

PORTS-TO-PLAINS CORRIDOR INTERSTATE FEASIBILITY STUDY



● SEGMENT 2 COMMITTEE REPORT JUNE 30, 2020



**The Ports-to-Plains Corridor Interstate Feasibility Study
Segment #2 Committee Report contains the ideas and recommendations
of the Segment Committee members and does not contain proposals by
the Texas Department of Transportation (TxDOT).**

Letter from the Ports-to-Plains Corridor Interstate Feasibility Study Segment #2 Committee Chair



I would like to thank the Segment #2 Committee members and the citizens of Texas for participating in this very important interstate feasibility study for the Ports-to-Plains Corridor. Your commitment to this process was instrumental in developing the Segment #2 Committee's recommendations and priorities for the Ports-to-Plains Corridor Interstate Feasibility Study as prescribed in House Bill 1079.

This study is an important step in planning for the future upgrade of the Ports-to-Plains Corridor to an interstate facility and for the continued economic prosperity of South and West Texas, the state, and nation. The Ports-to-Plains Corridor is a significant international, national, state, regional, and local transportation corridor. It connects and integrates Texas' key economic sectors, international trade, energy production and agriculture, and supports our region's growing demographic and economic centers. As the only north-south corridor in South and West Texas, the Ports-to-Plains Corridor provides a critical link from our ports of entry to destinations in Texas and beyond. Upgrading the corridor to an interstate is critical to enhancing the security of our country's food, fuel, and fiber supply chains.

In Segment #2, the Ports-to-Plains Corridor provides access to the Permian Basin, which accounts for 20 percent of the nation's crude oil production and approximately nine percent of dry natural gas production. In 2019, the Permian Basin accounted for 72 percent of Texas' crude oil production and Forbes Magazine named it the "World's Top Oil Producer" replacing Saudi Arabia's Ghawar oilfield. In 2019, oil and gas producers contributed \$13.4 billion to the state in the form of taxes and royalties: Permian Basin accounted for \$9.0 billion, or 67 percent of that total. Wind power is also a critical piece of the energy economy in Texas. Segment #2 accounted for 60 percent of all Texas alternative energy. The Ports-to-Plains Corridor serves as an important route for the movement of materials equipment for oil and natural gas extraction, wind turbines, and the movement of specialized oversize/overweight cargo.

Using the data and analysis conducted during the study and the input from the public, the Segment #2 Committee recommends upgrading the Ports-to-Plains Corridor to an interstate facility. Upgrading the Corridor to an interstate will enhance safety and mobility for the traveling public; facilitate international trade and the movement of freight, energy and agricultural products to market. The Committee also lays out an implementation plan with prioritized short-term, mid-term, and long-term projects and policy recommendations for the Ports-to-Plains Corridor.

The Segment #2 Committee submits their Final Report to the Advisory Committee for consideration in developing its recommendations for the entire corridor to present to the Texas Department of Transportation (TxDOT).

On behalf of Vice-Chair, Lubbock County Judge Curtis Parrish and the Segment #2 Committee, I want to thank Ports-to-Plains Advisory Committee Chair, City of Lubbock Mayor Dan Pope for his leadership and guidance throughout this process, and the TxDOT staff and consultant team for providing the data and analyses that informed our recommendations.

Sincerely,

A handwritten signature in blue ink that reads "Brenda Gunter".

Brenda Gunter
City of San Angelo Mayor
Chair, Segment #2 Committee

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Abbreviations and Acronyms

AADT	Annual Average Daily Traffic
ACS	American Community Survey
CDA	Comprehensive Development Agreement
CETRZ	County Energy Transportation Reinvestment Zone
CRIS	TxDOT's Crash Records Information Systems
EPA	Environmental Protection Agency
ESRI	Environmental Systems Research Institute
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
GDP	Gross Domestic Product
HB	House Bill
HSIP	Highway Safety Improvement Program
I	Interstate
INFRA	Infrastructure for Rebuilding America
LOS	Level of Service
MPH	Miles Per Hour
MPO	Metropolitan Planning Organization
MVMT	Million Vehicle Miles Traveled
NPMRDS	National Performance Management Research Data Set
NSFHP	Nationally Significant Freight and Highways Projects
NWI	National Wetlands Inventory
P3	Public-Private Partnerships
PMIS	TxDOT's Pavement Management System
PUF	Permanent University Fund
RID	TxDOT's Roadway Inventory Database
SAM	TxDOT's Statewide Analysis Model
SB	Senate Bill
SH	State Highway
SHF	State Highway Fund
SIB	State Infrastructure Bank
STARS II	Statewide Traffic Analysis and Reporting System
TCEQ	Texas Commission on Environmental Quality
TDC	Texas Demographic Center
THC	Texas Historical Commission

TNRIS	Texas Natural Resources Information System
TPWD	Texas Parks and Wildlife Department
TREDIS	Transportation Economic Development Impacts System
TTC	Texas Transportation Commission
TxDOT	Texas Department of Transportation
UP	Union Pacific
US	United States
USC	United States Code
USCB	United States Census Bureau
USDOT	United States Department of Transportation
USEIA	United States Energy Information Administration
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
USMCA	United States-Mexico-Canada Agreement
UTP	Unified Transportation Program
VPD	Vehicles Per Day



CHAPTER 1

Introduction

1.0 Introduction

The Ports-to-Plains Corridor traverses approximately 963 miles of primarily rural area in South and West Texas. The Ports-to-Plains Corridor was designated by Congress as a High Priority Corridor on the National Highway System in 1998. In Texas, the Ports-to-Plains Corridor spans 26 counties and is comprised of sections of Interstate 20 (I-20), Interstate 27 (I-27), Interstate 35 (I-35), US 83, US 87, US 277, US 287, State Highway (SH) 158, and SH 349. The three interstate highways are also part of the National Highway Freight Network. **Figure 1.1** shows the entire Ports-to-Plains Corridor in Texas.

While Texas is served by several east-west interstate highways, there are few north-south interstate connections, and none connecting the southern and western part of the state. The Ports-to-Plains Corridor is an international, national and state significant transportation corridor that connects and integrates Texas' key economic engines, international trade, energy production and agriculture. The corridor also plays a vital role in supporting the growing demographic and economic centers of South and West Texas.

The corridor functions as the only north-south corridor facilitating the movement of people and goods in South and West Texas and beyond. As population, employment, international trade, energy production, and agriculture in the Ports-to-Plains Corridor continue to grow, it will become increasingly important to support the efficient and safe movement of people and goods.

The corridor plays a critical role in the nation's food security, energy security, and national security:

Food security – It supports the largest agricultural production in the country.

Energy security – it supports the Permian Basin and Eagle Ford Shale. The Permian Basin accounts for approximately 32 percent of the nation's crude



There are no north-south interstate connections in the southern and western part of Texas.

oil production and 13 percent of the nation's natural gas production. Forbes Magazine named the Permian Basin the "World's Top Oil Producer" replacing Saudi Arabia's Ghawar oilfield. In 2019, oil and gas producers contributed \$13.4 billion to the state in the form of taxes and royalties, the Permian Basin accounted for \$9 billion, or 67 percent of that total. The Eagle Ford Shale produced 5,528 million cubic feet of natural gas and 990,372 barrels of oil per day in 2019.

National security – It supports several national and strategic military installations and border enforcement facilities.



Energy Production

The central section of the Ports-to-Plains Corridor provides access to the Permian Basin. Midland, Martin, and Howard Counties have the largest oil production of the entire corridor. Petroleum products account for the highest tonnage of energy freight in the central part of the corridor. According to the Permian Basin Energy Epicenter, the Permian Basin was responsible for 72 percent of Texas crude oil production, and 32 percent of U.S. crude oil production. The Permian Basin is also responsible for 35 percent of Texas natural gas production and 13 percent of U.S. natural gas production.¹ Importing materials and equipment for extraction relies on roadways in the Ports-to-Plains Corridor.

The United States Energy Information Administration (USEIA) estimates that remaining proven reserves in the Permian Basin exceed 20 billion barrels of oil and 16 trillion cubic feet of natural gas, making it one of the largest hydrocarbon-producing basins in the United States and the world.² According to the Texas Railroad Commission, the Eagle Ford Shale produced 5,528 million cubic feet of natural gas and 990,372 barrels of oil per day in 2019.³ Forbes Magazine named the Permian Basin the “World’s Top Oil Producer” replacing Saudi Arabia’s Ghawar oilfield. In 2019, oil and gas producers contributed \$13.4 billion to the state in the form of taxes and royalties, the Permian Basin accounted for \$9 billion, or 67 percent of that total. The Eagle Ford Shale extends over 26 counties, five of these are within the Ports-to-Plains study area counties. It stretches from the Mexican border between Laredo and Eagle Pass up through counties east of Temple and Waco.

Wind is also a critical piece of the energy economy

in South and West Texas. Texas leads the country in wind power additions representing record amount of 3,938 megawatts in 2019 alone. Texas represents more than 25 percent of U.S. 105 gigawatts per the newly released Wind Powers America Annual Report 2019.⁴ Much of the U.S. wind energy production comes from the counties along the Ports-to-Plains Corridor. The central section of the corridor was responsible for 60 percent of all Texas alternative energy,⁵ Wind turbine equipment is large and requires specialized overweight/oversize transportation.

The Ports-to-Plains Corridor serves as an important route for the movement of this equipment, including to other states such as Oklahoma and Colorado where wind energy is also growing. The corridor is also home to a growing number of wind component manufacturing facilities producing nacelles, towers and blades.

Agriculture

Agriculture in the Ports-to-Plains Corridor is another key economic industry. The production and export of quality agricultural products (crops, livestock, dairy, etc.) generates billions of dollars and relies directly on highway networks for transport of products to market. West Texas is a top producer of cotton, hay, and cattle, and exports most of these products to other states and countries. Inbound products such as feed, fertilizer, and fuel also rely on the Ports-to-Plains Corridor. In fact, three of the top agricultural commodities in Texas are cattle (\$12.3 billion/year), cotton (\$2.6 billion/year) and milk (\$2.1 billion/year) are produced in the Ports-to-Plains Corridor.⁶

The total agricultural product sales for the Ports-to-Plains Corridor is approximately \$11 billion, and the northern section alone contributes \$9 billion to

¹ <http://motran.org/wp-content/uploads/2019/11/19-MAI-12463-Energy-Epicenter-Fact-Brochure.pdf>

² US Energy Information Administration (2017)

³ Texas Railroad Commission (<https://www.rrc.state.tx.us/oil-gas/major-oil-and-gas-formations/eagle-ford-shale-information/>)

⁴ American Wind Energy Association 2019 U.S. Wind Industry Market Reports

⁵ 19-MAI-12463 Energy Epicenter Fact Brochure

⁶ Texas Department of Agriculture, Texas Agriculture Statistics, Top 10 Commodities, 2017



this total.⁷ Transporting these products requires a highway system that can provide an efficient, safe, and healthy way to transport livestock and crops. Delays in the transport of livestock may create health and safety issues for the animals. The Texas High Plains is often referred to as the cattle feeding capital of the world.

International Trade

The corridor connects to the state's and the nation's strategic trade gateways of Laredo, Eagle Pass, and Del Rio to destinations north, west and east. Therefore, the corridor is critical to the continued economic prosperity of South and West Texas and the viability of these international trade gateways, especially with the recent passage of the United States-Mexico-Canada Agreement (USMCA). The Port of Laredo is the largest port on the U.S.-Mexico border and one of the largest in the entire country.

In 2019, these three gateways handled over \$262 billion or 62 percent of Texas-Mexico cross border trade, and handled over 2.6M northbound truck crossings.⁸ In the Port of Laredo alone, this related to 474,000 net jobs in Texas and approximately \$72 billion in gross domestic product.⁹ Trucks carrying this freight rely on the Ports-to-Plains Corridor for direct access from the border to the north, northwest, and northeast. Currently, I-35 is the only interstate connection to and from Laredo, which does not efficiently serve trips headed northwest.

National Defense and Security

The Ports-to-Plains Corridor plays a key role in the nation's defense and security. There are several military installations and border enforcement facilities located along the corridor. Existing I-27 in Segment #1, portions of Segment #2 and Segment #3 are on the Strategic Highway Network.

Improvements to the corridor could result in additions to the Strategic Highway Network and improve mobility on all that is currently designated.

Population

The Ports-to-Plains Corridor traverses rapidly growing population centers. The entire corridor population grew from 980,870 in 1990 to 1,395,130 in 2017 with significant growth in Hartley, Midland, and Webb Counties.¹⁰ The 56 counties in the Ports-to-Plains Corridor comprise 6.6 percent of the total Texas population.

Employment

The Ports-to-Plains Corridor has experienced a significant increase in employment. From 1990 to 2017, there was a 78 percent increase in total employment along the entire corridor. The median household income is \$50,786 which is above the 2017 Department of Health and Human Services poverty guideline of \$24,600 for a family of four¹¹.

Summary: With a span approaching 1,000 miles yet less than seven percent of the Texas population, the Ports-to-Plains Corridor is extraordinarily productive. The nation's largest port of entry by land, its largest agricultural production, and the primary source of its energy independence are all located in this single, substantially rural part of Texas.

- These critical industrial assets – trade, agriculture, energy – depend on a robust transportation system, but the vital link in America's system is an interstate highway which is limited in this corridor.
- Between I-35 in central Texas and I-25 in New Mexico is over 600 miles of territory – as far as a truck can drive in a full day's work – without a north-south interstate highway.
- This part of Texas is underserved given the

⁷ United States Department of Agriculture, Census of Agriculture 2017

⁸ US CBP Truck Volumes by Bridge, 2009-2018 and BTS Transborder Freight Data 2006-2019

⁹ Texas Comptroller <https://comptroller.texas.gov/economy/economic-data/ports/laredo.php#en1>, accessed 2020-01-06

¹⁰ United States Census Bureau 1990 and American Community Survey 2017

¹¹ American Community Survey 2017



national economic asset this corridor clearly is, and the financial benefits it generates for Texas.

1.1 House Bill 1079

On June 10, 2019, Governor Greg Abbott signed into law House Bill (HB) 1079, charging the Texas Department of Transportation (TxDOT) with conducting a feasibility study of the Ports-to-Plains Corridor, as defined by Section 225.069, Texas Transportation Code, from Laredo to the Oklahoma and New Mexico state lines in West Texas. A copy of House Bill 1079 is included in **Appendix A**.

With the guidance of the Ports-to-Plains Corridor Advisory Committee, three segment committees, and the public, TxDOT will evaluate the feasibility of, and costs and logistical matters associated with improvements that create a continuous flow, four-lane divided highway that meets interstate standards to the extent possible, including improvements that extend I-27 from its northern terminus at Amarillo north to the Oklahoma and New Mexico state lines, and the extension of I-27 south from its current southern terminus at Lubbock to Laredo.

HB 1079 requires:

- The Segment Committees to develop and submit reports to the Ports-to-Plains Advisory Committee providing input for the study conducted by TxDOT, including priority recommendations for improvement and expansion of the Ports-to-Plains Corridor, no later than June 30, 2020.
- The Ports-to-Plains Advisory Committee will make recommendations to TxDOT based on the Segment Committee reports not later than October 31, 2020.
- TxDOT submit a report on the results of the study to the governor, the lieutenant governor, the speaker of the House of Representatives, and the presiding officer of each standing committee of the legislature with jurisdiction over transportation matters not later than January 1, 2021.

- The Ports-to-Plains Advisory Committee will be comprised of the county judge, or an elected county official or the administrator of the county's road department, as designated by the county judge, of each county along the Ports-to-Plains Corridor, including the counties along the possible extensions of I-27 and the mayor, or the city manager or assistant city manager, as designated by the mayor, of Amarillo, Big Spring, Carrizo Springs, Dalhart, Del Rio, Dumas, Eagle Pass, Eldorado, Lamesa, Laredo, Lubbock, Midland, Odessa, San Angelo, Sonora, Sterling City, Stratford, and Tahoka. The Ports-to-Plains Advisory Committee is required to meet at least twice each year on a rotational basis in Lubbock and San Angelo.
- Public meetings be held quarterly on a rotational basis in Amarillo, Laredo, Lubbock, and San Angelo during the study. Public meetings were held in additional locations each quarter beyond the locations required in HB 1079 to gather public feedback on improvements or expansions to the Ports-to-Plains Corridor.

Figure 1.2 shows the Ports-to-Plains Corridor Interstate Feasibility Study milestones as outlined in HB 1079.

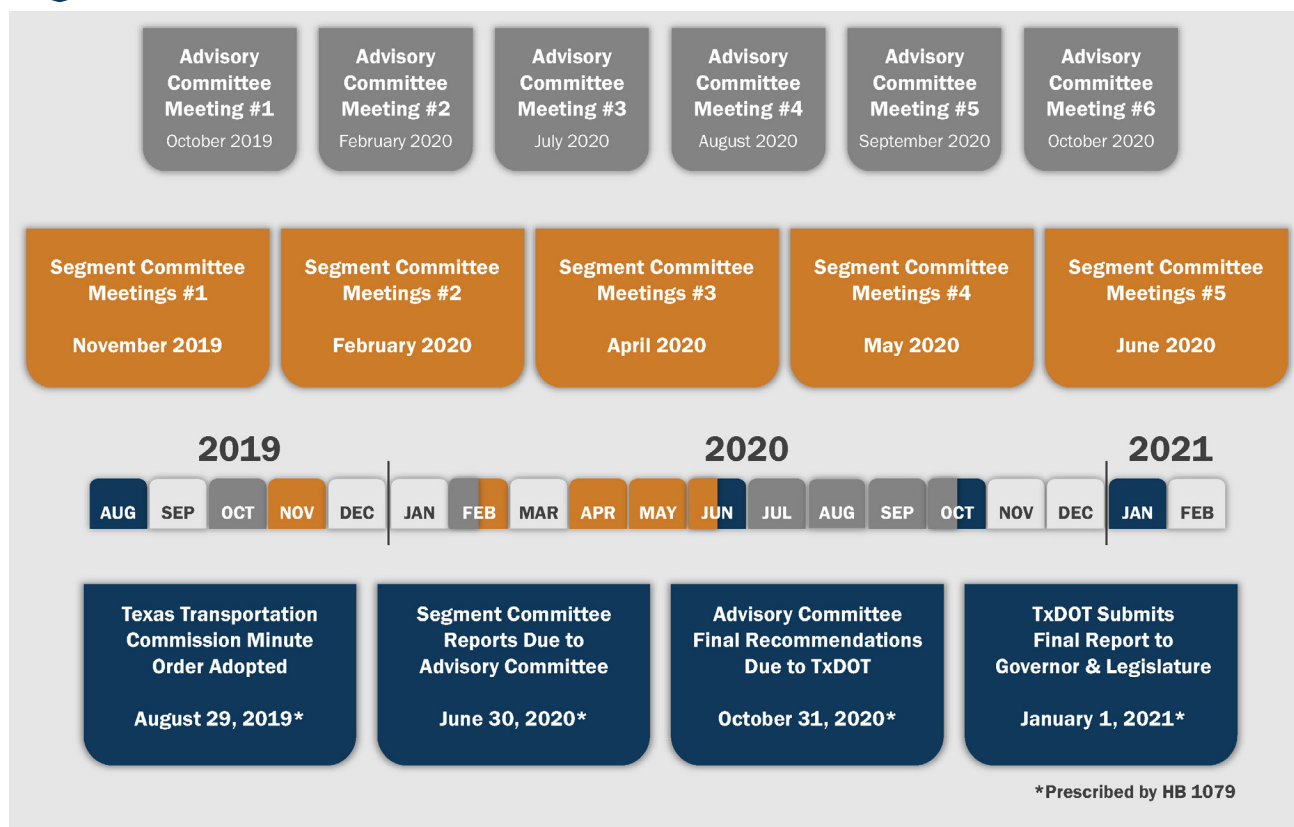


Figure 1.2: Ports-to-Plains Corridor Interstate Feasibility Study (HB 1079) Milestones

Per HB 1079, TxDOT, in conjunction with the Ports-to-Plains Advisory Committee, established three geographical segments for the Ports-to-Plains Corridor (Segment #1, Segment #2, and Segment #3). **Figure 1.3** contains a map showing the segments.

- Segment #1 starts at the New Mexico and Oklahoma borders and extends to the Hale/Lubbock County line.
- Segment #2 starts at the Hale/Lubbock County line and extends to the Sutton/Edwards County line.
- Segment #3 starts at the Sutton/Edwards County line and extends to I-35/Juarez-Lincoln Bridge in Laredo.

Segment #2 is comprised of 441 miles of the 963 miles of the Ports-to-Plains Corridor. Crossing 12 counties and four TxDOT Districts, Segment #2 contains portions of US 277, US 87, I-20, I-27, SH- 58, and SH 349. Major cities and towns located along Segment #2 include Abernathy, Big Spring, Eldorado, Lamesa, Lubbock, Midland, New Deal, Odessa, San Angelo, Sonora, Sterling City, and Tahoka. A map of Segment #2 is shown in **Figure 1.4**.

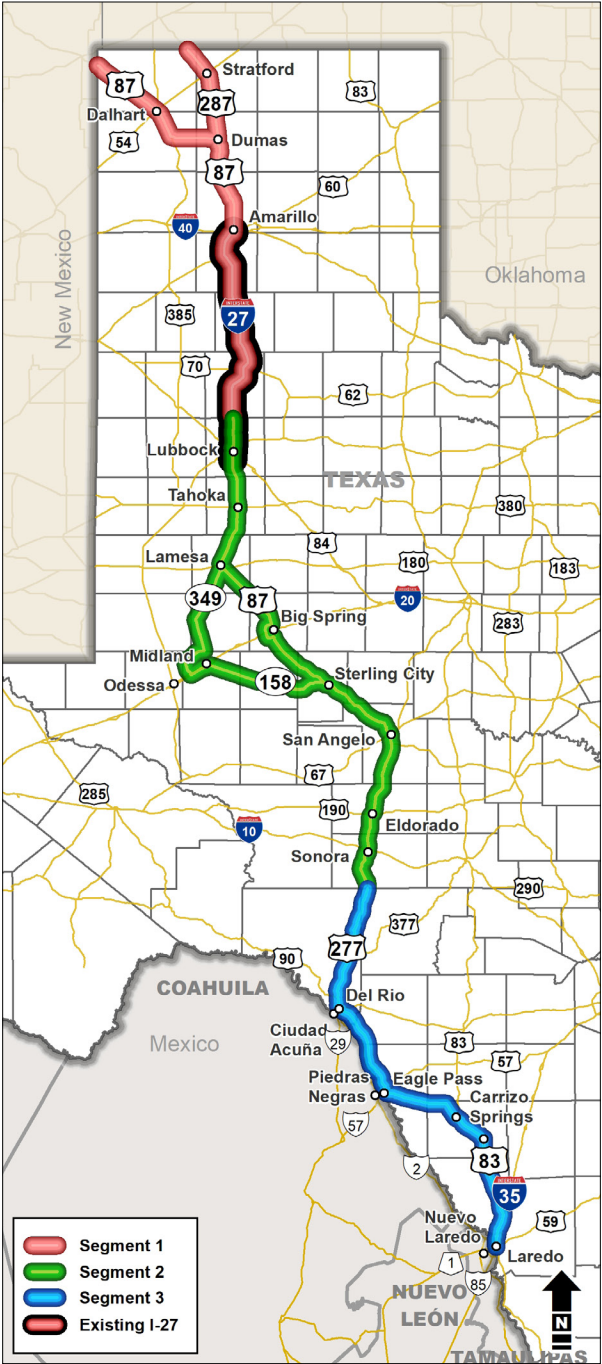


Figure 1.3: Segments Map

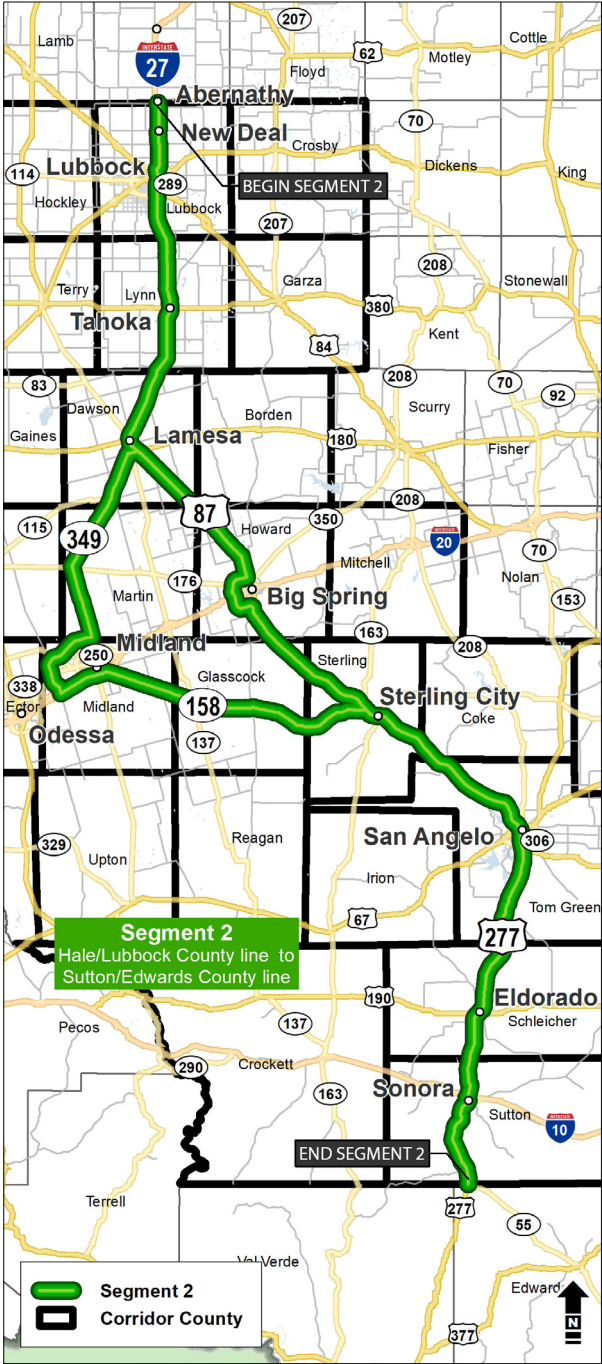


Figure 1.4: Segment #2 Map

1.2 Segment Committee Membership

HB 1079 describes the composition of the Segment Committees, consisting of volunteers who may represent municipalities, counties, metropolitan planning organizations, ports, chambers of commerce, and economic development organizations along the segment. The

membership of the Segment #2 Committee was established during the first meeting of the Ports-to-Plains Advisory Committee, held on October 1, 2019 in Lubbock, TX.

The list of Segment #2 Committee members is shown in **Table 1.1** below.

Table 1.1: Segment #2 Committee Members

Name	Affiliation
Brenda Gunter, Mayor, Committee Chair*	City of San Angelo
Curtis Parrish, Judge, Committee Vice-Chair*	Lubbock County
Guy Andrews	Economic Development Director, City of San Angelo
George Arispe, Mayor	City of Eldorado
John Baker, Mayor	City of Tahoka
James Beauchamp	President, MOTRAN Alliance, Inc.
Brad Bouma	President, Select Milk
Mike Braddock, Judge	Lynn County
Charlie Bradley, Judge	Schleicher County
Bobby Burns	President and CEO, Midland Chamber of Commerce
Kasey Coker	Executive Director, The High Ground of Texas
Bryan Cox, Judge	Martin County
John Esparza	President and CEO, Texas Trucking Association
Steve Floyd, Judge Designee: Rick Bacon	Tom Green County Designee: County Commissioner

Name	Affiliation
Donna Garrett	Executive Director, Sonora Chamber of Commerce
Kim Halfmann, Judge	Glasscock County
Debi Hays, Judge	Ector County
Major Hofheins	Director, San Angelo Metropolitan Planning Organization
Deborah Horwood, Judge	Sterling County
Lane Horwood, Mayor	City of Sterling City
Terry Johnson, Judge Designee: Luis Sanchez	Midland County Designee: County Commissioner
H. David Jones	Director, Lubbock Metropolitan Planning Organization
Emma Kraybill	President, Scenic Mountain Medical Center
Michael Looney	Vice President of Economic Development, San Angelo Chamber of Commerce
Eddie McBride Designee: Norma Ritz Johnson	President and CEO, Lubbock Chamber of Commerce Designee: Executive Vice President
Gloria McDonald Designee: Terry Wegman	Council member, District 4, Big Spring Designee: Executive Director
Karen Mize	President, Lamesa Area Chamber of Commerce
Patrick Payton, Mayor	City of Midland
Foy O'Brien, Judge Designee: Nicky Goode	Dawson County Designee: County Commissioner
John Osborne	Chairman, Ports-to-Plains Alliance, President/CEO of the Lubbock Economic Development Alliance
Patrick Payton, Mayor	City of Midland
Tim Pierce	Executive Director, South Plains Association of Governments
Dan Pope, Mayor	City of Lubbock

Name	Affiliation
Stephen Robertson Designee: Julie Green	Executive Vice President, Permian Basin Petroleum Association Designee: Community Relations Coordinator
Wanda Shurley, Mayor Designee: Arturo Fuentes	City of Sonora Designee: City Manager
Stephen H. Smith, Judge	Sutton County
Hal Spain, Judge	Coke County
Josh Stevens, Mayor	City of Lamesa
John Austin Stokes	Executive Director, Concho Valley Council of Governments
Shannon Thomason, Mayor Designee: John Medina	City of Big Spring Designee: Assistant City Manager
Fred Thompson	Director, Sterling City Economic Development Corporation
David Turner, Mayor Designee: Phillip Urrutia	City of Odessa Designee: Assistant City Manager
Debbie ValVerde	Executive Director, Big Spring Area Chamber of Commerce
Steve Verett Designee: Shawn Wade	Executive Vice President, Plains Cotton Growers, Inc. Designee: Director, Policy, Analysis, and Research
Cameron Walker	Director, Permian Basin Metropolitan Planning Organization
Kathryn Wiseman, Judge	Howard County

*During the Segment #2 Committee Meeting on November 18, 2019 in Big Spring, Mayor Brenda Gunter and Judge Curtis Parrish were elected by the Segment Committee members to serve as Chair and Vice-Chair of the Segment #2 Committee.

1.2.1 Study Purpose and Background

The purpose of the Ports-to-Plains Corridor Interstate Feasibility Study is to evaluate the feasibility of, and costs and logistical matters associated with improvements that create a continuous flow, four-lane divided highway that meets interstate standards to the extent possible, including improvements that extend I-27. The study evaluated those highways that comprise the Ports-to-Plains Corridor. The Ports-to-Plains Corridor Interstate Feasibility Study considered two scenarios. The baseline includes only those projects that are currently planned and programmed throughout the corridor. The interstate upgrade assumes an interstate facility for the entire corridor.

1.2.2 Goals of the Study

The goals of the Ports-to-Plains Corridor Interstate Feasibility Study include the following:

- An examination of freight movement along the Ports-to-Plains Corridor.
- An examination of the ability of the energy industry to transport products to market.
- An evaluation of the economic development impacts of the Ports-to-Plains Corridor, including whether the improvement or expansion of the Ports-to-Plains Corridor would create employment opportunities in Texas.
- A determination of whether improvements or expansion of the Ports-to-Plains Corridor would relieve traffic congestion in the segment.
- A determination and prioritization of improvements and expansion of the Ports-to-Plains Corridor that are warranted in order to promote safety and mobility, while maximizing the use of existing highways to the greatest extent possible and striving to protect private property as much as possible.
- A determination of the areas that are preferable and suitable for interstate designation.
- An examination of projects costs related to the improvement or expansion of the Ports-to-Plains Corridor.
- An assessment of federal, state, local, and private funding sources for a project improving or expanding the Ports-to-Plains Corridor.

1.3 Study Development Process

This Segment #2 Committee Report for the Ports-to-Plains Corridor Interstate Feasibility Study was developed in accordance with HB 1079.

Figure 1.5 shows the Ports-to-Plains Corridor Interstate Feasibility Study process.

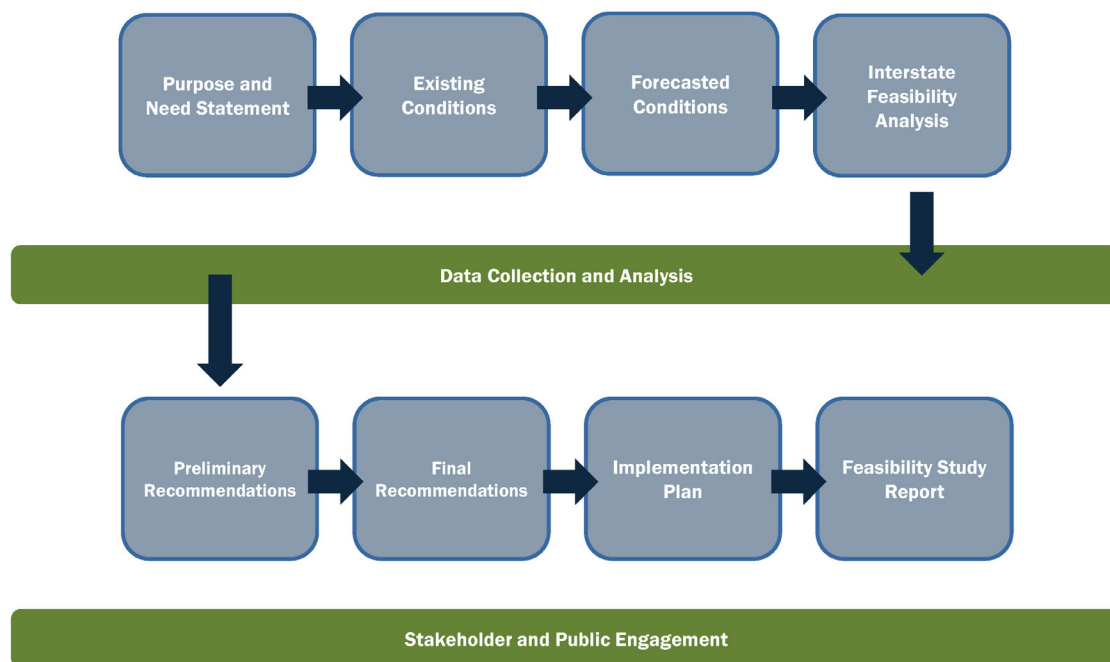


Figure 1.5: Ports-to-Plains Corridor Interstate Feasibility Study Segment Committee Process

1.4 Organization of the Report

This Segment #2 Committee Report addresses the requirements of HB 1079. It documents the study process, goals, stakeholder and public involvement, data collection, analysis, and findings. This report also provides the Segment #2 Committee recommendations to the Ports-to-Plains Advisory Committee Report chapters include:

Chapter 1: Introduction

Chapter 2: Existing Conditions and Needs Assessment

- Land use characteristics
- Environmental conditions
- Population characteristics
- Economic characteristics
- Roadways and bridges
- Traffic conditions
- Truck traffic and freight flow
- Safety conditions

Chapter 3: Forecasted Conditions

- Projected population
- Projected economic development
- Projected land use
- Future programmed roadway and bridge projects

- Future traffic conditions
- Future truck traffic and freight flow

Chapter 4: Corridor Interstate Feasibility Analysis and Findings

- Describe the scenarios considered
- Describe the feasibility analysis process and criteria used to evaluate the scenarios
- Present the feasibility analysis findings

Chapter 5: Public Involvement and Stakeholder Engagement

Chapter 6: Recommendations and Implementation Plan

Appendices:

- **A** – House Bill 1079
- **B** – Key Study Maps
- **C** – Federal Highway Administration Guidance Criteria for Evaluating Requests for Interstate Designation
- **D** – Texas Department of Transportation Unified Transportation Program Funding Categories
- **E** – Segment #2 Committee Recommendations
- **F** – A Resolution Supporting the Designation of an Extension of Interstate 27 as a Future Interstate in Texas



CHAPTER 2

Existing Conditions and Needs Assessment

2.0 Existing Conditions and Needs Assessment

The Ports-to-Plains Corridor is 963 miles long, from the I-35/Juarez-Lincoln Bridge in Laredo to the Oklahoma and New Mexico state lines in the Panhandle. It includes the existing 124-mile long portion of I-27 between Lubbock and Amarillo but consists primarily of two or four-lane state and U.S. highways. The corridor passes through twenty-six (26) counties and six (6) TxDOT Districts. Beginning at the Edwards/Sutton County Line, Segment #2 begins in the hill country of the Edwards Plateau region, and transitions to flatter terrain into the High Plains north of San Angelo. It is the longest of the three segments, covering approximately 441 miles. It includes the southernmost 21 miles of existing I-27, through Lubbock to Hale County. Segment #2 passes through twelve (12) counties and four TxDOT Districts. Major cities in Segment #2 include Sonora, Eldorado, San Angelo, Sterling City, Big Spring, Midland, Odessa, Lamesa, Tahoka, and Lubbock.

Existing highways in the corridor consist primarily of two-lane facilities south of San Angelo, and four-lane facilities to the north, as shown on **Figure 2.1**¹². Segment #2 has a notable length of two and four lane undivided highways. Of 441 miles of the corridor in Segment #2, 172 miles (39 percent) are four-lane divided, and 43 miles (10 percent) are controlled access. **Figure 2.2** shows roadway types in Segment #2. The majority (377 miles, or 86 percent) of the roadways in Segment #2 have no access control. Only the 37 miles of I-27 and I-20 are fully access controlled. Another 26 miles (6 percent) of US 87 have partial control of access between Lubbock and Tahoka, and in two short segments northwest of San Angelo.



Figure 2.1: Corridor Existing Roadway Types

Source: TxDOT Roadway Inventory Database, 2017

¹² Existing conditions data reflect US 87 route designation through central Big Spring and not the under construction relief route, which will be designated as US 87 and considered part of the corridor when complete in 2020. This applies to all maps shown in Chapter 2 showing corridor data.

This map illustrates the proposed Energy Sector Corridor (solid black line) and other transportation infrastructure in the Big Spring, Texas area. The corridor runs from the northwest, through Big Spring, and towards the southeast. Key locations shown include Big Spring, Midland, Odessa, San Angelo, and Sonora. Major highways such as I-27, I-10, and various state routes (e.g., 87, 158, 277) are depicted. A legend in the bottom left corner defines the symbols used: Energy Sector Corridor (solid black line), Texas Highway Trunk System (solid brown line), Texas Highway Freight Network (dashed pink line), Strategic Highway Network (thick orange line), Study Corridor (thin orange line), and Existing I-27 (thick black line with a white center). A north arrow is located in the bottom right corner.

Other transportation facilities in Segment #2 include railroads, airports, and intermodal facilities. Commercial airports are in the larger population centers of Lubbock, Midland, and San Angelo. Other airports consist of smaller, general aviation and private airfields in rural areas of the segment.

The primary rail connections currently run east to west. Class I railroads include the Union Pacific (UP) railroad lines that runs through Odessa and Midland. Texas Pacific operates over the South Orient Rail line running from the Mexican border town of Presidio to San Angelo junction. The Segment #2 Committee evaluated existing environmental, demographic, economic, pavement, bridge, traffic, freight flows, and safety conditions to assess the needs in Segment #2. Details of these studies are discussed in the following sections.

2.1 Environmental Characteristics

The Segment #2 Committee looked at a 1,000-foot wide area centered on the existing corridor to examine environmental data from existing published sources. The data is shown on **Figures 2.4 and 2.5**. Segment #2 crosses 14 major creeks, one irrigation canal, and three major rivers.

Segment #2 also has the largest number of wetlands, both by number and acreage, of all the segments. Several large floodplains are crossed by the Segment #2 corridor. This region also contains grasslands, savannas, and riparian or floodplain forests that exhibit greater species diversity than other parts of the corridor. Segment #2 supports suitable habitat for state-listed threatened or endangered species such as black-capped vireo (*Vireo atricapilla*), zone-tailed hawk (*Buteo albonotatus*), Texas horned lizard, and the Texas fatmucket (*Lampsilis bracteata*) mussel.

There are five sites listed in the National Register of Historic Places in San Angelo and Big Spring, as well as two historic districts in Midland and Garden City and two historic county courthouses in Schleicher and Sterling Counties. The segment also crosses the Bankhead Historic Highway in Big Spring. There are several cemeteries in Segment #2. There are no known Superfund or Brownfield sites in Segment #2, which are sites with known sources of hazardous contamination.

2.2 Population Characteristics

The Segment #2 Committee reviewed demographic data from the United States Census Bureau (USCB) and the American Community Survey (ACS). Since 1990, Segment #2 has grown by 29 percent from 740,999 to 954,316 in 2017. Segment #2 is by far the most populous segment in the corridor, containing approximately half of the total corridor population. Population growth in Segment #2 has been strong but volatile. Since 2010, the growth of the Segment #2 counties has outpaced the corridor as a whole and is on par with statewide growth.

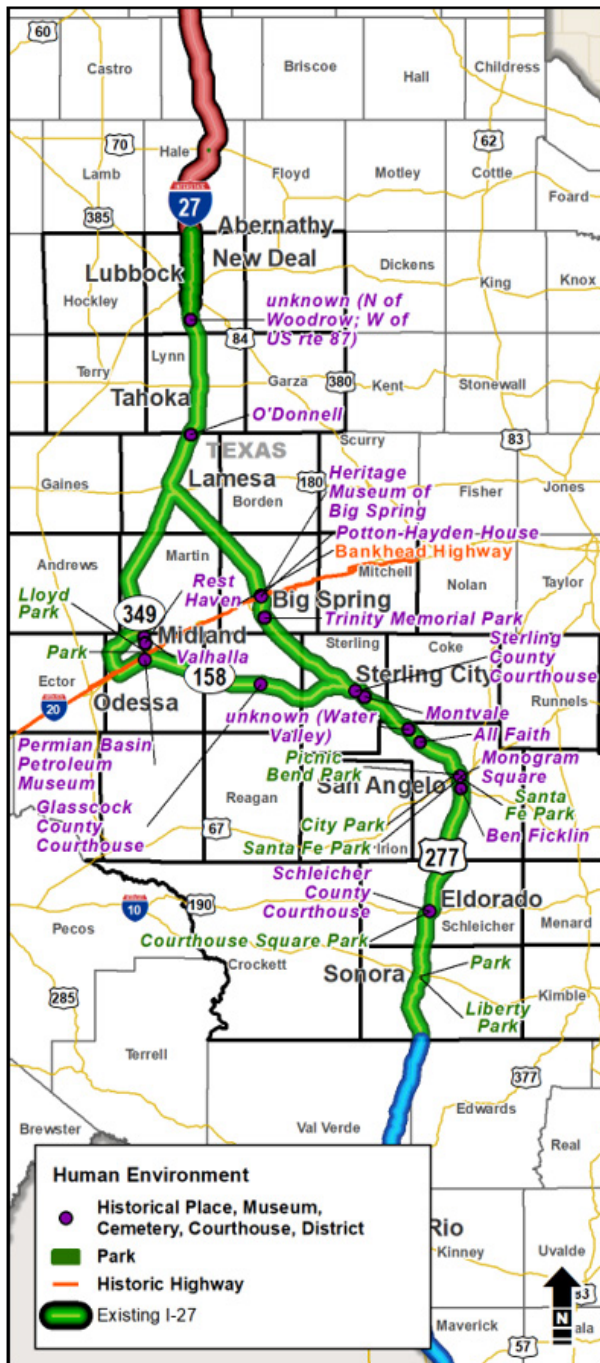


Figure 2.4: Segment #2 Environmental Constraints – Parks and Historic Sites

Sources: TPWD- TNRIS, 2019, TCEQ, EPA, 2019

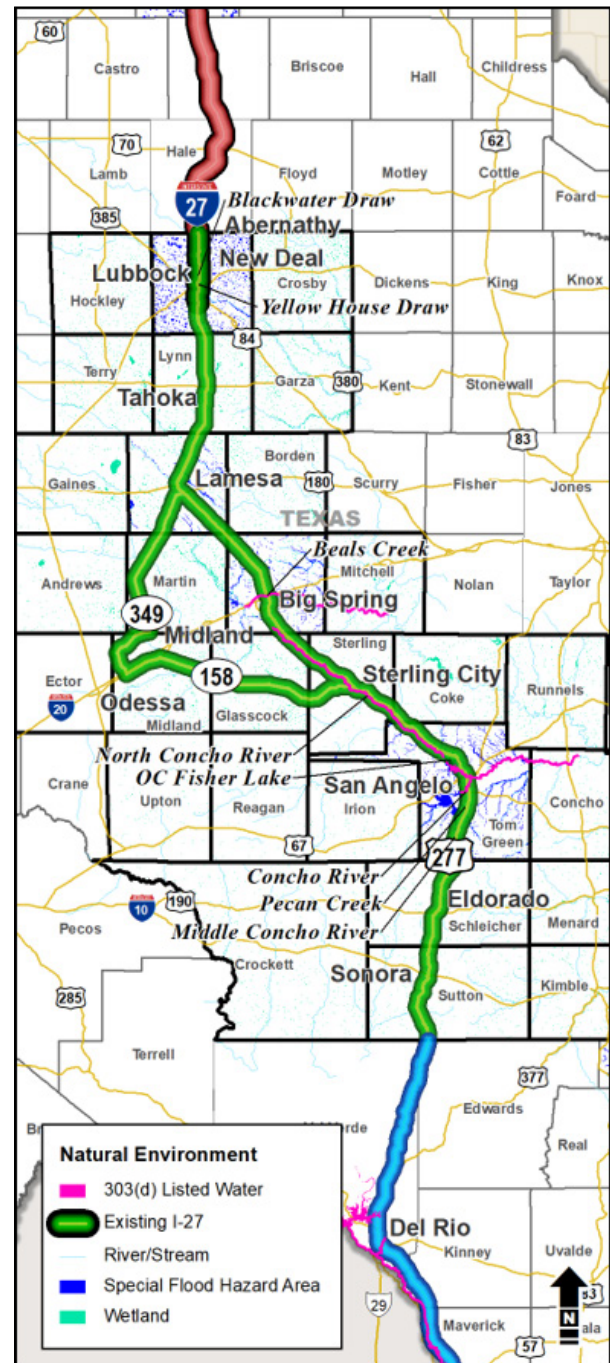


Figure 2.5: Segment #2 Environmental Constraints – Wetlands, Floodplains, 303(d) Listed Waters

Sources: FEMA Map Service Center, 2019, USFWS 2018, USGS Hydrography Dataset, 2019, USFWS National Wetlands Inventory, 2019, TCEQ 303(d) list 2016

The growth rate in Segment #2 of 29 percent from 1990 to 2017 is similar to the growth rate for the entire corridor of 33 percent. The strong energy sector in Segment #2 has contributed in large part to the growth in this region. Seven Permian Basin counties (Andrews, Ector, Gaines, Howard, Martin, Midland, and Reagan) have the highest population growth rates in the entire Ports-to-Plains Corridor in the last decade. Other counties, however, have

experienced similar scale declines. Eleven (11) counties lost population in the last decade, and fifteen (15) counties have seen populations decline between 2009 to 2017. **Figure 2.6** and **Table 2.1** show these trends.

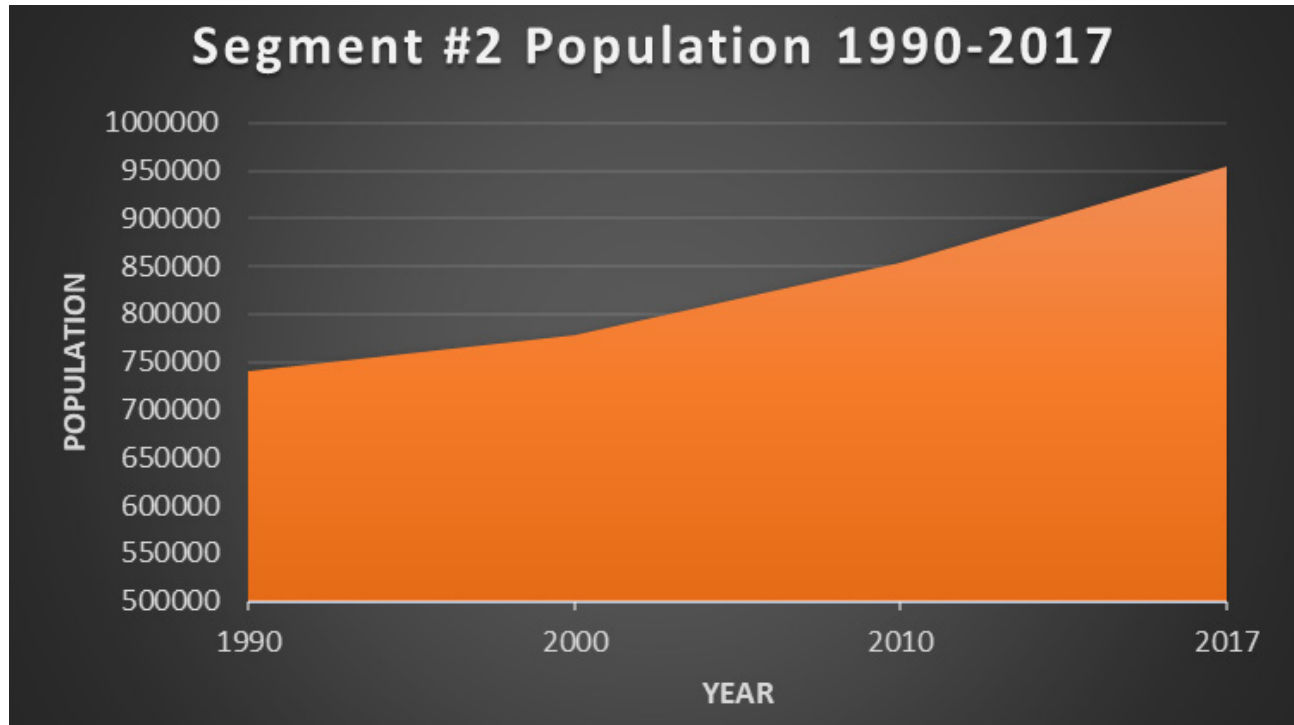


Figure 2.6: Segment #2 Population Growth, 1990 to 2017

Source: USCB, 1990, 2000, 2010, ACS, 2017

Table 2.1: Historic Population in the Corridor and Segment #2

	1990	2000	2010	2017
Segment #2 Population	740,999	777,561	853,512	954,316
Segment #2 Percentage of Corridor Population	54%	51%	51%	53%
Corridor Population	1,362,255	1,511,107	1,677,971	1,811,411

Source: USCB 1990, 2000, 2010, ACS 2017, Texas Demographic Center

2.3 Economic Conditions

The Segment #2 Committee reviewed data on median household incomes, top industries, oil and gas, and agricultural production in Segment #2.

2.3.1 Median Household Income

The median household income is \$53,921 which is above the 2017 Department of Health and Human Services poverty guideline of \$24,600 for a family of four. **Figure 2.7** shows the growth in median household income in Segment #2 since 1990.

Income growth rates in Segment #2 were higher than Segment #1 but lower than Segment #3 between 1990 and 2017. Segment #2 outpaced the growth of income in the corridor. As shown in **Table 2.2**, Segment #2 has the highest median household income among the three segments of the corridor and incomes have grown substantially between 1990 and 2017. The median incomes in Segment #2 range from \$37,917 in Menard County to \$77,708 in Borden County. No counties had average incomes below the federal poverty line.

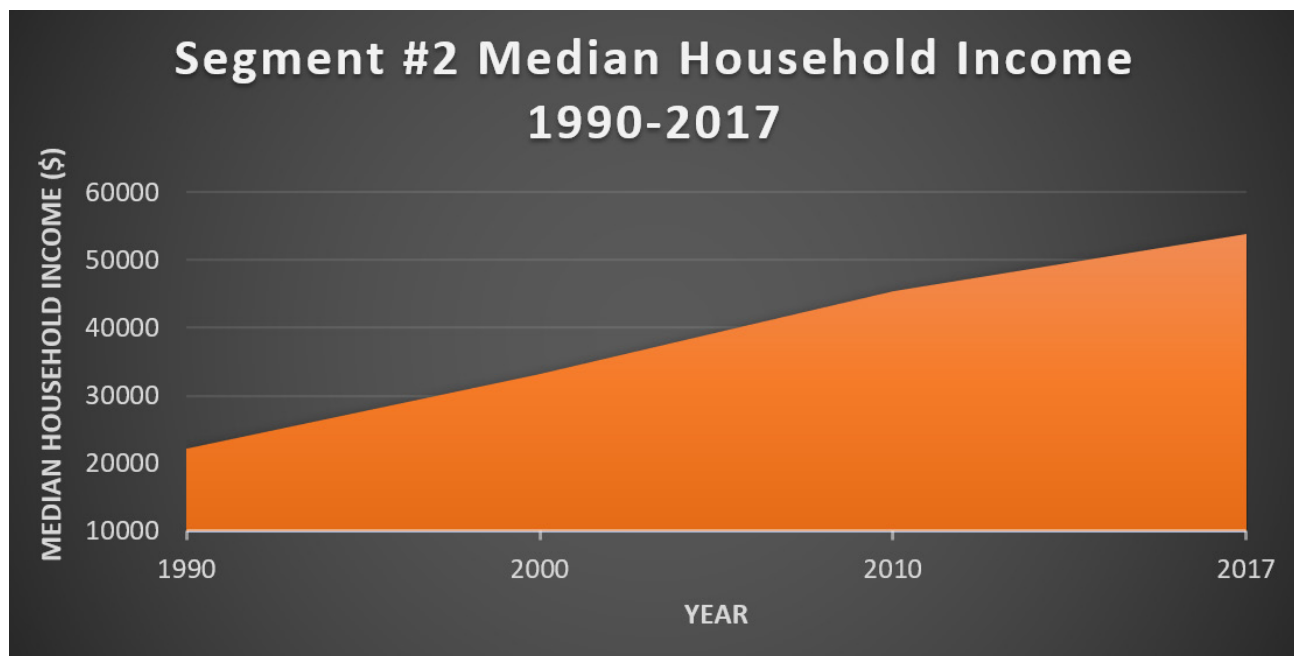


Figure 2.7: Segment #2 Median Household Income Growth, 1990 to 2017

Source: USCB 1990, 2000, 2010, ACS 2017, Texas Demographic Center

Table 2.2: Median Incomes in the Ports-to-Plains Corridor

	1990	2000	2010	2017
Segment #1 Median Household Income	\$23,176	\$36,106	\$45,471	\$51,601
Segment #2 Median Household Income	\$22,135	\$33,281	\$45,361	\$53,921
Segment #3 Median Household Income	\$15,159	\$26,002	\$31,096	\$38,770
Corridor Median Household Income	\$21,396	\$33,128	\$43,249	\$50,786

Source: USCB 1990, 2000, 2010, ACS 2017, Texas Demographic Center

2.3.2 Employment

As with population and income, employment in Segment #2 saw growth from 1990 to 2017. Overall employment in Segment #2 grew by 31 percent, compared to the corridor growth rate of 78 percent. Some counties in Segment #2

(e.g. Midland, Gaines, and Ector) had growth rates higher than the average, while some counties (e.g. Borden and Upton) lost employment. **Table 2.3** shows the historical employment for Segment #2 and the corridor.

Table 2.3: Historic Employment in the Corridor and Segment #2

	1990	2000	2010	2017
Segment #2 Employment	348,804	361,111	411,764	461,143
Segment #2 Percentage of Corridor Employment	56%	54%	53%	55%
Corridor Employment	618,697	668,172	783,830	845,071

Source: USCB 1990, 2000, 2010, ACS 2017, Texas Demographic Center

Figure 2.8 shows the top five employment industries in Segment #2. Mining, quarrying, and oil/gas extraction accounts for 24 percent of the jobs in Segment #2. This is closely followed by health care and social assistance and retail trade, with educational services and construction rounding out the top five. Segment #2 is the only segment that has construction in the top five

industries. Major employers in Segment #2 include primarily energy and energy-related industries, such as trucking, equipment, and drilling companies; however, there are major agricultural employers in Segment #2 also. Goodfellow Air Force Base is also a major employer.

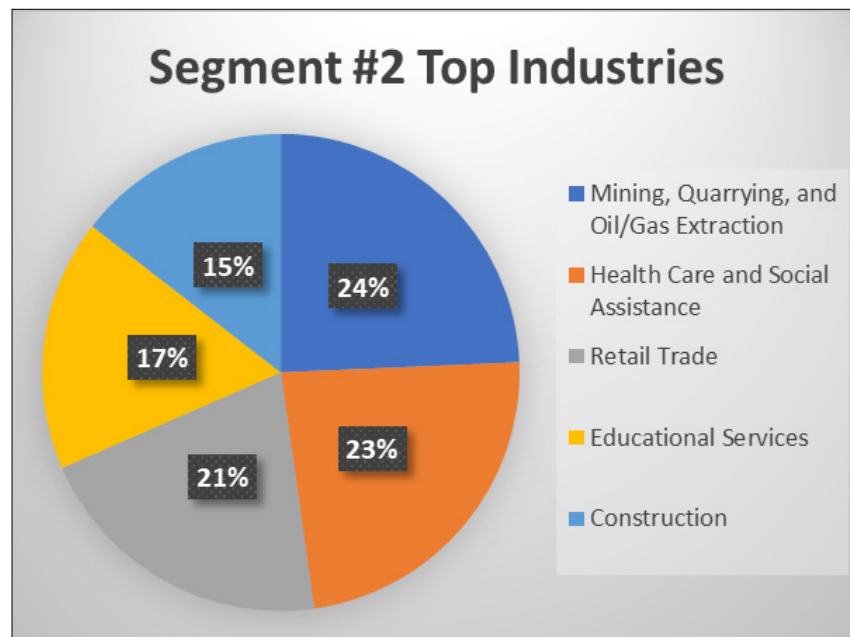


Figure 2.8: Segment #2 Top Five Industries, 2017

Source: ACS, 2017

2.3.3 Energy

The Permian Basin is centered around Midland/Odessa and oil and gas related industries are the largest contributor to the Segment #2 economy.

Figure 2.9 shows the distribution of oil and gas wells in the corridor, and **Figure 2.10** shows the oil and natural gas wells in Segment #2. The Segment has 84,392 oil wells and 14,029 natural gas wells, by far the highest in the corridor. Oil production in Segment #2 totaled 465,941,314 barrels in 2017, or 83 percent of the corridor total. Segment #2 also produced nine percent of the natural gas in the corridor.

Wind production is also significant in Segment #2. **Figures 2.11 and 2.12** show the number of wind turbines in the corridor and in Segment #2.

- Texas leads the country in wind power additions representing record amount of 3,938 megawatts in 2019 alone.
- More than 25 percent of U.S. 105 gigawatts per newly released Wind Powers America Annual Report 2019.
- There were 3,509 wind turbines located in Segment #2 in 2019, representing 52 percent of the corridor total.

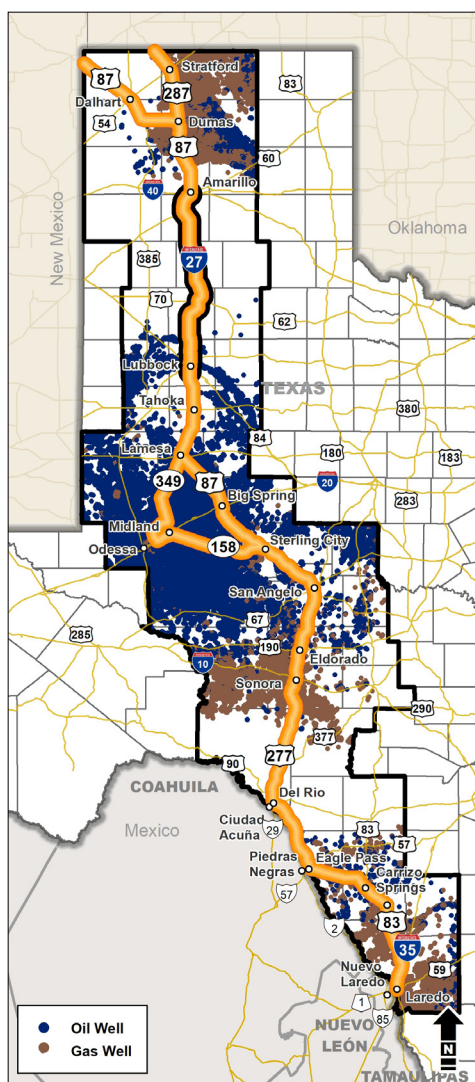


Figure 2.9: Corridor

Oil and Gas Wells, 2019

Source: Texas Railroad Commission, 2019

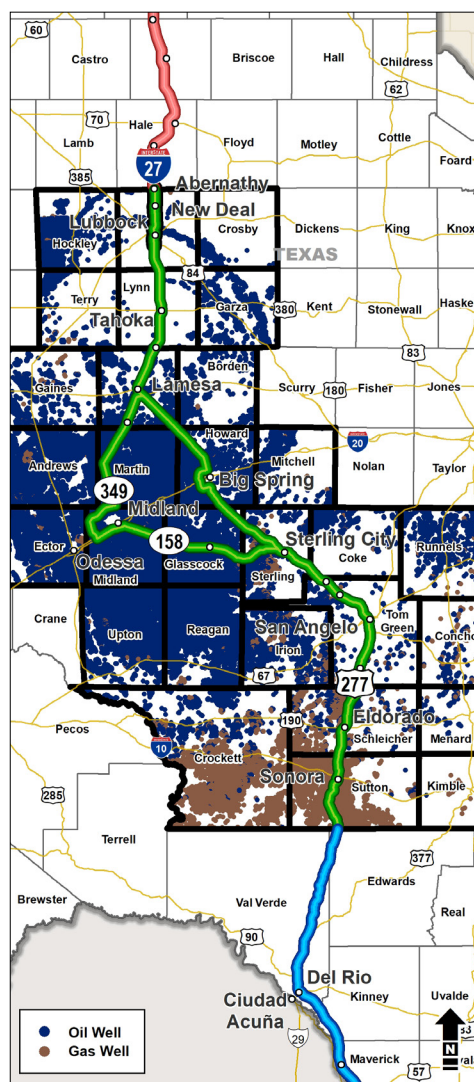


Figure 2.10: Segment #2

Oil and Gas Wells, 2019

Source: Texas Railroad Commission, 2019

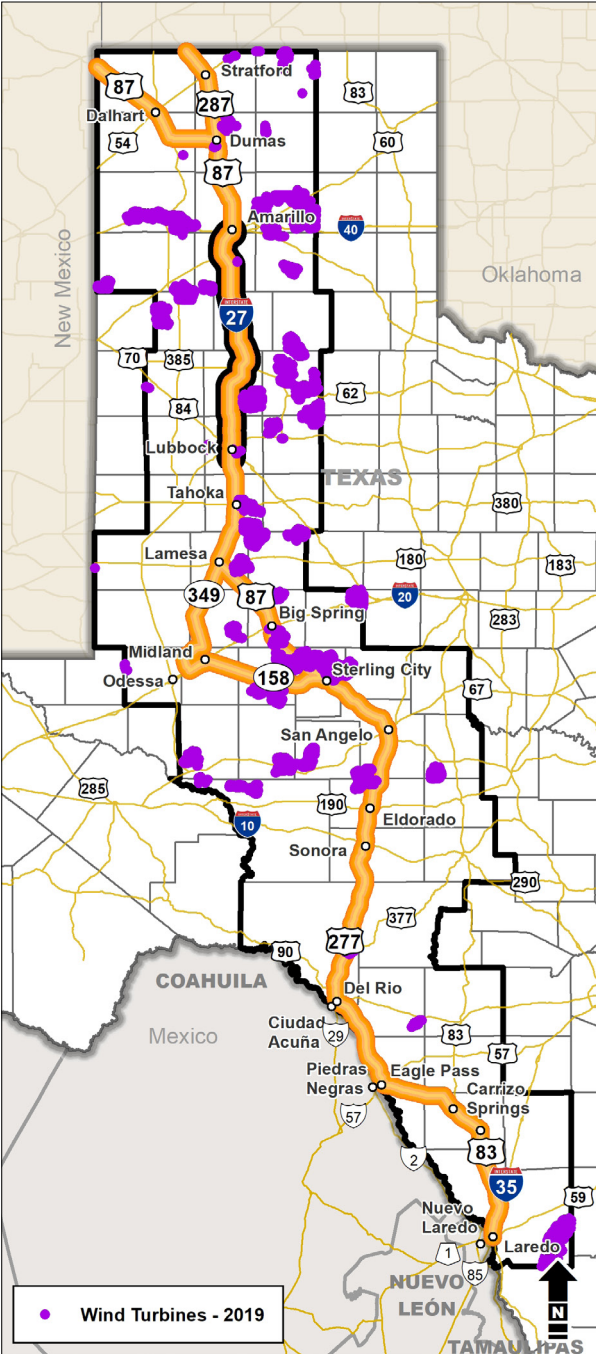


Figure 2.11: Corridor Wind Turbines, 2019

Source: Texas Railroad Commission, 2019

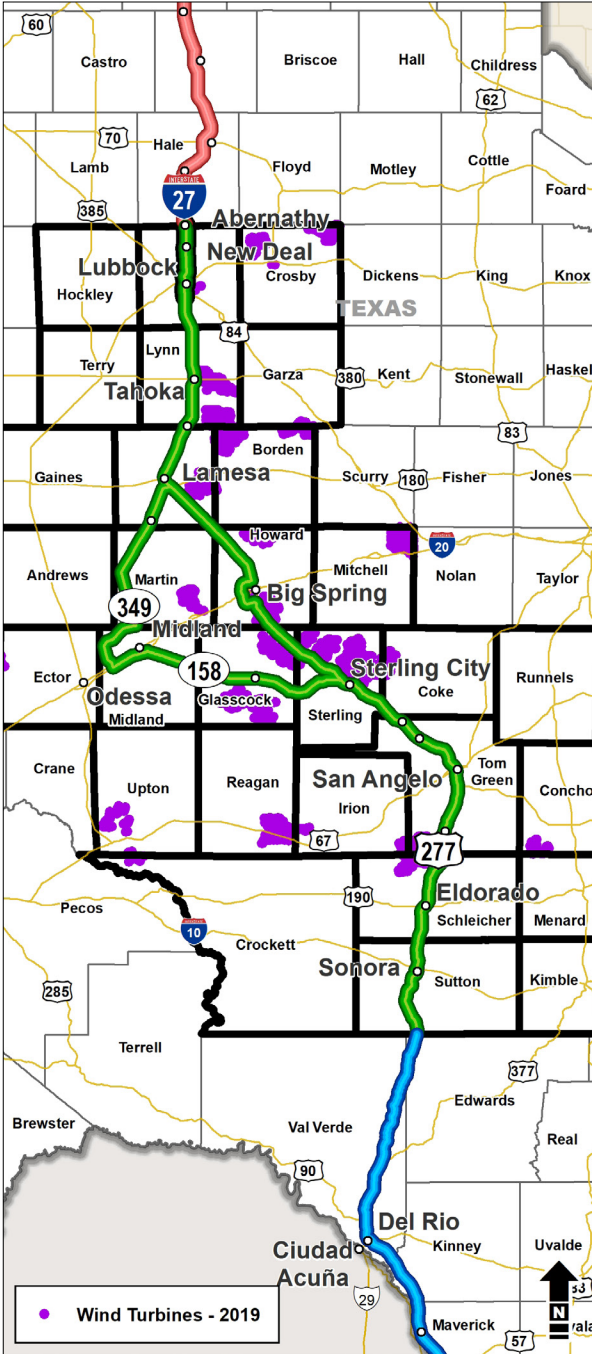


Figure 2.12: Segment #2 Wind Turbines, 2019

Source: Texas Railroad Commission, 2019

As shown in **Table 2.4**, Segment #2 has the highest wind production capacity in the corridor, primarily due to the large number of counties

that have wind production (21 of the 29 counties included in the analysis for Segment #2).

Table 2.4: Wind Production Capacity in the Ports-to-Plains Corridor (in megawatts)

	Segment #1	Segment #2	Segment #3	Corridor
Wind Energy Capacity	4,601,600	5,384,380	1,104,420	11,090,400

Source: Texas Railroad Commission, 2019

In addition to the direct impacts of the energy industry, the Permian Basin also contributes to the Texas economy in several other ways. Oil production generates a high demand for water and sand, including sourcing, transport, storage, and disposal. Not only do these industries generate billions of dollars, but also thousands of truck trips on Permian Basin roadways. In addition, approximately 2.1 million acres of Permanent University Fund (PUF) lands are in the Permian Basin. Revenues from both surface and mineral interests on PUF lands go directly to endowments at the University of Texas and Texas A&M University systems. A portion of these lands are in counties within Segment #2.

2.3.4 Agriculture

Segment #2 also has substantial agricultural production, higher than Segment #3, although not as high as Segment #1, as shown in **Figures 2.13 and 2.14**.

- Approximately 64 percent of the land in Segment #2 is farmland.
- The total sales of agricultural products were over \$1.5 billion in 2017 for the 29 counties within Segment #2, or approximately 13 percent of the total corridor production.
- Segment #2 is different from the other two segments with sales grossing more from crops than from animal product sales. The crop sales, at \$1.11 billion, make up 74 percent, whereas the animal product sales at \$368 million make up 26 percent of the total agricultural sales, essentially the reverse of the other segments and the corridor in general.

The counties with the highest agricultural sales were Howard County (\$219 million), Gaines County (\$189 million) and Terry County (\$137 million).

- Similar corridor-wide top crops and animal products were reported for Segment #2 as for the corridor as a whole.
- For Segment #2, the top crop is cotton for 21 out of the 29 counties and is more heavily dominated by a single crop (cotton) than the other segments.
- The other top crops in this segment include forage (hay) in six counties and wheat for grain in two counties.
- The top livestock and animal product by inventory for Segment #2 is cattle and calves for 24 out of the 29 counties. Sheep and lambs were the top animal product in three counties and goats were the top animal product in two counties. **Figures 2.15 and 2.16** show the top crops by acreage and the top animal products by inventory per county within Segment #2 respectively.

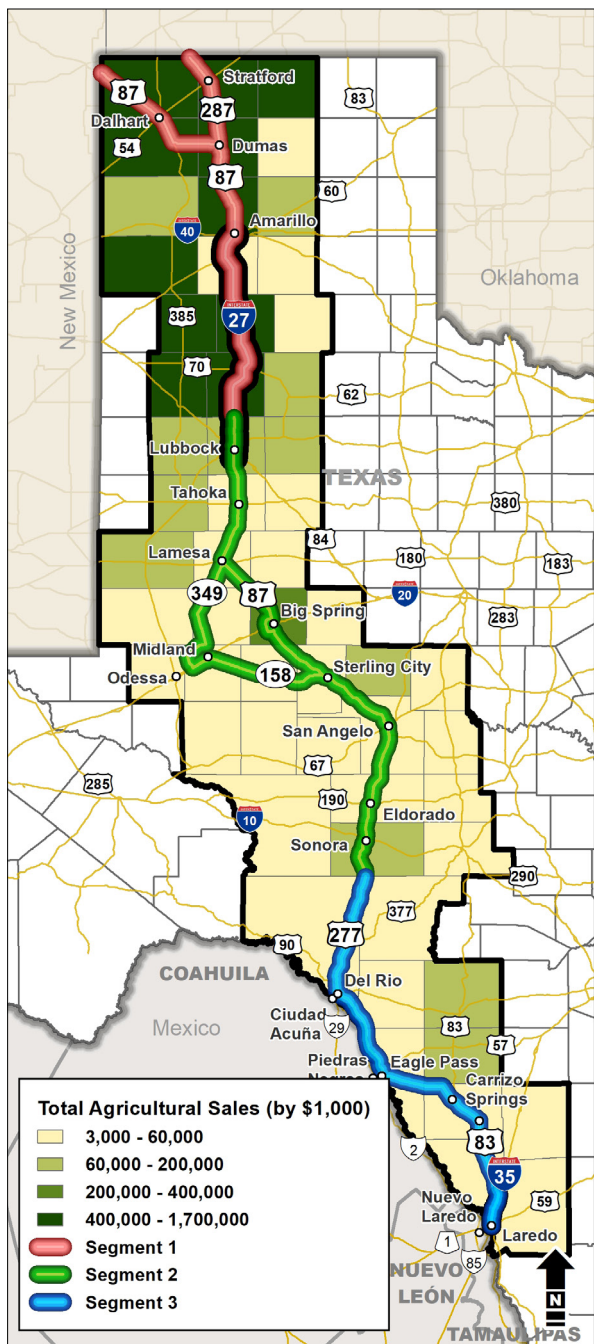


Figure 2.13: Corridor Agricultural Sales, 2017
Source: USDA Census of Agriculture, 2017

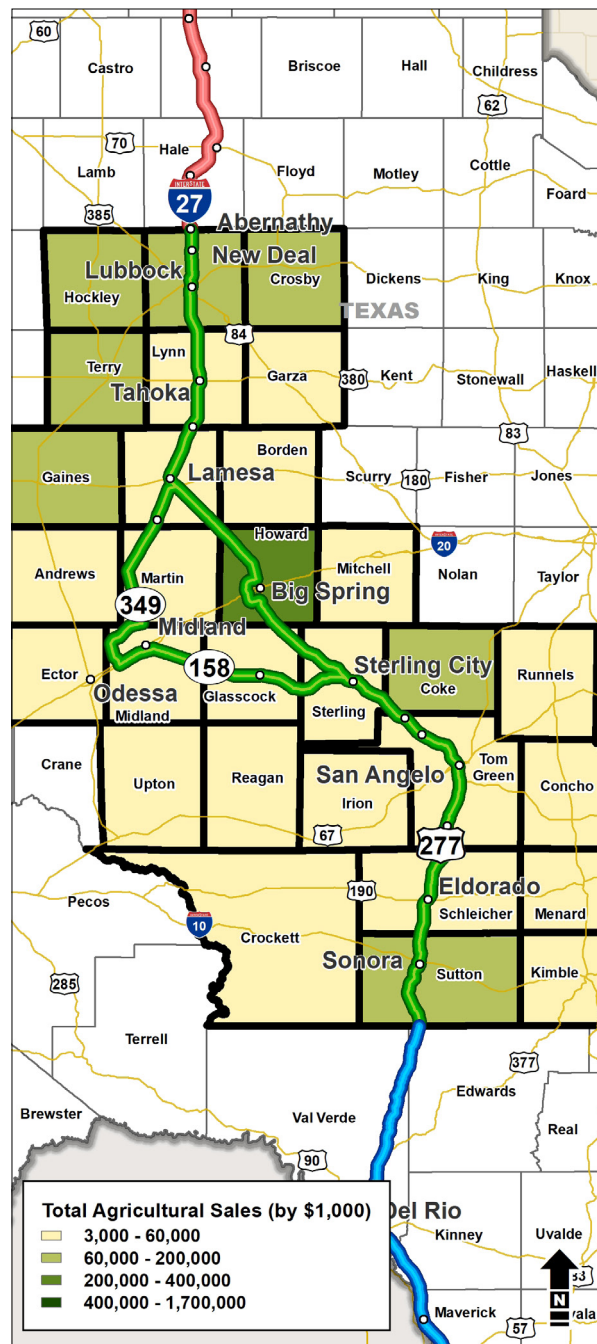


Figure 2.14: Segment #2 Agricultural Sales, 2017
Source: USDA Census of Agriculture, 2017

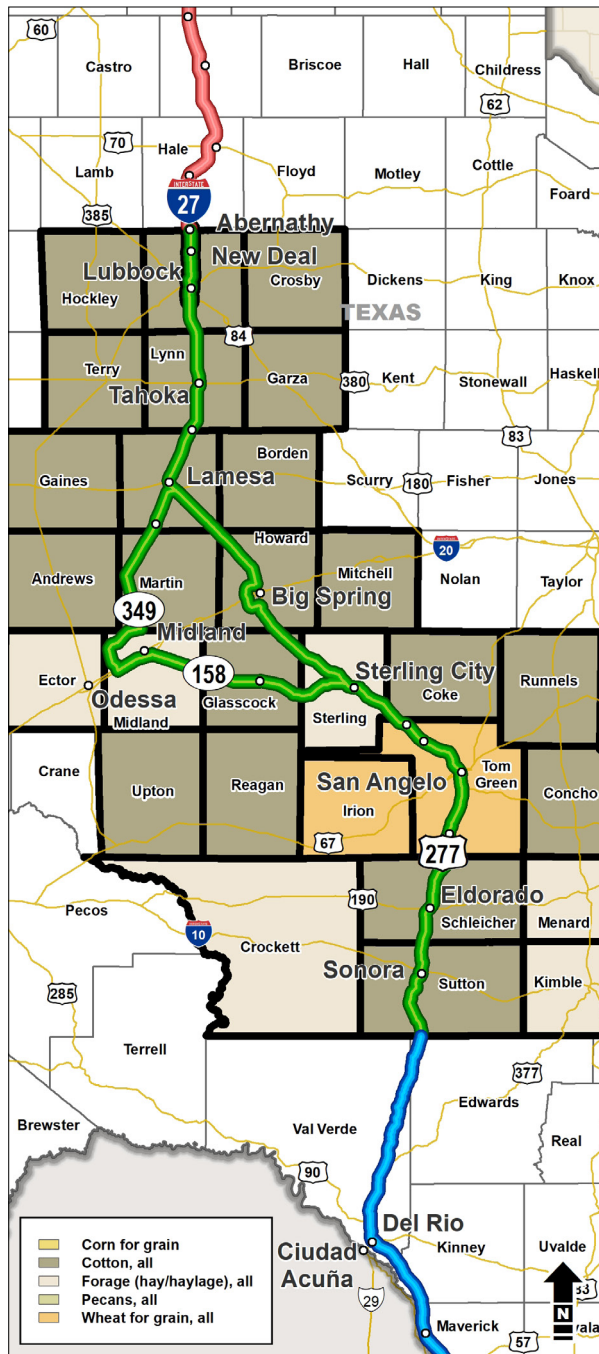


Figure 2.15: Segment #2 Top Crop Production, 2017
Source: USDA Census of Agriculture, 2017

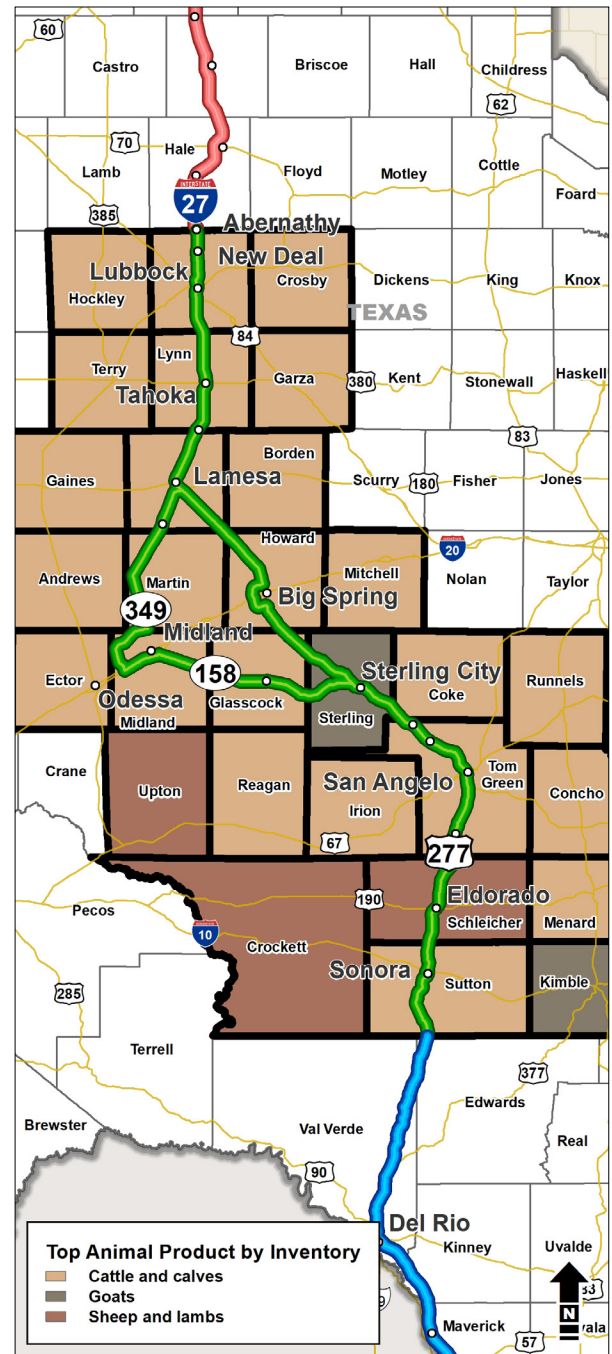


Figure 2.16: Segment #2 Top Animal Production, 2017
Source: USDA Census of Agriculture, 2017

2.4 Roadways and Bridges

The Segment #2 Committee reviewed data on pavement and bridge conditions from TxDOT's Pavement Management System (TxDOT PMIS) and TxDOT's Roadway Inventory Database (TxDOT RID). The pavement in Segment #2 is in slightly better but overall generally the same condition as the corridor, with over 95 percent in good or very good condition, and less than two percent in poor or very poor condition. The poor and very poor sections are typically located near Lubbock, Lamesa, Big Spring, west of Midland, Glasscock, and Sonora. The pavement conditions for Segment #2 are shown on **Figure 2.17**.

There is a total of 251 bridges in Segment #2 out of 537 bridges in the entire corridor. The bridges in Segment #2 are generally in the same condition than the rest of the corridor, with over 85 percent in good condition. Less than one percent of the bridges in Segment #2 are in poor condition. The bridge sufficiency ratings for Segment #2 are shown on **Figure 2.18**.

Of the 251 bridges in Segment #2, 97 have a vertical bridge clearance. TxDOT recently updated the standard for bridge vertical clearance on freight corridors to 18'6". Approximately 63 of the bridges in Segment #2 meet the previous standard of 16'6" vertical clearance, with 15 exceeding the new 18'6" clearance. The three bridges with low clearances, under 15', are in Lubbock. The bridge clearances for Segment #2 are shown in **Figure 2.19**.



Figure 2.17: Segment #2 Pavement Conditions

Source: TxDOT PMIS, 2019

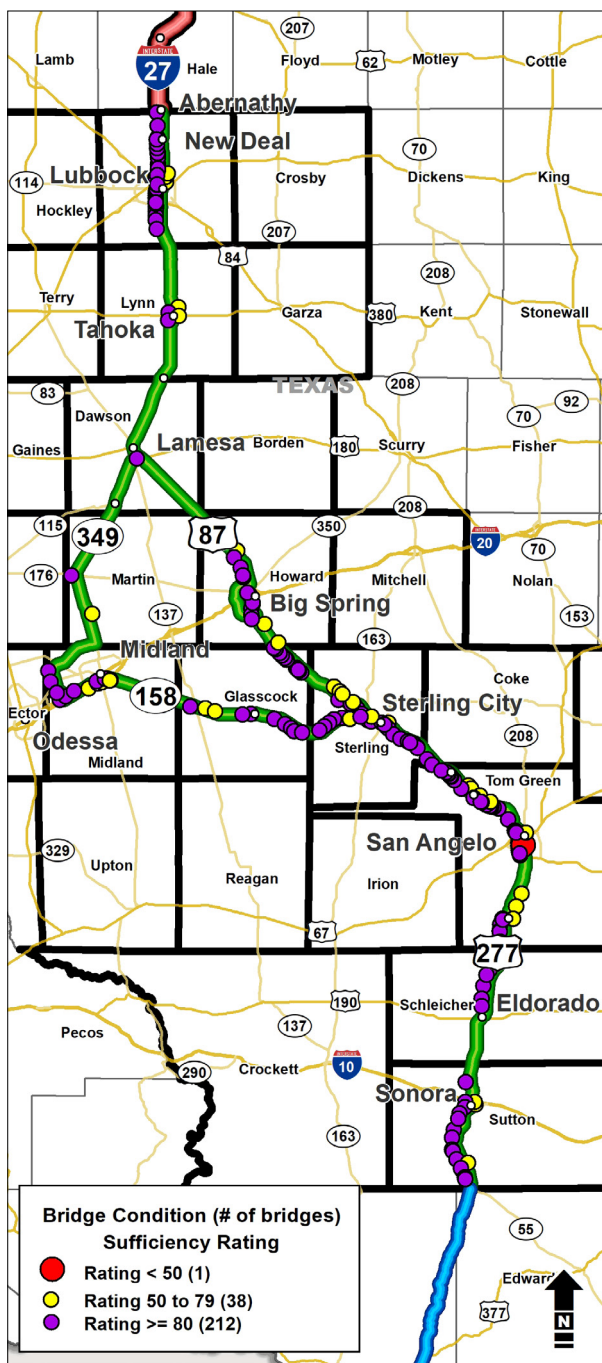


Figure 2.18: Segment #2 Bridge Conditions
Source: TxDOT RID, 2017

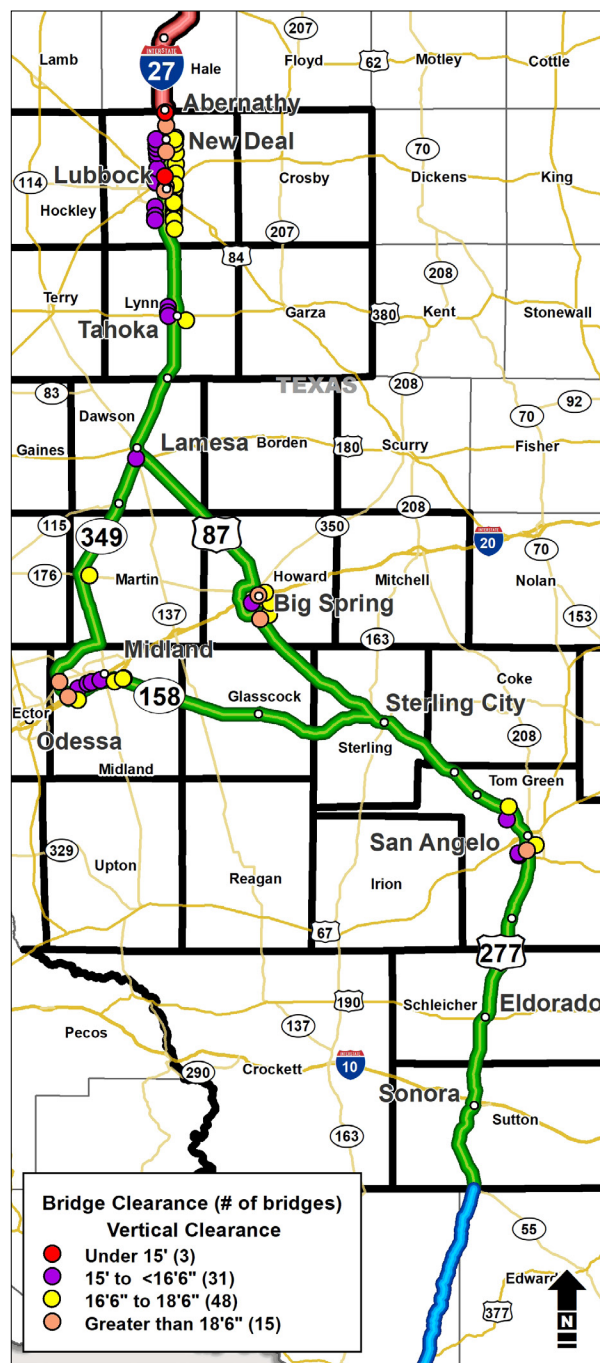
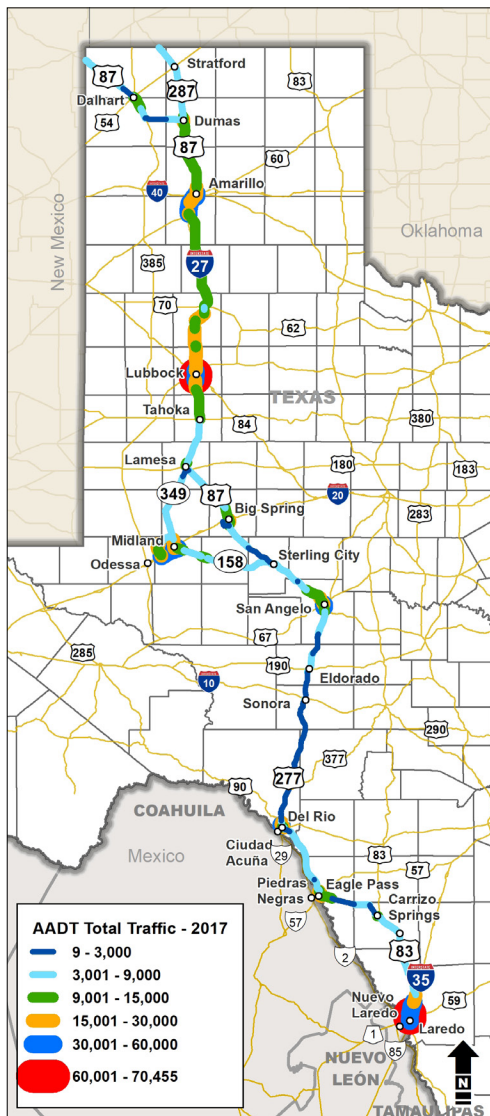


Figure 2.19: Segment #2 Bridge Clearances
Source: TxDOT RID, 2017

2.5 Traffic Conditions

The Segment #2 Committee reviewed traffic data from the TxDOT RID. Traffic volumes in Segment #2 vary considerably, as shown in **Figures 2.20 and 2.21**. Most of Segment #2 carries less than 9,000 vehicles per day (vpd). There are sections of Segment #2 where volumes are much higher, specifically I-27 in Lubbock where volumes are 64,000 vpd, and I-20 in Midland where volumes are 58,000 vpd. However, interstates can handle much larger volumes of traffic and still provide an adequate level of service.

For example, urban sections of I-27 in Lubbock carry much higher volumes, but still operates at Level of Service (LOS) A. LOS refers to the magnitude of average congestion and delay, and is rated from A to F, with A being the best. Urban street segments in or around most corridor cities operate at LOS B or C. This includes segments of US 87 in Big Spring, Eldorado and both the urban street and downtown one-way street pairs in San Angelo, and a segment of SH 158 in Garden City. Portions of SH 349 around Midland operate at LOS C, and I-20 in Midland operates at LOS A or B.



**Figure 2.20: Corridor
Average Daily Traffic Volumes**
Source: TxDOT RID, 2017



**Figure 2.21: Segment #2
Average Daily Traffic Volumes**
Source: TxDOT RID, 2017

2.6 Truck Traffic and Freight Flow Conditions

The Segment #2 Committee reviewed data on truck traffic and freight flow conditions. Truck volumes are moderate over most of Segment #2, higher volumes are located near and just south of Lubbock (approximately 6,000 per day) and between Midland and San Angelo (up to 4,000 per day outside of I-20). South of San Angelo, truck volumes are consistently low (less than 1300 per

day). The highest truck AADT levels of the corridor are located between Lamesa and just south of Sterling City where they range between 20 and 40 percent. Percentages near Lubbock are relatively low compared to the high levels of both overall and truck AADT. Despite low volumes of overall and truck AADTs, truck percentages are high south of Sonora and on portions of US 87 north of Sterling City. **Figures 2.22 and 2.23** show truck volumes, and **Figures 2.24 and 2.25** show truck percentages.

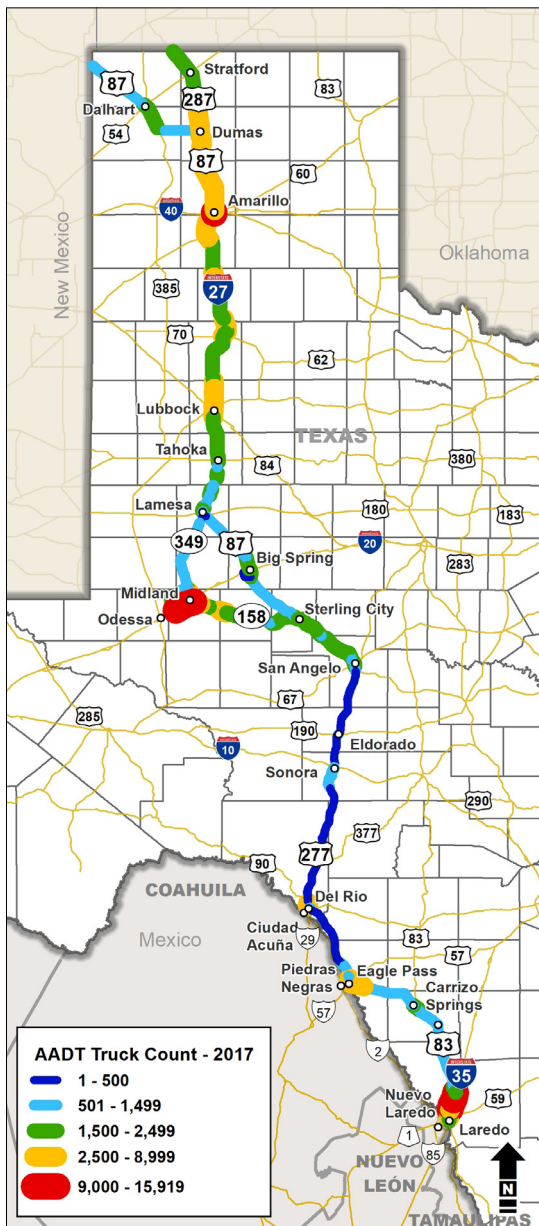


Figure 2.22: Corridor Truck Volumes
Source: TxDOT RID, 2017



Figure 2.23: Segment #2 Truck Volumes
Source: TxDOT RID, 2017

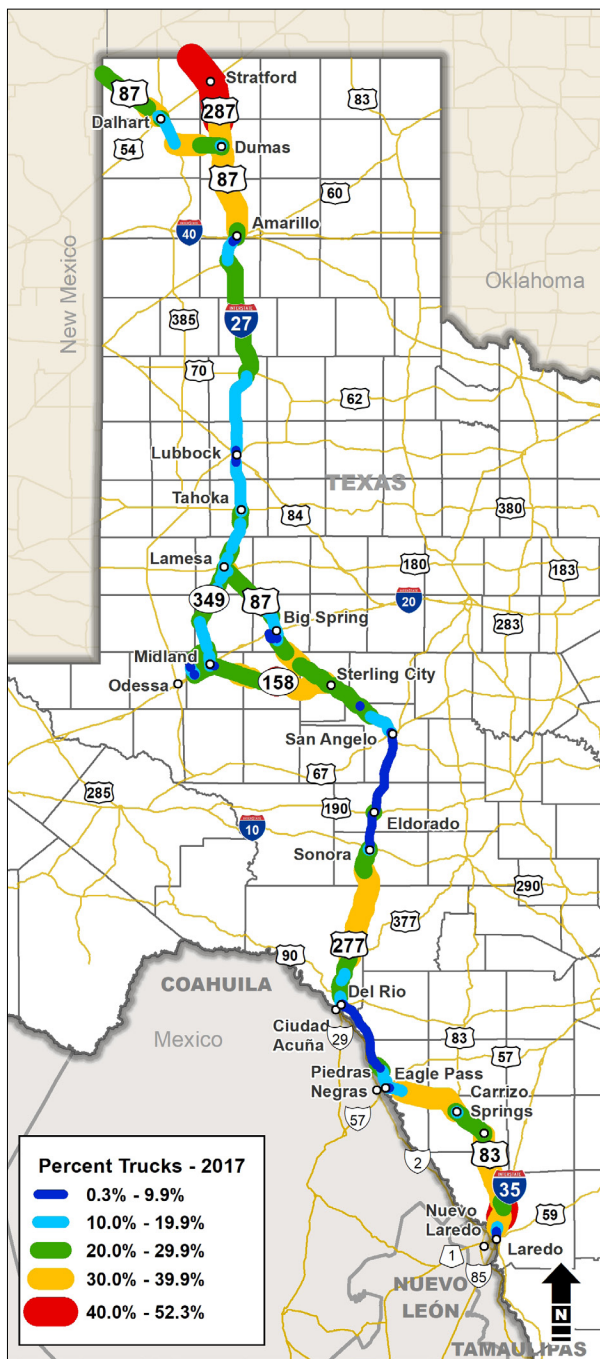


Figure 2.24: Corridor Truck Percentages
Source: TxDOT RID, 2017

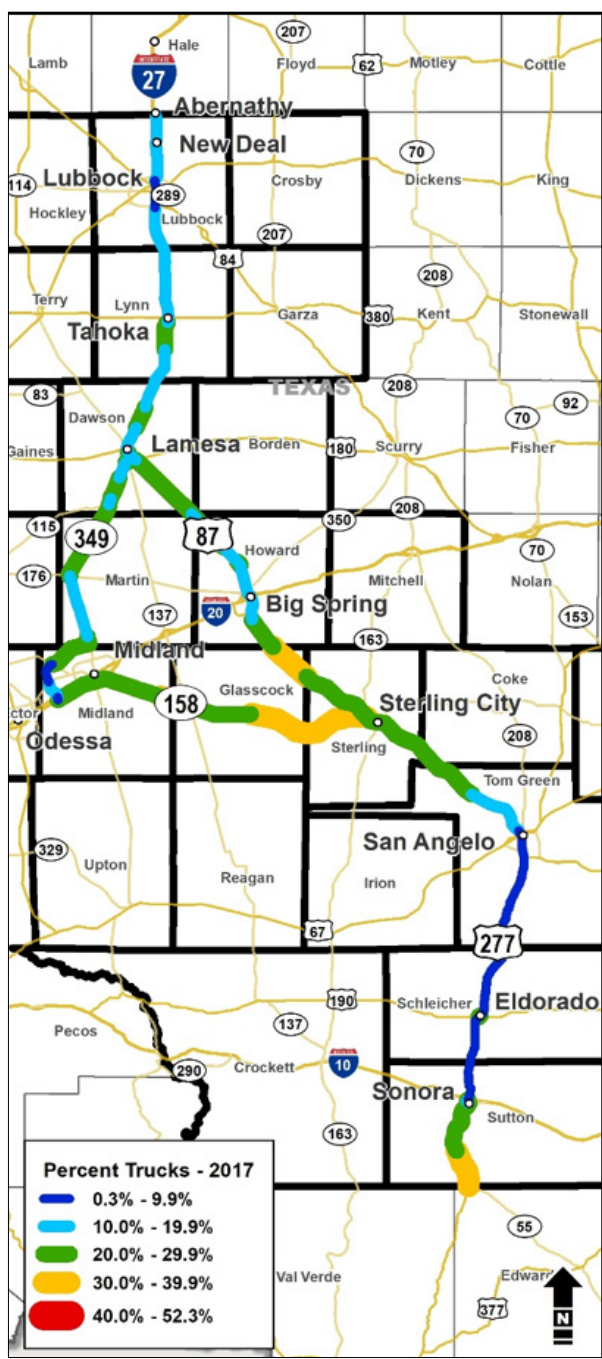


Figure 2.25: Segment #2 Truck Percentages
Source: TxDOT RID, 2017

In terms of freight flow, minerals and mineral products, food and agriculture, and energy products are the largest outbound commodity categories shipped from Segment #2. Food and agriculture are most frequently the top outbound commodity category, particularly for counties in rural areas. Minerals and mineral products and energy products are often the top

outbound commodities for more urban counties such as Lubbock and Midland. Within Segment #2, minerals and mineral products make up the majority of inbound commodities followed by energy products. Minerals and mineral products, energy products are in most cases the top commodities flowing within the segment, as shown in **Figures 2.26 and 2.27**.

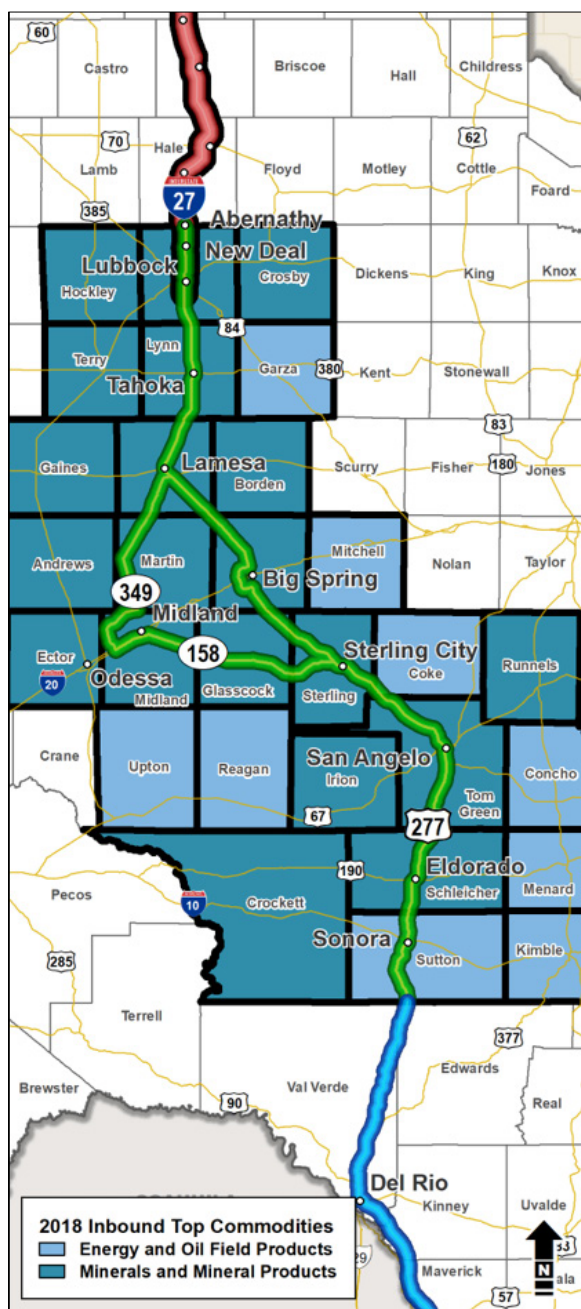


Figure 2.26: Segment #2 Inbound Freight Commodities
Source: TxDOT SAM and Transearch

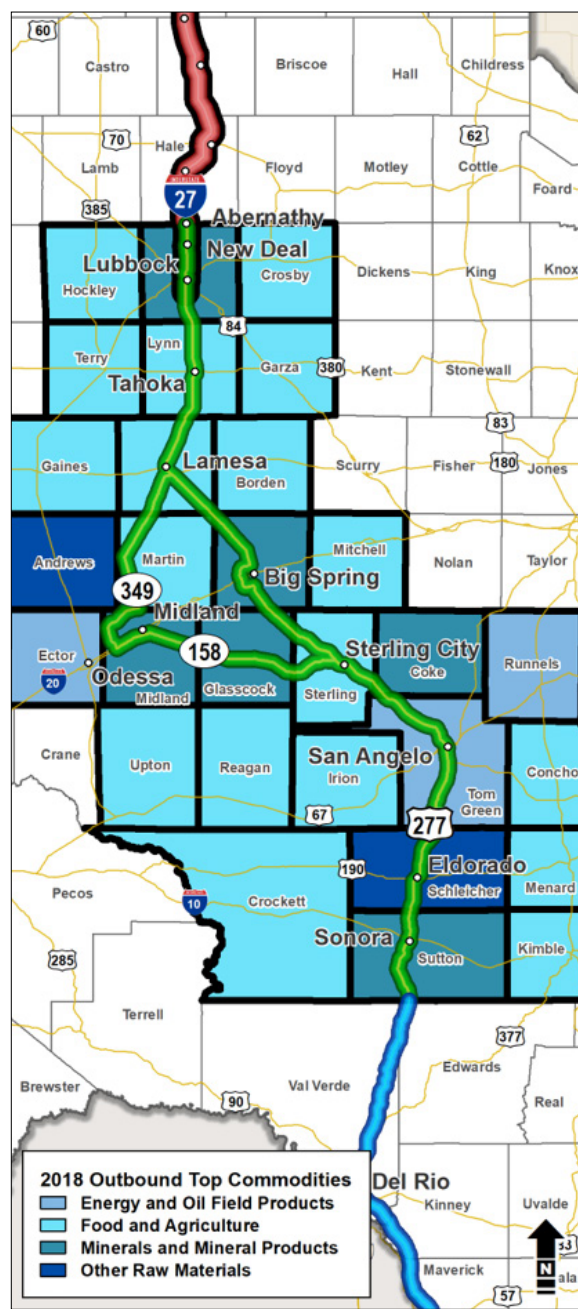


Figure 2.27: Segment #2 Outbound Freight Commodities
Source: TxDOT SAM and Transearch

Figures 2.28 thru 2.30 show outbound truck trips, originating in Laredo, Eagle Pass and Del Rio respectively, tracked for a 7-day period as compiled by the American Transportation Research Institute (ATRI). These figures illustrate the magnitude of truck traffic flowing from the International Ports along the corridor with thicker red lines indicated the heaviest flows. As shown in **Figure 2.28**, The strongest outbound truck demand from Laredo is along the I-35 corridor to the Dallas Fort Worth metropolitan area with other strong

flows throughout Texas using other interstates, us highways, and Texas state routes. The truck flows from Laredo reach all regions of the United States and into Canada. **Figures 2.29 and 2.30** show more moderate truck flows from the International Ports at Eagle Pass and Del Rio. Though truck trips from these communities do extend across the United States, the heavier flows are focused more in west and south Texas. Both Eagle Pass and Del Rio ports lack interstate connectivity, which limits demand.

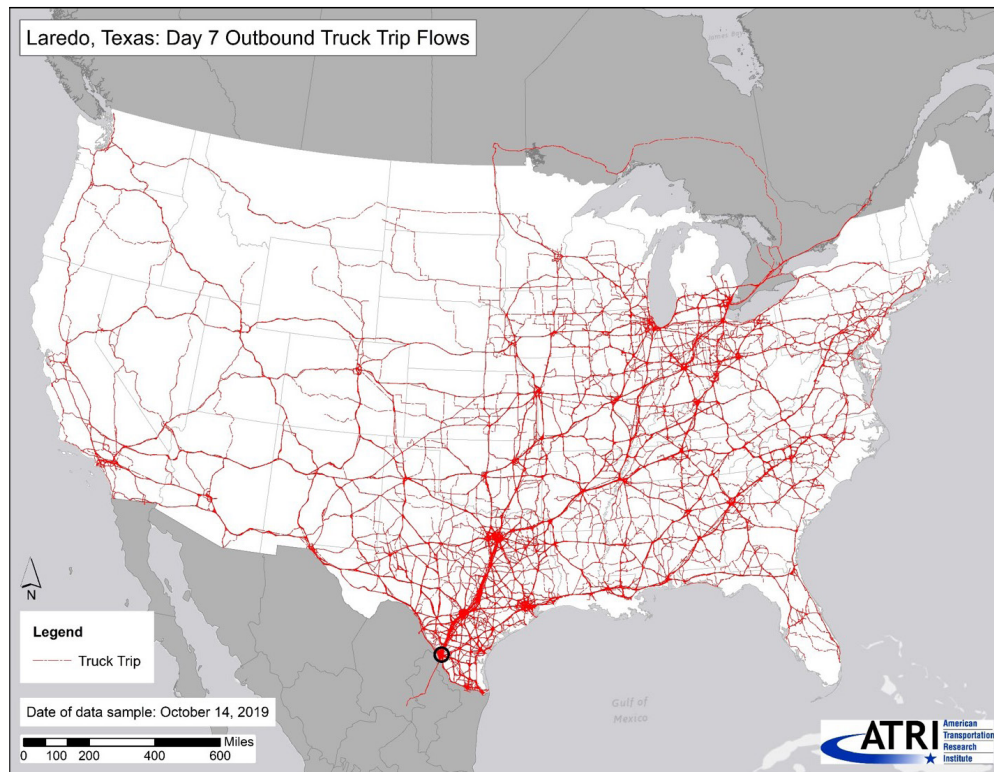


Figure 2.28: Laredo: Day 7 Outbound Truck Trip Flows

Source: ATRI, 2019

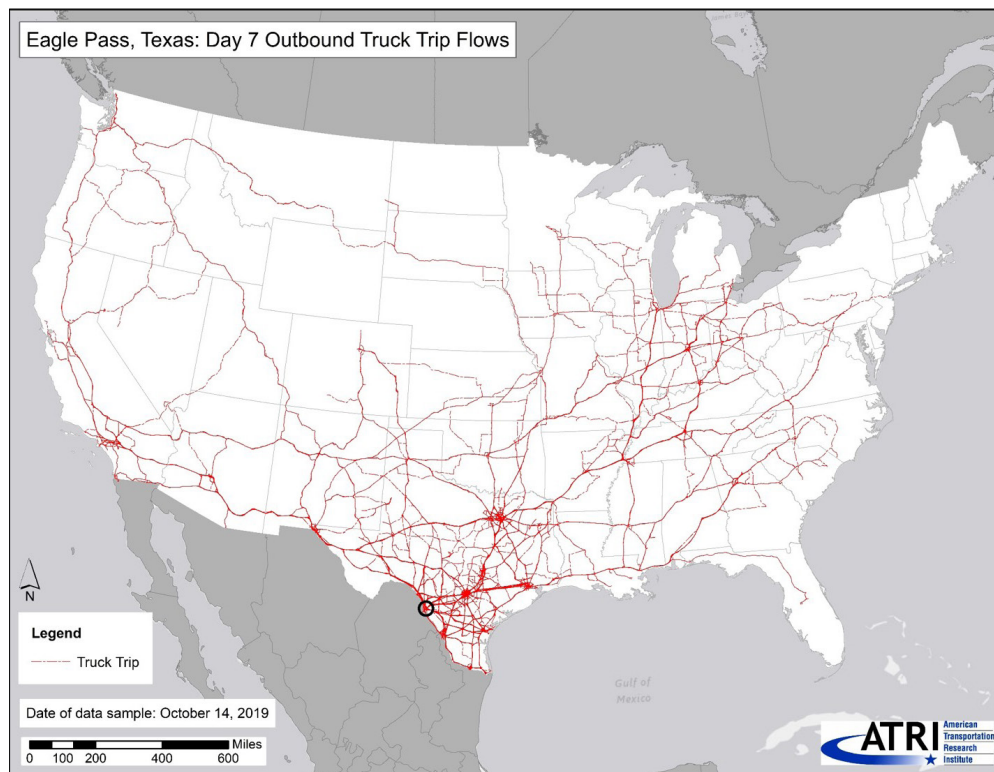


Figure 2.29: Eagle Pass: Day 7 Outbound Truck Trip Flows
Source: ATRI, 2019

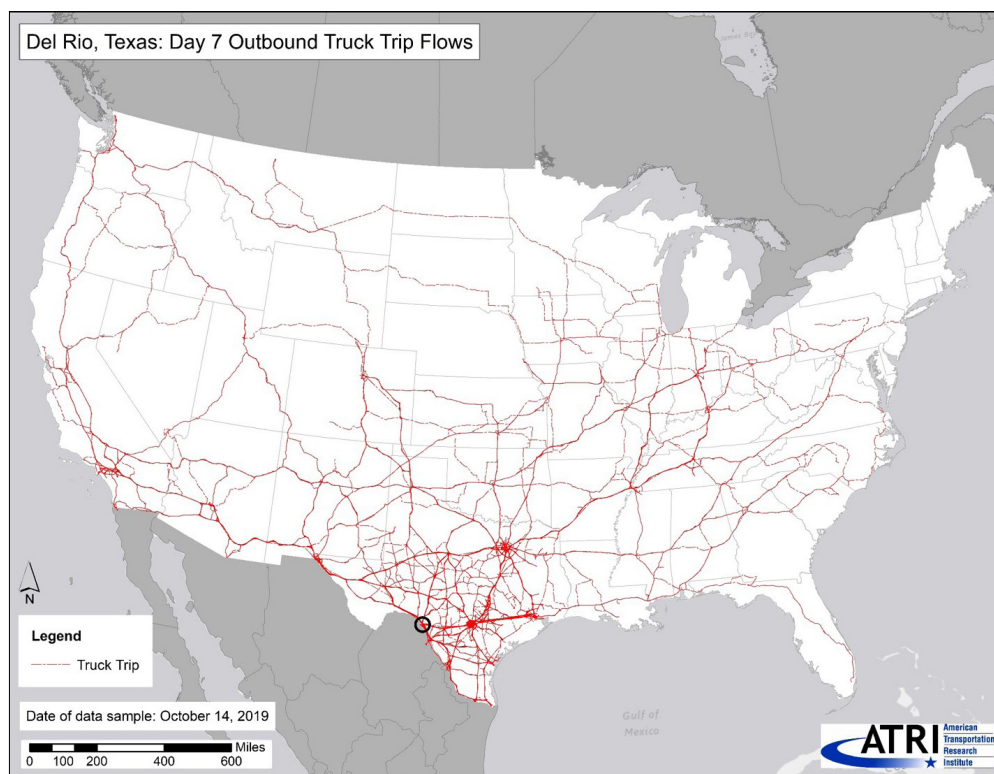


Figure 2.30: Del Rio: Day 7 Outbound Truck Trip Flows
Source: ATRI, 2019

2.7 Safety Conditions

The Segment #2 Committee reviewed crash data from TxDOT's Crash Records Information Systems (CRIS) database for a five-year period from 2014 to 2018¹³.

2.7.1 Total Crashes Between 2014 to 2018

During the same period, 7,460 crashes occurred in Segment #2, or approximately 42 percent of all the crashes in the segment. **Figure 2.31** shows total crashes in Segment #2.

- Big Spring had high rates at 440 per 100 million vehicle miles traveled (MVMT) on US 87 from north of I-20 to south of FM 700.
- A total of ten signalized intersections are located within this 3-mile segment, creating numerous opportunities for collisions and queues.
- These signals are needed to handle local traffic circulation, but also contribute to queuing and additional stops. Midland, San Angelo, and Sonora also all have high crash rates.
- I-27 in Lubbock has a lower crash rate because the access-controlled facility limits vehicle conflict points with ramp access rather than at-grade intersections.
- The average crash rate for all of Segment #2 was 111 crashes per 100 MVMT. This compares to 109 crashes per 100 MVMT in Segment #1 and 133 crashes per 100 MVMT in Segment #3.

From 2014 to 2018, Segment #2 experienced 132 fatal collisions resulting in 157 fatalities.

- This was the highest in the corridor, equivalent to 55 percent of all fatal collisions.
- The fatal crash rate in Segment #2 is 1.62 per 100 MVMT, compared to 1.0 in Segment #1,

1.15 in Segment #3, and 1.31 corridor wide. This compares to a statewide fatality rate of 1.29 in Texas, and 1.13 nationwide in 2017¹⁴.

- The cities of Lubbock and Midland had the highest number of crashes within this Segment, as depicted in **Figure 2.32**.
- Several rural segments along the route had no fatal crashes.

2.7.2 Total Truck Crashes Between 2014 to 2018

As represented on **Figure 2.33**, 1,478 truck crashes occurred in Segment #2 from 2014 to 2018 – which represents 50 percent of the truck crashes in the corridor.

- The Big Spring, Midland, and Glasscock County areas all experience higher truck crash rates. Directly south of I-20 in Midland along SH 158, the highest truck crash rate occurred along the corridor at 103 truck crashes per 100 MVMT.
- Big Spring experienced a crash rate of 91 truck crashes per 100 MVMT, and Glasscock County had a rate of 73 per 100 MVMT.
- Segment #2 had a wide range with trucks accounting for 2 percent to 43 percent of the total traffic volume, but the locations stated above had a more moderate truck component (16 to 38 percent).
- The cities of San Angelo and Lubbock experienced lower truck crash rates than other urban areas in Segment #2.
- The total truck crash rate in Segment #2 is 88 per 100 MVMT, compared to a rate of 59 in Segment #1, 81 in Segment #3, and 76 for the corridor¹⁵. Segment #2 has the highest truck crash rate in the corridor.

¹³ A 200-foot buffer was used to capture all crashes along and near the proposed corridor – including frontage roads, ramps, and intersections.

¹⁴ All rates expressed per 100 million vehicle miles traveled. Source: Texas Motor Vehicle Traffic Crash Facts Calendar Year 2018, and USDOT National Highway Traffic Safety Administration Traffic Safety Facts Research Note DOT HS 812 826: 2018 Fatal Motor Vehicles Crashes: Overview

¹⁵ All truck crash rates expressed as per 100 million truck miles traveled.





Figure 2.31: Segment #2 Total Crashes
Source: TxDOT CRIS

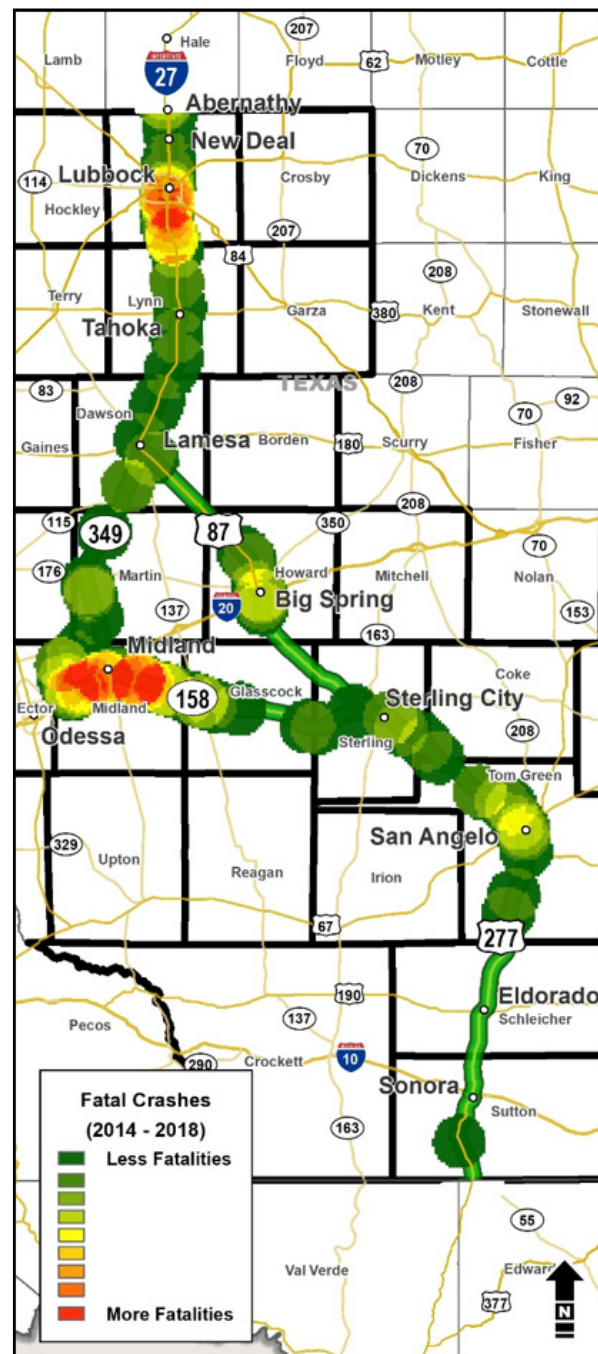


Figure 2.32: Segment #2 Fatal Crashes
Source: TxDOT CRIS

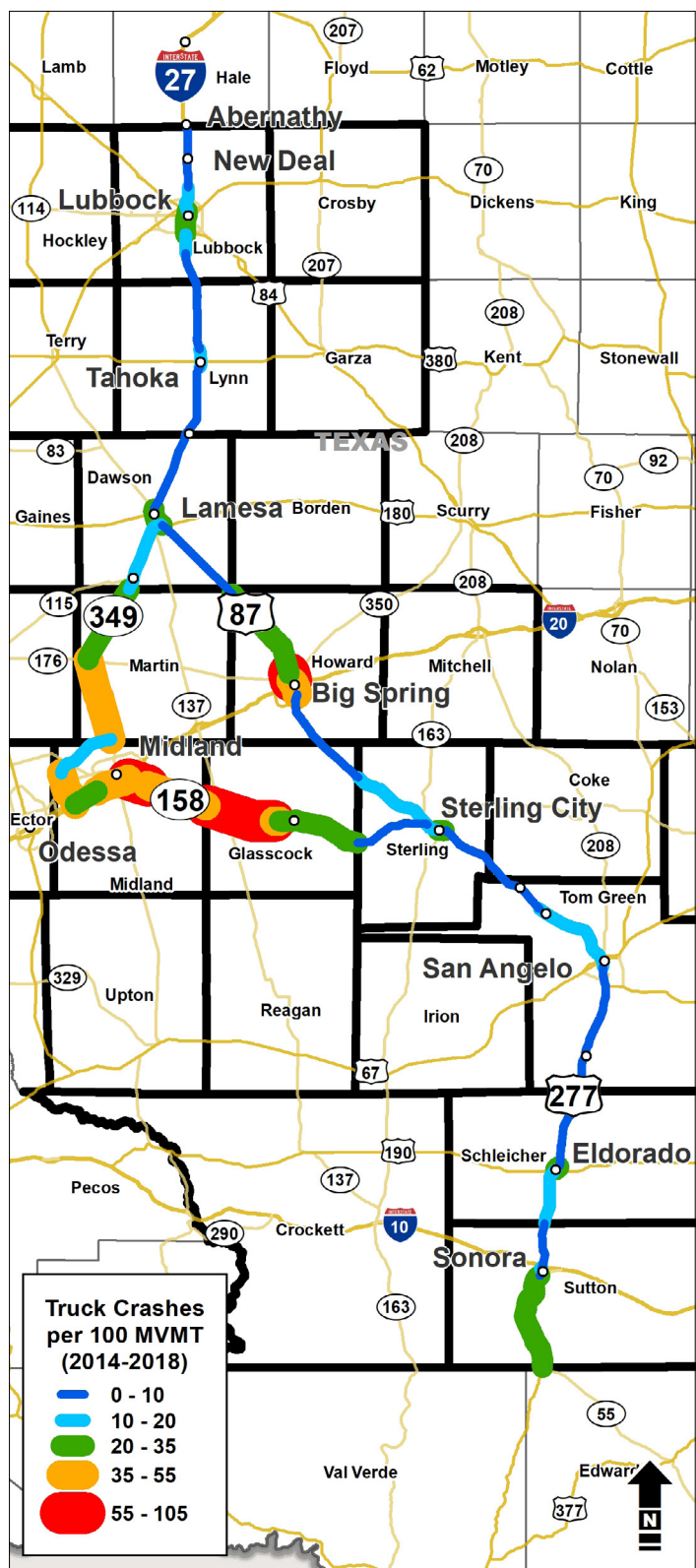


Figure 2.33: Segment #2 Truck Crashes
Source: TxDOT CRIS



CHAPTER 3

Forecasted Conditions

3.0 Forecasted Conditions

Forecasted corridor conditions including population characteristics, economic conditions (median income, employment, and gross domestic product), future land use, freight, agriculture, and energy production were analyzed for the future 2050 baseline, which included current TxDOT and Metropolitan Planning Organization (MPO) planned and programmed roadway projects. Forecasted 2050 traffic conditions were analyzed assuming the baseline and an interstate upgrade, which assumed the Ports-to-Plains Corridor would be fully upgraded to an interstate facility. Gaps where the existing roadway is not an interstate or where there are no planned projects that will upgrade the existing roadway to an Interstate were also reviewed for Segment #2 to determine segment needs.

The Segment #2 Committee reviewed current and forecasted conditions for the Ports-to-Plains Corridor to determine future needs and challenges of the corridor between 2020 and 2050. The data is representative of the baseline and does not consider any changes that would be brought forward by an interstate upgrade.

3.1 2020 to 2050 Forecasted Population

The Segment #2 Committee reviewed data from the Texas Demographic Center's (TDC) 2018 Forecasted Data for the 12 counties the corridor passes through and an additional nine counties surrounding Segment #2 of the Ports-to-Plains Corridor.¹⁶ **Figure 3.1 and Table 3.1** show the future population data. The data shown in the tables is reflective of the baseline condition from the TDC demographic-based projection and does not consider any impacts from the interstate upgrade.

- The total population in the Ports-to-Plains Corridor is projected to increase by 61 percent from 1,996,680 to 3,207,968.
- The Segment #2 population is projected to grow by 101 percent from 1,046,558 in 2020

to 2,104,479 in 2050.

- Segment #2 will have a projected total population growth rate significantly greater than both Segment #1 (21 percent) and Segment #3 (11 percent).
- By 2050, Segment #2 will contain nearly two-thirds of the corridor's population.

¹⁶ The Segment #2 Committee decided to use 31 counties for the forecasted data collection and analysis to fully capture the area the corridor influences.

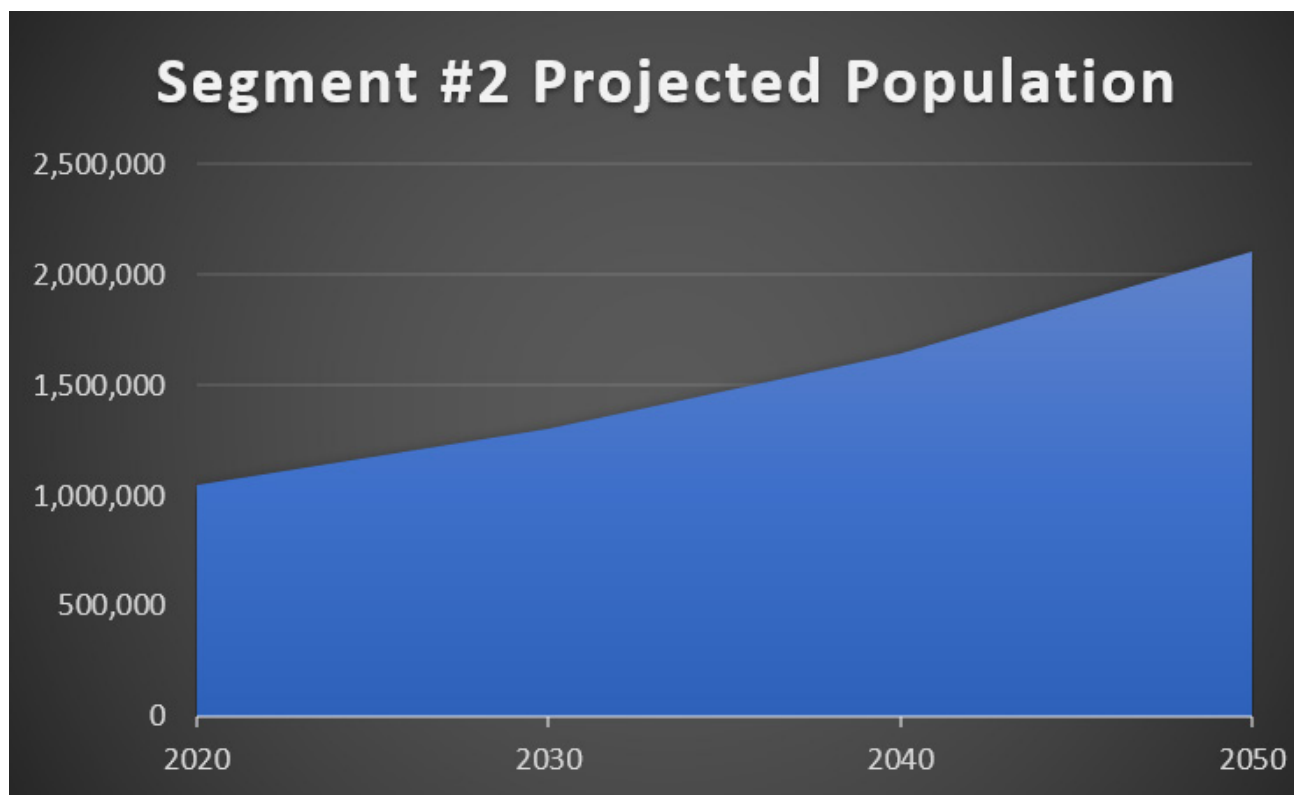


Figure 3.1: Segment #2 Projected Population for 2020 to 2050

Source: Texas Demographic Center, 2018 Projections

Table 3.1: Projected Population in the Corridor and Segment #2

	2020	2030	2040	2050
Segment #2 Projected Population	1,046,558	1,299,536	1,642,228	2,104,479
Corridor Projected Population	1,996,680	2,306,217	2,695,464	3,207,968

Source: Texas Demographic Center 2018 Projections.

Figures 3.2 and 3.3 show the projected population for 2020 and 2050 by county for comparison purposes.

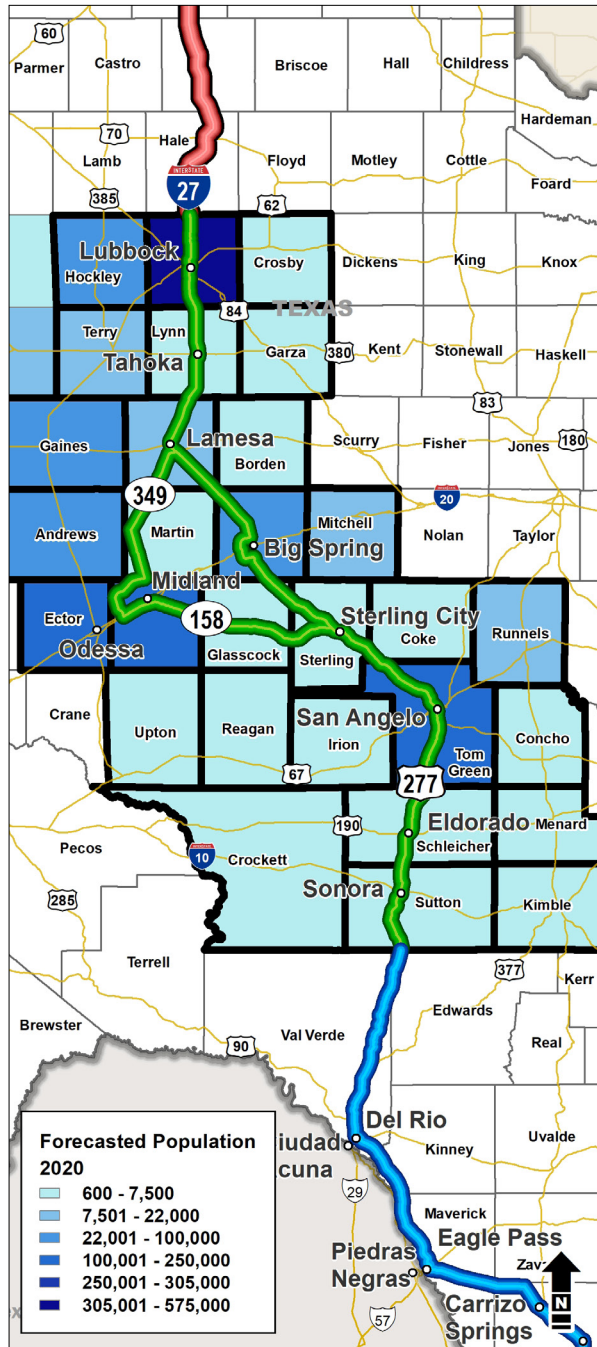


Figure 3.2: Segment #2 Projected Population for 2020

Source: Texas Demographic Center 2018 Projections

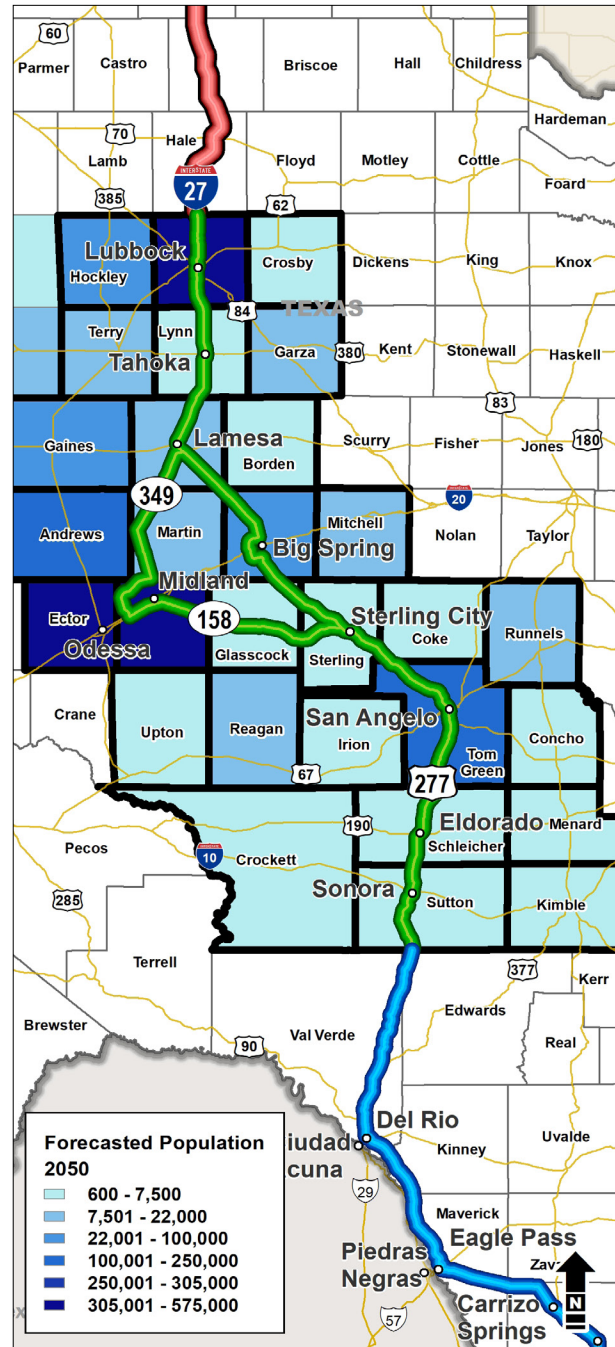


Figure 3.3: Segment #2 Projected Population for 2050

Source: Texas Demographic Center 2018 Projections

3.2 Forecasted Economic Conditions

3.2.1 2020 to 2050 Forecasted Median Household Income

Figure 3.4 and **Table 3.2** show the future median household income baseline data across the thirty years between 2020 and 2050 for the overall corridor and Segment #2 and does not consider any impacts from the interstate upgrade.¹⁷

- The total forecasted median household income in the Ports-to-Plains Corridor will rise 161 percent from \$50,460 to \$131,467.
- The Segment #2 forecasted median household incomes are projected to increase by 137 percent from \$52,941 in 2020 to \$125,376 in 2050.
- The Segment #2 projected percent growth in median household income at 137 percent is greater than Segment #3 at 116 percent, but less than Segment #1 at 186 percent.

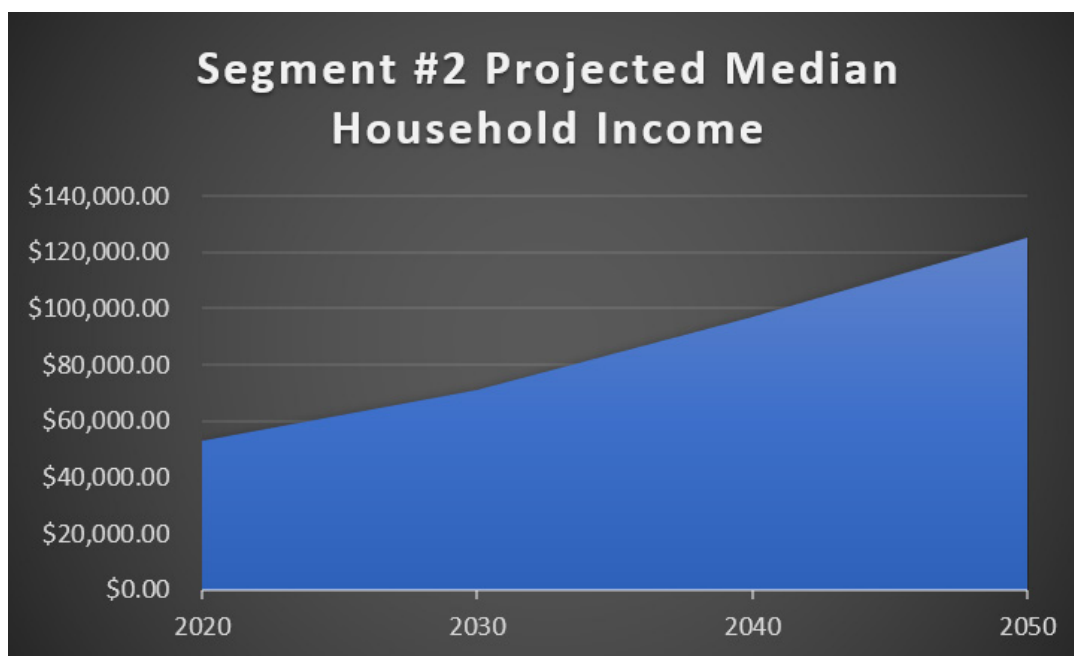


Figure 3.4: Segment #2 Projected Median Household Income for 2020 to 2050

Source: Moody's Analytics County Forecast, accessed January 2020

Table 3.2: Projected Median Household Income in the Corridor and Segment

	2020	2030	2040	2050
Segment #2 Projected Median Income	\$52,941	\$70,740	\$97,187	\$125,376
Corridor Projected Median Income	\$50,460	\$72,320	\$99,419	\$131,467

Source: Moody's Analytics County Forecast, accessed January 2020

¹⁷ Economic conditions data uses the Moody's Analytics Economic Forecast tool used commonly on large statewide studies. The Moody's data set showed lower projected population growth (particularly in Segment #2) than the population forecast data source used in this chapter, the demographics-only based Texas Demographic Center (TDC). This resulted in disparities between projected population and projected economic factors such as employment. Other factors – such as growth in non-working age groups as well as increased automation could also help explain the differences between the datasets.

3.2.2 2020 to 2050 Forecasted Employment

Figure 3.5 and **Table 3.3** and show the future employment baseline data the thirty years between 2020 and 2050 for the overall corridor and Segment #2 and does not consider any impacts from the interstate upgrade.

- The total forecasted employment in the Ports-to-Plains Corridor will rise 17 percent from 894,768 to 1,044,139.
- The Segment #2 forecasted employment is projected to increase by 22 percent from 485,516 in 2020 to 590,529 in 2050.
- Segment #2 employment is projected to grow at the highest rate in the corridor when compared to Segment #1 (8 percent) and Segment #3 (15 percent).

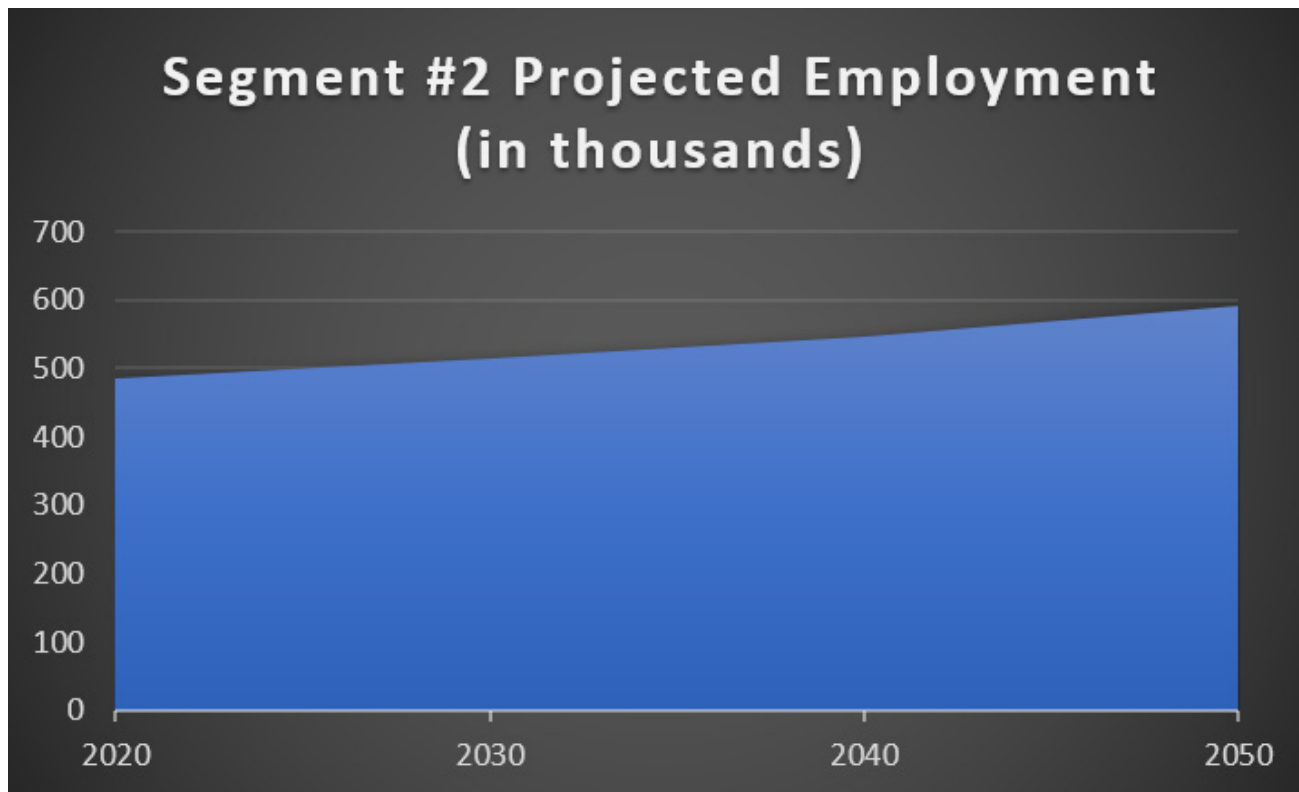


Figure 3.5: Segment #2 Projected Employment for 2020 to 2050

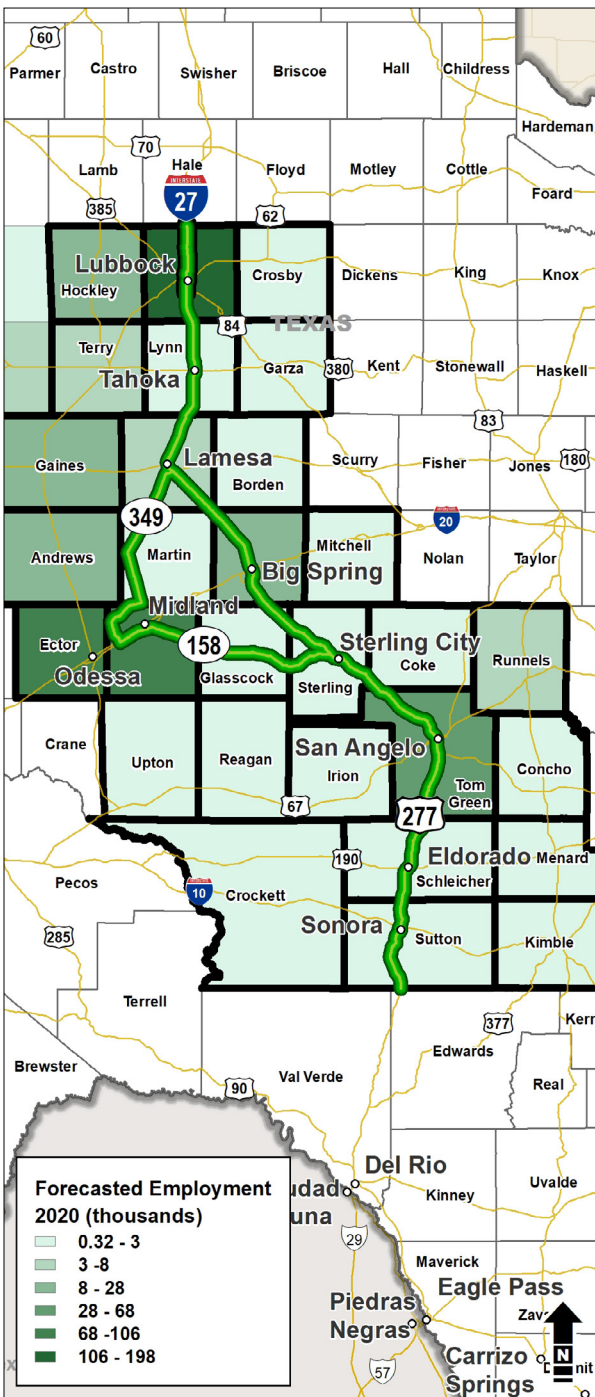
Source: Moody's Analytics County Forecast, accessed January 2020

Table 3.3: Projected Employment in the Corridor and Segment #2

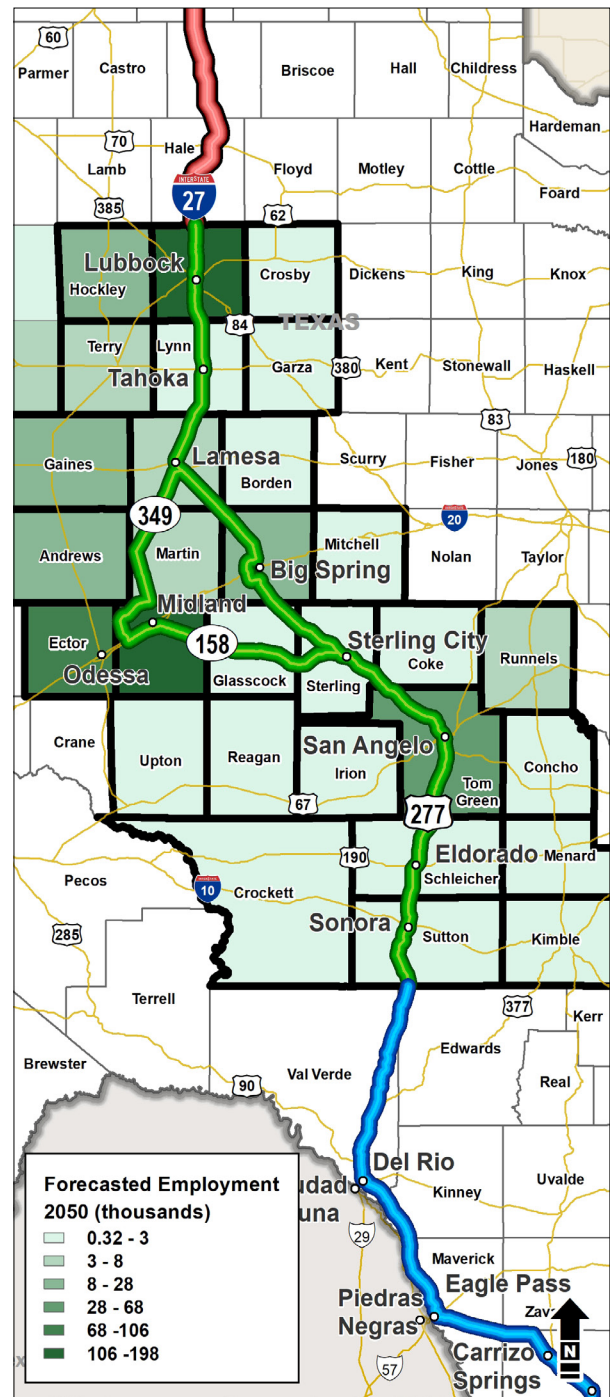
	2020	2030	2040	2050
Segment #2 Projected Employment	485,516	514,070	546,519	590,529
Corridor Projected Employment	894,768	935,678	979,766	1,044,139

Source: Moody's Analytics County Forecast, accessed January 2020

Figure 3.6 and 3.7 show the projected employment for 2020 and 2050 by county in Segment #2 for comparison purposes.



**Figure 3.6: Segment #2
Projected Employment for 2020**
Source: Moody's Analytics County Forecast



**Figure 3.7: Segment #2 Projected
Employment for 2050**
Source: Moody's Analytics County Forecast

Figure 3.8 and **Figure 3.9** show the projected top employment industries by county in Segment #2 for 2020 and 2050, respectively, which like most of the Ports-to-Plains Corridor, is dominated by government and trade, transportation, and utilities.

- Segment #2 is the only segment that includes a county featuring leisure and hospitality as the leading industry in either 2020 or 2050,

and the only segment with a county having natural resources and mining as a top industry.

Segment #2 counties top employment industries for 2020 and 2050 include government, trade, transportation and utilities, natural resources and mining, professional and business services, and leisure and hospitality.

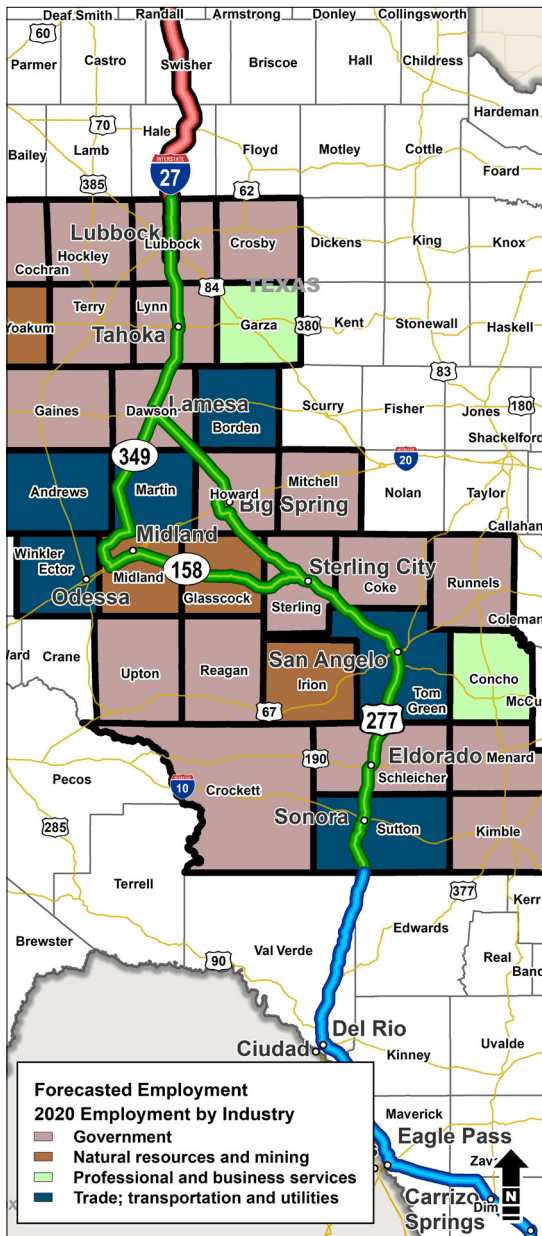


Figure 3.8: Segment #2 Projected Employment by Industry for 2020

Source: Moody's Analytics County Forecast

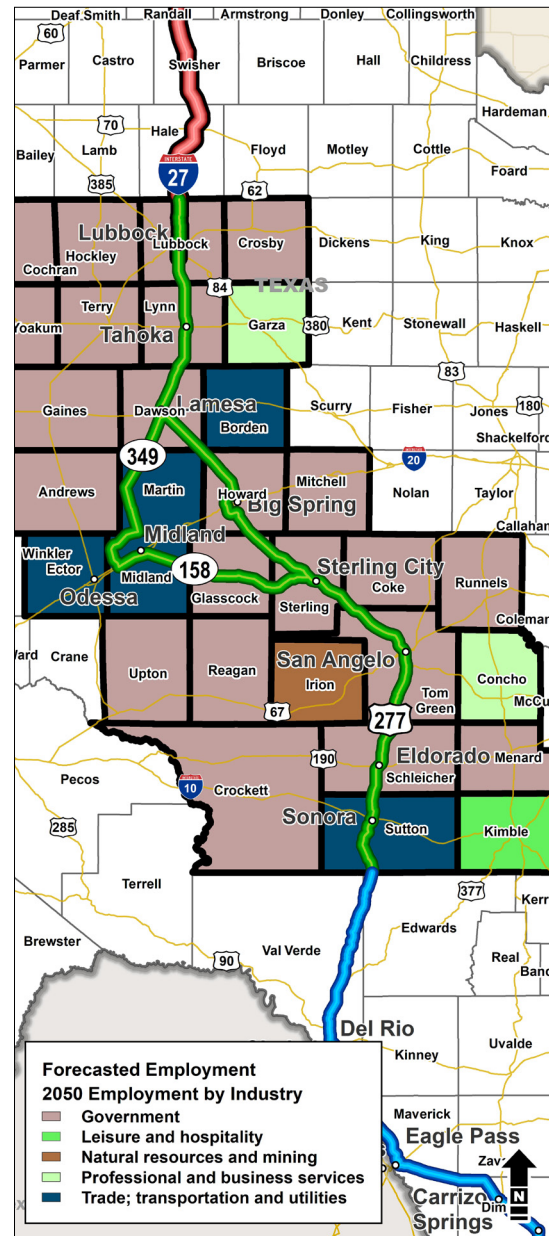


Figure 3.9: Segment #2 Projected Employment by Industry for 2050

Source: Moody's Analytics County Forecast

3.2.3 2020 to 2050 Forecasted Gross Domestic Product

Figure 3.10 and **Table 3.4** show the forecasted gross domestic product (GDP) baseline across the thirty years between 2020 and 2050 for and overall corridor and Segment #2¹⁸ and does not consider any impacts from the interstate upgrade.

- The forecasted GDP in the Ports-to-Plains Corridor will rise 69 percent from \$155,377 million to \$263,243 million.
- Forecasted GDP in Segment #2 is projected to increase by 76 percent from \$99,756 million in 2020 to \$175,102 million in 2050.
- The GDP growth rate in Segment #2 is greater than Segment #1 (47 percent) but less than Segment #3 (80 percent).

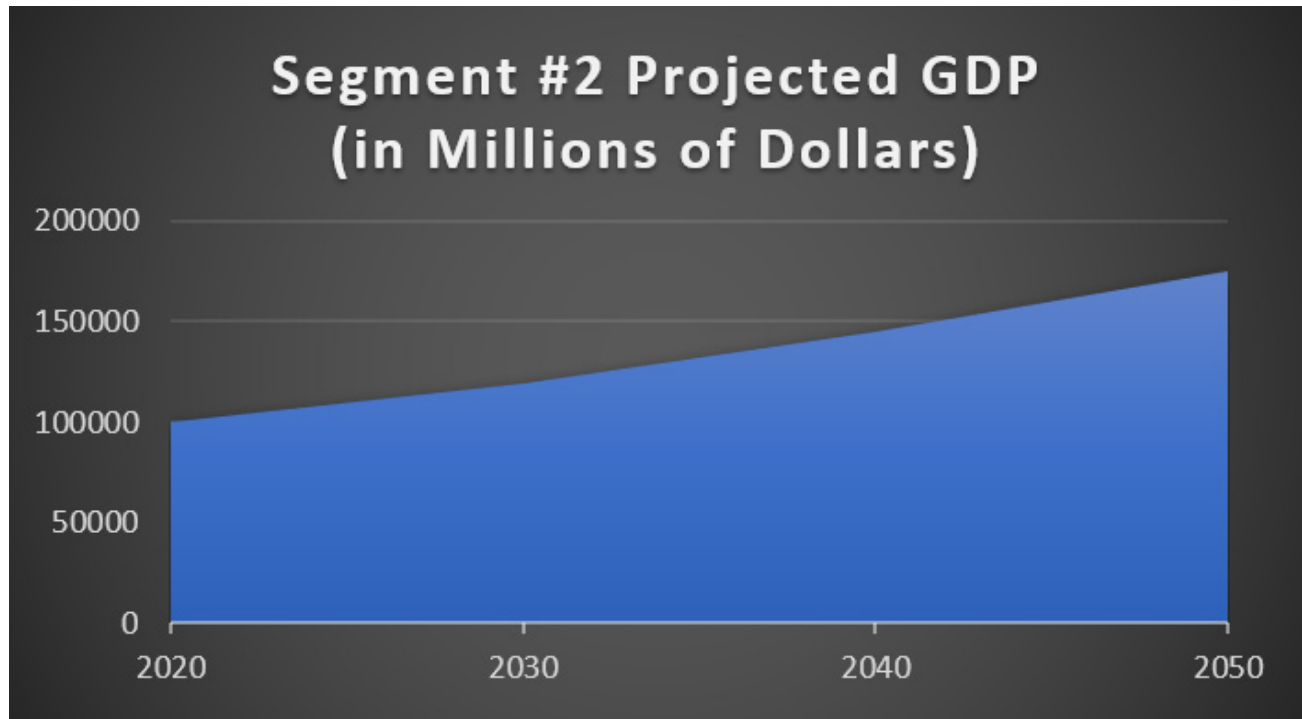


Figure 3.10: 2020 to 2050 Projected GDP for Segment #2
Source: Moody's Analytics County Forecast, accessed January 2020

Table 3.4: Projected GDP in the Corridor and Segment #2

	2020 (in millions)	2030 (in millions)	2040 (in millions)	2050 (in millions)
Segment #2 Projected GDP	\$99,756	\$119,661	\$144,619	\$175,102
Corridor Projected GDP	\$155,377	\$185,214	\$220,731	\$263,243

Source: Moody's Analytics County Forecast, accessed January 2020

¹⁸ Economic conditions data uses the Moody's Analytics Economic Forecast tool used commonly on large statewide studies. The Moody's data set showed lower projected population growth (particularly in Segment #2) than the population forecast data source used in this chapter, the demographics-only based Texas Demographic Center (TDC). This resulted in disparities between projected population and projected economic factors such as employment. Other factors – such as growth in non-working age groups as well as increased automation could also help explain the differences between the datasets.

Figures 3.11 and 3.12 show the projected GDP for 2020 and 2050 by county for comparison purposes.

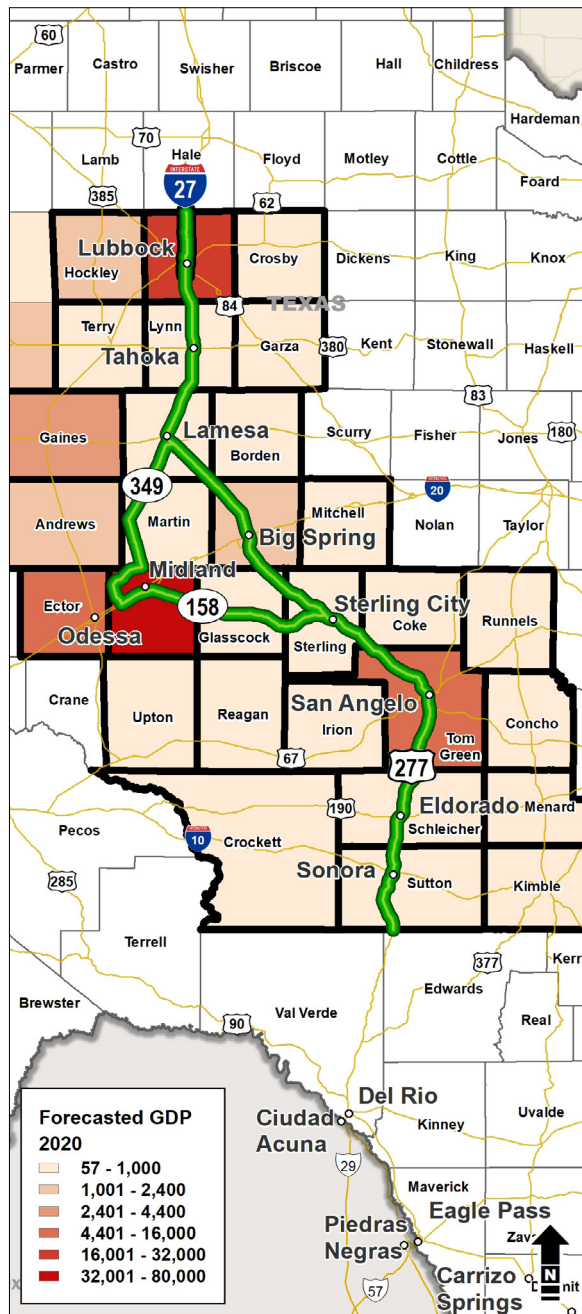


Figure 3.11: Segment #2 Projected GDP for 2020
Source: Moody's Analytics County Forecast, accessed January 2020

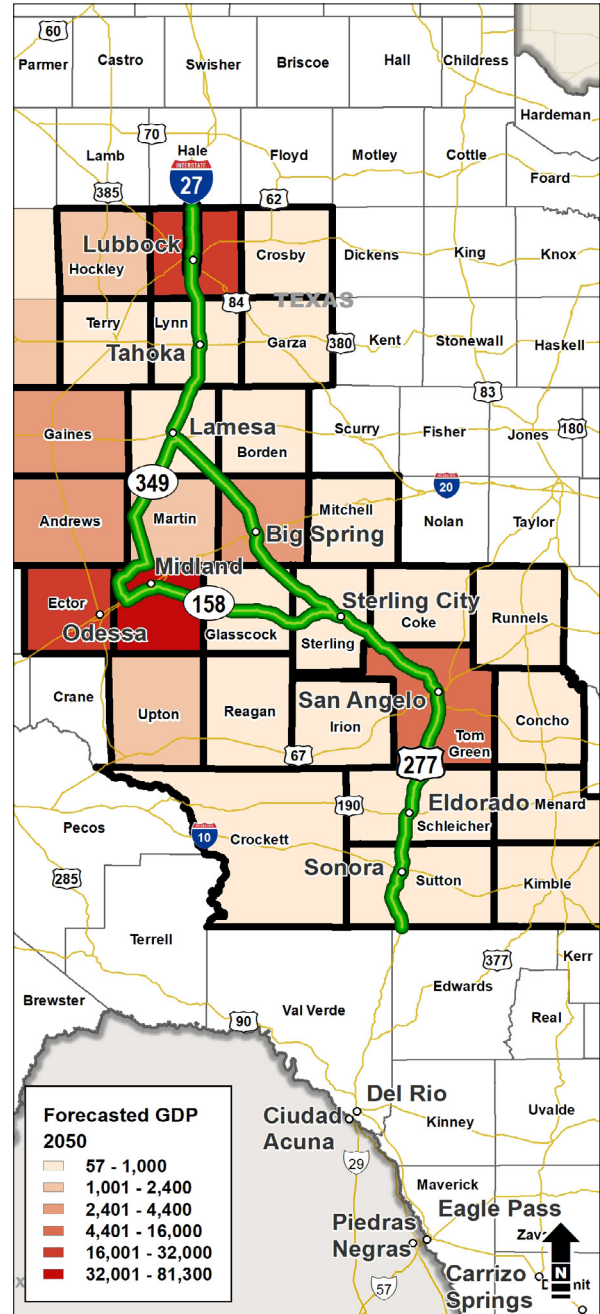


Figure 3.12: Segment #2 Projected GDP for 2050
Source: Moody's Analytics County Forecast, accessed January 2020

3.3 Forecasted Freight Tonnage

The forecasts presented in this section is based on models that project economic changes on global, national, and regional levels, integrate these forecasts, and then estimate the impact these changes will have on freight movement. These models assess shifts in market activity, the likely level of demand for goods, and volumes of freight needed to move goods from locations of production to areas of demand. Data presented in this section represent the baseline 2050 condition, which assumes a Ports-to-Plains Corridor with only the planned and programmed projects mentioned in Section 3.5 and not the Interstate upgrade. The tonnages discussed below are also measured by truck mode and no other freight transport modes, such as rail. As indicated in **Figure 3.13** freight growth is strong generally along I-27 and near the Mexico border.

- Freight volumes in the Ports-to-Plains Corridor area (69 counties) are expected to grow by 78 percent between 2018 and 2050, resulting in 73 million tons of freight added.
- The total volume transported is anticipated to reach 167 million tons with the top locations generating new tonnage consisting of Laredo (Webb County), Midland/Odessa (Midland/Ector counties) and Lubbock (Lubbock County). These three areas represent industrial groups that drive the corridor economy: foreign trade, energy, and agriculture.

In Segment #2, total truck tonnage is projected to grow 87 percent through 2050 and is particularly concentrated in Lubbock, Midland/Odessa, and San Angelo. **Figure 3.14** shows total 2050 freight tonnage in Segment #2.

- Thirty million additional tons of freight are expected to originate or terminate in Segment #2, accounting for 41 percent of the new tons on the corridor.
- The total volume of freight to/from Segment #2 reaches 66 million tons in 2050.

- The three counties with the highest forecast increments in truck freight include Midland County at 9.3 million new tons, Ector County at 7.5 million new tons, and Lubbock County at 6.3 million new tons.
- These three counties together account for three-quarters of the total incremental truck tonnage on Segment #2 through 2050.
- Adding Tom Green County and Howard County brings the proportion over 90 percent; not coincidentally, these also are the top population centers in the segment.

The United States–Mexico–Canada Agreement (USMCA), which was signed in January 2020 is an indicator of a future increased level of trade with Mexico. The agreement:

- Provides greater certainty over trade terms making Mexico a more desirable place to do business relative to competing locations abroad.
- Removes uncertainty about cross-border business conditions and frees companies to invest.
- Causes companies to rethink their supply chains to reduce country-specific risks and lower logistics costs.

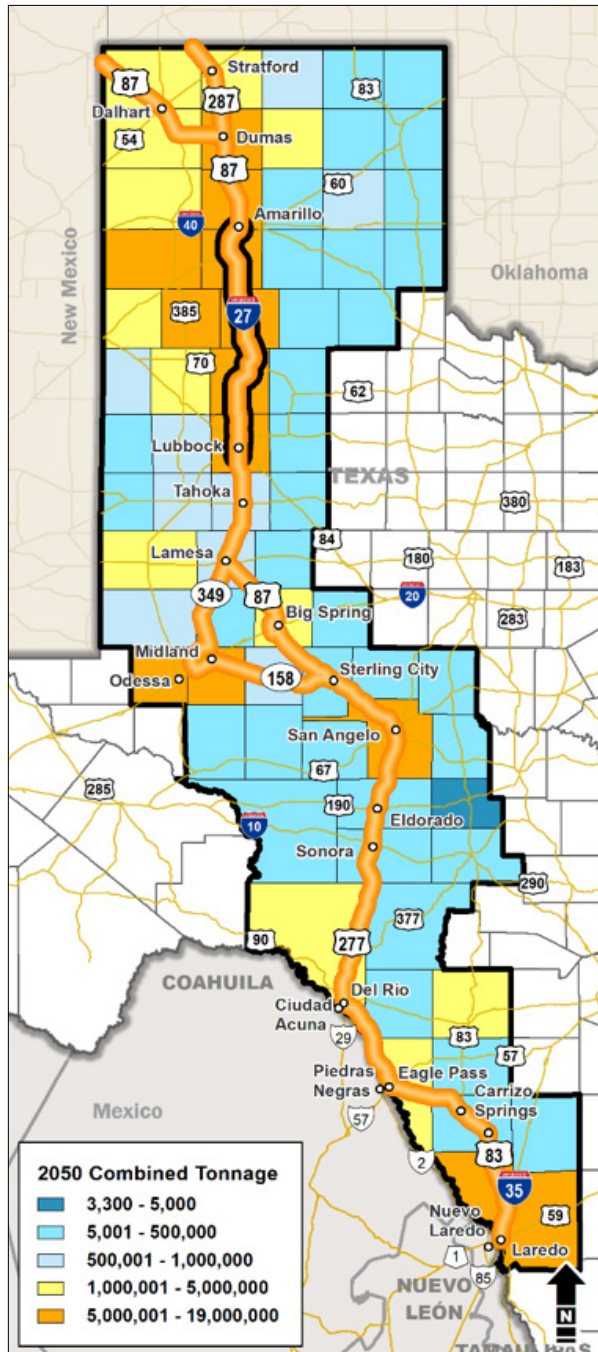


Figure 3.13: Corridor Total 2050 Baseline Freight Tonnage
Source: TxDOT SAM and Transearch

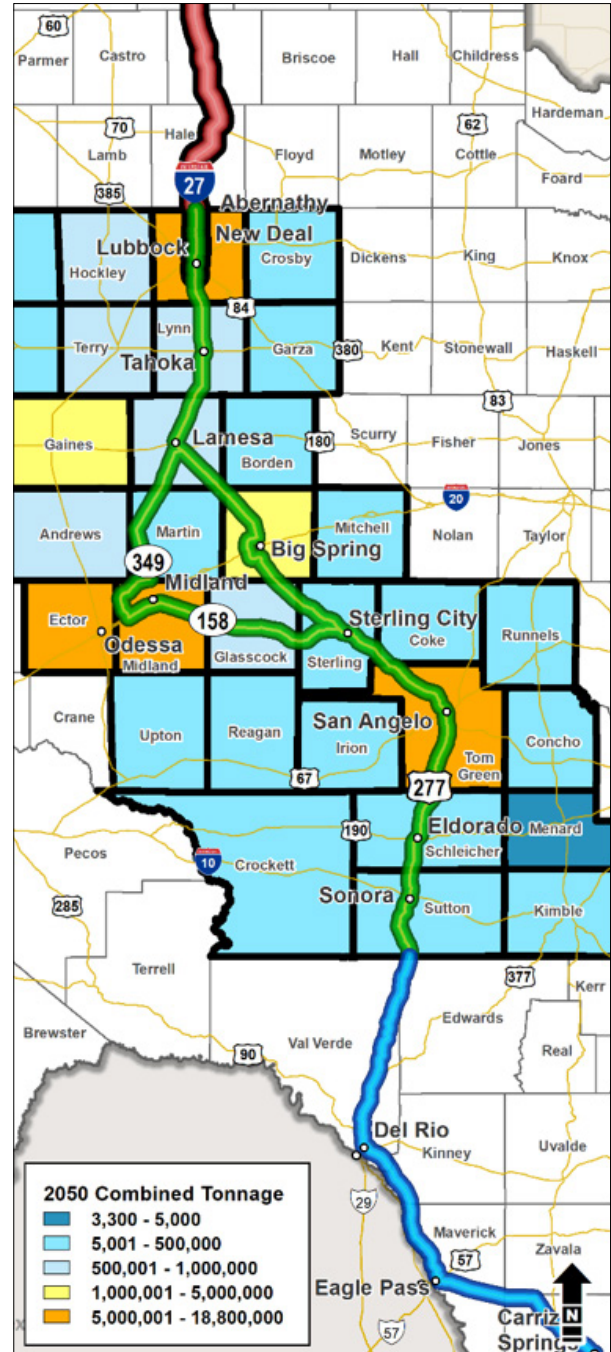


Figure 3.14: Segment #2 Total 2050 Baseline Freight Tonnage
Source: TxDOT SAM and Transearch

3.3.1 Forecasted International Trade

International trade imports and exports projected for 2050 for the baseline without the interstate upgrade are shown in **Figure 3.15** and **Figure 3.16** and include trade to all parts of the world, but they substantially consist of trade with Mexico.

- With an expected 227 percent increase or 3.8 million additional tons between 2018 and 2050, Segment #2 imports are projected to grow much faster than exports.
- Almost 90 percent of the new import tonnage

is concentrated within the segment's top four population centers – Lubbock, Midland, Ector, and Tom Green counties.

- Exports by truck from Segment #2 are forecast to grow by 1.3 million tons (78 percent) between 2018 and 2050. Lubbock and Howard counties together account for about one-third of the incremental volume, but export growth overall is fairly even across the segment.

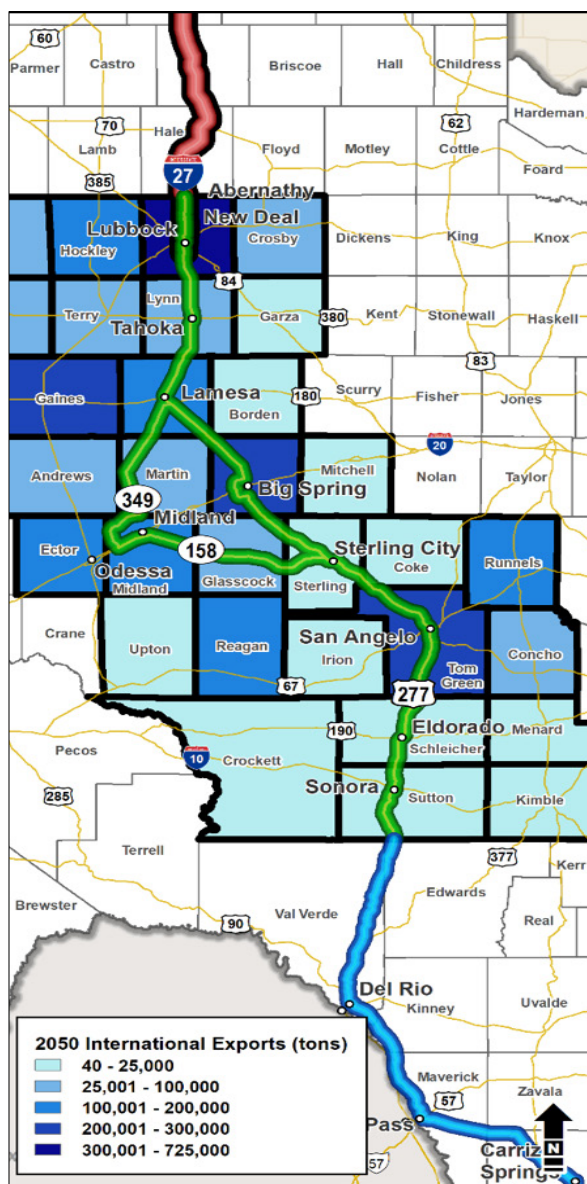


Figure 3.15: Segment #2 Import 2050

Baseline Freight Tonnage

Source: TxDOT SAM and Transearch

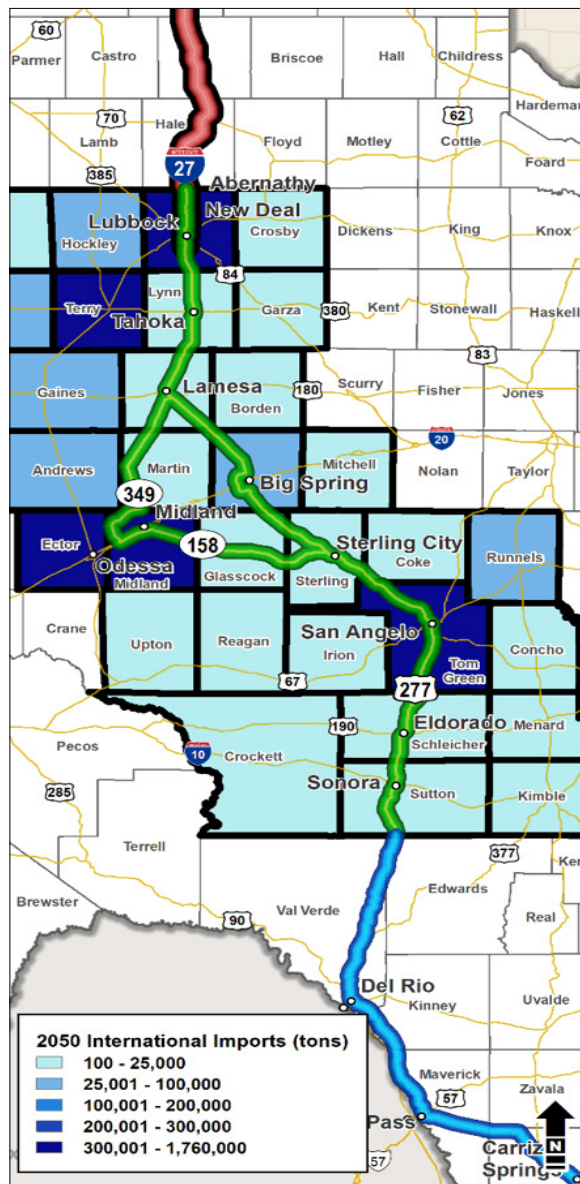


Figure 3.16: Segment #2 Export 2050

Baseline Freight Tonnage

Source: TxDOT SAM and Transearch

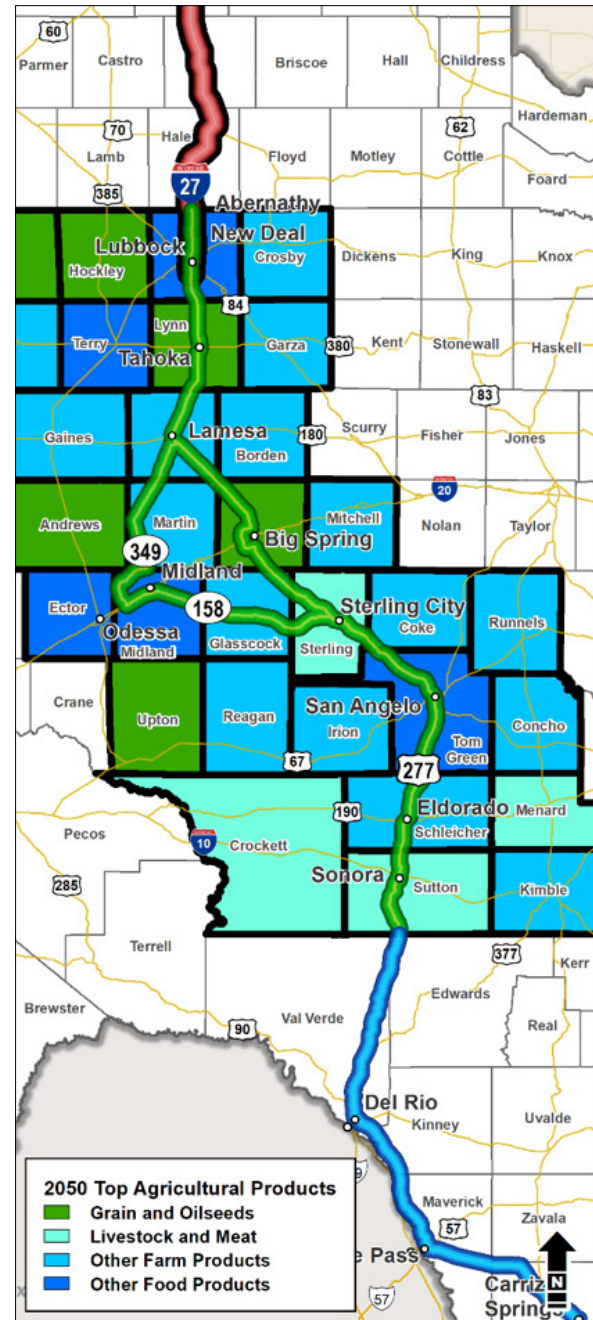
3.3.2 Forecasted Agriculture

Figure 3.17 depicts the top agricultural products for each county forecasted for 2050 for the baseline without the interstate upgrade in Segment #2. For food/agricultural, the principal commodity types are grain and oilseeds and other farm products, which include cotton and raw milk and represented the largest growth in Lubbock, Tom Green, and Midland counties.

3.3.3 Forecasted Energy

Figure 3.18 depicts the top energy products for each county forecasted for 2050 for the baseline without the interstate upgrade in Segment #2. The forecast indicates petroleum will remain the top product. The highest growth is in Lubbock, Midland and Ector counties, and encompasses local demand for gasoline and diesel. Chemicals (including fertilizers) remain important in Runnels County and become the top energy group commodity for Howard County by 2050.

Though wind is a major energy source in Segment #2, the freight tonnage in wind energy generation equipment is not as great as other goods and the equipment is long lasting. Nevertheless, wind energy generation equipment can be expected to traverse the corridor for many years ahead.



**Figure 3.17: Segment #2 2050
Agriculture/Food Products**

Source: Transearch Database

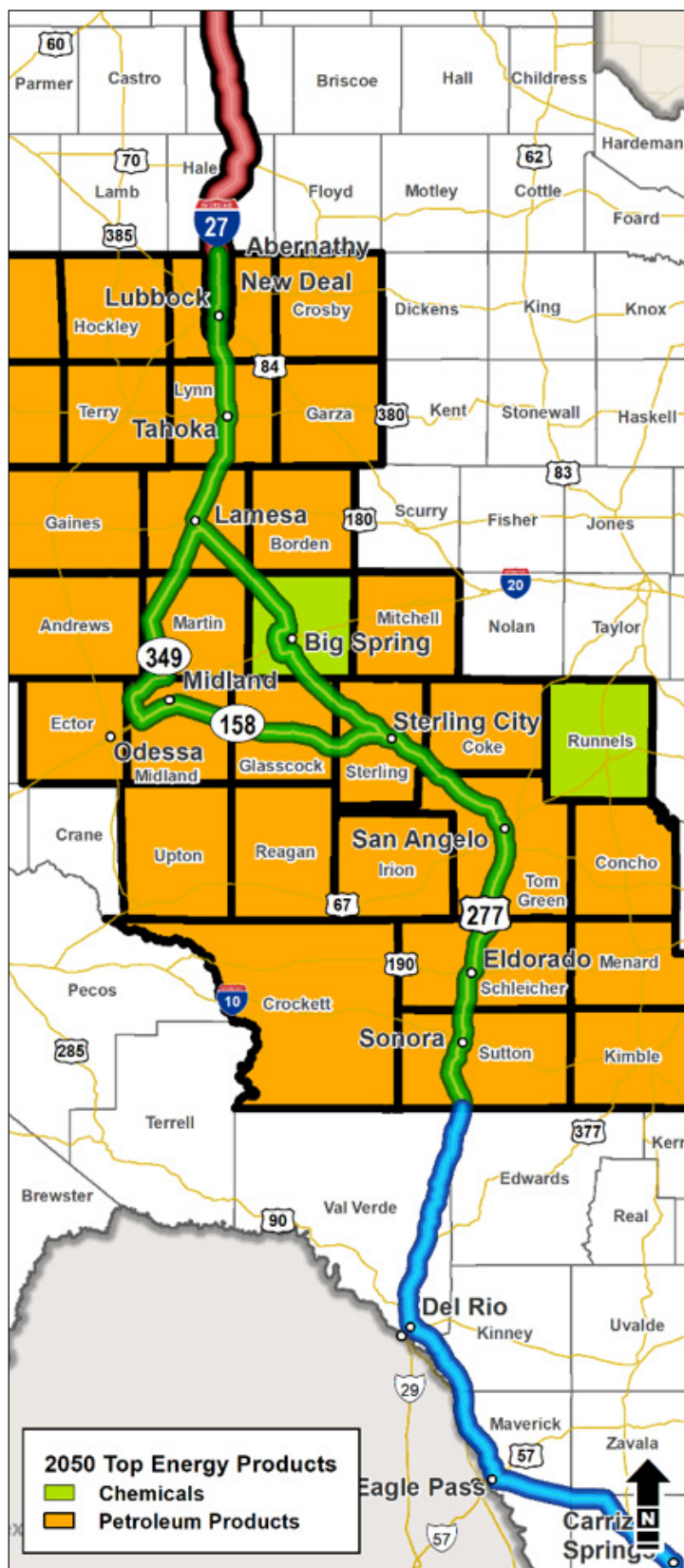


Figure 3.18: Segment #2 2050 Energy Products

Source: Transearch Database



3.4 Future Land Use Potential

Based on aerial imagery, an area of 1,000 feet on each side of the corridor within Segment #2 was assessed for future land use potential. The future land use potential for the corridor within Segment #2 was determined by evaluating existing developed and undeveloped land. Undeveloped land is further evaluated by its potential to be developed.

Eighteen percent of Segment #2 is presently developed by cities and towns. Four percent of Segment #2 is not developable because of constraints such as floodplains, wetlands, parks, and other sites (historic, cemeteries, and hazardous materials). 78 percent of Segment #2 has development potential. **Table 3.5** compares the future land use potential of Segment #2 and the entire corridor.

Table 3.5: Future Land Use Potential in the Corridor and Segment #2

	Developable	Developed	Not Developable
Segment #2 Land Use Potential	78%	18%	4%
Corridor Land Use Potential	76%	19%	5%

Source: ESRI aerial imagery, NWI, FEMA, THC and EPA estimated data.

3.5 Planned and Programmed Projects

The Segment #2 Committee reviewed planned and programmed projects in Segment #2 of the Ports-to-Plains Corridor. Completion of these planned and programmed projects were included in the baseline. For the purpose of this study, a planned project is a project identified in a TxDOT or MPO planning document. A programmed project is one of these planned projects that is either completely or partially funded. None of the planned and programmed projects upgrade the corridor to interstate standards. Segment #2 consists of 442 total miles with approximately 32 miles of Interstate highway (21 miles of I-27 and 11 miles of I-20) with another 27 miles of non-Interstate, controlled access freeway, including a 4-mile section of US-87 in south Lubbock that could meet interstate standards but has not gone through a formal application process. **Figure 3.19** shows divided and controlled access roadway types in Segment #2.

Figure 3.20 provides an overview of planned and programmed projects in Segment #2. There are seven fully funded projects that total five miles in Segment #2 that will upgrade the Ports-to-Plains Corridor to a 4-lane divided facility. Those projects have current funding of \$82,587,898. **Table 3.6** lists the limits, timeframe, and funding amount of planned and programmed projects in Segment #2. This list does not include planned/programmed projects that upgrade existing I-27 or I-20 or projects that connect to the corridor on other routes.



Figure 3.19: Divided and Controlled Access in Segment #2

TxDOT Roadway Inventory supplemented by Google Maps Survey



Figure 3.20: Planned and Programmed Projects in Segment #2

Table 3.6: Planned and Programmed Projects in Segment #2

	Limits	Time Construction will Begin	Funding Amount
Construct Direct Connectors on US-87	State Loop 88 (From 114th Street to 146th Street)	Within 4 years	\$15,000,000
Construct Interchange on US-87	From 0.5 miles north of FM 41 to 0.5 miles south of FM 41	Within 4 years	\$16,000,000
Interchange (new or reconstructed) on SH 158	At SH 137	Within 4 years	\$27,498,798
Upgrade 5-lane on SH 349	From SH 191 to Business Loop 20-E	5-10 years	\$6,966,960
Upgrade 5-lanes on SH 349	From Business Loop 20-E to I-20	5-10 years	\$1,433,040
Widen US-277 from 2-lane to Super 2	From Dry Devil's River to 12.275 miles north of Edwards County line	Within 4 years	\$5,889,100
Widen US-277 from 2-lane to Super 2	From 12.275 miles north of Edwards County line to Edwards County line	Within 4 years	\$9,800,000
Total Amount			\$82,587,898

3.5.1 Segment #2 Other Planned and Programmed Projects

There are several other non-widening projects along the corridor that are planned or programmed in Segment #2. These projects include rehabilitation, operational, and safety projects. The total planned and programmed project amounts for these projects include approximately:

- \$29.4 million for rehabilitation projects
- \$3.5 million for safety projects
- \$25.3 million for operational projects which may include ramp modifications or intersection improvements.

3.6 Gap Analysis

For the purpose of this study, a gap is noted as a location where the existing roadway is not an Interstate or where there are no planned or programmed projects that will upgrade the existing roadway to an Interstate. In Segment #2, 32 miles of the corridor are interstate. The remaining 410 miles are considered gaps. **Figure 3.21** shows the gaps located in Segment #2.

3.7 Future Traffic Conditions

This section discusses future traffic conditions on Segment #2 for the baseline condition. It also provides future traffic conditions for the interstate upgrade.

The baseline includes existing roadways and improvement projects that are currently planned and programmed by TxDOT districts and MPOs throughout the corridor as referenced in Section 3.5.

As required by House Bill 1079, the future traffic conditions analysis includes an interstate facility along the Ports-to-Plains Corridor. The interstate upgrade considers upgrading all non-interstate segments of the corridor to an interstate. This would include upgrading 410 miles of the 442 miles in Segment #2 that are not interstate.



Figure 3.21: Gaps Located in Segment #2

3.7.1 Baseline Forecast

Ports-to-Plains Corridor - Total Traffic

The entire Ports-to-Plains Corridor carried an average of 10,600 vehicles per day in 2018 with growth increasing the volume to 17,700 vehicles per day in 2050. Corridor volumes increase by 53 percent to 16,200 vehicles per day due to population growth alone, and an additional 14 percent due to traffic diversion resulting from planned and programmed TxDOT projects for a total increase of 67 percent.

Ports-to-Plains Corridor - Truck Traffic

Truck volumes on the corridor grow from 2,200 in 2018 to 3,800 trucks per day in 2050.

Segment #2 - Total Traffic

Traffic volumes in Segment #2 increase from an average of 10,200 vehicles per day in 2018 to 17,200 vehicles per day in 2050 under the baseline. Segment #2 volumes increase 45 percent to 14,800 vehicles per day due to demographic growth alone, and an additional 24 percent due to traffic diversion resulting from planned and programmed TxDOT projects, notably the recently opened US-87 realignment/relief route around Big Spring, for a total increase of 69 percent. **Figure 3.22** depicts the projected forecast in total traffic.

Segment #2 - Truck Traffic

Truck volumes on Segment #2 grow from 2,100 in 2018 to 3,600 trucks per day in 2050.

3.7.2 Interstate Upgrade Forecast

Ports-to-Plains Corridor - Total Traffic

The entire Ports-to-Plains Corridor carried an average of 10,600 vehicles per day in 2018 with the interstate upgrade volumes are projected to increase to 23,800 vehicles per day in 2050. Corridor volumes increase 53 percent due to demographic growth alone from 2018, and an additional 72 percent due to traffic diversion resulting from the interstate highway upgrade for a total increase of 125 percent over 2018 levels. The growth for the interstate upgrade represents a 34 percent increase over the 2050 baseline.



Figure 3.22: Baseline 2050 Traffic

Volumes in Segment #2

Source: TxDOT SAM and STARS2

Ports-to-Plains Corridor – Truck Traffic

The corridor-wide truck volumes for the interstate upgrade more than doubles from 2,200 in 2018 to 5,100 trucks per day in 2050.

Segment #2 - Total Traffic:

Traffic volumes on Segment #2 are projected to increase from an average of 10,200 vehicles per day in 2018 to 24,000 vehicles per day in 2050 under the interstate upgrade as shown in **Figure 3.23**. Segment #2 volumes increase 45 percent due to demographic growth alone from 2018, and an additional 90 percent due to traffic diversion resulting from the interstate upgrade for a total increase of 135 percent over 2018 levels. Segment #2 growth is projected to increase by 40 percent over the 2050 baseline.

Segment #2 - Truck Traffic:

The truck volumes on Segment #2 for the interstate upgrade more than doubles from 2,100 in 2018 to 4,900 trucks per day in 2050.

Table 3.7 shows the daily traffic volume generally ranges between 10,000 to 30,000 vehicles per day at these locations with truck traffic accounting 40 percent of the overall volume. Both the Segment #2 and corridor-wide traffic projections for the interstate upgrade would be comparable to the current volumes on interstates in South and West Texas.



Figure 3.23: Interstate 2050 Traffic Volumes in Segment #2
Source: TxDOT SAM and STARS2

Table 3.7: Current Traffic Volumes (2018) on Rural Interstates in South and West Texas

Facility	Daily Total Traffic	Daily Truck Traffic
I-10: Junction to I-20	5,000 – 15,000	4,800
I-20: I-10 to Abilene	10,000 – 35,000	9,200
Rural Portions of I-27	10,000 – 15,000	2,800
Rural Portions of I-40	10,000 – 15,000	6,100
Rural I-35 (Laredo to San Antonio)	20,000 – 30,000	10,600

Source: TxDOT STARS II Data

3.7.3 Interstate Travel Time Comparison

Tables 3.8 and **3.9** show the benefits in mobility of the interstate upgrade under free-flow conditions (light traffic), average conditions, and peak conditions as compared to 2018 conditions (refer to Chapter 4 for further comparisons between the 2050 baseline and 2050 interstate upgrade). The analysis shows the interstate upgrade is anticipated to reduce 2018 corridor-wide:

- Free flow travel time from 816 to 772 minutes (44 minutes of savings).
- Average travel time from 979 to 873 minutes (1 hour and 46 minutes of savings),
- Peak period travel time from 1,061 to 893 minutes (2 hours and 48 minutes of savings).
- Travel time reductions ranging from five to 16 percent and travel speed improvements ranging from six to 19 percent. and travel speed improvements ranging from six to 19 percent.

Table 3.8: Corridor Mobility Measures – Ports-to-Plains Corridor

Corridor Mobility Measure	Current 2018 Data		Interstate Upgrade		Percent Improvement	
	Travel Time (minutes)	Speed (mph)	Travel Time (minutes)	Speed (mph)	Travel Time	Speed
Free Flow Conditions	816	70	772	74	5%	6%
Average Conditions	979	59	873	66	11%	12%
Peak Conditions	1061	54	893	64	16%	19%

Source: 2018 NPMRDS Data

By comparison, the interstate upgrade is anticipated to reduce 2018 Segment #2:

- Free flow travel time from 362 to 348 minutes (14 minutes of savings).
- Average travel time from 429 to 394 minutes (35 minutes of savings).
- Peak period travel time from 458 to 402 minutes (56 minutes of savings).

- Travel time ranging from four to 12 percent and travel speed improvements ranging from four to 14 percent.

These travel time reductions due to the interstate facility allows Segment #2 of the Ports-to-Plains Corridor to divert trips from slower routes.

Table 3.9: Corridor Mobility Measures – Segment #2

Corridor Mobility Measure	Current 2018 Data		Interstate Upgrade		Percent Improvement	
	Travel Time (minutes)	Speed (mph)	Travel Time (minutes)	Speed (mph)	Travel Time	Speed
Free Flow Conditions	362	72	348	75	4%	4%
Average Conditions	429	61	394	66	8%	8%
Peak Conditions	458	57	402	65	12%	14%

Source: 2018 NPMRDS Data

3.7.4 Interstate Safety Benefits

As discussed in Chapter 2, between 2014 to 2018 more than 3,500 total crashes and nearly 50 fatal crashes have occurred per year on the Ports-to-Plains Corridor. Statewide, more than half of the fatal crashes occur in rural areas like much of the Ports-to-Plains Corridor in West and South Texas. A reduction in crash rate is expected due to interstate upgrade. For example, crash rates generally improve if a two or four lane undivided highway is upgraded to a divided highway, and rates improve even more when a divided highway is upgraded to an interstate.

Applying TxDOT statewide average crash rates (shown in Chapter 4) to the segments that will be upgraded in the entire Ports-to-Plains Corridor:

- Corridor-wide, the interstate upgrade is expected to reduce the 2018 average crash rate of 115 crashes per hundred million vehicle miles traveled (100 MVMT) to 68 crashes per 100 MVMT.
- In Segment #2, the 2018 crash rate is 111 crashes per 100 MVMT with large crash rates experienced in southeast Midland, central San Angelo, and Big Spring. The interstate upgrade is expected to reduce the 2018 crash rate to 64 crashes per 100 MVMT.

The interstate upgrade to the Ports-to-Plains Corridor would result in a yearly reduction of approximately 18 fatal collisions, 329 injury collisions, and 906 property damage collisions across the state by 2050.

3.8 Forecasted Freight Flow

The Segment #2 Committee reviewed baseline growth in freight traffic moving by truck on the Ports-to-Plains Corridor to assess the 2050 forecast.

The baseline forecasts presented in this section reflect freight growth without the diversion from other routes that would be associated with upgrading the Ports-to-Plains Corridor to an interstate. Projected freight diversion is covered in Chapter 4 of this report. The baseline does not account for the stimulating influence that corridor improvements would have on regional economies along the corridor and the promotion of new development. With improved transportation access, counties along the corridor would likely attract more business and generate more freight once the Ports-to-Plains Corridor is upgraded to interstate.

Figure 3.24 displays year 2050 baseline overall truck traffic demand that originates or terminates within Ports-to-Plains counties. As shown, truck traffic using the corridor connects across Texas and is expected to grow broadly. Though much of the traffic is concentrated in West Texas, significant amounts connect to East Texas including Dallas and the Gulf Coast. In Segment #2, much of the truck traffic uses the I-10 and I-20 corridors as well as several parallel north-south routes connecting through the San Angelo/Midland/Lubbock areas including portions of US-87 and SH 349 within the Ports-to-Plains Corridor. Truck volume for the segment grows to 66 million tons in 2050, an 87 percent increase from 2018 representing 30 million tons of new freight added. The most significant commodity growth occurs in construction-related bulk materials such as sand, minerals, and cement; this includes frac

sand and materials used to construct oil wells. This commodity group grows by almost 8 million tons outbound and 11 million tons inbound, representing half of the segment's total outbound truck tonnage growth through 2050 and two-thirds of its total inbound growth. Outbound shipments of waste and scrap and inbound shipments from warehouses and distribution centers respectively represent 19 percent of outbound growth and 13 percent of inbound. Petroleum products themselves account for about 5 percent of the outbound and inbound growth since most of that shipping occurs by other modes.

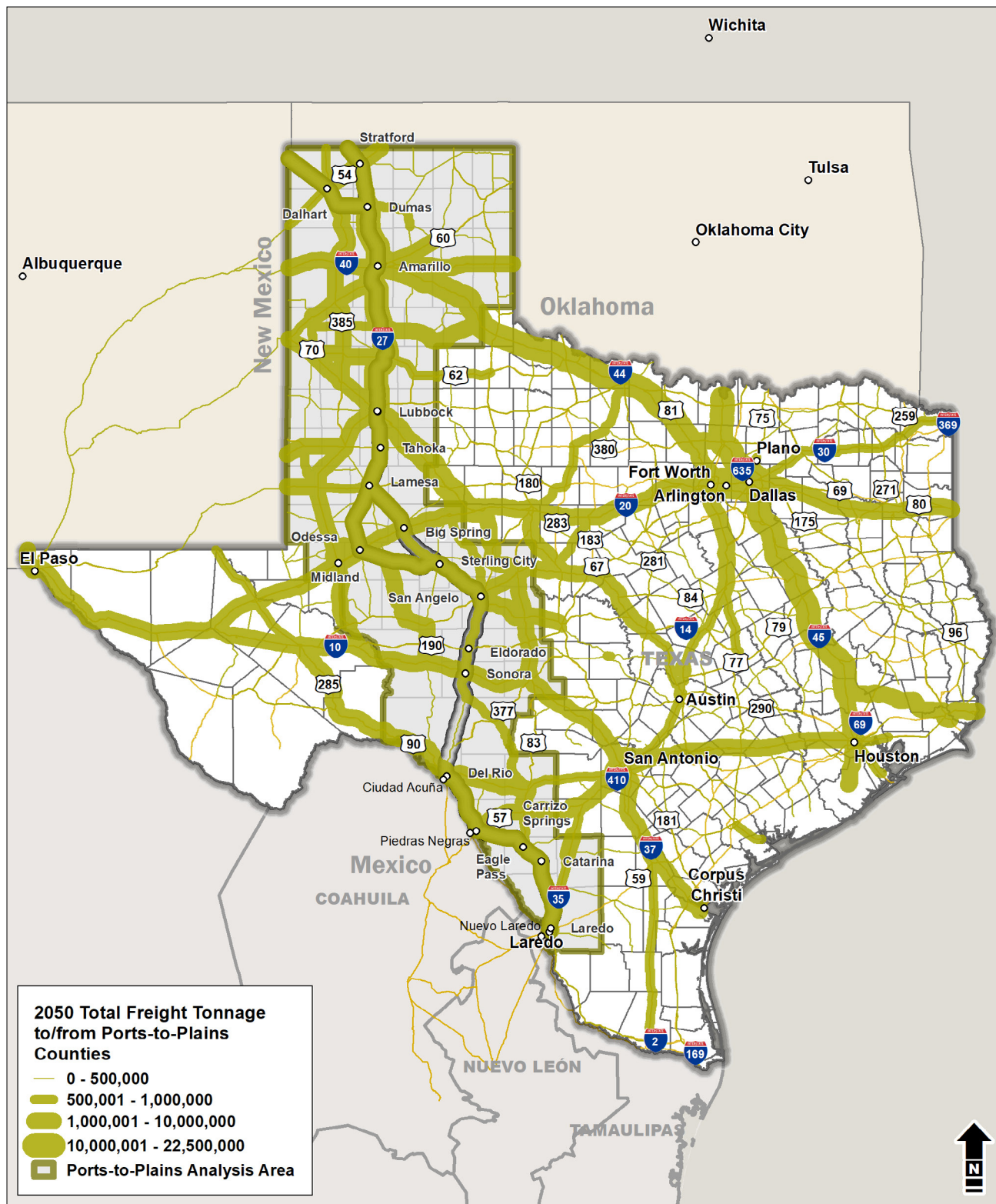


Figure 3.24: Corridor Total 2050 Tonnage Flows – Baseline

Source: TxDOT SAM and Transearch



3.8.1 Forecasted Agricultural Freight

The forecast movement of agricultural and food products by truck that originates or terminates within Ports-to-Plains counties is captured in **Figure 3.25**. It shows robust growth, with activity stretching across the state. The trucked volume of inbound goods for consumption and processing in Segment #2 rises by 31 percent through 2050, but outbound production moving to markets everywhere grows twice as fast - by 65 percent. This adds nearly 2 million new tons of agricultural and food products and contributes 12 percent to the segment's total outbound truck tonnage.

Segment #2 has an important and growing connection along I-20 to Dallas/Fort Worth, which is the southwest regional distribution hub for food and other consumer and industrial products and offers rail intermodal service to national ports that cotton relies upon. Other significant and increasing linkages are US-84 which connects Lubbock to I-20 and New Mexico and the US-83 corridor east of San Angelo, which connects to I-10 and the San Antonio market.

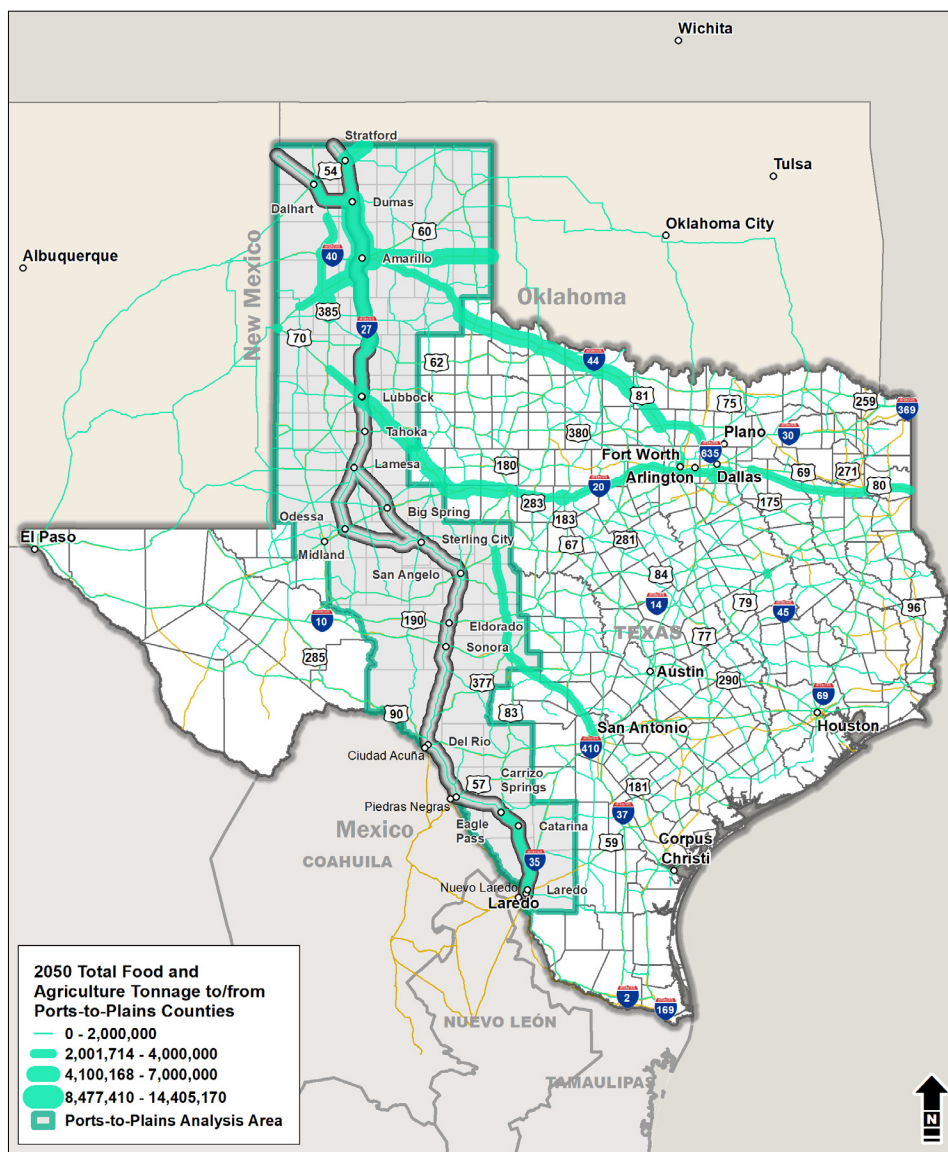


Figure 3.25: Agriculture/Food Total 2050 Tonnage Flows – Baseline

Source: TxDOT SAM and Transearch

3.8.2 Forecasted Energy Sector Freight

Figure 3.26 illustrates the forecasted 2050 petroleum product truck demand that originates or terminates within Ports-to-Plains counties. The forecasted growth of petroleum products is moderate. Petroleum product shipments by truck are largely local traffic, supplying the region's

vehicles with fuel and connecting oil and natural gas production areas with pipelines. Representing around 10 percent of Segment #3 truck tonnage in 2050, energy sector growth through 2050 is moderate at 53 percent.

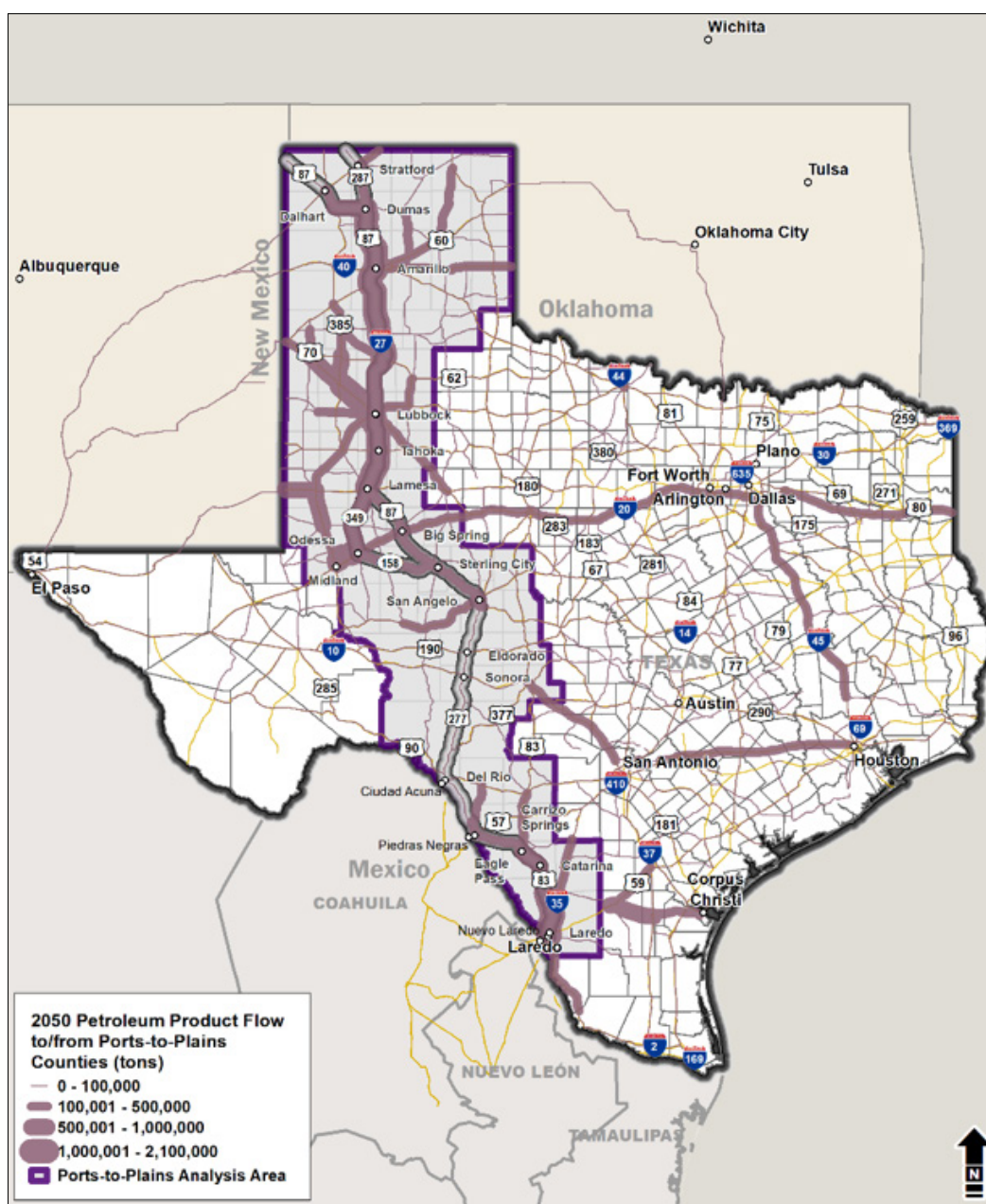


Figure 3.26: Corridor Petroleum Products 2050 Tonnage Flows – Baseline

Source: TxDOT SAM and Transearch

3.8.3 Forecasted International Trade Freight

Figure 3.27 illustrates the forecasted 2050 international trade truck demand that originates or terminates within Ports-to-Plains counties. It includes port traffic - such as with Texas ports or the Los Angeles ports - but most is trade with Mexico. Traffic flows originate or terminate at counties along the corridor, accounting for 28 million tons and 17 percent of total corridor truck traffic in 2050. As shown, the foreign trade network is extensive and is forecast to grow comprehensively. In Segment #2, trade rises 154%

to 8 million tons by truck in 2050, with three-quarters of the growth coming from imports. Strong flows are found on the Ports-to-Plains Corridor via US-87, US-84 from Lubbock to I-20, and on I-10 and I-20.

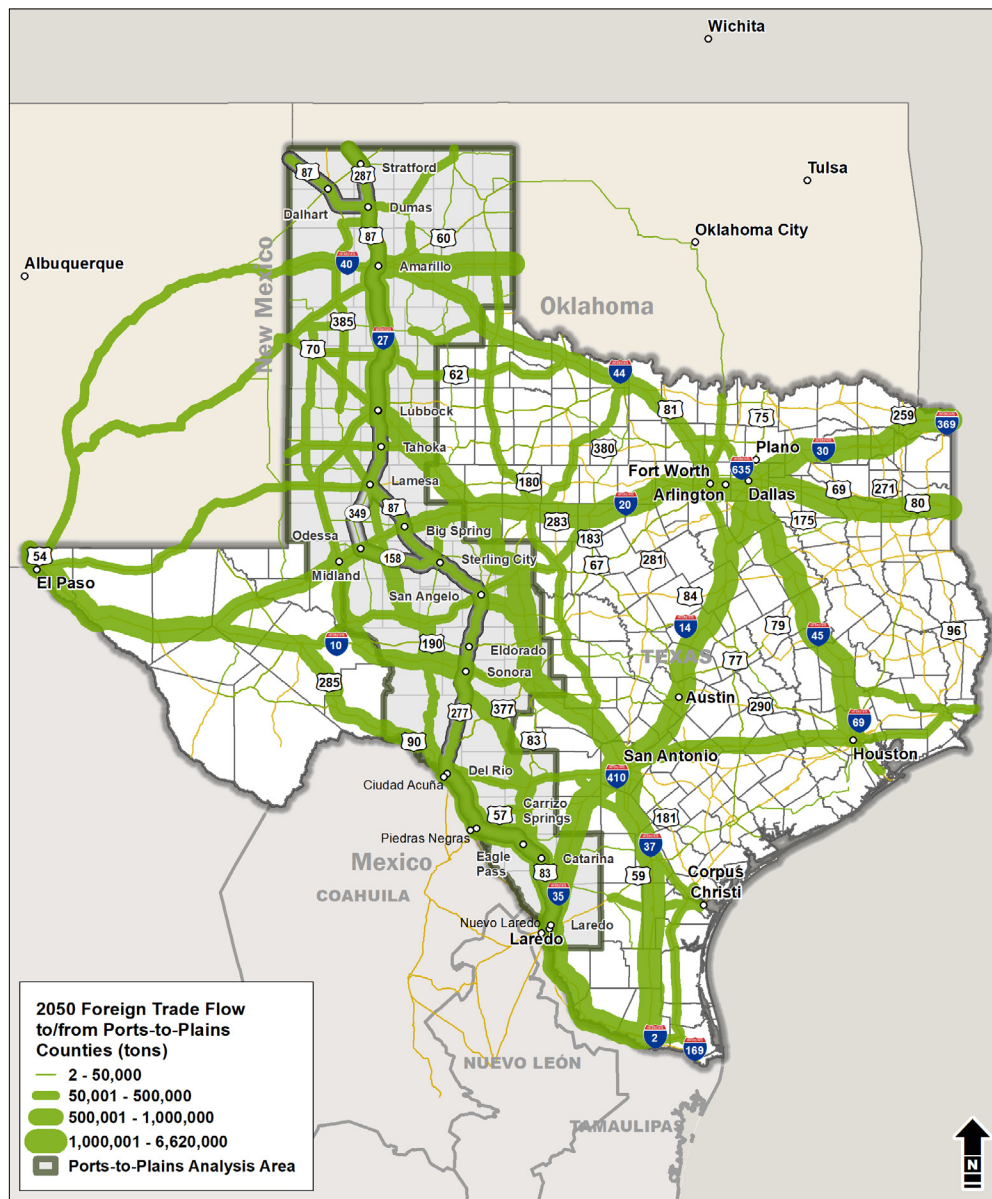


Figure 3.27: Corridor International Trade 2050 Tonnage Flows – Baseline

Source: TxDOT SAM and Transearch



CHAPTER 4

Corridor Interstate Feasibility Analysis and Findings

4.0 Corridor Interstate Feasibility Analysis and Findings

The Segment #2 Committee reviewed an interstate feasibility analysis for the Ports-to-Plains Corridor to determine if upgrading the entire corridor to interstate standards, where feasible, would achieve the goals in HB 1079. The Segment #2 Committee considered two scenarios: the baseline and interstate upgrade. The purpose of this chapter is to describe the two scenarios considered, the interstate feasibility analysis process and criteria used to evaluate the scenarios, and the findings.

4.1 Baseline

The Segment #2 Committee reviewed the analysis of the baseline. The baseline assumed only currently planned and programmed projects, as previously defined in Chapter 3, are implemented along the corridor by 2050.

4.2 Interstate

The interstate upgrade assumes:

- Improvements 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 to 500-foot right-of-way.
- Higher design speed than the baseline and uninterrupted traffic flow from one end of the corridor to the other with ramps and overpasses provided at major intersections.
- No driveway access to main lanes and traffic signals on main lanes

4.3 Corridor Interstate Feasibility Analysis Process and Results

The Ports-to-Plains Corridor Interstate Feasibility Analysis was performed to determine whether implementing a continuous four-lane interstate facility on the Ports-to-Plains Corridor would achieve the goals set out in HB 1079. The Segment #2 Committee measured and evaluated the performance of the interstate upgrade against each study goal outlined in Chapter 1.

The Committee used data collected during the existing conditions, forecasted conditions analysis, and needs assessment results to evaluate the scenarios against the study goals. The Committee examined criteria that could measure the ability of each scenario to meet each goal. Below is a discussion of each HB 1079 goal and the measure(s) used to evaluate it.

4.3.1 Examination of Freight Movement

The Ports-to-Plains Corridor plays a critical role in freight movement at the local, corridor, regional, state, national, and binational levels, as shown in **Figure 4.1**. The regional economy produces commodities and transportation demand related to agriculture, energy, and international trade, both inbound and outbound. Minerals and mineral products, food and agricultural products, and consumer products are all key commodities across the corridor.

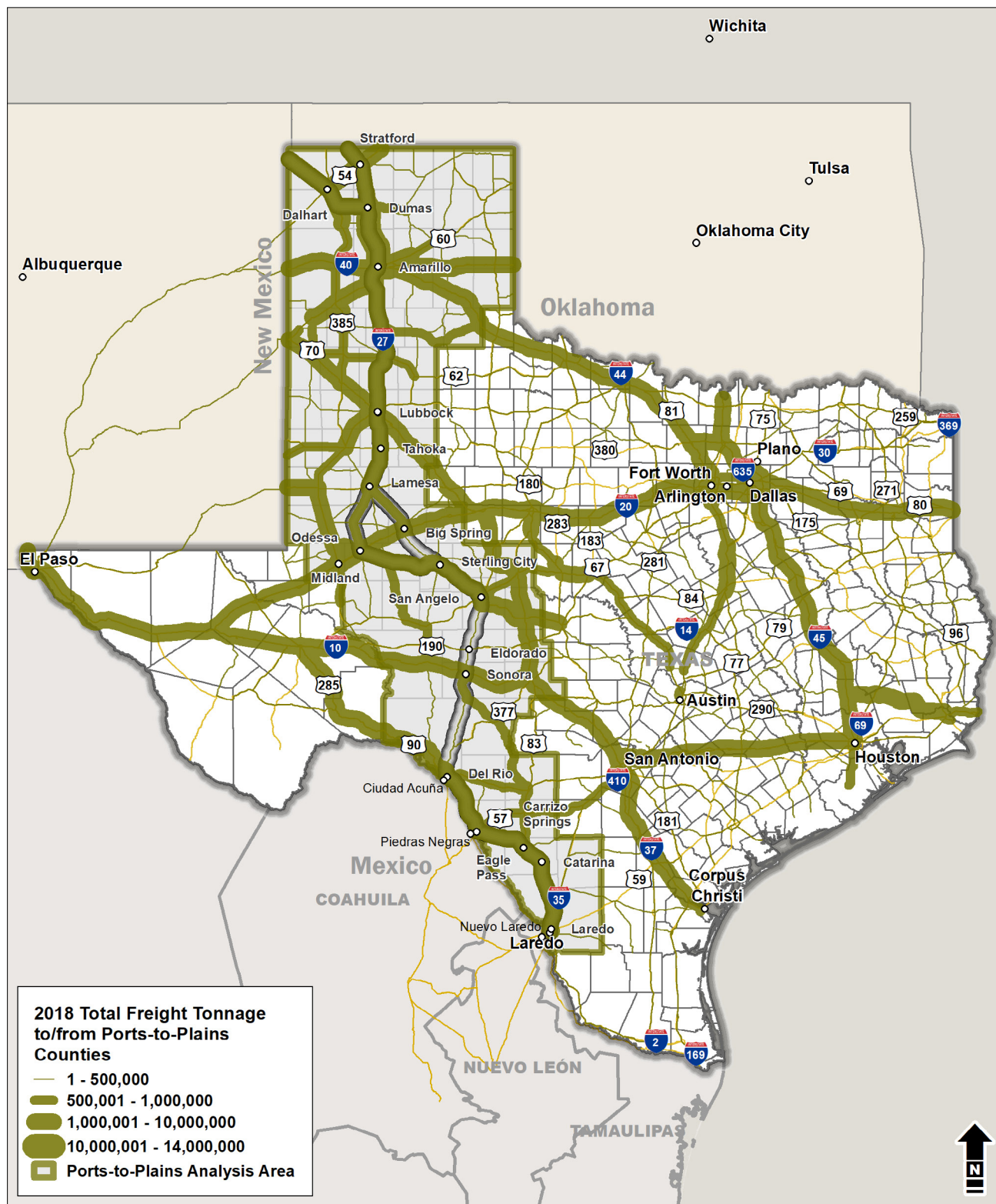


Figure 4.1: 2018 Freight Tonnage To/From Ports-to-Plains Corridor Counties
Source: TXDOT SAM and TRANSEARCH database

The Segment #2 Committee examined freight movement along the Ports-to-Plains Corridor by considering the benefits of improved travel time and market access and diversions of truck traffic from other corridors.

Baseline

Travel times in the baseline will improve slightly due to the planned and programmed projects in Segment #2.

Truck volumes are anticipated to grow from 2,100 trucks per day in 2018 to 3,600 trucks per day in 2050, a 71 percent increase. This growth in the baseline is mostly attributable to changes in demographics and economic activity in the corridor related to energy and agriculture productions rather than drawing traffic diversions from other routes.

Interstate

The interstate upgrade would create a fully access controlled facility for the entire corridor with improved travel times and additional capacity for freight to address times of peak demand and better mitigate route reliability variances during incidents. The interstate upgrade would:

- Reduce travel times 89 to 146 minutes across the entire corridor and 26 to 42 minutes in Segment #2 over the baseline.
- Increase truck traffic 36 percent over the baseline in Segment #2. This faster travel times from interstate upgrade would divert truck traffic from nearby parallel routes, as well as national routes like I-10, I-35 from Laredo to San Antonio, and I-35 to I-70 from Dallas to Denver.
- Increase corridor truck traffic from 2,200 in 2018 to 5,100 in 2050, an increase of 132 percent, and 34 percent over the 2050 baseline.
- Provide improved access for petroleum products as well as imports from International Gateways to the south.

This diversion indicates that the interstate upgrade would provide greater mobility benefit for freight over the baseline in Segment #2. **Figure 4.2** illustrates the differences between projected truck traffic under the baseline and interstate upgrade in Segment #2. Green lines show where truck traffic is expected to increase over the baseline scenario, and red lines show where truck traffic is expected to decrease from the baseline scenario. The darker colors indicate greater change in projections.

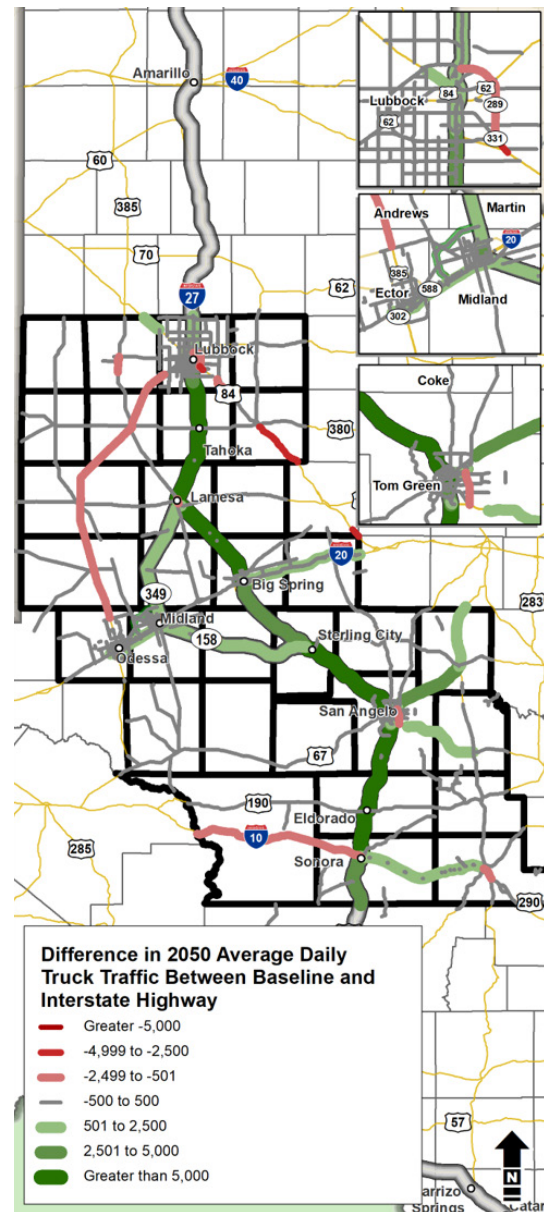


Figure 4.2: 2050 Interstate vs. Baseline Truck Traffic

Source: TXDOT SAM

4.3.2 Ability of Energy Industry to Transport Products to Market

As discussed in Chapter 2, the ability of the energy industry to transport products to markets and refineries along the Gulf Coast using the Ports-to-Plains Corridor is critical to the economy of the region, state, and the nation. In 2019, Texas accounted for 41 percent of the nation's crude oil production and 25 percent of its marketed natural gas production¹⁹.

There are 30 petroleum refineries in Texas able to process about 5.8 million barrels of crude oil per day – accounting for 31 percent of the nation's refining capacity. Much of Texas' energy production occurs in the oil fields and wind farms of the Ports-to-Plains Corridor. Four geologic areas bearing oil and gas overlap the corridor: the Permian Basin encompassing Segment #2, the Eagle Ford Shale in Segment #3, and the Palo Duro and Anadarko Basins in Segment #1.

The 2050 energy sector tonnage in the entire corridor is projected to be approximately 19 million compared to approximately 14 million in 2018. In Segment #2, the energy sector tonnage is projected to be 9 million total tons in 2050 compared to 6 million total tons in 2018. Energy products make up between 15 to 18 percent of existing freight tonnage in Segment #2. Minerals and mineral products make up 45 to 59 percent. While this group of products has other uses, it contains large volumes of frac sand and aggregates used in oil well drilling and construction, suggesting that a major portion of the existing freight in Segment #2 is carrying energy-related products.

Baseline

The existing energy product tonnage using the corridor and adjacent roads is shown in **Figure 4.3** and the forecast energy tonnage flow in 2050 is shown in **Figure 4.4**. The maps show heavy energy production flows in Segment #2 on the corridor between Lubbock and San Angelo as well as parallel corridors connecting Lubbock to I-20 and Lubbock to Odessa. Petroleum product shipments

by truck are largely local traffic, supplying the region's vehicles with fuel and connecting oil and natural gas production areas with pipelines.

The baseline does not provide significant travel time advantages to create meaningful truck traffic diversion within the corridor. The currently facility has two-lane routes with limited passing opportunities and traverses through communities not designed for trucks resulting in slower speeds. This leads trucks having travel time reliability issues and seeking alternate routes to transport energy products to market.

Interstate

The movement of energy products to market is particularly important in Segment #2, where activity generated by the oil fields in the Permian Basin supports not only the economy of the region, but the state and the country. Energy products are projected to remain among the top commodities in the corridor in 2050. Energy products make up between 15 to 18 percent of existing freight tonnage in Segment #2.

As described in 4.3.1, the interstate upgrade would create a fully access controlled facility for the entire corridor with improved travel times and reliability for freight, including trucks transporting energy products to market. The interstate upgrade would reduce travel times 89 to 146 minutes across the entire corridor and 26 to 42 minutes in Segment #2 over the baseline. In addition, the interstate upgrade would provide a safer and more reliable route when traveling through cities and small towns.

This reduction in travel time, increased market access radius, and increase in route reliability (smaller differences between average and worst-case travel times) provided by the interstate upgrade will help the energy industry transport products to market.

¹⁹ U.S. Energy Information Administration, <https://www.eia.gov/state/?sid=TX>, accessed March 20, 2020.



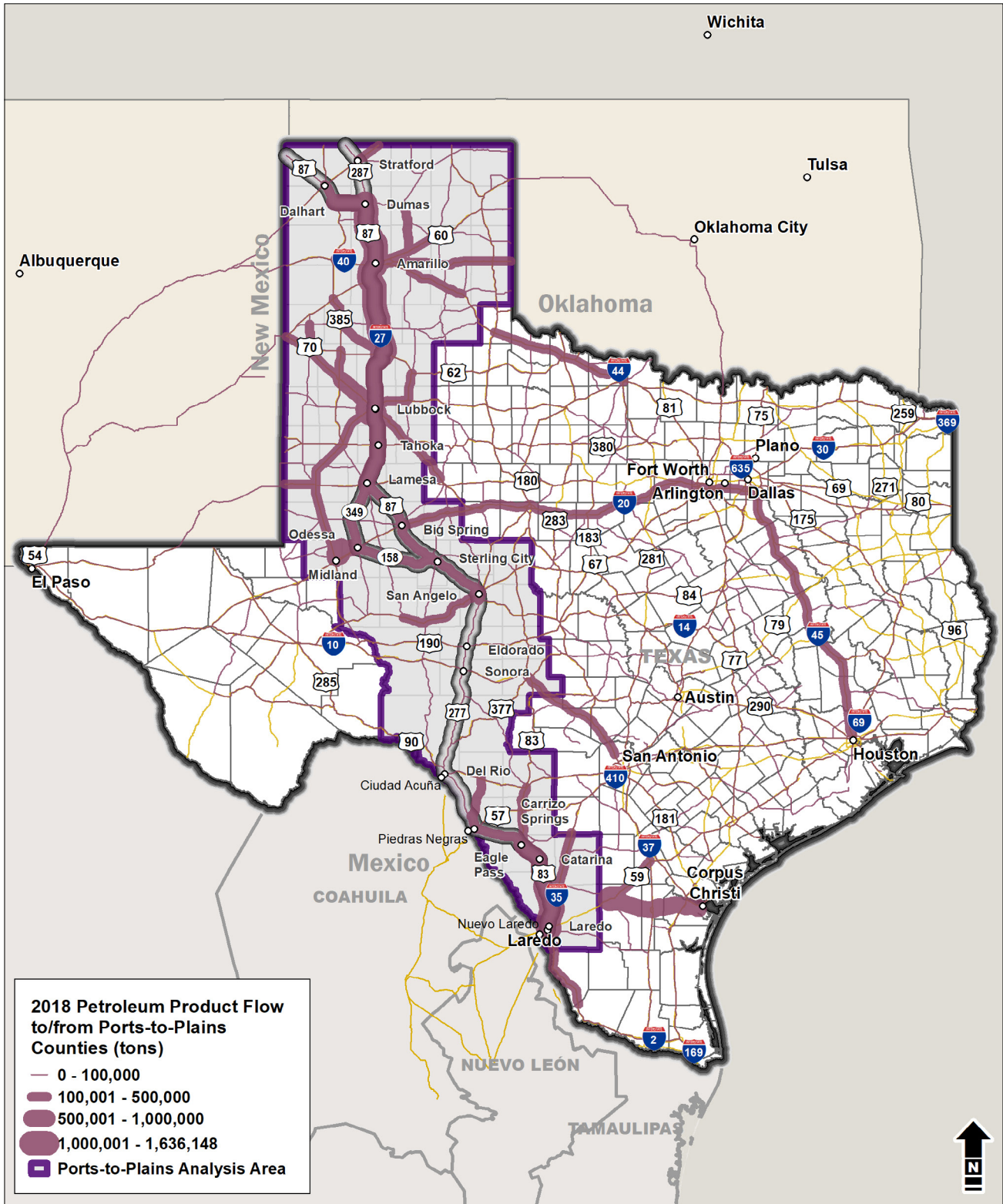


Figure 4.3: 2018 Petroleum Product Tonnage (Baseline) Flows

Source: TXDOT SAM and TRANSEARCH database

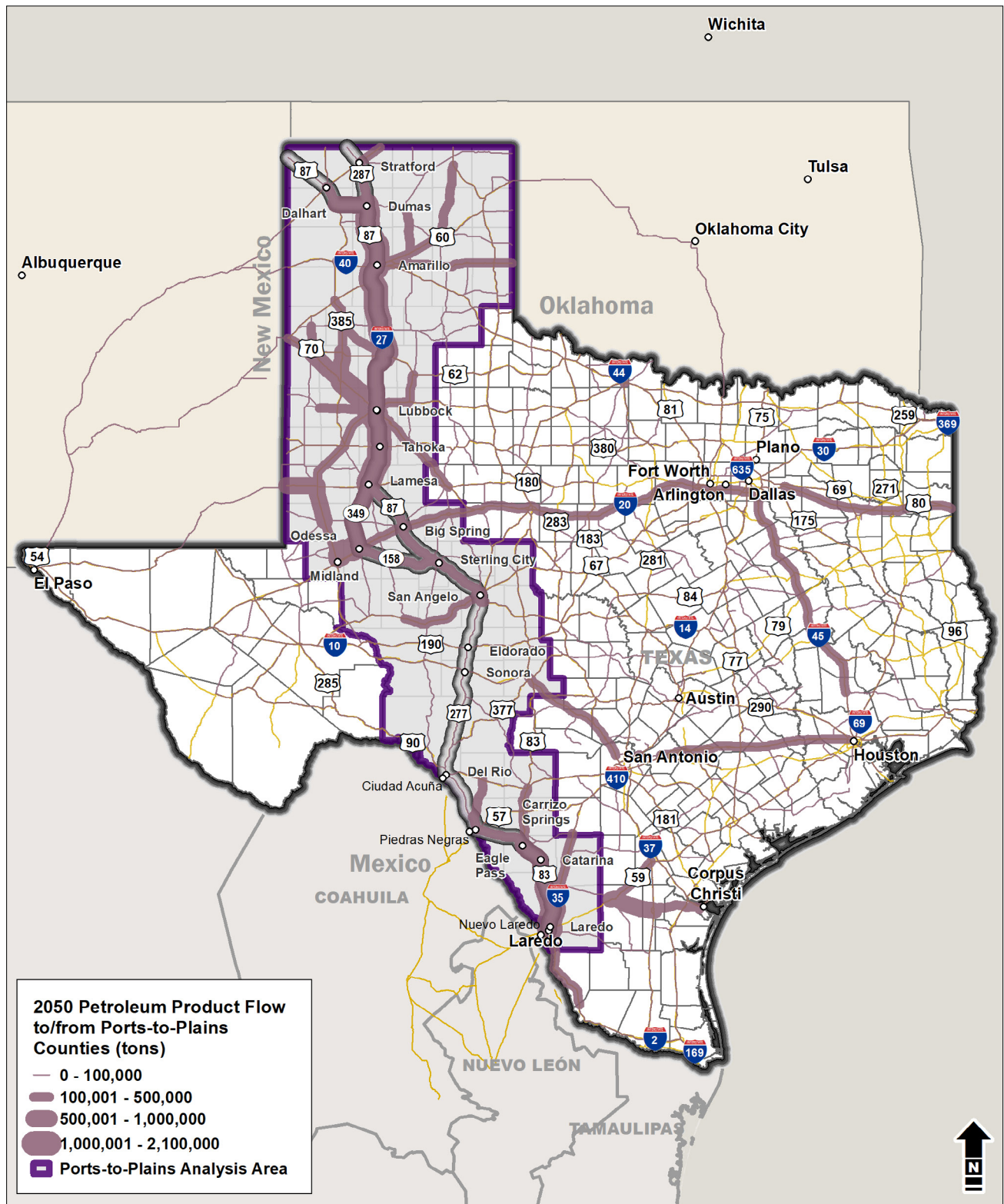


Figure 4.4: 2050 Petroleum Product Tonnage (Baseline) Flows

Source: TXDOT SAM and TRANSEARCH database

4.3.3 Determination of Traffic Congestion Relief

The Segment #2 Committee reviewed measures such as total volume and traffic diversion versus available and planned capacity to determine which scenario would best meet the goal of relieving traffic congestion along the corridor by the 2050 planning horizon. Traffic diversion is defined as an increase in traffic volume on the Ports-to-Plains Corridor over and above the 2050 forecast, and corresponding decrease in total traffic volume on other corridors as a result of the interstate upgrade.

Baseline

The baseline has an average growth rate of 67 percent projected for the entire Ports-to-Plains Corridor and 69 percent projected in Segment #2 when compared to 2018 conditions. Higher traffic growth areas are projected on US 83 north of Laredo (163 percent) and on SH 158 near Midland (124 percent). Congestion would increase with the increase in traffic under the baseline.

Interstate

Under the interstate upgrade:

- The Ports-to-Plains Corridor is projected to grow by an average of 125 percent and Segment #2 is projected to grow by an average of 135 percent by 2050 when compared to 2018 conditions.
- Strong growth is projected in many portions of the Ports-to-Plains Corridor; in Segment #2, the US 87 corridor between Lamesa and Lubbock is expected to grow by 200 percent when compared to 2018 conditions.
- The interstate upgrade projects increase lane miles by 24 percent in the entire Ports-to-Plains Corridor and 15 percent in Segment #2.

Because the interstate upgrade results in relatively higher speeds throughout the corridor, patterns of traffic are diverted from parallel and intersecting roadways to take advantage of the improved travel time.

Regional:

- Most diversion to the Ports-to-Plains Corridor comes from highways within 100 miles of the corridor.
- In Segment #2, the interstate upgrade also shows a significant forecasted traffic diversion from routes south of Lubbock such as US 385, US 84, and SH 137.
- The interstate upgrade shows a stronger traffic diversion capability over the baseline indicating the ability to reduce traffic congestion from nearby corridors in Segment #2 and from other corridors in the state.

Statewide:

- The interstate upgrade diverts traffic from other corridors state-wide, as shown in **Figure 4.5**. The data showed significant traffic diversion of more than 5,000 vehicles per day from US 385 south of Hartley, US 385 to US 62 between Odessa and Lubbock, and US 84 between Lubbock and I-20.
- Moderate diversion was shown from I-35 from Laredo to San Antonio.

National:

The conversion of the Ports-to-Plains Corridor to an interstate would also create shifts in national travel patterns.

- The route diverts national trips presently using I-10 to the west and local trips from US 83 and attracts trips to US 67 east of San Angelo.
- Upgrading the Ports-to-Plains Corridor to an interstate would divert traffic from key national corridors such as I-40, I-70, I-35, and I-10, and alters long-distance travel patterns between different regions of the United States and either Mexico or the Gulf of Mexico coast.
- The Ports-to-Plains Corridor was found to attract trips to I-44 from St Louis, Missouri to Wichita Falls and continuing towards the corridor while diverting trips away from other east-west routes east of Texas, such as I-10.
- Diversion was also traced from the I-70/I-135/I-35 route from Denver to Dallas and instead favoring I-25 through New Mexico and connecting to US 87 in Texas.
- Smaller national diversions – such as trips from the Pacific Northwest being attracted across the Rockies towards Denver and southward to the Ports-to-Plains Corridor were traced with diversions from I-10 and I-40 to the west.

Bi-National:

- Key diversion patterns include trips between the Mexican states of Coahuila, Nuevo Leon, and Tamaulipas south of Texas, the Rocky Mountain and Midwest states of New Mexico, Colorado, Kansas, Oklahoma, and Missouri, and trips between the Gulf of Mexico coast toward the north Mountain and Pacific Northwest states.
- The magnitude of diversion and growth are also a response from increases in foreign trade via land ports with industrial areas of Mexico, and international seaport trade that can more easily reach Gulf of Mexico ports due to the Panama Canal expansion.

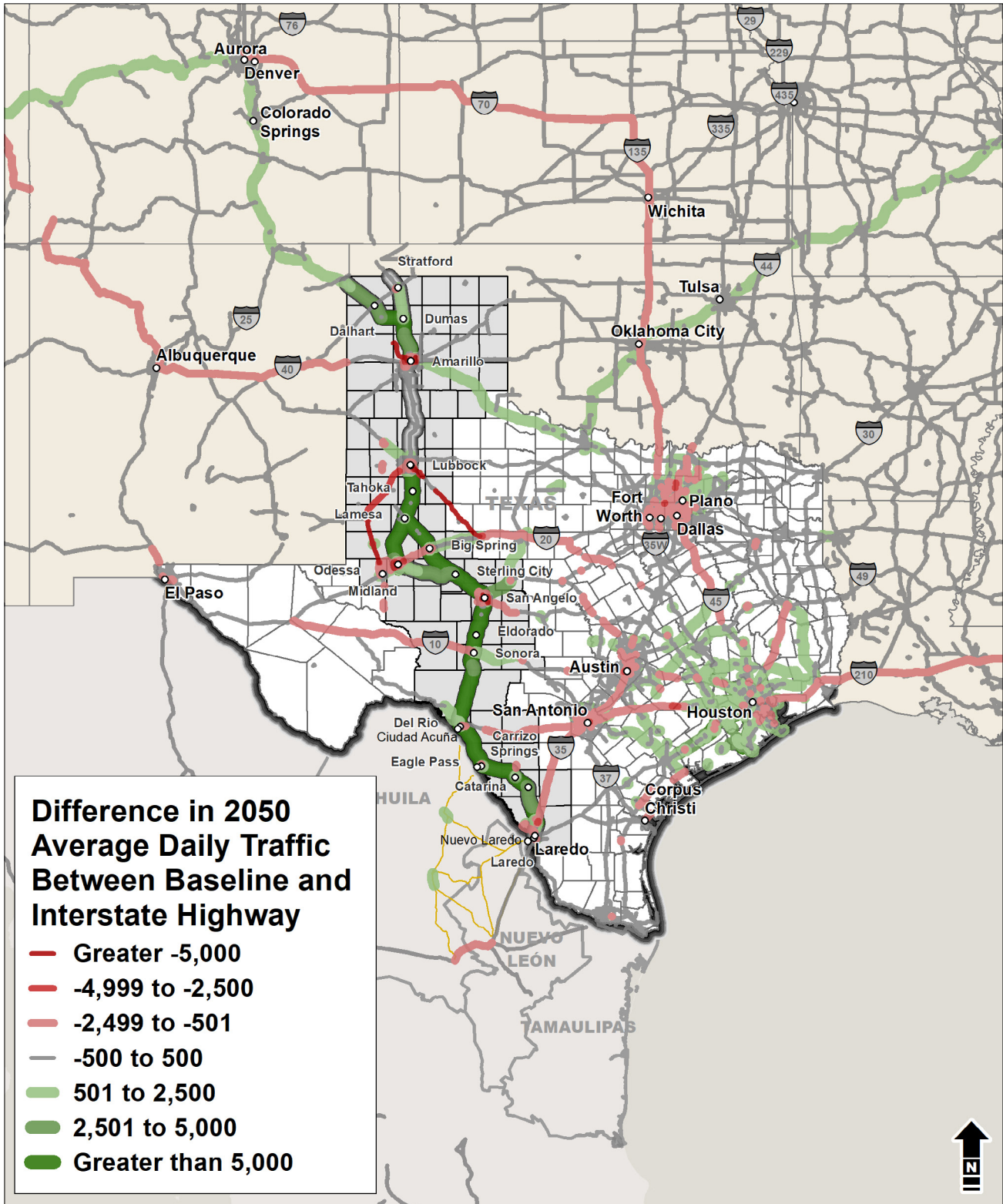


Figure 4.5: 2050 Total Traffic Diversions
TxDOT SAM and 2018 RID

4.3.4 Determination of Ability to Promote Safety and Mobility

The Segment #2 Committee evaluated whether the baseline and interstate upgrade promoted safety and mobility, while maximizing the use of existing highways to the greatest extent possible and striving to protect private property as much as possible. To make this determination, the Committee reviewed crash rates and travel time savings described in Chapter 3.

Table 4.1 depicts TxDOT's state-wide average crash rates and are provided by highway system (Interstate, US Highway, etc.) and road cross-section type (2-lane undivided, 4 or more lanes divided and 4 or more lanes undivided):

- Interstates are safest of all systems in both urban and rural areas because they include design features known to be safest: divided medians, multiple lanes per direction for passing, and full control of access with no side-street intersections.
- Divided highways are always safer than undivided highways.
- Multilane highways are safer than two lane highways in rural areas.

The existing Ports-to-Plains corridor currently contains a combination of the cross section and highway system types, as well as urban and rural conditions. Thus, the current crash experience is influenced by the degree to which the different system and cross section types exist among the three segments.

By Highway System

Highway System	Traffic Crashes per 100 million vehicle miles	
	Rural	Urban
Interstate	62.08	144.32
US Highway	72.08	177.84
State Highway	94.10	217.69
Farm-to-Market	118.18	225.28

By Road Type

Road Type	Traffic Crashes per 100 million vehicle miles	
	Rural	Urban
2 lane, 2 way	102.13	213.77
4 or more lanes, divided	62.95	158.28
4 or more lanes, undivided	97.61	283.09

Table 4.1: Texas State Crash Rates, 2018

Source: TxDOT Crash Statistics, 2018

Baseline

Safety: The baseline would improve safety in the Ports-to-Plains Corridor due to the planned and programmed projects expected to be in place by 2050. These projects include upgrades of current two-lane segments to four lane divided segments or Super 2 segments, new interchanges that replace at-grade intersections, and specific safety projects such as cable median barrier, rumble strips, and turn lane improvements. These changes to the network will increase safety over the current configuration. In Segment #2, the completion of the US-87 realignment/relief route as a freeway class route in Big Spring will provide a safety benefit for through traffic.

Most of Segment #2 already contains multilane divided or undivided highway configurations with a short segment of interstate in Lubbock and freeway around Big Spring. Only US 277 south of San Angelo has 2 lanes. The 2050 baseline is expected to achieve a reduction in the overall Segment #2 crash rate of 22 percent over 2018 rates. For the entire Ports-to-Plains Corridor, the 2050 baseline is expected to reduce crash rates by 25 percent over the 2018 rates.

Mobility: The baseline improves mobility by reducing delay on segments in which improvements occur. For the entire Ports-to-Plains Corridor, these figures are the free flow travel time savings is 9 minutes, the average travel time savings is 17 minutes and the peak period travel time savings is 22 minutes. In Segment #2, the free flow travel time savings is 5 minutes, the average travel time savings is 9 minutes, and the peak period time savings is 13 minutes.

Interstate

Safety: The Segment #2 Committee reviewed the Texas state crash rates as shown in **Table 4.1** (TxDOT Crash Statistics, 2018) which indicate the interstate upgrade would have 15 to 25 percent fewer crashes than a typical US Highway and 35 percent fewer crashes than a typical State Highway. These rates indicate the interstate upgrade would lower crashes over the baseline.

Based on the state crash rates and the number of existing miles of US Highway and State Highway in the Ports-to-Plains Corridor that would be converted to interstate, the interstate upgrade is estimated to:

- Reduce the Ports-to-Plains Corridor crash rate by 41 percent and reduce the Segment #2 crash rate by approximately 42 percent and

over 2018 conditions.

- Reduces crashes an additional 21 percent across the Ports-to-Plains Corridor and by an additional 26 percent in Segment #2 when compared to the 2050 baseline.

Mobility: The Segment #2 Committee examined travel times and delays along the corridor to evaluate the mobility benefit of each scenario²⁰. The interstate upgrade will provide a travel time savings over the baseline due to greater travel speed provided by full access control.

Figure 4.6 provides a high-level estimate of where average travel delays in Segment #2 presently occur versus what could be provided by an interstate facility with an anticipated speed limit of 75 mph. As shown, the most significant travel time savings in Segment #2 is north of San Angelo.

- When compared to 2018 conditions, the interstate upgrade would bring a free-flow travel time savings of 44 minutes, an average travel time savings of 106 minutes, and a peak period travel time savings of 168 minutes.
- When compared to 2018 conditions, the Segment #2 interstate upgrade would bring a free-flow travel time savings of 14 minutes, an average travel time savings of 35 minutes, and peak period travel time savings of 55 minutes.
- When compared to the 2050 baseline, the interstate upgrade reduces average delay by 89 minutes over the entire Ports-to-Plains corridor and by 26 minutes along Segment #2.

²⁰ Average travel speed is the rate at which a vehicle can drive through the corridor (expressed in miles per hour), average delay is how much time that vehicle is slowed down or stopped by corridor conditions (expressed in minutes). Delay is measured relative to travel time at an ideal speed of 75 miles per hour. Free flow delay measures effects of things that slow all vehicles down, sharp curves, lower speed limits and traffic signals. Average delay is the typical delay experience which includes the overall effects of congestion and incidents including weather. Peak period delay focuses on the worst congestion experienced regardless of cause.

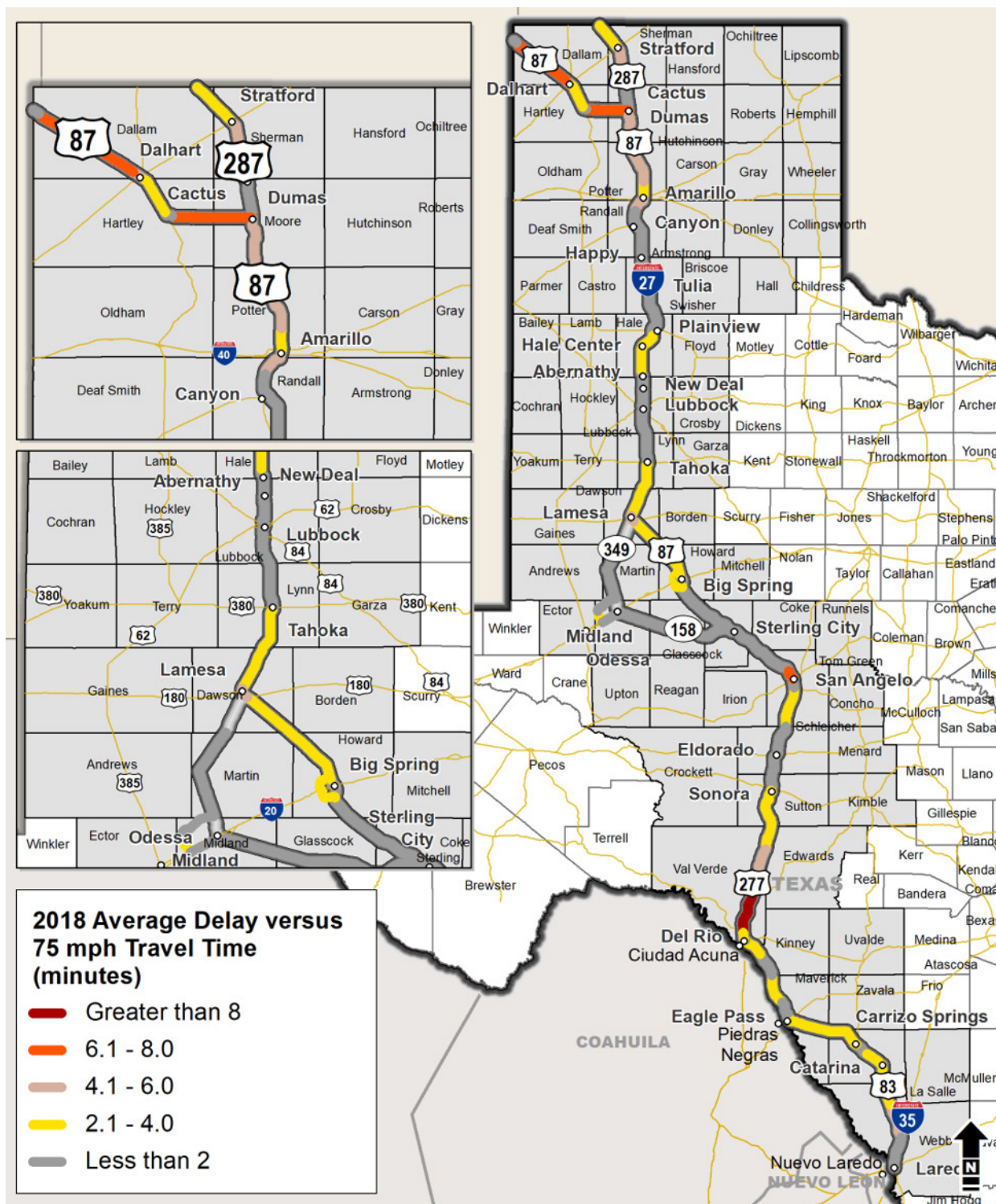


Figure 4.6: 2018 Average Travel Time Delay
Source: NPMRDS data, 2018

4.3.5 Determination of Areas Preferable and Suitable for Interstate Designation

The Ports-to-Plains Corridor is currently designated as a High Priority Corridor by a congressional act, but the route is not currently designated as interstate under a congressional act. There are three ways to obtain interstate designation:

1. Method 1: If the corridor currently meets interstate standards, the US DOT Secretary may designate as an interstate under 23 USC 103(c)(4)(A),
2. Method 2: If the corridor does not currently meet interstate standards, TxDOT may submit a proposal requesting designation as future interstate under 23 USC 103(c)(4)(B), or
3. Method 3: The corridor may be designated as a future part of the interstate system by a congressional act.

Method 1

Process: The Segment #2 Committee evaluated their segment to determine whether any portions of the existing corridor meet current interstate design criteria and if a proposal to FHWA could be made under 23 USC 103(c)(4)(A). The Segment #2 Committee examined horizontal and vertical sight distances, right-of-way widths, number of existing lanes, and median widths.

Findings: The northern 25 miles of Segment #2 is I-27 and a central portion of the corridor, 7 miles, in Segment #2 is already designated as I-20. A 3-mile portion of the corridor in Lubbock south of and adjacent to I-27, from 82nd Street to one mile south of FM 1585 could meet urban interstate standards. However, the review criteria used to review applications under 23 USC 103(c)(4)(A) requires that the segment “be of sufficient length to provide substantial service to the traveling public.” The Committee determined that while it would be possible to apply for interstate designation under this provision, it might not meet the “substantial service” threshold. More discussion with FHWA would be needed in order to explore any further. The remaining 410 miles in Segment #2 is on U.S. and state highways,

consisting of generally 2 to 4 lanes, and have lower design speeds with smaller right-of-way widths. Therefore, the Segment #2 corridor—with the exception of I-20 and I-27—does not currently meet interstate standards and is not currently suitable for interstate designation under 23 USC 103(c)(4)(A).

Method 2

Process: The Segment #2 Committee then evaluated their segment to determine whether any portions of the corridor could be proposed to FHWA to be designated 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. The route must be evaluated against several criteria including being designed to interstate standards, be a logical addition or connection, and coordinated with affected jurisdictions. If the route is not yet complete, TxDOT may request designation as a future part of the Interstate System.

The Segment #2 Committee considered the evaluation criteria contained in Appendix A of 23 U.S.C. 139. This evaluation is shown in **Appendix C - Federal Highway Administration Guidance Criteria for Evaluating Requests for Interstate Designation.**

Findings: As discussed under Method 1, the existing 442-mile corridor in Segment #2 does not currently meet interstate standards, except for I-20 in the Midland area and I-27 from Lubbock to Amarillo. The Segment #2 Committee then looked at whether the corridor could be designated as future interstate under Method 2. This analysis is shown in **Appendix C - Federal Highway Administration Guidance Criteria for Evaluating Requests for Interstate Designation.** Based on this assessment of interstate eligibility requirements, the Segment #2 committee determined TxDOT could submit for interstate designation under Method 2.

Method 3

Process: Under Method 3, a congressional act is required to designate the corridor as a future part of the Interstate System.

Findings: Since a congressional action is a political process outside of the feasibility study, based on the Committee’s assessment they can pursue congressional act designation

4.3.6 Examination of Projects Costs to Upgrade the Corridor to Interstate Standards

The Segment #2 Committee examined a planning level cost estimate for the Segment #2 portion of the corridor based on a methodology typically used to develop costs during the corridor feasibility stage.²¹ The methodology used planning-level software with available mapping data for the corridor and assumptions developed in consultation with the TxDOT Lubbock, Abilene, Odessa, and San Angelo Districts. The cost estimate was adjusted to account for planned and programmed projects in Segment #2 and used 2020 dollars. The planning-level cost estimate included the following inputs and assumptions:

- A 75-mile per hour design speed and interstate standards for curves and grades.
- 2019 TxDOT District bid tabs to calculate

prices for pavement, earthwork, and bridges for the TxDOT Lubbock, Abilene, Odessa, and San Angelo Districts.

- Major utility relocations based on available mapping data, and minor utilities as a percentage of costs.
- Seeding, mulching, lighting, and traffic control as a percentage of costs based on similar projects.
- Frontage roads in all urban areas.²²
- Frontage roads for approximately 236 miles in rural areas.
- Right-of-way costs as ten percent of the construction costs.
- Major utility relocation costs such as parallel pipelines, oil and gas wells, water wells, and parallel railroads.
- Full reconstruction of the corridor.

The planning level cost estimate for the corridor and for Segment #2 is shown in **Table 4.2**.

The cost estimate for the entire corridor for approximately 963 miles is \$23.5 billion and the cost estimate for Segment #2 for approximately 410 miles is \$12 billion. This cost estimate is preliminary for planning purposes only and is subject to change based on more detailed right-of-way and design information during future stages of each project development.

Table 4.2 Planning Level Cost Estimate

Description	Corridor Cost (Billions)	Segment #2 Cost (Billions)
Construction	\$20.5	\$10.5
Right of Way	\$2.1	\$1.1
Utilities	\$0.9	\$0.5
Total	\$23.5	\$12

²¹ Costs are preliminary for planning purposes only, subject to change. Costs are in 2020 dollars

²² The 236 miles was determined based on the Segment #2 consulting with the TxDOT Lubbock, Abilene, Odessa, and San Angelo Districts on where frontage roads may be warranted in rural portions of the corridor.



4.3.7 Evaluation of Economic Development Impacts and Return on Investment

The Segment #2 Committee reviewed an evaluation of the economic development impacts of the Ports-to-Plains Corridor within this segment. These included an examination of whether upgrading the Ports-to-Plains Corridor to an interstate would create employment opportunities in the state. The analysis compared the Interstate and baseline scenario described in Section 4.2 using the horizon year of 2050.

Interstate highways offer speed, safety, and reliability - fundamental virtues in transportation that are central to any form of economic development for which transportation matters. Access to interstates is an important factor in manufacturing and a prerequisite in the warehouse and distribution sector site selection. For agriculture, energy, and any sector that depends on national and global markets, interstates help keep American products competitive. With the USMCA taking effect in July 2020, north-south trade is going to expand and a second north-south corridor along the nation's longest border with Mexico answers need and opportunity. These are among the influences enabling strong, positive economic impacts and an attractive return from the upgrading of the Ports-to-Plains Corridor to an interstate.

The analysis is comprised of the economic development impacts resulting from upgrading the corridor to interstate and the economic return on investment of upgrading the corridor to interstate.

The Transportation Economic Development Impacts System (TREDIS) model was used to estimate the economic impacts of upgrading the Ports-to-Plains to an interstate facility compared to the baseline scenario. TREDIS is an economic model regularly used by TxDOT and other transportation departments in the United States to evaluate the role of transportation investment in facilitating economic activity and competitiveness. TREDIS model inputs included information described in Chapter 3, such as the forecasted travel times, freight volumes, and crash rates.

The key elements discussed in of the economic analysis section include:

- Travel Cost Savings
- Expansion of Regional Truck Delivery Market
- Expansion of Job Opportunities
- Safety Benefits
- Total Corridor and Segment Economic Impacts
- Rest-of-State Economic Impacts
- Energy Impacts by Industry (Energy; Food and Agriculture; Warehousing and Distribution)
- Economic Impacts of Construction and maintenance Spending
- Long-term Economic Return for Upgrading Corridor to Interstate (Return on Investment and Cost Benefit Ratio)

Travel Cost Savings:

As described in Chapter 3, the interstate upgrade is expected to reduce average travel times relative to 2018 conditions by 8 percent on Segment #2 and 11 percent across the Ports-to-Plains Corridor. In addition, the interstate is anticipated to improve the reliability of travel times for trips along the corridor, reducing the variability between the “worst-case” travel time and the average travel time. These travel time savings and reliability improvements translate directly into cost savings for businesses transporting goods along the Ports-to-Plains Corridor allowing them to deliver to customers and access international gateways more quickly.

As described in Chapter 3, the interstate upgrade is expected to reduce average travel times relative to 2018 conditions by 8 percent on Segment #2 and 11 percent across the Ports-to-Plains Corridor. In addition, the interstate is anticipated to improve the reliability of travel times for trips along the corridor, reducing the variability between the “worst-case” travel time and the average travel time. These travel time savings and reliability improvements translate directly into cost savings for businesses transporting goods along the Ports-to-Plains Corridor allowing them to deliver to customers and access international gateways more quickly.

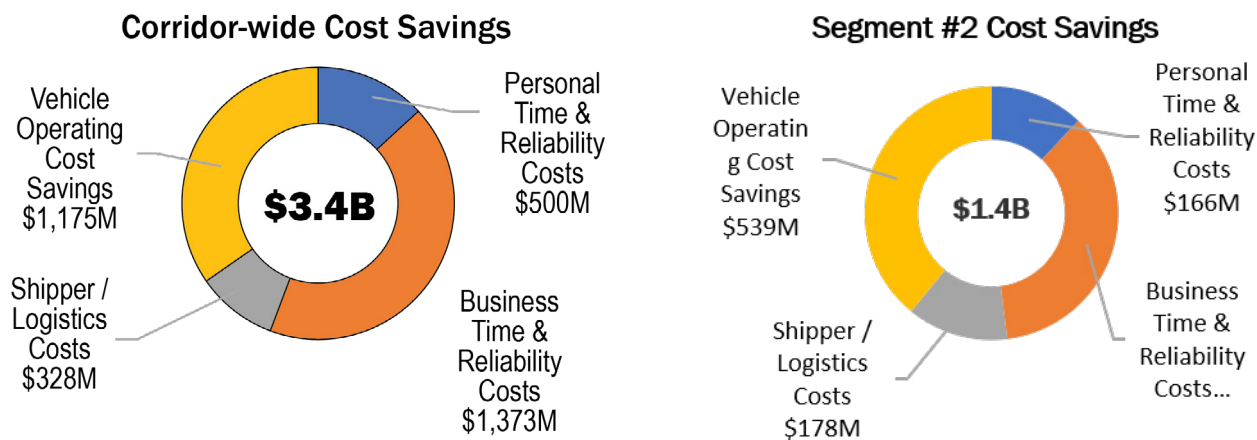


Figure 4.7: Travel Cost Savings
Source: Analysis using TREDIS

As **Figure 4.7** shows, total corridor-wide cost savings with the interstate upgrade are calculated to be \$3.4 billion per year, \$1.4 billion of which comes from cost savings in Segment #2. These savings include the value of both personal and business travel time and reliability, costs to logistics/shipping companies, and reduction in vehicle operating costs.

Expansion of Regional Truck Delivery Market

By increasing speeds on the Ports-to-Plains Corridor, the interstate upgrade reduces travel time and expands the regional truck delivery market, or the area reachable within one day assuming an eight-hour operation window, three hours of travel each way, and one hour on either end for loading and unloading. This leads to efficiencies for shippers and makes the Ports-to-Plains Corridor a more attractive business location. For example, the interstate would make it possible for a truck to make a round trip from Del Rio to Sterling City, that cannot reliably be completed in one day currently. Similar advantages arise for companies doing business or seeking to do business across the border through Eagle Pass and Laredo, and any company siting warehouse and distribution centers can count on a larger same day service territory and more customers for its facility.

Expansion of Job Opportunities

Corridor travel time improvements would also expand the job opportunities available to residents in counties along and adjacent to the Ports-to-Plains Corridor allowing them to reach a wider array of jobs within a one-hour commute, while expanding the labor pool available to businesses. This enhanced market access enables better job matches and higher businesses productivity, growing the economy. The faster speeds associated with the interstate upgrade also improve access to international gateways, increasing the ability of companies located along the Ports-to-Plains Corridor to export their goods to Mexico and beyond, and to import critical components and supplies as well as retail goods for household consumption.

Economic Impacts to Small and Medium Communities

The economic impact of an interstate upgrade of the Ports-to-Plains Corridor, will not only benefit large communities but also small and medium communities. The interstate upgrade would improve access to jobs, access to education, and create jobs within the small in medium communities and allow them to retain population and existing jobs and expand access to recreation activities.

With an interstate upgrade, there is greater demand for gas stations, truck stops, restaurants, lodging, and other businesses serving passenger and commercial travelers. This provides opportunities for development and expansion of roadside businesses in communities across the corridor. The economic benefits to small and medium communities also include the safety and mobility benefits. The interstate upgrade will reduce crash rates and improve travel times around bottlenecks that typically occur in urban areas and small communities.

Safety Benefits

The Segment #2 Committee also considered the economic benefits associated with the safety improvements along the Ports-to-Plains corridor. As described in Section 3.7.4, crash rates throughout the Ports-to-Plains corridor are anticipated to be lower with the Interstate than under the Baseline

Scenario in 2050. Per USDOT guidelines, these crash reductions are considered in economic terms using standardized values, resulting in a corridor-wide economic benefit of approximately \$450 million each year.

Total Corridor and Segment Impacts

The upgrade of the Ports-to-Plains Corridor to an interstate will improve travel and in turn is expected to increase employment, gross domestic product (GDP), labor income, and population across the corridor and within Segment #2, compared to the current facility.

Table 4.3 and **Table 4.4** summarize these impacts for the entire corridor and for Segment #2. The interstate is anticipated to increase:

Table 4.3: Corridor-wide Economic Impacts Summary

Metric	2020 Baseline	2050 Baseline	2050 Interstate	Change
Employment	894,770	1,044,140	1,061,850	17,710
Employment Growth	N/A	16.7%	18.7%	2.0%
GDP (\$B)	\$155.4	\$263.2	\$265.4	\$2.2
GDP Growth	N/A	69.4%	70.8%	1.4%
Labor Income (\$B)	\$95.0	\$161.8	\$163.1	\$1.4
Labor Income Growth	N/A	70.2%	71.6%	1.4%
Population	1,996,680	3,207,970	3,236,280	28,310
Population Growth	N/A	60.7%	62.1%	1.4%

Source: Moody's Analytics (Baseline Employment and GDP values), Texas Demographic Center (Baseline Population values), Analysis using TREDIS (All Interstate and Change values and Baseline Labor Income values)

Table 4.4: Segment #2 Economic Impacts Summary

Metric	Baseline 2020	Baseline 2050	2050 Interstate	Change
Employment	485,820	590,530	597,810	7,280
Employment Growth	N/A	21.6%	23.1%	1.5%
GDP (\$B)	\$99.80	\$175.1	\$176.0	\$0.9
GDP Growth	N/A	75.5%	76.4%	0.9%
Labor Income (\$B)	\$61.6	\$107.8	\$108.4	\$0.6
Labor Income Growth	N/A	75.1%	76.1%	1.0%
Population	1,045,560	2,104,480	2,114,100	9,620
Population Growth	N/A	101.1%	102.0%	0.9%

Source: Moody's Analytics (Baseline Employment and GDP values), Texas Demographic Center (Baseline Population values), Analysis using TREDIS (All Interstate and Change values and Baseline Labor Income values)

- Employment by 17,710 jobs in the corridor and by 7,280 jobs in Segment #2.
- GDP by \$2.2 billion and by \$0.9 billion in Segment #2 over the baseline.
- Income by \$1.4 billion in the corridor and by \$0.6 billion.

The change in economic outcomes reflects direct, indirect and induced economic impacts.

Rest-of-State Economic Impacts

Beyond the benefits to Segment #2 and the entire Ports-to-Plains Corridor, the State of Texas as a whole is also expected to see positive economic impacts from building the interstate upgrade. Many trucks drive on the Ports-to-Plains Corridor to deliver goods and to visit clients and customers. Passenger vehicles from the rest of Texas and outside of the corridor drive the Ports-to-Plains Corridor to visit family, and friends.

In addition, the interconnected nature of the economy means that there are spillover or

multiplier effects across regions, such that increased economic activity in one area creates more economic activity in others area nearby (and to a lesser extent far away).

The interstate upgrade projected economic impacts for the rest of Texas is estimated to

- Reduce \$690 million per year in travel costs.
- Increase jobs by approximately 4,400 jobs.
- Increase GDP by \$640 million.

Economic Impacts by Industry

The industries most expected to experience economic impacts as a result of the interstate upgrade include those that make up a significant portion of the Ports-to-Plains economy today, such as energy and food and agriculture, as well as other industries that depend heavily on goods transportation, like warehousing and manufacturing. **Figure 4.8** shows projected employment growth by industry for the Corridor and Segment #2 with the interstate upgrade.

Energy Industry Economic Impacts

As discussed earlier in this chapter and in Chapter 2, the Ports-to-Plains Corridor plays a critical role in transporting energy products to markets and refineries and will continue to do so for decades after the interstate upgrade is complete.

The interstate upgrade will save energy companies

approximately \$505 million in time and money across the corridor, making it easier to access workers and customers. As compared to the baseline and shown in **Figure 4.9**, upgrading the corridor to an interstate is anticipated to make it a more attractive place to do business, thereby:

- Increasing the number of corridor wide jobs in the energy industry by approximately 3,120, including 1,450 in Segment #2.
- Growing the energy sector GDP by nearly \$400 million, with \$170 million in Segment #2.

These improvements would ease the process for trade patterns already known to occur within the corridor such as the shipment of steel tanks from Mexico through the Port of Del Rio to the Permian Basin oil fields, where they are needed for oil extraction.

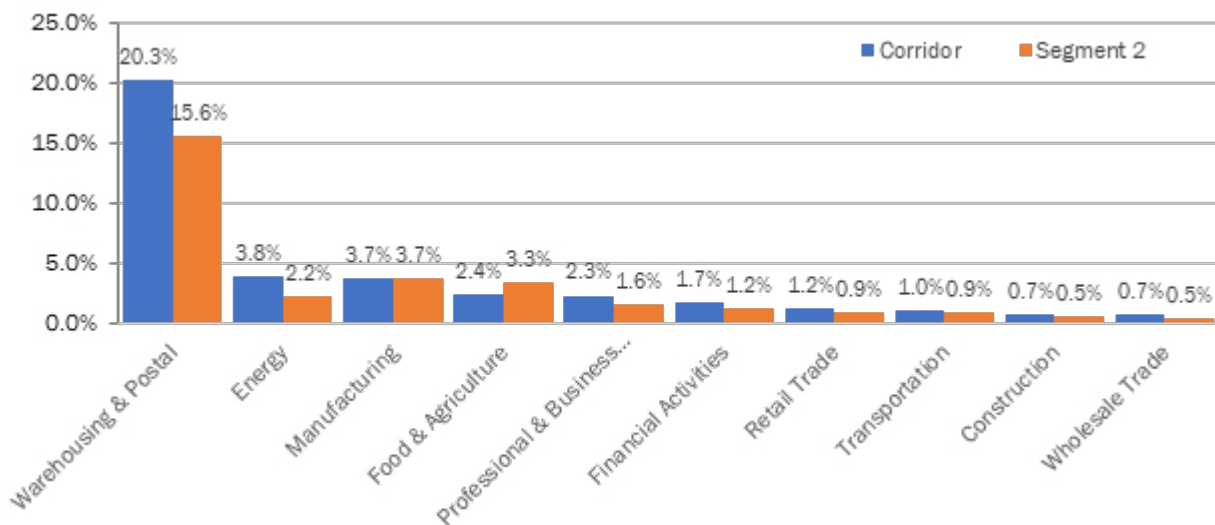


Figure 4.8: Employment Growth by Industry, Baseline 2050 vs. Interstate 2050

Source: Analysis using TREDIS

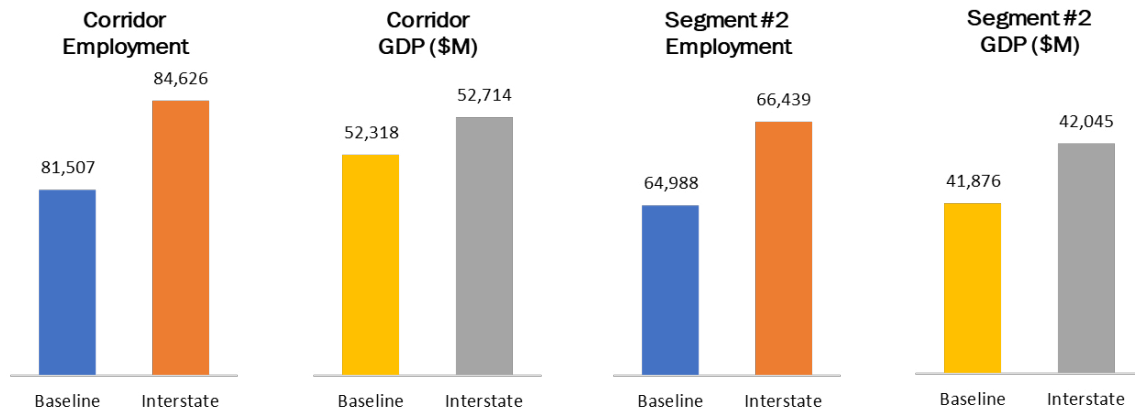


Figure 4.9: Energy Industry Employment and GDP Impacts
Source: Analysis using TREDIS

Food and Agriculture Industry Impacts

As a vital industry across the Ports-to-Plains Corridor the food and agriculture industry is expected to experience significant benefits from the interstate upgrade, due to reduced annual travel costs of \$295 million across the corridor. The food and agriculture industry has among the lowest margins across all products, making cost saving opportunities especially critical to compete in the global market. Cost savings would support and enhance export activity, easing the movement of commodities like cattle feed from Dawson County to trade partners in Mexico through the Port of Eagle Pass.

As shown in **Figure 4.10**, the interstate upgrade is projected to create in food and agriculture industry:

- Nearly 1,060 jobs across the corridor and 530 in Segment #2.
- \$80 million in GDP across the corridor and \$34 million in Segment #2.

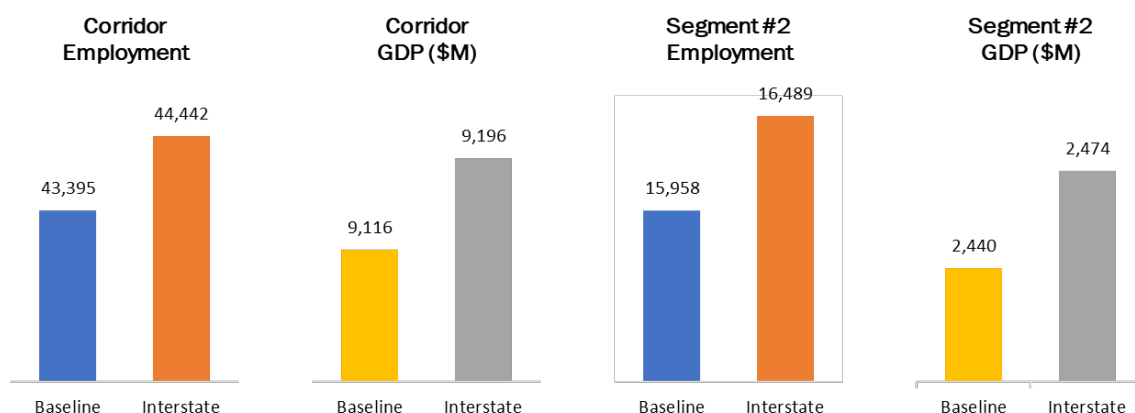


Figure 4.10: Food and Agriculture Employment and GDP Impacts
Source: Analysis using TREDIS

Warehousing and Distribution Economic Impacts

According to research from the National Academy of Sciences (National Cooperative Freight Research Program Report 13, “Freight Facility Site Selection: A Guide for Public Officials”), the two most important criteria in logistics facility site selection are access to key markets and interaction with the transportation network, which for highway transportation specifically means proximity to interstates and freeways.

A key insight from the research is that site selectors conduct an initial round of high-level screening for locations that satisfy their top criteria before other factors are brought into account. This means that sites lacking access to interstates and freeways are dropped by the screening before any local advantages such as property costs and financial incentives ever receive consideration.

As shown in **Figure 4.12** and supported by this research by NCFRP, warehouse & distribution sector development in Texas is driven by access to interstate highways. Corridor improvements thus have the potential for opening doors to economic development that today remain closed. An evaluation of growth patterns in areas before and after an interstate was built relative to areas in which no interstate was added, suggests that

growth in areas with an interstate is likely to be approximately 10 percent higher after 15 years (e.g., by 2050, assuming key components of interstate in operation by 2035)²³. Using this assumption, upgrading the Ports-to-Plains Corridor to an interstate facility is projected to generate \$365 million more direct warehousing output across the corridor with the interstate and \$190 million more in Segment #2 compared to the non-interstate²⁴.

These impacts, combined with general productivity improvements from reduced travel costs of approximately \$197 corridor-wide and improved access due to the interstate are projected to lead to growth in economic activity, as shown in **Figure 4.11**. upgrading the corridor to an interstate is estimated to:

- Add 2,550 more warehousing and distribution jobs, including 1,450 additional jobs within Segment #2.
- Generate \$450 million more in GDP compared to the current across the corridor, and \$75 million in GDP in Segment #2.

In addition, the growth in warehousing output would have multiplier effects, leading to increased employment and GDP across many other industries.

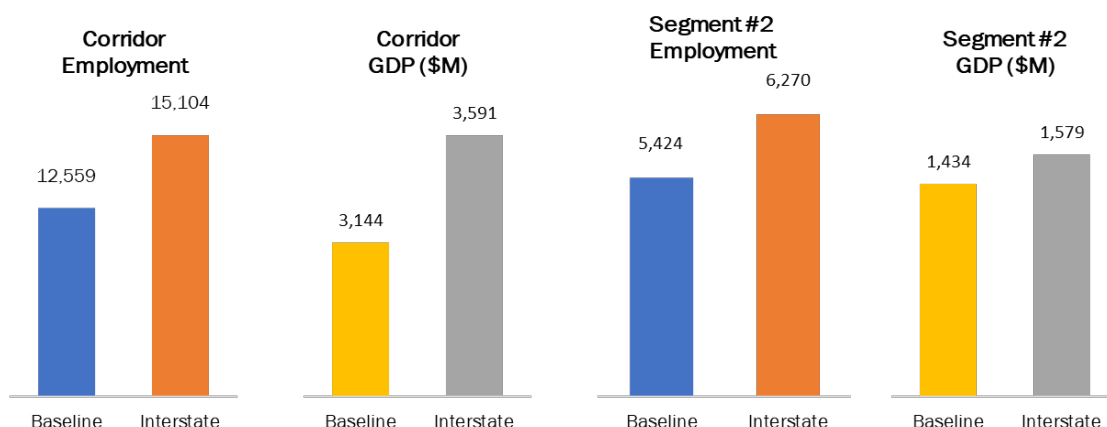


Figure 4.11: Warehousing and Distribution Employment and GDP Impacts

Source: Analysis using TREDIS

²³Analysis involved a comparison of Moody's Analytics data on warehouse employment in Lubbock County before and after I-27 was completed, with Tom Green County used as a comparison county without an interstate.

²⁴Growth rates applied to TRANSEARCH estimates of the value of outbound volumes from warehouses in the year 2050

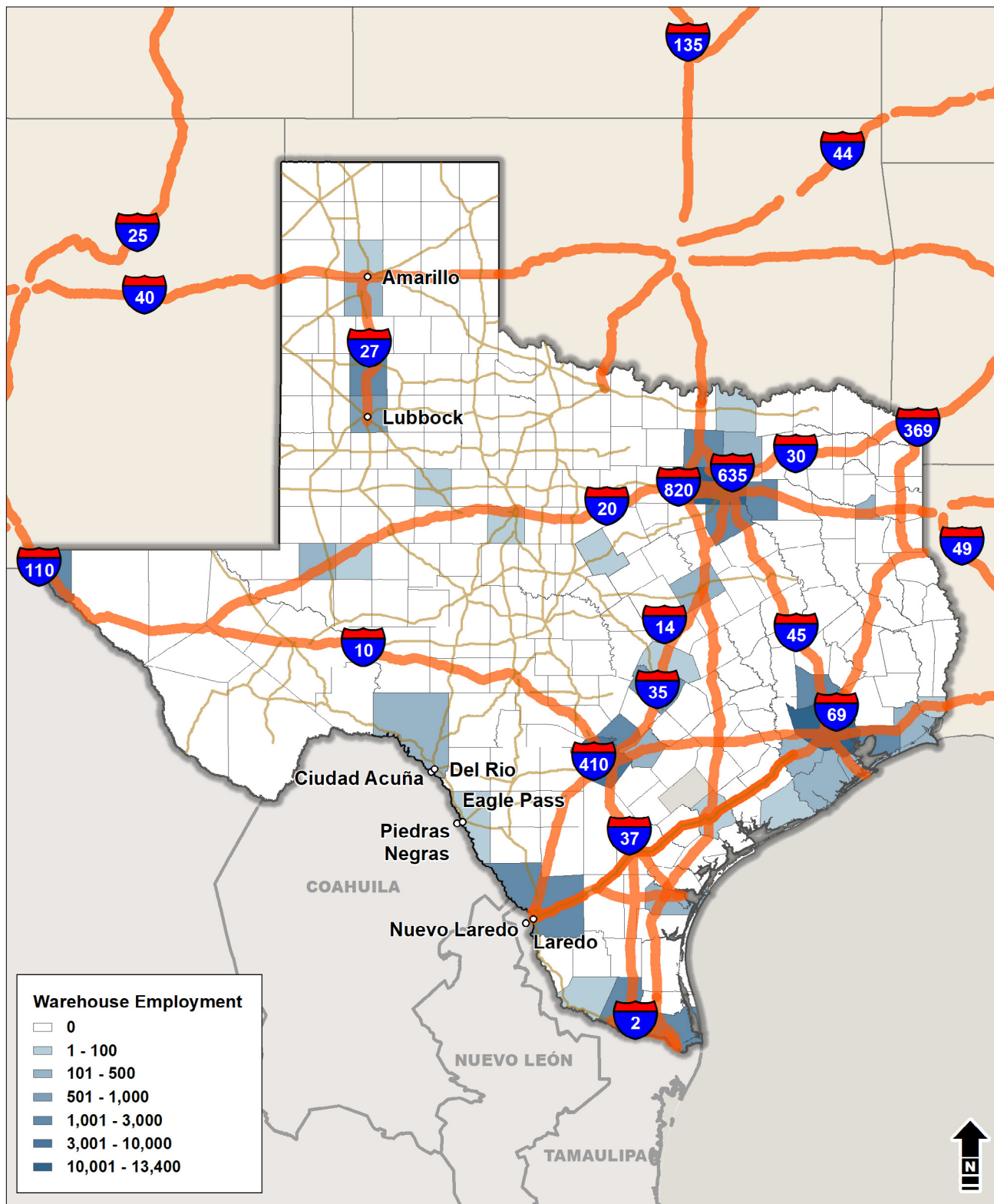


Figure 4.12 Warehouse and Distribution Sector Development by Access to Interstate Highways in Texas

Source: National Cooperative Freight Research Program Report 13



Warehousing and distribution is a vital capability in international trade, supporting logistics functions, customs processing, and the back-and-forth activity characteristic of Maquiladora operations (paired plants in U.S. and Mexico).

- From the arrival of NAFTA in 1993 through 2019, Laredo's Webb County situated on I-35 added over 300 jobs per year in the warehouse and distribution sector, and trade was booming.
- By contrast, Del Rio's Val Verde County and Eagle Pass' Maverick County with no interstate highways added one-tenth of Laredo's warehouse and distribution jobs over the same period, and they saw less trade. While Laredo has significant additional advantages such as proximity to major Mexican manufacturing centers, its interstate highway service is a catalyst that Del Rio and Eagle Pass have not enjoyed.
- Creating the catalyst of interstate highway service – and adding an alternative route at Laredo – is beneficial to trade, and the benefit extends beyond the local facilities around Del Rio and Eagle Pass to companies up and down the corridor that also do business across the border.
- Support to cross-border trade is doubly important in 2020 when the Covid-19 pandemic is encouraging American industries to reconsider global supply chains in favor of domestic and continental locations. This was already an emerging trend because of rising costs and other influences, but the pandemic is accelerating it, and the arrival of the USMCA is further reason for the eyes of supply chain managers to turn to Mexico.

Changing that profile – and adding an alternative route at Laredo – is beneficial to trade, and the benefit extends beyond the local facilities to companies up and down the corridor that also do business across the border.

Economic Impacts of Construction and Maintenance Spending

Capital costs for upgrading the entire corridor to an interstate are estimated at \$23.5 billion over the next 25 to 30 years. In addition, once open, annual operations and maintenance are anticipated to cost approximately \$260 million per year. These impacts are considered separately from the permanent economic benefits from the interstate's enhancement of travel, but also results in significant economic gains:

- Construction of the interstate will create temporary statewide economic impacts totaling \$17.2 billion in cumulative GDP and 178,600 job-years²⁵, spread out across the duration of the design and construction period.
- Ongoing maintenance of the interstate will also support 2,090 long-term jobs and \$185 million in annual GDP statewide.
- These jobs would primarily support the construction industry, but through multiplier effects would also provide opportunities in countless other industries.

Long-term Economic Return on Investment for Upgrading the Corridor to Interstate

Thus far this report has expressed economic outcomes based on the 2050 horizon year, comparing the interstate upgrade to the baseline in that year. However, the impacts of the interstate upgrade will extend well beyond a single year, providing ongoing economic gains. There are two primary ways of considering these long-term economic impacts, relative to the costs:

- **Return on Investment:** Return on Investment (ROI) is a common measure for determining whether an investment is worthwhile. In this case, it is calculated as the gain in GDP relative to the upfront capital investment.
- Capital costs for upgrading the entire corridor is \$23.5 billion.
- Over the first 20 years of interstate operations, statewide GDP gains total \$55.6 billion, or

²⁵One job year = one job held for one year = 2 jobs held for ½ year, etc.

\$41.3 billion in new GDP once the time value of money (using a 3 percent discount rate) is taken into account.

- Compared to the capital costs of \$23.5 billion, this represents a return on investment of \$17.8 billion or 76 percent.
- **Benefit Cost Ratio:** Another way of looking at whether a project is worth pursuing is the benefit-cost ratio (BCR), which compares economic benefits—such as travel cost savings and crash reductions—to capital and operating & maintenance (O&M) costs.
- Statewide economic benefits of the interstate upgrade accumulate to \$90.3 billion over 20 years of operations, which translates to \$66.6 billion when discounted using a 3 percent rate.
- When compared to total discounted costs of \$27.4 billion, including capital and O&M, this reflects a benefit-cost ratio of 2.4. A benefit-cost ratio above 1 is considered a worthwhile investment.

On both the ROI and BCR measures, converting the Ports-to-Plains Corridor to an interstate performs very well, indicating that the investment will generate economic benefits that far outweigh the costs.

A Critical Economic Opportunity

Many of the counties and cities as well as the international ports of entry at Eagle Pass and Del Rio along the Ports-to-Plains Corridor lack access to an interstate and this is a major barrier to economic development opportunities. Upgrading the Ports-to-Plains Corridor to an interstate facility is critically important to the economic prosperity and future growth of the counties along the corridor, and of west and south Texas and the state. As Texas and the nation look for remedies to the economic reversals brought on by the 2020 pandemic, capitalizing on the needs of business for lower risk locations through domestic and continental sites is a timely opportunity. Meeting those needs competitively requires interstate-class transportation that connects sites and gateways to the expansive markets that companies want to reach. **Table 4.5** provides a summary of the benefits of upgrading the Ports-to-Plains Corridor to an interstate.

Table 4.5: Summary of Ports-to-Plains Corridor Benefits

Total Annual Travel Cost Savings		\$4.1B
Corridor Annual Travel Cost Savings		\$3.4B
Food & Agriculture	\$295M (7.2%)	
Energy & Extraction	\$505M (12.3%)	
Warehousing & Distribution	\$197M (4.8%)	
Rest of Texas Travel Annual Cost Savings		\$690M
Total Annual Increase in GDP		\$2.84B
Corridor Annual Increase in GDP		\$2.2B
Food & Agriculture	\$80M (3.6%)	
Energy & Extraction	\$400M (18.2%)	
Warehousing & Distribution	\$450M (20.5%)	
Rest of Texas Annual Increase in GDP		\$640M
Total Increase in Employment		22,110
Corridor Annual Increase in Employment		17,710
Food & Agriculture	1,050 (5.9%)	
Energy & Extraction	3,120 (17.5%)	
Warehousing & Distribution	2,550 (14.4%)	
Rest of Texas Annual Increase in Employment		4,400
Total Capital Costs		\$23.5B
Return on Investment		76% \$17.8B
Benefit Cost Ratio / Net Present Value		2.4 39.2B

Source: TREDIS

The interstate upgrade is essential to:

- Improve connectivity, safety, and mobility, including improving access to market for energy and agricultural products, and facilitating the efficient flow of goods and international trade.
- Reduce travel time and costs along the corridor.
- Create jobs, new warehouses and distribution facilities, and other new businesses; and
- Expand the local tax base.

As detailed above, upgrading this corridor to interstate will result in much needed economic growth and opportunity, resulting in nearly 18,000 more jobs and \$2.2 billion more in annual GDP.

4.3.8 Assessment of Federal, State, Local and Private Funding Sources

Various funding sources would need to be explored from the local, state, and federal perspective to construct an interstate highway. While there are financial caps to many of the grants and/or funding opportunities, various projects could be developed so they each have independent utility and could subsequently be eligible for multiple sources of funding. Below is an overview of public funding opportunities at the Federal, state, and local levels and from private sources. **Figure 4.13** shows the sources of public funding.

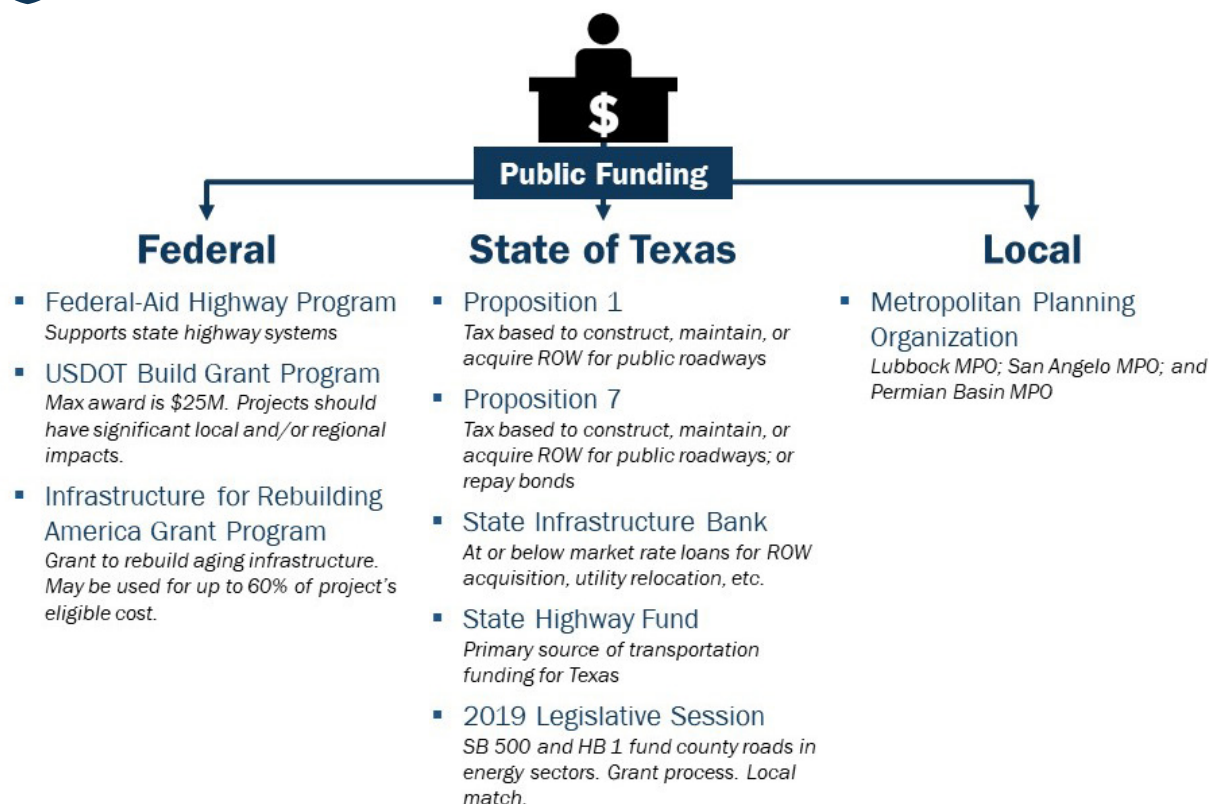


Figure 4.13: Public Funding Sources

Public Funding Sources - Federal Funding **Federal-Aid Highway Program**

The Federal-Aid Highway Program supports State highway systems by providing financial assistance for the construction, maintenance, and operations of the Nation's 3.9 million-mile highway network, including the Interstate Highway System, primary highways and secondary local roads. The FHWA is charged with implementing the Federal-aid Highway Program in cooperation with the States and local government.

The Highway Safety Improvement Program (HSIP) is a core Federal-aid program with the purpose to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned roads and roads on tribal land. The HSIP requires a data-driven, strategic approach to improving highway safety on all public roads with a focus on performance. The program is implemented in cooperation with the States and local government.

USDOT Build Program (Better Utilizing Investments to Leverage Development)

The United States Department of Transportation (USDOT) BUILD Transportation Discretionary Grant Program provides competitive grants that can be used in road, rail, transit, and port projects. The maximum award amount in recent years has been \$25 million with no state receiving more than \$100 million per fiscal year. Criteria also specify that awards are evenly split between rural and urban projects. It is important to note that the project should have significant local and/or regional impacts and it supports roads, bridges, transit, rail, ports, or intermodal transportation.

Infrastructure for Rebuilding America (INFRA) Discretionary Grant Program

The INFRA grant program is part of the overall grant program established under the FAST Act of 2015 to assist in the rebuilding of America's aging infrastructure.



INFRA grants may be used for up to 60 percent of a project's eligible cost, with other federal money allowed to cover non-Federal share requirements. The Federal assistance share may not exceed 80 percent of the project's eligible costs. Project money may be used for project construction, reconstruction, rehabilitation, right-of-way acquisition, environmental mitigation, construction contingencies, equipment acquisition, and operational improvements that are directly related to system performance. While the money may be used for planning, feasibility studies, revenue forecasting, preliminary engineering and design, and other preconstruction activities, the goal is that the fund results in the project's construction.

State of Texas Funding

The Texas Department of Transportation (TxDOT), through the State of Texas and the Texas Transportation Commission (TTC), has a variety of roadway funding resources that have been used in the past and/or are currently available to help fund the construction of all or part of the Ports-to-Plains Corridor. The funds, typically in form of statewide bond Propositions, have been authorized by the Texas Legislature with final approval by the Texas residents. Below is a description of these funding sources. TxDOT programs their funds in the Unified Transportation Program (UTP) which lays out planning, development, and construction of projects over the next ten years. **Appendix D - Texas Department of Transportation Unified Transportation Program Funding Categories** includes a description of the funding categories from the UTP.

Proposition 1

Proposition 1 was a result of the 2013 legislative session and approved by the voters in November 2014. Unlike the previous funding sources, this proposition was funded by a portion of the existing oil and natural gas production taxes and that portion is deposited into the State Highway Fund (SHF). The funds from "Prop 1" can only be used for constructing, maintaining, and acquiring rights-of-way for public roadways other than toll roads.

Proposition 7

Voted on and approved by the Texas voters on November 5, 2015, Proposition 7 authorized a constitutional amendment for transportation funding. Like Proposition 1, this amendment provided a scenario funding source that could be used for transportation needs in one of two ways. The amendment allocated a portion of sales and use taxes as well as a smaller portion of motor vehicle sales and rental taxes to (1), construct, maintain or acquire rights-of-way for public roadways other than toll roads, or (2) repay the principal of and interest on general obligation bonds issued as authorized by Section 49-p, Article III of the State constitution. In other words, the "Prop 7" funds may be used to pay debt service on Proposition 12 bonds, which were guaranteed by state general revenue.

State Infrastructure Bank

The State Infrastructure Bank (SIB) offers financial assistance to public or private entities who are authorized to construct, maintain, or finance public highway projects. The financial mechanism is in the form of at or below market rate loans and can be used for a variety of projects that are associated with highway construction, such as right-of-way acquisition, utility relocation, and monetary contribution to a project.

State Highway Fund (SHF)

The State Highway Fund is the primary source of transportation funding for the State of Texas. Most of the funds that were legislatively defined are deposited into the SHF – Proposition 1 and Proposition 7, SIB loans, repayments and interest, and toll revenue and revenue from Comprehensive Development Agreements (CDAs). In addition, portions of the State Motor Vehicles Fuels Tax, vehicles registration fees, local project participation fees, agency reimbursements, as well as smaller revenues, are included.

2019 Legislative Session

During the summer of 2019, Governor Abbott signed two pieces of one-time legislation from the 2019 legislative session – Senate Bill 500 (SB 500) and House Bill 1 (HB 1). Each of the bills allocated moneys to help fund county roads in the energy corridors.

- SB 500 included \$125 million from the state’s Economic Stabilization Fund (Rainy Day Fund) for counties in the State’s energy sector to address roadway infrastructure needs.
- HB 1 included \$125 million in funding to TxDOT appropriation funding.

In total, the \$250 million will be funneled through a grant process utilizing the County Transportation Infrastructure Fund, which is administered by TxDOT, and requires a match from local funds to participate.

Local Funding Sources

Metropolitan Planning Organization

A metropolitan planning organization (MPO) is a local decision-making body that is responsible for overseeing the metropolitan transportation planning process. An MPO is required for each urban area with a population of more than 50,000 people and gives local input into the planning and implementation of federal transportation funds for the region it serves. Federal legislation governing transportation funds requires metropolitan area transportation plans and programs to be developed through a continuing, cooperative, and comprehensive planning process. MPOs identify projects and set regional transportation priorities through their Metropolitan Transportation Plans which are coordinated with the State or local governments for funding. In Segment #2, there are three MPOs: Lubbock MPO, San Angelo MPO, and Permian Basin MPO.

Private Funding Sources

Within the Permian Basin region (Texas Energy Sector portion) there are a few local organizations that are taking an active role in moving the Ports-to-Plains conversations forward by continuing to press for roadway construction and economic development money. These groups are focused not only on roadway construction but economic development as well as community development.

County Energy Transportation Reinvestment Zone

A County Energy Transportation Reinvestment Zone (CETRZ) is a specific zone that all lies within one contiguous area that is within a county that has been determined to be affected by oil and gas exploration. A CERTZ is a quasi-governmental entity and must be approved and set up by the County in which the zone lies. The purpose of the zone is to garner the increase in property taxes that may be generated by the planned oil and gas project. This money may be used to pay for transportation projects, including matching funds for infrastructure projects and/or fund transportation infrastructure projects.

Public-Private Partnerships

Public-Private Partnerships (P3s) are a contractual agreement between both a public and private entity. P3s allow for greater private participation in the financing, design, construction, and maintenance of transportation facilities. The USDOT encourages the use of P3s and that through the involvement of the private sector, project innovation, efficiency and capital can be better used to address complex transportation problems. While the federal government encourages the use of P3s, the State of Texas has legislatively acted to prohibit the creation of new P3s. Until the legislature allows for P3s, this funding source is not available for roadways in the State.



CHAPTER 5

Public Involvement and Stakeholder Engagement

5.0 Public Involvement and Stakeholder Engagement

The development of the Ports-to-Plains Corridor Interstate Feasibility Study was guided and informed by the Segment Committees and an extensive stakeholder and public engagement process that included the establishment of three Segment Committees as outlined in HB 1079, as well as consultation with the TxDOT Districts along the corridor. In addition, quarterly public meetings were held in accordance with HB 1079.

The purpose of the public and stakeholder engagement was to gather input from the public about the study needs assessment, existing and forecasted conditions along the corridor, and to provide the public an opportunity to comment on the Segment Committee's preliminary recommendations on improvements to the Ports-to-Plains Corridor and expansion of the existing I-27 Corridor to create a continuous flow, four-lane divided highway that meets interstate standards to the extent possible.

5.1 Segment Committee Meetings

The first step in the stakeholder engagement was the creation of three Segment Committees. As described in Chapter 1, the Segment #2 Committee members were selected by the Ports-to-Plains Corridor Interstate Feasibility Study Advisory Committee based on the requirements outlined in HB 1079. The Segment Committee's roles and responsibilities included electing a Chairperson and Vice Chairperson to assist in the development of meeting materials, attending Segment Committee meetings, providing feedback on corridor data and analysis presented by TxDOT, and providing segment-specific study recommendations for consideration by the Advisory Committee.

The Segment #2 Committee met five times throughout the Ports-to-Plains Corridor Interstate Feasibility Study. Some meetings were held in-person while the others were conducted virtually due to inclement weather and the COVID-19 crisis. During the first meeting, the Segment Committee elected San Angelo Mayor, Brenda Gunter, as the Committee Chair and Lubbock County Judge, Curtis Parrish, as the Committee Vice Chair.

- A presentation was given at each meeting and handouts were provided to the Segment Committee.
- An online interactive engagement tool called Mentimeter was used to facilitate committee discussion and gather input.
- Electronic interactive and hardcopy maps were provided at meetings for committee members to provide input and develop recommendations.
- Meetings were open to the public, but only committee members participated in the discussions, questions, the map exercises, and made committee recommendations.

5.2 Public Involvement

The second key component of the stakeholder engagement for the Ports-to-Plains Corridor Interstate Feasibility Study was a robust public engagement process in accordance with requirements of HB 1079. The purpose of the outreach was to establish early and continuous public participation opportunities that provided information about transportation issues and decision-making processes to all interested parties, provide access to information about the study to enhance the public's knowledge and ability to participate in the development of the study, and to receive feedback on preliminary recommendations made by the committees before submitting reports.

A variety of strategies and tools were used to gather meaningful input from the public throughout the Corridor Interstate Feasibility Study. This included a project mailing list, website, fact sheets, frequently asked questions, meeting notifications, study-specific email (portstoplains@txdot.gov), and in-person and online public meetings held throughout the Ports-to-Plains Corridor.

TxDOT developed and maintained a project webpage that was continually updated throughout the Corridor Interstate Feasibility Study at www.txdot.gov (Keyword search “Ports-to-Plains”). The webpage provided information about the study and allowed the public to download project materials including maps, fact sheets, and frequently asked questions. The site also provided information about Segment Committees and public meetings including dates, times, agendas, summaries, handouts, and presentations from each meeting.

A project mailing list was developed for the Ports-to-Plains Corridor Interstate Feasibility Study. The mailing list included elected officials, chambers of commerce, school districts, airports, economic development corporations, metropolitan planning organizations, municipalities, tribal groups, ports, airports, major employers, colleges, national and state parks, federal lands, utility companies, groundwater conservation districts, civic groups, counties, business leagues, transit agencies, media groups, and real estate companies. The mailing list was used to send postcard notifications prior to the public meetings. A public officials’ mailing list was used to send an email notification to public officials prior to the public meetings.



San Angelo Public Meeting

Eight public meetings were held between November 2019 and May 2020 on a quarterly basis at key study milestones as per HB 1079 requirements. Public meetings were advertised through www.txdot.gov, mailing postcards, an email notification and advertising in local newspapers along the corridor.

Meeting materials were available online to view and to provide comments. Opportunities were provided to the public to submit comments online or printing the comment form and mailing it to TxDOT. The public was given 15 days to submit comments following each meeting. A meeting summary with responses to any comments received was developed for each meeting and posted on www.txdot.gov within 15 days of the close of the comment period.

The public meetings in November and February were held in-person and began with an open house where the public could view informational boards and exhibits and ask questions of TxDOT. Materials were provided in English and Spanish.

TxDOT gave a formal presentation and used the Mentimeter online engagement tool and electronic and hardcopy maps to gather the public input in an interactive engagement format. The public could write comments on the hardcopy maps, provide them electronically on a computer or submit a comment form at the meeting or through the mail.

Due to the COVID-19 virus pandemic and stay-at-home directives, on-line public meetings were held in May 2020 to present the Segment Committee's preliminary recommendations and to gather feedback from the public on them. A live presentation was given, and the public was given the opportunity to ask questions during and after the presentation. The live online meeting was recorded and available online for the public to view and comment for 15 days.

5.3 TxDOT District Consultation

The Ports-to-Plains Corridor crosses six TxDOT Districts: Amarillo, Lubbock, Odessa, Abilene, San Angelo, and Laredo. Coordination with District leadership occurred throughout the Ports-to-Plains Corridor Interstate Feasibility Study. During the data collection phase, the Districts provided



**Segment #2 Chair Mayor Gunter Speaks
at San Angelo Public Meeting**

information regarding current studies and roadway construction projects in the corridor.

Meetings were held with the Districts to verify the planned and programmed projects in the corridor and to review the cost estimate methodology and the cost estimates. At the request of the Segment Committee, the Districts provided their insights on where frontage roads may be needed in the rural areas. TxDOT District leadership also participated in the Segment Committee meetings and the public meetings.



Segment #2 Committee Meeting, November 2019



CHAPTER 6

Recommendations and Implementation Plan

6.0 Recommendations and Implementation Plan

The recommendations were developed based on a comprehensive data-driven and technical analysis and stakeholder informed process. The analysis included data collection, corridor existing conditions, forecasted conditions, and corridor feasibility analysis that covered freight and traffic flow, cost estimates, and economic analysis. As outlined in HB 1079, the Segment #2 Committee guided the development of study within their Segment. Extensive public engagement was also conducted throughout the study to gather input on the Ports-to-Plains Corridor Interstate Feasibility Study. In addition, consultation was conducted with six TxDOT Districts along the corridor.

The data gathered and analyzed and input provided during the Ports-to-Plains Corridor Interstate Feasibility Study justified an interstate upgrade that would extend I-27 in the Segment #2 portion of the corridor. HB 1079 requires each Segment Committee to prioritize their recommendations for improvement and expansion of the Ports-to-Plains Corridor. In developing and prioritizing their recommendations for improving the corridor to interstate, the Segment #2 Committee considered several factors important to their Segment as well as key challenges and findings. These included international trade and freight movement, economic development, energy impacts, congestion relief, and safety and mobility and cost of upgrading the corridor to interstate.

Importance of the Corridor

The Ports-to-Plains Corridor is an international, national and state significant transportation corridor that connects and integrates Texas' key economic engines, international trade, energy production and agriculture. It plays a vital role in supporting the growing demographic and economic centers of south and west Texas functioning as the only north-south corridor facilitating the movement of people and goods in south and west Texas. The economic benefits listed in this report come by fulfilling the implementation plan fully

for the entire corridor. The economic benefits of the development of the corridor is important to each segment, but do not accrue to any individual segment without completing the entire corridor.

- Upgrading the Ports-to-Plains Corridor to an interstate would reduce travel times and travel costs, saving businesses and individuals \$4.1 billion per year statewide.
- Travel-cost savings of \$3.4 billion corridor-wide and \$690 million in the state.
- The interstate would enhance access to markets for businesses across the Ports-to-Plains Corridor.
- The interstate would attract new business in the corridor, particularly in the food and agriculture, energy and extractions, warehousing and distribution industries.
- Economic gains in annual GDP of more than \$2.2 billion corridor-wide and an additional \$640 million for the state.
- Job increases of 17,710 jobs corridor-wide and 4,400 for the state.
- The interstate would result in a return on investment of \$17.8 billion, representing a 76 percent return statewide.

International Trade and Freight Movement

Freight movements are critical to Segment #2 with petroleum and agricultural products such as livestock and cotton being significant economic drivers. The interstate upgrade, resulting in a 36 percent increase in truck demand for Segment #2, will provide improved access to markets and production areas for energy and agriculture products. Export markets are vital, making the connection to border crossings of critical importance. The Ports-to-Plains Corridor provides access to three international land ports of entry, Del Rio, Eagle Pass, and Laredo, on the U.S.-Mexico border.

Energy Development

Energy development is critical to the economy of the region and the state. Movement of energy products, including conventional oil and gas, and renewables, to market is particularly important

in Segment #2, where activity generated by the oil fields in the Permian Basin supports not only the economy of the region, but the state and the country as a whole. In 2019, the Permian Basin was responsible for 72 percent of Texas crude oil production, and 32 percent of U.S. crude oil production. The Permian Basin is also responsible for 35 percent of Texas natural gas production and 13 percent of U.S. natural gas production. The extension of I-27 corridor by upgrading the corridor within Segment #2 will enhance the ability of the energy industry to transport products to local, regional, state, and international markets and support the state's continued economic competitiveness.

Agriculture

Agriculture in the Ports-to-Plains Corridor is the other key economic industry. The production and export of quality agricultural products (crops, livestock, dairy, etc.) generates billions of dollars and relies directly on highway networks for transport of products to market. West Texas is a top producer of cotton, hay, and cattle, and exports most of these products to other states and countries. Inbound products such as feed, fertilizer, and fuel also rely on the Ports-to-Plains Corridor. In fact, three of the top agricultural commodities in Texas are cattle (\$12.3 billion/year), cotton (\$2.6 billion/year) and milk (\$2.1 billion/year) are produced in the Ports-to-Plains Corridor. The total agricultural product sales for the Ports-to-Plains Corridor is approximately \$11 billion, and the northern section alone contributes \$9 billion to this total. Transporting these products requires a highway system that can provide an efficient, safe, and healthy way to transport livestock and crops.

Key Issues and Challenges

Segment #2 is the longest of the three segments, covering approximately 441 miles. It includes the southernmost 21 miles of existing I-27, through Lubbock to Hale County. Segment #2 includes twelve (12) counties and four TxDOT Districts. Major cities in Segment #2 include Sonora, Eldorado, San Angelo, Sterling City, Big Spring, Midland, Odessa, Lamesa, Tahoka, and Lubbock.

Segment #2 has a notable length of two and four lane undivided highways, 172 miles (39 percent) are already four-lane divided, and 43 miles (10 percent) are already freeway. Other congestion, safety and mobility challenges within Segment #2 are discussed in more detail below.

Congestion Relief

Stronger traffic diversion capability over the baseline is provided by the interstate upgrade, indicating the ability to reduce traffic congestion from nearby corridors in Segment #2 and from other corridors in the state including I-35. The interstate upgrade for Segment #2 and the entire Ports-to-Plains Corridor provides a north-south interstate through a significant region lacking interstate access under the baseline. Using I-20, there are approximately 258 miles between Big Spring and I-35 at Dallas/Fort Worth and approximately 345 miles between Big Spring and I-25 at El Paso. Using I-10, there are approximately 171 miles between Sonora and I-35 at San Antonio and approximately 383 miles between Big Spring and I-25 at El Paso.

Safety and Mobility

Due to the lack of access control, safety in the existing corridor would not be substantially improved even with the planned and programmed projects, as compared to upgrading the corridor to an interstate upgrade. An interstate upgrade is estimated to reduce the current Segment #2 crash rate by approximately 43 percent. The interstate upgrade will provide a travel time benefit due to greater travel speed provided by full access control. In Segment #2, this analysis indicated a free-flow travel time savings of 14 minutes, an average travel time savings of 35 minutes, and peak period travel time savings of 56 minutes. The interstate upgrade would serve state and national security interests with its increased mobility and would also be a key component of evacuation routes during an emergency situation.

6.1 Recommendations

As previously mentioned, the Segment #2 Committee's recommendations were developed based on a comprehensive data-driven and technical analysis and stakeholder informed process. A detailed description of the Segment #2 Committee's Recommendations is included in **Appendix E - Segment #2 Committee Recommendations**. The Segment #2 Committee recommends a full upgrade of the corridor to an interstate throughout Segment #2.

In addition, the Committee recommends relief routes, safety and operational improvements, and policy recommendations to address the key issues along the Corridor. The recommended improvements are discussed in the following sections. This list of projects is not financially constrained. Further planning, project development, and programming will be needed before any of these projects could

be constructed.

6.1.1 Recommended Interstate Upgrade Projects

The Segment #2 Committee recommends nine projects that would extend I-27 by upgrading the existing primarily two-lane corridor to an interstate facility. These projects are listed in **Table 6.1** and shown in **Figure 6.1**. These interstate upgrade projects identified would have to go through the project planning and development, and programming process required before any construction to upgrade the corridor to interstate standards.

Table 6.1: Recommended Interstate Upgrade Projects in Segment #2²⁶

Roadway	From	To	Description of Work
US 87	Lubbock	Tahoka	Upgrade to interstate (approximately 22 miles)
US 87	Tahoka	Lamesa	Upgrade to interstate (approximately 26 miles)
SH 349	Lamesa	Midland	Upgrade to interstate (approximately 41 miles)
US 87	Lamesa	Big Spring	Upgrade to interstate (approximately 36 miles)
US 87	Big Spring	Sterling City	Upgrade to interstate (approximately 39 miles)
US 87	Sterling City	San Angelo	Upgrade to interstate (approximately 22 miles)
SH 158	Midland	Sterling City	Upgrade to interstate (approximately 65 miles)
US 277	San Angelo	Christoval	Upgrade to interstate (approximately 20 miles)
US 277	Christoval	Sutton/Edwards County Line	Upgrade to interstate (approximately 63 miles)

²⁶ The mileage included in the table are approximations and do not include miles along the corridor covered by relief route project recommendations.

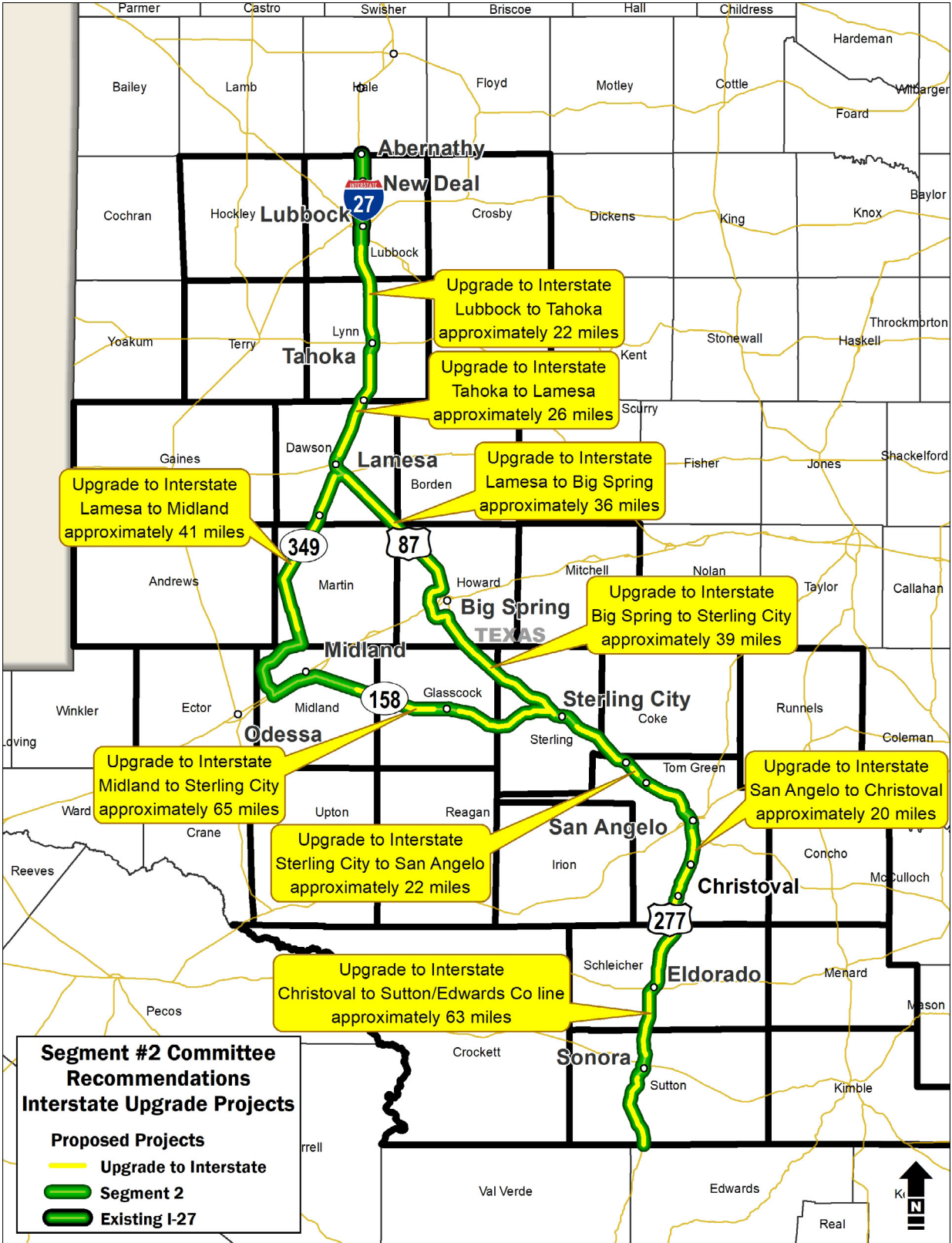


Figure 6.1: Recommended Interstate Upgrade Projects in Segment #2

6.1.2 Recommended Relief Route Projects

The Segment #2 Committee recommends thirteen relief route projects for cities along the corridor. These projects are listed in **Table 6.2** and shown in **Figure 6.2**. The Committee is recommending

relief route projects around communities where upgrading the existing facility to interstate standards would create significant adverse impacts.

Table 6.2: Recommended Relief Route Projects in Segment #2

Description	Location
Tahoka Relief Route	Around City of Tahoka
O'Donnell Relief Route	Around City of O'Donnell
Lamesa Relief Route	Around City of Lamesa
Patricia Relief Route	Around City of Patricia
Midland Relief Route	Around City of Midland
Garden City Relief Route	Around City of Garden City
Sterling City Relief Route	Around City of Sterling City
Water Valley Relief Route	Around City of Water Valley
Carlsbad Relief Route	Around City of Carlsbad
Christoval Relief Route	Around Christoval
San Angelo Relief Route (study underway)	East side of San Angelo
Eldorado Relief Route	Around City of Eldorado
Sonora Relief Route (study underway)	Around Sonora

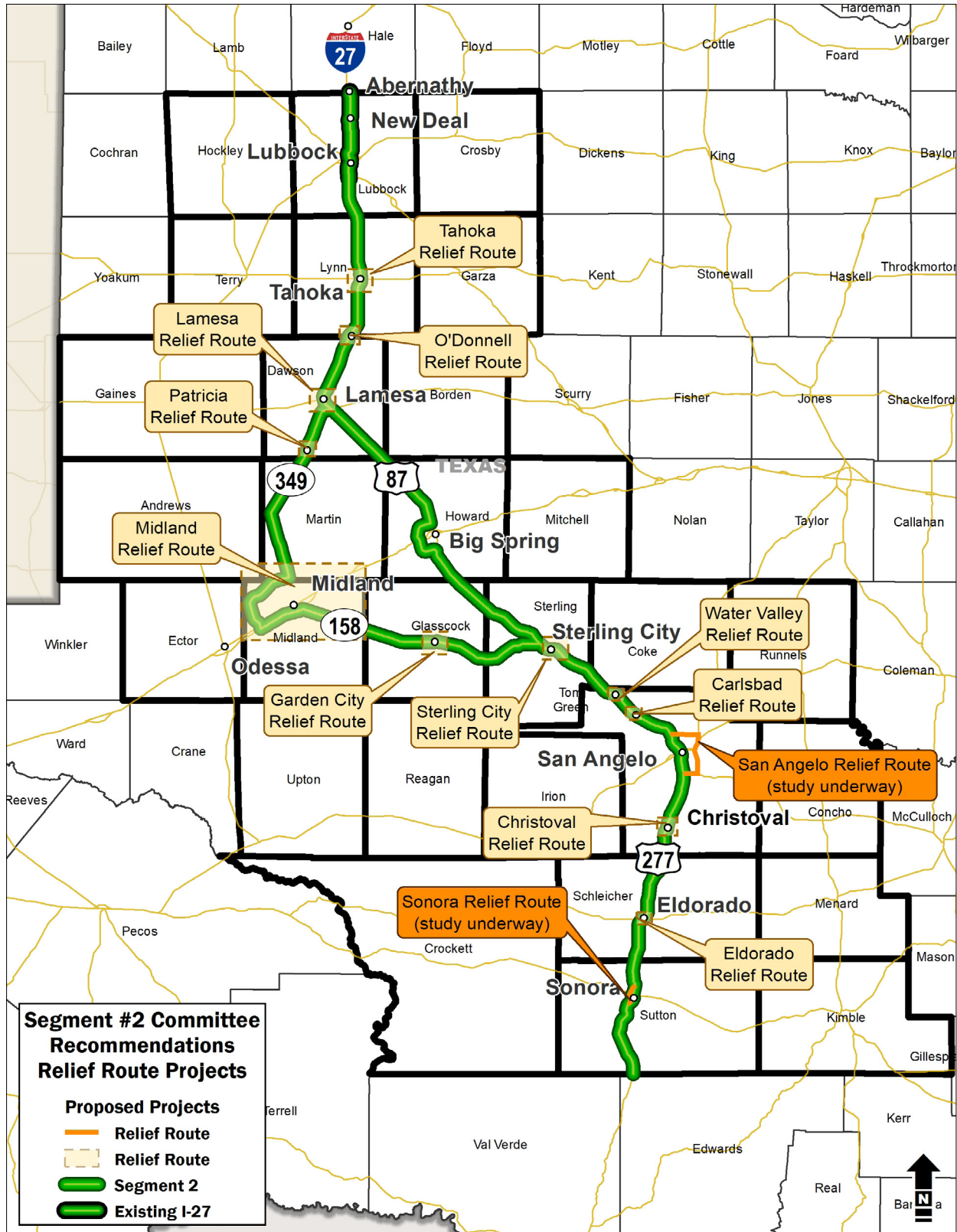


Figure 6.2: Recommended Relief Route Projects in Segment #2

6.1.3 Recommended Safety and Operational Improvements

The Segment #2 Committee recommends eighteen safety and operational improvements along the corridor. Safety and operational improvements

compliment the interstate upgrade and are effective and low-cost strategies to improve safety on the existing corridor. These improvements are listed in **Table 6.3** and shown in **Figure 6.3**.

Table 6.3: Recommended Safety and Operational Improvements in Segment #2

Roadway	Description of Work
I-27 and SL 289 (north end)	Develop interchange
I-27 and US 82	Develop interchange
I-27 and US 62	Develop interchange
I-27 and SL 289 (south end)	Develop interchange
Loop 88	Intersection (currently in development)
US 87 and SH 41	Add grade separation
US 87 and FM 211	Add grade separation
US 87 and FM 1317	Add grade separation
US 87 and FM 213	Add grade separation
US 87 and FM 2053	Add grade separation
I-20 at SH 158	Improve intersection
SH 158 and SH 137	Add grade separation
I-20 and Business 87	Improve intersection
US 87 and US 67	Improve overpass
US 87 at US 277 at LP 306	Improve intersection
Along US 277	Study bridge over river and access on and off
US 277 at FM 110	Add grade separation
US 277 at RM 189	Study grade separation

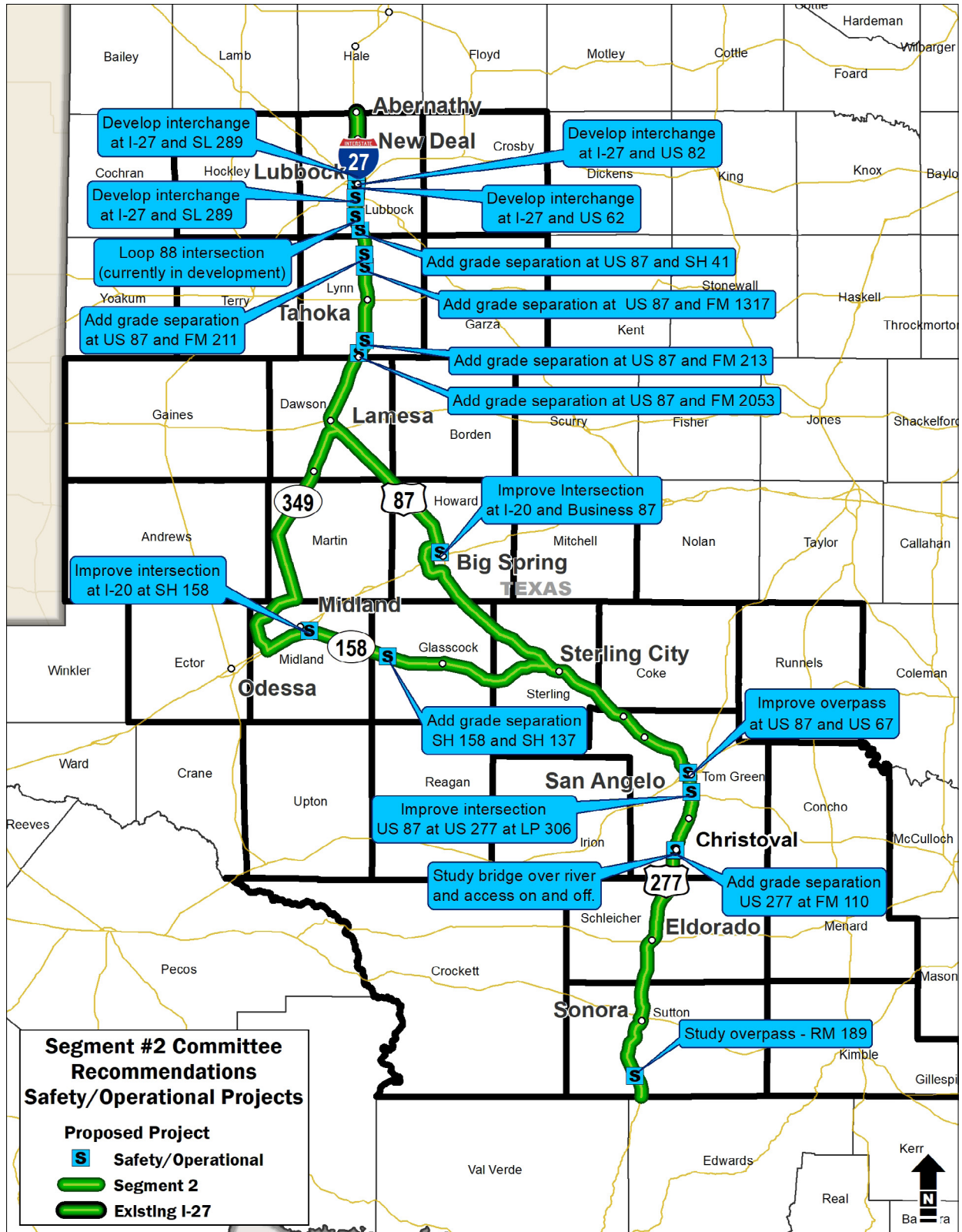


Figure 6.3: Recommended Safety and Operational Improvements in Segment #2

6.1.4 Committee Policy and General Recommendations

In addition to the specific project recommendations, the Segment #2 Committee has several policy and general recommendations to help advance the implementation plan for the improvement to a the Ports-to-Plains Corridor to an interstate facility.

Complete Planned and Programmed Projects

The Segment #2 Committee recognizes TxDOT has already begun the process of funding projects that will improve highways by enhancing safety and serving traffic along the Corridor. The Committee endorses efforts to complete the projects already planned and programmed by TxDOT, the Lubbock Metropolitan Planning Organization (MPO), the San Angelo MPO and the Permian Basin MPO described in Chapter 3.

Detailed Project-Level Planning and Development Process

The Segment #2 Committee recommends that TxDOT continues to further detailed project-level planning and development to implement the project recommendations outlined in this Plan to upgrade the Ports-to-Plains Corridor to an interstate facility. The activities should include the following:

- Develop detail district-level implementation plan outlining project development process for each of the project included in the recommendations of this plan.
- Specific location of items like frontage roads, bridges and grade separations (overpasses or underpasses) as the planning and development processes continue, and,
- Future connections and interchanges with the proposed interstate to other regional highways that serve the region.

Environment Review and Public Input

The Segment #2 Committee recommends construction of any relief route undergo an extensive environmental process and require public input and comment.

Importance of Community Support

The Segment #2 Committee recognizes the importance of community support including resolutions for supporting future interstate designation adopted by communities, counties, organizations and businesses within Segment #2 and has included a signed resolution in **Appendix F - A Resolution Supporting the Designation of an Extension of Interstate 27 as a Future Interstate in Texas.**

Continued Role of the Advisory Committee

Once this Ports-to-Plains Corridor Interstate Feasibility Study is complete, the Segment #2 Committee recommends the Advisory Committee continue to guide the Implementation Strategy to manage the continued development and designation of the interstate upgrade in Texas.

6.2 Segment #2 Implementation Plan

As outlined in HB 1079, the Committee prioritized their recommendations for improvement and expansion of the Ports-to-Plains Corridor. Upon identifying their recommendations, the Segment #2 Committee members conducted a survey to prioritize their projects into short-term, mid-term and long-term categories for implementation.

- The short-term projects are recommended for implementation within one to five years.
- The mid-term projects are recommended for implementation within six to ten years.
- The long-term projects are recommended for implementation for 11 or more years.

These implementation phases are planning recommendations made by the Segment #2 Committee; however, these identified projects may be accelerated or decelerated based on opportunities and reallocation of resources needed for construction and implementation.

Table 6.4 lists the recommended projects and implementation phasing for each project. **Figure 6.4** (short-term), **Figure 6.5** (mid-term), and **Figure 6.6** (long-term) includes maps showing the location of each project in

Segment #2.

6.3 Next Steps

As required by HB 1079, the Segment #2 Committee will submit this final report to the Ports-to-Plains Advisory Committee. The Advisory Committee will consider the recommendations of Segment #2 Committee as well as those of Segment #1 and #3 and make final corridor-wide project recommendations and priorities to TxDOT by October 31, 2020.

Table 6.4: Implementation Plan for Recommended Projects in Segment #2

Description	Location	TxDOT District	Short-Term (0-5 years)	Mid-Term (6-10 years)	Long-Term (11+ years)
Upgrade to interstate (approximately 22 miles) ^a	US 87 (from Lubbock to Tahoka)	Lubbock	Preliminary Design & Environmental	Final Design & ROW Acquisition; Construction	–
Upgrade to interstate (approximately 26 miles) ^a	US 87 (from Tahoka to Lamesa)	Lubbock	–	Preliminary Design & Environmental	Final Design & ROW Acquisition; Construction
Upgrade to interstate (approximately 41 miles) ^a	SH 349 (from Lamesa to Midland)	Lubbock	–	Preliminary Design & Environmental	Final Design & ROW Acquisition Construction
		Odessa	–	Project Feasibility ^c ; Preliminary Design & Environmental;	Final Design & ROW Acquisition; Construction
Upgrade to interstate (approximately 36 miles) ^a	US 87 (from Lamesa to Big Spring)	Lubbock	Preliminary Design & Environmental	Final Design & ROW Acquisition	Construction
		Abilene	Preliminary Design & Environmental	Final Design & ROW Acquisition	Construction
Upgrade to interstate (approximately 39 miles) ^a	US 87 (from Big Spring to Sterling City)	Abilene	Project Feasibility ^c ; Preliminary Design & Environmental	Final Design & ROW Acquisition	ROW Acquisition; Construction
		San Angelo	Project Feasibility ^c ; Preliminary Design & Environmental	Final Design & ROW Acquisition	ROW Acquisition; Construction

Description	Location	TxDOT District	Short-Term (0-5 years)	Mid-Term (6-10 years)	Long-Term (11+ years)
Upgrade to interstate (approximately 22 miles) ^a	US 87 (from Sterling City to San Angelo)	San Angelo	Project Feasibility ^c ; Preliminary Design & Environmental	Final Design & ROW Acquisition	Construction
Upgrade to interstate (approximately 65 miles) ^a	SH 158 (from Midland to Sterling City)	San Angelo	–	Project Feasibility ^c ; Preliminary Design & Environmental	Final Design & ROW Acquisition; Construction
		Odessa	–	Project Feasibility ^c ; Preliminary Design & Environmental; Final Design & ROW Acquisition	Construction
Upgrade to interstate (approximately 20 miles) ^a	US 277 (from San Angelo to Christoval)	San Angelo	Project Feasibility ^c ; Preliminary Design & Environmental	Final Design	ROW Acquisition; Construction
Upgrade to interstate (approximately 63 miles) ^a	US 277 (from Christoval to Sutton/Edwards County Line)	San Angelo	Project Feasibility ^c ; Preliminary Design & Environmental	Final Design	ROW Acquisition; Construction
Tahoka Relief Route	Around City of Tahoka	Lubbock	Preliminary Design & Environmental	Final Design & ROW Acquisition; Construction	–
O'Donnell Relief Route	Around City of O'Donnell	Lubbock	–	Preliminary Design & Environmental	Final Design & ROW Acquisition; Construction
Lamesa Relief Route	Around City of Lamesa	Lubbock	–	Preliminary Design & Environmental	Final Design & ROW Acquisition; Construction

Description	Location	TxDOT District	Short-Term (0-5 years)	Mid-Term (6-10 years)	Long-Term (11+ years)
Patricia Relief Route	Around City of Patricia	Lubbock	–	Preliminary Design & Environmental;	Final Design & ROW Acquisition; Construction
Midland Relief Route	Around City of Midland	Odessa	Project Feasibility ^c ; Preliminary Design & Environmental	Final Design & ROW Acquisition	Construction
Garden City Relief Route ^d	Around City of Garden City	San Angelo	–	Project Feasibility ^c ; Preliminary Design & Environmental	Final Design & ROW Acquisition; Construction
Sterling City Relief Route ^e	Around City of Sterling City	San Angelo	Project Feasibility ^c ; Preliminary Design & Environmental	Final Design & ROW Acquisition	Construction
Water Valley Relief Route ^e	Around City of Water Valley	San Angelo	Project Feasibility ^c ; Preliminary Design & Environmental	Final Design	ROW Acquisition; Construction
Carlsbad Relief Route ^e	Around City of Carlsbad	San Angelo	Project Feasibility ^c ; Preliminary Design & Environmental	Final Design	ROW Acquisition; Construction
Christoval Relief Route ^f	Around Christoval	San Angelo	Project Feasibility ^c ; Preliminary Design & Environmental	Final Design	ROW Acquisition; Construction
San Angelo Relief Route (study underway)	East side of San Angelo	San Angelo	Preliminary Design & Environmental; Final Design	ROW Acquisition; Construction	–

Description	Location	TxDOT District	Short-Term (0-5 years)	Mid-Term (6-10 years)	Long-Term (11+ years)
Eldorado Relief Route ^g	Around City of Eldorado	San Angelo	Project Feasibility ^c ; Preliminary Design & Environmental	Final Design	ROW Acquisition; Construction
Sonora Relief Route (study underway)	Around Sonora	San Angelo	Preliminary Design & Environmental; Final Design	ROW Acquisition; Construction	-
Safety/ Operational Improvement	I-27 and SL 289 (north end)	Lubbock	-	-	Project Feasibility ^c ; Preliminary Design & Environmental; Final Design & ROW Acquisition; Construction
Safety/ Operational Improvement	I-27 and US 82	Lubbock	Project Feasibility ^c ; Preliminary Design & Environmental	ROW acquired; Final Design; Construction	-
Safety/ Operational Improvement	I-27 and US 62	Lubbock			Project Feasibility ^c ; Preliminary Design & Environmental; Final Design & ROW Acquisition; Construction
Safety/ Operational Improvement	I-27 and SL 289 (south end)	Lubbock	-	-	Project Feasibility ^c ; Preliminary Design & Environmental; Final Design & ROW Acquisition; Construction
Safety/ Operational Improvement	Loop 88 Intersection (currently in development)	Lubbock	Environmental process complete; Final design @ 30%; Construction	-	-

Description	Location	TxDOT District	Short-Term (0-5 years)	Mid-Term (6-10 years)	Long-Term (11+ years)
Safety/ Operational Improvement	US 87 and SH 41 - Add grade separation	Lubbock	Environmental process complete; Final design @ 60%; Construction	-	-
Safety/ Operational Improvement	US 87 and FM 211 - Add grade separation	Lubbock	Preliminary Design & Environmental	Final Design & ROW Acquisition; Construction	-
Safety/ Operational Improvement	US 87 and FM 1317 - Add grade separation	Lubbock	Preliminary Design & Environmental	Final Design & ROW Acquisition; Construction	-
Safety/ Operational Improvement	US 87 and FM 213 - Add grade separation	Lubbock	-	Preliminary Design & Environmental	Final Design & ROW Acquisition; Construction
Safety/ Operational Improvement	US 87 and FM 2053 - Add grade separation	Lubbock	-	Preliminary Design & Environmental	Final Design & ROW Acquisition; Construction
Safety/ Operational Improvement	I-20 at SH 158 ^b - Improve intersection	Odessa	To be incorporated into Midland Relief Route	-	-
Safety/ Operational Improvement	SH 158 and SH 137 - Add grade separation	San Angelo	Construction	-	-
Safety/ Operational Improvement	I-20 and Business 87 - Improve intersection	Abilene	Preliminary Design & Environmental	Final Design & ROW Acquisition	Construction

Description	Location	TxDOT District	Short-Term (0-5 years)	Mid-Term (6-10 years)	Long-Term (11+ years)
Safety/ Operational Improvement	US 87 and US 67 - Improve overpass	San Angelo	To be supplanted by San Angelo Relief Route	-	-
Safety/ Operational Improvement	US 87 at US 277 at LP 306 - Improve intersection	San Angelo	Project Feasibility ^c ; Preliminary Design & Environmental	Final Design	ROW Acquisition; Construction
Safety/ Operational Improvement	Along US 277 - Study bridge over river and access on and off	San Angelo	To be incorporated in San Angelo to Christoval segment development		
Safety/ Operational Improvement	US 277 at FM 110 - Add grade separation	San Angelo	To be incorporated into Christoval Relief Route		
Safety/ Operational Improvement	US 277 at RM 189 - Study grade separation	San Angelo	To be incorporated into Christoval to Edwards/ Sutton County Line segment development	Included in Segment #3 Edwards County project	

Notes: ^a The mileage included in the table are approximations and do not include miles along the corridor covered by relief route recommendations.

^b Assuming a freeway to freeway connection.

^c This report is a Feasibility Study of the entire Ports-to-Plains Corridor. Project Feasibility listed in this table are project specific feasibility studies required before Preliminary Design.

^d To be conducted in conjunction with SH 158: Midland to Sterling City interstate upgrade project development process. Time frames shown here are contingent on development of that segment.

^e To be conducted in conjunction with US 87: Sterling City to San Angelo interstate upgrade project development process. Time frames shown here are contingent on development of that segment.

^f To be conducted in conjunction with US 277: San Angelo to Christoval interstate upgrade project development process. Time frames shown here are contingent on development of that segment.

^g To be conducted in conjunction with US 277: Christoval to Sutton Edwards CL interstate upgrade project development process. Time frames shown here are contingent on development of that segment.

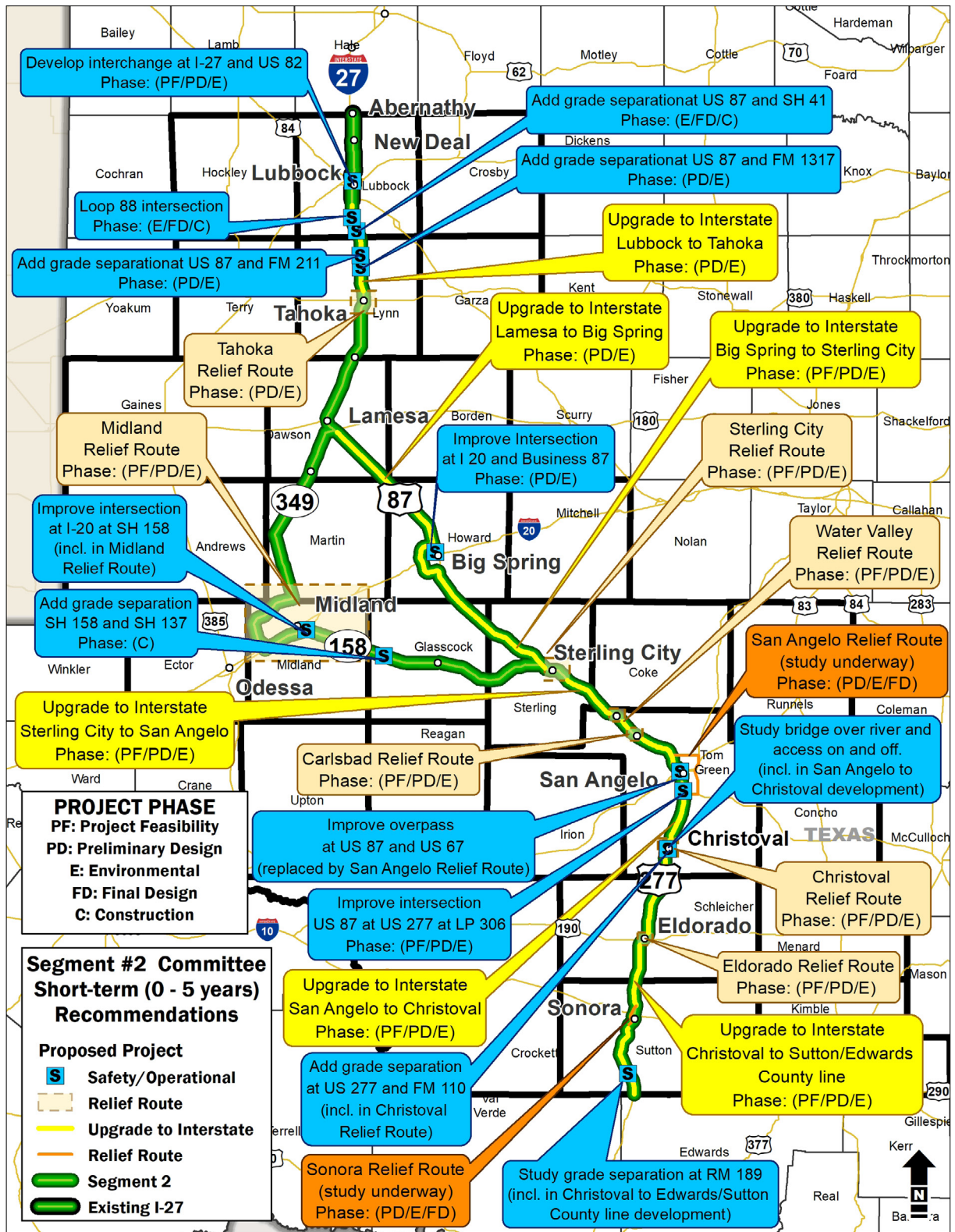


Figure 6.4: Short-Term Projects in Segment #2

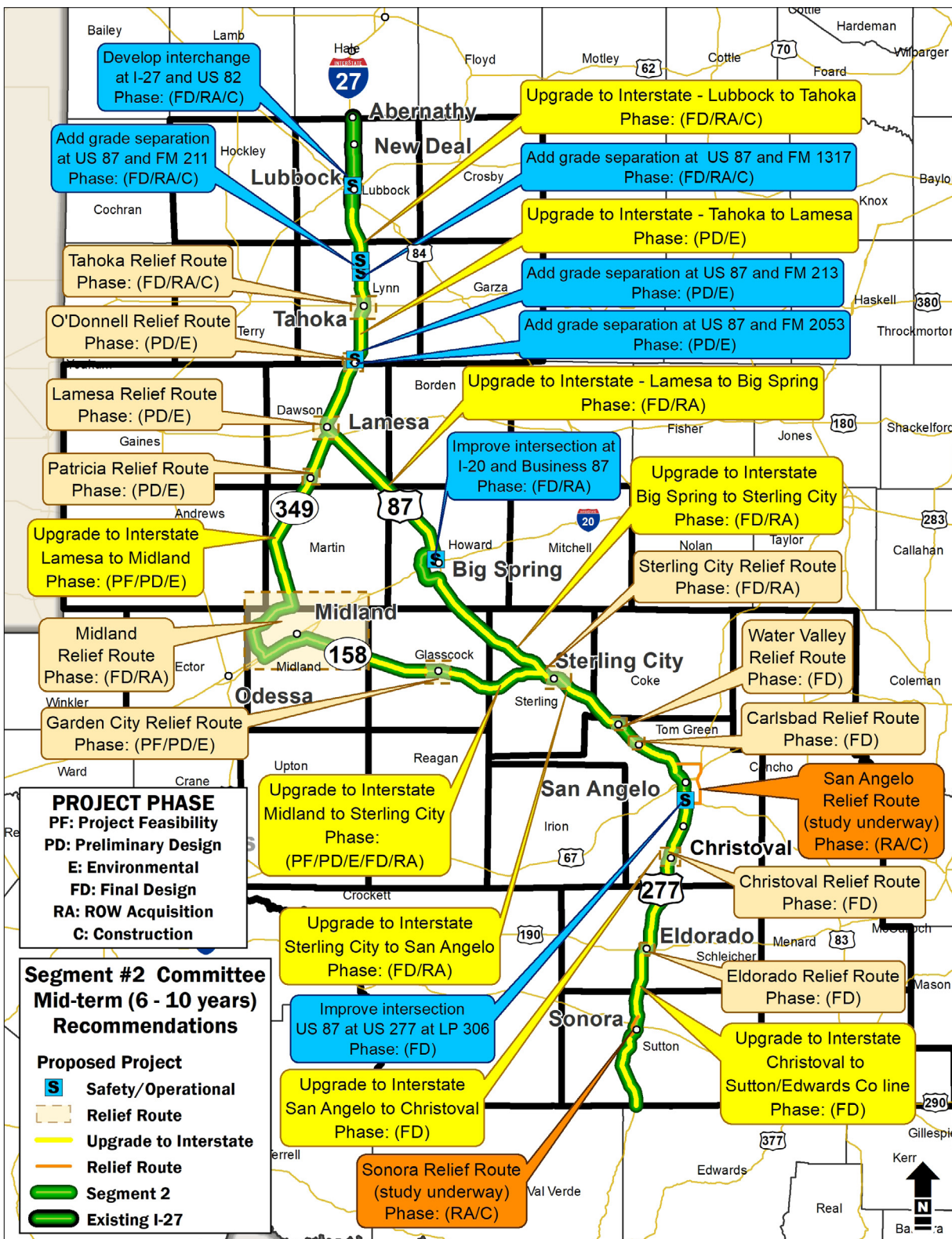


Figure 6.5: Mid-Term Projects in Segment #2

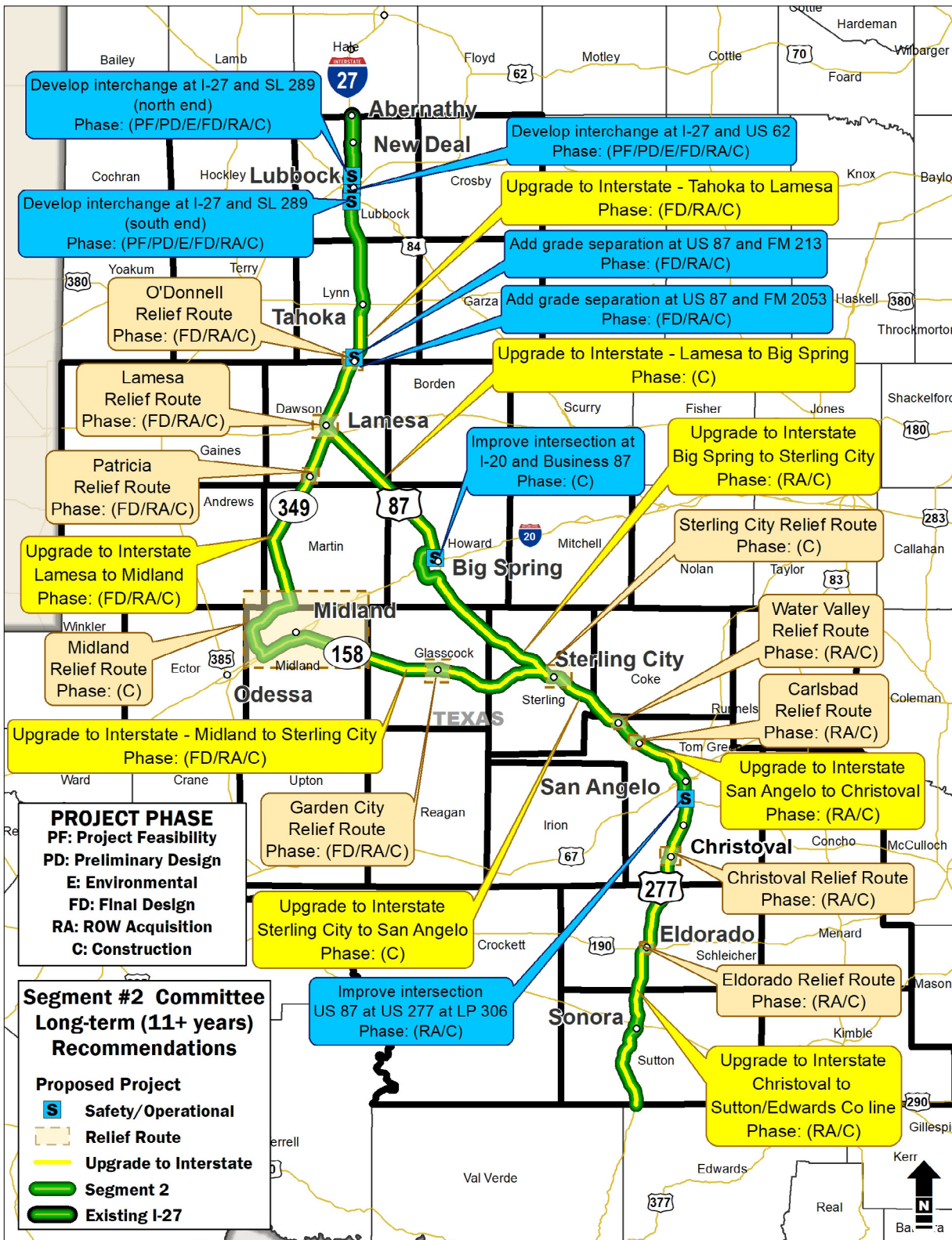


Figure 6.6: Long-Term Projects in Segment #2

APPENDIX A

House Bill 1079

Chapter 756

H.B. No. 1079

1 AN ACT

2 relating to a study by the Texas Department of Transportation of the

3 Ports-to-Plains Corridor, including an evaluation of the

4 feasibility of certain improvements to Interstate Highway 27.

5 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF TEXAS:

6 SECTION 1. (a) In this Act:

7 (1) "Advisory committee" means the Ports-to-Plains

8 Advisory Committee established under this section.

9 (2) "Department" means the Texas Department of

10 Transportation.

11 (3) "Improvement" has the meaning assigned by Section

12 221.001, Transportation Code.

13 (4) "Port of entry" has the meaning assigned by

14 Section 621.001, Transportation Code.

15 (5) "Ports-to-Plains Corridor" means the highways

16 designated as the Ports-to-Plains Corridor under Section 225.069,

17 Transportation Code.

18 (b) The department shall conduct a comprehensive study of

19 the Ports-to-Plains Corridor. The study must evaluate the

20 feasibility of, and the costs and logistical matters associated

21 with, improvements that create a continuous flow, four-lane divided

22 highway that meets interstate highway standards to the extent

23 possible, including improvements that:

24 (1) extend Interstate Highway 27:

H.B. No. 1079

- 1 (A) from its southern terminus to Interstate
2 Highway 20;
- 3 (B) from Interstate Highway 20 to Interstate
4 Highway 10; and
- 5 (C) from Interstate Highway 10 to the port of
6 entry located in Laredo;
- 7 (2) extend Interstate Highway 27:
- 8 (A) from its northern terminus to Dumas;
- 9 (B) from Dumas to Stratford; and
- 10 (C) from Stratford to the Oklahoma state border;
- 11 and
- 12 (3) extend Interstate Highway 27:
- 13 (A) from its northern terminus to Dumas;
- 14 (B) from Dumas to Dalhart; and
- 15 (C) from Dalhart to the New Mexico state border.
- 16 (c) In conducting the study under Subsection (b) of this
17 section, the department shall:
- 18 (1) use the reports submitted to the department by the
19 advisory committee under Subsection (j) of this section; and
- 20 (2) hold quarterly public meetings on a rotational
21 basis in Amarillo, Laredo, Lubbock, and San Angelo to gather public
22 feedback on improvements or expansions to the Ports-to-Plains
23 Corridor.
- 24 (d) The department shall establish a Ports-to-Plains
25 Advisory Committee to assist the department in conducting the study
26 under Subsection (b) of this section.
- 27 (e) The advisory committee is composed of:



H.B. No. 1079

1 (1) the county judge, or an elected county official or
 2 the administrator of the county's road department, as designated by
 3 the county judge, of each county along the Ports-to-Plains
 4 Corridor, including the counties along the possible extensions of
 5 Interstate Highway 27 described by Subsection (b) of this section;
 6 and

7 (2) the mayor, or the city manager or assistant city
 8 manager, as designated by the mayor, of Amarillo, Big Spring,
 9 Carrizo Springs, Dalhart, Del Rio, Dumas, Eagle Pass, Eldorado,
 10 Lamesa, Laredo, Lubbock, Midland, Odessa, San Angelo, Sonora,
 11 Sterling City, Stratford, and Tahoka.

12 (f) The advisory committee shall meet at least twice each
 13 year on a rotational basis in Lubbock and San Angelo.

14 (g) The department, in conjunction with the advisory
 15 committee, shall establish segment committees for each geographic
 16 segment along the Ports-to-Plains Corridor as determined by the
 17 department. The segment committees are composed of:

18 (1) volunteers who may represent:

19 (A) municipalities, counties, metropolitan
 20 planning organizations, ports, chambers of commerce, and economic
 21 development organizations along that segment of the
 22 Ports-to-Plains Corridor;

23 (B) the oil and gas industry; and

24 (C) the trucking industry;

25 (2) department representatives; and

26 (3) any other interested parties.

27 (h) A segment committee established under Subsection (g) of



H.B. No. 1079

1 this section for a segment along the Ports-to-Plains Corridor shall
2 submit a report to the advisory committee providing input for the
3 study conducted by the department under Subsection (b) of this
4 section. The report must include:

5 (1) an examination of the ability of the energy
6 industry to transport products to market;

7 (2) an evaluation of the economic development impacts
8 of the Ports-to-Plains Corridor, including whether the improvement
9 or expansion of the Ports-to-Plains Corridor would create
10 employment opportunities in this state;

11 (3) a determination of whether improvements or
12 expansion of the Ports-to-Plains Corridor would relieve traffic
13 congestion in the segment;

14 (4) an examination of freight movement along the
15 Ports-to-Plains Corridor;

16 (5) a determination and prioritization of
17 improvements and expansion of the Ports-to-Plains Corridor that are
18 warranted in order to promote safety and mobility, while maximizing
19 the use of existing highways to the greatest extent possible and
20 striving to protect private property as much as possible;

21 (6) a determination of the areas that are preferable
22 and suitable for interstate designation;

23 (7) an examination of project costs related to the
24 improvement or expansion of the Ports-to-Plains Corridor; and

25 (8) an assessment of federal, state, local, and
26 private funding sources for a project improving or expanding the
27 Ports-to-Plains Corridor.



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1 (i) Not later than June 30, 2020, each segment committee
2 established under Subsection (g) of this section shall submit to
3 the advisory committee the report described by Subsection (h) of
4 this section, including priority recommendations for improvement
5 and expansion of the Ports-to-Plains Corridor.

6 (j) Not later than October 31, 2020, the advisory committee
7 shall review and compile the reports submitted by each segment
8 committee under Subsection (i) of this section and submit to the
9 department:

10 (1) the reports submitted by each segment committee;
11 and

12 (2) a summary and any recommendations based on those
13 reports.

14 (k) The advisory committee and each segment committee shall
15 conduct extensive public involvement campaigns for feedback on
16 preliminary recommendations made by the committees before
17 submitting the reports under Subsections (i) and (j) of this
18 section.

19 (l) Not later than January 1, 2021, the department shall
20 submit a report on the results of the study conducted under
21 Subsection (b) of this section to the governor, the lieutenant
22 governor, the speaker of the house of representatives, and the
23 presiding officer of each standing committee of the legislature
24 with jurisdiction over transportation matters.

25 (m) This Act expires August 31, 2021.

26 SECTION 2. This Act takes effect immediately if it receives
27 a vote of two-thirds of all the members elected to each house, as



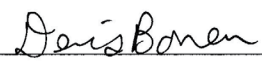
H.B. No. 1079

1 provided by Section 39, Article III, Texas Constitution. If this
2 Act does not receive the vote necessary for immediate effect, this
3 Act takes effect September 1, 2019.





 President of the Senate

H.B. No. 1079


 Speaker of the House

I certify that H.B. No. 1079 was passed by the House on April 24, 2019, by the following vote: Yeas 143, Nays 1, 2 present, not voting; and that the House concurred in Senate amendments to H.B. No. 1079 on May 22, 2019, by the following vote: Yeas 126, Nays 16, 2 present, not voting.



 Chief Clerk of the House

I certify that H.B. No. 1079 was passed by the Senate, with amendments, on May 15, 2019, by the following vote: Yeas 30, Nays 1.




 Secretary of the Senate

APPROVED: 6-8-2019

 Date



 Governor

FILED IN THE OFFICE OF THE
 SECRETARY OF STATE
 7:00 PM
 JUN 10 2019


 Secretary of State

APPENDIX B

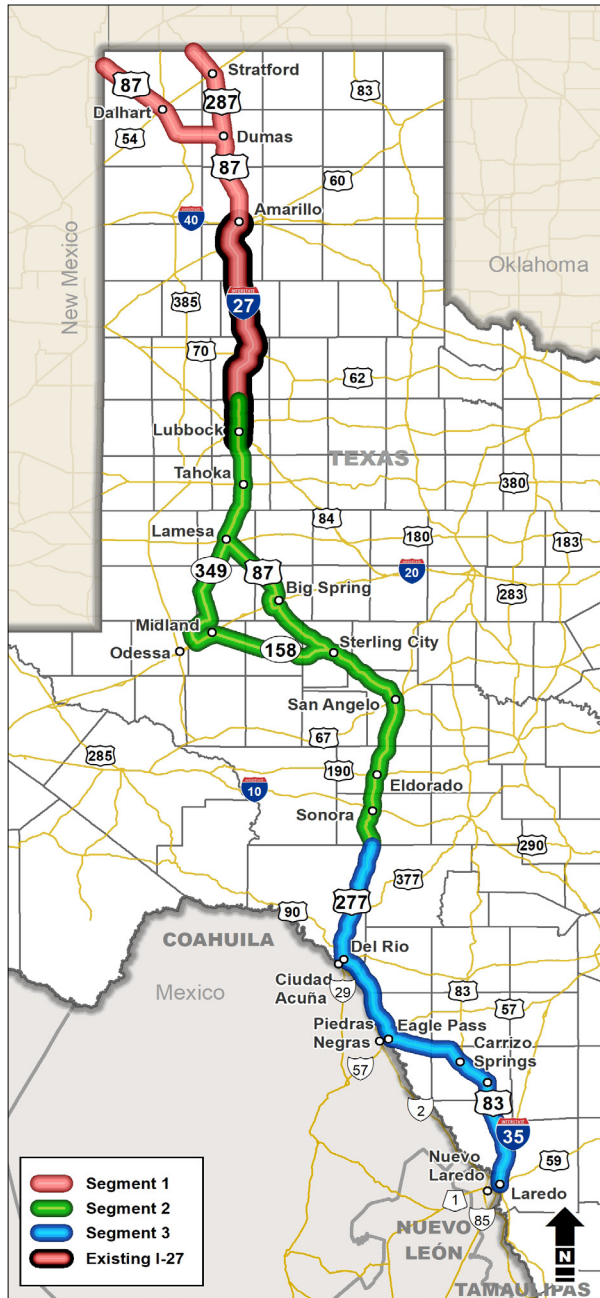
Key Study Maps

Key Study Maps

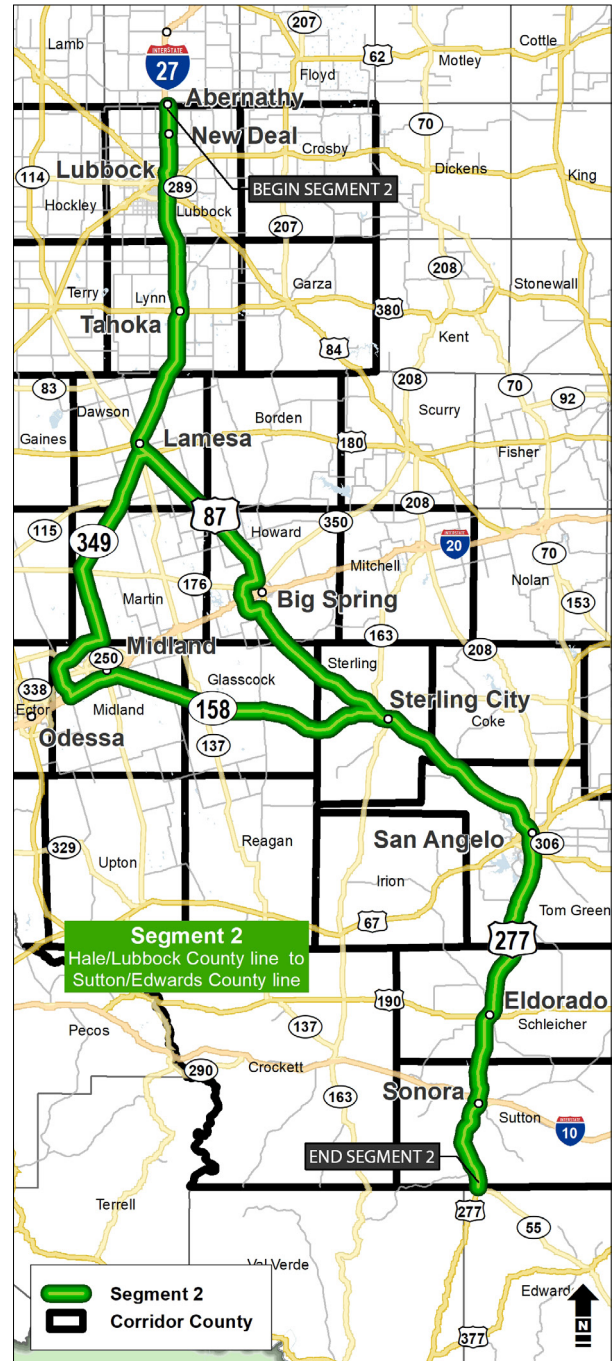
- **Ports-to-Plains Corridor**
- **Segment Map and Segment #2 Map**
- **Corridor Existing Roadway Type**
- **Laredo Day 7 Outbound Truck Trip Flows**
- **Baseline 2050 Traffic Volumes in Segment #2 and Interstate 2050 Traffic Volumes in Segment #2**
- **2050 Total Traffic Diversion**
- **Warehouse Distribution Sector Development by Access to Interstate Highways in Texas**



Ports-to-Plains Corridor



Segments Map

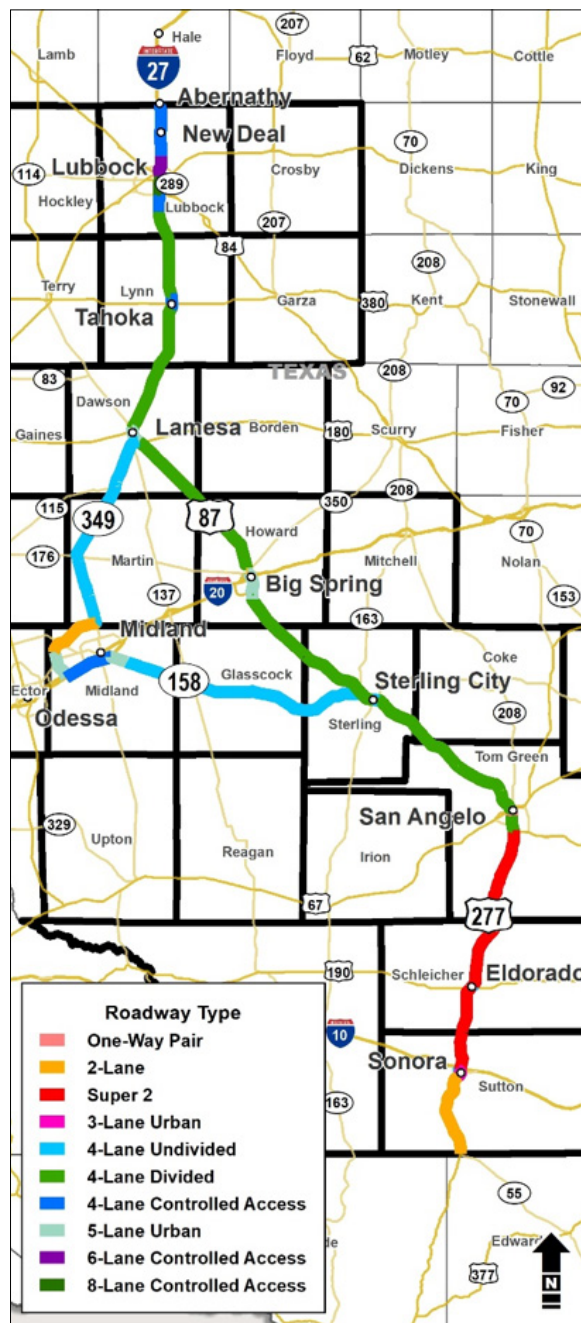


Segment #2 Map



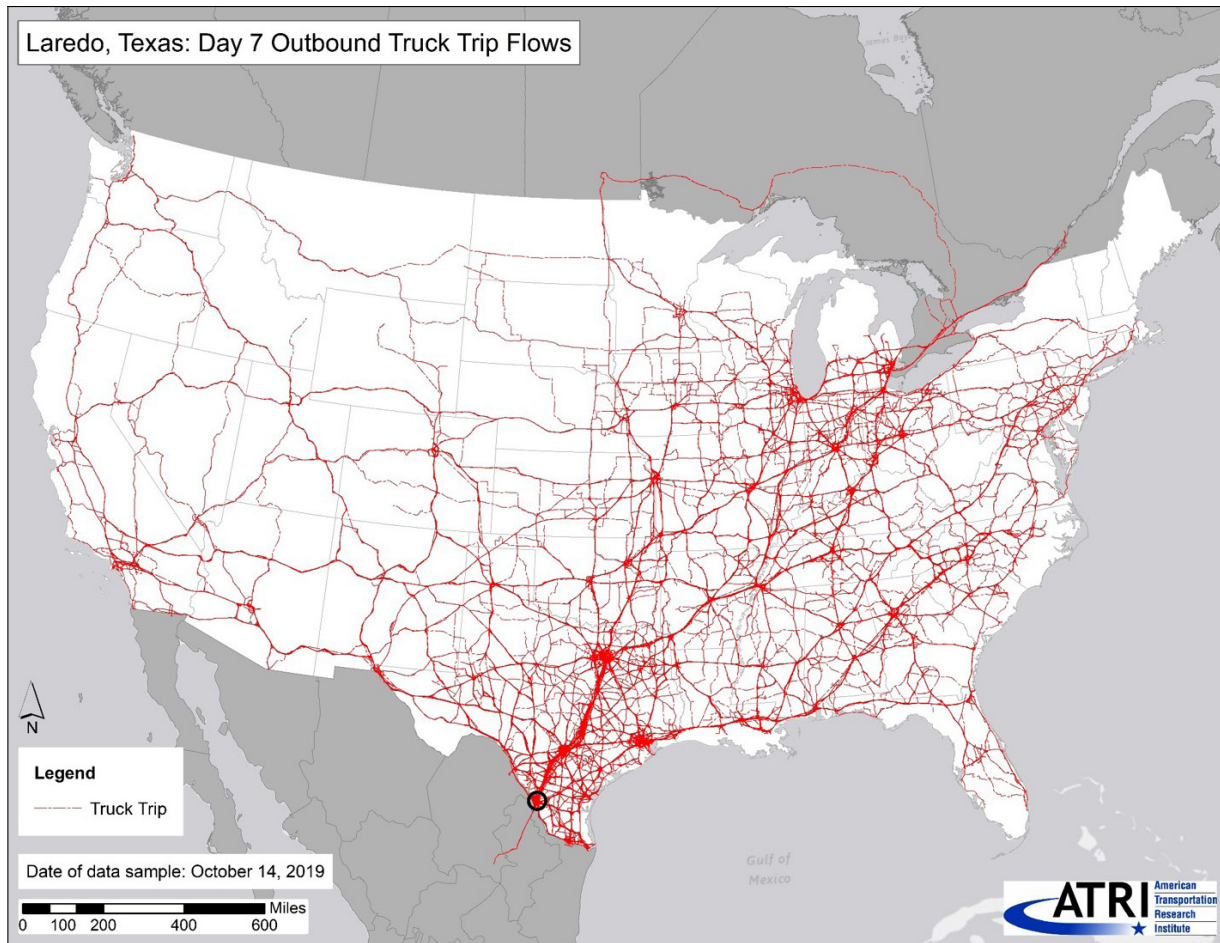
Corridor Existing Roadway Type

Source: TxDOT Roadway Inventory Database, 2017



Segment #2 Existing Roadway Types

Source: TxDOT Roadway Inventory Database, 2017



Laredo: Day 7 Outbound Truck Trip Flows

Source: ATRI, 2019



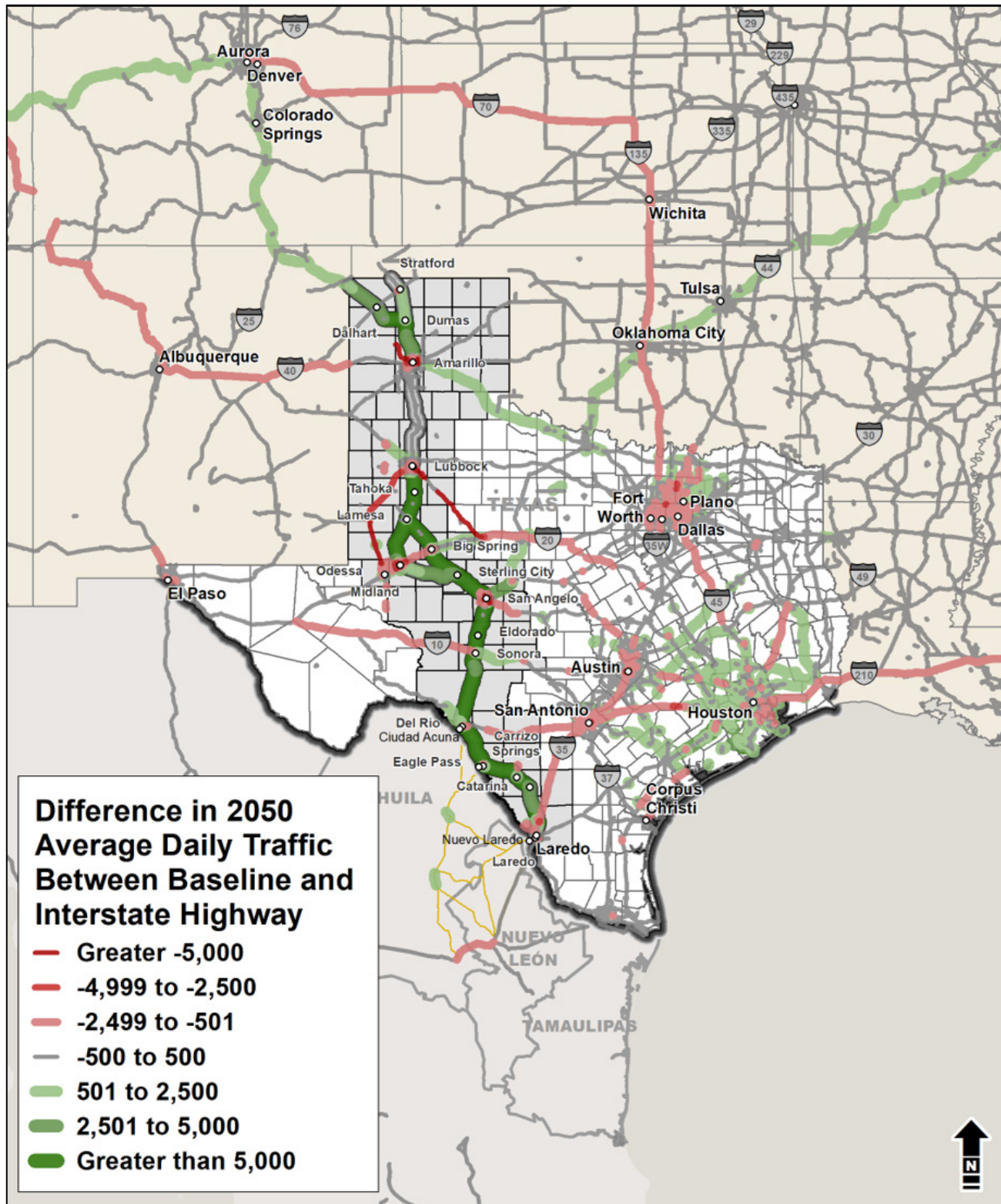
Baseline 2050 Traffic Volumes in Segment #2

Source: TxDOT SAM and STARS2

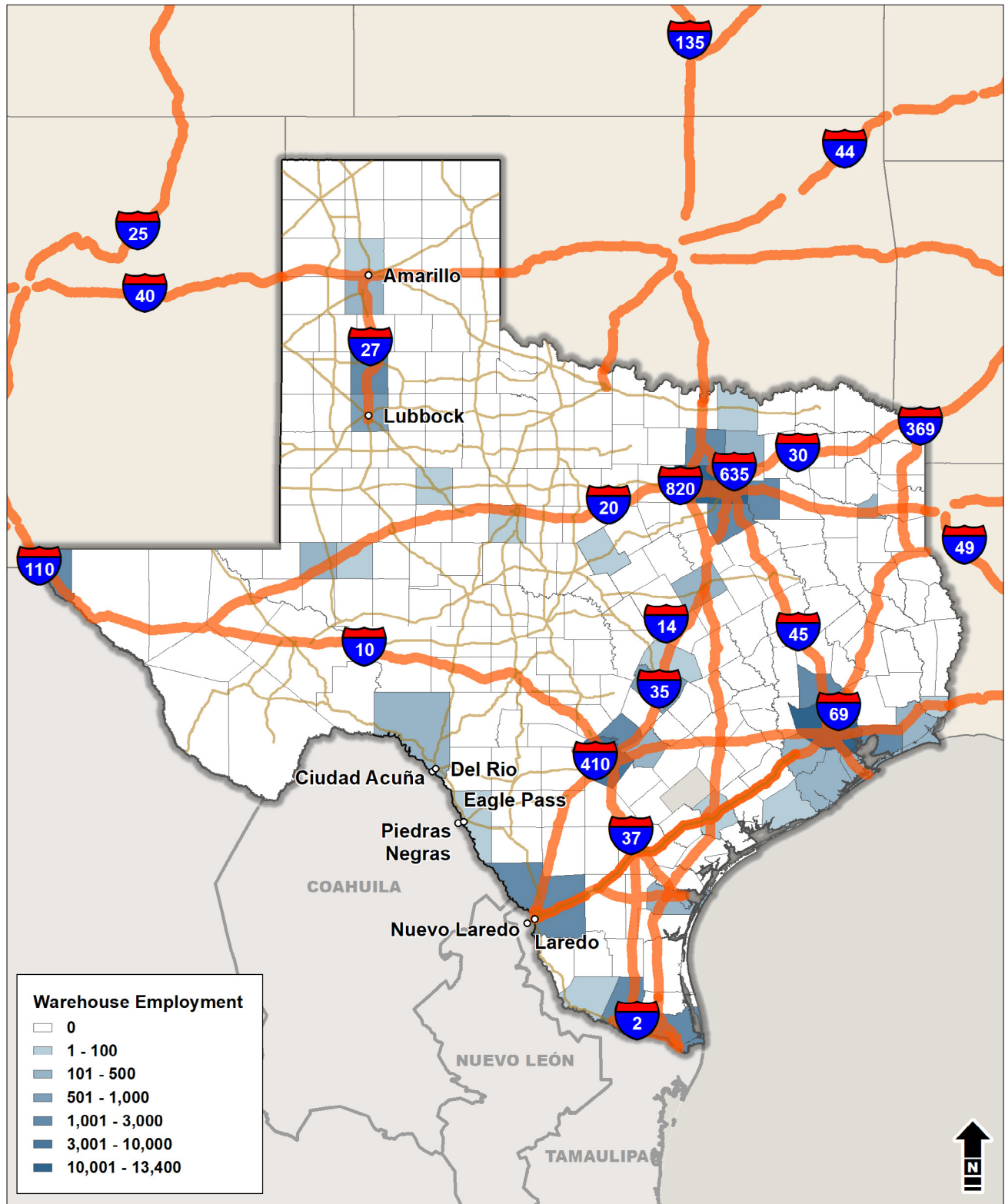


Interstate 2050 Traffic Volumes in Segment #2

Source: TxDOT SAM and STARS2

**2050 Total Traffic Diversions**

Source: TxDOT SAM and TxDOT 2018 RID



Warehouse and Distribution Sector Development by Access to Interstate Highways in Texas

Source: National Cooperative Freight Research Program Report 13



APPENDIX C

Federal Highway Administration Guidance Criteria for Evaluating Requests for Interstate Designation

Federal Highway Administration Guidance Criteria for Evaluating Requests for Interstate Designation

Method 2

Guidance	Evaluation
1. The proposed route should be of sufficient length to serve long-distance interstate travel, such as connecting routes between principal metropolitan cities or industrial centers important to national defense and economic development.	<p>A portion of Segment #2 is already designated as interstate; 25 miles of I-27 from the north end of Segment #2 to Lubbock and 7 miles of I-20 from SH 349 to SH 158. The remaining 410 miles in Segment #2 considerations:</p> <ul style="list-style-type: none"> • Subsegment #1: from I-27 in Lubbock to I-20 in either Big Spring or Midland, or both. This would connect a major north-south interstate to a major east-west interstate; connection I-27 in Lubbock to I-20. • Subsegment #2: from I-20 in either Big Spring or Midland, or both to San Angelo. This would connect a major metropolitan area and Goodfellow Air Force Base (San Angelo) to a major east-west corridor; I-20 in Big Spring and Midland. • Subsegment #3: from San Angelo to the Sutton/Edwards county line. This would connect a major metropolitan area (San Angelo) to a major east-west corridor; I-10 in Sonora.
2. The proposed route should not duplicate other interstate routes. It should serve interstate traffic movement not provided by another interstate route.	The proposed route would not duplicate other interstate routes as there are no existing north-south interstate highways serving west Texas other than existing I-27.
3. The proposed route should directly serve major highway traffic generators. The term “major highway traffic generator” means either an urbanized area with a population over 100,000 or a similar major concentrated land use activity that produces and attracts long-distance interstate and statewide travel of persons and goods. Typical examples of similar major concentrated land use activities would include a principal industrial complex, government center, military installation, or transportation terminal.	<p>A portion of Segment #2 is already designated as interstate; 25 miles of I-27 from the north end of Segment #2 to Lubbock and 7 miles of I-20 from SH 349 to SH 158. The remaining 410 miles in Segment #2 considerations:</p> <ul style="list-style-type: none"> • Subsegment #1: from I-27 in Lubbock to I-20 in either Big Spring or Midland, or both. This would connect a major north-south interstate to a major east-west interstate; connection I-27 in Lubbock to I-20. • Subsegment #2: from I-20 in either Big Spring or Midland, or both to San Angelo. This would connect a major metropolitan area and Goodfellow Air Force Base (San Angelo) to a major east-west corridor; I-20 in Big Spring and Midland. • Subsegment #3: from San Angelo to the Sutton/Edwards county line. This would connect a major metropolitan area (San Angelo) to a major east-west corridor; I-10 in Sonora.

Guidance	Evaluation
<p>4. The proposed route should connect to the interstate system at each end, with the exception of interstate routes that connect with continental routes at an international border or terminate in a “major highway traffic generator” that is not served by another interstate route. In the latter case, the terminus of the interstate route should connect to routes of the National Highway System that will adequately handle the traffic. The proposed route also must be functionally classified as a principal arterial and be a part of the National Highway System.</p>	<p>A portion of Segment #2 is already designated as interstate; 25 miles of I-27 from the north end of Segment #2 to Lubbock and 7 miles of I-20 from SH 349 to SH 158. The remaining 410 miles in Segment #2 considerations:</p> <ul style="list-style-type: none"> • Subsegment #1: from I-27 in Lubbock to I-20 in either Big Spring or Midland, or both. This would connect a major north-south interstate to a major east-west interstate; connection I-27 in Lubbock to I-20. • Subsegment #2: from I-20 in either Big Spring or Midland, or both to San Angelo. This would connect a major metropolitan area and Goodfellow Air Force Base (San Angelo) to a major east-west corridor; I-20 in Big Spring and Midland. • Subsegment #3: from San Angelo to the Sutton/Edwards county line. This would connect a major metropolitan area (San Angelo) to a major east-west corridor; I-10 in Sonora.
<p>5. The proposed route must meet all the current geometric and safety standards criteria as set forth in 23 CFR part 625 for highways on the interstate system, or a formal agreement to construct the route to such standards within 25 years must be executed between the State(s) and the Federal Highway Administration. Any proposed exceptions to the standards shall be approved at the time of designation.</p>	<p>FHWA and TxDOT would have to enter into a formal agreement to construct to interstate standards within 25 years.</p>
<p>6. A route being proposed for designation under 23 U.S.C. 103(c)(4)(B) must have an approved final environmental document (including, if required, a 49 U.S.C. 303(c) [Section 4(f)] approval) covering the route and project action must be ready to proceed with design at the time of designation. Routes constructed to interstate standards are not necessarily logical additions to the interstate system unless they clearly meet all the above criteria.</p>	<p>TxDOT would have to perform an environmental study and complete an environmental document.</p>

APPENDIX D

Texas Department of Transportation Unified Transportation Program Funding Categories

Texas Department of Transportation Twelve Unified Transportation Program Funding Categories

Category	Common Project Types
Category 1 Preventative Maintenance and Rehabilitation	Roadway surfacing and rehabilitation
Category 2 Metropolitan and Urban Area Corridor Projects	Urban road capacity, interchanges
Category 3 Non-Traditionally Funded Transportation Projects	Various
Category 4 Statewide Connectivity Corridor Projects	Regional corridor capacity
Category 5 Congestion Mitigation and Air Quality Improvement	Intersection and interchange improvements
Category 6 Structure Replacement and Rehabilitation (Bridge)	Bridge replacement and repair
Category 7 Metropolitan Mobility and Rehabilitation	Urban transportation improvements
Category 8 Safety	Medians, shoulders, signals, guard rails, rumble strips, grade separation, etc.
Category 9 Transportation Alternatives Set-Aside Program	Bike and pedestrian infrastructure
Category 10 Supplemental Transportation Programs	Border infrastructure, state park roads
Category 11 District Discretionary	Roadway resurfacing, passing lanes
Category 12 Strategic Priority	Urban and rural road capacity

APPENDIX E

Segment #2 Committee Recommendations

Segment Committee #2 Recommendations

General Recommendations

- Recommend that the entire Segment #2 Corridor should upgrade to interstate including:
 - US 87 between the southern terminus of I-27 at Lubbock and San Angelo
 - SH 349 between Lamesa and I-20 at Midland
 - SH 158 between I-20 at Midland and Sterling City
 - US 277 between San Angelo and I-10 at Sonora
- Other Regional Highways
 - Committee members recognized that the region is served by a number of other regional highways where future connections and interchanges with the proposed interstate are needed.
- Relief Routes
 - Construction of any relief route would go through an extensive environmental process and require public input and comment.
- Specific Infrastructure Locations
 - The Committee recognizes that, as the planning and development processes continue, additional decisions will be made regarding specific location of items like frontage roads, bridges, and grade separations (overpasses).
- Continue Construction of Currently Planned and Programmed Projects
 - The committee recognized that TxDOT has already begun the process of funding projects that will improve highways by enhancing safety and serving traffic along the Corridor. The committee endorsed efforts to complete the projects already planned and programmed by TxDOT, Lubbock MPO, San Angelo MPO and Permian Basin MPO.
- Community Support
 - The Committee supports the inclusion of Resolutions supporting Future Interstate Designation adopted by communities, counties, organizations and businesses in the Appendix of the Segment Committee Report for Segment #2.
- Ongoing Coordination on Interstate Development
 - Once this Feasibility Study is complete, the Segment Committee recommends that the Advisory Committee continue to guide the Implementation Strategy to manage the continued development and designation of the Interstate upgrade in Texas.

Infrastructure Improvements

Attached to this document are the Segment #2 Committee Preliminary Recommended Projects Map and Preliminary Recommended Safety Projects. The Subcommittee members made several suggestions for amendments to the Preliminary Recommended Projects Map.

- Change terminology for all items identified as a *Locally Preferred Route Study* to just *Route Study*
- Remove the *Big Spring Locally Preferred Route Study – Connect to I-20 East and West* -- This will be a later study but not related to Interstate
- Add Route Study at Patricia on US 349
- Add Route Study at Christoval on US 277

Segment Committee #2

Recommendations

Page 2

- Remove *Local route LP 250 and CR 1130 (study underway)*
- Remove *Local route being studied SH 349 and I-20*
- Remove the Orange East Bypass from map at Midland

Below are the Safety projects that were listed on the presentation to Segment Committee #2 in April. The Committee recommends that the items with an asterisk (*) not be included in the Report because they are more local in nature and not associated with the Feasibility Study.

Safety

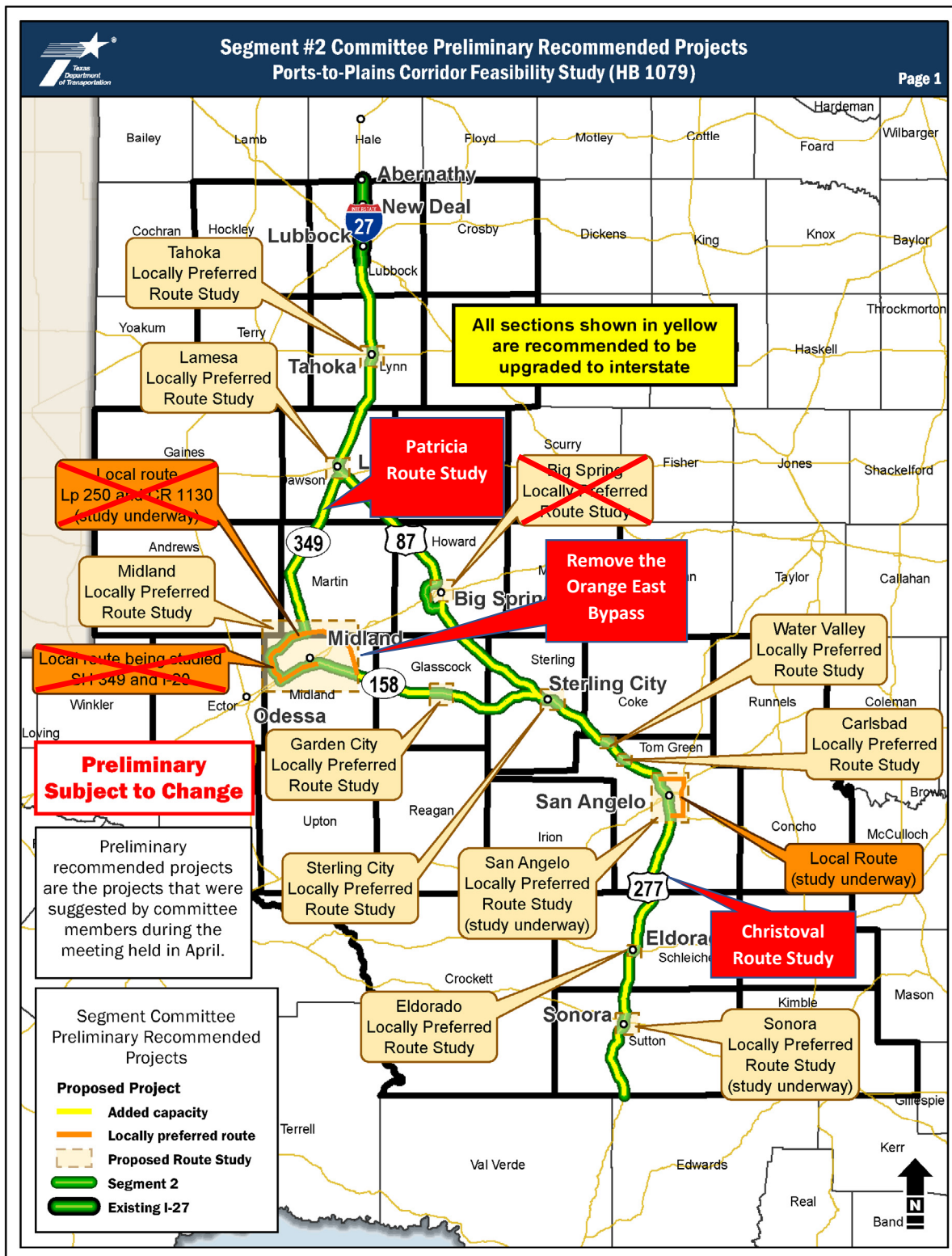
- *Fix sight-distance issues – trim vegetation – north of Sonora
- Improve intersection
 - *Venado Drive and US 277
 - I-20 and US 87 in Big Spring
 - US 87/US 277/LP 306 in San Angelo
 - I-20 and SH 158 in south Midland
- Develop high-speed intersection
 - I-27 at US 82, at US 62, and at SH 289 in Lubbock
- Add or improve overpass
 - US 87 at US 67 in San Angelo
 - SH 158 at SH 137 southeast of Midland
 - US 87 at SH 41 – 11 miles south of Lubbock
 - US 87 at FM 1317 – 20 miles south of Lubbock
 - US 87 at FM 2053 – 13 miles south of Tahoka
- *Access around roadside park north of Tahoka

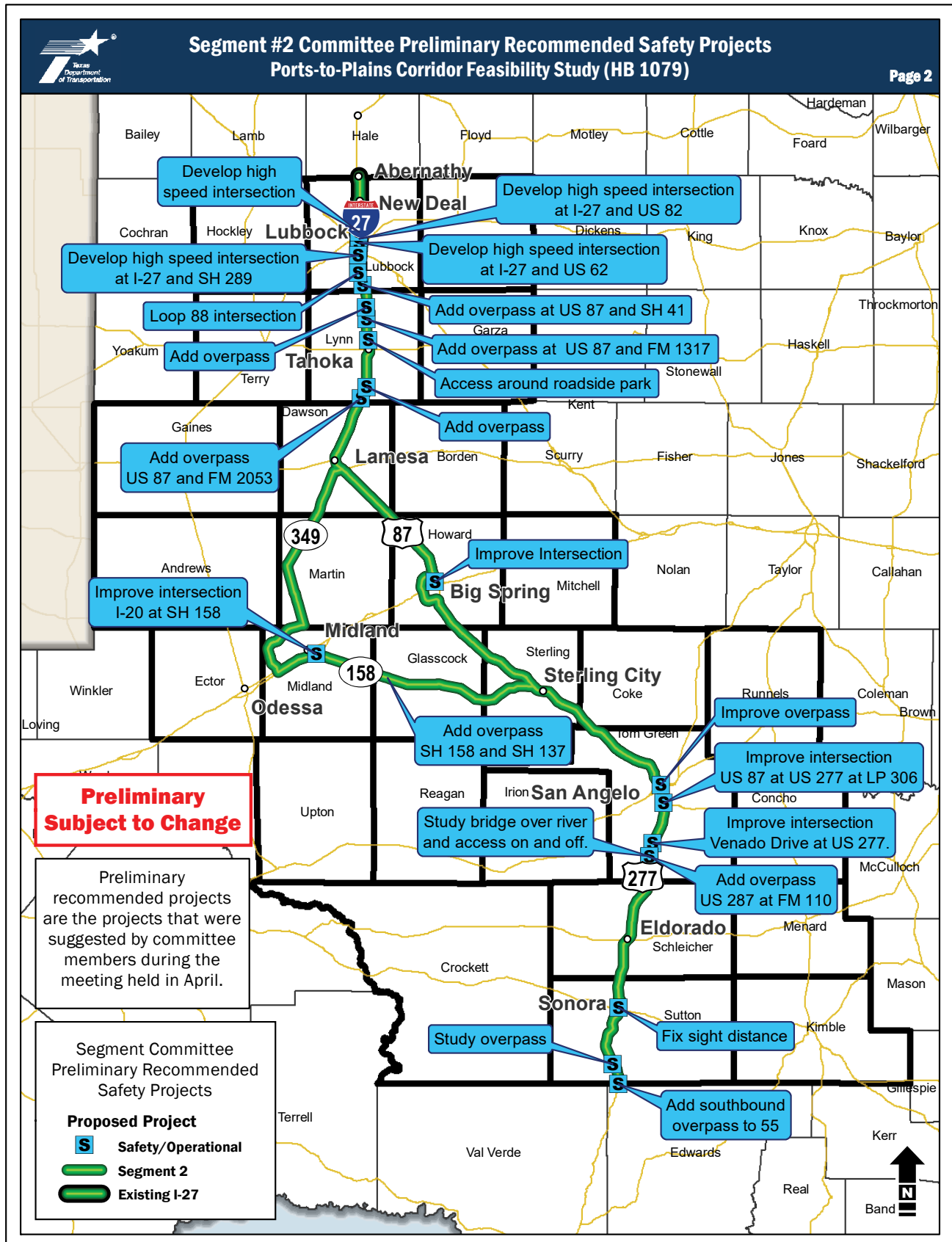
Key Messages for Segment #2

- Energy Impacts
 - Movement of energy products, including conventional oil and gas, and renewables, to market is particularly important in Segment #2, where activity generated by the oil fields in the Permian Basin supports not only the economy of the region, but the state and the country as a whole. In January 2020, the Permian Basin accounted for 36.7 percent of U.S. oil, up from 18.1 percent in 2013. In 2019, the Permian Basin accounted for about 11 percent of total U.S. natural gas production.
- Freight Movements
 - Freight movements are critical to Segment #2 with petroleum and agricultural products such as livestock and cotton significant economic drivers. The Interstate upgrade, resulting in a 43 percent increase in truck demand, will provide improved access to markets and production areas for energy and agriculture products. Export markets are vital, making the connection to border crossings of critical importance. The Ports-to-Plains Corridor provides access to three international land ports of entry, Del Rio, Eagle Pass, and Laredo, on the U.S.-Mexico border.

Segment Committee #2**Recommendations****Page 3**

- Congestion Relief
 - Stronger traffic diversion capability over the Baseline is provided by the Interstate upgrade, indicating the ability to reduce traffic congestion from nearby corridors in Segment #2 and from other corridors in the state including I-35. The Interstate upgrade for Segment #2 and the entire Ports-to-Plains Corridor provides a north-south interstate through a significant region lacking interstate access under the Baseline scenario. Using I-20, there are approximately 258 miles between Big Spring and I-35 at Dallas/Fort Worth and approximately 345 miles between Big Spring and I-25 at El Paso. Using I-10, there are approximately 171 miles between Sonora and I-35 at San Antonio and approximately 383 miles between Big Spring and I-25 at El Paso.
- Safety and Mobility
 - The existing corridor would not improve safety in the Ports-to-Plains Corridor over the improvements that are already programmed. However, with the Interstate upgrade, it is estimated to reduce the current Segment #2 crash rate by approximately 28 percent. The Interstate upgrade will provide a travel time benefit due to greater travel speed provided by full access control. In Segment #2, this analysis indicated a free-flow travel time savings of 14 minutes, an average travel time savings of 35 minutes, and peak period travel time savings of 56 minutes. The Interstate upgrade would serve state and national security interests with its increased mobility and would also be a key component of evacuation routes during an emergency situation.





APPENDIX F

A Resolution Supporting the Designation of an Extension of Interstate 27 as a Future Interstate in Texas

Segment #2 Resolutions of Support for Future Interstate 27 Designation in Texas
Page 1

**A RESOLUTION SUPPORTING THE
DESIGNATION OF AN EXTENSION OF INTERSTATE 27
AS A FUTURE INTERSTATE IN TEXAS.**

WHEREAS, Congress has already designated the Ports-to-Plains Corridor in Texas as a High Priority Corridor on the National Highway System; and

WHEREAS, the Texas Department of Transportation published an *Initial Assessment Report on the Extension of I-27/Ports to Plains Corridor* in November, 2015 which stated: “The corridor will continue to be a critical link to state, national and international trade, growing population centers and critical energy and agricultural business sectors”; and

WHEREAS, according to the *Texas Freight Mobility Plan*, “By 2040 over 73 percent of Texas’ population and 82 percent of the state’s employment is projected to be located within five miles of an interstate”; and

WHEREAS, Texas has no major north-south interstate west of Interstate 35; and

WHEREAS, the *Texas Freight Mobility Plan* notes that further investment alone on I-35 will not fix the problem saying, “The state must focus not only on improving existing facilities, but also on developing future freight corridors to move products to markets and exports”; and

WHEREAS, the *Texas Freight Mobility Plan* goes on to recommend that TxDOT, “give additional consideration to the extension or designation of other interstate routes. Examples include I-27 and upgrades to portions of US Highway 190 to interstate standards”; and

WHEREAS, the proposed extension of Interstate 27 connects major West Texas population and economic centers including Amarillo, Lubbock, Midland-Odessa and San Angelo in addition to numerous smaller communities; and

WHEREAS, the proposed extension of Interstate 27 intersects with Interstate 40, Interstate 20 and Interstate 10; and

WHEREAS, the proposed extension of Interstate 27 will serve three border crossings with Mexico at Laredo, Eagle Pass and Del Rio; and

WHEREAS, the proposed extension of Interstate 27 will be a major backbone for the energy industry in Texas serving top oil and gas producing counties as well as the growing wind energy industry; and

WHEREAS, the proposed extension of Interstate 27 will also serve the agriculture industry including many of Texas top counties for the production of cotton, cattle, sheep and goats and other commodities; and

Segment #2 Resolutions of Support for Future Interstate 27 Designation in Texas

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WHEREAS, extending Interstate 27 in Texas is also a cost-effective option. The Texas Department of Transportation's *Initial Assessment Report on the Extension of I-27/Ports to Plains Corridor* estimated that it would cost about \$7 billion to upgrade the nearly 1,000 miles of the Ports-to-Plains Corridor from the northern tip of Texas to Laredo. To extend Interstate-27 approximately 500 miles from Lubbock to Laredo is projected to cost \$5.2 billion. Compare that to the \$4.8 billion it cost to rebuild 28 mile section of Interstate 35 east from Interstate 635 to U.S. Highway 380 in Dallas County; and

WHEREAS, an additional cost saving option is associated with the primarily east-west, recently designated, Interstate 14 which includes a proposed segment that overlaps the Ports-to-Plains Corridor between Midland-Odessa and San Angelo, presenting an opportunity for that segment to be jointly designated as Interstate 14 and Interstate 27; and

WHEREAS, a future Interstate designation will be a significant new economic development tool for communities along the corridor. Site selectors for manufacturers, warehousing and distribution recommend sites along an interstate highway and travel services businesses such as hotels, truck stops, convenience stores and restaurants, which can have a dramatic impact on small communities will also expand. This will create much needed new jobs and expanded tax base in rural West Texas; and

WHEREAS, while designation as a future interstate is the first step in a very long process before the completion of an interstate highway, that does not lessen the importance of extending Interstate 27.

NOW THEREFORE, BE IT RESOLVED BY THE _____ OF THE _____,

Section 1. That the _____ supports the designation of the extension of Interstate 27 as a Future Interstate by Congress and urges the Texas Department of Transportation to support such designation.

Section 2. This resolution to be in full force and effect from and after its passage and approval.

Section 3. If any portion or provision of this resolution shall for any reason be held to be invalid or unenforceable, the invalidity or unenforceability of such portion or provision shall not affect any of the remaining provisions of this Resolution, the intention being that the same are severable.

ADOPTED AND APPROVED this _____ day of _____, 2019.

Title

(S E A L)

ATTEST

Title

Segment #2 Resolutions of Support for Future Interstate 27 Designation in Texas

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The following organizations in Segment #2 have approved Resolutions Supporting Future Interstate Designation in Texas.

Big Spring Chamber of Commerce
Dated: May 23, 2019
Executed by: President Randy Johnson

Big Spring Economic Development Corporation
Dated: April 16, 2019
Executed by: President Jeff Ward

City of Big Spring
Dated: March 26, 2019
Executed by: Mayor Larry McLellan

City of Eldorado
Dated: July 8, 2019
Executed by: Mayor George Arispe

City of Lamesa
Dated: June 18, 2019
Executed by: Mayor Josh Stevens

City of Lubbock
Dated March 26, 2019
Executed by Mayor Dan P. Pope

City of New Deal
Dated: March 20, 2019
Executed by: Mayor Pro-tem Gayla Tetter

City of O'Donnell
Dated: April 9, 2019
Executed by: Mayor Mark Royce

City of San Angelo
Dated: March 19, 2019
Executed by: Mayor Brenda Gunter

City of San Angelo Development Corporation
Dated: March 27, 2019
Executed by: President Todd Kolls

City of Sonora
Dated: July 15, 2019
Executed by: Mayor Pro-tem Juanita Gomez

City of Tahoka
Dated: April 8, 2019
Executed by: Mayor John B. Baker

David L. Hettler PC
Dated: July 9, 2019
Executed by: President David Hettler

High Ground of Texas
Dated: July 18, 2019
Executed by: Executive Director Kasey Coker

Howard College
Dated: July 30, 2019
Executed by: Board Chairman John E. Freeman

Howard County
Dated March 20, 2019
Executed by: County Judge Kathryn G. Wiseman

Lamesa Economic Development Corporation and Lamesa Economic Project Board of Directors
Dated: June 19, 2019
Executed by: President Scott Leonard

Levelland Economic Development Corporation
Dated: August 5, 2019
Executed by: President Elgin Conner

Lubbock Christian University
Dated: July 29, 2019
Executed by: Vice President for University Relations John King

Lamesa Chamber of Commerce
Dated: June 10, 2019
Executed by: Chairman Mark Ray

Lubbock Chamber of Commerce
Dated: May 30, 2019
Executed by: Chairman Abel Castro

Lubbock County
Dated: May 28, 2019
Executed by: County Judge Curtis Parrish;
Commissioner Precinct 1 Bill McCay;
Commissioner Precinct 2 Jason Corley;
Commissioner Precinct 3 Gilbert A Flores;
Commissioner Precinct 4 Chad Seay

Segment #2 Resolutions of Support for Future Interstate 27 Designation in Texas

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Lubbock Economic Development Alliance

Dated: May 22, 2019

Executed by: President/CEO John Osborne

Lubbock Metropolitan Planning Organization

Dated: May 21, 2019

Executed by: Chairperson of LMPO
Transportation Policy Committee Jeff Griffith

Lynn County

Dated: June 24, 2019

Executed by: County Judge Mike Braddock

Panhandle Regional Planning Commission

Dated: July 25, 2019

Executed by: Chairman Ricky White

Permian Basin Regional Planning Commission

Dated: January 8, 2020

Executed by: Chair Foy O'Brian

Plains Cotton Growers, Inc.

Dated: June 17, 2019

Executed by: President Stacy Smith

Reece Albert, Inc.

Dated: June 17, 2019

Executed by: President/CFO Roger Albert

Ryan and Ryan International

Dated: June 18, 2019

Executed by: Chairman and CEO Brint Ryan

San Angelo Chamber of Commerce

Dated: August 14, 2019

Executed by CEO Bruce Partin

San Angelo Metropolitan Planning Organization

Dated: June 24, 2019

Executed by: Chair Policy Board Brenda Gunter

Sonora Economic Development Corporation

Dated: April 9, 2019

Executed by: President Jim Polonis

Sonora Chamber of Commerce

Dated: June 28, 2019

Executed by: Executive Director Donna Garrett

South Plains Association of Governments

Dated: August 13, 2019

Executed by: President Lee Norman

Sutton County

Dated: June 24, 2019

Executed by: County Judge Steve Smith

Swisher County

Dated: March 25, 2019

Executed by: County Judge Harold Keeter

Tom Green County

Dated: March 19, 2019

Executed by: County Judge Steven C. Floyd;
Commissioner Ralph Hoelscher; Commissioner
Sammy Farmer; Commissioner Rick Bacon



Segment #2 Committee Members



Brenda Gunter
Mayor, Committee Chair
City of San Angelo



Curtis Parrish
Judge, Committee Vice Chair
Lubbock County

Guy Andrews
Economic Development Director
City of San Angelo

Bobby Burns
President and CEO
Midland Chamber of Commerce

Major Hofheins
Director
San Angelo Metropolitan Planning Organization

Eddie McBride
President and CEO
Lubbock Chamber of Commerce

George Arispe
Mayor
City of Eldorado

Bryan Cox
Judge
Martin County

Deborah Horwood
Judge
Sterling County

Gloria McDonald
Councilmember
District 4, Big Spring

John Baker
Mayor
City of Tahoka

John Esparza
President and CEO
Texas Trucking Association

Lane Horwood
Mayor
City of Sterling City

Patrick Payton
Mayor
City of Midland

Brad Bouma
President
Select Milk

Steve Floyd
Judge
Tom Green County

Terry Johnson
Judge
Midland County

Foy O'Brien
Judge
Dawson County

Emma Kraybill
President
Scenic Mountain Medical Center

Donna Garrett
Executive Director
Sonora Chamber of Commerce

H. David Jones
Director
Lubbock Metropolitan Planning Organization

Karen Mize
President
Lamesa Area Chamber of Commerce

Mike Braddock
Judge
Lynn County

Kim Halfmann
Judge
Glasscock County

Kasey Coker
Executive Director
The High Ground of Texas

John Osborne
Chairman
Ports-to-Plains Alliance

Charlie Bradley
Judge
Schleicher County

Debi Hays
Judge
Ector County

Michael Looney
Vice President of Economic Development
San Angelo Chamber of Commerce

Patrick Payton
Mayor
City of Midland

Tim Pierce
Executive Director
South Plains Association
of Governments

Stephen Robertson
Executive Vice President
Permian Basin Petroleum
Association

Fred Thompson
Director
Sterling City Economic
Development Corporation

Debbye ValVerde
Executive Director
Big Spring Area Chamber
of Commerce

Dan Pope
Mayor
City of Lubbock

Hal Spain
Judge
Coke County

David Turner
Mayor
City of Odessa

Kathryn Wiseman
Judge
Howard County

Wanda Shurley
Mayor
City of Sonora

Josh Stevens
Mayor
City of Lamesa

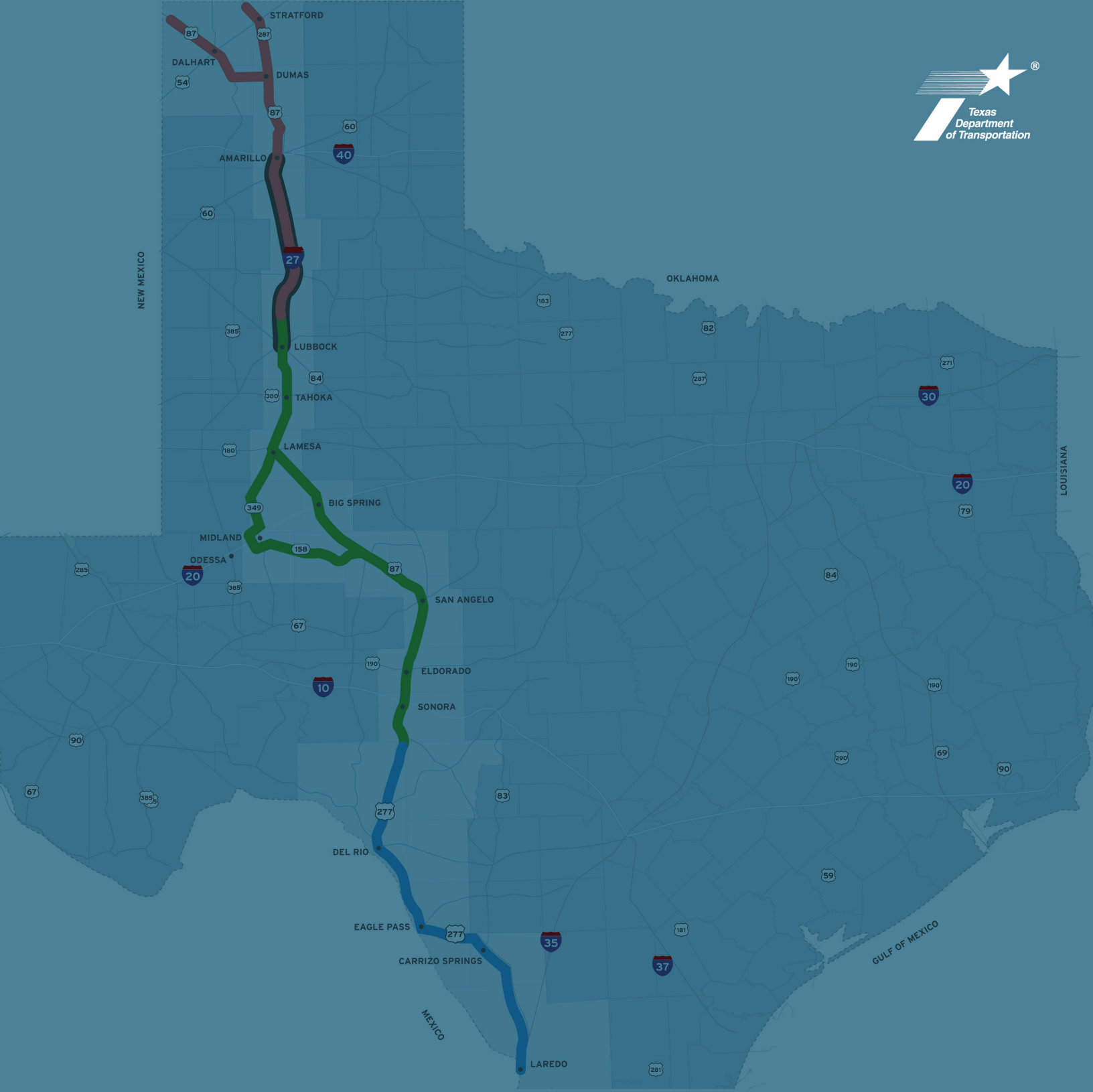
Steve Verett
Executive Vice President
Plains Cotton Growers, Inc.

Shannon Thomason
Mayor
City of Big Spring

Stephen H. Smith
Judge
Sutton County

John Austin Stokes
Executive Director
Concho Valley Council of
Governments

Cameron Walker
Director
Permian Basin
Metropolitan Planning
Organization



For more information:

Caroline A. Mays, AICP

*Director, Freight, Trade, and Connectivity Section
Transportation Planning and Programming Division
(512) 936-0904
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Texas Department of Transportation

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