fort Worth – Naval Air Station Joint Reserve Base*

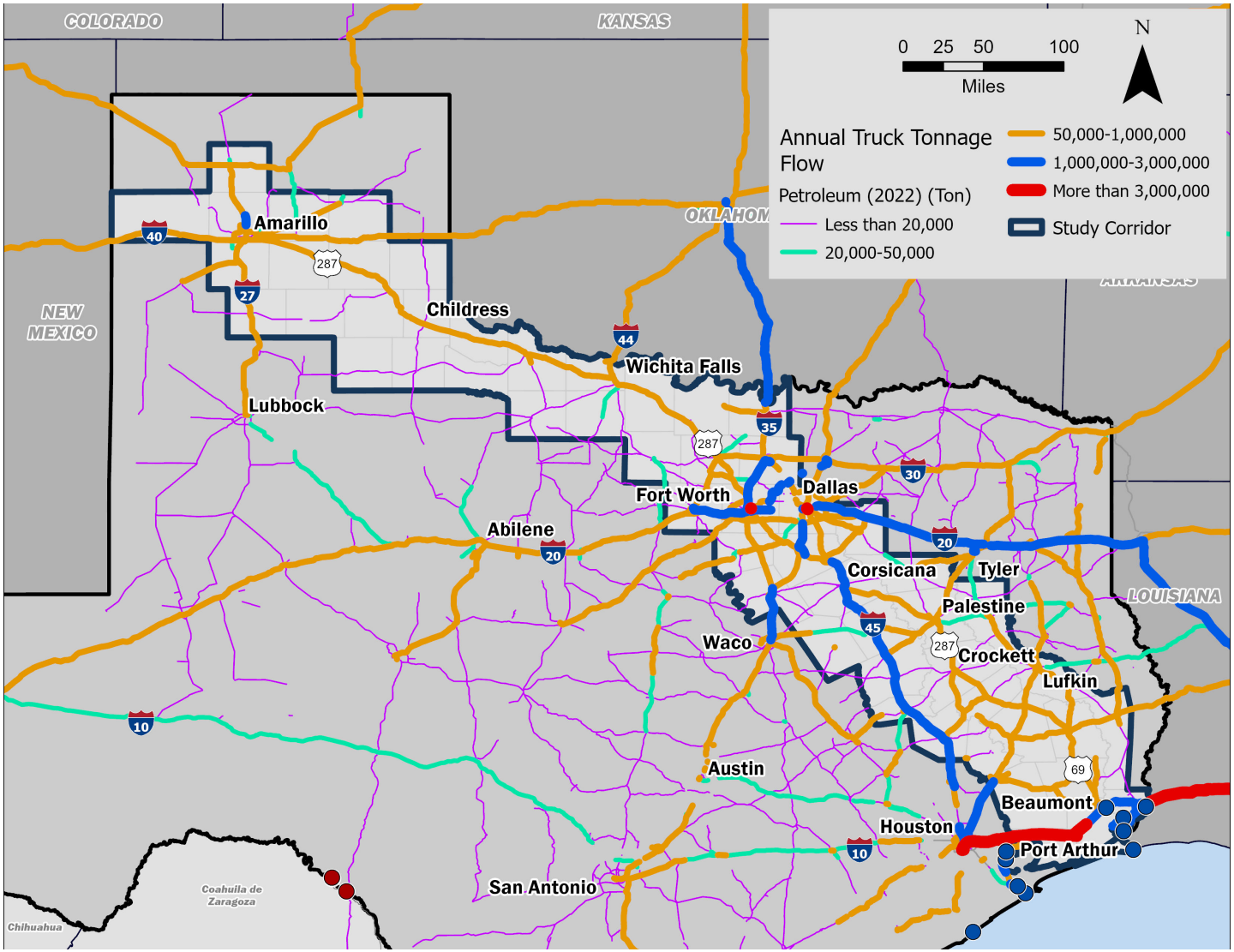



***Figure 21: 2022 Petroleum Product Flow to/from US 287*** [16]

16 *SAM V4, 2024; Transearch/IHS Markit, 2024*

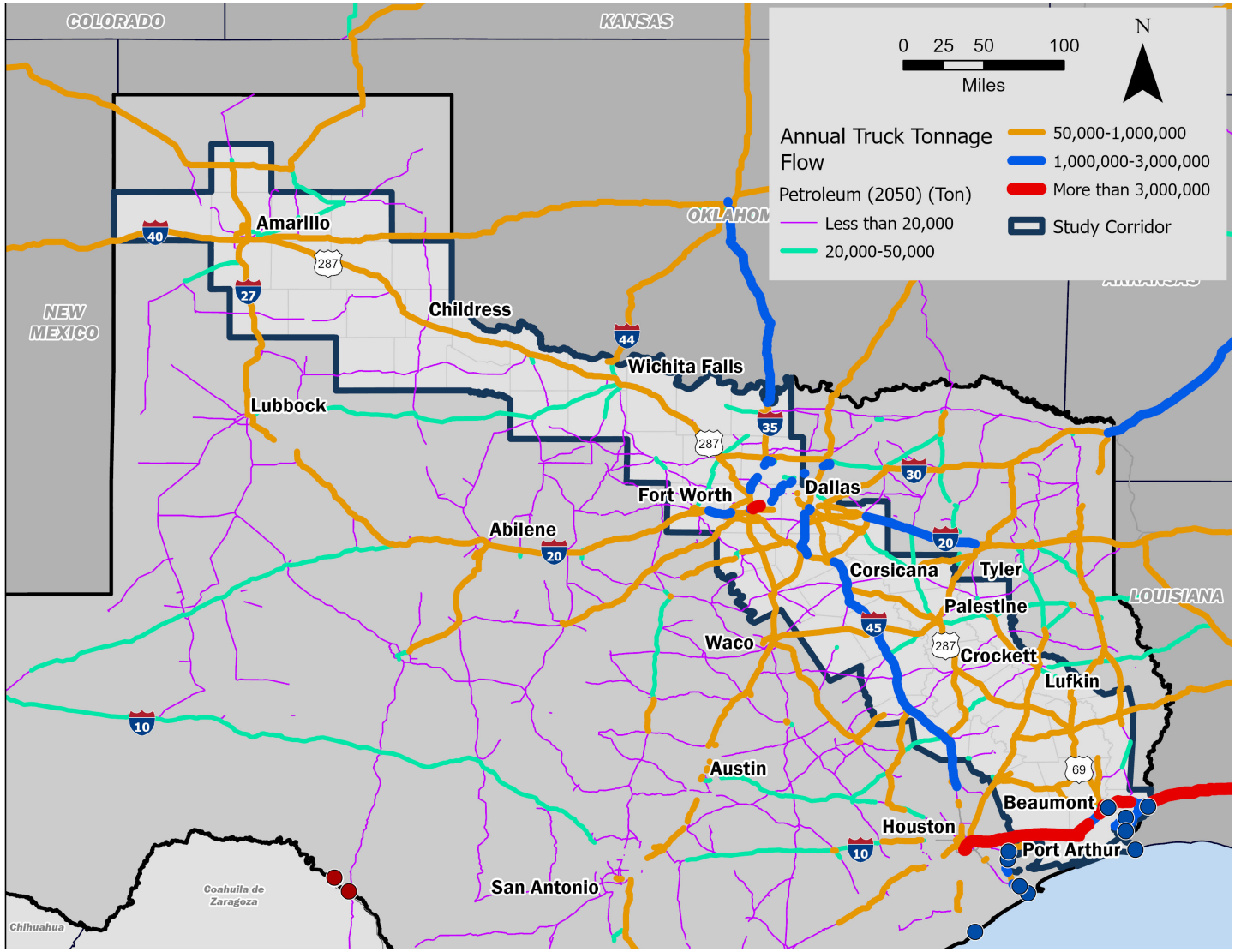
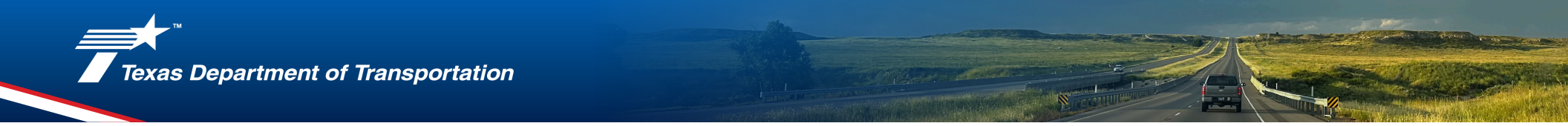



*Figure 22: 2050 Petroleum Product Flow to/from US 287* [17]

17 *SAM V4, 2024; Transearch/IHS Markit, 2024*



## 1.4.2 SAFETY

US 287 in the Interstate Build scenario is expected to reduce crash rates along the corridor. **Table 4** provides TxDOT's statewide average crash rates categorized by highway system (e.g., interstate, US highway, state highway, farm-to-market) and road type (e.g., two-lane undivided, four or more lanes divided, four or more lanes undivided). This data indicates that interstates generally have lower crash rates than other highway types.

Statewide crash rates suggest that US 287 in the Interstate Build scenario could reduce crashes by 28%. This reduction is likely due to the safety benefits of interstate design features, such as controlled access, divided median, improved lane configurations, and reduced conflict points.

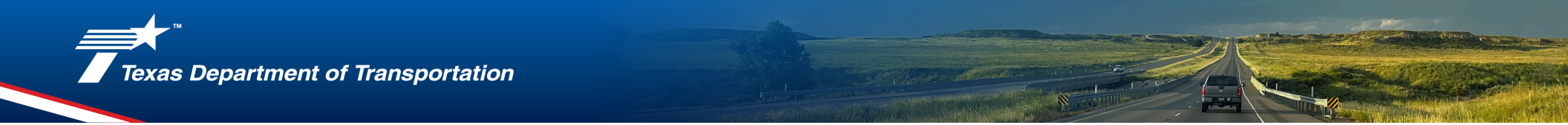
| | | |
|---|---|---|
| In 2050, reduce crash rates over the baseline by an estimated ↓ **28%** | In 2050, economic benefit from reduced crashes of ↑ **$517 Million** | Result in fewer crashes than a US highway by ↓ **24%–29%** |

*These findings indicate the interstate upgrade would lower crashes over the baseline.*

*Crash rates = the number of crashes per 100 million vehicle miles.*

***Table 4: Texas State Crash Rates (2023)***

| By Highway System | | |
|---|---|---|
| **Highway Systems** | **Traffic Crashes per 100 million Vehicle miles** | |
| | **Rural** | **Urban** |
| Interstate | 51.64 | 153.9 |
| U.S. Highway | 70.65 | 194.62 |
| State Highway | 91.12 | 230.49 |
| Farm-to-Market | 123.08 | 248.97 |
| **By Road Type** | | |
| **Highway Systems** | **Traffic Crashes per 100 million Vehicle miles** | |
| | **Rural** | **Urban** |
| 2 lane, 2 way | 99.32 | 214.95 |
| 4 or more lanes, divided | 57.96 | 165.27 |
| 4 or more lanes, undivided | 105.07 | 320.87 |



### 1.4.3 COMPARISON SUMMARY

**The analysis of the US 287 No-Build and Interstate Build scenarios demonstrate that converting the corridor to an interstate would yield meaningful benefits, including:**

- Enhanced connectivity, safety, and mobility, improving access to markets for businesses and professional industries while facilitating the efficient movement of goods for key economic sectors.
- Reduced travel times and costs for both passenger and freight traffic, saving businesses and individuals $5.4 billion in 2050 statewide.
- Traffic congestion relief along US 287 and other interstates.
- Enhance national defense by connecting STRAHNET and PPP routes with the two strategic military ports (Ports of Beaumont and Port Arthur).
- Creation of 46,885 jobs corridor-wide by 2050. This would be across multiple industries, particularly in professional, business, and finance services, wholesale trade, and manufacturing.
- Expansion of local and state tax revenues, contributing to sustained economic growth. The economic gains in GDP would be $11.6 billion in 2050.

The feasibility analysis found that the Interstate Build scenario would have far-reaching positive impacts at local, regional, and state levels. It would support the state's already thriving economy and position US 287 as a critical corridor for future development.

# 1.5 INTERSTATE STANDARDS AND DESIGNATION

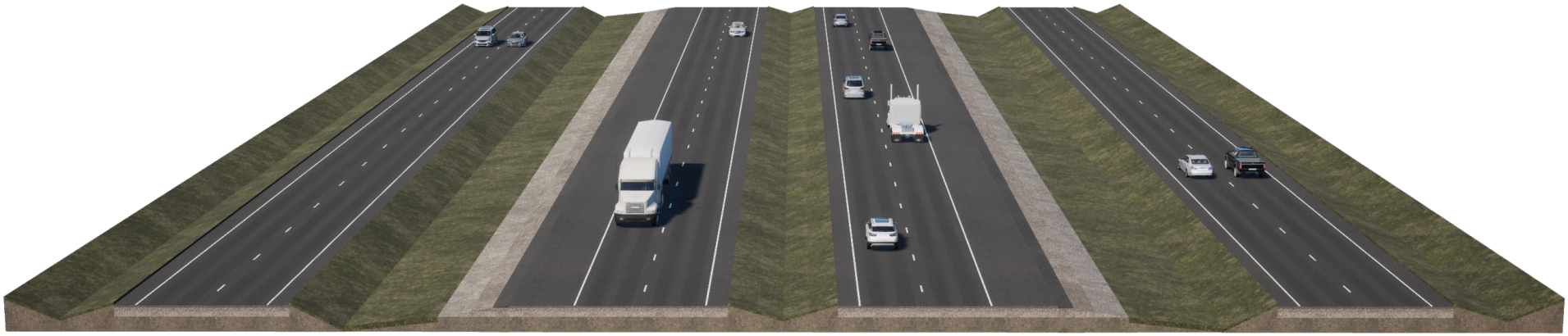
## 1.5.1 DESIGN STANDARDS

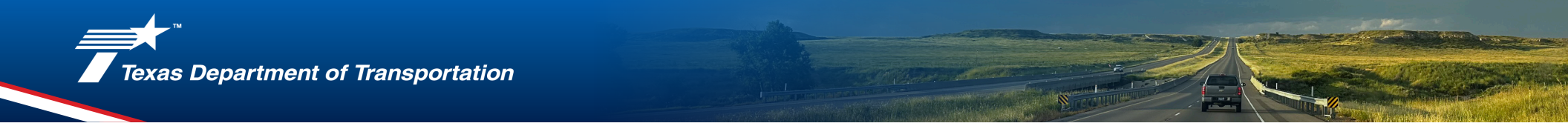
State Departments of Transportation (DOTs), working through the American Association of State Highway and Transportation Officials (AASHTO), develop and maintain the Interstate Highway System design standards and FHWA finalizes and circulates them for application nationwide. These high design standards set the Interstate Highway System above all other components of the National Highway System. They confirm consistent design, development, construction, and preservation of this critical national highway. **Figure 23** shows a typical interstate cross-section with frontage roads.

**The standards for interstate cross section include:**

- Full control of access
- Design speeds (70 mph for rural interstate and 50 mph for urban interstate)
- A minimum of two travel lanes in each direction
- 12-foot lane widths
- 10-foot right-paved shoulders
- 4-foot left-paved shoulders
- Limited access points
- Ramp lengths to accommodate exit deceleration and access acceleration

*Figure 23: Typical Interstate Cross Section*



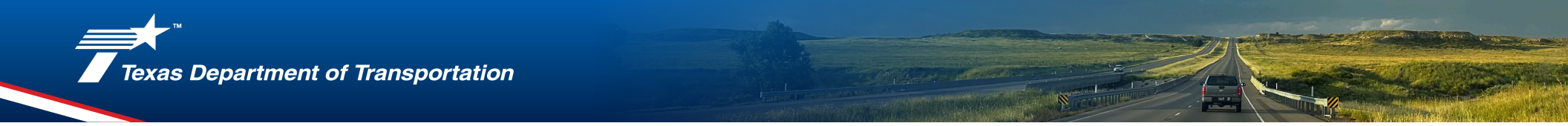


If or when the U.S. Congress designates US 287 as an interstate, it would need to be re-designed and re-constructed to fully comply with interstate system standards. These parameters, for both rural and urban sections, are shown in **Table 5**. Outlined in the table, the FHWA requirement for vertical clearance is 16 feet for overpass structures. However, the Texas Highway Freight Network requires an 18.5-foot vertical clearance as a minimum. With the entirety of the study's corridor being on the Texas Highway Freight Network, several existing overpasses under the 18.5-foot requirement would need to be revised to meet this standard before it can be assigned an interstate.

***Table 5: Interstate Design Requirements***

| No. | Element of Design | Design Requirement | US 287 Existing Conditions | |
|---|---|---|---|---|
| | | | Rural Freeway | Urban Freeway |
| 1 | Design Speed | RURAL: 70 mph (min.) | MET | NOT MET |
| | | URBAN: 50 mph (min.) | | |
| 2 | Lane Width | RURAL / URBAN: 12 feet | MET | MET |
| 3 | Shoulder Width | RURAL/URBAN: | | |
| | | 4 LANE SECTION – 4 feet (inside)/10 feet (outside) | NOT MET | NOT MET |
| | | 6 LANE SECTION – 10 feet (inside)/10 feet (outside) | NOT MET | NOT MET |
| 4 | Horizontal Curve Radius | RURAL: 2,040 feet (70 mph) | NOT MET | - |
| | | URBAN: 833 feet (50 mph) | - | NOT MET |
| 5 | Cross Slope | RURAL/URBAN: | MET | MET |
| | | Travel lane – 1.5% to 2.5%, 2% desirable (on tangent), Shoulders – 2% to 6% | | |
| 6 | Vertical Clearance | RURAL/URBAN: 16 feet min. for a single interstate route; 14 feet min. for other interstate urban routes if a 16-feet alternate is also available. Sign trusses and pedestrian overpasses have a 17-foot min. | MET | MET |
| 7 | Vert. Alignment | RURAL/URBAN: Combination of #6 and #7 above | NOT MET | MET |
| 8 | Lateral Offset to Obstructions | RURAL: 30 feet min. (70 mph) | NOT MET | - |
| | | URBAN: 24 feet min. (50 mph) | - | NOT MET |
| 9 | Bridge Width | RURAL/URBAN: 3.5 feet (inside shoulder)/10 feet (outside shoulder) and 12-foot lane width x # lanes (bridge length < 200 feet), 3.5 feet (inside and outside shoulder) and 12-foot lane width x # lanes (bridge length > 200 feet) | NOT MET | N/A |
| 10 | Number of Lanes | URBAN/RURAL: 2 lanes each direction | NOT MET | NOT MET |
| 11 | Median Width | RURAL: 36 feet | NOT MET | - |
| | | URBAN: 10 feet | - | NOT MET |
| 12 | Side Slopes | RURAL/URBAN: 1 Vertical:4 Horizontal, max. unprotected slope | N/A | N/A |
| 13 | Horizontal Clear Zone | RURAL: 30 feet min. (70 mph) | NOT MET | - |
| | | URBAN: 24 feet min. (50 mph) | - | NOT MET |
| 14 | Curbs | RURAL/URBAN: | NOT MET | NOT MET |
| | | 4-inch sloping curbs at the outside edge of shoulder | | |
| 15 | Interchanges | RURAL: 3 miles min. (crossroad to crossroad) | N/A | - |
| | | URBAN: 1 mile min. (crossroad to crossroad) | - | N/A |

For more detailed information on the above-listed design criteria, refer to the following publications:
AASHTO – A Policy on Design Standards – Interstate System, 5th Edition (2005)
AASHTO – A Policy on Geometric Design of Highways and Streets, 6th Edition "Green Book" (2011)
AASHTO – Roadside Design Guide, 4th Edition (2011)



## 1.5.2 INTERSTATE DESIGNATION PROCESS

The US 287 Corridor is not designated as a high-priority corridor by the Intermodal Surface Transportation Efficiency Act (ISTEA), as currently amended.

**If and when US 287 is designated as an interstate by the U.S. Congress, several steps would need to be followed in preparing for and receiving interstate upgrade of the US 287 Corridor, consisting of:**

- Identify sections of the US 287 corridor that do not currently meet interstate standards.
- Re-construct sections of the existing US 287 Corridor that do not currently meet interstate standards.
- Prepare a request for interstate designation, including a technical report, in accordance with Title 23, Part 470 of the Code of Federal Regulations. Identify design exceptions and coordinate with the FHWA.
- Obtain local and TxDOT support resolutions.
- Submit the request to FHWA.
- If approval is received by FHWA, submit a route number request to AASHTO.

## 1.5.3 REGULATORY FRAMEWORK

**Three Federal Designation Methods for Interstate Highways are as follows:**

FHWA has approval authority

**1 BY CONGRESSIONAL ACT**

[Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and amendments]

**2 IF THE CORRIDOR CURRENTLY MEETS INTERSTATE STANDARDS**

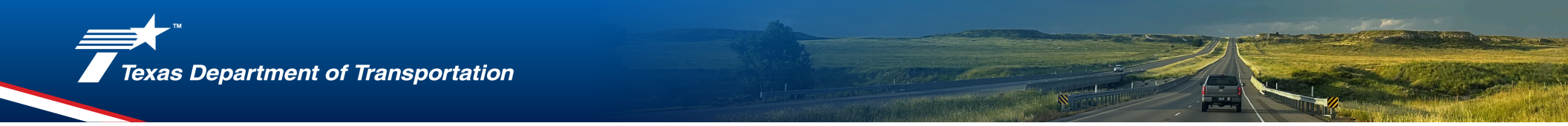
The US Secretary of Transportation may designate as an interstate [23 USC 103c(4)(A)]

**3 REQUESTING DESIGNATION AS A FUTURE INTERSTATE**

If corridor does not currently meet interstate standards, TxDOT may submit a proposal requesting designation as a future interstate [23 USC 103(c)(4)(B)]

Thirty-nine miles of US 287 along I-10, I-20, I-35, I-40, I-44, I-45, and I-820 are already designated interstate. The remaining 632 miles of the Corridor are US highway, consisting of generally two to four lanes. They have lower design speeds with smaller ROW widths that do not currently meet interstate standards.

The next section analyzes US 287 per the requirements of each Method.



### *Method 1*

Under Method 1, a congressional act is required to designate the corridor as a future part of the interstate system. The U.S. Congress can designate interstate highways by including the designation in a reauthorization bill or in an annual appropriations act for the USDOT. **The highway segment must meet interstate design standards established by FHWA and AASHTO.** Since US 287 currently does not meet interstate design standards established by FHWA and AASHTO, the US 287 Corridor cannot pursue congressional designation. US 287 is not a High Priority Corridor on the National Highway System or designated as a Future Interstate.

### *Method 2*

If the corridor currently meets interstate standards, the US Secretary of Transportation may designate it as an interstate under 23 USC 103(c)(4)(A). **A majority of the existing US 287 Corridor does not currently meet interstate design criteria, except the following.**

**US 287/69/96**
*from Sergeant Adams Drive to Merge with TX-347 (Beaumont/Port Arthur)*
**27.3 miles**

**US 287/69/96**
*from Tram Road to US 96 & US 69 Split (Lumberton)*
**14.5 miles**

**US 287/69/96**
*from Lawrence Drive to Chinn Lane (Beaumont)*
**2.1 miles**

**US 287**
*from FM 917 to I-20 (Mansfield/Arlington)*
**10.7 miles**

The sections above do not connect to the Interstate System at each end so they do not meet the connectivity requirement. Based on this, US 287 does not meet the requirements of Method 2.

### *Method 3*

The US 287 Corridor was then evaluated to determine whether any portions of the corridor could be proposed to FHWA to be designated as a future interstate under 23 USC 103(c)(4)(B). Proposals under 23 USC 103(c)(4)(B) must be submitted by the state transportation agency, i.e., TxDOT, in coordination with neighboring state agencies, as applicable. **The route must be evaluated against several criteria, including the following:**

1. **Be of sufficient length**
   - Serve long-distance interstate travel
   - Connect routes between principal metropolitan cities, or industrial centers important to national defense and economic development
2. **Should not duplicate other interstate routes**
   - Serve interstate traffic movement not provided by another interstate route
3. **Should directly serve major highway traffic generators**
   - Urbanized area with a population over 100,000
4. **Should connect to the Interstate System at each end, or an international border, or terminate in a "major highway traffic generator" that is not served by another Interstate route**
5. **Must meet current interstate standards, or a formal agreement with FHWA to construct the route to interstate standards within 25 years**
6. **Must have an approved final environmental document**

US 287 does not meet all the requirements of Method 3, especially, criteria 4, 5, and 6. Hence, it is currently not eligible to be designated an interstate under Method 3.

## 1.6 DIFFERENCE BETWEEN CORRIDOR IMPLEMENTATION PLAN AND INTERSTATE FEASIBILITY

The US 287 Texas Corridor Study, along with its implementation plan, focused on prioritizing improvements in the short, medium, and long term. Separately, the US 287 Interstate Feasibility Study evaluated the feasibility of upgrading the US 287 corridor to meet interstate design standards. If or when US 287 is eventually designated as an interstate, a new implementation plan would need to be created. **Figure 24** illustrates the distinct paths of the Corridor Study and the Interstate Feasibility Study. For details on the corridor study or implementation plan, please reference the US 287 Texas Corridor Study report.

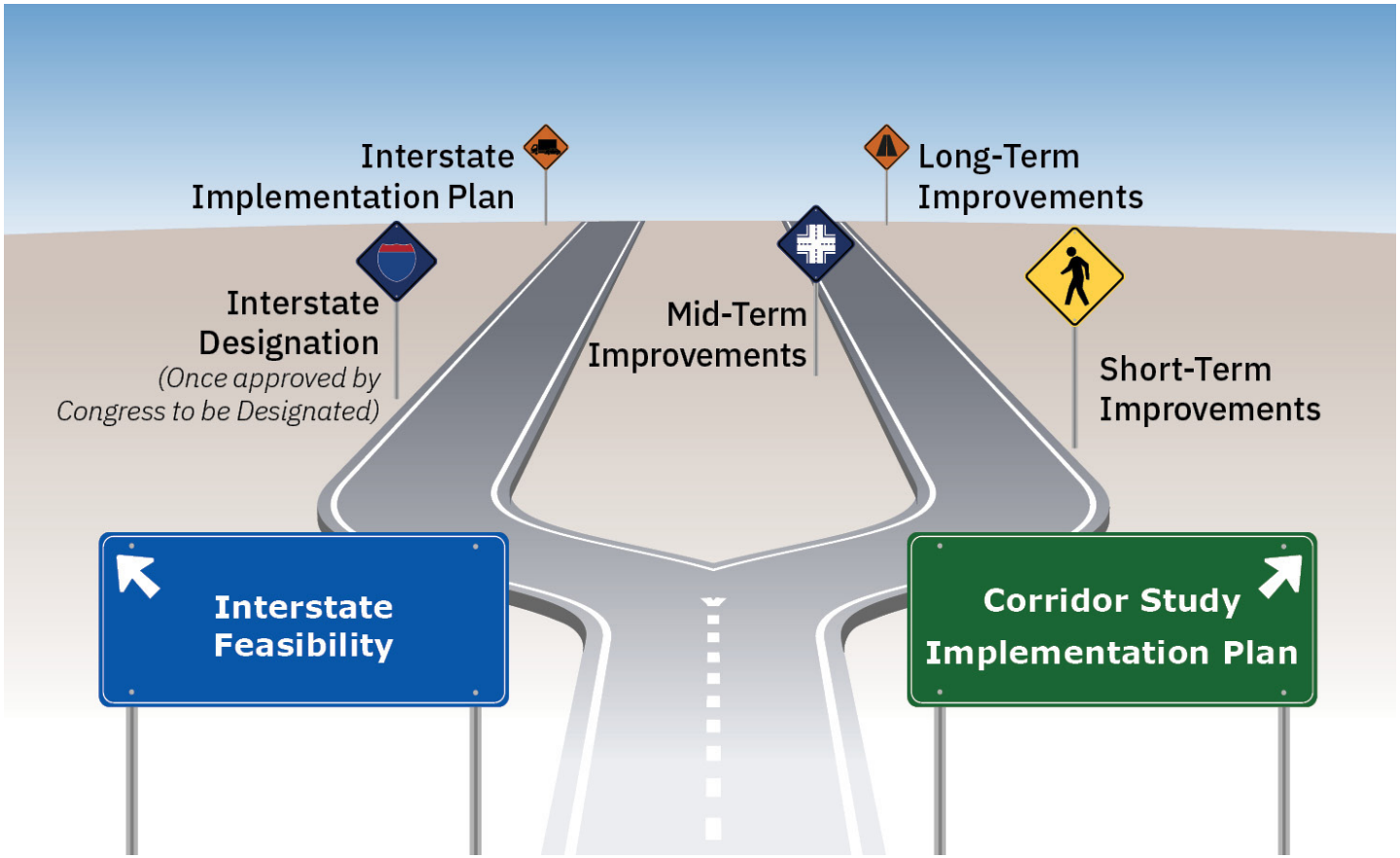



***Figure 24: Interstate Feasibility Analysis versus Corridor Study and Implementation Plan***

## 1.7 CONCLUSION

**US 287 is feasible to be an interstate in the future, based on how it would:**


The building of an interstate system is a decades-long strategic initiative. There is no specific federal or state funding program set aside to build future interstate highways. If or when US 287 is congressionally designated as a future interstate, funding would need to be allocated. It will compete with all other Texas highway improvement projects for funding. There is a continual balance between competing interests throughout the state, in terms of new construction and maintenance and preservation of existing facilities.


*US 287 remains an essential corridor for economic opportunities, national defense, freight movement, and regional mobility.* ***Careful consideration of funding and strategic priorities will be crucial*** *in ensuring that US 287 continues to serve as a vital corridor in the transportation network of Texas, linking Southeast to Northwest Texas and beyond.*

Texas Department of Transportation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**Key Word Search: US 287 Interstate Feasibility Study**

For interstate feasibility, see US 287 Interstate Feasibility Study Report

For corridor study, see US 287 Texas Corridor Study Report

Texas Department of Transportation

# APPENDIX A

## *Economic Impact Analysis and Travel Demand Model Analysis*

# US 287 Corridor Interstate Feasibility Study

## Economic Impact Analysis

July 2025

Texas Department of Transportation

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# Introduction/Overview

TxDOT's Transportation Planning and Programming (TPP) Division is conducting the US 287 Corridor Interstate Feasibility Study. This Economic Impact Analysis (EIA) is being conducted as part of this Corridor Interstate Feasibility Study. The purpose of the economic impact analysis is to quantify the impacts of upgrading US 287 to an interstate in terms of improvements to access, travel times, and reduction in delay.

The EIA is conducted utilizing TREDIS (Transportation Economic Development Impact System). TREDIS is a predictive impact model. It uses information about future travel patterns, market access, and construction spending to estimate the costs, benefits, and economic impacts that flow from them. As such, results are based on comparisons between two alternative futures – typically no-build and build. The no-build represents US 287 in its existing condition without any improvements, and the build represents the non-interstate portions of US 287 being upgraded to an interstate by the year 2050.

This technical memorandum summarizes the assumptions, inputs, and results of the analysis. The output of the economic impact analysis is described in terms of:

- Change in Business Output,
- Value Added to the economy,
- Change in Employment, and
- Change in Labor Income.

Further, the memo discusses the Net Present Value (NPV) of the project in terms of Benefit Cost Analysis (BCA) which indicates positive economic returns based on the corridor investment.

This analysis is based on the available information, data, and guidance as of the date of documentation. Additionally, this is a high-level projection of the impact to the economy and can be affected be other externalities and changing global trends in the future, including, but not limited to macroeconomic conditions, trade policies, inflationary impacts, demographic shifts, technological changes, political drivers, health scenarios like COVID-19, among others. As a result, this analysis will need to be updated as implementation decisions are being made and other complementary changes are incorporated.

# Economic Impact Analysis

## Study Area

The US 287 Corridor Study Area has been divided into three segments namely Southeast, Central, and Northwest (Figure 1). The Southeast, Central, and Northwest segments include 19, 12, and 24 counties respectively. The Northwest segment has the longest span of US 287 Corridor (292 miles), followed by the Southeast segment and the Central segment, which are 216 miles and 163 miles, respectively.

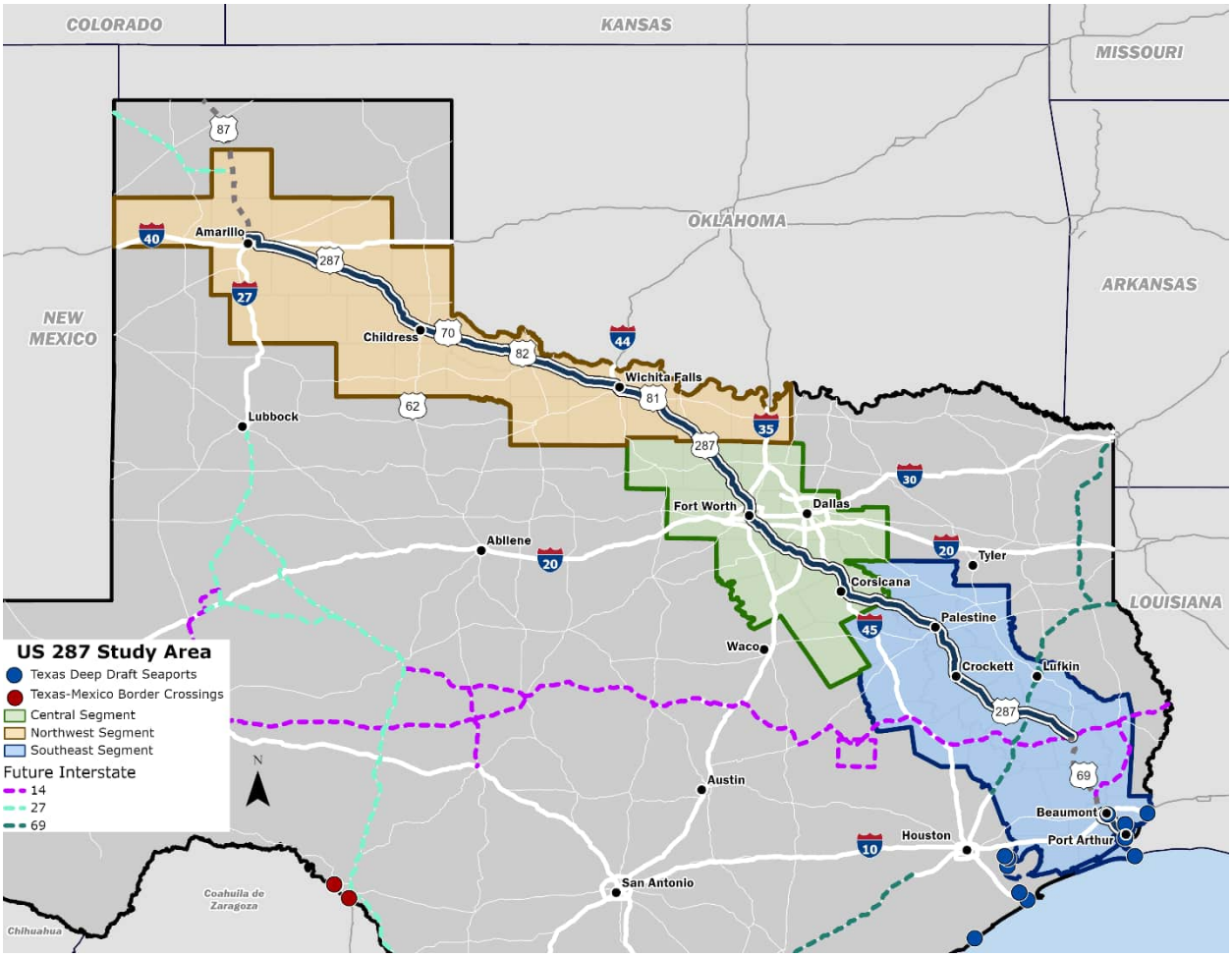


*Figure 1: Study Area of US 287 Corridor*

## Analysis Timeline and Cost Year

The analysis timeline includes construction years and operations years. For the US 287 Corridor, construction timeframe is taken as 10 years with work starting in 2041 and ending in 2050. Whereas operations timeframe includes the construction years and an additional 5 years following the completion of construction, with a total of 15 years from 2041 to 2055. For costs and benefits, the constant dollar year is taken as 2022.

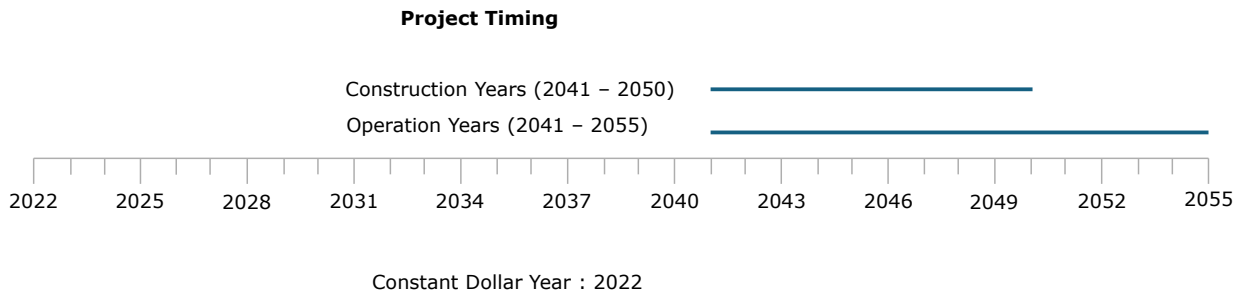


*Figure 2: Construction and Operations timeline for US 287 Corridor*
*Source: TREDIS 6*

## Project Cost

The total length of US 287 is 652 miles. However, there is an overlap with existing interstates of about 39 miles, which leaves 613 miles of non-interstate that could potentially be upgraded. The construction cost to upgrade US 287 to an interstate was estimated at $30M per mile in 2022$. These were high level cost estimates based on current information and could change in the future based on inflation, material and labor availability, technological enhancements, scope changes, and other factors. In addition, a development cost of 33.31%[1] was added to include activities like planning, engineering, environmental, right-of-way, and utilities. The O&M costs per year were estimated at 1% of the construction cost. Table 1 presents the summary of the construction, development, and O&M costs by segment. As can be seen from the table, the total cost for upgrading US 287 Corridor is $24.52 Billion with $18.39 Billion for construction and $6.13 Billion for development. Additionally, the annual O&M cost is expected to be $183.9M.

***Table 1: Cost Summary for Upgradation of US 287 Corridor***

| Segment | Miles | Construction Cost | Development Cost | Total Project Cost | Annual O&M Cost |
|---|---|---|---|---|---|
| Central | 163 | $3.81 B | $1.27 B | $5.08 B | $38.1M |
| Northwest | 292 | $8.37 B | $2.79 B | $11.16 B | $83.7 M |
| Southeast | 216 | $6.21 B | $2.07 B | $8.28 B | $62.1 M |
| **US 287** | **671** | **$18.39 B** | **$6.13 B** | **$24.52 B** | **$183.9 M** |

*Source: Planning level cost estimates by Project Team*

## Vehicle Modes

For the US 287 Study Area Corridor, two vehicular modes were considered - all passenger cars and all freight trucks as input for the analysis. The TxDOT Statewide Analysis Model version 5 (SAM v5), which serves as the base model for projecting travel characteristics along the US 287 Study Area Corridor, categorizes vehicles into these two main groups – passenger cars and trucks. Figure 4 shows the selected vehicle mode inputs in TREDIS.

[1] Development cost of 33.31% is based on the 2025-2034 UTP

| | Modes | No Split | Business | Personal | Commute | Freight |
|---|---|---|---|---|---|---|
| − | Auto - All | | | | | |
| | --- AV | | ☐ | ☐ | ☐ | |
| | --- AV TNC | | ☐ | ☐ | ☐ | |
| | --- Light-Duty EV | ☐ | ☐ | ☐ | ☐ | |
| | --- Passenger Car | ☑ | ☐ | ☐ | ☐ | |
| | --- Passenger Car - Federal Grants | ☐ | ☐ | ☐ | | |
| | --- Passenger Car - HOV | ☐ | ☐ | ☐ | ☐ | |
| | --- Passenger Car - SOV | ☐ | ☐ | ☐ | ☐ | |
| | --- Taxi | | ☐ | ☐ | ☐ | |
| | --- TNC | | ☐ | ☐ | ☐ | |
| + | Bus - All | | | | | |
| − | Truck - All | | | | | ☑ |
| | --- Light/Medium Duty Truck | | | | | ☐ |
| | --- Tractor Trailer Truck | | | | | ☐ |
| | --- Truck - Federal Grants | | | | | ☐ |

*Figure 3: Vehicle Modes used in TREDIS*
*Source: TREDIS 6*

## Inputs for the Model

The inputs into TREDIS under travel characteristics falls into two categories - Required Inputs and Default Inputs or User Inputs. Table 2 below shows the type of inputs in each category, followed by brief description of each type of input.

***Table 2: Inputs into TREDIS Model***

| Required Inputs | Default or User Input |
|---|---|
| • Vehicle Trips<br>• Vehicle Miles Traveled (VMT)<br>• Vehicle Hours Traveled (VHT) | • Average Vehicle Occupancy<br>• Freight US Tons per Vehicle<br>• Congestion and Flow<br>• Fuel Cost<br>• Value of Time<br>• Access |

*Source: TREDIS 6*

### *Vehicle Trips*

The total number of trips made by each type of vehicle (mode) per segment and period annually. It represents the frequency of travel along the US 287 Corridor, broken down by vehicle type and segment of the route. SAM v5 outputs are available for the years 2021 and 2050. For the year 2041, the information is interpolated using 2021 and 2050 SAM v5 outputs.

### *Vehicle Miles Traveled*

VMT is defined as the total number of miles traveled by all vehicles within a specific time period. For the US 287 Corridor Study, the input into TREDIS is Annual Vehicle Miles traveled by mode. The VMT data for the year 2050 is taken from SAM v5 outputs and the year 2041 is taken by interpolating 2021 and 2050 data.

### *Vehicle Hours Traveled*

TREDIS uses this variable to calculate passenger time cost and other vehicle operating costs. For the US 287 Corridor Study, it is taken as an annual measure. The VHT data for the year 2050 is taken from the SAM v5 outputs and the year 2041 is taken by interpolating 2021 and 2050 data.

### *Average Vehicle Occupancy*

It is defined as the number of occupants for passenger vehicles. For the US 287 Study Area Corridor, Vehicle Occupancy number is derived as 1.65 persons per vehicle based on Texas A&M Transportation Institute (TTI) Survey results.

### *Freight US Tons per Vehicle*

Average weight of the freight carried by trucks is expressed in US Tons. For the US 287 Study Area Corridor, the default value given in the TREDIS is taken as input, which is 12.22 US Tons per Vehicle.

### *Value of Time*

The values of travel time and buffer time were utilized as shown in the **Table 3** based on defaults from TREDIS.

***Table 3: Value of Time Inputs***

| | Passenger Car | Truck |
|---|---|---|
| Value of Travel Time per Hour | $14.64 | $32.56 |
| Value of Buffer Time per Hour | $14.64 | $32.56 |
| Fuel Consumption per Mile | 0.0437 | 0.1540 |
| Vehicle Operating Cost per Mile (free flow) | $0.176 | $0.675 |

Source: TREDIS

### *Congestion and Flow*

TREDIS uses fraction congested to define congestion and flow in the model. Fraction congested is defined as the fraction of all travel subject to congestion. For highway modes, it is calculated as the fraction of VMT subject to a volume capacity greater than 0.9. It is used to estimate the operating costs of the vehicles due to congestion such as wear-and-tear and reduced fuel efficiency. With the improvements on US 287, it is expected that there will be some relief from congestion that would lead to a reduction in the fraction congested segments. This is quite evident in the Central segment which has the most congestion, followed by Southeast segment, whereas the Northwest segment has generally lower congestion and sees little change. The fraction congested numbers by mode (passenger cars/trucks) and each segment within the US 287 Study Area Corridor is presented in **Table 4**.

***Table 4: Fraction Congested by Mode and Segment***

| Segment | Year | Alternative | Fraction Congested | |
|---|---|---|---|---|
| | | | Passenger Car | All Trucks/Freight |
| Central | 2021 | Base | 4.3% | 2.2% |
| | 2021 | Project | 4.3% | 1.9% |
| | 2041 | Base | 10.1% | 6.7% |
| | 2041 | Project | 10.1% | 6.1% |
| | 2050 | Base | 12.7% | 8.7% |
| | 2050 | Project | 12.6% | 8.0% |
| Northwest | 2021 | Base | 0.0% | 0.0% |
| | 2021 | Project | 0.0% | 0.0% |
| | 2041 | Base | 0.1% | 0.4% |
| | 2041 | Project | 0.0% | 0.0% |
| | 2050 | Base | 0.2% | 0.5% |
| | 2050 | Project | 0.0% | 0.0% |
| Southeast | 2021 | Base | 2.3% | 0.9% |
| | 2021 | Project | 1.5% | 0.4% |
| | 2041 | Base | 4.8% | 3.4% |
| | 2041 | Project | 4.2% | 1.6% |
| | 2050 | Base | 5.9% | 4.6% |
| | 2050 | Project | 5.4% | 2.1% |

*Source: Travel Demand Model*

### *Fuel Cost*

Fuel costs (including taxes) by mode are assumed to be $3.42 and $4.54 per gallon for passenger car and trucks respectively. Federal fuel tax is assumed to be $0.18 for passenger cars and $0.24 for trucks. State Fuel Tax is assumed as $0.20 for both passenger cars and trucks.

### *Access*

Improvements to mobility and access to population and economic opportunities is an important aspect of project development. Improved mobility and access lead to higher economic impact by making transportation more efficient systemwide and thereby enhancing opportunities for people and freight movement. The access assumptions utilized for the project were based on the travel time savings achieved along different segments along the corridor as shown in **Table 5**.

***Table 5: Travel Time Changes for Segments of US 287***

| Travel Time | 2022 | 2050 Base | 2050 Project | % Change from Base |
|---|---|---|---|---|
| Northwest | 226 | 228 | 214 | 6.14% |
| Central | 146 | 155 | 150 | 3.23% |
| Southeast | 209 | 214 | 189 | 11.68% |
| **Corridor** | **581** | **597** | **553** | **7.37%** |

These travel time changes for the segments were utilized to derive proportional impacts to population (local market) access as well as jobs (regional market) access as well as access times to transportation facilities like airports, freight terminals, passenger terminals, and ports. Since the entire trip is not utilizing US 287, it was assumed that on average US 287 will play a 20% role for Southeast and Northwest and thereby the improvement was factored by 20% for those segments. For Central, some portion of US 287 is already interstate, and therefore, the impact will be slightly less at 15% which was utilized as a factor. Based on these assumptions, the access changes were determined as shown in **Table 6**.

***Table 6: Access Inputs for US 287***

| Alternative | | | Base (No-build) | | | Project (Interstate build) | | |
|---|---|---|---|---|---|---|---|---|
| Region | | | Southeast | Northwest | Central | Southeast | Northwest | Central |
| Local Market (people) | Pop | 40 min | 411,283 | 263,140 | 3,678,774 | 420,892 | 266,372 | 3,696,575 |
| | Pop | 1 hr | 625,946 | 331,891 | 6,342,019 | 640,571 | 335,967 | 6,372,706 |
| | Pop | 2 hrs | 7,777,384 | 856,665 | 8,704,490 | 7,959,099 | 867,185 | 8,746,609 |
| | Pop | 3 hrs | 9,410,738 | 1,167,395 | 11,785,798 | 9,630,615 | 1,181,731 | 11,842,826 |
| | Pop | 4 hrs | 12,641,674 | 3,001,456 | 21,332,620 | 12,937,040 | 3,038,316 | 21,435,842 |
| Regional Market (jobs) | Emp | 2 hrs | 4,664,847 | 522,166 | 5,888,599 | 4,773,839 | 528,579 | 5,917,092 |
| | Emp | 3 hrs | 5,548,798 | 698,196 | 7,647,247 | 5,678,443 | 706,770 | 7,684,250 |
| | Emp | 4 hrs | 7,363,624 | 1,987,615 | 13,930,327 | 7,535,671 | 2,012,024 | 13,997,732 |
| Access Time (minutes) | Airport | | 96 | 15 | 15 | 94 | 15 | 15 |
| | Freight Terminal | | 81 | 254 | 19 | 79 | 251 | 19 |
| | Passenger Terminal | | 81 | 254 | 19 | 79 | 251 | 19 |
| | Port | | 86 | 337 | 221 | 84 | 333 | 220 |

## Travel Cost Savings

Upgrading US 287 to an interstate is expected to provide travel time savings of approximately 7.37% across the corridor in the year 2050. The total time of 9 hours 57 minutes is reduced to 9 hours and 13 minutes leading to total travel time savings of 44 minutes. This travel time savings is distributed as 14 minutes for Northwest, 5 minutes for Central, and 25 minutes for the Southeast Segment. However, this corridor travel time savings also results in efficiencies outside the corridor as can be

seen in **Figure 4** where US 287 attracts a number of trips from surrounding and statewide facilities like I-45, I-10., I-20, etc.

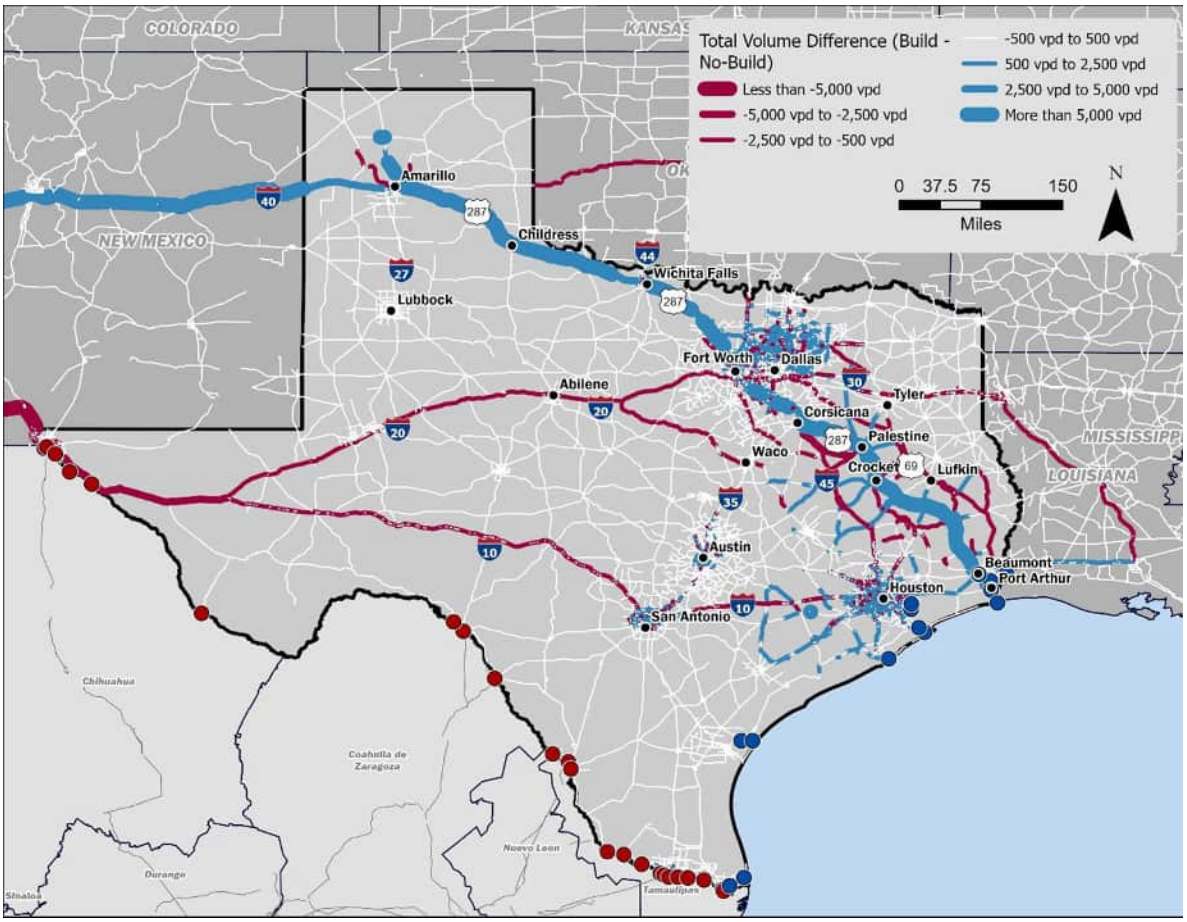


*Figure 4: 2050 Volume Differences with US 287 as an interstate*

These travel time savings reduce costs for passengers and freight, in terms of reduction in vehicle operating costs, improved personal time and reliability, reduced logistics costs, and better business time and reliability. These impacts are seen not just in the corridor but also for the Rest of Texas and even external long-distance trips, which are primarily freight with some passenger trips. The total travel costs savings in 2050 is expected to be $5.4B, which includes $1.2B for the corridor and $4.2B for other trips. These travel costs savings are shown in **Figure 5** for the entire project and in **Figure 6** as a breakdown by Segment and other savings.

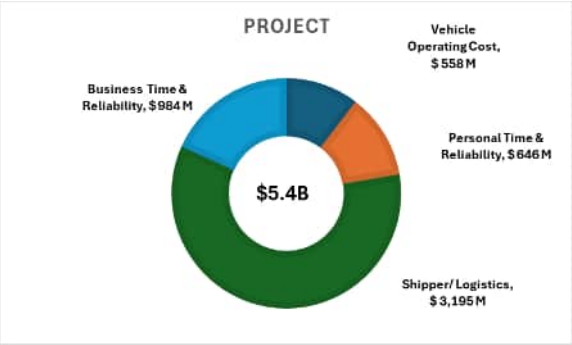


*Figure 5: US 287 Total Travel Cost Savings*

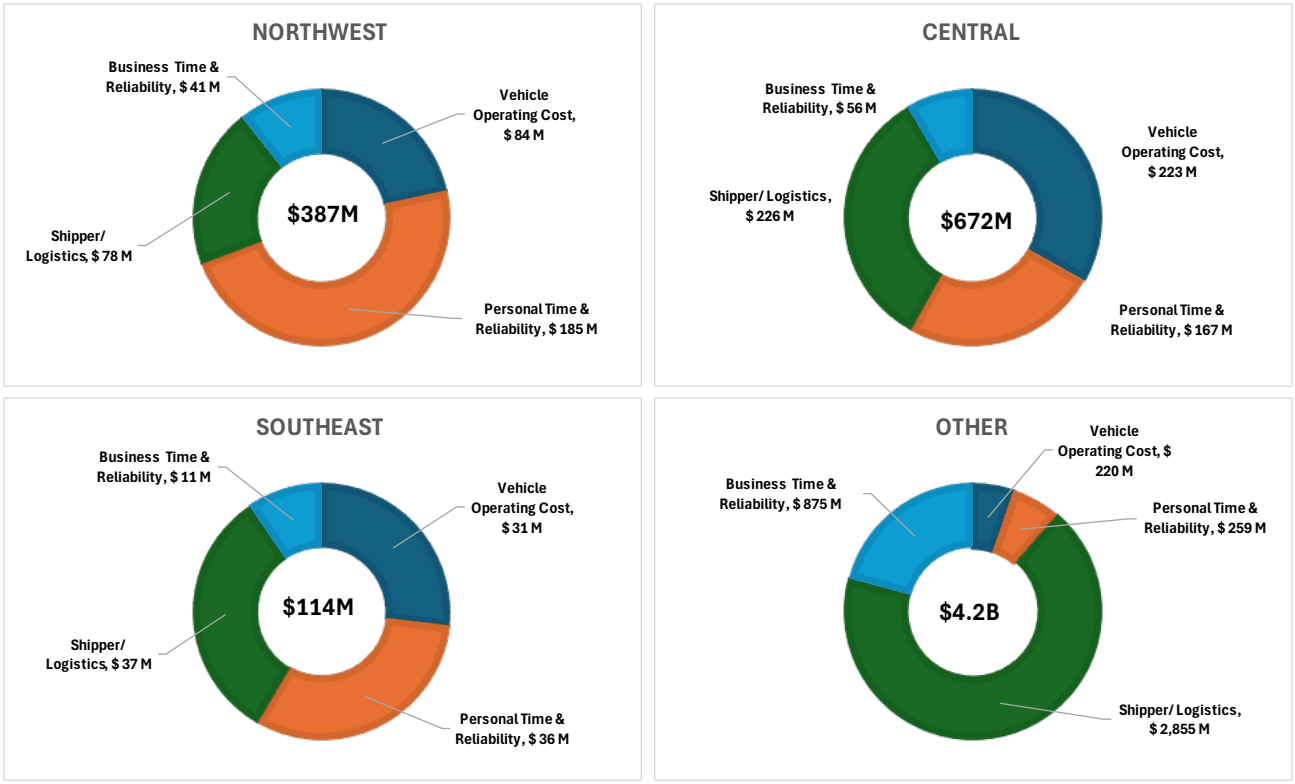


*Figure 6: US 287 Travel Cost Savings Breakdown by Segment*

## Outcomes of Economic Impact Analysis

### *Economic Impact*

Economic Impact is the change in the Gross Domestic Product (GDP) within the US 287 Study Area and the Rest of Texas due to the improvements and upgrades made to the US 287 Corridor. TREDIS presents details of the impact through four categories: business output, value added, labor income and jobs. Brief description of each of these categories is given below:

**Business Output –** is the total revenue by industry along the US 287 Study Area Corridor.

**Value Added –** is defined as the value of goods sold by an industry over and above the value of goods purchased by it. It is generally used as a broad measure of value creation by an industry, including wages, employee benefits, profits, and tax payments.

**Labor Income –** is the total benefits to all employees of an industry within the US 287 Study Area Corridor.

**Employment or Jobs –** is the total headcount of workers by industry within the US 287 Study Area Corridor.

Figure 7 presents the Economic Impact of the US 287 Study Area Corridor in terms of Business Output, Value Added, Jobs and Labor Income. The impact of expanding the corridor to an interstate provides benefits by improving access and leading to more economic opportunities.

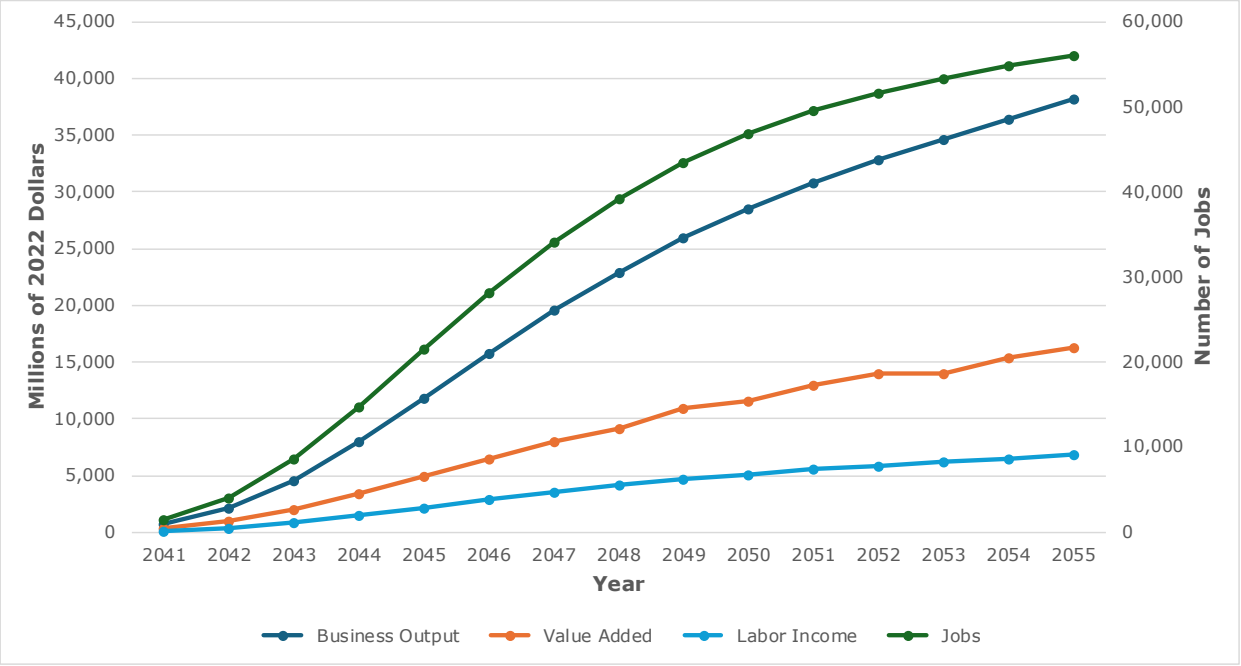


*Figure 7: Economic Impact due to US 287 Study Area Corridor*
*Source: TREDIS 6 Analysis (number of jobs on secondary axis)*

Table 8 presents the economic impact of US 287 Corridor by segment and impact measured in four categories. As can be seen from the table below, the Central Segment has the highest economic impact along the US 287 Study Area Corridor followed by Southeast Segment and Northwest Segments respectively. This is related to the existing population and employment base along with industries that would benefit from the interstate expansion. A total of 46,885 additional jobs are expected to be created in the year 2050 due to the US 287 Corridor, with more than half of the jobs created in Central Segment followed by Southeast and Northwest Segments. The value added is also half of the total for the Central Segment at $5.8B whereas the value added for both Southeast and Northwest Segments are at $2.2B. The impact of the improvements to the US 287 Corridor is also felt in the Rest of Texas, with a value added of $1.4B in the year 2050.

***Table 7: Economic Impact of US 287 Corridor in the year 2050***

| Segment | Business Output | Value Added | Jobs | Labor Income |
|---|---|---|---|---|
| Northwest | $5.9 B | $2.2 B | 6,506 | $1.0 B |
| Central | $11.5 B | $5.8 B | 28,410 | $3.3 B |
| Southeast | $6.6 B | $2.2 B | 11,969 | $0.9 B |
| Rest of Texas | $4.5 B | $1.4 B | 0 | $0 B |
| **Total** | **$28.5 B** | **$11.6 B** | **46,885** | **$5.2 B** |

*Source: TREDIS 6 Analysis*

### *Impact by Segment*

Figure 9 summarizes the percentage share of contributions of each segment towards the increase in GDP. As can be seen from the figure, the Central segment is projected to be largest contributor with 50% of the overall increase in GDP, followed by Northwest and Southeast which are projected to contribute approximately 19% each. In contrast, the Rest of Texas is anticipated to contribute 12%, suggesting that the benefits of the project are primarily concentrated within the US 287 Corridor Study Area.

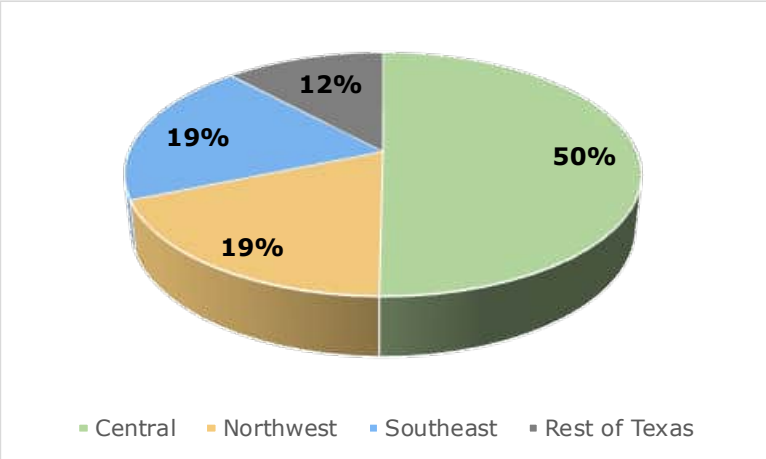


*Figure 8: Valued Added by Segment*
*Source: TREDIS 6 Analysis*

### *Impact by Industry*

Table 7 summarizes the Value Added by industry and segment to the increase in GDP. As shown in the table and Figure 8 below, contribution of Manufacturing Industry is projected to be the highest, with an increase of $ 3.0 Billion in value added to the GDP. This is followed by the Professional & Business Services sector contribution of $ 2.0 Billion value addition within the US 287 Study Area Corridor.

***Table 8: Breakout of Value Added by Industry (in $M)***

| Industry | Northwest | Central | Southeast | Rest of Texas | Total |
|---|---|---|---|---|---|
| Agriculture & Extraction | 58 | 113 | 59 | 36 | **266** |
| Construction | 1 | 18 | 10 | 13 | **42** |
| Education & Health | 34 | 199 | 31 | 63 | **326** |
| Financial Activities | 103 | 927 | 129 | 179 | **1,337** |
| Manufacturing | 1,199 | 574 | 939 | 320 | **3,032** |
| Media and Information | 55 | 389 | 67 | 55 | **566** |
| Other Services | 101 | 489 | 192 | 49 | **831** |
| Postal & Warehousing | 27 | 235 | 76 | 16 | **355** |
| Professional & Business | 133 | 1,392 | 234 | 286 | **2,045** |
| Retail Trade | 148 | 423 | 199 | 37 | **807** |
| Transportation | 57 | 191 | 65 | 84 | **397** |
| Utilities | 25 | 53 | 25 | 64 | **168** |
| Wholesale Trade | 208 | 821 | 225 | 179 | **1,432** |
| **Total** | **2,150** | **5,825** | **2,249** | **1,381** | **11,604** |

*Source: TREDIS 6 Analysis*

*Note: Totals may not add up due to rounding*

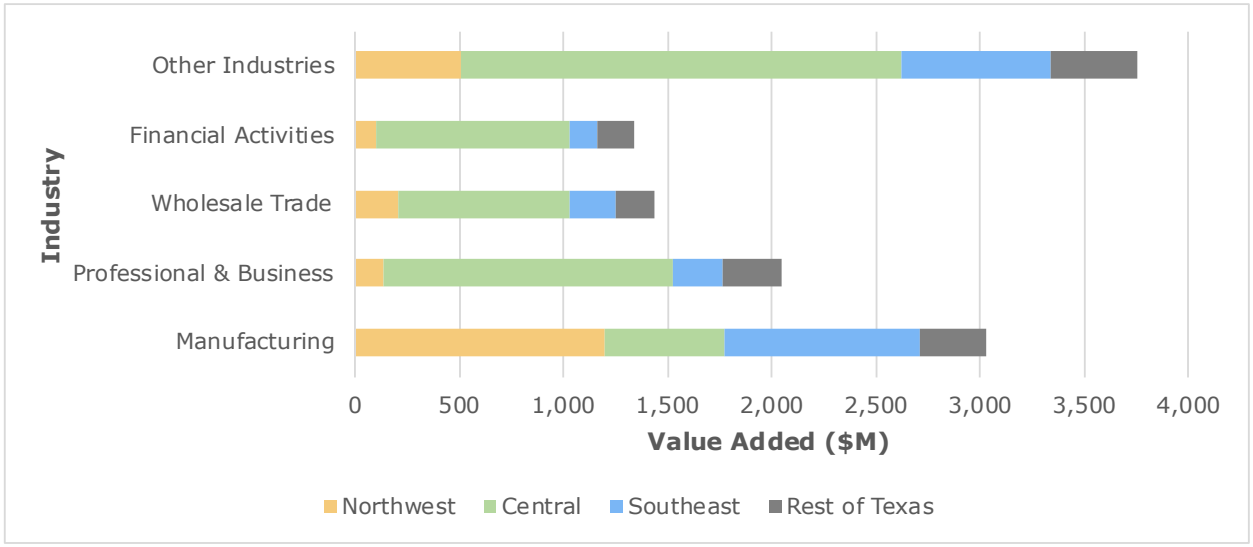


*Figure 9: Value Added by Industry (2050)*
*Source: TREDIS 6 Analysis*

## *Employment / Jobs*

**Figure 10** presents employment impact by segment and industry due to US 287 Study Area Corridor. As can be seen from the table below, Professional and Business Industry has the highest employment generation with 12,302 jobs. A total of 46,885 jobs are expected to be generated in 2050 for the US 287 corridor.

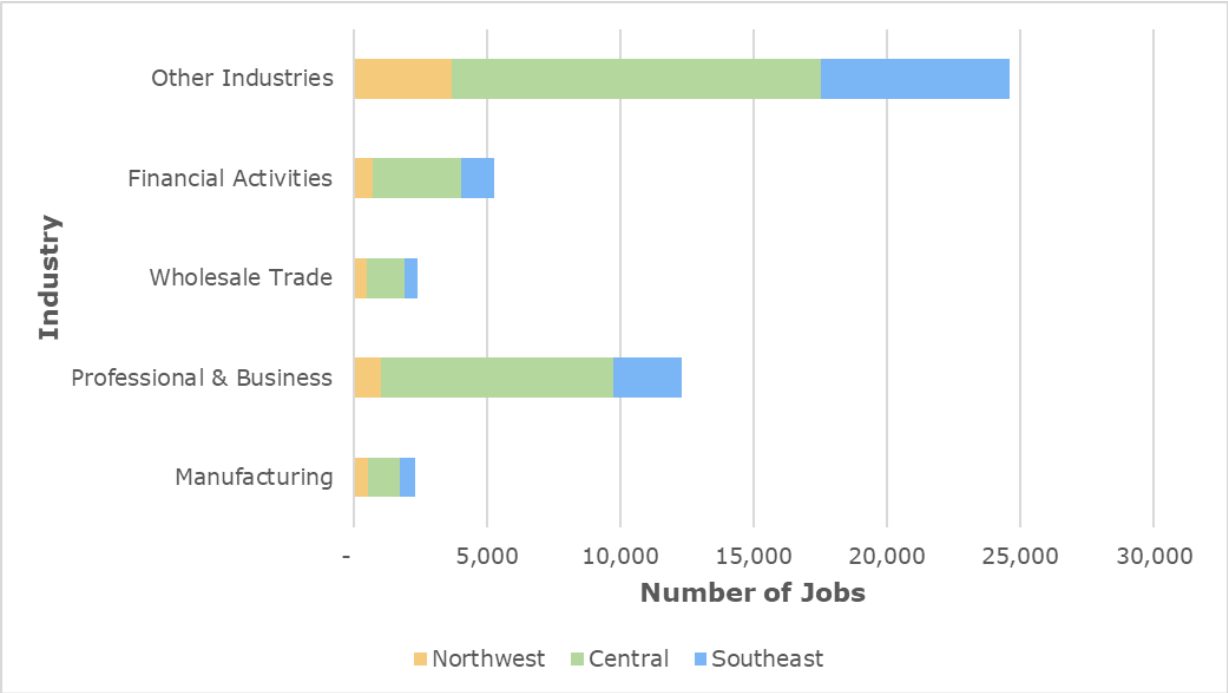


*Figure 10: Jobs by Industry (2050)*

### *Quality of Jobs*

TREDIS categorizes jobs generated into High, Medium, and Low wages[2]. These jobs are additionally categorized in to whether jobs are growing or not (Not-Growing[3], Growing-Unstable[4] and Growing-Stable[5]). Figure 11 presents the quality of jobs by segment within the US 287 Study Area Corridor. Approximately 37% of jobs are high wages and 42% are medium wages with the remaining being low wage jobs that are created. A higher proportion of high wage jobs are growing at a stable rate providing better economic opportunities.

[2] *Based on comparison of wages in occupations using 2018 dollars with a low/medium threshold of $34,208 and Medium/High threshold of $56,657*
[3] *Not Growing means an occupation is projected to grow less than 0.5% annually.*
[4] *Growing, Unstable means an occupation is growing but turnover is relatively high.*
[5] *Growing, Stable means an occupation have relatively less turnover.*

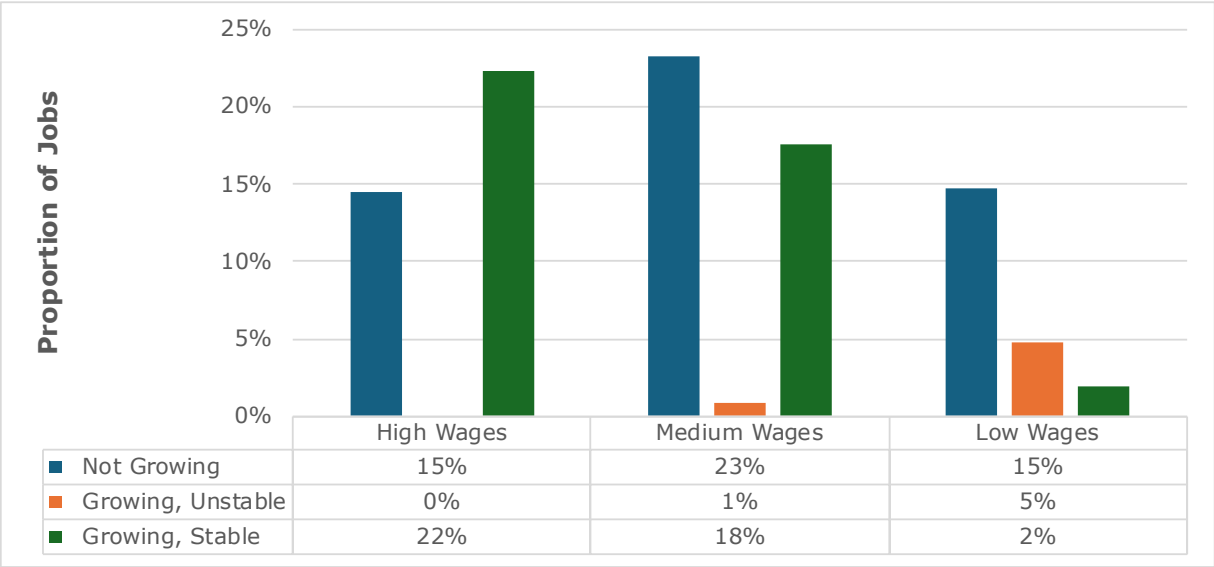


*Figure 11: Quality of Jobs by Growth and Wages*
*Source: TREDIS 6 Analysis*

# Benefit – Cost Analysis (BCA)

*"A benefit-cost analysis (BCA) is a systematic process for identifying, quantifying, and comparing expected benefits and costs of an investment, action, or policy"[6].*

Benefits measure the outcomes of the economic value resulting from the project. Whereas costs consist of the resources needed to develop the project. The benefits and costs values are discounted at a specified rate (currently 3.1%) to compute the Net Present Value of the investment being made.

Table 9 presents the Net Present Benefit, Net Present Cost and the Benefit-Cost Ratio (BCR) for the US 287 Corridor being upgraded to an interstate. The major components of the benefits include vehicle operating costs (45.6%), safety (27.7%), and time savings (24.3%). Discounted costs include capital investment, ongoing operations and maintenance costs, and is reduced using the remaining lifecycle value (salvage value). The difference between the discounted benefits and discounted costs provides the net present value ($19.4B) and the ratio of both provides the benefit-cost ratio (3.25).

[6] *Defined by U.S. Department of Transportation*

***Table 9: Benefit – Cost Analysis Overview (in millions of 2022$)***

| Benefits | 3.1% discount rate |
|---|---|
| Vehicle Operating Costs | $ 12,792 |
| Value of Business Time | $ 5,717 |
| Value of Personal Time | $ 1,107 |
| Reliability | $ 159 |
| Safety | $ 7,759 |
| Logistics/Freight Costs | $ 397 |
| Productivity from Access/Connectivity | $ 99 |
| **Total Benefits** | **$ 28,030** |
| **Costs** | |
| Capital Investment Costs | $ 12,010 |
| Operation and Maintenance Costs | $ 1,258 |
| Residual Value of Capital Spending | $ -4,645 |
| **Total Costs** | **$ 8,623** |
| Benefit/Cost Ratio | 3.25 |
| Net Present Value | $ 19,407 |

*Source: TREDIS 6 Analysis*

# Interim Year Analysis

The project was also analyzed for interim improvements for portions of US 287 to an interstate by the year 2040. The improvements were mostly focused on the Central Segment as shown in **Table 10** and in **Figure 11.**

***Table 10: Interim 2040 Improvements Summary***

| Segment | Interim 2040 Improvements |
|---|---|
| Northwest | • None |
| Central | • 15 miles of interstate upgrade from I-20 to I-35E<br>• 3 Direct Connects at SH 360, US 67, and I-35E<br>• 22 Interchanges |
| Southeast | • 2 Interchanges |

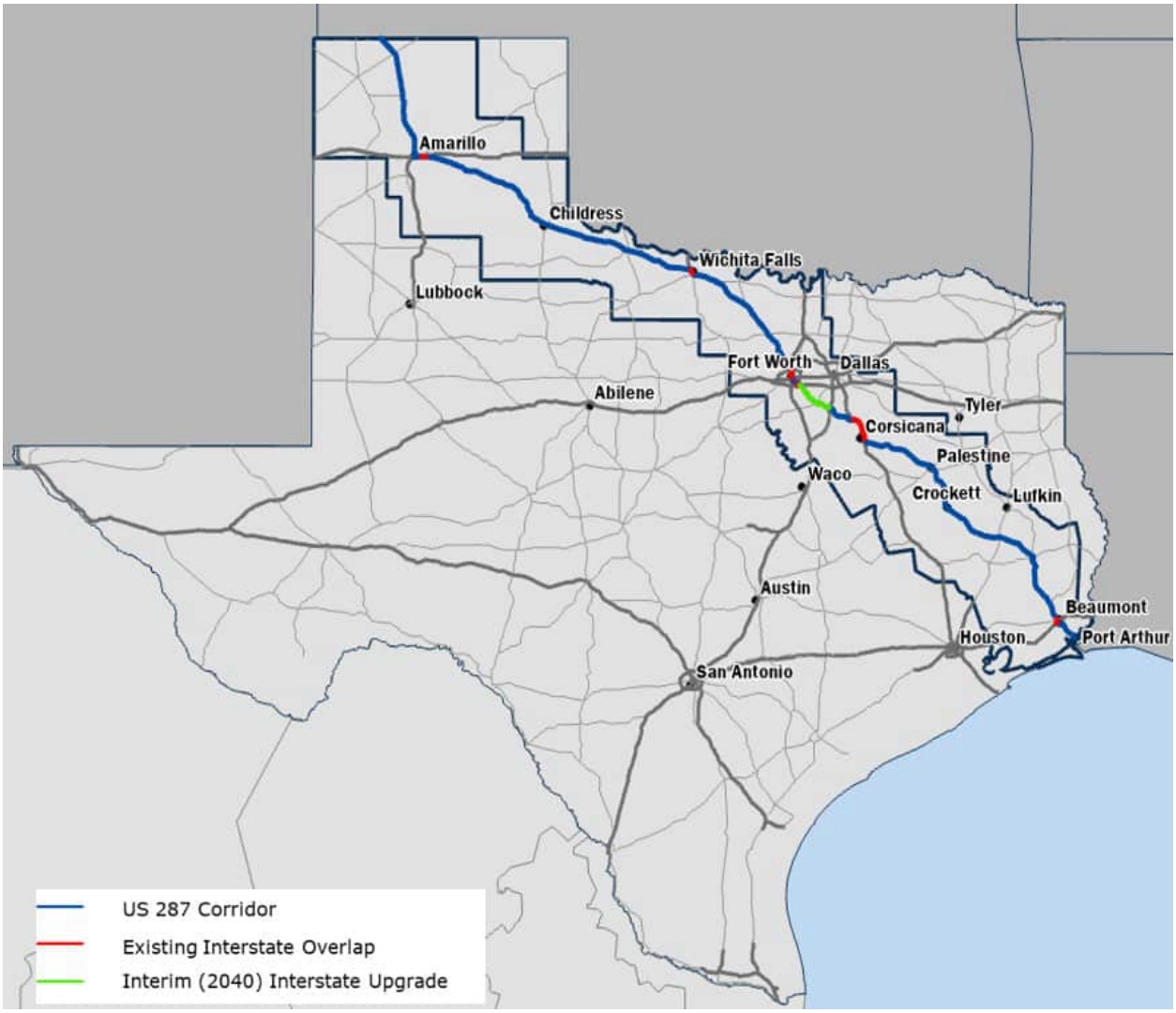


*Figure 12: US 287 Interim 2040 Improvements*

### *Estimated Costs for 2040 Interim Improvements*

High level planning cost estimates were developed for these interim improvements. These included the conversion of US 287 to interstate, costs for direct connect interchanges, overpasses, and development costs. These high-level estimated costs are shown in **Table 11**.

***Table 11: Interim Improvements Estimated Costs***

| | Northwest | Central | Southeast | Total (Interim) |
|---|---|---|---|---|
| Interstate | $ 0 | $ 450 M | $ 0 | $ 450 M |
| Direct Connects | $ 0 | $ 490 M | $ 0 | $ 490 M |
| Overpasses | $ 0 | $ 660 M | $ 60 M | $ 720 M |
| Development Costs | $ 0 | $ 533 M | $ 20 M | $ 553 M |
| **Total Costs** | **$ 0** | **$ 2,133 M** | **$ 80 M** | **$ 2,213 M** |

### *Economic Analysis Results for Interim Improvements*

Similar to the project economic analysis, these interim improvements were also analyzed using TREDIS for its contribution to the local and statewide economy. Since majority of investment and improvements are in the Central Segment, the economic impact is also concentrated there as shown in **Table 12**.

***Table 12: Economic Impact by Segment for Interim Improvements***

| | Northwest | Central | Southeast | Corridor |
|---|---|---|---|---|
| Total Costs | $ 0.00B | $ 2.13B | $ 0.80B | $ 2.21B |
| 2040 Travel Cost Savings | $ 0.01B | $ 0.30B | $ 0.01B | $ 0.32B |
| 2040 Increase in GDP | $ 0.00B | $ 2.57B | $ 0.01B | $ 2.57B |
| 2040 Increase in Employment | 0 | 14,594 | 0 | 14,594 |

*Source: TREDIS 6 Analysis*

The economic impact of interim improvements in 2040 was also compared to the impact of completely upgrading US 287 to an interstate. With the total investment for interim improvements being less than 10% of the total investment for upgrading the entire US 287 to interstate, the economic impact is lower as shown in **Table 13**. However, since most of this investment is happening in the Central Segment, it is more appropriate to compare the interim improvements with the Central Segment results of the 2050 improvements. This is shown in **Table 14**.

***Table 13: Comparison of Economic Impact with Full Interstate***

| | Interim (2040) | Ultimate (2050) |
|---|---|---|
| Total Costs | $ 2.21B | $ 24.52B |
| Travel Cost Savings | $ 0.42B | $ 5.38B |
| Increase in GDP | $ 2.68B | $ 11.60B |
| Increase in Employment | 14,594 | 46,885 |
| Return on Investment (%) | 320% | 161% |
| Return on Investment ($) | $ 7.08B | $ 39.59B |
| Benefit-Cost Ratio | 4.04 | 3.77 |
| Net Present Value | $ 4.0B | $ 23.9B |

*Source: TREDIS 6 Analysis*

***Table 14: Comparison of Economic Impact with Full Interstate Central Segment***

| | Interim (2040) | Ultimate Central (2050) |
|---|---|---|
| Total Costs | $ 2.21B | $ 5.08B |
| Travel Cost Savings | $ 0.42B | $ 0.67B |
| Increase in GDP | $ 2.68B | $ 5.83B |
| Increase in Employment | 14,594 | 28,410 |

*Source: TREDIS 6 Analysis*

# US 287 Corridor Interstate Feasibility Study

## SAM Analysis - Interstate Feasibility

March 2025

Texas Department of Transportation

# Statewide Analysis Model Results

This section documents the methodology for the travel demand model (TDM) analysis utilizing the Texas Statewide Analysis Model (Texas SAM) Version 4 (V4) and its results. In the first phase of the modeling process, the US 287 corridor was checked and updated under Build and No-Build scenarios to determine the feasibility of improving the corridor. For this first phase, the model was not calibrated; a new base year (2021) model and the 2050 model year were used for this task. The parameters for this phase did not allow for the model to be calibrated or for a more detailed review of the model to be performed.

## Model Checks and Development

To suit the project needs for socio-economic analysis, base model year 2021 was developed using the "Scenario Year Interpolation" tool within the Texas SAM interface. The socio-economic inputs and network inputs were calculated based on available existing model year 2015 and projected model year 2025. The team reviewed the original Texas SAM V4 model and checked the network against existing conditions. Overall, the US 287 corridor was coded with speed limits that were lower than existing posted speed limits. Since, the free-flow speed is a major factor in determining the total capacity of a roadway network and the traffic throughput, a series of updates were carried out, including network configurations, network speed, functional class and types, and number of lanes (for the No-Build models). After the update, most of the network had speed limits ranging from 55–75 mph. Some segments of US 287 were already coded as a limited-access freeway and coded as FTYPE 1, 3, and 5: the remaining segments were mostly coded as major arterials with FTYPEs of 11 to 14. In the 2050 No-Build scenario, all committed projects that were already coded in the 2050 Texas SAM network were preserved. In this phase of the study, C&M did not revise any local Metropolitan Planning Organization (MPO) transportation plans or travel demand models (TDM) to identify additional committed projects that were not coded in the Texas SAM TDM. Future Interstates I-69, I-27, and I-14 were not originally coded in SAM in the 2050 Model version, so no additional work was performed to update them to interstate level.

In the Build scenario, network modifications were preceded by converting the US 287 corridor to an interstate-level corridor with at least two lanes in each direction and a minimum speed of 55 mph for urban areas and 75 mph for non-urban areas. In locations where the No-Build (or existing condition) was more favorable than the proposed Build (Interstate) scenario in terms of posted speed or functional class, the existing condition was adopted. Figure 1 and Figure 2 show some typical updates performed for the Build/Interstate scenario by adding ramps and converting one dual-directional model link to two single direction links. Apart from the I-820 overlap, the rest of the mainline lanes have an FTYPE of 1 (with the I-820 overlap having an FTYPE of 3).

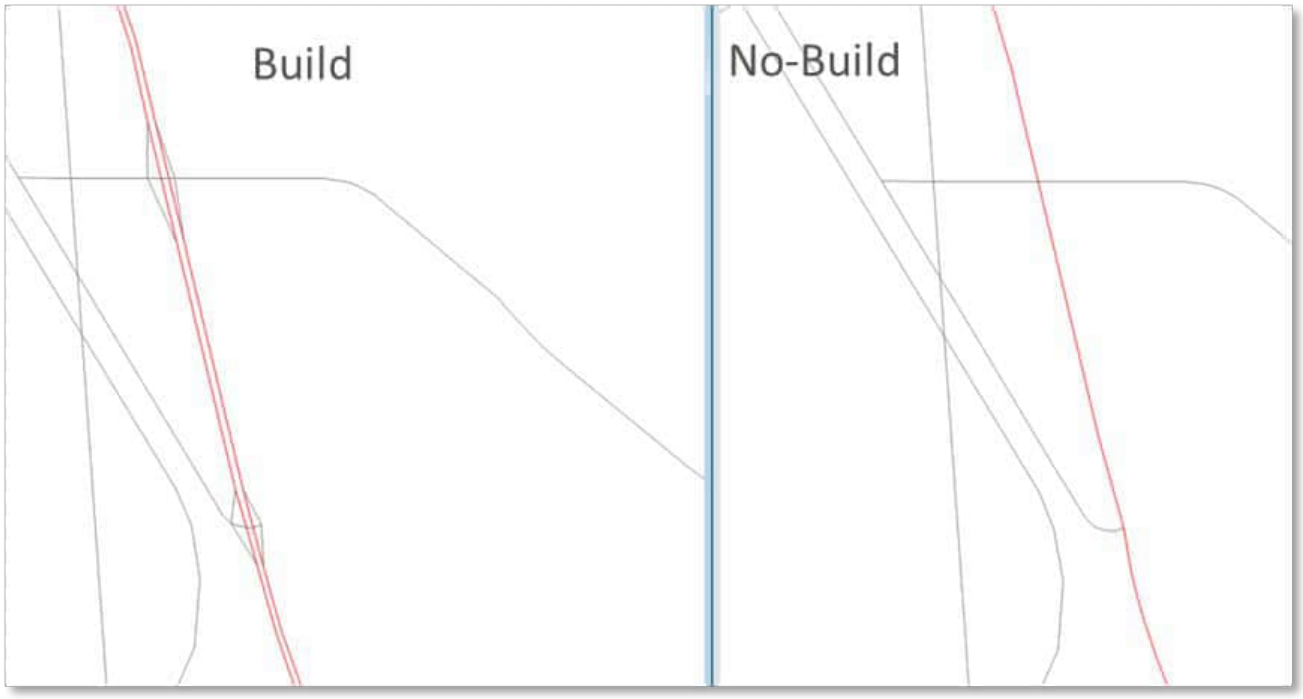


*Figure 1 Network Changes – Converting Single, Two-Directional Links into Two Single Direction Links*

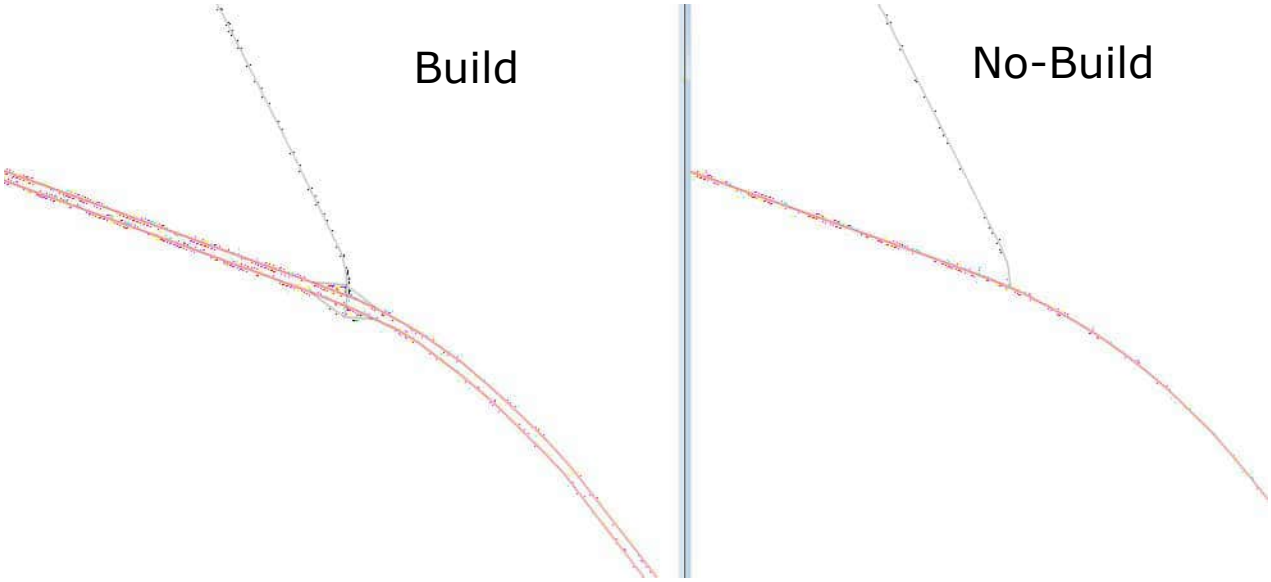


*Figure 2 Network Changes – Coding Ramp Intersections to Simulate Interstate Access for the Build Scenario*

## Volume Comparison with TxDOT STARS II Data

After updating the No-Build model to existing condition, No-Build 2021 daily assigned volumes from the model were compared against the TxDOT STARS II database's AADTs for 2021. Figure 3 shows a mix of results in terms of percentage difference, and over half of the assigned volumes are larger than their corresponding STARS II AADTs. Figure 4 depicts that other than some outliers, the assigned volume within the corridor exhibits a reasonable fit to the observed data. Given that the existing

corridor contains a large percentage of arterials and collectors in the model, the deviation from the STARS II AADTs is acceptable.

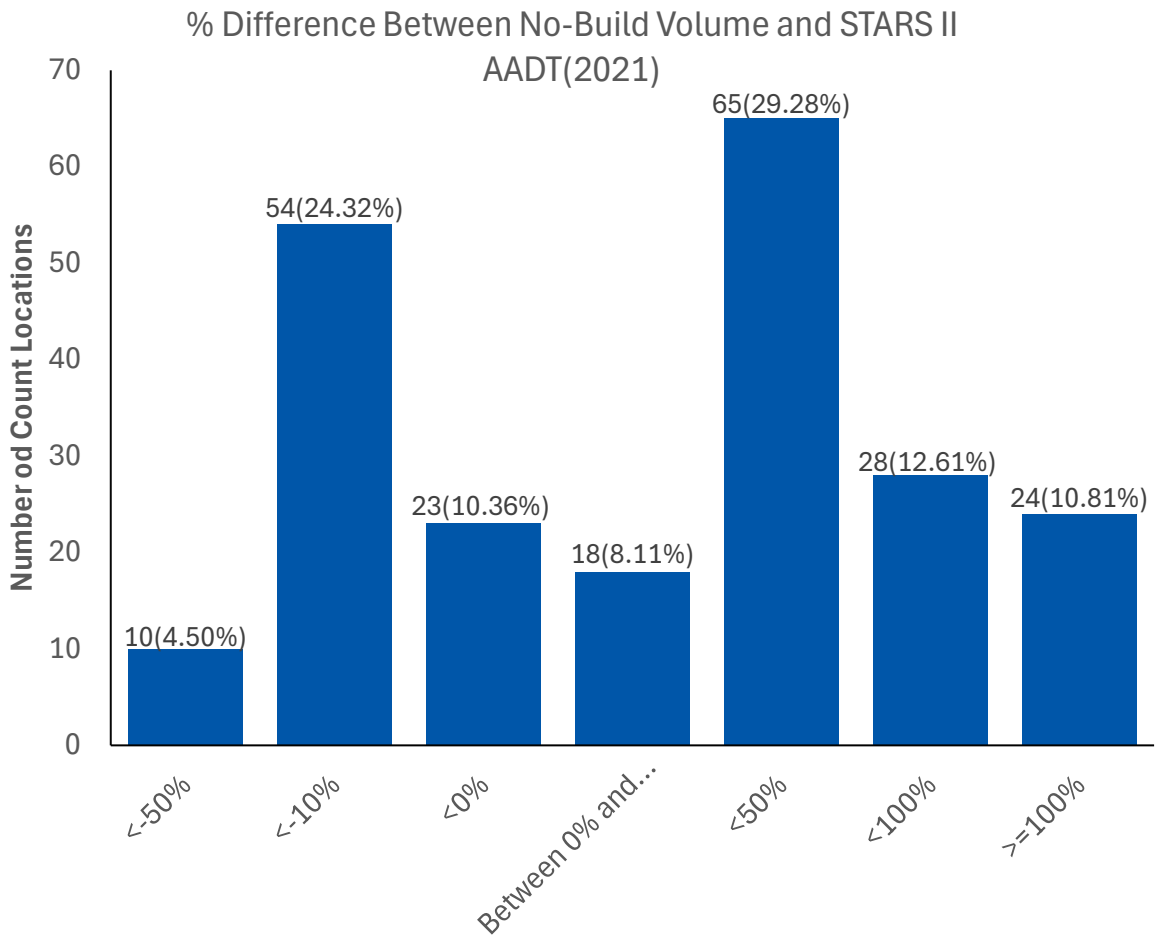


Figure 3 Differences between No-Build Daily Assigned Volumes and Existing STARS II Counts – 2021

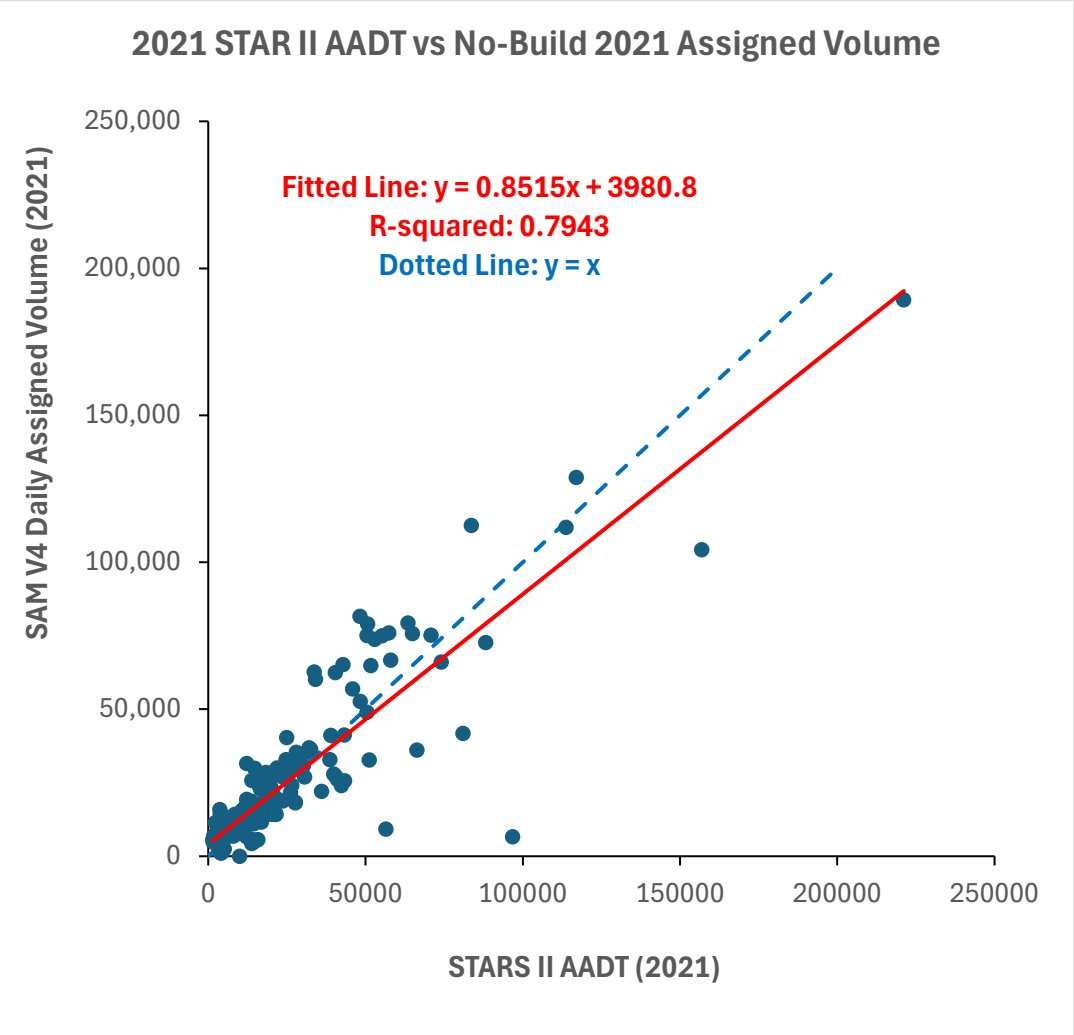


*Figure 4 Comparison of 2021 No-Build Daily Assigned Volume vs. STARS II AADT*

Additionally, future AADT volumes were obtained from the Texas Statewide Planning map at the corresponding count station locations; TPP provided future AADT volumes for year 2042 and these volumes were then grown at a 2% annual rate to develop the estimated 2050 AADTs. Figure 5 indicates the data variances and that more than 50% of locations have an assigned volume that's less than the estimated future AADT. When plotted in Figure 6, most of the points are below the dotted line, indicating that the SAM 2050 model (within the corridor) have assigned volumes that are lower than the TPP projections.

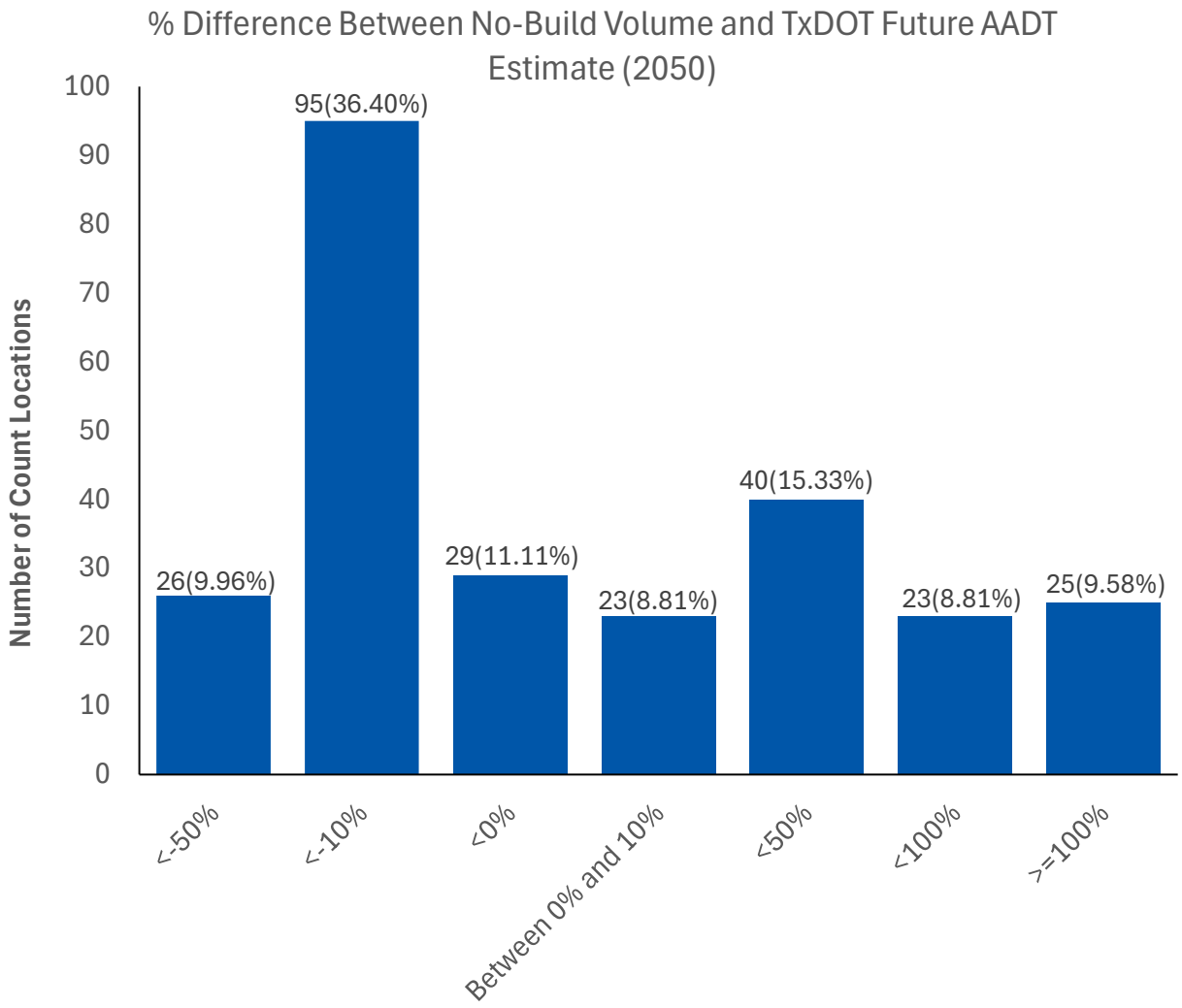


*Figure 5 Differences between No-Build Daily Assigned Volumes and TxDOT Future AADT Estimates – 2050*

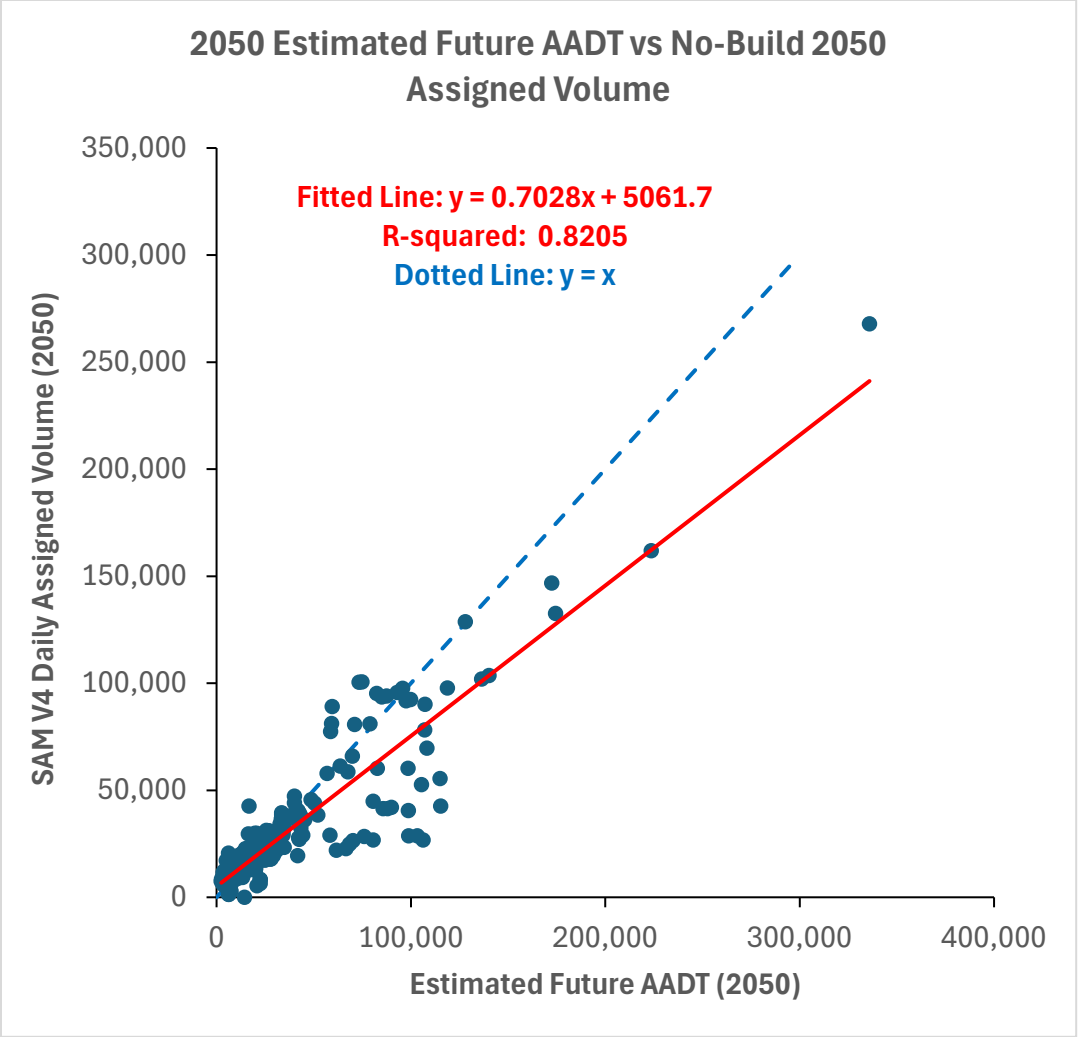


*Figure 6 Comparison of 2050 No-Build Daily Assigned Volume and TxDOT Estimated Future AADT*

## Build vs. No-Build – Volume Difference Map

Figure 7 through Figure 10 are visualizations of the differences in volumes between Build and No-Build scenarios. In the volume comparison maps, the blue color indicates an increase in volume in the Build scenario compared to the No-Build scenario, and the maroon color indicates a decrease in the comparative volume.

In the statewide view (Figure 7), the improved US 287 would become a critical route as a new cross-Texas alternate corridor from Texas panhandle to coastal plains comprised of I-40 in the panhandle, US 287 in northcentral and east Texas, and I-10 in the coastal plain. As a result, it would divert traffic from existing east-west interstate highways (I-10, I-20, and I-30). In east Texas, the parallel I-45 facility would see a decrease in traffic. East Texas cities would more predominately utilize US 287 for north and south movements, as well as to access I-10 in Beaumont and I-45 in Corsicana.

Within the Dallas-Fort Worth (DFW) metroplex, I-20, I-30, and US 175 would see decreases in traffic. With more incoming traffic from the northwest of the metroplex (via Us 287), there would be an increase in traffic on US 380, I-635, and SH 114—as traffic continues moving east. (Figure 8)

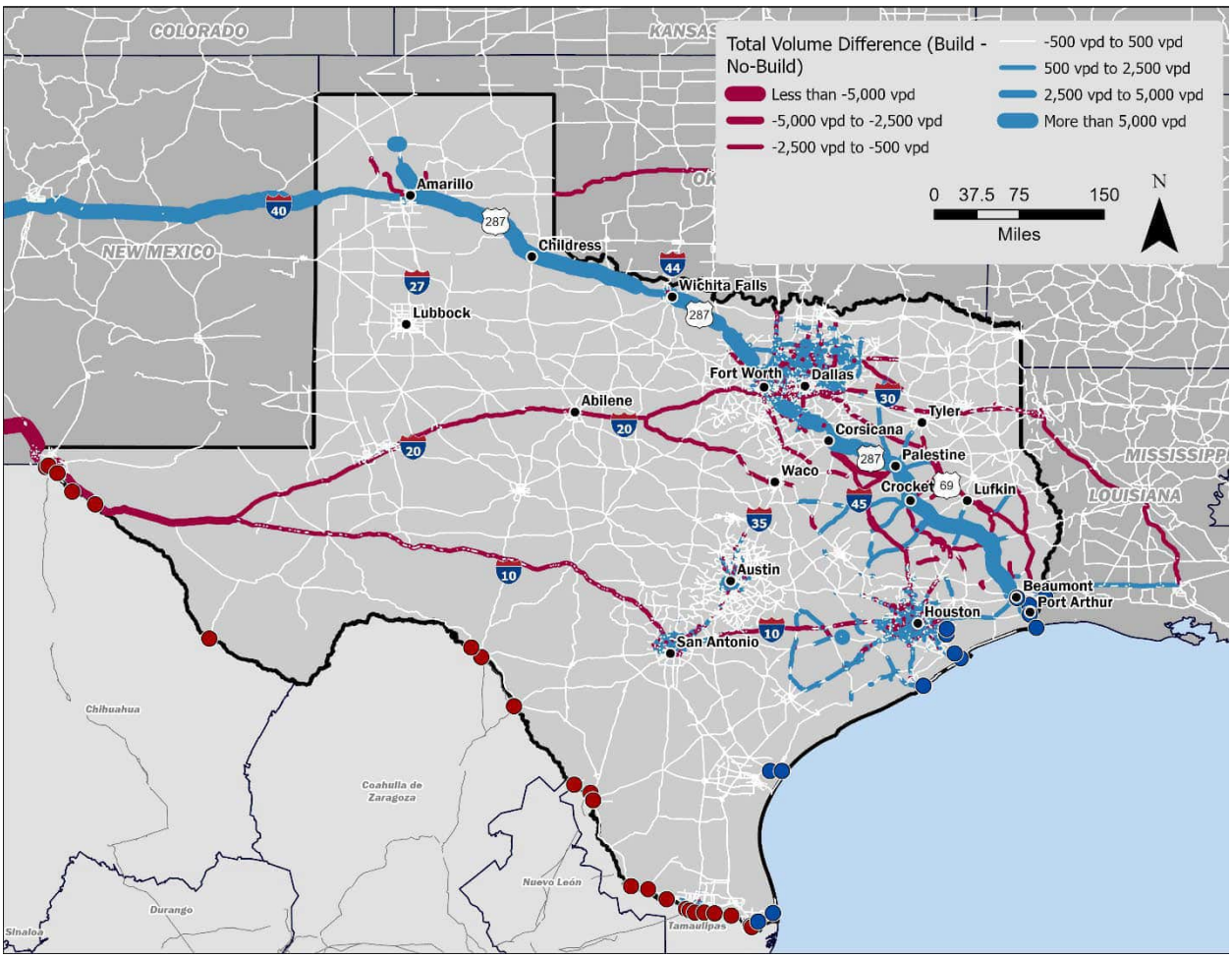


*Figure 7 2050 Volume Difference Map (Build vs No-Build)*

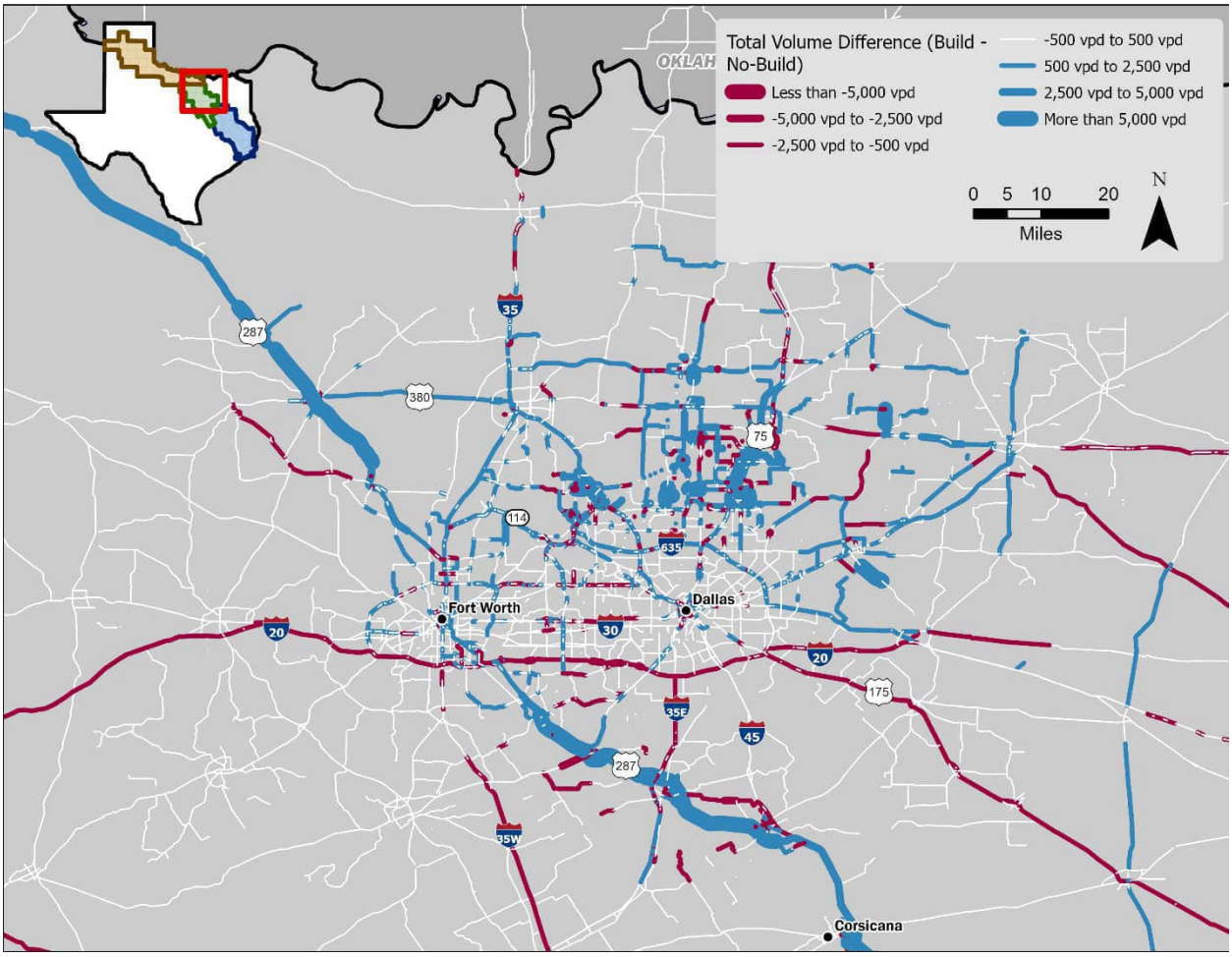


*Figure 8 2050 Volume Difference Map (Build vs No-Build) – DFW*

In East Texas, the improved US 287 offers an alternative for cities including Tyler, Palestine, Crockett, and Lufkin to access I-45 in the north or I-10 in the south. I-45 between Corsicana and Houston would experience a decrease along with other parallel highways like US 69, US 96, and US 175. (Figure 9)

East Texas communities could utilize US 287—travelling west on I-10 to Houston or east to Louisiana—instead of the current route of I-45 to I-10, as seen in Figure 10.

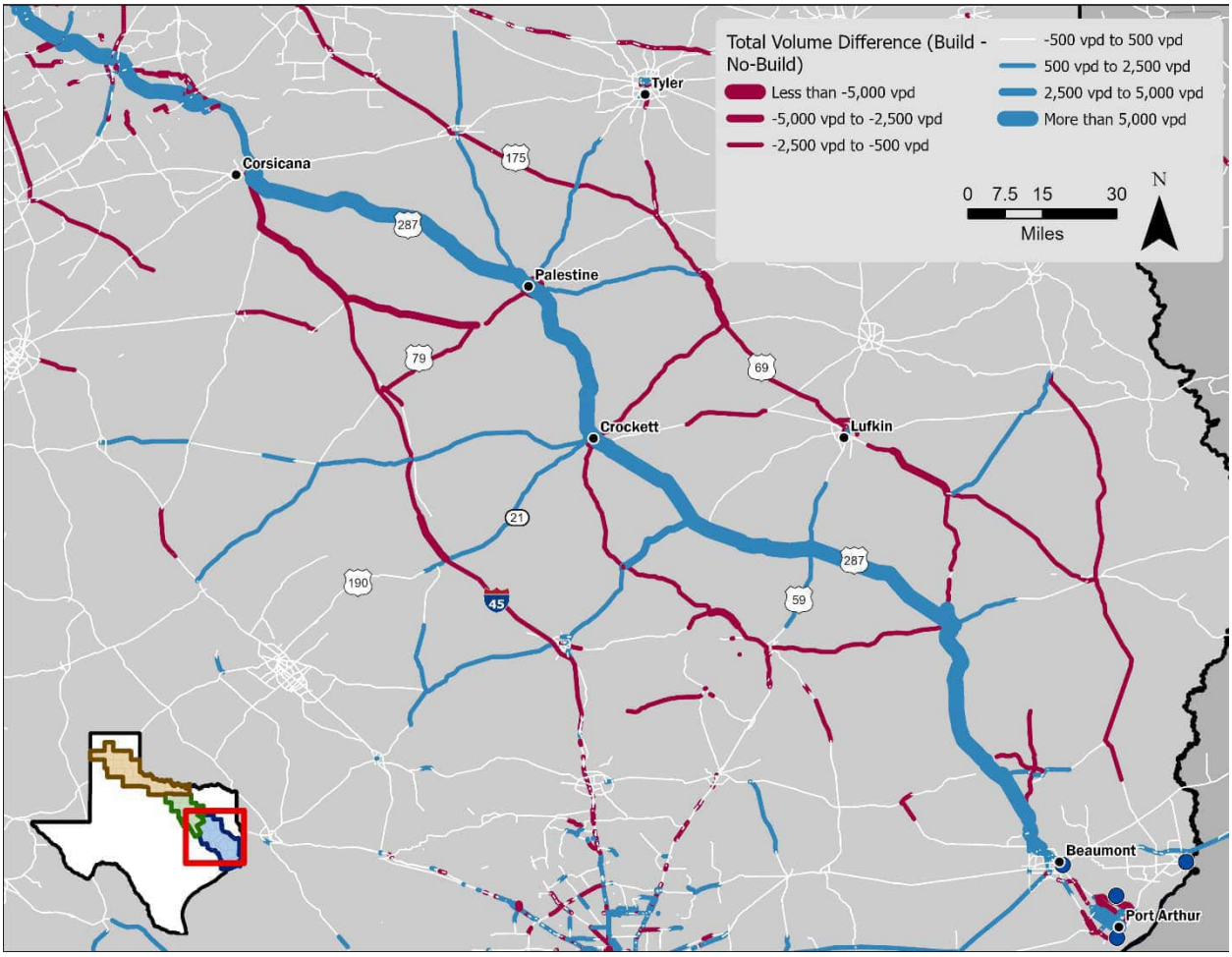


*Figure 9 2050 Volume Difference Map (Build vs No-Build) - I-45 and US 287 Corridor*

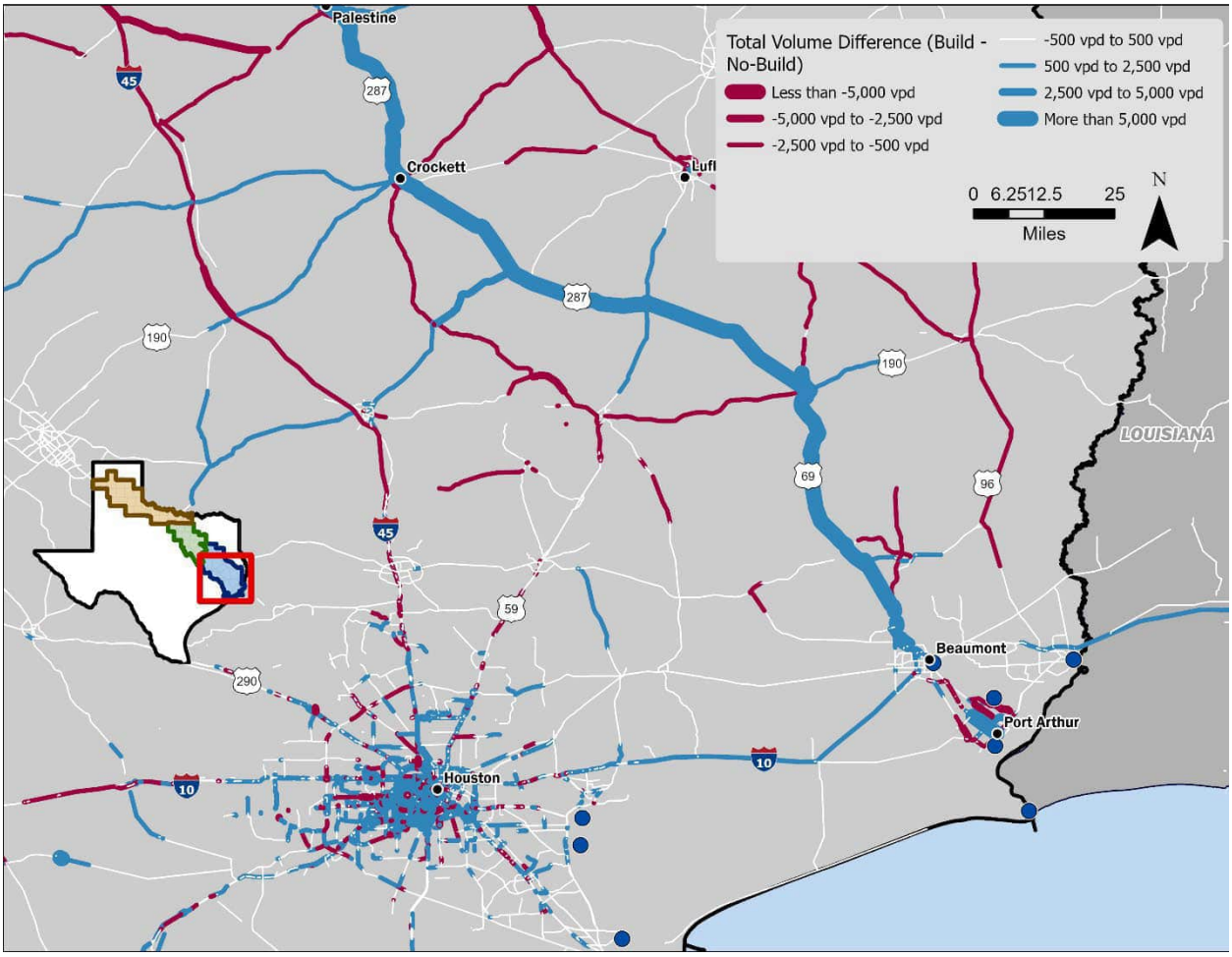


*Figure 10 2050 Volume Difference Map (Build vs No-Build) – Houston and Beaumont*

## Build 2050 Model vs. Future TPP AADT

The Build traffic volumes were then compared with TPP's forecasted AADTs. Over half of the locations (used for comparison) on US 287 have higher volumes than the future TPP AADTs. The R2 (red) trendline is still lower than the optimal (blue dotted) trendline, indicating that the overall TDM volumes are lower than the AADTs from the Statewide planning maps.

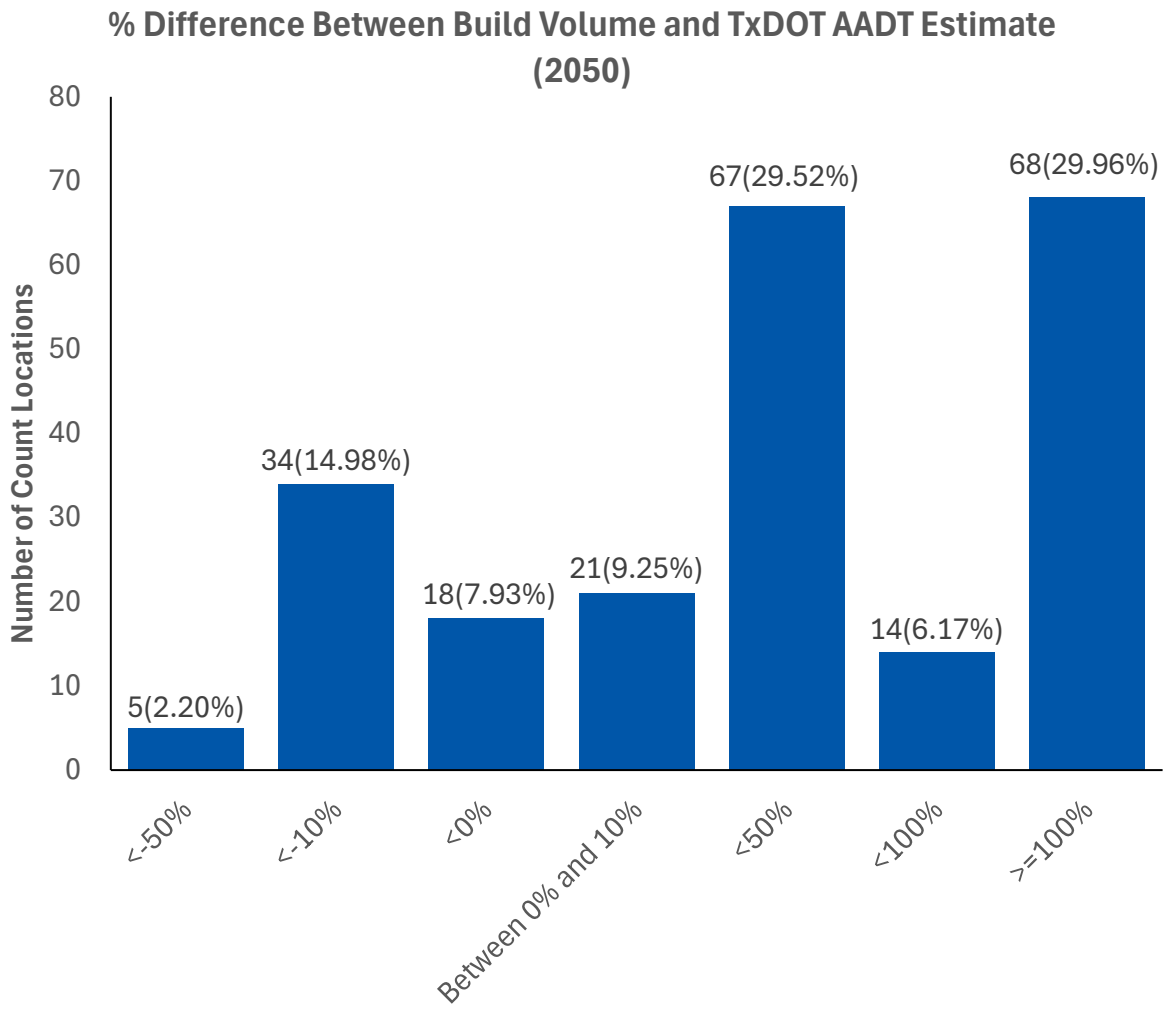


*Figure 11 Differences Between Build Model Daily Volumes and TxDOT Future Estimated AADT – 2050*

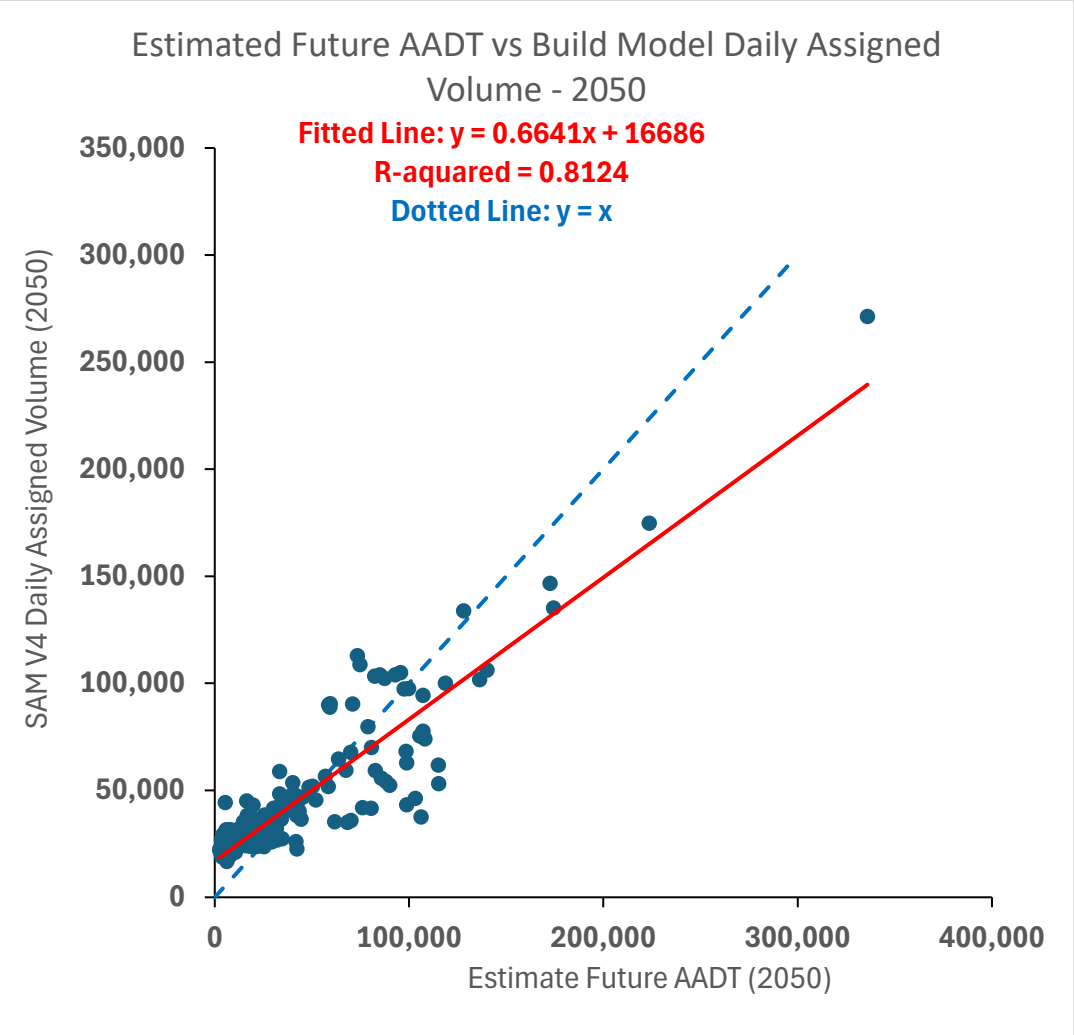


*Figure 12 Comparison Between Build Model Daily Assigned Volumes and TxDOT Estimate Future AADT – 2050*

## Performance Metrics (Average Trip Length, VMT, VHT, and Delay)

To understand the performance of an alternative, it is crucial to obtain system-wide and regional traffic metrics. Average trip length, Vehicle Miles Traveled (VMT), Vehicle Hours Traveled (VHT), and total delay were extracted from SAM to evaluate the Build scenario.

### Average Trip Length

Table 1 documents the trip length difference in time and distance for various trip purposes. It is worth noting that (in the 2050 models) an increase in average travel time for Home-based Work (HBW) trips—especially for smaller metro areas—and for Non-home-based (NHB) trips, was observed. For long-distance trips, the travel distances increase and the travel times decrease.

*Table 1 Average Trip Time and Distance in 2050 Models*

| Trip Purpose | Metropolitan Type | No-Build - 2050 | | Build - 2050 | | Difference | |
|---|---|---|---|---|---|---|---|
| | | Average travel time(min) | Average travel distance(mile) | Average travel time(min) | Average travel distance(mile) | Travel Time | Travel Distance |
| Home-based work trip (HBW) | Metropolitan Area with less than 250,000 population | 27.34 | 10.83 | 27.69 | 10.83 | 1.30% | -0.01% |
| | Metropolitan Area with population between 249,999 and 1,000,000 | 21.87 | 11.30 | 21.88 | 11.30 | 0.04% | 0.04% |
| | Metropolitan Area with population 1,000,000 or more | 196.30 | 9.09 | 197.12 | 9.09 | 0.41% | -0.01% |
| | Non-metropolitan Area | 20.30 | 13.55 | 20.30 | 13.57 | 0.00% | 0.12% |
| Home-based other (non-work) trip (HBO) | Metropolitan Area with less than 250,000 population | 11.91 | 8.84 | 11.95 | 8.84 | 0.34% | -0.01% |
| | Metropolitan Area with population between 249,999 and 1,000,000 | 12.24 | 8.64 | 12.24 | 8.64 | -0.03% | 0.09% |
| | Metropolitan Area with population 1,000,000 or more | 29.19 | 9.28 | 29.18 | 9.28 | -0.01% | -0.01% |
| | Non-metropolitan Area | 16.15 | 13.20 | 16.15 | 13.22 | 0.00% | 0.12% |
| Non-home-based trip (NHB) | Metropolitan Area with less than 250,000 population | 12.18 | 9.15 | 12.21 | 9.14 | 0.21% | -0.05% |
| | Metropolitan Area with population between 249,999 and 1,000,000 | 11.57 | 8.20 | 11.56 | 8.20 | -0.07% | 0.01% |
| | Metropolitan Area with population 1,000,000 or more | 35.50 | 9.54 | 35.71 | 9.54 | 0.59% | 0.00% |
| | Non-metropolitan Area | 12.72 | 10.41 | 12.72 | 10.43 | 0.01% | 0.14% |
| Long-distance business trip (50 miles - 400 miles) | | 133.71 | 111.86 | 133.54 | 112.00 | -0.13% | 0.13% |
| Long-distance non-business trip (50 miles - 400 miles) | | 144.73 | 126.71 | 144.60 | 126.85 | -0.09% | 0.11% |
| Long-distance business trip (> 400 miles) | | 980.25 | 1,017.55 | 978.62 | 1,017.50 | -0.17% | -0.01% |
| Long-distance non-business trip (> 400 miles) | | 897.27 | 940.27 | 895.70 | 940.35 | -0.17% | 0.01% |
| FHWA vehicle class 2 and 3 for commercial uses | | 25.31 | 14.10 | 25.35 | 14.11 | 0.15% | 0.08% |
| FHWA vehicle class 5 through 7 | | 33.87 | 20.43 | 33.91 | 20.44 | 0.11% | 0.04% |
| FHWA vehicle class 8 through 13 | | 51.00 | 33.70 | 51.04 | 33.72 | 0.08% | 0.08% |

## VMT Difference

Figure 13 and Figure 14 illustrate the difference in VMT between Build and No-Build scenarios for Years 2021 and 2050, respectively. (Note: the 2021 Build scenario is a hypothetical scenario that was run for comparison purposes.) The polygons represent TxDOT districts; colored districts are districts with an absolute total VMT difference of more than 1%. The thickness and color of the line representing US 287 shows the relative US 287 mainline total VMT difference by county. Red indicates a decrease in total VMT whereas blue indicates an increase in VMT.

The I-40 and US 287 corridors attracted traffic from the I-20 corridor. Therefore, decreases in El Paso, Odessa, Abilene, and Brownwood districts and increases in Amarillo, Childress, Wichita Falls, Lufkin, and Beaumont districts are observed.

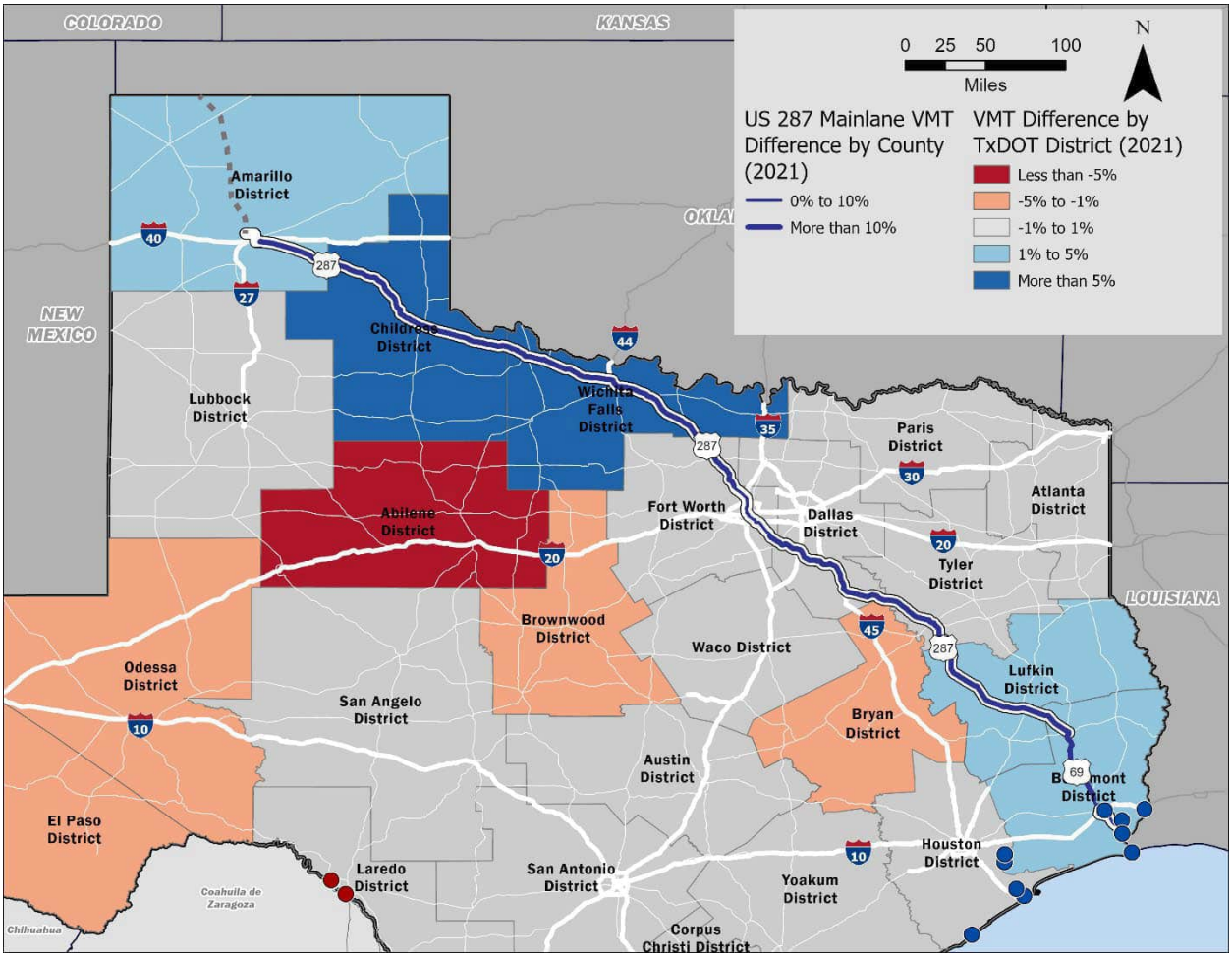


*Figure 13 VMT Difference Map – 2021*

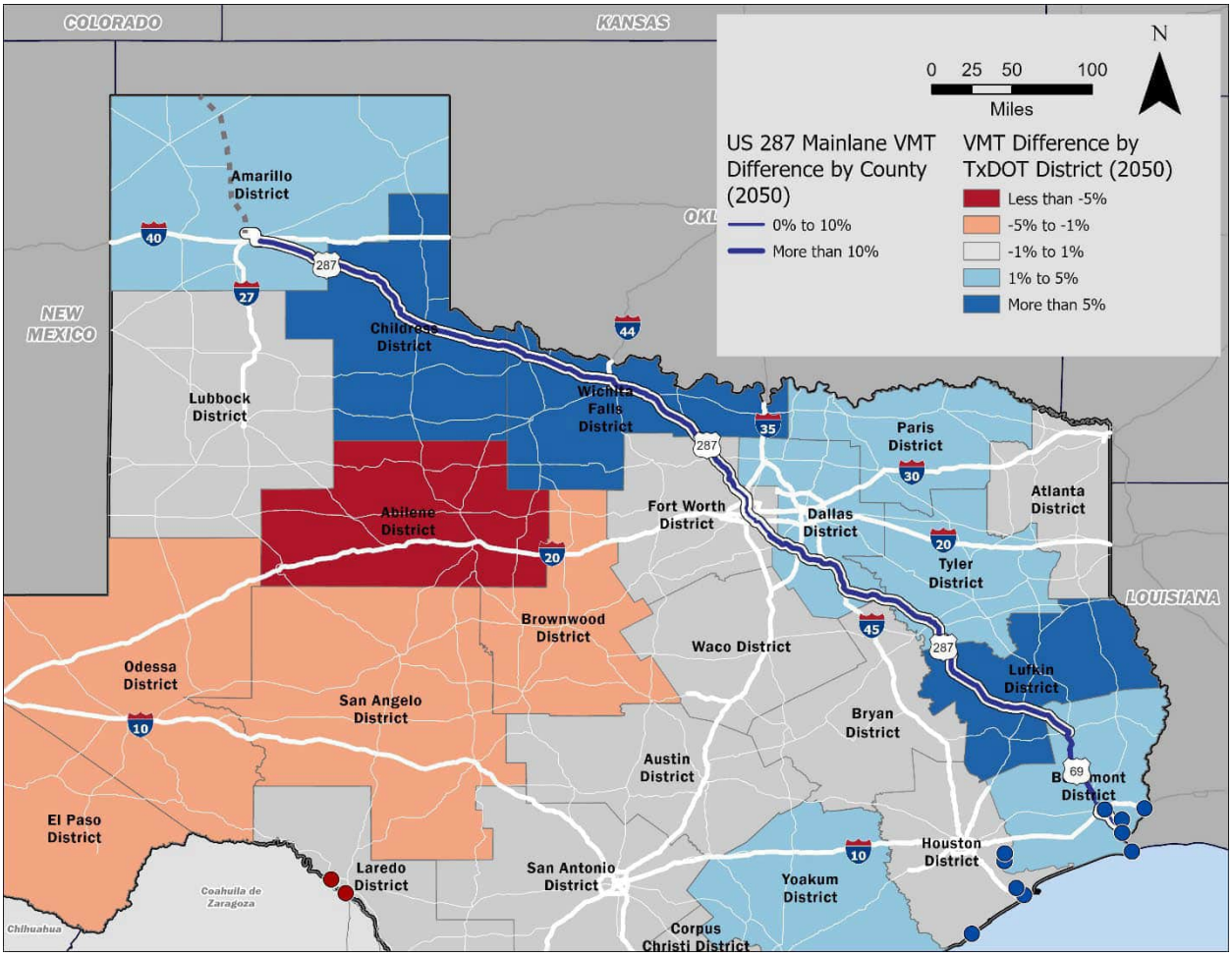


*Figure 14 VMT Difference Map – 2050*

## VHT Difference

VHT difference maps were prepared in a similar manner as the VMT difference maps. Figure 15 and Figure 16 depict the VHT difference by TxDOT district and by US 287 main-lanes. In the 2021 model, districts along the I-20 and I-45 corridors would have seen a decrease in total VHT. Amarillo, Childress, Wichita Falls, and Lufkin Districts would see increases in VHT mainly because of the additional volume brought by US 287.

In the 2050 Model, as demand ramps up, districts along US 287 would see increased VHT due to the increased volumes, while the I-20 corridor would still have decreased VHT.

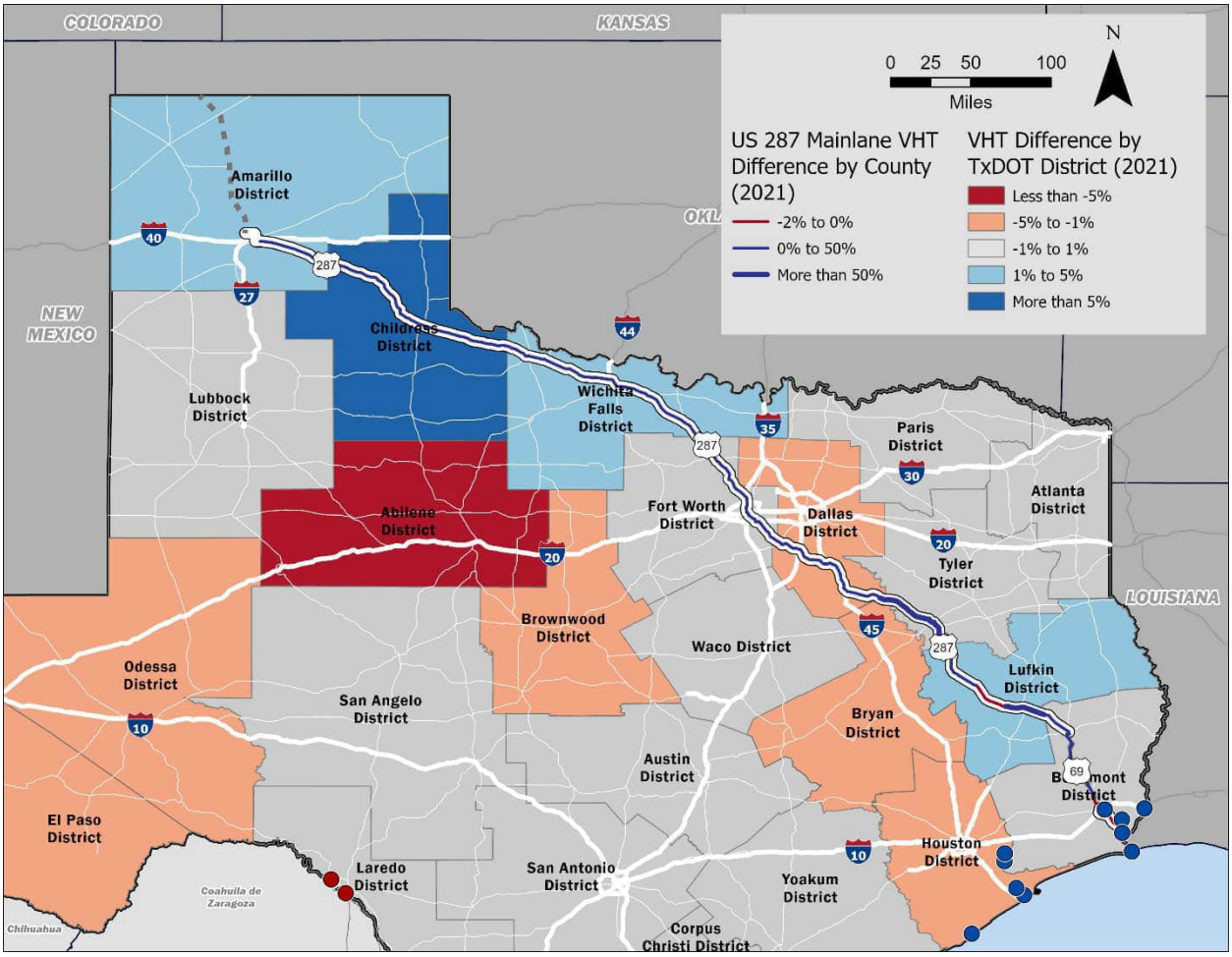


*Figure 15 VHT Difference Map – 2021*

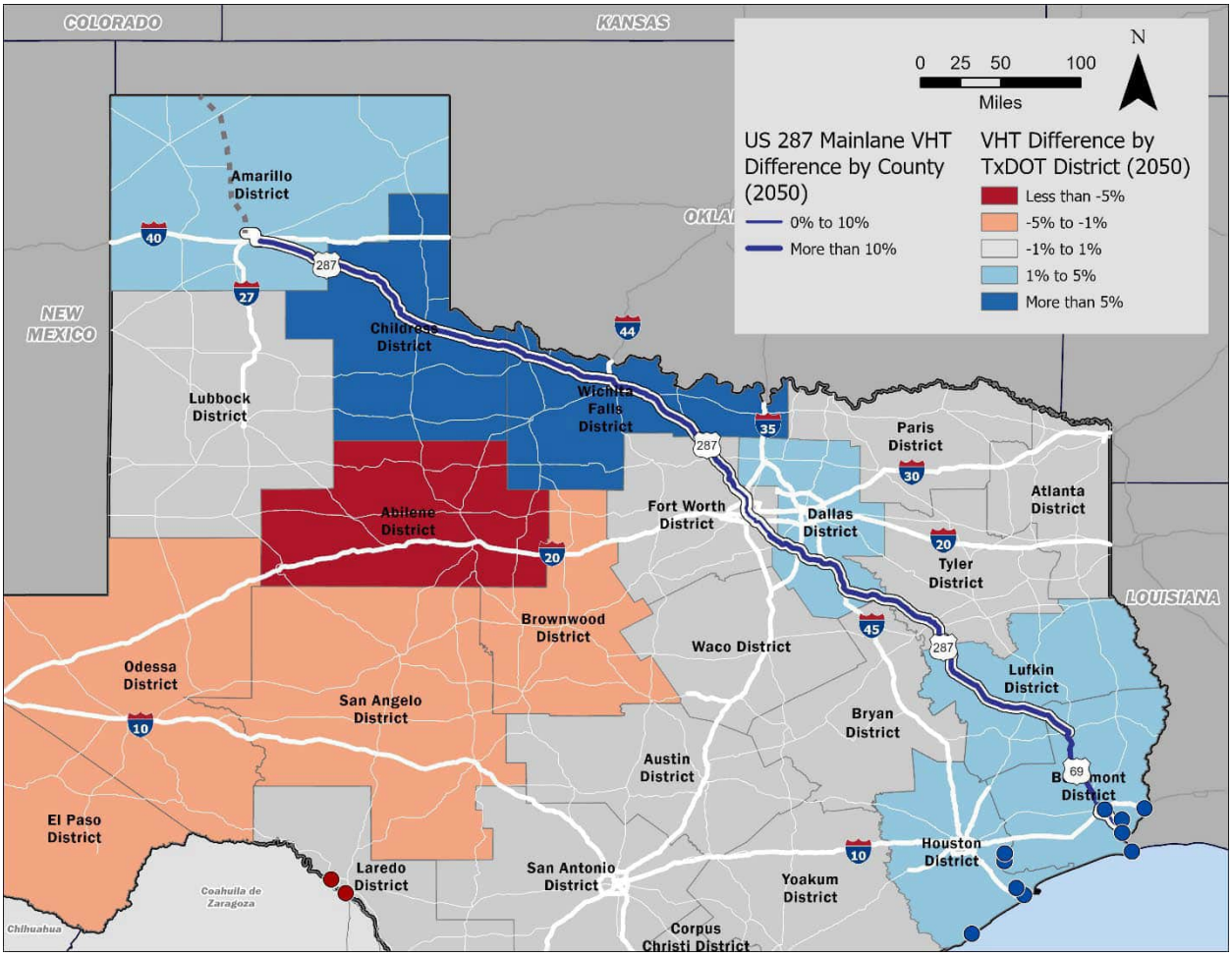


*Figure 16 VHT Difference Map – 2050*

## Delay Difference

In the 2021 Build Model (Figure 17), additional interstate facilities from hypothetical US 287 Build condition would provide capacity for the region, and hence most of the district would have seen decreases in total delay. In Wichita Falls and Amarillo District, where US 287 are already access-limited freeways, the increased demand would cause slight increases in total delays.

Figure 18 shows that in 2050, at the TxDOT district level, a majority of the districts would experience a decrease in total delay—with the exception of Fort Worth, Dallas, Amarillo, Houston, and Beaumont Districts. US 287 segments in Wichita, Tarrant, Navaro, Hardin, and Jefferson Counties—where they overlap with existing limited-access freeways—would experience an increase in facility delays. This would be due to the increase in traffic demand without an increase in facility capacity. The increases in delay at the district level coupled with the decreases in delay on the US 287 corridor indicate that the system delays stem from other roadways in the region. Since the improvement of US 287 would bring additional traffic to the region, delays could increase for other roadways when system volumes are increased but capacities of other roadways would remain the same.

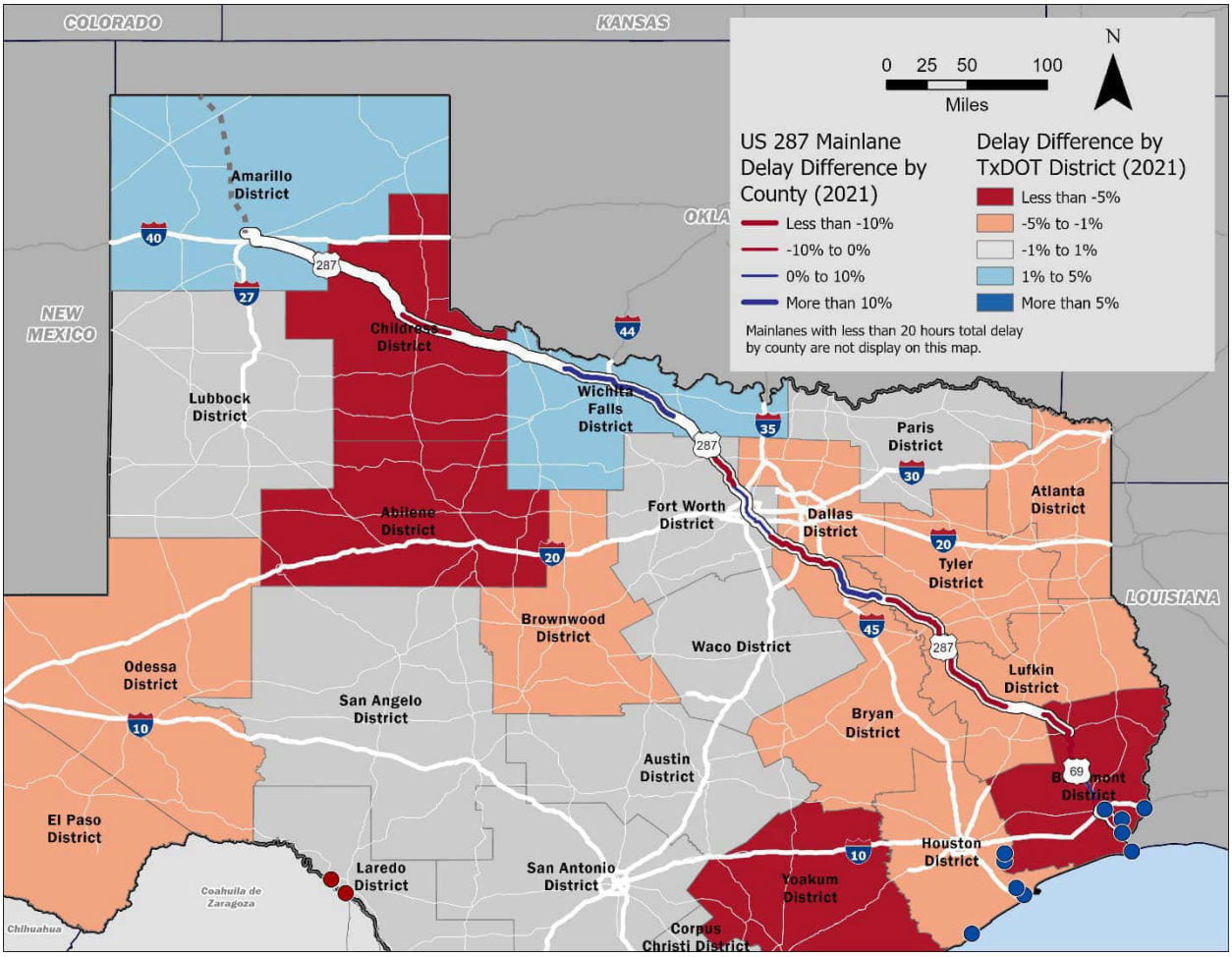


*Figure 17 Delay Difference Map – 2021*

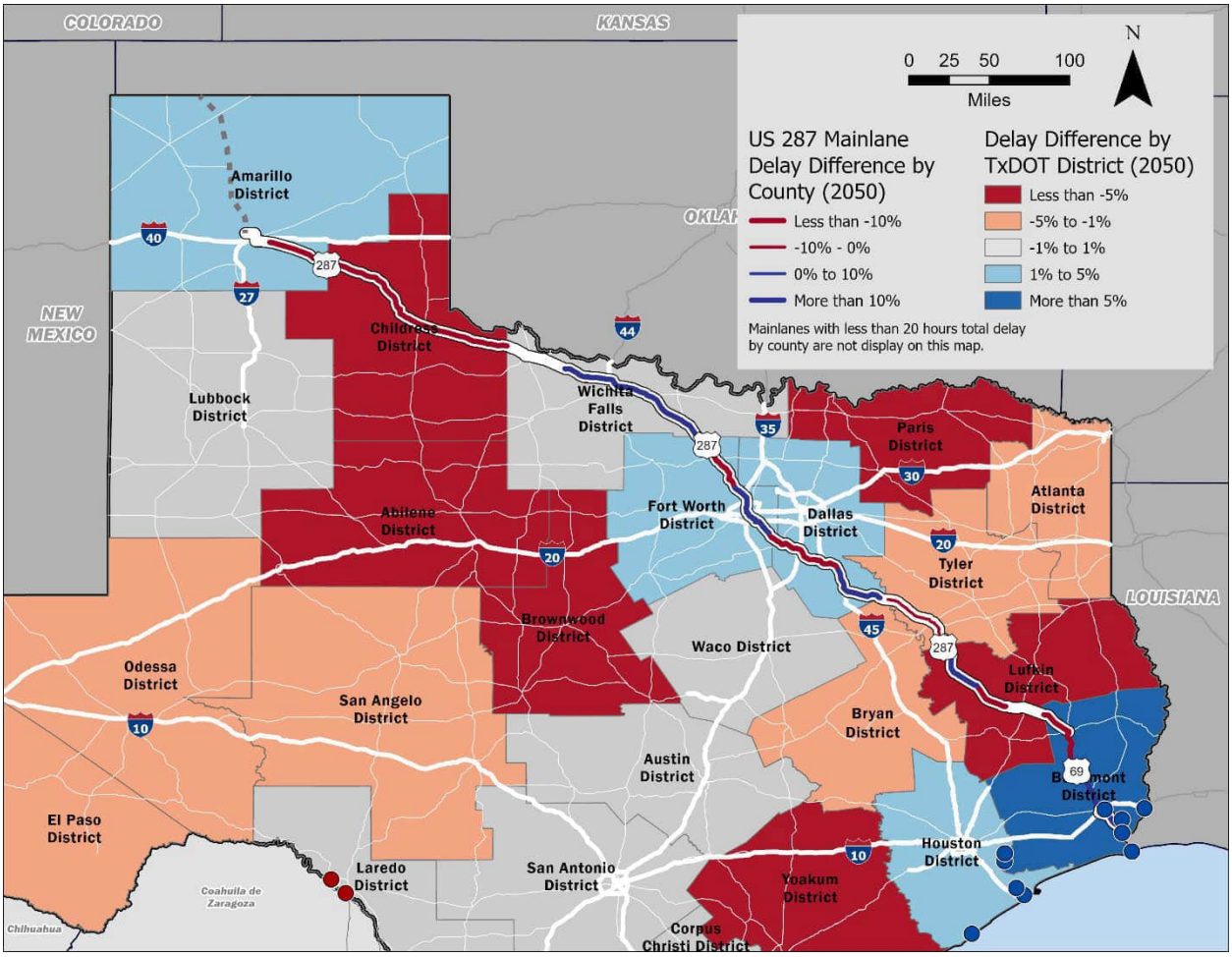


*Figure 18 Delay Difference Map – 2050*

## Summary

The TDM analysis utilized Texas SAM V4 to understand the impact of the US 287 corridor. A series of updates and modifications were done to make sure that the No-Build models were consistent with existing conditions and that Build models were coded with the correct interstate facilities. Comparisons between model assigned volumes (and TxDOT 2021 and future AADT) show that the models—although lacking a comprehensive corridor calibration—are still helpful tools for feasibility and planning analyses.

The No-Build and Build volume comparison shows that US 287 improvements will bring significant traffic pattern changes to the region; for example, I-40/US 287/I-10 would become a new cross-state alternative to I-20 and I-10. In East Texas, US 287 would divert traffic from I-45 and provide an alternative route for the east Texas community traveling north to I-45 in Corsicana and south to I-10 in Houston.

The Build model also indicates that the increased volume on US 287 would increase VMT and VHT along the US 287 corridor—while decreasing volumes along the I-20 corridor in West Texas. Initially, US 287 would bring extra capacity to the region and the regional total delay would be reduced. However, as demand increases—even though the US 287 main-lanes would experience decreases in

total delay—metro areas like Amarillo, DFW, Houston, and Beaumont would see the opposite: as extra volume from US 287 would put pressure on other roadway systems.