Laredo Urban Transportation Study

LAREDO

Metropolitan

Transportation

Plan

2020-2045 Update

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Introduction

The quality of the transportation system is a critical contributor to the economic health and quality of life within a metropolitan area. In addition to providing opportunities for the mobility of people and goods, the transportation system also influences patterns of growth and the economic activity within a region. The performance of the regional transportation system is also connected to public policy concerns including air quality, natural resource consumption, environmental justice, development patterns, and economic development.

This document, the **Laredo 2020-2045 Metropolitan Transportation Plan** (MTP), serves as a comprehensive, multimodal guide for making transportation improvements and investments in the Laredo region for the next 25 years and is required to be updated every five years. The MTP identifies policies, programs and projects for each mode of travel including roadways, transit, bicycle, pedestrian, aviation, rail, and freight movement that will be necessary to meet regional transportation needs through the year 2045.

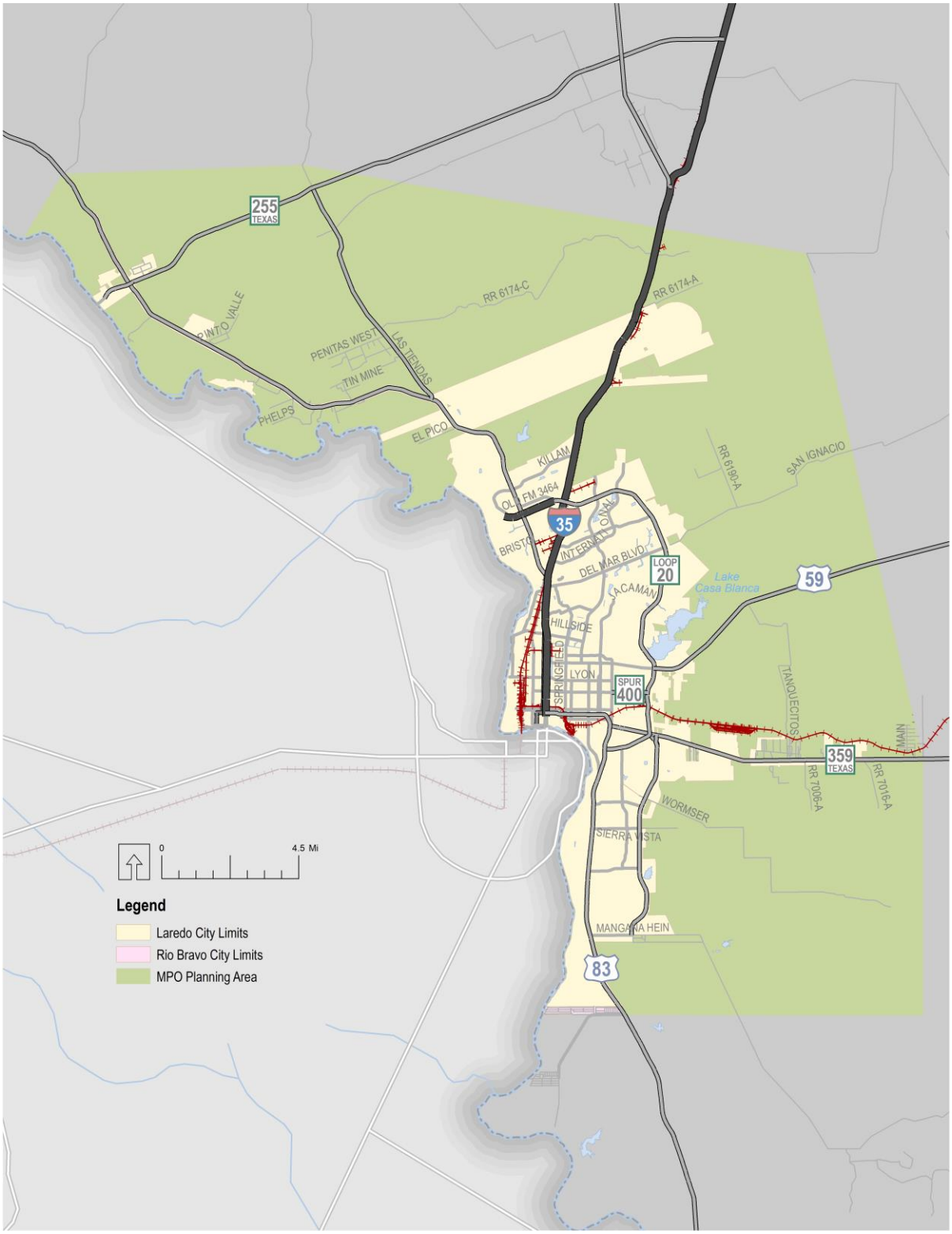
The vision statement for the Laredo 2020-2045 MTP is: Develop a transportation system that offers safe, efficient, affordable travel choices for people and goods, while supporting economic development and long-term quality of life.

The metropolitan transportation planning process used in developing this MTP is also a formal, federally mandated process required for a region to receive federal transportation improvement dollars. The metropolitan planning process undertaken for this MTP reflects the continuous, cooperative, and comprehensive planning approach (known as “3C”) required under federal law.

This 2045 MTP was developed over an 18-month period and serves as an update to the previously adopted 2040 MTP in meeting all federal regulations. It documents the comprehensive consideration and evaluation of multimodal transportation strategies, and identifies strategies for operating, maintaining, managing, building, and financing the transportation network to achieve long-term goals and improve overall quality of life in the region. It was developed through technical analysis and the continuous and collaborative participation of numerous transportation agencies and organizations in an open, timely, and meaningful public outreach process. A major goal for this regional plan update was to incorporate at a regional level the City of Laredo’s recently adopted Comprehensive Plan, *Viva Laredo*, which outlines a series of goals, objectives, and strategies to improve mobility, diversify the economy, increase employment opportunities, celebrate the local history and unique culture of Laredo, improve the health of residents, improve affordability, and enhance quality of life.

The planning area for the Laredo 2020-2045 MTP encompasses the City of Laredo, the City of Rio Bravo, and portions of Webb County, Texas. These boundaries are defined by the U.S. Census urbanized boundary and include adjacent areas expected to become urbanized within a 20-year forecast period. **Figure 1-1** shows the boundaries of the metropolitan planning area.

Figure 1-1: Laredo Metropolitan Study Area



The remaining sections of this chapter provide the planning context for development of the MTP and organization of the MTP and includes details on the ways in which the MTP was developed to meet federal requirements and incorporate a comprehensive, cooperative and continuous planning approach.

Metropolitan Planning Background and Structure

Metropolitan Planning Organizations (MPOs) serve a critical and federally mandated role in the planning and decision-making for the transportation system. In 1962, Congress passed the **Federal Highway Act**, which requires that all urbanized areas with populations of 50,000 or more establish MPOs to ensure that federally funded transportation projects and programs are based on a the 3-C planning process. While state Departments of Transportation build and manage the Interstate Highway System and state roads, and city and county governments define local priorities and needs, the establishment of MPOs provide the *regional* view that enables transportation projects to be planned and delivered at a scale that can view the connections across jurisdictional boundaries, and that can facilitate cooperative priority-setting and decision-making for all modes of transportation.

The Laredo Urban Transportation Study (LUTS), also known as the Laredo Metropolitan Planning Organization (Laredo MPO), is the designated MPO responsible for transportation planning in accordance with the federal metropolitan planning requirements for the Laredo region.

The Laredo MPO is required to work cooperatively with federal, state, and local governments and transportation service providers within the context of a well-defined metropolitan transportation planning process. The Laredo MPO does not lead the implementation of transportation projects, but rather serves as the venue for planning and programming for transportation improvements within the Laredo region. Furthermore, as required by federal legislation, the Laredo MPO must provide the public and interested parties with reasonable and meaningful opportunities to be involved in the transportation planning process.

Laredo MPO Structure

The Laredo MPO is comprised of a policy committee, technical committee, and planning staff to support transportation planning activities. A set of by-laws establishes the structure and representation of the MPO. The Policy Committee, comprised of representatives from the city, county, state, and local transit provider, has the decision-making authority and is responsible for overseeing transportation planning efforts. The Technical Committee, comprised of representatives from the same entities plus those from school districts and the private sector, serves in an advisory role to the Policy Committee and is responsible for professional and technical review of work programs, policy recommendations, and transportation planning activities. The current membership of the Policy Committee and Technical Committee can be viewed at www.laredompo.org. City of Laredo Planning Department staff supports the efforts of both committees in transportation planning and works in cooperation with the Texas Department of Transportation (TxDOT) and other entities to carry out various planning tasks.

MPO Planning Documents

To carry out its function as the coordinating agency for transportation planning, the Laredo MPO develops, implements, monitors, and updates a variety of transportation plans including the Unified Planning Work Program (UPWP), the Transportation Improvement Program (TIP), and this MTP.

The UPWP is an annual work program and budget and identifies all planning-level activities to be undertaken by each member agency in a fiscal year. The TIP is the short-range program of transportation projects based on the long-range MTP and covers a period of four years. Finally, the MTP is the long-range, financially constrained transportation plan for the region covering a planning horizon of 25 years. All projects identified in the TIP must be consistent with the MTP.

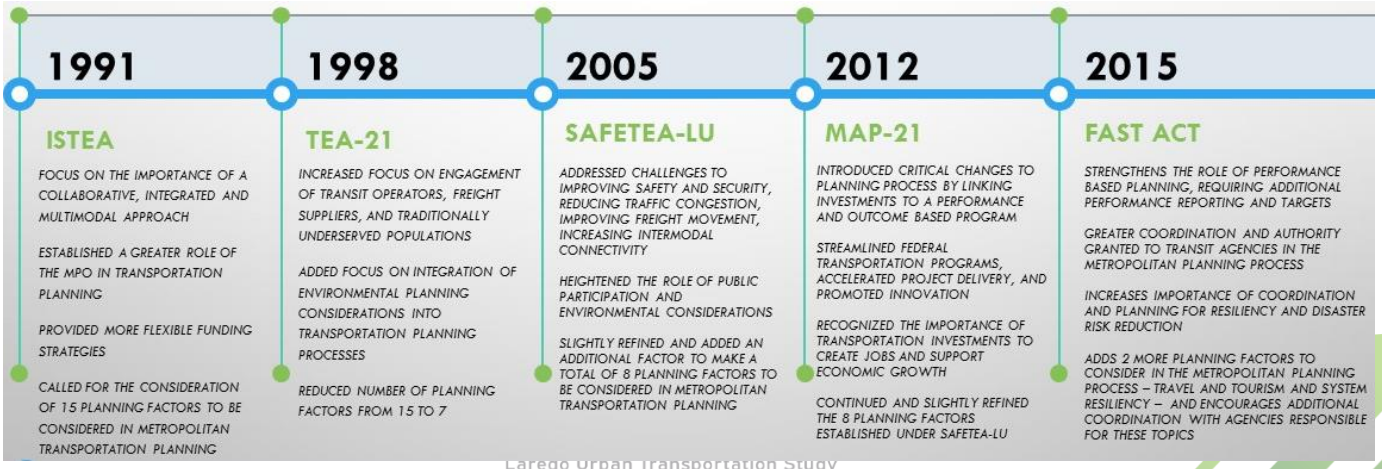
According to federal law, all MTPs must be updated every four or five years. For the Laredo metropolitan area, the MTP must be updated every five years, because it is in attainment for certain air quality standards. As the MPO carries out their 3C planning process, amendments to this MTP are expected. These may occur due to changes in project priorities, funding availability, or state and/or federal guidance. Amendments to the MTP require adoption by the MPO Policy Committee, following an opportunity for the public to review and comment.

Establishing the Framework for the MTP

While long-range transportation may be thought of as a good general planning practice, there are strict federal mandates that must be adhered to in carrying out the metropolitan planning process and developing an MTP to maintaining eligibility for federal funding.

Following the passage of the **Federal Highway Act of 1962**, which established MPOs and the foundation and objectives of metropolitan transportation planning, Congress has continued to pass a series of surface transportation bills that further detail the federal requirements MPOs must adhere to in carrying out a 3-C planning approach and in developing MTPs. While basic requirements of these processes have not changed – metropolitan planning must address at least a 20-year planning horizon for how the metropolitan area will manage and operate a multimodal transportation system within a fiscally-constrained plan – since the 1990s, federal transportation laws have focused on integrated planning processes and the scope and requirements for metropolitan planning and MTPs have therefore evolved through each successive law. **Figure 1-2** provides a brief overview of the major federal surface transportation laws and how provisions have evolved over the last nearly 30 years.

Figure 1-2: History of Federal Transportation Laws and Major Features Since the 1990s



The most current surface transportation law outlining these requirements is the 2015 Fixing America's Surface Transportation (FAST) Act. The 2020-2045 Laredo MTP was developed in compliance all requirements of the FAST Act.

The FAST Act builds on and refines many of the highway, transit, bike, and pedestrian programs and policies established in previous federal surface transportation laws and sets the requirements for MTP development. 23 CFR § 450.306 outlines three major requirements in the scope of the MTP process that established the framework for development and organization of this plan:

- Developing a performance-driven and outcome-based approach
- Considering of a series of 10 planning factors in carrying out a continuous, cooperative, and comprehensive metropolitan planning process
- Integrating directly, or by reference, the goals, objectives, performance measures and targets in other statewide and local and regional plans

Given the emphasis placed on these requirements under federal law, each of these elements and how they have been incorporated into this MTP are discussed in greater detail below.

A Performance Based Approach

The development and implementation of performance measures for MPOs serves to assess how the transportation system and/or the MPO is functioning and operating. Performance measures can inform the decision-making process and improve accountability for the efficient and effective implementation of programs and projects. Performance measures serve the following functions for the Laredo MPO:

- During the **Plan Development** process, performance measures provide a framework to benchmark performance and the effects of alternatives. This data can help inform decision-making between trade-offs and help communicate the anticipated impacts of different investment strategies.
- Performance measures support **Plan Implementation** by emphasizing the Laredo MPO guiding principles and integrating them into budgeting, program structure, project selection, and implementation policies.
- System performance relative to the vision and guiding principles of the Laredo MTP can be tracked and reported to support **Accountability** for plan implementation and results.

The performance measures for the Laredo MPO were determined by the federally required performance measures for state departments of transportation and MPOs to use as outlined in the FAST Act. The National Performance Rule Making (NPRM) identified five performance areas required for State DOTs and MPOs. These performance areas include Safety, Pavement and Bridge Condition, Roadway System Performance and Transit Asset Management. According to the NPRM, State DOTs and MPOs are to establish quantifiable statewide

performance targets for the required performance measures to be achieved over a four-year performance period, with the first performance period starting in 2018. MPOs may establish targets by either supporting the State DOT's statewide target or defining a target unique to the metropolitan planning area each time the State DOT establishes a target.

The Laredo MPO has adopted the federally required performance measures in coordination with TxDOT and incorporated these into the MTP, as noted in **Table 1-1**. Additional performance measures and targets have also been identified to address the goals and objectives defined through the MTP process. Performance management and performance targets for the MTP are discussed in detail in **Chapter 12**.

Table 1-1: MTP Federal Performance Measures Content Requirements

Federal Performance Area	Performance Measure
Safety	• Number of fatalities • Rate of fatalities per 100 M Vehicle Miles Traveled (VMT) • Number of serious injuries • Rate of serious injuries per 100 M VMT • Number of non-motorized fatalities and serious injuries
Pavement and Bridge Measures	• % of Interstate pavements in Good condition • % of Interstate pavements in Poor condition • % of Non-Interstate NHS pavements in Good condition • % of Non-Interstate NHS pavements in Poor condition • % of NHS bridges by deck area classified as in Good condition • % of NHS bridges by deck area classified as in Poor condition
System Performance	• Travel time reliability on the interstate and non-interstate NHS • Truck travel time reliability
Transit Asset Management	• % of non-revenue vehicles met or exceeded useful life benchmark • % of revenue vehicles met or exceeded useful life benchmark • % of assets with condition rating below 3.0 on FTA TERM Scale

Consideration of Planning Factors

As noted in 23 USC 134, key purposes of the metropolitan planning process and long-range regional planning promulgated under law are to encourage and promote the safe and efficient management, operation, and development of surface transportation systems that will serve the mobility needs of people and freight, foster economic growth and development, and take into consideration resiliency needs while minimizing transportation-related fuel consumption and air pollution. To meet these purposes, and as outlined within 23 CFR § 450.306, a series of ten planning factors are identified and required to be considered in the metropolitan transportation planning process. These planning factors are required to ensure that long-range transportation plans and the use of federal funds reflects a continuous, cooperative, and comprehensive planning process that improves and evolves over time to meet regional needs. These planning factors are the Laredo MPO's approach to these planning factors is are further discussed below.

1) Economic Vitality

The transportation network provides the region with access to jobs, shopping, education, and recreational activities. It also enables inter-regional travel and affects freight movement and international trade. Therefore, the transportation network must be planned for in such a way as to maintain mobility and increase system efficiency. The MTP provides recommendations for projects and strategies that should relieve congestion on key transportation corridors that provide access to primary activity centers such as jobs, schools, shopping, and other recreational activities. Further, improvements to infrastructure supporting freight movement and air travel are also considered in the MTP to increase regional and global competitiveness. Chapter 2: Regional Context provides an assessment of the growth and trends of population, households, and jobs. This socio-economic data is used to forecast travel needs using the regional Travel Demand Model, presented in Chapter 4.

2) Safety

Motorized and non-motorized users of the transportation system expect and deserve a safe experience while travelling. As such, the Laredo MPO has developed this plan with safety considerations forefront in mind. The crash analysis in Chapter 4 identifies the top crash locations and fatal crash locations. Based on the crash analysis this MTP recommends the implementation of traffic calming measures, improved sight distances, lower speed limits, and improved signal timing to reduce the number of car collisions and low crash severity. The City of Laredo adopted a Vision Zero initiative in 2019. As part of Vision Zero, the City of Laredo is developing a data-driven action plan to reduce traffic fatalities to reduce the number of traffic fatalities to zero.

3) Security

Concerns for security have gained more prominence in transportation planning. As a major international gateway, serious consideration has been given to possible threats, both natural and man-made, while developing this plan. Chapter 9: Safety, Security, and Resiliency identify identifies current regional efforts and recommends strategies for advancing safety, security, and resiliency.

4) Accessibility and Mobility

Improving the mobility of both people and freight is a key objective of the Laredo MPO. By planning roadways, bridges, border crossings, transit, bicycle, pedestrian, airport, and freight improvements, the MPO is performing the proper planning and making the necessary investments to increase the accessibility and mobility of both people and goods. The modal analyses chapters of this MTP (Chapters 4-8) provide detailed assessments of the current system and recommend strategies for enhanced accessibility and mobility.

5) Environment, Energy Conservation, and Planned Growth

People are increasingly more conscious of their actions on the environment, making sure natural resources can sufficiently meet today's needs and those of future generations. As such, new technologies and alternative energy sources are becoming increasingly sought after. As growth and development occurs, the amount of travel increases, which in turn, leads to increased congestion, poorer air quality, and wasted fuel. Therefore, the MPO encourages smarter growth supported by sounder transportation investments to improve the quality of life for all residents in the Laredo region. Chapter 9: Safety, Security, and Resiliency identifies strategies for effective environmental and stormwater mitigation,

6) Modal Integration and Connectivity

The MTP includes projects that support a balanced, multimodal system. Specifically, the MPO is investing in transit assets, additional bike paths, and strategic additions to the roadway system, all of which promote better integration of modes and enhance system connectivity. Projects for inclusion in the fiscally constrained project list are multimodal and can be found in Chapter 10. The project evaluation process was designed to identify and prioritize a project list that advances the region's goals through multimodal improvements.

7) System Management and Operation

Getting the most out of the existing transportation infrastructure is a key goal of the Laredo MPO. By investing resources in ITS solutions, improving access management along existing roadways, and improving existing intersections and interchanges, the existing system can perform more efficiently. Moreover, by encouraging non-automobile methods of travel, the burden on the existing roadway system can be reduced. Chapter 4 identifies existing efforts and makes recommendations for Transportation System Management programs and plans.

8) System Preservation

While growth in the region certainly calls for increased transportation capacity, it is just as important to maintain the existing infrastructure in a state of good repair. Projects for maintaining and rehabilitating the existing infrastructure are identified in the fiscally constrained project list in Chapter 10.

9) Resiliency and Reliability

The ability to effectively manage, operate, and maintain a safe and reliable transportation system under disruptive circumstances has become increasingly important. Chapter 9: Safety,

Security, and Resiliency identifies current efforts and recommends strategies for enhancing resiliency and reliability involving emergency response, redundancy in the transportation system to ensure mobility, travel demand management, reducing vulnerability of the transportation system during extreme weather events, and reducing or mitigating storm water impacts.

10) Travel and Tourism

Travel and tourism are essential to the economic vitality of the region. Investments in improvements that enhance travel and tourism will support economic growth by resulting in a more efficient movement of people and goods. Chapter 2: Regional Context identifies travel and tourism considerations. A focus group meeting on travel, tourism, and economic development was held in November 2018 as part of this planning process to consult officials involved in travel and tourism.

Consistency with State and Local Plans

As detailed in 23 CFR § 450.306 (d)(4), MTPs should also integrate, to the extent possible, the goals, objectives, performance measures, and targets developed in other statewide transportation plans, regional public transportation plans, and be consistent with other related local transportation plan goals and objectives. In developing this MTP update, several state and local plans were reviewed to integrate statewide and local planning comprehensively and consistently. **Table 1-2** provides a summary of state and local plans reviewed in the process of this MTP update.

Table 1-2: State and Local Plans Reviewed for MTP Integration and Consistency

Document Name	Summary Description
TxDOT Transportation Plan	The Texas Transportation Commission adopted the Texas Transportation Plan (TTP) serves as TxDOT's long-range, performance-based transportation plan. The TTP addresses the statewide planning requirements under federal transportation law, and guides planning and programming decisions for the statewide multimodal transportation system over a 25-year period.
TxDOT Strategic Plan	This document is an overarching policy statement designed to provide a framework for acting within TxDOT. It addresses strategies and tactics that are necessary for TxDOT to fulfill its mission and goals over five years (2019-2023) and establishes performance measures to monitor its progress
TxDOT Transportation Asset Management Plan	Federal law requires each state to "develop and implement a Risk Based Asset Management Plan for the National Highway System (NHS) to improve or preserve the condition and performance of the system." TxDOT has developed an initial TAMP to meet these requirements. The document serves to inform decision-making and investments and will continue to be updated periodically. The initial TAMP consists of pavements and bridges either on the NHS or on the State Highway System.
Texas Strategic Highway Safety Plan (SHSP)	The SHSP seeks to implement effective highway safety counter measures and change the current driving culture to reduce the human and societal costs of motor vehicle traffic crashes, deaths, and injuries on public roads. This document is updated every 5 years.
Report on Texas Bridges	This document, updated every 2 years, describes the conditions of publicly owned vehicular bridges and tracks the progress that TxDOT has made towards its goals of improving bridge conditions. It also outlines a plan to improve Texas bridges and meet TxDOT's goals.

Document Name	Summary Description
Unified Transportation Program (UTP)	This document is a 10-year plan approved by the Texas Transportation Commission and addresses 12 different categories of funding that will guide transportation project development and construction in the state of Texas. The UTP is updated annually by August 31 each year. The UTP is further divided into two documents; the Statewide Mobility Program (STP) and the Statewide Preservation Program (SPP). It represents a mid-term planning document that should be consistent with MTPs across the state.
Texas Freight Mobility Plan	This document provides TxDOT's short- and long-term freight planning activities and investments in accordance with federal requirements. The plan outlines priorities for freight investments, identifies facilities that are critical for economic growth and goods movement, strategies for enhanced economic growth, expands freight policies, ensures consistency with neighboring states and federal goals and objects, and provides an implementation plan.
Viva Laredo	Viva Laredo is the comprehensive plan for the City of Laredo. The plan provides a basis and vision for a coordinated planning approach in managing the future growth of the city. Viva Laredo was adopted by City Council on September 18, 2017.
Laredo Transit Development Plan	The TDP is a five-year plan examining policy, operations, capital issues, and funding with El Metro Transit's fixed route and paratransit services. This plan provides short and longer-term recommendations for preservation and maintenance of transit infrastructure, route modifications, and other technology and infrastructure upgrades. A TAMP was developed in coordination with this plan and reviewed to understand long-range operating and maintenance needs and capital replacement schedules.
Public Participation Plan	Updated by the Laredo MPO in 2017, this document serves as the plan for involving all citizens and transportation stakeholders in the public involvement process for metropolitan transportation planning.
Limited English Proficiency Plan	In accordance with the Title VI of the Civil Rights Act of 1964, the Laredo MPO adopted the Limited English Proficiency Plan in 2016 to address the responsibilities of the MPO as a recipient of federal assistance as they relate to the needs of individuals with limited English proficiency skills. The plan helps to identify reasonable steps for providing language assistance to persons with limited English proficiency who wish to access services provided.

Meeting MTP Content Requirements

Specific requirements of the metropolitan transportation planning process and content of the MTP are outlined in federal regulations and are reviewed by the Federal Highway Administration in reviewing MTPs for compliance and so they maintain federal funding eligibility. **Table 1-3** provides a summary of these major provisions of law and serves as a reference guide to the Laredo MPO's approach to address these requirements in the MTP.

Table 1-3: Federal MTP Requirements and Compliance

Federal Content Requirement	Laredo MTP Content
The transportation planning process shall address at least a 20-year planning horizon	This plan has a 25-year planning horizon, covering the years from 2020 to 2045.
The transportation plan shall include both long-range and short-range strategies that lead to an integrated multimodal transportation system	The long-range MTP includes specific projects and strategies for all transportation modes, including roads, transit, bicycle/pedestrian facilities, aviation, rail, and intermodal facilities. Further, the needs of freight transportation have also been considered. The MTP categorizes projects as short-term (2020-2029) and long-term (2030-2045). In addition, the MTP includes illustrative projects that are beyond the financial capacity of the MTP. These projects are considered very long-term (beyond 2045). Should additional funding become available, it is expected that some of these projects would be moved to the long-term horizon.
The MPO shall review and update the transportation plan at least every four years in nonattainment areas and maintenance areas and at least every five years in attainment areas	Because the Laredo metropolitan planning area is in attainment for ozone or carbon monoxide, the plan is on a five-year update cycle. This MTP reflects a new, updated plan that supersedes the previous plan which was adopted in 2014 and was periodically amended to reflect updated project listings. The next MTP update is expected to occur in 2024.
In metropolitan areas that are in nonattainment for ozone or carbon monoxide, the MPO shall coordinate the development of the transportation plan with the Transportation Control Measures (TCMs) in the State Implementation Plan (SIP)	The Laredo metropolitan planning area is considered in attainment for ozone and carbon monoxide; therefore, this requirement is not applicable.
The MPO shall base updates on the latest available estimates for population, land use, travel, employment, congestion, and economic activity	The 2045 Laredo MTP is based on the most recent available set of socioeconomic and transportation planning data. Specifically, the most recent existing land use data was utilized. In addition, up to date population and employment data was developed for the regional travel demand model. Finally, the future year socioeconomic data was developed to account for currently planned developments as well as areas of the region most suitable for growth.
The transportation plan shall include current and projected transportation demand of persons and goods in the metropolitan planning area over the period of the transportation plan	As part of the transportation planning process, the MTP project development team updated the regional travel model, which was used to predict future vehicular travel in 2045. In addition, the MTP includes an analysis of projected freight movement through the region.
The transportation plan shall include existing and proposed transportation facilities that should function as an integrated system	Chapters 4 through 8 of the MTP includes a thorough discussion of the existing transportation system, while Chapter 10 includes a list of planned projects that will shape the future transportation system. Roadway, transit, bicycle, pedestrian, aviation, rail,

Federal Content Requirement	Laredo MTP Content
	and freight movement are also addressed within the MTP.
The transportation plan shall include a description of the performance measures and targets, with a system performance report evaluating MPO progress in meeting performance targets	The federal performance areas and associated performance management for the Laredo MPO are discussed in Chapter 12
The transportation plan shall include operational and management strategies to improve the performance of existing transportation facilities	In Chapters 4 through 8, the MTP addresses operational and management strategies to improve the performance of the existing system to relieve congestion and enhance the safety and mobility of people and goods in the Laredo region.
The transportation plan shall consider the results of the congestion management process in TMAs	Chapter 11 discusses the summary of the congestion management process adopted by the MPO and how the CMP has incorporated this process into the MTP development.
The transportation plan shall include an assessment of capital investment and other strategies to preserve the existing system and provide for multimodal capacity increases and reduce vulnerability to natural disasters	The MTP addresses capital investment strategies to preserve existing transportation infrastructure and provide for multimodal capacity increases based on regional priorities and needs. Chapter 10 outlines capacity enhancing projects for various modes of transportation.
The transportation plan shall include transportation and transit enhancement activities, including consideration for intercity buses	The MTP includes a list of transportation enhancement projects in Chapter 10.
The transportation plan shall include descriptions of all existing and proposed transportation facilities in enough detail for conformity determinations. In all areas (regardless of air quality designation), all proposed improvements shall be described in enough detail to develop cost estimates	The MTP project development team worked closely with project proponents to sufficiently define the scope of all projects to develop reasonable cost estimates. The MTP projects listed in Chapter 10 present both project descriptions and cost estimates.
The transportation plan shall include a discussion of potential environmental mitigation activities to restore and maintain environmental functions affected by the transportation plan	In Chapter 9, the MTP includes a discussion of the environmental impacts of the transportation plan and potential mitigation efforts. In addition, various stakeholders were invited to a roundtable discussion to address such environmental impacts and mitigation efforts.
The transportation plan shall include pedestrian walkway and bicycle transportation facilities	The MTP recognizes the importance of providing pedestrian and bicycle facilities. The existing and proposed bicycle and pedestrian facilities in this MTP reflect findings from the Viva Laredo Plan and support non-motorized travel options.
The transportation plan shall include a financial plan that demonstrates how the adopted	A financially constrained plan with costs and revenues in year of expenditure dollars is presented

Federal Content Requirement	Laredo MTP Content
transportation plan can be implemented and that meets several requirements as outlined in 23 CFR § 450.322	in Chapter 10. Only reasonably available funding sources were considered. The MTP was developed cooperatively with TxDOT, the City of Laredo, Webb County, and El Metro.
The metropolitan planning organization shall consult with state and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation regarding development of the transportation plan	The Laredo MPO's public participation plan calls for involving all stakeholders in the development of the MTP, including the agencies with an interest in the areas of land use management, environmental resources, environmental protection, conservation, and historic preservation. Moreover, representatives of such entities were invited to participate in a series of roundtable discussions.
The transportation plan should integrate priorities, goals, countermeasures, or projects contained in the Highway Safety Improvement Program as well as emergency relief and disaster preparedness plans and strategies and policies that support homeland security and safeguard the personal security of all motorized and non-motorized users	The MPO recognizes the importance of providing a safe and secure transportation system. In addition, several transportation projects included in the plan explicitly address safety and security issues.
The MPO shall provide interested parties with a reasonable opportunity to comment on the transportation plan	The Laredo MPO strictly adheres to its public participation plan and has provided all interested parties (including citizens, public agencies, freight shippers, freight carriers, representatives of users of pedestrian walkways and bicycle facilities, representatives of the disabled, and others) with extensive opportunity and ample time to comment on all aspects of the MTP. The process by which the MTP was developed is presented in the MTP and included substantial and proactive public outreach efforts.
The MTP shall be published or otherwise made readily available for public review	The Laredo MTP is made available for public review through both printed copies available at the MPO offices and electronically accessible formats through the MPO's website: www.laredompo.org. In addition, the draft document was made available for public review at the Laredo City Planning office for a 30-day period.
The MPO shall not be required to select any project from the illustrative list of additional projects included in the financial plan	Although an illustrative list of additional projects is included in the MTP, the MPO acknowledges that it will not be required to select any from that list.
In nonattainment and maintenance areas for transportation-related pollutants, the MPO must make a conformity determination on any updated or amended transportation plan in accordance with transportation conformity regulations	The Laredo metropolitan planning area is considered in attainment for ozone and carbon monoxide; therefore, this requirement is not applicable.

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Chapter 2:
Regional Context

Introduction

The City of Laredo is the third most populated U.S. city on the U.S.-Mexico border. The city has a population of over 250,000. The cross-border Laredo-Nuevo Laredo Metropolitan Area has an estimated population of over 650,000. There are few places in the nation tied as closely to a sister city across a border. The border is the focal point of the regional economy, history, culture, and importance. As a gateway between the United States and Mexico, Laredo plays a major role in both the local/regional economy as well as in inter- and intra-state commerce. Based upon the most recently developed estimates, the population is expected to grow by more than 50 percent between the years 2018 and 2045, with an estimated population of approximately 419,000 people. As a "gateway" to the United States and a dominant inland port along the United States- Mexico border, smart investments in transportation infrastructure are important in meeting today's needs and the future demands of the region.

This chapter provides greater details on the context of the Laredo region in terms of geographic context, socio-economic conditions, land use and transportation patterns, and economic development trends. These factors provide the region-specific and interrelated conditions, issues, and opportunities that were important in the development of this long-range MTP.

Geographical Context

The planning area of the Laredo MPO encompasses the corporate limits of the cities of Laredo and Rio Bravo, and a portion of Webb County (see **Figure 1-1** in Chapter 1). The planning area boundary consists of about 417.8 square miles, covering approximately 12.4 percent of the area of Webb County. The City of Laredo is located on the north side of the Rio Grande along the border between the United States and Mexico about 150 miles southwest of San Antonio and 135 miles west of Corpus Christi. Across the Rio Grande, Laredo shares cultural and economic ties with Nuevo Laredo, Tamaulipas, Mexico.

Socioeconomic Conditions

Examining current and projected socioeconomic data in a region is an important step in determining current and future transportation needs. Socioeconomic characteristics, such as population, size and number of households, and employment, are key variables that aid in understanding the traveling habits of the region's population. Because most data are reported at the county level and because the MPO planning area accounts for nearly all the population and employment in the county, county-level data is presented throughout this chapter.

Population

Population data is considered the most important element of a region's socioeconomic characteristics. Based on the magnitude and location of population, decisions can be made to satisfy regional transportation needs. **Table 2-1** below indicates the total population for Webb County in 2000, 2010, and 2017, with comparative statistics for the State of Texas and the nation based on data from US Census, 2000, US Census 2010, and 2017 ACS 1-Year Estimates.

Table 2-1: Population

Geography	2000 Census	2010 Census	2017 ACS 1-Year Estimate	Annual Growth Rate (2000-2010)	Annual Growth Rate (2010-2017)
Laredo City	176,576	236,091	261,935	2.95%	1.50%
Webb County	193,117	250,304	274,794	2.63%	1.34%
Texas	20,851,820	25,145,561	28,304,596	1.89%	1.70%
United States	281,421,906	308,745,538	325,719,178	0.93%	0.77%

Source: U.S. Census Bureau, 2019

Figure 2-1 displays population concentrations in the Laredo MPO region in terms of the number of people per acre for each traffic analysis zone (TAZ). Analyzing the distribution of people in a region is necessary to understand how transportation improvements can affect different numbers of people. Smarter infrastructure investments can be made by pinpointing transportation improvements in more densely populated areas that serve more people. This is especially true for public transit, as the efficiency and effectiveness of public transit is largely dependent on the number of people it can serve. The most densely populated areas of Laredo are the older residential area east of I-35 and in the southeastern portion of the city.

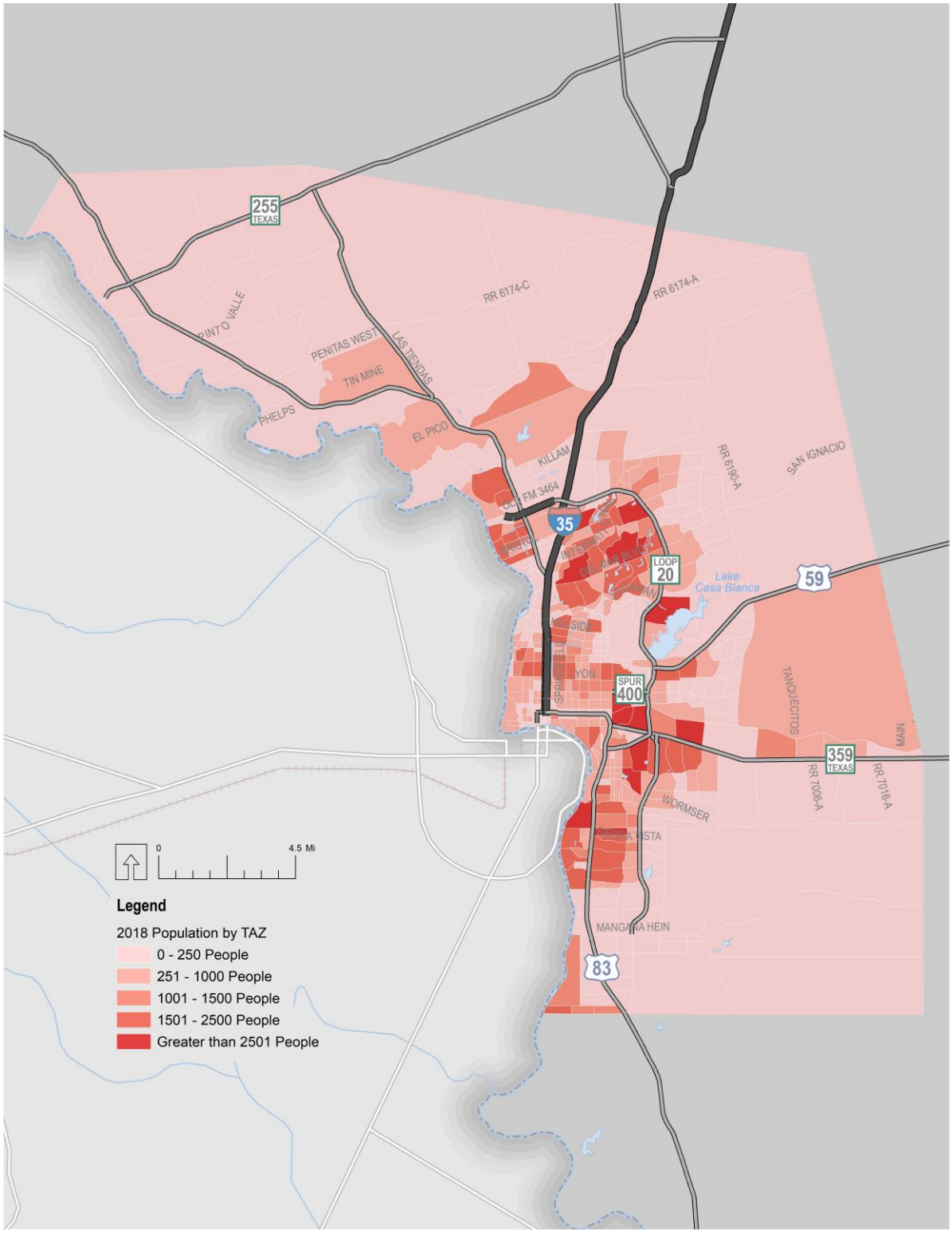
Figure 2-2 displays the population density in the Laredo MPO region in terms of the number of people per acre for each traffic analysis zone (TAZ) forecasted to the year 2045. Population is forecasted to grow outward from the current core area of Laredo in all directions: northwards up the Mines Rd corridor, between Mines Rd and IH-35, north and west of Loop 20, eastwards between US 59 and SH 359, and south along Cuatro Vientos Blvd and US 83. The 2045 projection is not showing a population density within the historic core of downtown Laredo. Population forecasts for the Laredo MPO area are shown in **Table 2-2**.

Table 2-2: Laredo MPO Population Forecasts

Forecast Year	Forecast Population
2018	286,442
2030	350,136
2040	413,907
2045	450,024

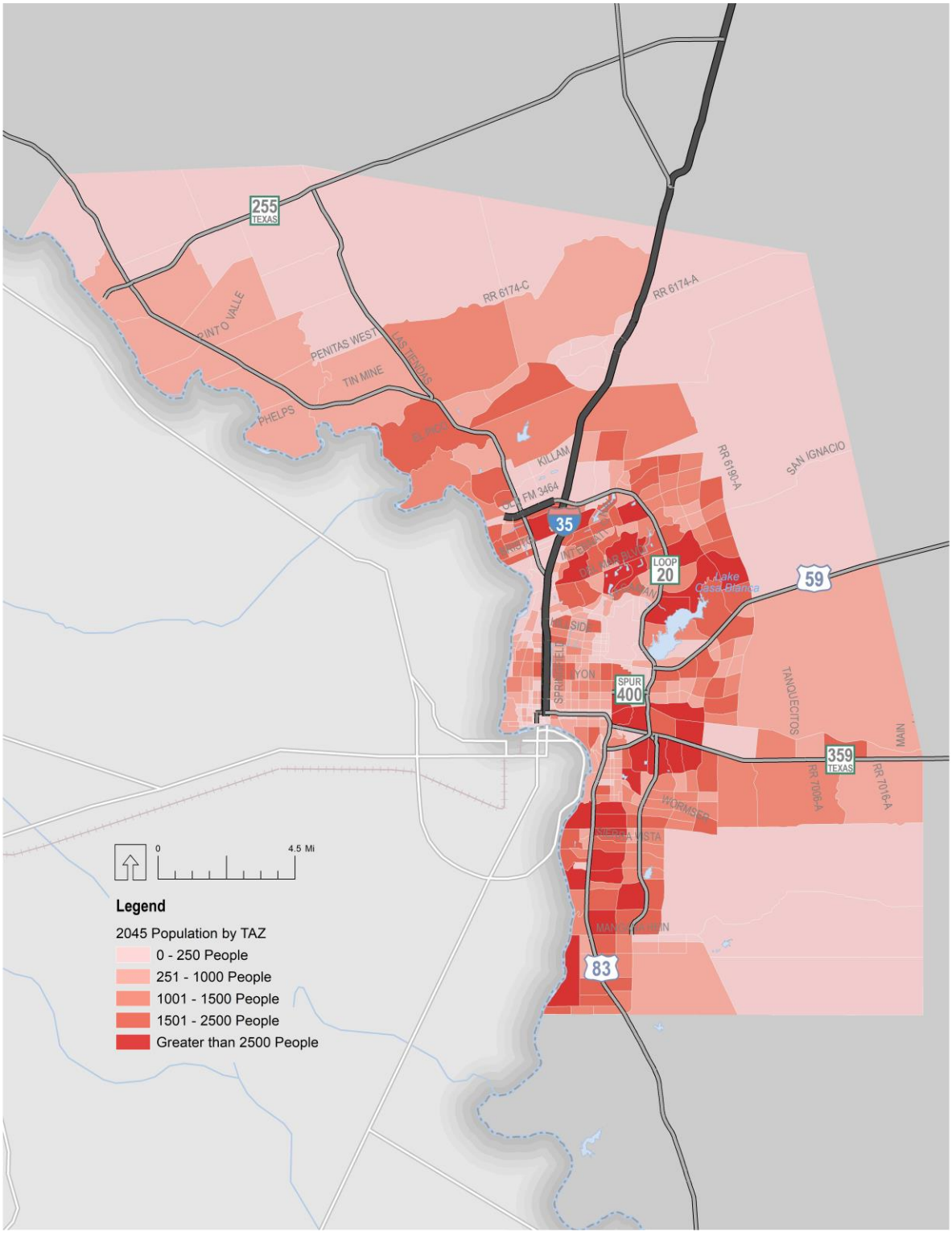
Source: TxDOT-TPP 2008 Validated Travel Demand Model

Figure 2-1: Population Density by TAZ, 2018



Source: TxDOT-TPP 2008 Validated Travel Demand Model

Figure 2-2: Forecasted Population Density by TAZ, 2045



Source: TxDOT-TPP 2008 Validated Travel Demand Model

Households

The number of households and the size of those households effects the number of trips made within the region. Larger households generally tend to generate more trips than smaller households. Similar to an increase in population, an increase in the number of households correlates to an increased demand on the transportation system. Across the United States, the number of households has increased while the size of households has decreased over time. Various cultural factors such as the decrease in children per family and an increase in single-parent households may contribute to this national trend. **Table 2-3** shows the total number of households for Webb County, Texas, and the United States from the 2000 U.S. Census, the 2010 U.S. Census, and the 2017 ACS 5-Year Estimates as provided by the U.S. Census Bureau.

Table 2-3: Households

Geography	2000 Census	2010 Census	2017 ACS 5-Year Estimates	Annual Growth Rate (2000-2010)	Annual Growth Rate (2010-2017)
Webb County	50,740	67,106	72,379	2.84%	1.09%
Texas	7,393,354	8,922,933	9,430,419	1.90%	0.79%
United States	105,480,101	116,716,292	118,825,921	1.02%	0.26%

Source: U.S. Census Bureau, 2019

Figure 2-3shows the existing spatial distribution of households. The density of households aligns with the density of populations. Households are concentrated within the older residential area east of I-35 and in the southeastern portion of the city.

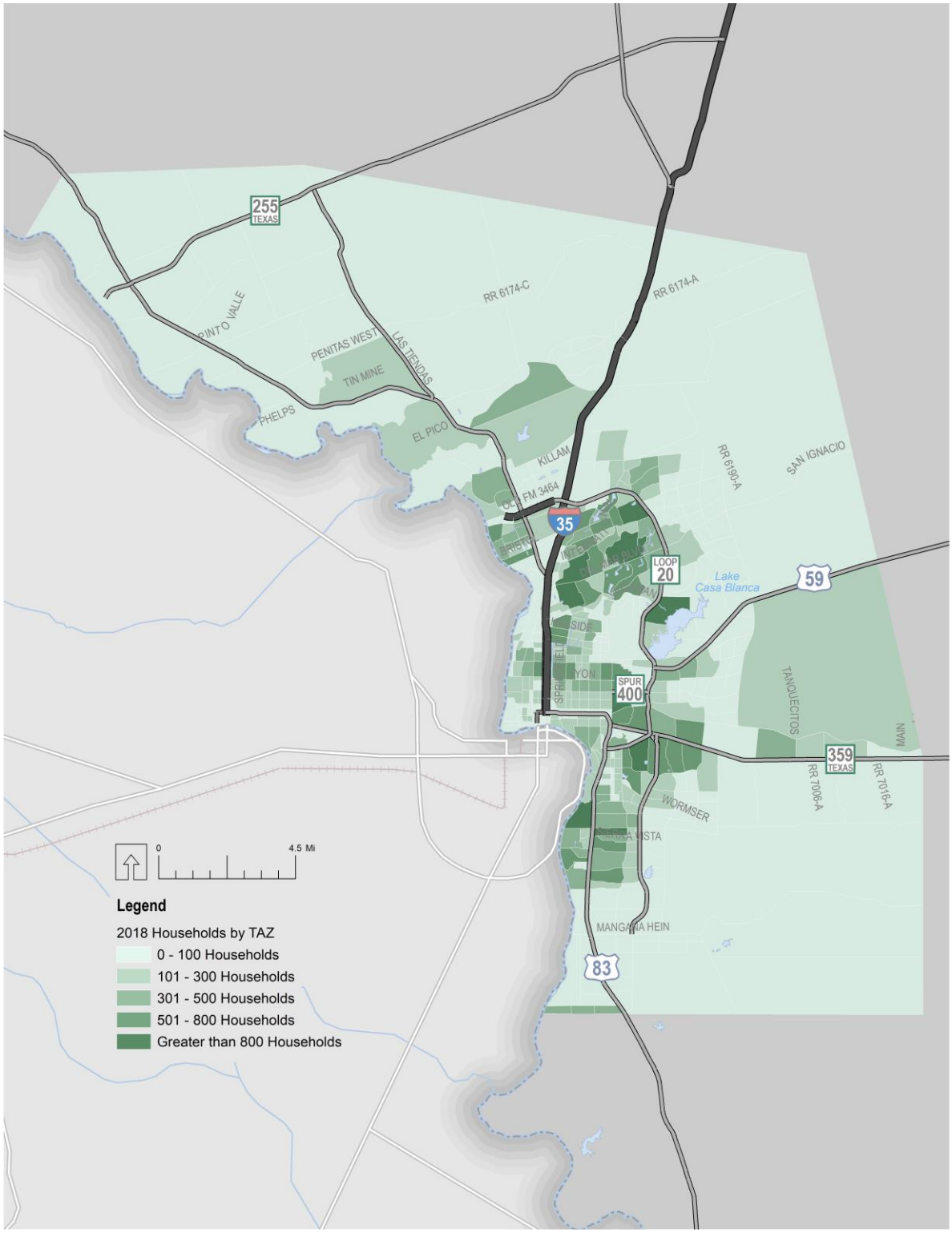
Figure 2-4 shows the density by TAZ of households forecasted to the year 2045. Similar to population density, the spatial distribution of households is expected to develop a density along Loop 20 and within the north and south sides of the Laredo region. This projection is important to consider as the Laredo MPO develops policy guidance to avoid the transportation challenges that arise from urban sprawl. Population forecasts for the Laredo MPO area are shown in **Table 2-4.**

Table 2-4: Laredo MPO Households Forecasts

Forecast Year	Forecast Households
2018	80,487
2030	103,161
2040	126,864
2045	140,686

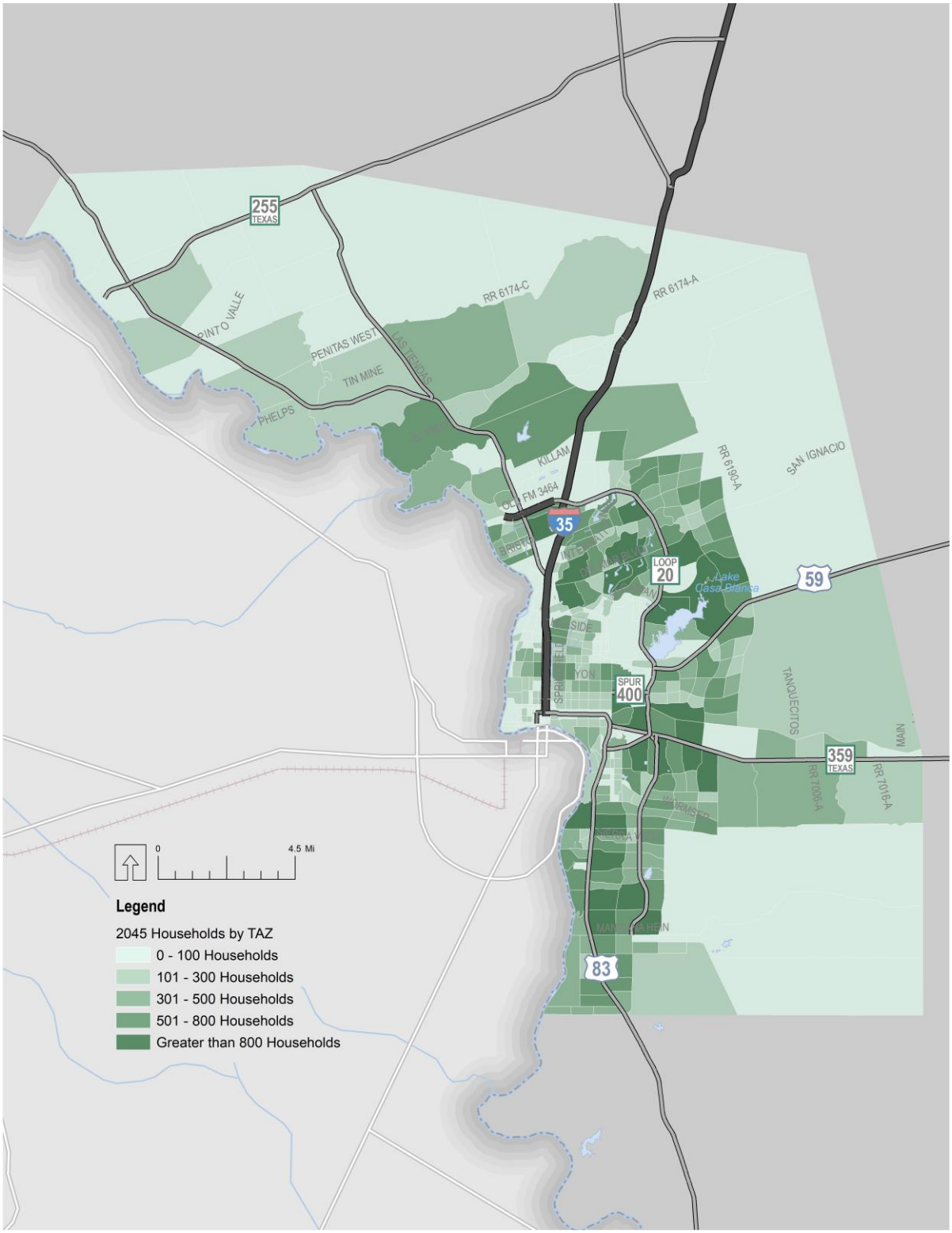
Source: TxDOT-TPP 2008 Validated Travel Demand Model

Figure 2-3: Household Density by TAZ, 2018



Source: TxDOT-TPP 2008 Validated Travel Demand Model

Figure 2-4: Forecasted Household Density by TAZ, 2045

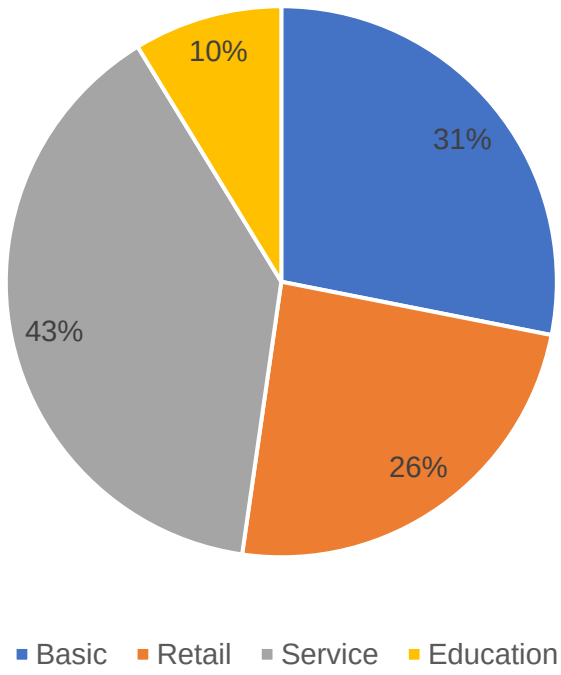


Source: TxDOT-TPP 2008 Validated Travel Demand Model

Employment

The regional economy is dependent on the ability of workers to travel to their places of work. The regional transportation system must meet the needs of the users by providing adequate access and connectivity. Regional employment generates a significant number of trips. Economic indicators are essential to review to properly plan future transportation investments. **Figure 2-5** illustrates the distribution of employment in the Laredo MPO planning area by economic sector (Basic, Retail, Service, and Education) in 2018 based on TxDOT Transportation Planning and Program Division (TxDOT-TPP) data. Employment within the basic economic sector include industries that produce goods for export such as mining, logging, and manufacturing.

Figure 2-5: Distribution of Employment by Economic Sector



Source: TxDOT-TPP 2008 Validated Travel Demand Model

Major Employers

Based on a 2017 study from the Laredo Economic Development Corporation, **Table 2-5** shows a listing of the major employers within the City of Laredo.

Table 2-5: Major Employers

Number of Employees	Employer
Over 2,000	The Outlet Shoppes (55 stores)
	United Independent School District
	Laredo Independent School District
	City of Laredo
	Wal-Mart (4 Locations)
1,500 to 1,999	US CBP—Customs Field Officers
	H-E-B (7 locations)
	McDonald's Restaurant
	Webb County
1,000 to 1,499	Laredo Medical Center
	Laredo Sector Border Patrol
	Texas A&M International University
500 to 999	Convergys
	Laredo Community College
	Doctor's Hospital
	International Bank of Commerce (multiple locations)
200 to 499	Target Greatland (2 Stores)
	Falcon International Bank (7 locations)
	Border Region Behavioral Health Center
	Gateway Community Health Clinic
	Sames Motor Company
125 to 200	BBVA Compass Bank (11 locations)
	Laredo Energy Arena
	Union Pacific Railroad
	U.S. Post Office
	Family Chevrolet
	FedEx Freight
	Sears & Roebuck and Co.

Source: Laredo Economic Development Corporation, 2017

Not only is it important to consider employment levels in major industry sectors and major employers, but it is also useful to consider the relative locations of all employment within a region. **Figure 2-6** shows the employment density by TAZ in 2018 for the Laredo MPO region. In evaluating transportation improvement options, it is useful to identify concentrations of employment to assess the relative locations of major travel destinations. Employment with the Laredo region is primarily located within the urban core and along major arterial facilities. In addition, there is high concentration of employment within the area's industrial parks.

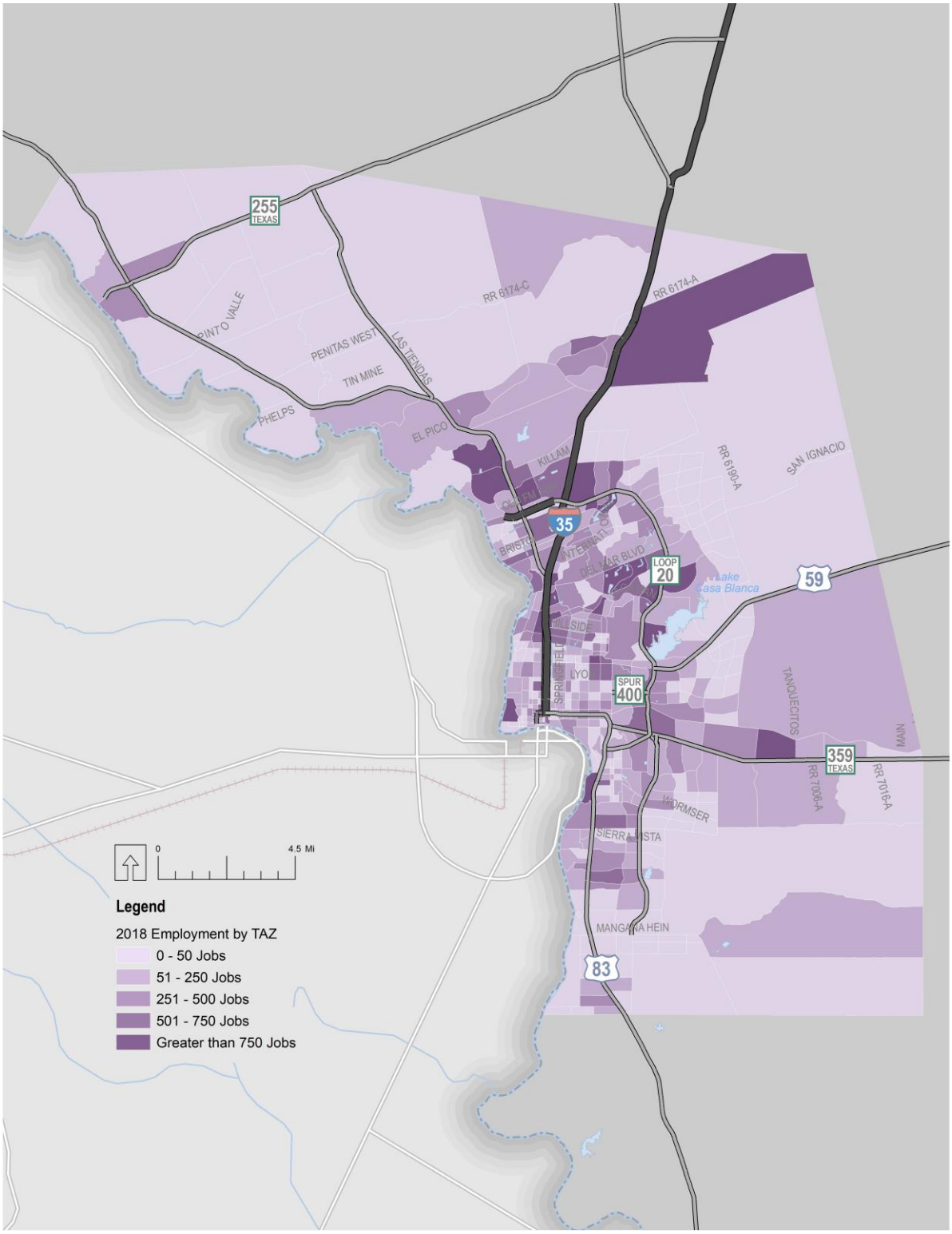
Figure 2-7 shows the employment density by TAZ forecast to the year 2045 for the Laredo MPO region. New employment is shown growing north along the Mines Rd corridor and eastwards from Mines Rd to the Uniroyal interchange and along the planned Hachar Parkway, east along SH 359, and south along US 83. Employment growth in the Basic category is expected to spread strongly according to these patterns, while growth in the Retail, Service, and Education categories are more closely linked to population growth patterns. This spatial distribution of employment is a shift from 2018 where we see employment density centered within Loop 20. This change will result in a shift of worker commuting patterns across the region. Employment forecasts for the Laredo MPO area are shown in **Table 2-6.**

Table 2-6: Laredo MPO Employment Forecasts

Forecast Year	Forecast Employment
2018	105,267
2030	133,613
2040	166,083
2045	180,009

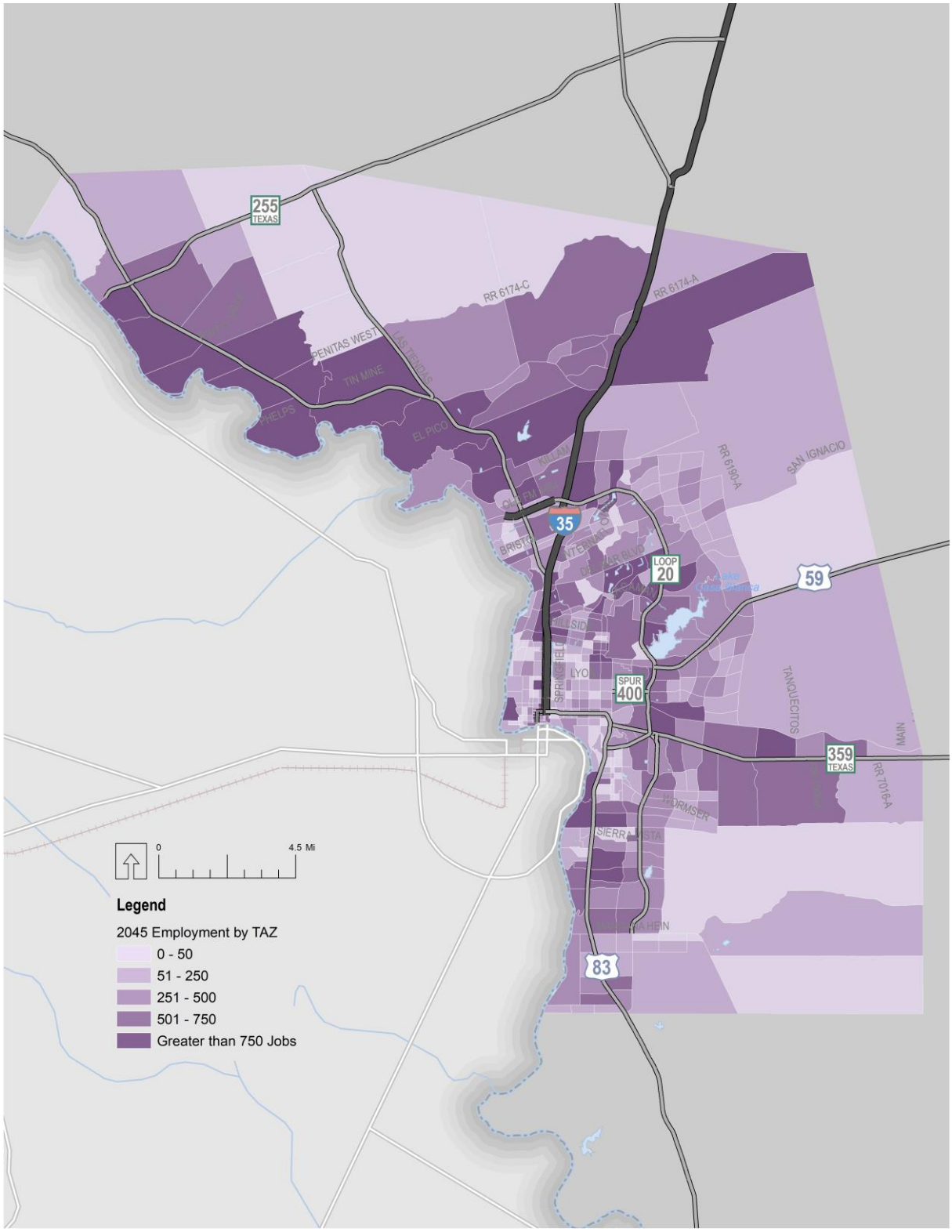
Source: TxDOT-TPP 2008 Validated Travel Demand Model

Figure 2-6: Employment Density by TAZ, 2018



Source: TxDOT-TPP 2008 Validated Travel Demand Model

Figure 2-7: Forecasted Employment Density by TAZ, 2045

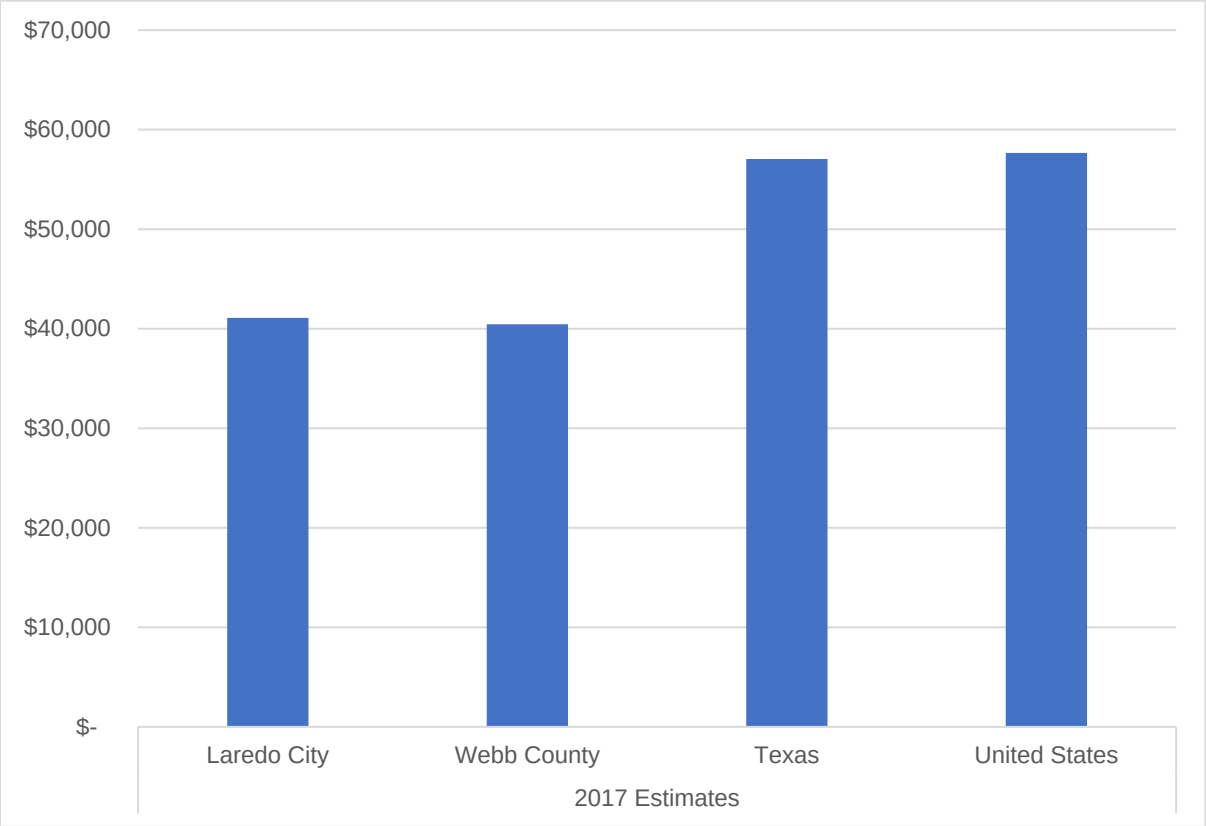


Source: TxDOT-TPP 2008 Validated Travel Demand Model

Income

Income is one important attribute of socioeconomics of a place. It could be related to consuming power and travel behavior and therefore could affect the planning of transportation systems. Based on 2013-2017 American Community Survey 5-Year Estimates, the comparison of the median household incomes for Laredo City, Webb County, Texas, and the United States for 2017 is shown in **Figure 2-8**.

Figure 2-8: Median Household Income, 2017



Source: 2017 ACS 5-Year Estimates

Table 2-7 shows the percentage of households by income range for Laredo City, Webb County, Texas, and the United States. Compared to Texas or the United States averages, there are more percentages of households falling under the categories of earning less than $40,000 in either Laredo City of Webb County. Households who earn less than $10,000 account for 13.1 percent and 13.2 percent of the households in Laredo City and Webb County respectively.

Table 2-7: Percentage of Households by Income Range

Income Range	Laredo City	Webb County	Texas	United States
Total Households	68,851	72,379	9,430,419	118,825,921
Less than $10,000	13.1%	13.2%	6.7%	6.7%
$10,000 to $14,999	7.3%	7.4%	4.6%	72.6%
$15,000 to $19,999	6.4%	6.6%	4.8%	99.3%
$20,000 to $24,999	5.8%	5.9%	5.1%	103.2%
$25,000 to $29,999	5.5%	5.7%	4.9%	95.1%
$30,000 to $34,999	6.2%	6.3%	4.9%	101.6%
$35,000 to $39,999	4.4%	4.5%	4.6%	93.4%
$40,000 to $44,999	4.7%	4.7%	4.6%	100.4%
$45,000 to $49,999	4.5%	4.4%	4.0%	88.2%
$50,000 to $59,999	7.6%	7.7%	7.9%	194.3%
$60,000 to $74,999	8.2%	8.1%	10.0%	128.7%
$75,000 to $99,999	9.6%	9.5%	12.0%	123.8%
$100,000 to $124,999	6.6%	6.6%	8.6%	70.2%
$125,000 to $149,999	4.0%	3.8%	5.4%	62.6%
$150,000 to $199,999	3.0%	2.9%	5.7%	107.8%
$200,000 or more	2.8%	2.7%	6.3%	107.7%

Source: 2017 ACS 5-Year Estimates

Environmental Justice

Environmental justice seeks to provide an equitable distribution of both benefits and adverse impacts borne of public policy decisions. These decisions could refer to, for example, the equal distribution of clean air and water, parks, healthcare, education, and transportation. In particular, Title VI of the Civil Rights Act of 1964 states, “No person in the United States shall, on the ground of race, color, or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."

As defined by USDOT, the three fundamental environmental justice principles include the following:

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

Then, in 1994 Executive Order 12898 mandated that every federal agency was responsible for incorporating environmental justice concerns into their programs, policies, and activities. In doing so, the U.S. Department of Transportation (USDOT) issued its own mandate to ensure that environmental justice concerns were addressed in transportation decisions, including those of transportation planning agencies.

In order to account for environmental justice concerns in relation to transportation investments, Census and American Community Survey (ACS) data from the U.S. Census Bureau were used in order to identify population characteristics and geographic distributions of minority, low income, elderly, and the disabled population. Furthermore, because of Laredo’s special circumstances, the existence and locations of “colonias” were also considered.

Minority Populations

USDOT has defined five minimum race categories for environmental justice considerations, including African-American, Hispanic, Asian, Native American or Alaskan Native, and Native Hawaiian or Other Pacific Islander. **Table 2-8** illustrates the 2017 racial distribution of the Laredo MPO region and compares it with the rest of Texas and the United States based on 2017 ACS 5-Year Estimates.

Table 2-8: Population by Race, 2017

Population Estimate	Webb County Count	Webb County Percent	Texas Percent	United States Percent
White	256,620	95.2%	74.6%	73.0%
Black or African American	1,089	0.4%	12.0%	12.7%
American Indian and Alaska Native	585	0.2%	0.5%	0.8%
Asian	1,407	0.5%	4.5%	5.4%
Native Hawaiian and Other Pacific Islander	25	0.0%	0.1%	0.2%
Some other race	8,499	3.2%	5.8%	4.8%
Total	269,624	100.0%	100.0%	100.0%
One race	268,225	99.5%	97.4%	96.9%
Two or more races	1,399	0.5%	2.6%	3.1%
Hispanic or Latino (of any race)	257,482	95.5%	38.9%	17.6%

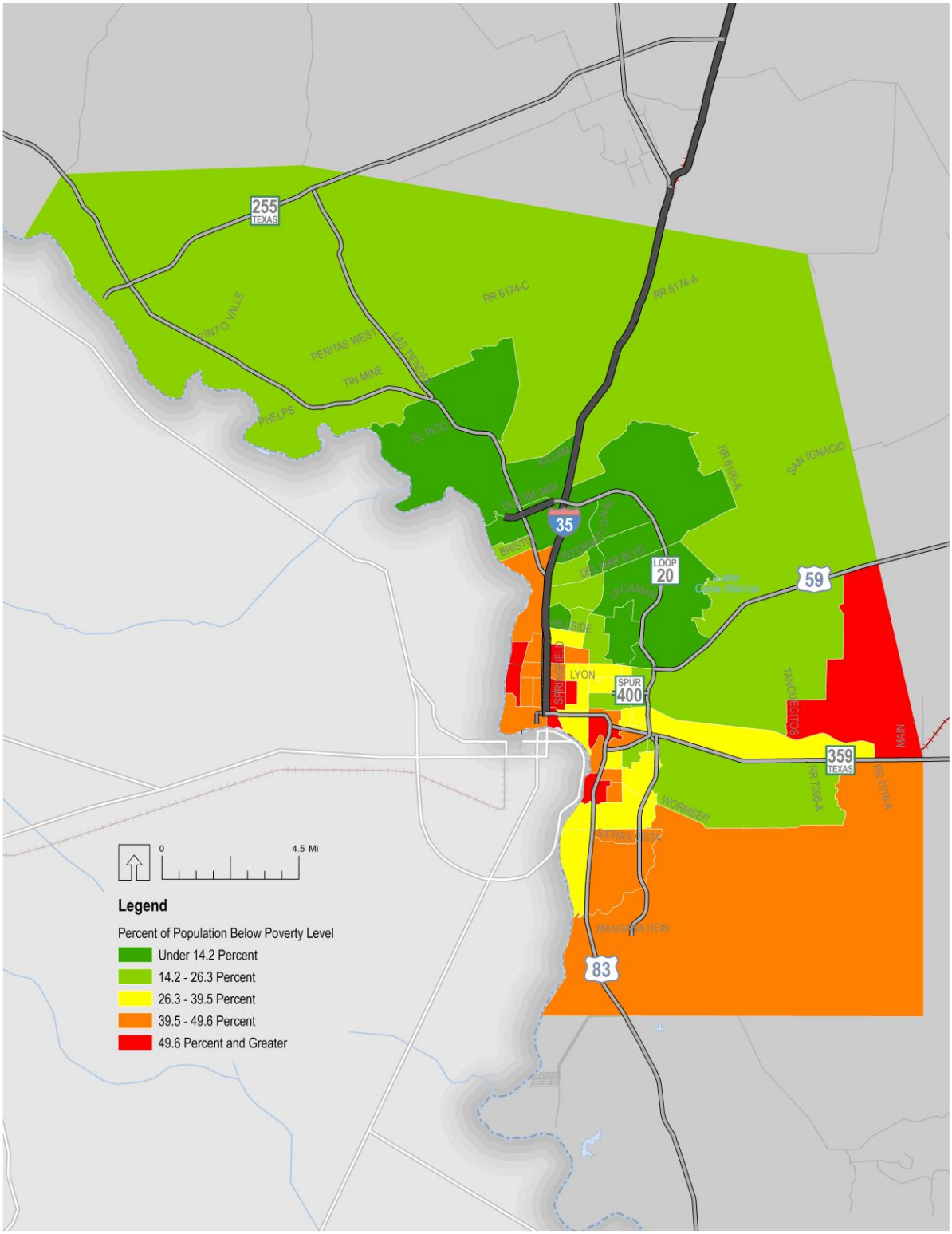
Source: U.S. Census Bureau, 2019

Low Income Populations

The U.S. Census Bureau uses a set of money income thresholds that vary by family size and composition, following the Office of Management and Budget's (OMB) Statistical Policy Directive 14, to determine the poverty numbers. If a family's total income is less than the threshold number, then that family and every individual is considered in poverty. The calculation of poverty thresholds considers inflation with Consumer Price Index (CPI-U). These thresholds do not vary geographically.

Figure 2-9 shows the 2017 ACS 5-Year Estimates for the percentage of the population below the poverty level by Census tracts in Webb County. The low-income areas are generally distributed in the central city of Laredo, south Laredo, and southeast side of the Laredo MPO region.

Figure 2-9: Percent of Population Below Poverty Level by Census Tract



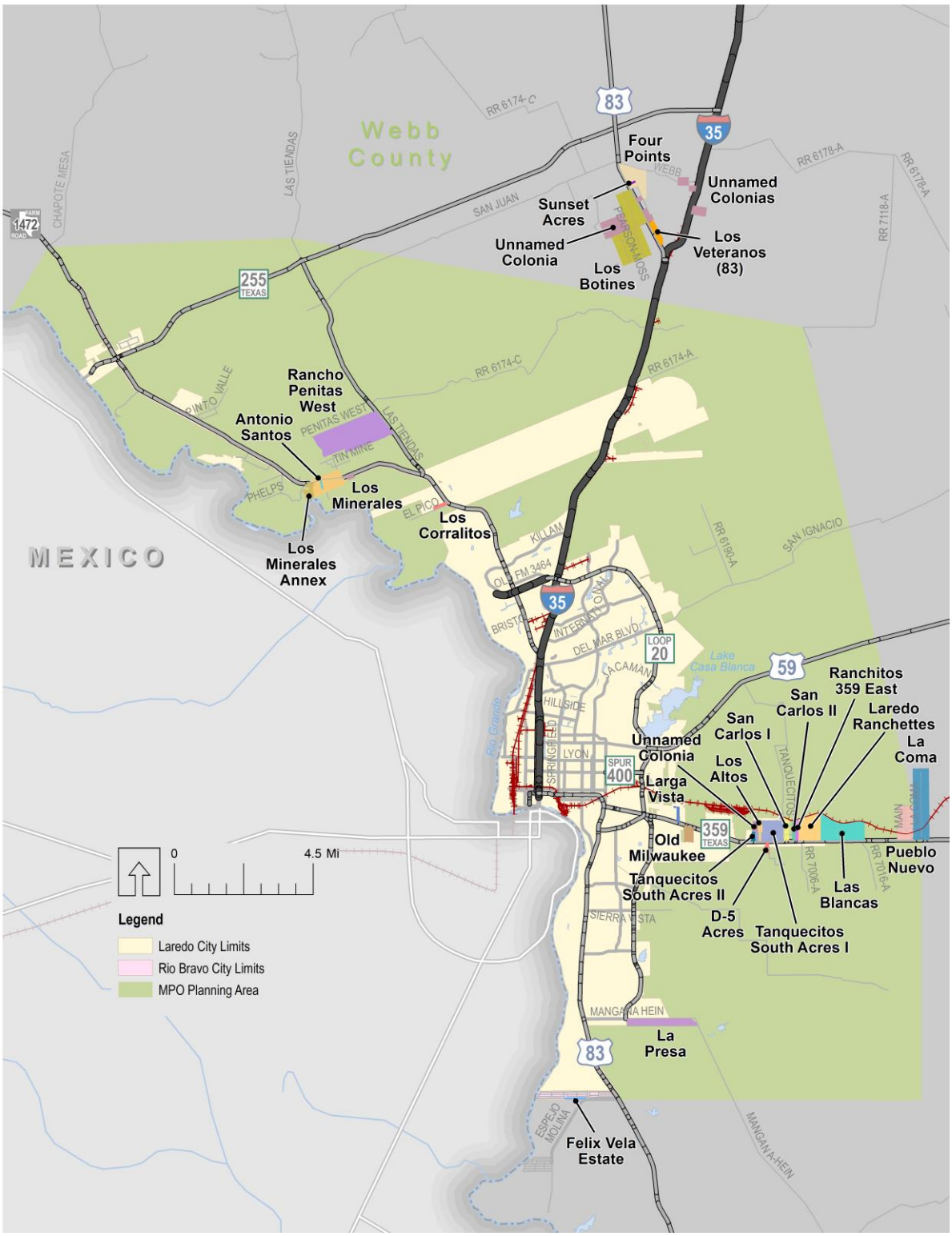
Source: 2017 ACS 5-Year Estimates

Regional Context - Colonias

"Colonia" is the Spanish term for a community or neighborhood. Within Texas, colonias are defined as economically distressed residential areas located in unincorporated land along the US-Mexico border, often lacking basic public infrastructure, including potable water, sewer systems, electricity, paved roads, and safe and sanitary housing. Residents of colonias are mostly low-income individuals seeking access to affordable living accommodations. Moreover, colonias are usually located on undesirable land such as floodplains and in unincorporated areas with looser governmental regulations.

Figure 2-10 displays the locations of colonias within the Laredo MPO region. When considering these areas, it is important to consider transportation improvements, as well as public transit needs of these more rural areas.

Figure 2-10: Colonias



Source: Laredo MPO

Land Development Patterns

Over the course of 250 years, Laredo has developed from a small settlement with a single river crossing of the Rio Grande into a major city with the largest inland port of entry in the United States. As a city established in 1755 by Spanish colonists, the historical development patterns of the City of Laredo reflect the Spanish laws, guidelines, and traditions for the establishment of colonial settlements. The historic settlement included a plaza, narrow streets, and buildings constructed at the street edge and property lines. Laredo remains a mostly gridded city, though recent development has utilized a suburban pattern.

At the time the City of Laredo was established, the primary modes of transportation were by foot, mule, or horse-drawn cart. The introduction of the streetcar connecting Laredo and Nuevo Laredo in 1890 allowed for development to begin pushing further from the historic downtown core. The construction of highways resulting from the Federal Highway Act of 1921 induced land development patterns even further outside the historic downtown core. Development patterns have gradually shifted from a denser more urban development pattern with a mix of land uses to a sprawling more suburban development pattern with a separation of land uses.

Existing Land Uses

The existing land uses within the Laredo MPO area are showing in **Figure 2-11**. Overall, commercial and retail development tends to be situated along major road thoroughfares such as IH 35. The most predominant area of commercial and retail development is in the Mall del Norte area along IH 35, between Del Mar Boulevard and Calton Road.

Industrial facilities are concentrated in industrial park areas on the outskirts of the City of Laredo, especially along I-35, Mines Road, and Bob Bullock Loop towards the north.

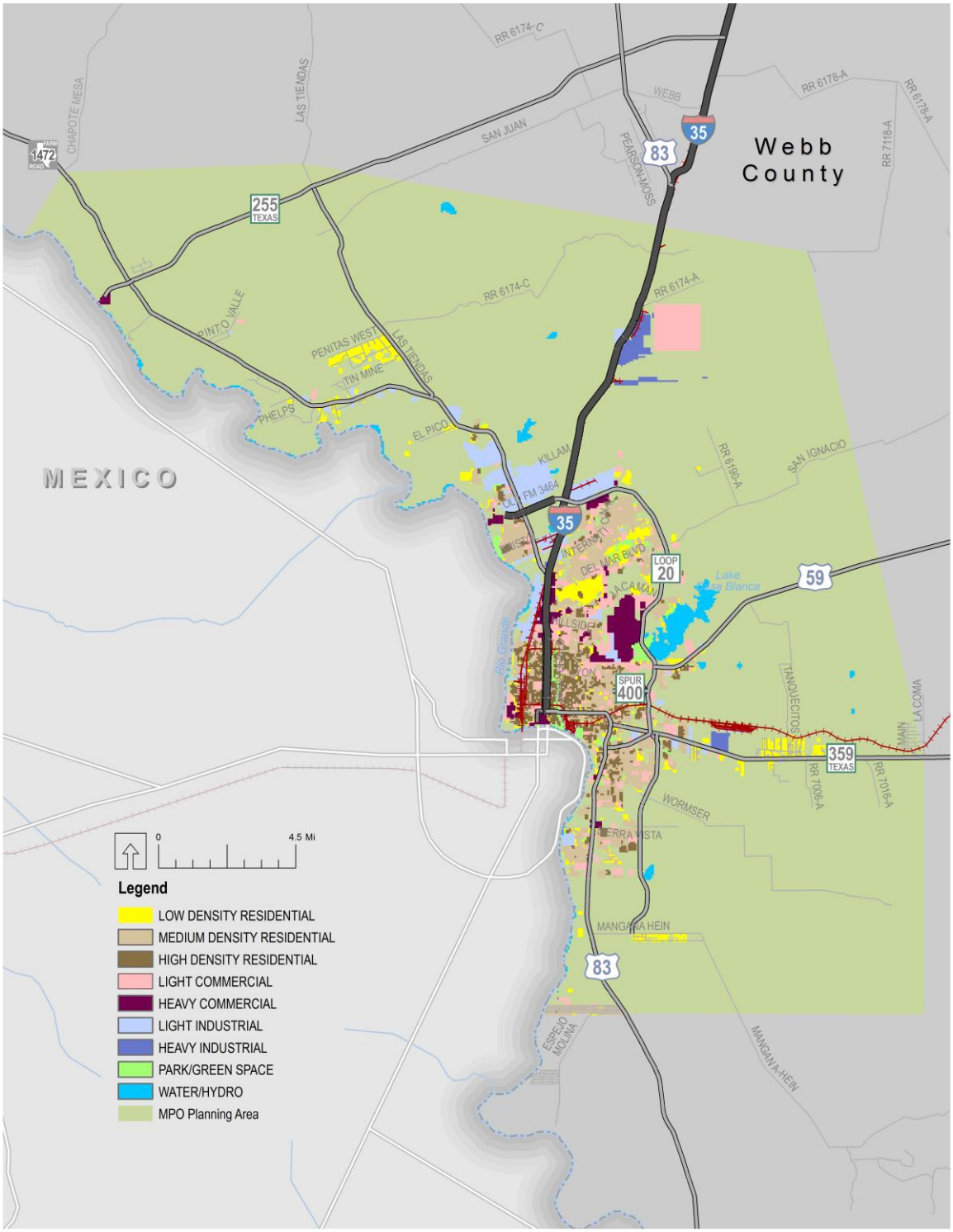
Commercial land use category includes office spaces, retail shops, public buildings, institutional areas parks, and open spaces. Public or institutional uses are interspersed throughout the City of Laredo, particularly in the city center and in residential areas.

Parks and open spaces are also interspersed throughout the City and often in proximity or adjacent to water features such as creeks. The main park in the region is Lake Casa Blanca State Park in the northeast.

Lastly, residential development which accounts for 17.4% of all land area in the City of Laredo is contained primarily between the Rio Grande River and Bob Bullock Loop (Loop 20), although there are clusters along Mines Roads, Zapata Highway (US 83), and SH 359.

Table 2-9 shows the current land use type by square miles and percent of total are for both the City of Laredo and the full MPO planning area. As shown in the figure, a major of the area within the Laredo MPO is unclassified, undeveloped, or vacant. The availability of undeveloped or vacant land outside of the jurisdiction of land use controls can lead to an increase in urban sprawl and leapfrog development patterns when experiencing a growing population.

Figure 2-11: Existing Land Use



Source: City of Laredo

Table 2-9: Land Use Type

Land Use Type	MPO Planning Area		City of Laredo	
	Square Miles	Percent	Square Miles	Percent
Commercial	20.00	5.1%	19.16	23.8%
Industrial	0.48	0.1%	0.48	0.6%
Residential	14.07	3.6%	14.03	17.4%
Agricultural, Farm, and Ranch	34.18	8.8%	29.52	36.7%
Utilities	0.43	0.1%	0.43	0.5%
Vacant	6.45	1.7%	6.42	8.0%
Other	0.33	0.1%	0.33	0.4%
Unclassified	314.52	80.6%	10.12	12.6%
Total	390.45	100.0%	80.48	100.0%

Source: Laredo MPO

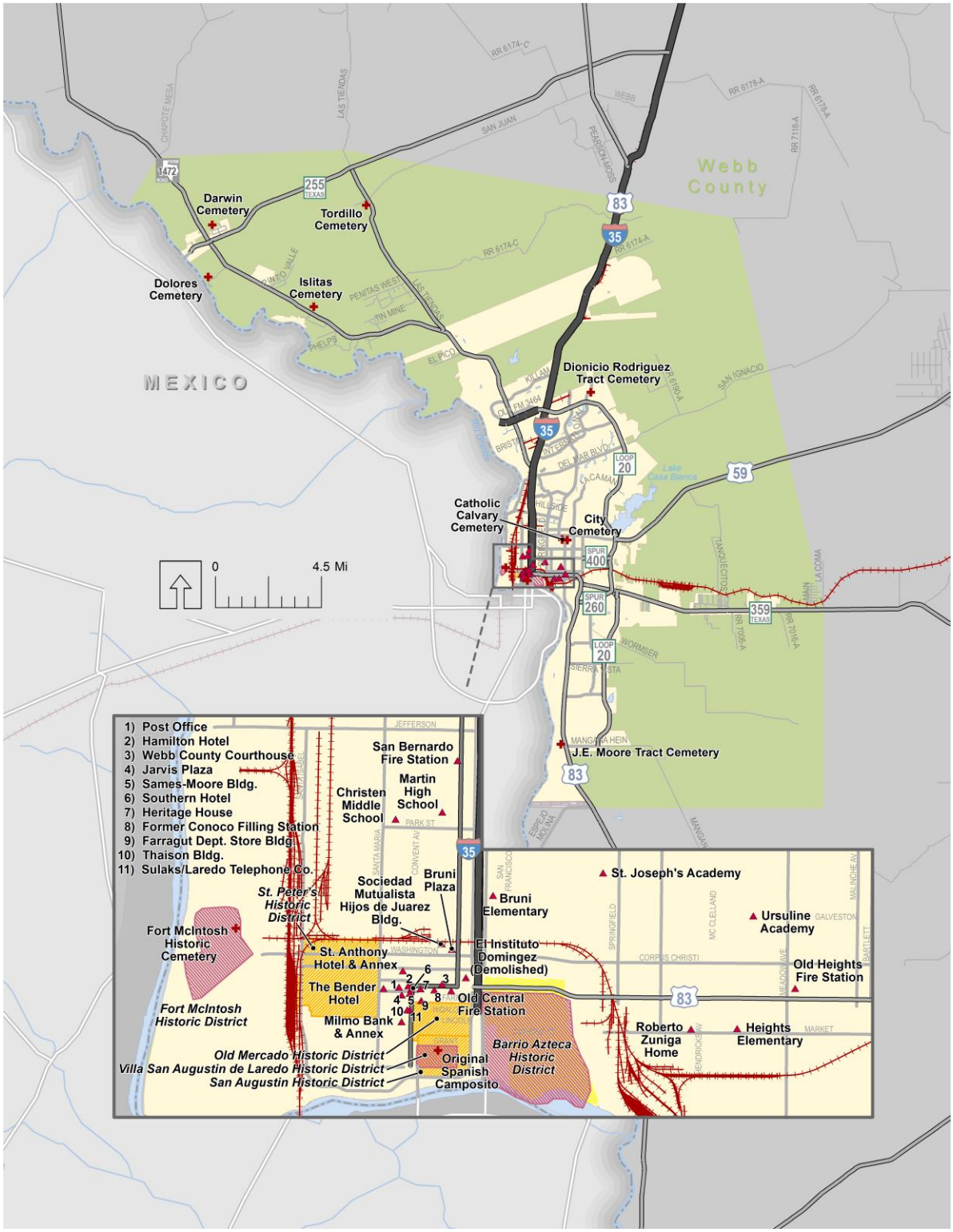
Cultural Landmarks

As required by federal law, all federal agencies must establish their own historic preservation programs for identifying, evaluating, and protecting historic properties. Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended in 1976, 1980, and 1992) and Section 4(f) of the Department of Transportation Act of 1966 requires such historical preservation responsibilities of the Federal Highway Administration (FHWA). Therefore, it is important for metropolitan transportation planning purposes to identify such historical landmarks and sites.

As mandated by the National Historic Preservation Act of 1966, the National Park Service administers the National Register of Historic Places (NRHP) as part of a national program to determine and protect landmarks and sites of historic significance (**Figure 2-12**). As such, the NRHP is the official list of the nation's historic landmarks and sites deemed historically important and worthy of preservation. To be eligible, a property must meet the National Register Criteria for Evaluation in relation to the property's age, integrity, and significance.

Within the Laredo region, many landmarks and sites have been identified as historically significant at either the local, state, or national level. Specifically, eight historical places in Webb County have been identified on the National Register of Historic Places, including the San Jose de Palafox Historic/Archeological District, Barrio Azteca Historic District, Fort McIntosh, Hamilton Hotel, Los Ojuelos, San Augustin de Laredo Historic District, U.S. Post Office and Custom House, and the Webb County Courthouse. Most of these places are located within the city's downtown area. Additional locally identified historic districts include the San Augustin District, the Old Mercado District, and the St. Peter's District. Local historic urban design guidelines and policies for development can be found in the City of Laredo's Historic Urban Design Guidelines, adopted by City Council in 1997.

Figure 2-12: Historic Districts and Landmarks



Source: City of Laredo

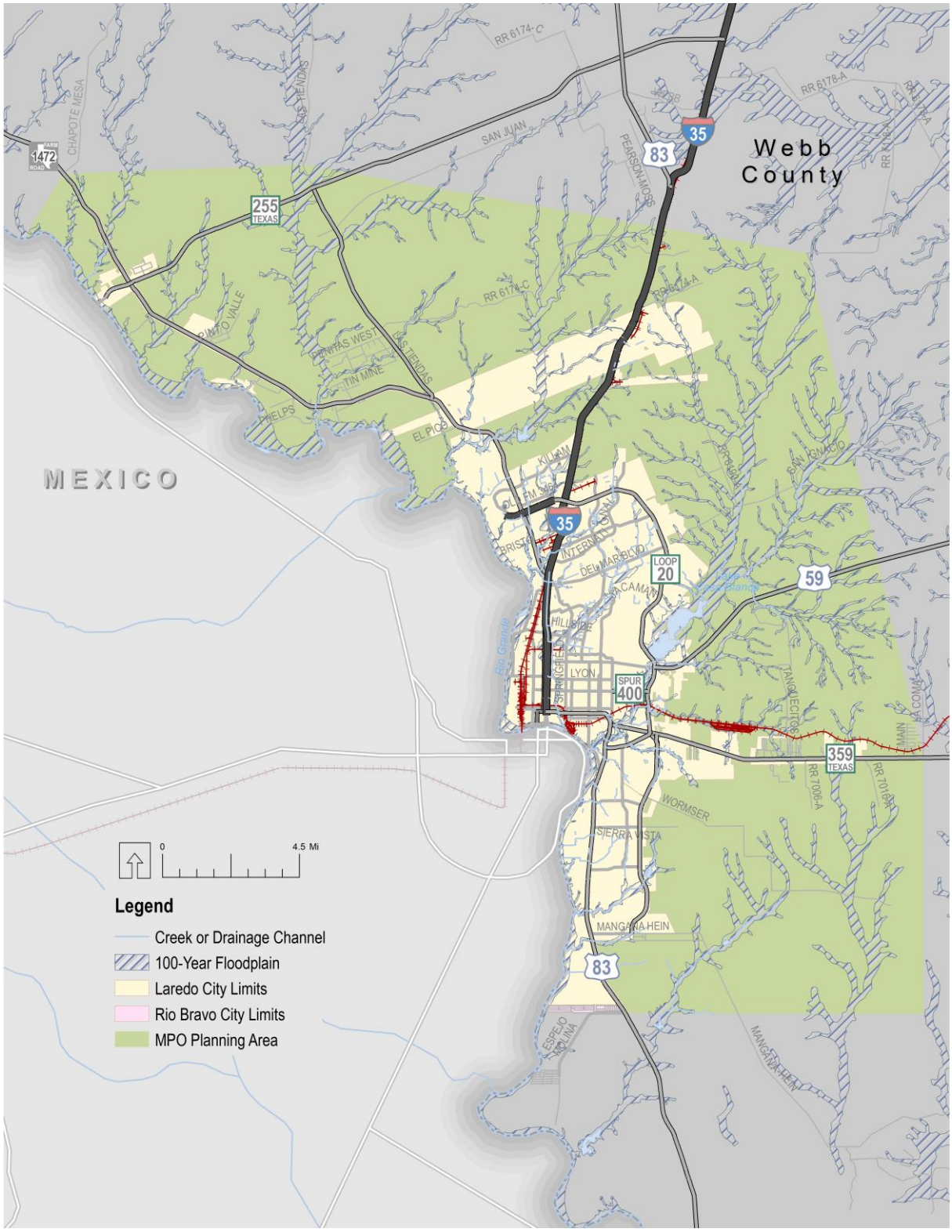
Geographic Barriers and Water Feature Considerations

An awareness of the geographic characteristics of an area are is needed to understand the natural barriers or opportunities for developing transportation networks and infrastructure. Furthermore, the natural resources of an area are significant not only in terms of the ecosystem, but also in terms of the attractiveness of a region. Developing with the natural features, instead of against them, are smart investment strategies for the future.

Within the vast Texas geography, Laredo is located south of the Edwards Plateau of Central Texas, on the west side of the Rio Grande Plains, west of the Coastal Plains, and east of the mountains of Mexico. The land is relatively flat with a few rolling hills and an average elevation of about 438 feet. The flat land is primarily covered with brush consisting of grasslands, oak, and mesquite trees. Besides the Rio Grande River, Lake Case Blanca in Lake Casa Blanca International State Park, which consists of about 756 surface acres along Chacon Creek, is another significant feature located northeast of downtown Laredo, just west of Bob Bullock Loop.

Other water features include several smaller lakes and creeks that drain into the Rio Grande River including San Idelfonso Cuervo, Becerra, Sombreitillo, Chacon, Zacate, and Santa Isabel creeks. These creeks in the local drainage basin are more prone to flooding and tend to be within the 100- and 500-year floodplains, as classified according to the Federal Emergency Management Agency (FEMA) as shown in **Figure 2-13**. In relation to transportation planning, it is especially important to allow the creeks to drain as nature intended and to avoid constructing transportation infrastructure within the flood areas.

Figure 2-13: Floodplains



Source: City of Laredo

Travel and Tourism Considerations

The Laredo MPO area attracts tourists to see and experience the unique cultural, historical, recreational, and environmental assets within the area. Incorporating these assets into the planning process ensures the development of smart transportation solutions that will enhance a visitor's experience, reinforce the local economy, improve resident travel, and protect the environment.

To incorporate travel and tourism into the planning process, the Laredo MPO has sought input and consultation with agencies and officials responsible for tourism as part of the updated 2017 Public Participation Plan. Officials representing travel and tourism interests have been identified and documented as part the Interested Parties contact list that the MPO maintains. The South Texas Economic Development Corporation was also included as an MPO technical committee member in the development of this MTP.

In November 2018, a focus group meeting on travel, tourism, and economic development was held to obtain input for the development of this MTP. The focus group meeting served as a forum for members of both public and private sector agencies and organizations who play a key role in the future development of the region, focused on ways to optimize and coordinate transportation and land development, promote economic development, and address issues related to travel and tourism that impact the Laredo region's quality of life and economic development initiatives.

The City of Laredo Convention and Visitor's Bureau maintains VisitLaredo.com. The website provides detailed information on attractions, lodging, and transportation options throughout the region. The Visit Laredo mobile application can be downloaded on smart phones for mobile access to the variety of tourism attractions and transportation options to travel throughout the city.

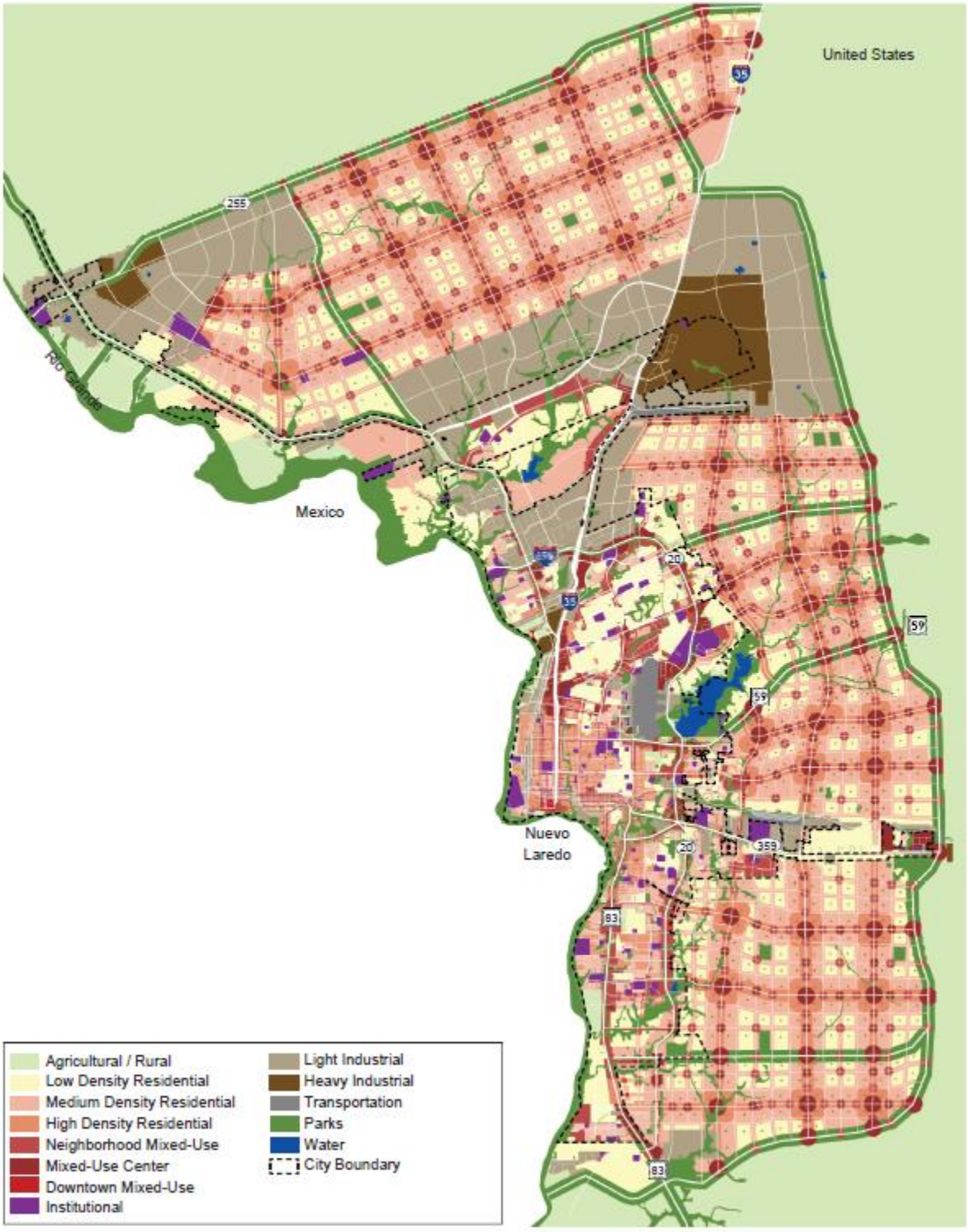
Future Land Use and Policy Considerations

The City of Laredo Comprehensive Plan, Viva Laredo, was recently adopted in December of 2017. Viva Laredo provides a basis and vision for land development in the City of Laredo. It includes policies based on goals, objectives, and strategies for a coordinated planning approach in managing future growth. Viva Laredo focuses on four land use strategies to achieve a more accessible, connected, and livable Laredo:

- **Focus on Downtown**: The City of Laredo is committed to developing policy to encourage infill and redevelopment of the historic downtown core. Revitalization of the historic center will anchor and enhance the overall character of the city and contribute to long-term sustainability.
- **Revitalize Older Neighborhoods**: The older neighborhoods of Laredo feature walkable streets, parks, a mix of land uses, a variety of housing types, and many historic buildings. Revitalization includes improving public infrastructure, infilling empty lots and parking lots, and restoring valuable older buildings.
- **Retrofit Suburban Neighborhoods at Strategic Locations**: Suburban areas segregate housing, shopping, and offices into separate distracts that can only be reached by automobile. Suburban style development patterns have become increasingly unpopular and unattractive to American appetites. Viva Laredo provides a variety of techniques for retrofitting suburban areas to increase a diversity of land uses to provide opportunities for people of all ages, backgrounds, and people to live and work.
- **Ensure that New Subdivisions Complete the Community**: New developments should be quality additions that enhance and compliment Laredo's best older neighborhoods. The monoculture of single-family housing must be avoided.

Viva Laredo developed a Future Land Use Map to guide city growth and policy, **Figure 2-14**. The Future Land Use map organizes development based on place types organized by intensity. Walkable, mixed-use place types include regional mixed-use centers, neighborhood mixed-use centers, and hamlets. The vision depicted by the Future Land Use Map maintains the historic gridded pattern of development. Densities of a mix of land uses are centered downtown and encouraged at intersections of major roadways and activity centers on both the north and south sides of Laredo.

Figure 2-14: Future Land Use



Source: Viva Laredo (2017), City of Laredo

Transportation Patterns

Transportation Related Socioeconomic Statistics

Analyzing transportation data such as how people travel to work, the travel time required to reach work, vehicle miles traveled, availability of vehicles, and the number of registered vehicles suggests transportation needs and trends. Increased travel time to work could correspond with an expanding population as well as a congested transportation network. The ways in which people travel to work may indicate the importance of certain types of modes over others. The availability of vehicles or the number of registered vehicles could be related to the number of people driving to work. These issues are important in identifying improvements in transportation infrastructure.

Travel Time to Work

Table 2-10 shows the breakdown of commuters by travel time to work for Webb County, Texas, and the United States based on 2012 ACS estimates. Compared to the rest of Texas and the U.S., people in Webb County spend less time commuting to work. This is not surprising as the urbanized area of Webb County is generally smaller in area and more compact, which enables commuters to spend less time traveling to work.

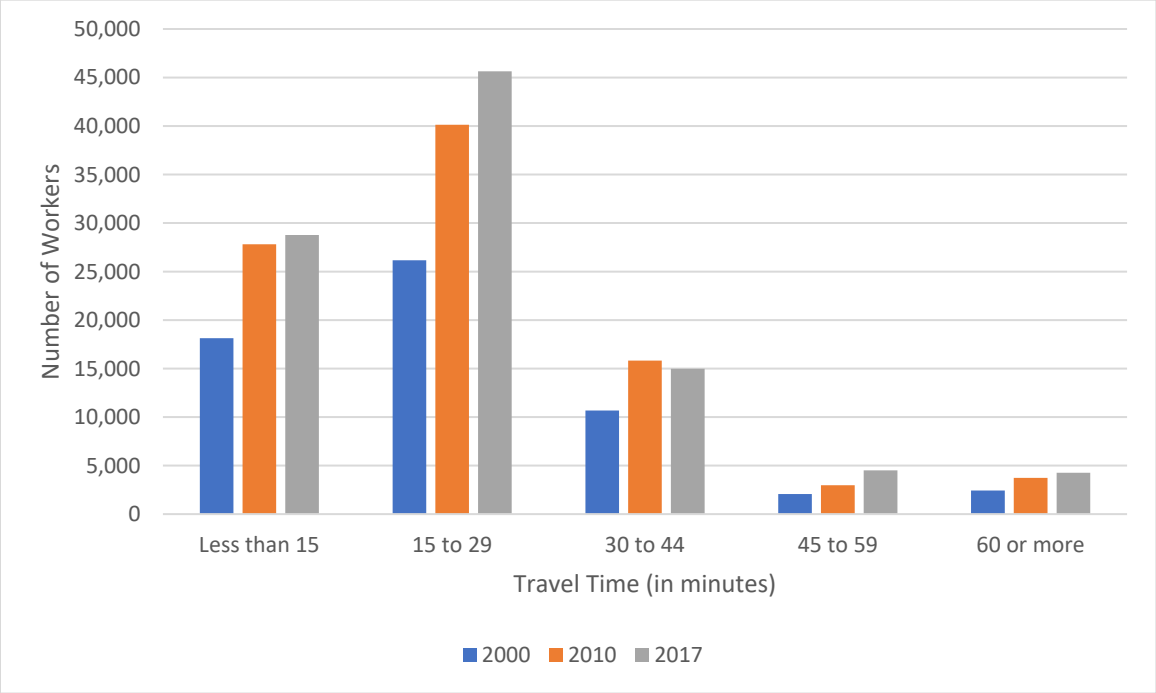
Table 2-10: Percent of Commuters by Travel Time to Work, 2017

Travel Time	Webb County	Texas	United States
Total Commuters	98,170	11,988,267	141,404,632
Less than 5 minutes	2%	3%	3%
5 to 9 minutes	9%	10%	10%
10 to 14 minutes	18%	14%	14%
15 to 19 minutes	24%	16%	15%
20 to 24 minutes	17%	14%	15%
25 to 29 minutes	5%	6%	6%
30 to 34 minutes	12%	15%	14%
35 to 39 minutes	1%	3%	3%
40 to 44 minutes	2%	4%	4%
45 to 59 minutes	5%	9%	8%
60 to 89 minutes	2%	6%	6%
90 or more minutes	2%	2%	3%

Source: 2017 ACS 5-Year Estimates

Figure 2-15 displays the number of workers in Webb County according to their daily commute time for 2010 and 2017. As shown, compared to 2010, the number of workers commuting in 2017 increased by more than 50% from 2000, which further indicates an increased level of use of the region's transportation network in the last decade. This also corresponds with the overall increase in population for the region. Longer commute times can also correlate with increased congestion and people living further from their workplace. Moreover, with the increase in travel time and more people using the transportation system, this can also indicate increased congestion problems in certain areas.

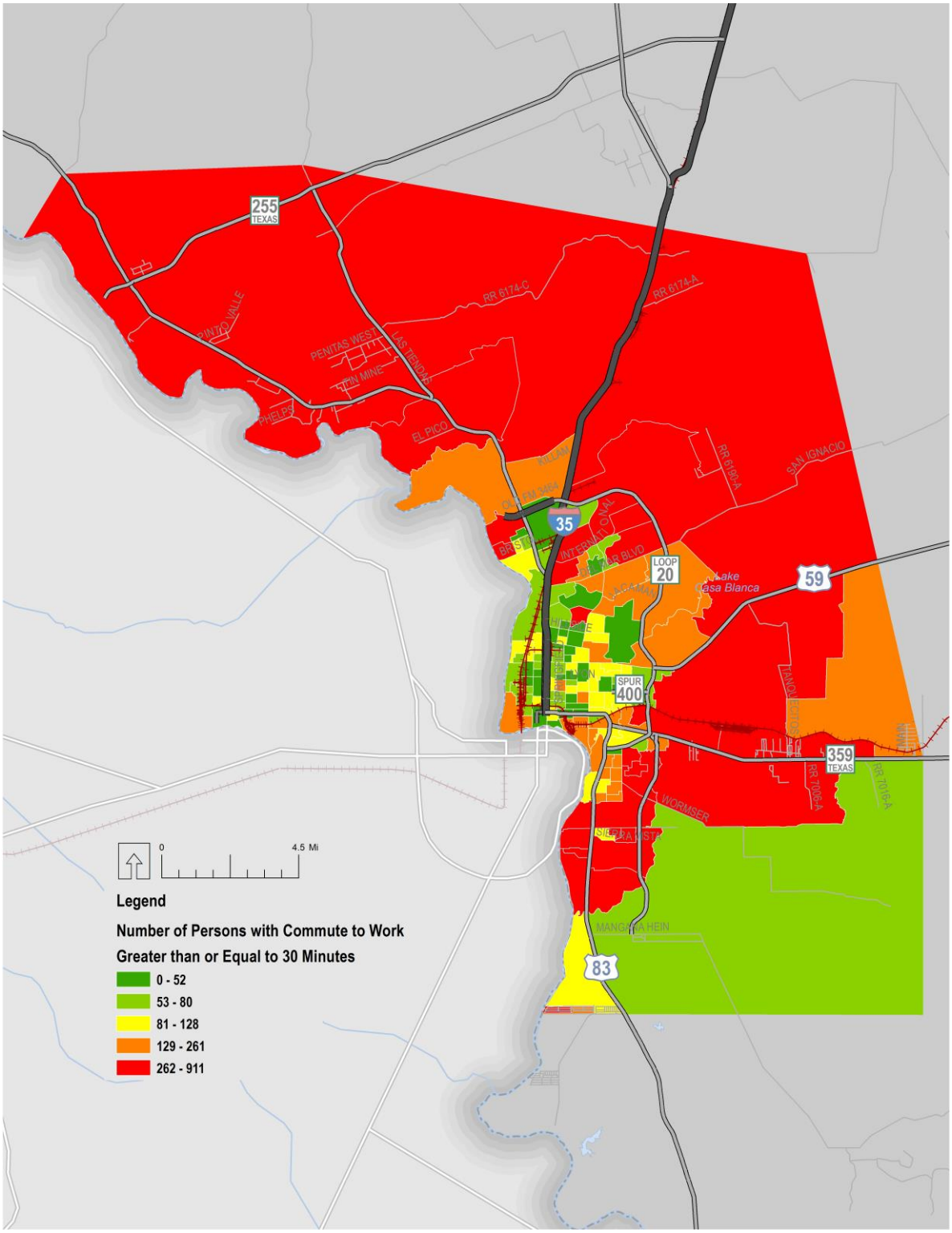
Figure 2-15: Travel Time to Work in Webb County in 2010 and 2017



Source: 2000, 2010, and 2017 ACS 5-Year Estimates

Figure 2-16 displays the number of persons with travel times to work greater or equal to 30 minutes by census block group. This map indicates parts of the region where travel times are the highest. Individuals residing within these census block groups tend to travel long distances to reach work destinations. As shown in the map, census block groups represent a large number of individuals with long travel times to work. Taking this information into consideration is important when making transportation investments.

Figure 2-16: Travel Time to Work Greater than Thirty Minutes by Census Block Group

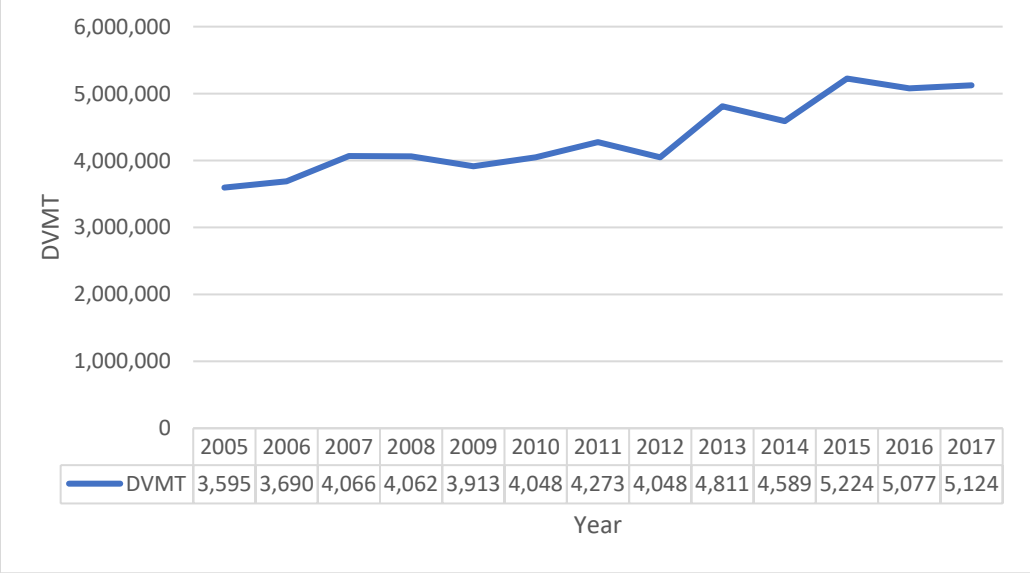


Source: 2010 and 2017 ACS 5-Year Estimates

Vehicle Miles Traveled

Vehicle miles traveled (VMT) is the total amount miles traveled by all vehicles on all public roads. **Figure 2-17** displays the total daily VMT (DVMT) for Laredo District from 2005 to 2017. During this time, DVMT generally showed a trend of increase despite a few recent decreases. Compared to 2005, DVMT in Laredo District in 2017 is about 1.5 million more than that in 2005. Increased DVMT is also related to population growth and expansion and may further indicate that people are living further from their workplace. Additionally, a region's income and economy may also reflect the use and access of personal vehicles, which in turn, will cause DVMT to increase.

Figure 2-17: Daily Vehicle Miles Traveled in the TxDOT Laredo District



Source: TxDOT-TPP Roadway Inventory

Means of Transportation to Work

Table 2-11 displays the means of transportation to work by percentage of workers in Webb County, Texas, and the United States based on 2017 ACS 5-Year Estimates. The data shows that the percentage of workers who drove alone to work in Webb County is higher than both Texas and the United States. More workers in Webb County, however, tend to carpool as compared to all workers in Texas or United States.

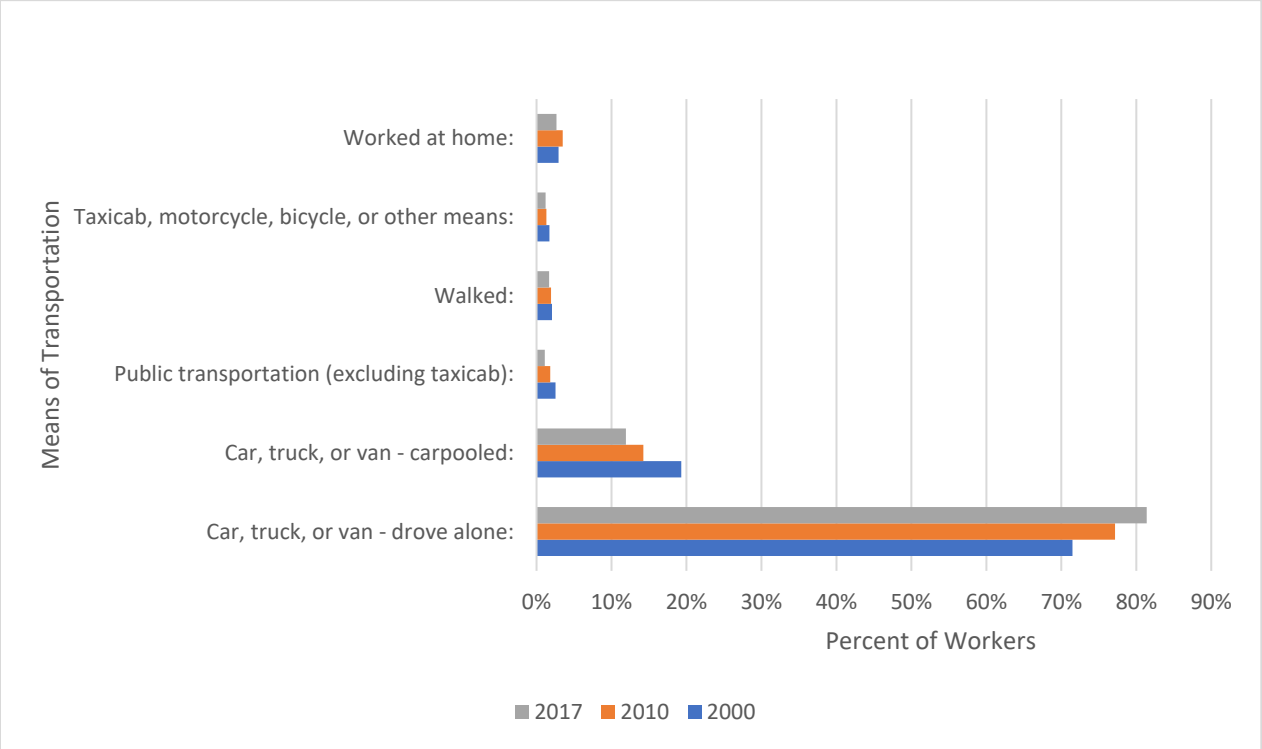
Figure 2-18 indicates the percentage of workers (who are 16 years and older) in Webb County that used a certain type of transportation to commute to work in 2000 and 2012. As shown, the percentage of people that drove alone increased from 2000 to 2012. This increase directly relates to the decrease in the percentage of people that carpooled, used public transportation, or used an alternative means (such as walking or biking) during the same time periods. The percentage of workers who worked at home increased from 2.9% in 2000 to 4.3% in 2012, by almost 50%.

Table 2-11: Means of Transportation to Work

Means	Webb County	Texas	United States
Total (workers 16 years and older)	100,860	10,776,005	148,432,042
Drove alone	81.4%	80.2%	76.4%
Carpooled	11.9%	10.4%	9.2%
Public transportation	1.1%	1.7%	5.1%
Walked	1.7%	1.6%	2.7%
Taxicab, motorcycle, bicycle, or other means	1.2%	1.7%	1.8%
Worked at home	2.7%	4.4%	4.7%

Source: 2017 ACS 5-Year Estimates

Figure 2-18: Means of Transportation to Work in Webb County in 2000, 2010, and 2017



Source: 2010 and 2017 ACS 5-Year Estimates

Vehicle Availability

Table 2-12 indicates the vehicle availability of households in Webb County, Texas, and the United States in 2017 based off 2017 ACS 5 Year estimates. As shown, a larger percentage of households were less likely to have access to any vehicle as compared to Texas. The numbers of Webb County are similar to the national average. The higher number of households with no vehicle available suggests that mobility in this region is more related to the provision of public transportation than a typical county in Texas.

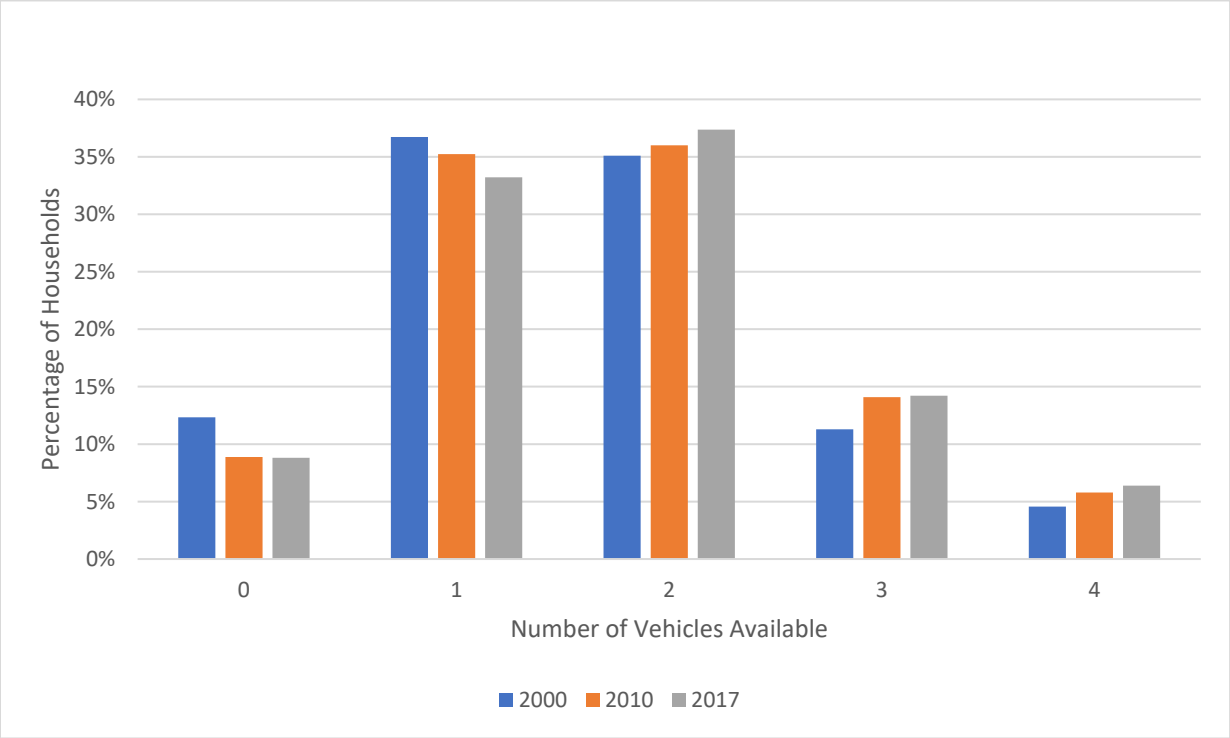
Table 2-12: Number of Vehicles Available

Number of Vehicles	Estimate 2017		
	Webb County	Texas	United States of America
Total	72,379	9,430,419	118,825,921
No vehicle available	6.7%	5.5%	8.8%
1 vehicle available	32.4%	33.4%	33.2%
2 vehicles available	37.1%	40.3%	37.4%
3 vehicles available	16.0%	14.8%	14.2%
4 or more vehicles available	7.7%	6.0%	6.4%

Source: 2017 ACS 5-Year Estimates

Figure 2-19 displays the vehicle availability for households in Webb County for the years 2010 and 2017. The percentage of households owning only one or no vehicles decreased over time, while the percentage of households owning two or three cars increased over time. This occurrence also directly relates to the increase in driving alone and the decrease in use of public transportation, and alternative means during the same time.

Figure 2-19: Number of Vehicles Available, Webb County



Source: 2010 and 2017 ACS 5-Year Estimates

Registered Vehicles

Table 2-13 displays the number of registered vehicles for 2012, 2013,2014, 2015, 2016, 2017, 2018, and the compounded annual growth rate from 2009 to 2012 for Webb County and Texas. As shown, the number of vehicles registered continually increased for each year for both Texas and Webb County. However, Webb County's registered vehicles increased by a larger growth rate than Texas. This increase in registered vehicles relates to the increase in vehicle availability, use of personal transportation, and total vehicle miles traveled in Webb County.

Table 2-13: Registered Vehicles

Year	Webb County	Texas
2012	177,742	22,768,989
2013	186,361	23,341,861
2014	192,046	24,093,838
2015	196,148	24,264,398
2016	197,805	24,195,726
2017	201,161	24,533,437
2018	205,384	24,628,118
Annual Growth Rate (2012-2018)	2.09%	1.13%

Source: Texas Department of Motor Vehicles

Freight Transportation Patterns

Positioned along the I-35 corridor and adjacent to Mexico, Laredo is a dominant inland port. Laredo is the home to five ports of entry serving the border crossings between the U.S. and Mexico. International freight is a main economic driver in the Laredo region and impacts development patterns and land uses. In 1926, US 81 (present day I-35) was constructed through the city center of Laredo terminating at the international border. With the rapid increase in automobiles, the reach of development has continued to expand further outward from the historic downtown core. The growth of the port and the expansion of freight traffic influences the development patterns of the Laredo. Federal plans including the construction of a loop highway at the furthest extent of the city and the construction of additional entries into Nuevo Laredo will continue to shape the landscape of development.

Roadway Transportation Patterns

Downtown Laredo and adjacent areas to the north and east developed with a small block and street grid. The area north of US 59 and south of Lomas Del Sur Boulevard, however, have developed a less connected local street network consisting of subdivisions that connect to a system of collector and arterial roadways. I-35 connects from the border crossing at bridge 2 to the north. Loop 20, or Bob Bullock Loop, connects the eastern edge of the city to the northern and southern portions. Additional major highways within the region include US 83 in the south, US 59 and US 359 in the east, and FM 1472 (Mines Road) in the northwest.

Major Traffic Generators

Special traffic generators, such as public facilities, hospitals, universities, shopping centers, and other special transportation hubs, such as airports, place special demands upon the transportation system. In Laredo, this is particularly true of industrial parks, as the commercial vehicle traffic related to the international trade activity is an important issue for the region. These points of major activities attract many people, and thus contribute to the regional traffic volumes and flow patterns. It is important to identify where these regional traffic generators are located to effectively plan for transportation infrastructure and improvements. **Figure 2-20** shows the locations of major traffic generators within the region.

Figure 2-20: Major Traffic Generators

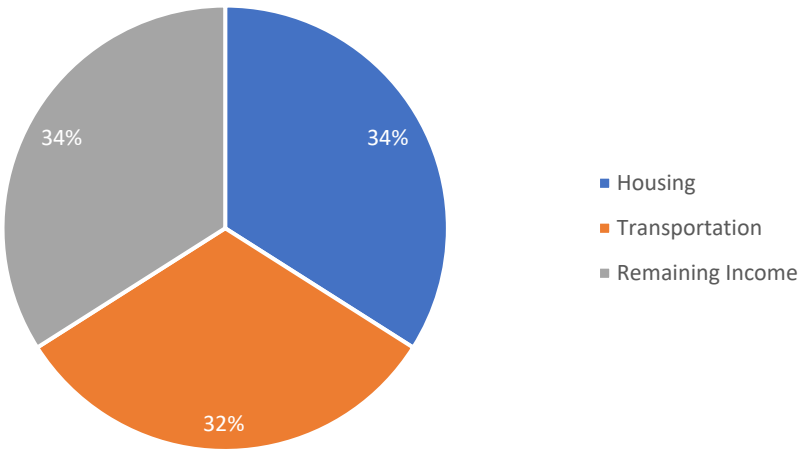
Source: Laredo MPO

Household and Transportation Costs

Transportation costs are typically the second largest expenditure for a household, following the cost for housing. Location matters. Transportation costs are largely a function of the characteristic of the neighborhood in which a household is located. Neighborhoods with a denser land development pattern, hosting a mix of land uses create an environment ripe for multimodal transportation options. These compact and dynamic neighborhoods host walkable streets, opportunities for transit, and access to jobs and destinations. Compact neighborhoods are more efficient, affordable, and sustainable; benefiting both households and businesses.

The Center for Neighborhood Technology (CNT) maintains the Housing and Transportation (H+T) Affordability Index to provide a comprehensive view of affordability that includes the cost of housing and transportation. According to the CNT H+T Affordability Index, transportation costs residents of the Laredo MPO area an average of 32 percent of total income. **Figure 2-21** shows the breakdown below. Considering both housing and transportation costs provides a more comprehensive understanding of regional affordability.

Figure 2-21: Average Housing and Transportation Costs as a Percent of Income for the Laredo MPO Area



In areas with a more dispersed, suburban style of development, the population requires more vehicles to drive far distances which increases the cost of living. Transportation costs for the Laredo MPO area based on the CNT H+T Affordability Index is shown in **Table 2-14**.

Table 2-14: Transportation Costs in the Laredo MPO Area

Annual Transportation Costs	$12,413
Autos per Household	1.80
Average Household VMT	22,839
Transit Ridership % of Workers	3%
Annual Transportation Cost	$12,413
Annual Auto Ownership Cost	$9,281
Average Monthly Housing Cost	$1,094
Residential Density	1.31 Households per Acre
Employment Access Index	14,583 Jobs per Square Mile

Economic Conditions in the Laredo Region

Understanding the trends in employment and industry growth helps to understand transportation investments that are appropriate to meet the needs of the Laredo region both today and in the future. Total employment within the Laredo MSA for 2018 is 112,190 employed individuals. This number represents 112,190 individuals who are employed with jobs. **Table 2-15** displays the total employment for the years 2005 through 2018. With the exception of 2009, the Laredo MSA has experienced an annual percent increase in total employment of 1 percent or greater. Most recently, the Laredo MSA experienced a 2 percent increase in total employment from 2017 to 2018. Assuming a 1 percent annual increase in employment between today and 2045, the Laredo MSA could experience an increase of 34,578 jobs added to the region by the year 2045. The Laredo region must invest in transportation improvements today to appropriately accommodate the growth that is expected to occur 25 years into the future.

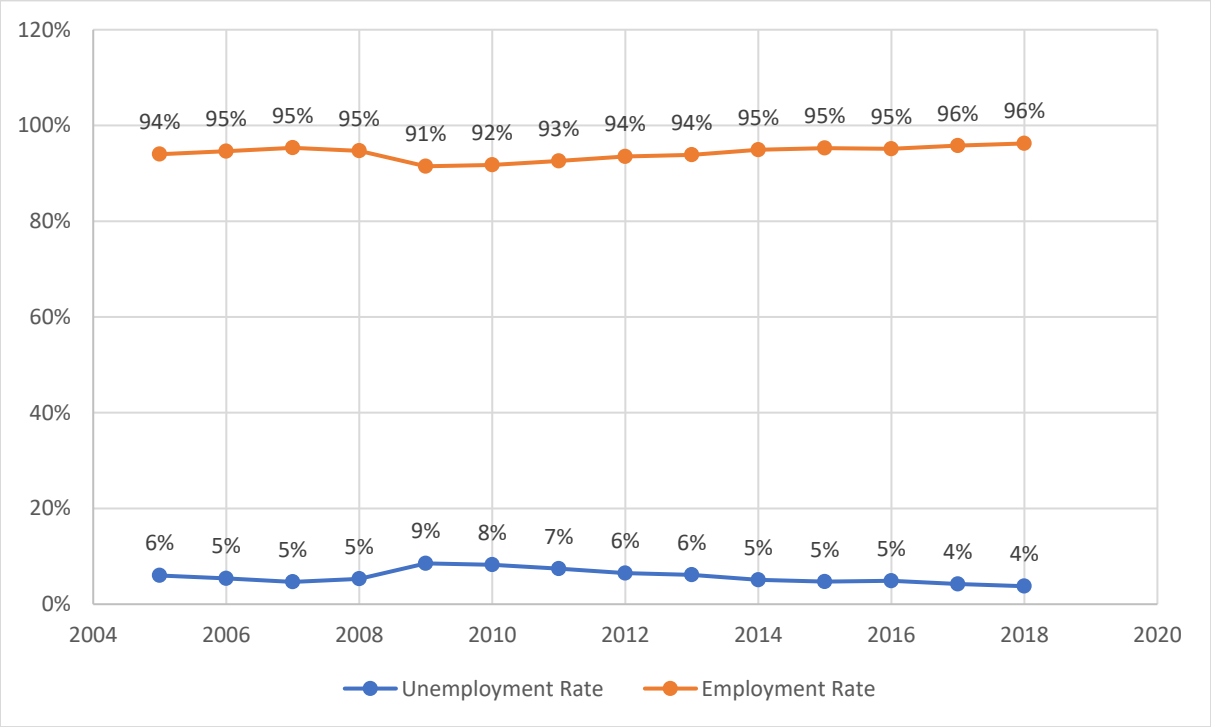
Table 2-15: Employment Totals and Annual Percent Change for Laredo MSA, 2005-2018

Year	Employment Total	Annual Percent Change
2005	80,484	-
2006	83,168	3%
2007	85,129	2%
2008	87,472	3%
2009	86,110	-2%
2010	96,364	12%
2011	99,885	4%
2012	102,072	2%
2013	103,601	1%
2014	105,664	2%
2015	106,590	1%
2016	108,333	2%
2017	110,384	2%
2018	112,190	2%

Source: Texas Labor Market Information

As shown in **Figure 2-22**, the unemployment rate of the region as steadily decreased since 2009. With a labor force of 116,573 in the Laredo MSA, the unemployment rate is only 3.8%. Laredo continues to thrive with an abundant, productive, and bilingual workforce.

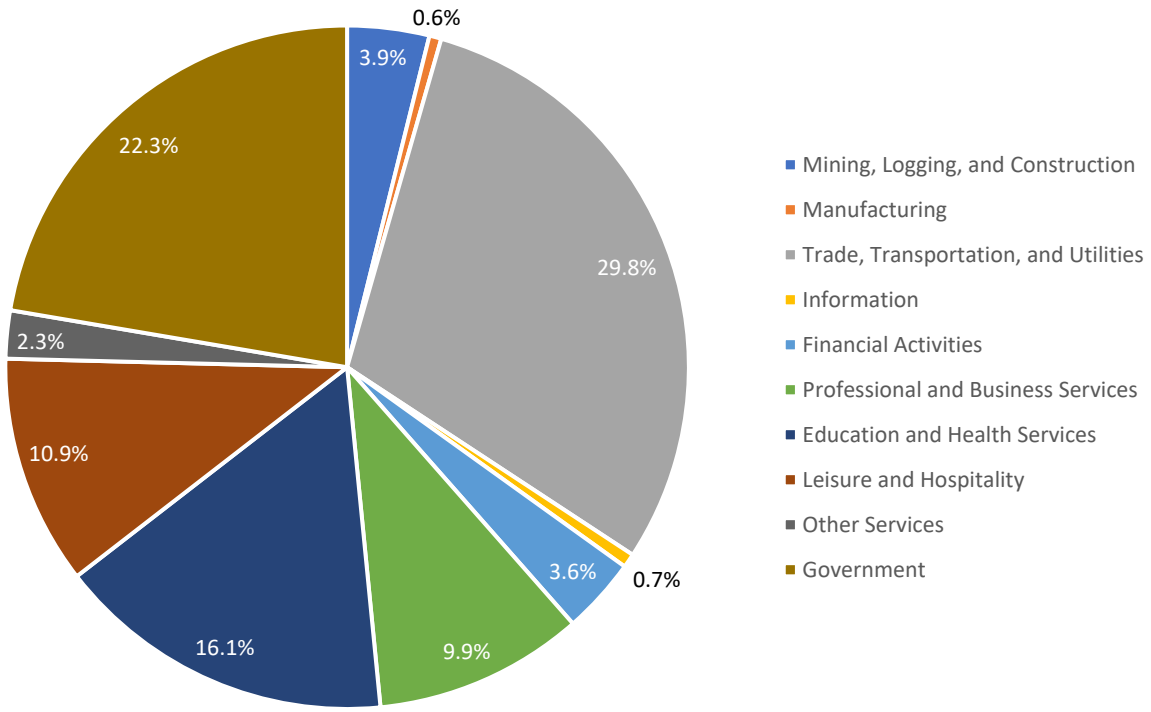
Figure: 2-22: Employment Rate and Unemployment Rate for Laredo MSA



Source: Texas Labor Market Information

The top five employment sectors within the Laredo MSA are (1) trade, transportation, and utilities: 29.8 percent, (2) government: 22.3 percent, (3) education and health: 16.1 percent, (4) leisure and hospitality: 10.9 percent, and (5) professional and business services: 9.9 percent. The industry composition by employment sector is shown in **Figure 2-23**. Trade, transportation, and utilities is the dominant employment sector at no surprise.

Figure 2-23: Industry Composition by Employment Sector, 2019



Source: Texas Labor Market Information

Laredo is a gateway for trade. According to the Laredo Economic Development Corporation, Laredo handled 87 percent of trade between the United States and Mexico. Over 2 million commercial trucks cross the U.S. Mexico border annually through Laredo. The Laredo region is served by two class 1 railroads, Union Pacific and Kansas City Southern. Within the region, over 40 million square feet of land is occupied for transportation and logistics use. Compared to ports within the United States, the Port of Laredo is ranked second for imports and exports in 2018 in total trade by monetary value.

As the Laredo region looks forward to the year 2045, maintaining the transportation network, developing efficiencies in the network, and finding ways to balance freight and other regional transportation needs is increasingly important for region leading the nation in international trade.

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Chapter 3:
Public Input and the 2045 MTP

Introduction

The public participation process for the 2020-2045 MTP is consistent with all FAST Act federal transportation planning guidelines at the time of this plan's development. This chapter outlines the framework and schedule developed for the MTP, summarizes the process and outreach methods undertaken at a series of distinct stages of MTP development, and concludes with a summary of "What We Heard" from these outreach efforts and how this input shaped the vision, goals, and objectives for the plan. In addition to technical analysis, the MTP was shaped by input from the MPO Technical Advisory Committee, the public, and agencies through meetings, focus groups, and other targeted outreach. Specific attention was paid during the development of the MTP and through outreach efforts to incorporate input from state and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation concerning in accordance with the intentions and requirements of metropolitan planning contained in 23 CFR 450.324(12)(g). Additional details on the public participation process and copies of materials referenced within this chapter may be found in **Appendix A**.

MTP Outreach Framework

The 2020-2045 MTP was developed through the consensus of both the general community as well as the public and private entities included within the MPO's Policy Board and Technical Committee. Additionally, MPO representatives within the Technical Committee have responsibilities for both land use and transportation planning in the region and provided input into the development of this MTP and in identifying appropriate goals and objectives to reflect broader land use, environmental, and transportation planning considerations in the region. Throughout the transportation planning process, the MPO has provided a wide range of opportunities for the public to be involved in the development of this MTP, and the approach and schedule undertaken are summarized below.

Public Participation Plan

The Public Participation Plan (PPP) for the Laredo MPO provides the framework by which interested and affected individuals, organizations, agencies, and governmental entities are consulted and included in the metropolitan transportation planning process. The Laredo PPP was updated in May of 2017 to be compliant with 23 CFR 450.316.

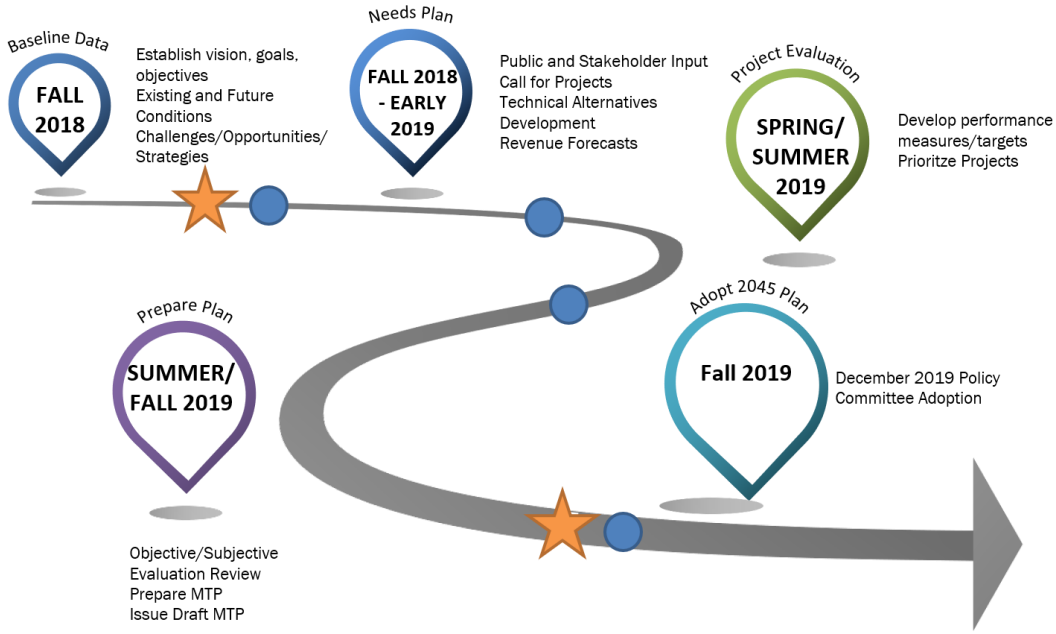
As required in 23 CFR 450.324(12)(g), the PPP includes provisions to consult with agencies and officials responsible for other planning activities within the MPO that are affected by transportation including state and local planned growth, economic development, tourism, natural disaster risk reduction, environmental protection, airport operations, or freight movements. As

required by 23 CFR 450.316 (a), the PPP was updated to include providing opportunity for input from public ports and private providers of transportation. While employer-based transit incentive programs are not currently in place, the MPO continues to coordinate with the private industry on opportunities to enhance these incentives as well.

In addition, the Laredo MPO maintains a contact list of groups and individuals which have expressed interest in transportation planning activities. As required by 23 CFR 450.316 (b), the MPO expanded the contact list as described in the PPP to seek consultation with agencies and officials responsible for tourism and natural disaster risk reduction. The contact list for the MTP included over 700 interested and affected individuals, organizations, agencies and governmental entities and provided a way to disseminate information about public and agency meetings, and to solicit input and provide feedback on MTP development.

Public and agency involvement included a series of strategies that were employed at key points to develop the plan, including in developing the MTP vision, goals, and objectives, in identifying regional needs, soliciting project ideas and developing evaluation criteria for ranking project priorities, and to review and obtain additional input on the plan. The public and agency involvement schedule for this MTP is shown in **Figure 3-1**.

Figure 3-1: Public and Agency Involvement Schedule



Additional Targeted Elected Official and Environmental Justice Outreach

In addition to the outreach processes noted above and regular communications with an array of stakeholders through the MPO contact list, additional targeted outreach to several elected officials, agencies, and community organizations was undertaken to further solicit input into the process, particularly by stakeholders and groups that represent environmental justice or other

traditionally underserved members of the community. One-on-one email and telephone communications were conducted to introduce the purpose of the MTP and to solicit input on the vision, goals, and objectives of the plan as well as to identify regional needs. As necessary, additional in-person interviews were conducted with interested contacts.

In addition to providing opportunities for one-on-one input from MPO Policy Board members, targeted elected officials outreach was conducted with City of Laredo and Webb County elected official representatives from the South Side of Laredo and several governmental and community organizations in the region, as noted below.

- South Texas Development Council
- US Border Patrol, Port of Entry
- United ISD
- Habitat for Humanity
- Elderly Nutrition Project
- Embarcadero Business Park
- Communities in Action
- Azteca Economic Development and Preservation Corporation
- City of Laredo Blue Ribbon Committee for People with Disabilities
- Laredo Clean Cities Coalition
- Rio Grande/Rio Bravo Basin Coalition
- Environmental Division, City of Laredo
- Barrio De Colores (BDC) community near Laredo
- Rio Grande International Study Center – Laredo
- Centro de Servicios Sociales Aztlan
- La Azteca Neighborhood Center
- Laredo Rotary
- Laredo Area Community Foundation

An Objectives-Driven Approach to Public Involvement

Establishing objectives for public outreach and measures of effectiveness to evaluate results of outreach is an important way to monitor and continue to improve public input processes in the region. The following objectives for outreach were established to ensure extensive opportunities for community input into the MTP process and to provide ways to continually monitor the success of outreach efforts and make continual improvements to outreach processes. These objectives and measures of effectiveness were evaluated following each public meeting series in the development of the plan and will continue to be reviewed as part of the MPO's commitment to a continuous, cooperative, and comprehensive public outreach process. Detailed results of these objectives and measures of effectiveness for each meeting may be found in **Appendix A**.

Table 3-1: Public Involvement Strategies and Measures of Effectiveness

Objective 1: Provide opportunities for input by a diverse stakeholder group of affected agencies and organizations in the Laredo region.	
Strategies and Tools	**Measures of Effectiveness**
Contact list	Number of representatives from each stakeholder group identified in federal regulations (23 CFR 450.316(a) and (b)) – At least one representative from each stakeholder group targeted in outreach efforts
Surveys	Number of surveys distributed to stakeholders and members of the public – at least 200
	Number of survey responses received – at least 10% of # of surveys distributed via stakeholder communications
Technical Advisory Committee meetings	At least one representative of local and state roadway, regional public transportation, and freight/railroad providers advising on the technical committee through the MTP process
Focus group meetings	Hold at least four thematic round table/focus group meetings during development of the plan to obtain input on a diversity of topics related to transportation issues
Objective 2: Raise awareness of public outreach meetings and events to reach a wide audience of Laredo residents and stakeholders.	
Strategies and Tools	**Measures of Effectiveness**
Public Notices	Postings are made available at major local government buildings/service centers
	# of people reached through email communications of public meetings – email notices sent out to at least 300 people
	Public notices posted at least 72 hours prior to public outreach events
	Public meeting notices posted/available on the MPO and Webb County websites
Press Releases/Media Coverage	# of media outlets reached through press releases – minimum of 25 outlets
	# of articles published about public meetings – at least two articles published (English and Spanish)
	Public meeting notifications posted in at least one English and Spanish publications of general circulation
	Publications of meetings includes al major formats: newspapers, electronic communications, website posting and physical postings at community/government buildings
Survey	% of respondents who heard about the meeting from varying notification sources (e.g. newspapers, advertisements, email)

Objective 3: Seek out input and participation by a diversity of Laredo residents and stakeholders, particularly those traditionally underserved by existing transportation systems, such as the disabled and elderly as well as low income and minority populations.	
Strategies and Tools	**Measures of Effectiveness**
Contact List	# of stakeholder groups representing the disabled or elderly community – at least five representative groups from public/private sector
	# of stakeholder groups identified representing Environmental Justice (i.e. Low Income and Minority) groups – at least five representative groups identified
Meeting Accessibility	Hold public meetings at locations reasonably accessible by public transportation. (All meetings within ½-mile walking distance of bus stop)
Survey	Representation of survey responses indicating low income or minority populations filled out/provided input through survey
Sign In Sheet	Mapping to indicate representation by zip code for attendees of public meetings – target representation from at least 50% of zip codes in the region.
Objective 4: Provide a public outreach process that encourages public participation in the transportation decision-making process.	
Strategies and Tools	**Measures of Effectiveness**
Meeting Locations and Scheduling	Hold at least two rounds of public meetings at each major public decision-making point at geographically diverse locations.
	Hold public meetings on weekday evenings after typical work days (5pm) and allow a window of time adequate for people to reasonably participate
Survey	# or % of respondents indicating that they felt they had an opportunity to participate and that their time was well utilized – At least 85% of survey respondent at least “agreed” that they had the opportunity to participate and that time was well utilized
Sign-In Sheets	All sign in sheets provide an opportunity for individuals to sign up to receive future communications and ways to be involved
Communication/Notification Materials	All communications provide people with contact information to answer questions and provide additional information to the public
Call for Projects	# of agencies and organizations reached in soliciting ideas on projects – at least 25 agencies and public/private organizations contacted to solicit project proposals
	Newspaper notification of public call for projects published at least 90 days before any Board action is taken to adopt plan
Objective 5: Ensure that all MTP Plan print and electronic materials communicate the Laredo MPO’s messages in a clear and effective way through the use of easy to understand language and that employs visualization techniques.	
Strategies and Tools	**Measures of Effectiveness**
MTP Logo	Development of a logo that concisely and consistently communicates information about the MTP
Meeting Materials and Notifications	All meeting materials and print notifications made available in English and Spanish
	Meeting handouts provided to clearly explain public meeting formats and ways to participate at the meeting
Surveys	85% of survey respondents that “agreed” that public meeting materials were visually appealing and easy to understand

Summary of Outreach Methods

Public and agency involvement was continuous throughout the MTP development, and targeted at several key milestones in developing the plan, as further discussed in the sections below:

- Establishing the regional vision, goals, and objectives
- Identifying regional needs and projects
- Evaluating and prioritizing projects
- Plan review and adoption

This section summarizes the methods employed to obtain input at each major project milestone. A summary of what we heard as a result of these meetings is provided as a final section to this chapter. Additional details on meetings, notes, and public involvement materials referenced may also be found in **Appendix A**.

Establishing the Regional Vision, Goals, and Objectives

Project Kickoff Meeting

A project kickoff meeting was held on Wednesday, August 20, 2018 with the Technical Advisory Committee. At this meeting, the project scope and schedule were reviewed, and members of the MPO Technical Advisory Committee were provided an opportunity to discuss their main concerns about the development and content of the MTP. The vision statement, developed through previous MTP development was discussed for any further refinement, and interactive exercises helped to further develop draft goals and objectives for the plan. The MPO Technical Committee consists of representatives of the agencies identified below.

MPO Technical Committee

City of Laredo

- City Bridge Director
- City Engineering Director
- City Planning Director
- City Traffic Safety Director
- El Metro General Manager
- Laredo International Airport Director

Webb County

- County Engineering Director
- County Planning Director
- County Rural Transit Director
- South Texas Economic Development Representative

Texas Department of Transportation

- TxDOT Laredo District Transportation Planning and Development Representative
- TxDOT Laredo District Planning Coordinator (Vice-Chair)
- TxDOT Laredo District Laredo Area Engineer
- TxDOT Transportation Planning and Programming Staff Member

Federal Highway Administration

- FHWA Planning Engineer

Private Sector

- Kansas City Southern Railroad
- Union Pacific Railroad
- Transportation Service Providers
- Laredo Independent School District Representative
- United Independent School District Representative
- Texas A&M International University (TAMIU) Representative
- Laredo Community College (LCC) Representative

Public Meetings - Series 1

The first series of public meetings was held in October 2018. The first public meeting was held on Wednesday, October 17, 2018, from 5:30 PM to 7:00 PM at the Laredo Public Library, H-E-B Multipurpose Room (1120 E. Calton Road, Laredo, TX 78041), and the second public meeting was held on Thursday, October 18, 2018 from 5:30 to 7:00 PM at the Laredo College South Campus, William M. "Billy" Hall, Jr. Student Center (5500 South Zapata Highway, Laredo, TX

78046). These meeting locations were chosen to provide opportunities for public participation in diverse locations within the region, including traditionally underserved populations in the southern portion of the region.

Various outreach methods were used to advertise the meeting and encourage public participation. Outreach efforts prior to the public meetings included:

- Email notifications with attachment including details in both English and Spanish: The first email notification was sent on October 3, 2018, and a reminder email notification was sent on October 16, 2018.
- Twitter and Facebook: The City of Laredo Public Information Officer posted an invitation to the public meetings on Facebook and Twitter.
- Press release in both English and Spanish was distributed through the City of Laredo to a list of 37 regional media outlets.
- An advertisement was placed in the *Laredo Morning Times* newspaper on Sunday, October 7, 2018; Wednesday, October 10, 2018; and Monday, October 15, 2018.
- Flyers advertising the public meetings were placed on October 8, 2018 at Laredo City Hall, Webb County Commission Court Building, the TxDOT District Office, El Metro Transit Building, public libraries, and recreational facilities.
- The Laredo MPO placed a link on their website home page to the public meeting flyer.
- Advertisements in both English and Spanish were placed in the El Metro Bus System buses to inform the transit riding public about the meeting.

The first series of public meetings was intended to introduce the planning process to the public and collect public opinions on the transportation issues and needs for the region. Approximately 36 members of the community and professionals from various entities attended the public meetings.

The public meeting was hosted in an open house format for the public to provide input at any time during the duration of the meeting. Exhibits were displayed on large posters as well as projected on a screen through a looped presentation. All exhibits were displayed in both English and Spanish. The following exhibits were presented during the public meetings:

- Transportation Planning in Laredo
- Current and Future Needs
- Regional Growth
- Roadways and Travel Trends
- Freight and Other Intermodal Conditions
- El Metro Transit
- Existing and Proposed Bicycle Facilities
- MTP Vision and Draft Goals
- MTP Draft Goals and Objectives

Upon signing in, participants were given a welcome flyer, available in both English and Spanish. Large scale aerial maps were displayed on tables to allow participants to identify and discuss transportation issues and concerns with study team members. The exhibit board “MTP Draft Goals and Objectives” involved an interactive exercise that encouraged participants to identify

their top three priorities for the Laredo region regarding draft goals and objectives of the MTP or to provide additional input on proposed goals and objectives.

The public was also provided a survey at the public meetings to obtain their input on the regional plan and to help evaluate the effectiveness of the public meetings and notifications. A follow up email was sent to meeting attendees and the Laredo MPO database of stakeholders on Monday, October 22, 2018 with an attachment of the survey in a fillable PDF form. Survey responses were requested for submission from the public by Wednesday, November 7, 2018. In total, 33 surveys were received – 15 surveys were received at the October 17 public meeting, 3 surveys were received at the October 18 public meeting, and 15 surveys were received by email.

Identifying Regional Needs and Projects

In follow up to initial meetings to establish vision, goals, and objectives of the plan, several outreach methods were initiated to obtain additional input from the public and stakeholder organizations on regional needs and potential projects, including focus group meetings, additional targeted outreach efforts to elected officials and representatives of environmental justice populations in the region, and issuance of a public and agency call for projects.

Focus Group Meetings

The Laredo MPO hosted a series of focus group meetings to obtain additional input from a variety of perspectives at the Traffic Safety Conference Room (5512 Thomas Ave, Laredo, TX 78041) on Wednesday, November 14, 2018 and Thursday, November 15, 2018. The purpose of the meetings was to explore "what it will take" to satisfy the mobility needs of the Laredo MPO region, from public sector transportation investments and land use policies to private sector economic and community development initiatives. Detailed summaries of discussion topics, invitees, and attendees can be found in **Appendix A**. The five roundtables were organized around the following five themes:

- **Freight, Goods Movements, and Economic Strategy**: A forum for regional carriers, shippers, and members of the international trade industry focused on issues related to the transportation system's capacity, accessibility, and reliability for freight and goods movement and economic development, both now and in the future.
- **Safety, Security, and Resiliency**: A forum for public and private agencies focused on the environmental sustainability, safety, and security of local residents to discuss how the transportation system can best address emergency response and preparedness issues, border control and security, and environmental and resiliency issues over the next 25 years.
- **System Preservation, Congestion Management, and Transportation Systems Management and Operational Efficiency**: A forum of local and statewide agency representatives tasked with transportation system preservation and operational efficiency to discuss the roles of congestion management, intelligent transportation systems, and other transportation demand management strategies in enhancing the long-term maintenance and operation of the existing system and addressing capacity constraints.

- **Multimodal Integration and Accessibility**: A forum for public transportation service providers, local government representatives, and related community service organizations focused on regional strategies to enhance accessibility and effectively integrate all transportation modes to meet the mobility needs of the region and best serve people of all ages and abilities.
- **Travel, Tourism, and Economic Development**: A forum for members of both public and private sector agencies and organizations that will play a key role in the future development of the region, focused on ways to optimize and coordinate transportation and land development, promote economic development, and address issues related to travel and tourism that impact the region's quality of life and economic development initiatives.

These topics were defined through initial outreach efforts in identifying goals, objectives and needs in the region, and were cross referenced against the federally required planning factors to ensure a comprehensive and coordinated planning process, as indicated in **Table 3-2**.

Table 3-2: Focus Group Meetings and Federal Planning Factor Considerations

	Federal Planning Factors	Focus Group				
		1	2	3	4	5
1	Support **economic vitality**	X				X
2	Increase **safety**		X			
3	Increase **security**		X			
4	Increase **accessibility and mobility**				X	
5	Improve **quality of life, environment, energy conservation**		X		X	
6	Enhance **integration and connectivity** across and between modes	X			X	X
7	Promote **system management and operation**	X	X	X		
8	Emphasize **preservation** of the existing system	X	X	X		
9	Improve **resiliency and reliability**		X	X		
10	Enhance **travel and tourism**					X

Other Targeted Outreach Efforts

Between December 2018 and April 2019, the project team also conducted one-on-one outreach in the form of emails, phone calls, and as needed, one-on-one meetings with members of the MPO Policy Board, City and County elected officials, and community groups to solicit additional feedback and input on the MTP development.

Project Nomination Forms

The Laredo MPO issued a call for projects on December 10, 2018 for inclusion in the 2020-2045 MTP. Public agencies and members of the public were invited to nominate projects. A notification email was sent to the Laredo MPO contacts database that includes stakeholders and interested parties to inform of the call for projects. The notification email included the notification form and instructions for completion of the nomination form. Separate nomination forms were developed for members of the public and public agency sponsors to provide more streamlined information gathering from public ideas for projects than from agencies. The nomination form for the public agency sponsors required information on the scope, schedule, and budget of nominated projects. The nomination form for the public was a simplified

nomination form, requiring less specific project information. The form instructions, members of the public nomination form, and the public agency sponsors nomination form can be found in **Appendix A**.

To comply with the Laredo MPO PPP, a bilingual project nomination form was also advertised in English and Spanish in the *Laredo Morning Times* on Monday, December 10, 2018. Links to the project nomination instructions, the members of the public nomination form, and the public agencies sponsor nomination form were posted online at the Laredo MPO website. The project nomination period was from December 10, 2018 to January 31, 2019.

Evaluating and Prioritizing Projects

Technical Advisory Committee Meetings

A meeting was held on July 15, 2019 with the Technical Advisory Committee. During this meeting, the goals, objectives, and performance measures and targets were reviewed. In addition, the proposed project list was presented. During a following meeting on September 10, 2019, members of the MPO Technical Advisory Committee completed subjective scores as part of the project prioritization process.

TxDOT Coordination

On July 16, 2019, a meeting with TxDOT was held to review the proposed project list and discuss any gaps. This meeting provided TxDOT the opportunity to provide comments on the project list and ensure that all necessary projects were captured.

The revenue forecasting and prioritized project list was coordinated with TxDOT during August 2019. Coordination gave TxDOT the opportunity to comment on the revenue forecasting and the prioritized project list.

MPO Policy Committee Meetings

A presentation to the MPO Policy Committee was held on July 15, 2019 to review the goals, objectives, and performance measures and targets. The MPO Policy Committee was provided the list of projects and the evaluation criteria.

Plan Review and Input

Presentations to MPO Committees

A presentation to the MPO Policy Committee was held on October 21, 2019 to present the draft MTP and key findings. This presentation initiated the comment period for the full draft MTP.

During the MPO Policy Committee Meeting on January 21, 2019, a presentation was held to review any comments received on the draft MTP during the comment period, and how these comments were addressed. The formal adoption of the 2020-2045 MTP occurred at this MPO Policy Committee meeting.

Public Meetings - Series 2

The second series of public meetings was held in November 2019. The first public meeting was held on Tuesday, November 5, 2019, from 5:30 PM to 7:00 PM at the Laredo Public Library, H-E-B Multipurpose Room (120 E. Calton Road, Laredo, TX 78041), and the second public meeting was held on Wednesday, November 6, 2019 from 5:50 PM to 7:00 PM at the City Hall Chambers (1110 Houston Street, Laredo, TX 78040). The second series of public meetings focused on presenting the draft MTP and highlighting key findings.

Various outreach methods were used to advertise the meeting and encourage public participation. Outreach efforts prior to the public meetings included:

- Email notifications with attachment including details in both English and Spanish: The first email notification was sent on October 22, 2019, and a reminder email notification was sent on October 31, 2019.
- Twitter and Facebook: The City of Laredo Public Information Officer posted an invitation to the public meetings on Facebook and Twitter.
- Press release in both English and Spanish was distributed through the City of Laredo to a list of 37 regional media outlets.
- An advertisement was placed in the *Laredo Morning Times* newspaper on Sunday, October 27, 2019; and Sunday, November 3, 2019.
- Flyers advertising the public meetings were placed on October 25, 2019 at Laredo City Hall, Webb County Commission Court Building, the TxDOT District Office, El Metro Transit Building, public libraries, and recreational facilities.
- The Laredo MPO placed a link on their website home page to the Draft 2045 MTP.
- Advertisements in both English and Spanish were placed in the El Metro Bus System buses to inform the transit riding public about the meeting.

The second series of public meetings was intended to collect public opinions on published Draft 2045 MTP. Approximately 43 members of the community and professionals from various entities attended the public meetings.

The public meeting was hosted in an open house format for the public to provide input at any time during the duration of the meeting. Exhibits were displayed on large posters as well as projected on a screen through a looped presentation. All exhibits were displayed in both English and Spanish. The following exhibits were presented during the public meetings:

- Transportation Planning in Laredo

- Current and Future Needs
- Regional Growth
- Roadways and Travel Trends
- Freight and Other Intermodal Conditions
- El Metro Transit
- Existing and Proposed Bicycle Facilities
- MTP Vision and Draft Goals
- MTP Draft Goals and Objectives

Large scale aerial maps were displayed on tables to allow participants to identify and discuss transportation issues and concerns with study team members. The public was also provided a survey at the public meetings to obtain their input on the regional plan and to help evaluate the effectiveness of the public meetings and notifications. In total, XX surveys were received.

What We Heard

Key Themes

Several themes emerged from the public input received for the development of the 2020-2045 MTP. Overall, Laredo residents are frustrated with the increasing levels of congestion and concerned about aging and deteriorating infrastructure. As a national leader in international trade, Laredo experiences significant freight congestion and use of the roadways by heavy commercial trucks. The community desires to accommodate freight movements while maintaining safe communities, a state of good repair, and a high quality of life. Many also desire more transportation options, with a preference for more bicycle lanes over new roads. New bicycle lanes are a viable mode of travel, with the majority of citizens who filled out surveys (57%) indicating that a typical one-way commute is only between 1-5 miles.

Common Themes from Public Input

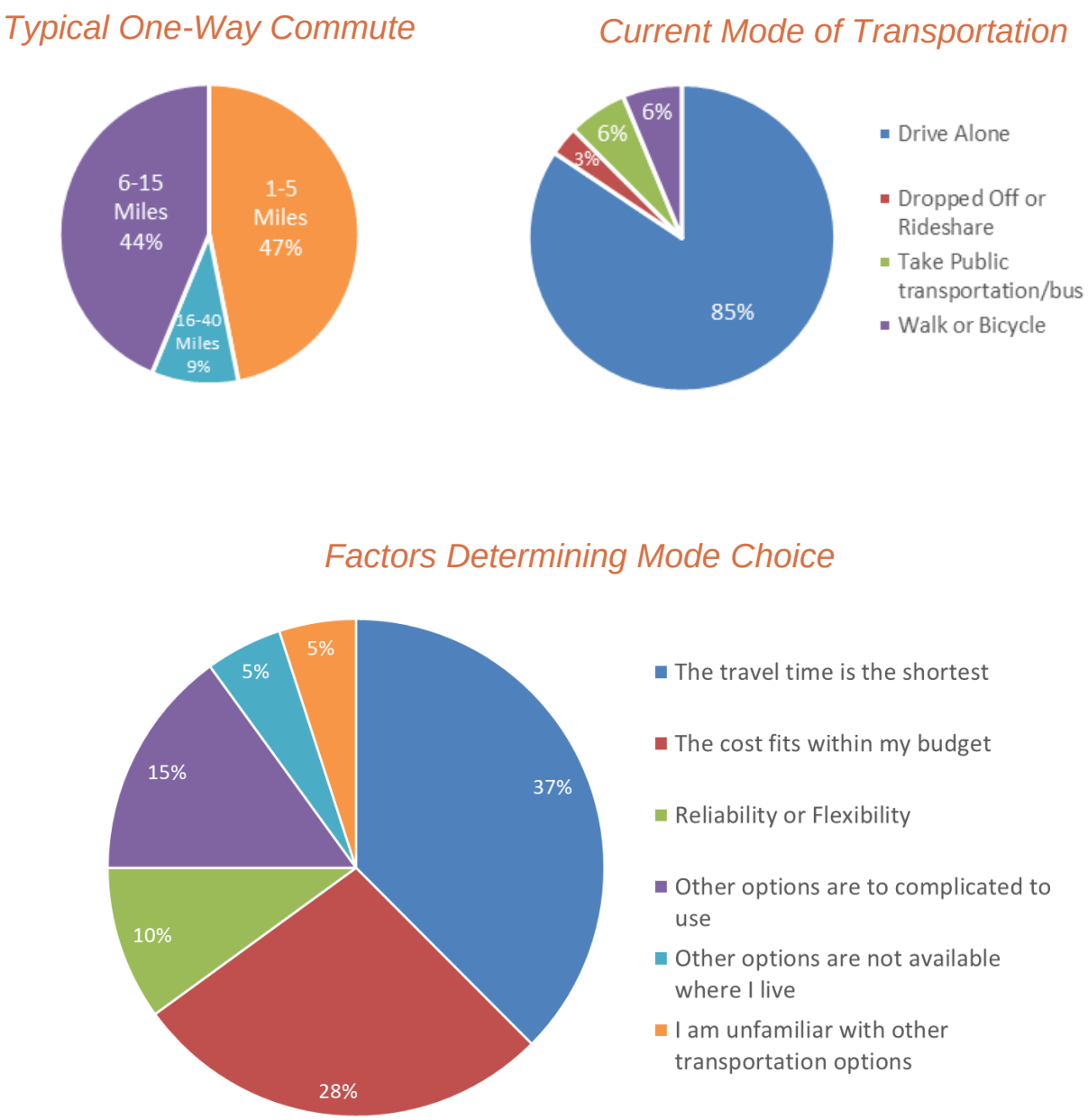
Frustration with congestion

Balance freight traffic with quality of life concerns

Invest in more transportation options, including bicycle lanes and transit

Maintain a state of good repair

Figure 3-2: Public Survey Results - Key Themes



Vision, Goals, and Objectives

The vision, goals, and objectives of the 2020-2045 Laredo MTP will guide policy recommendations, project selection, and ultimately transportation investments in the region. The vision, goals, and objectives reflect input received from the MPO Policy Board and Technical Advisory Committee, the public and elected officials during meetings and other targeted outreach, and policy and legislative guidance. The vision defines the overall direction of long-range transportation planning efforts within the Laredo region, while the goals and objectives provide a strategic framework for establishing priorities and policies through the planning process.

Vision Statement

Develop a transportation system that offers safe, efficient, affordable travel choices for people and goods, while supporting economic development and long-term quality of life.

Goals and Objectives

To support the regional vision, this MTP includes a series of goals and objectives that reflect the regional values and satisfy long-term transportation needs. The goals serve as a guide to achieve the vision statement, and the objectives define results that must be attained or actions that must be followed.

The goals and objectives of this plan were based on policy guidance and community priorities collected during the October 2018 public meetings. The goals and objectives are aligned with state plans, federal guidelines, and are compliant with the requirements of the FAST Act.

Goal 1

Provide a transportation network that is safe and secure for all transportation modes and all system users.

Objectives:

- Support projects that address existing and identified safety or security needs
- Support projects, programs, and strategies that advance safe and secure travel for all users.
- Continue coordination with TxDOT to meet federal safety performance targets.

Goal 2

Sustain the region's existing transportation assets and infrastructure over the planning horizon.

Objectives

- Maintain existing roadway assets as a priority, before system expansion in considered.
- Promote construction/maintenance techniques, materials, and practices that maximize life cycles of roadway facilities and reduce maintenance needs.
- Support projects, programs, and strategies to better manage travel demand on existing infrastructure before adding new infrastructure.

Goal 3

Promote an efficient network and system operations to maintain travel time reliability and reduce congestion in moving people and goods within and throughout the region

Objectives

- Manage congestion by supporting projects, programs and strategies to maintain or improve travel time reliability and congestion.
- Address critical congestion management plan (CMP) network interstate and highway bottlenecks as a priority.
- Improve system operations through technology applications

Goal 4

Foster continued economic vitality by providing an effective and efficient freight network and supporting access to jobs and major destinations in the region.

Objectives

- Ensure the region is well positioned to remain a leader in global logistics and freight movement
- Support projects, programs and strategies to alleviate truck bottlenecks and improve truck travel times.
- Maintain or reduce average travel times to major economic centers in the region.
- Support projects, policies, and strategies to enhance safe movements between freight and other modes.
- Provide alternative access to single occupancy vehicle commuting and provide first and last mile connections to major economic destinations.

- Encourage tourism my developing efficient multimodal connections to and between downtown, the airport, recreational locations, schools, shopping and other key destinations in the region.

Goal 5

Develop an integrated and connected transportation network that encourages vibrant, affordable, and equitable communities.

Objectives

- Support projects, programs, and strategies to alleviate congestion and maintain or improve community affordability.
- Create a balanced built environment where existing and planned land uses are supported by an efficient multimodal system.
- Support complete streets solutions and no-motorized and alternative transportation access to safety sensitive locations in the region, including schools, recreational facilities, in downtown and where conflicts are most present.
- Support the equitable funding of transportation investments in Environmental Justice communities in the region.

Performance Measures and Targets

The goals and objectives provided the framework for the region. In accordance with FAST Act requirements, and following technical analysis, these goals and objectives were used to establish key performance measures and targets to allow the MTP to be continually monitored and updated, as needed, to address the goals and objectives of this plan. Additional details on performance measures and targets developed for this plan are further discussed in **Chapter 12**.

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Chapter 4: Roadways, Border Crossings, and Bridges

Introduction

The Laredo MPO region's roadways, border crossings, and bridges provide the foundation of the transportation system, facilitating the movement of people and goods within and throughout the region. This infrastructure also forms the backbone for other modal systems in the region, such as transit bus routes that operate along these facilities and bicycle and pedestrian facilities that are often collocated with roadway corridors.

This chapter discusses this interconnected network of roadways, border crossings, and bridges within the region. It then provides information on both current and future conditions of this infrastructure to identify needs through the 2045 planning horizon. Based on the identification of needs, this chapter also provides a series of strategies that will feed into project selection and evaluation over the 2045 planning horizon.

Overview of Roadways, Bridges and Border Crossings in the Region

Roadways

There are a number of ways in which roadways are categorized and designated that are important to understand how the regional roadway network functions and is monitored and funded. At the most basic level are roadway function classifications, which groups roadways into categories according to their function. Additionally, at a federal level, several designations exist to define major roadways that provide national connectivity and help to prioritize roadway investments to meet strategic national goals and objectives.

Functional Classifications

Two important variables define roadway function: mobility and access. Freeways provide the highest level of mobility and the lowest level of access. Local streets, on the other hand, provide local access to businesses and residences and are not intended for travel over long distances. **Table 4-1** provides additional details regarding the functional classification categories and examples within the Laredo MPO regional roadway network. For the purposes of this MTP, the Federal Highway Administration (FHWA's) functional classification scheme is used.

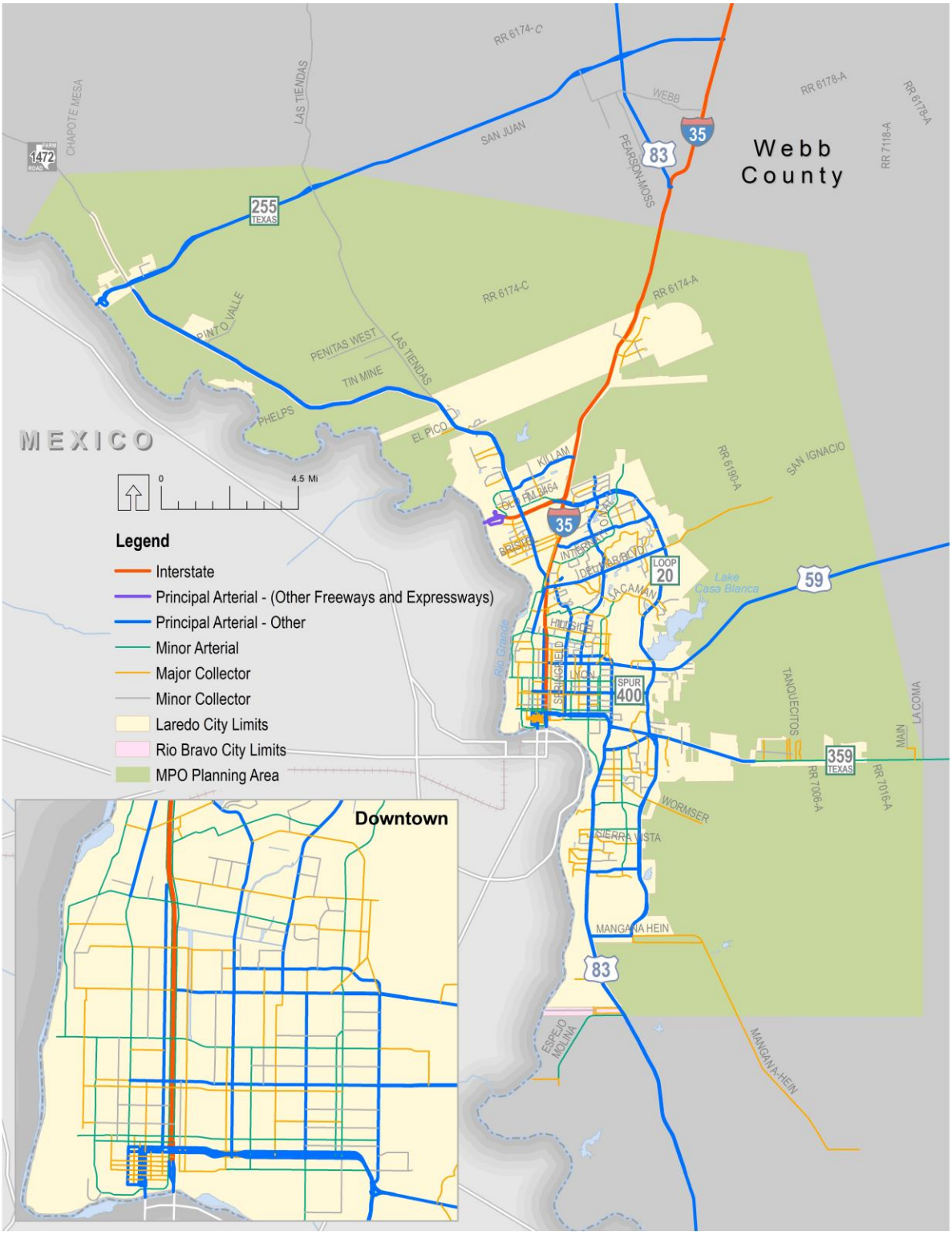
The functional classification system should be routinely reviewed to ensure that road use and function is consistent with current travel patterns. **Figure 4-1** shows the functional classifications of the roadway network in the Laredo MPO region. Federal-aid highways, that is those that are eligible for federal funding under 23 USC 101(a)(6), include any public highway eligible for assistance other than a local road or rural minor collector.

Table 4-1: Functional Classification Definitions

Functional Classification	Characteristics	Example	Jurisdiction
Interstate	• High speed, divided highway with full control of access and grade separated interchanges • Moves inter- and intra-regional traffic, particularly long trips in high traffic volume corridors. Provides access between cities and across metropolitan areas • Normally in excess of 20,000 vehicles per day • Formally designated by US DOT	Interstate 35	National Highway System (NHS)
Other Freeway	• High speed, divided highway with full control of access and grade separated interchanges crossing metropolitan areas and between major activity centers (2 or more miles) • Normally in excess of 20,000 vehicles per day	Loop 20 at World Trade Bridge	National Highway System (NHS)
Principal Arterial	• Typically, a divided street with major access points at intersections with the surface street system. Some direct access permitted to abutting land uses • Serves major centers of activity, with service to abutting land uses secondary to the provision of travel service • Normally 10,000 to 30,000 vehicles per day	McPherson Blvd US 83 (Zapata Hwy)	National Highway System (NHS)
Minor Arterial	• Number of lanes and type of median directly relate to traffic volumes and abutting land use • Augments and feeds primary arterial system and distributes traffic to geographic areas smaller than those served by the higher system, with	Springfield Ave Meadow Ave south of Chihuahua St	Not NHS

Functional Classification	Characteristics	Example	Jurisdiction
	more emphasis on service to abutting land uses • Normally 5,000 to 15,000 vehicles per day		
Collector	• High access to local streets and driveways connecting local streets to the arterial system. • Typically used for trips that are near their origin or destination point, primarily connecting neighborhoods within and among sub-regions • Normally 1,500 to 10,000 vehicles per day	Fenwick Dr La Pita Mangana Rd	Not NHS
Local	• High access to driveways • Provides direct access to abutting property • Normally 1,500 or fewer vehicles per day	Basswood Dr Madera Ave	Not NHS

Figure 4-1 Functional Classification of Roadways



Source: Texas Department of Transportation GIS Data

Within the Laredo region, major interstates and freeways include Interstate 35 (IH 35), Business Interstate 35 (BI 35), and Loop 20 (Bob Bullock Loop). Several principal arterials also provide primary regional connectivity, including US Highway 59 (US 59), US 83, State Highway 255 (SH 255), SH 359, and others. The major interstates, freeways, and principal arterials within the Laredo MPO region, and information on daily traffic volumes are summarized below in **Table 4-2**.

Table 4-2: Characteristics of Major Roadways in Laredo MPO

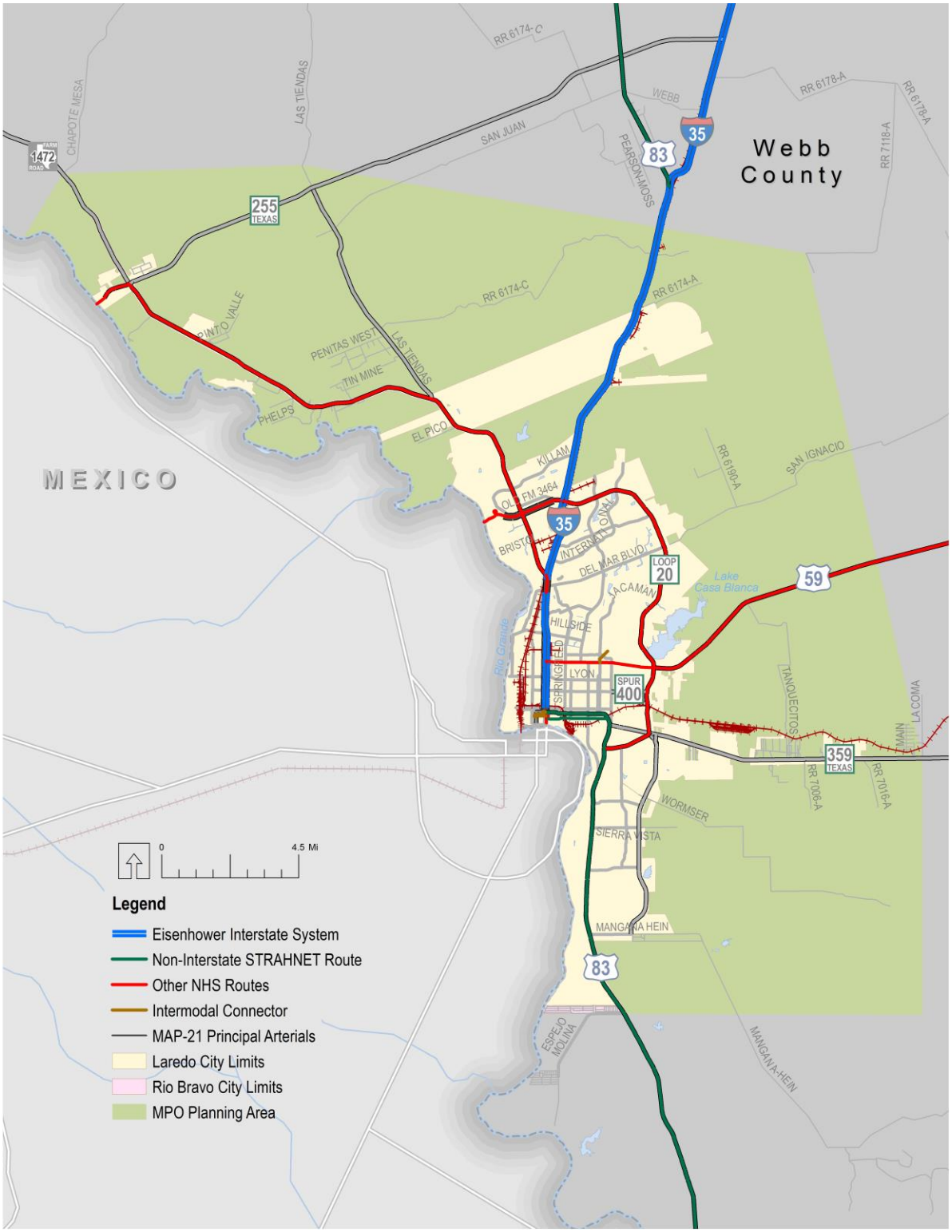
Roadway	Functional Classification	Vehicles Per Day (VPD)
IH 35	Interstate	20,000 – 113,000
BI 35	Interstate	11,600 – 14,300
US 59	Principal Arterial - Other	2,200 – 31,400
US 83	Principal Arterial - Other	6,700 – 38,200
Loop 20 (Bob Bullock Loop)	Principal Arterial - Other	21,200 – 64,200
SH 255	Principal Arterial - Other	1,135 – 3,800
SH 359	Principal Arterial / Minor Arterial	12,800 – 28,400
State Spur 400	Principal Arterial - Other	15,400
State Spur 260	Principal Arterial - Other	16,000 – 20,100
FM 1472	Principal Arterial - Other	900 – 44,700
FM 3338	Principal Arterial - Other	500 – 2,000

National Highway System

In addition to functional classifications, the federal government has designated a series of roadways into the National Highway System (NHS). The NHS was developed by the US Department of Transportation in cooperation with the states, local officials, and Metropolitan Planning Organizations. These NHS roadways are comprised of the Interstate Highway System and other roads that are important to the nation's economy, defense, and mobility, and are eligible to receive federal NHS funding. The following roadways in the Laredo MPO region are part of the NHS: IH 35, US 59, US 83, State Spur 20 (Bob Bullock Loop), SH 359, and FM 1472. The NHS within the Laredo MPO area is shown in **Figure 4-2**. The Laredo MPO continues to coordinate with TxDOT on adoption of any principal arterials onto the NHS.

Within the NHS, the Strategic Highway Network (STRAHNET) is an additional designated network of highways which provide defense access, continuity, and emergency capabilities for defense purposes. Roadways within the Laredo MPO area under the STRAHNET designation include IH 35 and US 83.

Figure 4-2: National Highway System Roadways



Source: USDOT Bureau of Transportation Statistics

National Highway Freight Network

The FAST Act provided for a new National Highway Freight Network (NHFN). The designation of the NHFN serves to strategically direct federal resources and policies toward improved performance of highway portions of the freight transportation system. The NHFN includes four subsystems of roadways.

- **Primary Highway Freight System (PHFS):** The most critical highway portions of the US freight transportation system.
- **Other Interstate portions not on the PHFS:** The remaining Interstate highways not included on the PHFS. These routes provide important continuity and access to freight transportation facilities.
- **Critical Rural Freight Corridors (CRFCs):** Public roads not in an urbanized area that provide access and connection to important freight facilities
- **Critical Urban Freight Corridors (CUFCs):** Public roads in urbanized areas that provide access and connection to important freight and intermodal facilities

Within the Laredo MPO area, there are 19 miles of the PHFS as part of the NHFN. The other NHFN subsystems are not represented within the Laredo MPO region.

Roadways on the NHFN in the Laredo MPO region, shown in **Figure 4-3**, include: IH-35 as far as the end of its Interstate Highway designation at Victoria Street; US 59 from IH-35 east to Bartlett Avenue; and the Bartlett Ave / Maher Avenue connection to the industrial area on the west side of the Laredo International Airport at Pappas Street.

National Multimodal Freight Network

In addition to the NHFN designation, the FAST Act also provided for a new National Multimodal Freight Network (NMFN). The purpose of the NMFN is to:

- Strategically direct resources toward improved system performance for the efficient movement of freight
- Inform freight transportation planning
- Assist in the prioritization of Federal investments
- Evaluate and support investments to achieve national goals

An Interim National Multimodal Freight Network (Interim NMFN) was established in 2016 for public comment, and the public comment period ended in February 2018. The Interim NMFN consists of the NHFN, the freight rail systems of Class I railroads, public ports of the United States that have total annual foreign and domestic trade of at least 2,000,000 short tons, the inland and intracoastal waterways of the United States, Great Lakes, the St. Lawrence Seaway, and coastal and ocean routes along which domestic freight is transported, the 50 airports located in the United States with the highest annual landed weight, and other strategic freight assets such as railroad connectors and border crossings.

Figure 4-3: National Highway Freight Network Roadways

Source: USDOT Bureau of Transportation Statistics GIS Data

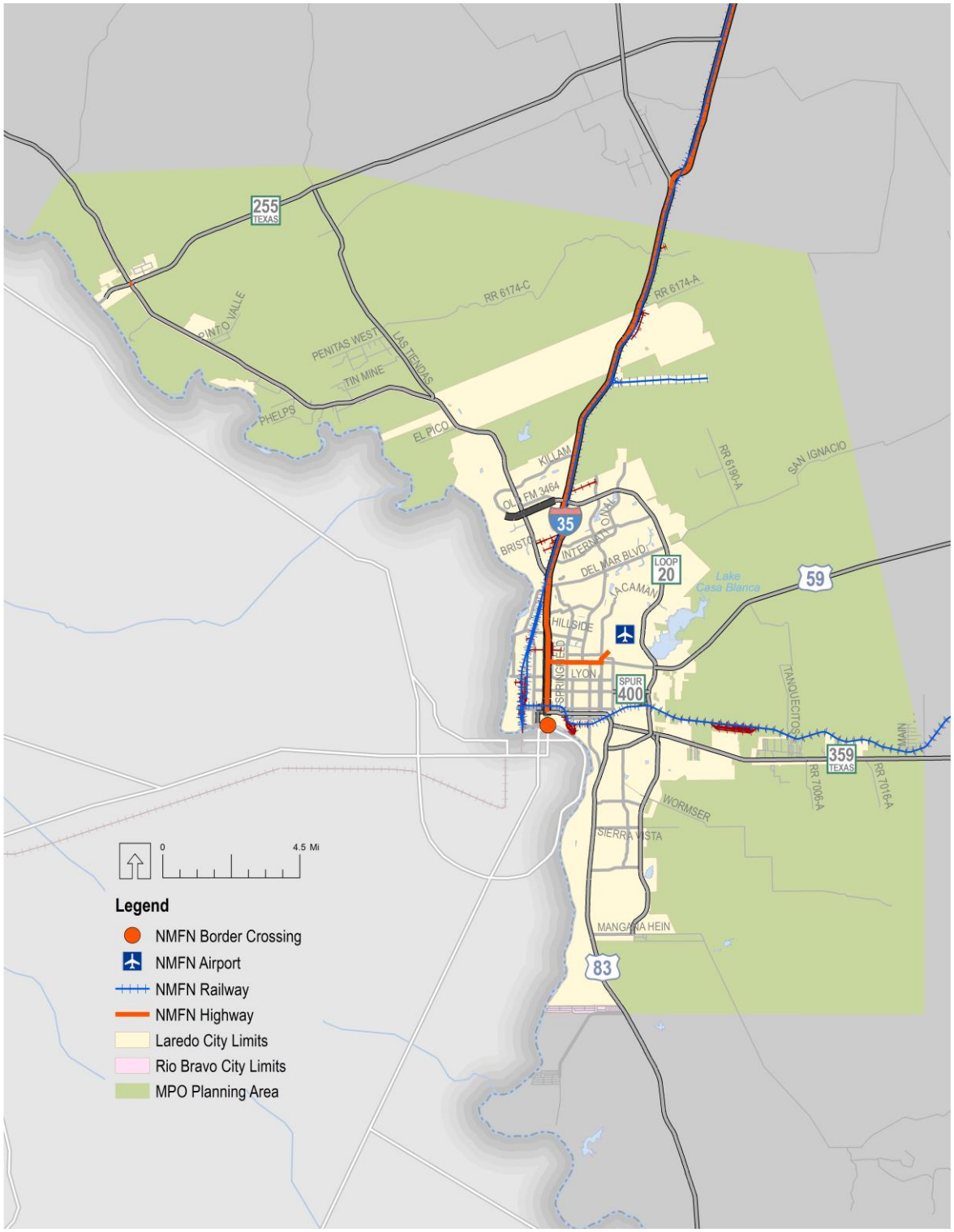
Components of the NMFN within the Laredo MPO area are mapped in **Figure 4-4**. These components include:

- *Airports*: Laredo International Airport (LRD)
- *Border Crossings*: Lincoln-Juarez/Bridge #2
- *Highways*: 19 miles total consisting of the NHFN designations of I-35, US 59, Bartlett Avenue, and Maher Avenue
- *Railways*: 40 miles total consisting of KCS and Union Pacific (UP) railroads

Congestion Management Process

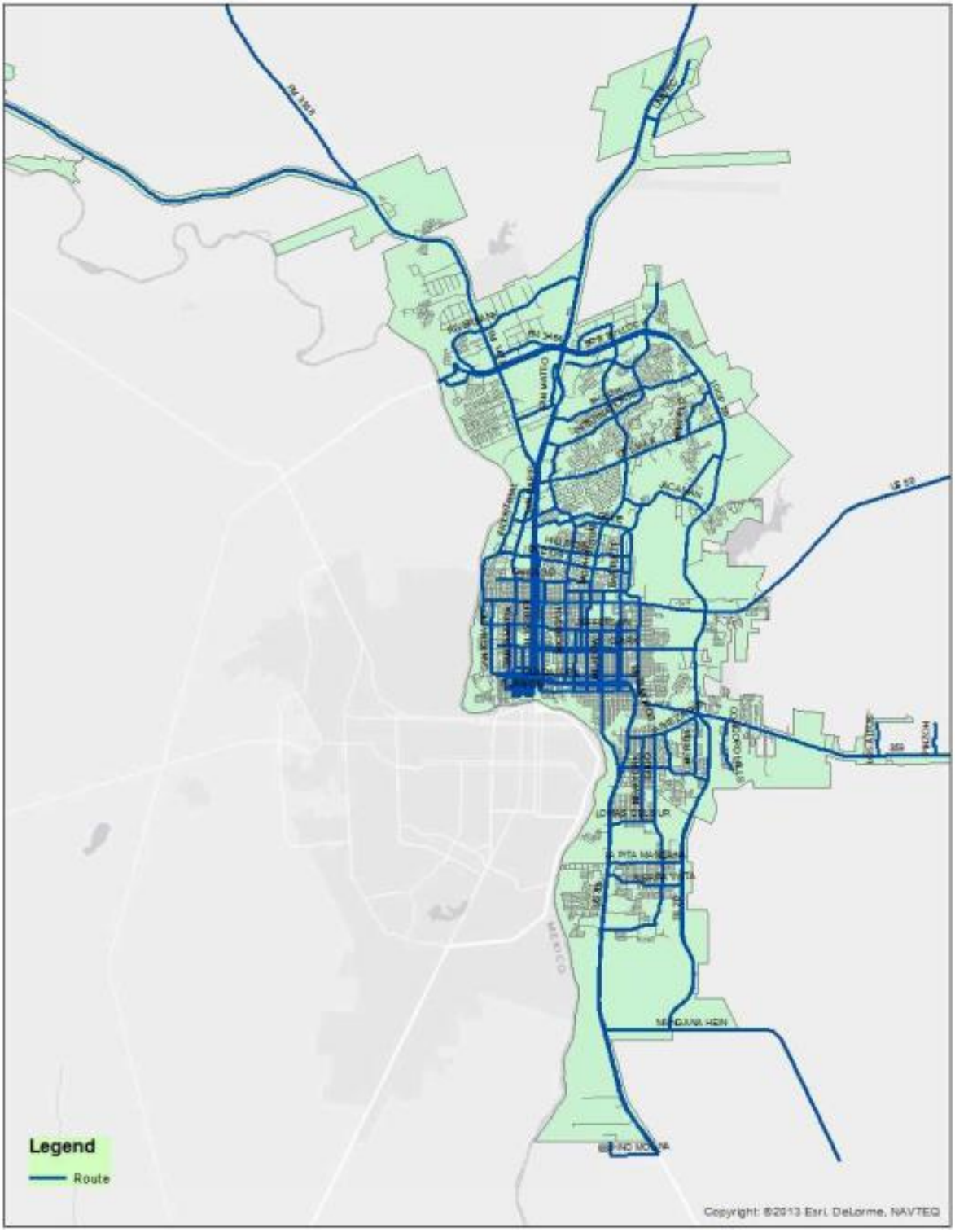
Per federal regulations, the Laredo MPO has formulated a Congestion Management Process (CMP) to relieve congestion and prevent congestion from occurring where it does not occur to the greatest extent possible. Congestion affects IH and non-IH travel time reliability, one of the performance measures established by TxDOT as required by the FAST Act. The Laredo MPO's congestion management process considers congestion management strategies including travel demand reduction and operations management strategies. **Figure 4-5** shows the roadways managed by the Laredo MPO's congestion management plan.

Figure 4-4: National Multimodal Freight Network



Source: USDOT Bureau of Transportation Statistics GIS Data

Figure 4-5: Congestion Management Boundary



Source: Laredo MPO

Border Crossings and Bridges

Of the 29 international roadway border crossings between the US and Mexico in the State of Texas, four are in the Laredo MPO area and collectively make up the **City of Laredo International Bridge System**. They are as follows, from south to north:

- The **Juarez-Lincoln International Bridge (Bridge #2)** consists of eight lanes and is reserved for buses and non-commercial auto traffic.
- The **Gateway to the Americas International Bridge (Bridge #1)** consists of four lanes with two pedestrian walkways and is open to all traffic.
- The **KCS International Railroad Bridge** is a railroad bridge connecting the northern termini of the Kansas City Southern Railway to the western termini of the Texas-Mexican Railway.
- The **World Trade International Bridge (Bridge #4)** is a 14-lane bridge reserved solely for commercial traffic.
- The **Laredo Columbia Solidarity Bridge (Bridge #3)** consists of eight lanes and is open to all traffic.

Figure 4-6 shows the location of each of these border crossings within the larger context of the Laredo MPO region. Due to the status of Laredo as the premier trade hub between Mexico and the US, travel from Mexico to the US and vice versa is critical to the economy and society of Laredo.

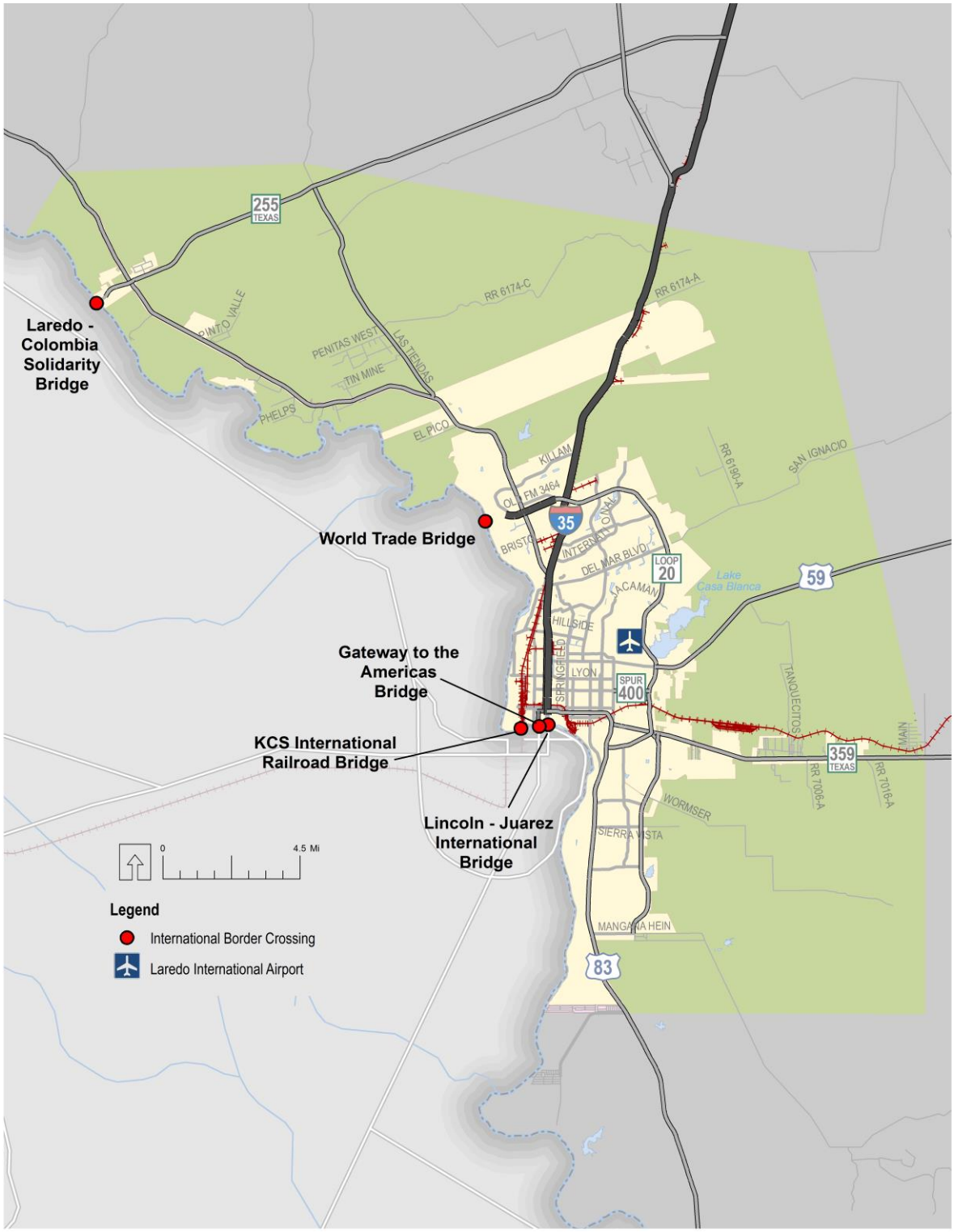
There is a proposed fifth border crossing, the Laredo V International Bridge, that is intended to relieve commercial traffic at the World Trade International Bridge. Currently more work on planning and constructing the bridge is pending submission of one consolidated application from Webb County and the City of Laredo and approval from Mexican officials. **Table 4-3** shows the current toll rates for traveling through border crossings. All four bridges in the Laredo Bridge System, except for the Gateway to the Americas Bridge, offers a “Laredo Trade Tag” (LTT), which is based on an Automatic Vehicle Identification (AVI) system and enables both commercial and non-commercial customers an alternative form of toll payment.

Table 4-3: Toll Rates of Laredo International Bridge System

Mode of Travel	Toll Rate
Pedestrian/Bicyclist	$1.00
Non-Commercial	$1.75 per axle
Commercial	$4.75 per axle

Source: City of Laredo

Figure 4-6: International Border Crossings



Source: City of Laredo, International Bridge System

Understanding Infrastructure Conditions and Needs

To understand regional needs for roadways, border crossings, and bridges in the region, an analysis of current and historic data was conducted and future 2045 conditions were modeled to understand both existing and future needs through the 2045 planning horizon.

Roadway Conditions and Needs

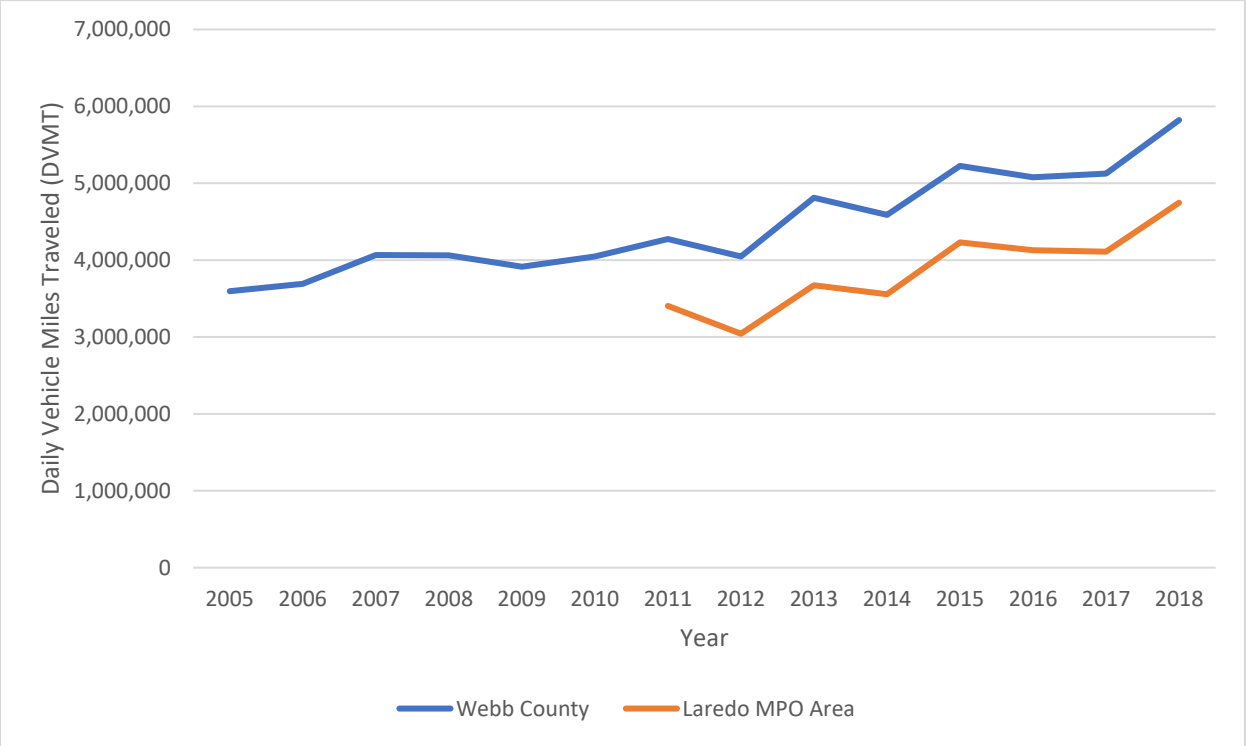
Several variables used to evaluate roadway conditions and needs, including vehicle miles traveled (VMT), daily traffic volumes, truck volumes, level of service (LOS), and roadway crash data, were used to identify current roadway conditions and address roadway needs in the Laredo MPO area.

Vehicle Miles Traveled

Vehicle-Miles Traveled (VMT) is the total number of miles driven by all vehicles within a given time and geographic area. VMT is important in evaluating how well transportation investments and land use policies work together, and directly affects gas consumption, emissions, and traffic patterns. It is influenced by factors such as population, the number of vehicles per household, the number of car trips per day, and distance traveled.

TxDOT as published historic Daily Vehicle Miles Traveled (DVMT) at the county level from 2005 to 2017. The Laredo MPO coordinated with the TxDOT Transportation Planning and Programming Division (TxDOT-TPP) to collect historic DVMT at the MPO area scale. TxDOT-TPP provided the Laredo MPO with historic DVMT for the years 2011 to 2018. As such, to provide a historic understanding of DVMT, TxDOT data for Webb County for years 2005 to 2017 and for the Laredo MPO area for the years 2011-2018 are shown summarized in **Figure 4-7**.

Figure 4-7: Daily Vehicle Miles Traveled, TxDOT Laredo District



Source: TxDOT, Transportation Planning and Programming Division

In the Laredo MPO area, DVMT during the time period shows an overall increase from between 2011 to 2018. The DVMT for the Laredo MPO area is the highest on record from the historic DVMT data. Based on the Laredo MPO Travel Demand Model projections, DVMT is expected to grow by about 3 percent annually over the next 25 years.

Without a shift away from vehicular travel as the primary mode of choice in the region in the future, a greater increase in DVMT can be expected to occur. In addition, as new mobility options like ride hailing, car sharing services, and other advancements like automated and connected vehicles become a reality, these technologies may in fact lead to higher VMT levels that will need to be addressed. While these technologies offer more integrated and seamless travel options for people, they can also increase the total VMT for making trips and will require strong and continued regional, state and federal policies coordination and monitoring to address these future technological advancements.

Daily Traffic Volumes

Historic traffic volumes were reviewed to understand changes in traffic volumes in the region over time. **Table 4-4** presents the absolute growth and percent growth for locations that experienced high increase in daily traffic volumes between 2007 and 2017. The most significant growth occurred along State Loop 20, which highlights the growing importance of the roadway and the increasing population and development pressure in this part of the region. In light of the significant growth in traffic on and along State Loop 20, improvements to reduce congestion at

the State Loop 20 / Spur 400 intersection are under construction. Additionally, TxDOT is proposing improvements to 24 miles of IH 35 in the northern part of the Laredo MPO area. The Webb County City of Laredo Regional Mobility Authority (WC-CL RMA) is also vigorously investigating methods of funding for the upgrade of Loop 20 South (Cuatro Vientos) from US 59 to the new proposed Port of Entry (Bridge 5).

Table 4-4: High Traffic Volume Growth Locations

Roadway	Location	2007	2017	Absolute Growth	Annual Growth Rate
Loop 20 (Bob Bullock Loop)	Between Wormser Pipe Road and Loma Del Sur Boulevard	0	27,917	27,917	-
Loop 20 (Bob Bullock Loop)	Between Ben Cha Drive and SH 359	41,000	64,158	23,158	4.56%
US 83	Between Mines Road and San Dario Avenue	87,000	101,004	14,004	1.50%
Loop 20 (Bob Bullock Loop)	Between River Bank Drive and Mines Road	0	21,220	21,220	-
Loop 20 (Bob Bullock Loop)	Between Mines Road and I-35	31,000	47,335	16,335	4.32%
Loop 20 (Bob Bullock Loop)	Between I-35 and McPherson Road	33,000	45,810	12,810	3.33%
US 59	Between Loop 20 and Casa Blanca Road	0	29,078	29,078	-
Loop 20 (Bob Bullock Loop)	Between E Saunders Street and Clark Boulevard	41,000	60,341	19,341	3.94%
Loop 20 (Bob Bullock Loop)	Between E Saunders Street and Casa Blanca Road	28,000	48,727	20,727	5.7%
I-35	Between Martineta Road and County Line	0	19,077	19,077	-

Source: TxDOT, Transportation Planning and Programming Division

Truck Volumes

The trucking industry plays a vital role in the movement of freight through the region. Texas Roadway Inventory obtained from the TxDOT website was used in calculating trends in truck traffic in the region. The Texas Roadway Inventory contains various truck percentages and total ADT for the year 2017. Truck percentages were thus applied to total ADT counts to obtain truck traffic. The location with the highest observed truck volumes in 2017 was along I-35 between Del Mar Boulevard and International Boulevard. **Table 4-5** shows the locations with the highest truck ADT for the year 2017 and the associated truck volumes along with their proportion of total traffic. Around the freight hubs on the north side of Laredo on IH 35, US 59, and State Loop 20, trucks are a very large percentage of total traffic, ranging from 26% to 60% at count locations. This causes a variety of issues, including conflicts between trucks and vehicles, poor safety for bicyclists and pedestrians, poorly accommodated turning movements, pollution impacting the environment and the health of residents, and poor pavement quality.

Currently, there is no region-specific comprehensive freight master plan in place; however, statewide freight plans consider Laredo freight needs such as the Texas Freight Mobility Plan and the International Border Master Plan. Given the large part that freight plays in the continued economic vitality of the region, the number of interests and multimodal owners of transportation infrastructure, and the freight network's associated impacts on safety and infrastructure conditions now and into the future, developing a regional master freight plan to complement and enhance statewide planning efforts is an identified need in the near-term. The MPO has allocated funds for the development of a long-range freight plan, currently programmed in the 2018 Unified Planning Work Program. In addition, the Laredo MPO is currently working to include a representative of the local freight industry as a member of the MPO Policy Committee and the MPO Technical Committee.

Table 4-5: High Truck Traffic Volume Locations

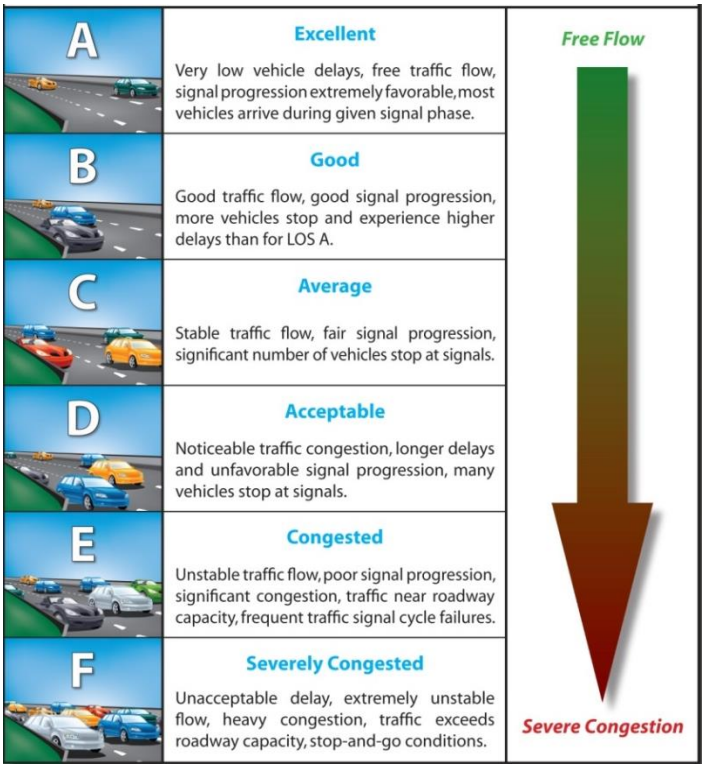
Roadway	Location	Truck 2017 Traffic	Total 2017 Traffic	% Truck Traffic
I-69/US 59	From Riverbank Dr to Mines Rd (FM 1472)	12,639	21,220	59.60%
I-35	From US 83 to Uniroyal Dr	10,272	23,427	43.80%
I-69/US 59	From Mines Rd (FM 1472) to I-35	15,919	47,335	33.60%
I-35	From Uniroyal Dr to Bob Bollock Loop (Loop 20)	13,958	44.993	31.00%
Loop 20 (Bob Bullock Loop)	From I-35 to McPherson	12,002	45,810	26.20%
US 83	From Market St to Jaime Zapata Memorial Hwy (TX 260)	5,245	38,292	12.70%
I-35	From Bob Bullock Loop (Loop 20) to Mines Rd (FM 1472)	5,439	57,726	9.40%
I-35	From Mines Rd (FM 1472) to Del Mar Blvd	5,769	101,004	5.70%
I-35	From Mann Rd to US 59	5,621	105,458	5.30%
I-35	From Del Mar Blvd to Mann Rd	5,848	113,378	5.20%

Source: TxDOT, Transportation Planning and Programming Division

Level of Service Analysis

Congestion on a roadway can be indicated by its level-of-service. Level-of-service (LOS) is a qualitative measure of traffic operations, ranging in values from LOS A to LOS F, and is based upon the ratio of a roadway's traffic volume to the roadway's capacity (VC ratio). The graphic to the right describes the conditions a driver would experience on a roadway given a particular level of service rating. The thresholds of VC ratios used to determine LOS values are as follows:

- 0.0-0.2: LOS A
- 0.2-0.4: LOS B
- 0.4-0.6: LOS C
- 0.6-0.8: LOS D
- 0.8-1.0: LOS E
- >1.0: LOS F



The primary factors in determining a roadway's capacity include the number of travel lanes, the type of traffic control at intersections, the number of access points, and speed limit.

A planning level capacity assessment of existing roadway system traffic conditions was developed using the regional travel demand model. This model was updated to a base year of 2008 and attempts to predict travel conditions in the region by looking at both the supply of and demand for transportation. The supply dimension of the model is reflected in the roadway network, while the socioeconomic data of the region reflects the demand side of the equation.

For the Laredo region, the current travel demand model is validated to a base year of 2008 with a 2040 forecast year. The currency of this model poses two issues for transportation planning:

- Laredo is a high-growth area and has exhibited rapid development, with areas of new housing in the northeast and south, and expansion of freight-related employment along Mines Road. The changes between 2008 and the current conditions are regarded as significant.
- The MTP process requires a 2045 forecast. With the structural changes to the region, simply extrapolating the old 2040 forecast was not considered appropriate; a new forecast based on newly estimated trends of housing and employment was desired.

With this in mind, the use of an updated travel demand model to analyze LOS was seen as clearly preferable. Unfortunately, consultation with TxDOT revealed that the scheduled 2013 model update was not expected to be complete in time for use in this MTP development. This situation left us with several options for developing a consistent, accurate estimation of base year and forecast year LOS for Laredo:

- Pivoting off traffic counts is a standard technique for analyses of corridors or small areas. This technique uses recent traffic counts as the baseline, and then extrapolates to the base year and forecast year using either regression from historic counts or using model growth rates.
- A variation of the pivoting technique could use up-to-date data such as INRIX or TxDOT's RHINO data as the baseline.
- The validated 2008/2040 model could be used directly by interpolating and extrapolating its link volumes based on its modeled growth rates.
- A variation of the model technique could use historic traffic counts rather than modeled growth rates for the interpolation and extrapolation.
- Either of the variations of the model technique could be supplemented by manually reviewing the growth rates and subjectively adjusting them for significant growth areas.
- The validated 2008/2040 model could be used to develop traffic volumes and analyze projects for the given years of 2008 and 2040, and the results could then be manually adjusted as a post-modeling step to estimate new base year and 2045 forecast results.
- The setup and parameters of the validated 2008 model could be used with demographics and networks for 2013 and 2045 to develop an interim travel demand model. This technique essentially treats both years as forecasts.

After review of these options and consultation and approval from TxDOT and FHWA, the final option was chosen. This technique makes the most use of the validated model, uses the 2013 and 2045 model data which is already reviewed and approved by TxDOT, and is closest in technique to the established practice. Additionally, it reduces the amount of subjective decisions in the process and is more consistent both with established procedures and with the development of the base year and the forecast year. When TxDOT has completed the update of the 2013 model, the TxDOT 2013 model will be used for future updates and for planning purposes.

According to the interim year 2013 travel demand model, current roadway congestion is marginal in much of eastern Laredo and in the Mines Rd area, and is most severe in six general locations:

- Along the southern end of Mines Rd in the vicinity of the freight warehouses
- At the Uniroyal interchange and IH 35 approaching the interchange
- The at-grade crossing of Loop 20 at IH 35
- Sections of Loop 20 north and south of US 59
- SH 359 approaching Loop 20
- US 83 in southern Laredo
- The combined segment of SH 359/US 83 (Guadalupe St and Chihuahua St) between US 83 and IH 35

The Level of Service (LOS) for all modeled roadways is shown in **Figure 4-8**. For clarity in the display, LOS ranges are grouped with LOS A, B, and C being rated as acceptable congestion, LOS D and E as marginal, and LOS F as unacceptable.

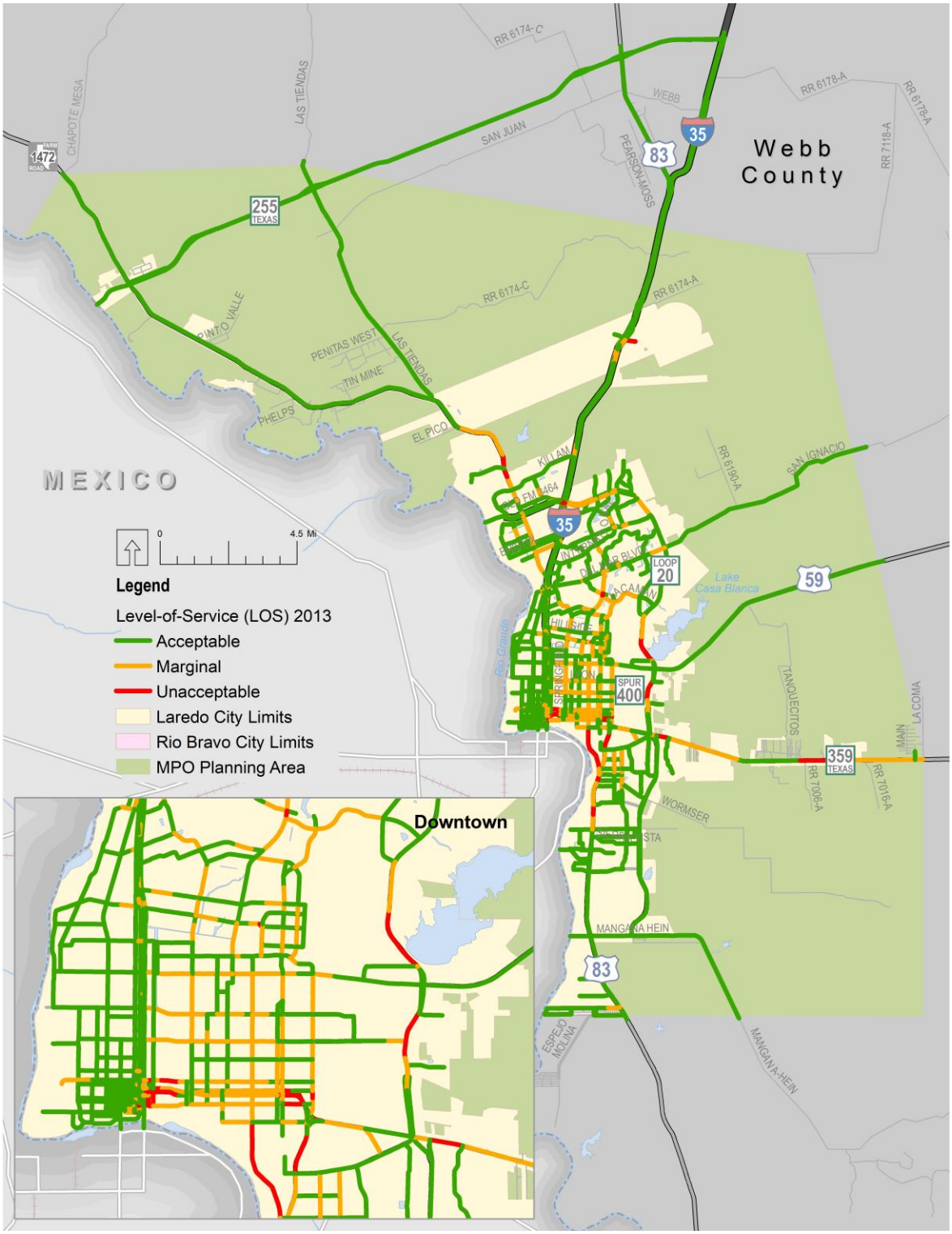
The process of projecting population and job growth for the year 2045 was presented in **Chapter 2: Regional Context**. According to forecasts the annual growth rate of people and jobs in the Laredo MPO region is 4.62 percent and 5.51 percent, respectively. Most of this growth is expected to occur in currently undeveloped areas. The forecasts for population and employment is shown in **Table 4-6**. Maps and additional details of these demographic forecasts are presented in **Chapter 2: Regional Context**.

Table 4-6: Population and Employment Growth in the Laredo MPO Region, 2013-2045

Forecast Year	Forecast Population	Forecast Employment
2013	256,195	92,510
2018	286,442	105,267
2030	350,136	133,613
2040	413,907	166,083
2045	450,024	180,009
Annual Growth Rate (2013-2045)	4.62%	5.51%

Source: Laredo MPO Travel Demand Model

Figure 4-8: Existing Level of Service, 2013



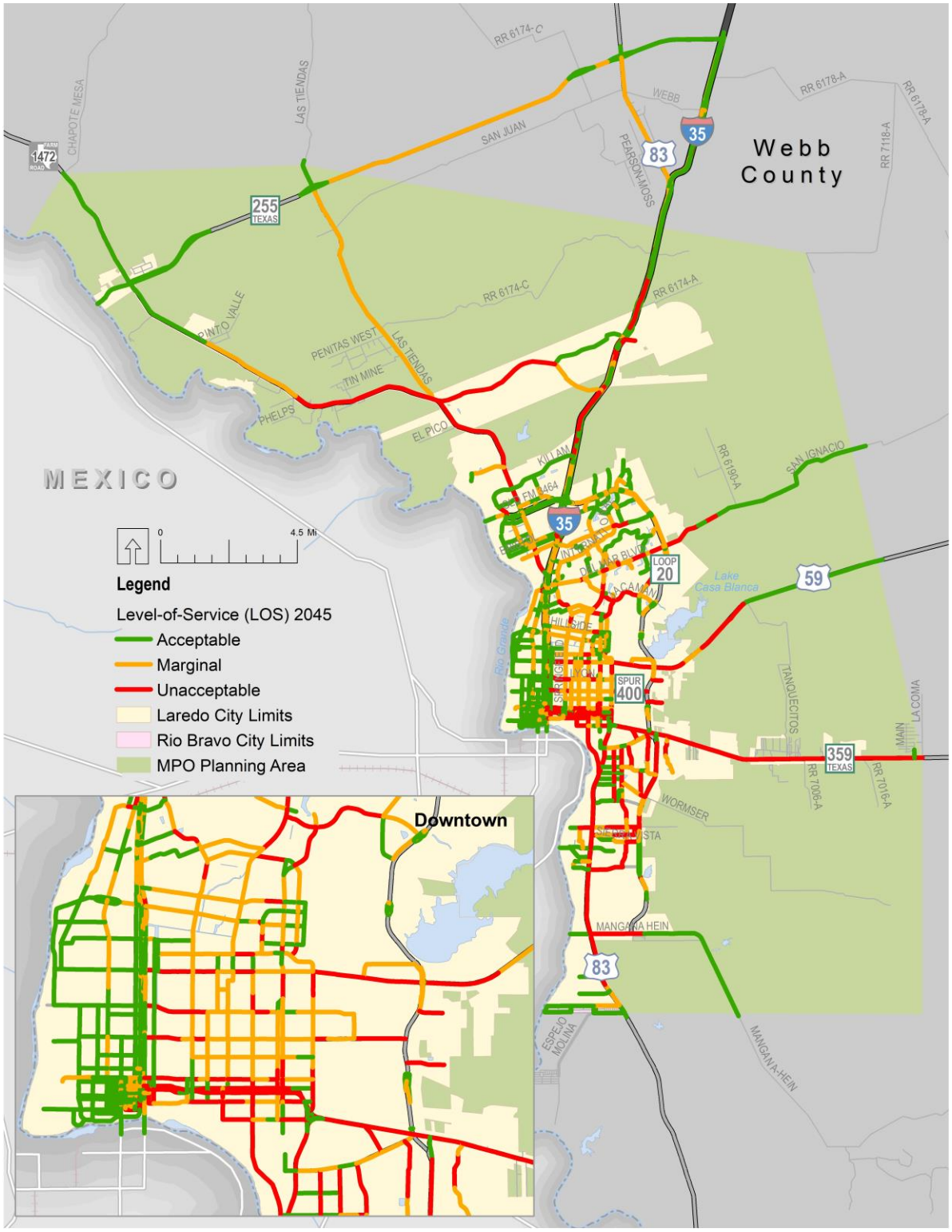
Source: Laredo MPO Travel Demand Model

As development continues along the fringes of the city, the existing road network can absorb only so much of the increased demand. As shown in **Figure 4-9**, the area's congestion levels for the year 2045 will rise throughout the study area if no additional transportation investments are made beyond those that are currently committed in the current Transportation Improvement Program.

A comparison of congestion levels as measured by Level of Service (LOS) for the years 2013 and 2045 shows increased congestion on most of the major transportation corridors:

- Mines Rd from Loop 20 to beyond FM 3388 drops from acceptable and marginal LOS and a small segment rated unacceptable to congestion consistently rated as unacceptable. The new Hachar Pkwy, constructed as a 4-lane Principal Arterial in 2020 and 2022, is forecasted to be at LOS F by the year 2045.
- IH-35 is being expanded to 6 lanes and remains uncongested in its southern sections, but between Killam Industrial Blvd and Uniroyal Dr congestion increases to LOS F.
- The core area of Laredo on both sides of IH-35 is essentially built out, and population and employment growth in these areas is minimal. Forecasted congestion stays at acceptable and marginal LOS for the area west of IH-35, but the eastern side, LOS drops from predominantly acceptable to having significant areas of marginal LOS. The area north of the airport centered on McPherson Rd, Bartlett Ave, and Jacaman Rd will benefit from several committed network projects, but they will open land for forecast development and result in forecasted congestion at LOS F.
- Growth eastwards along Del Mar Blvd, US 59, and SH 59 to past Lake Casa Blanca is expected to increase congestion to unacceptable levels by the year 2045. For SH 359, the growth in external traffic drives some of this increased congestion.
- The combined segment of SH 359/US 83 (Guadalupe St and Chihuahua St) between US 83 and IH 35 is shown to operate at a marginal LOS in 2013, degrading to unacceptable LOS along their entire length by the year 2045. Congestion spills over to parallel streets providing access to IH-35, including Washington St, Park St, Lyon St, and US 59.
- Committed network projects Cuatro Vientos Blvd contribute to opening the area south of La Pita Mangana Rd to new development, particularly to housing. This growth contributes to degrading the LOS in this area of southern Laredo from mostly acceptable LOS in 2013 to mostly marginal and unacceptable in 2045. US 83 is shown to operate at LOS F for most of its length between Rio Bravo and the intersection with SH 359.

Figure 4-9: Future Level of Service, 2045



Source: Laredo MPO Travel Demand Model

Roadway Crash Data

Beyond roadway conditions and traffic volumes, safety data was also reviewed to understand areas where safety improvements may be needed now and into the future. According to the TxDOT Crash Records Inventory System (CRIS) data collected on December 6, 2019, 28,450 crashes occurred within the Laredo MPO area from January 1, 2015 through December 31, 2018. **Table 4-7** shows the number and rate of fatalities and serious injuries along with the number of non-motorized fatalities and serious injuries. TxDOT provides the data to calculate these measures for the Laredo MPO area dating back to the year 2015. Currently, the Laredo MPO region is not meeting all of TxDOT's safety performance targets, which are detailed in **Chapter 12: Performance Management**.

Table 4-7: Fatalities and Serious Injuries in the Laredo MPO Region 2015-2018

Year	Fatalities (No.)	Fatalities (Rate)	Serious Injuries (No.)	Serious Injuries (Rate)	Fatalities and Serious Injuries (Bike/Ped)
2015	13	0.84	101	6.54	17
2016	27	1.76	87	5.77	21
2017	22	1.47	86	5.73	17
2018	29	1.67	56	3.23	15

Source: TxDOT, Crash Records Inventory System Retrieved December 6, 2019

Table 4-8 and **Figure 4-10** identify the top 20 intersections with crash occurrences in addition to fatal crash locations. The most crashes occurred at the junction of two of the busiest arterial roadways in Laredo, McPherson Road and Del Mar Boulevard. Another location with the total number of crashes over 200 is the intersection of IH 35 and US 83 (Matamoros Street). The intersection of IH 35 and US 83 is near the Juarez Lincoln Bridge, carries a huge amount of freight traffic, and links two of the busiest roadways in the region. The intersection of McPherson Road and Del Mar Road, meanwhile, is a complicated four-way intersection with curved right turn only lanes on McPherson Road northbound and Del Mar Boulevard eastbound and westbound, is near many entrance and access points for nearby retail and is geometrically irregular. Many of these intersections are close to schools, nursing homes, and health care facilities serving populations that are especially vulnerable to crashes and traffic hazards.

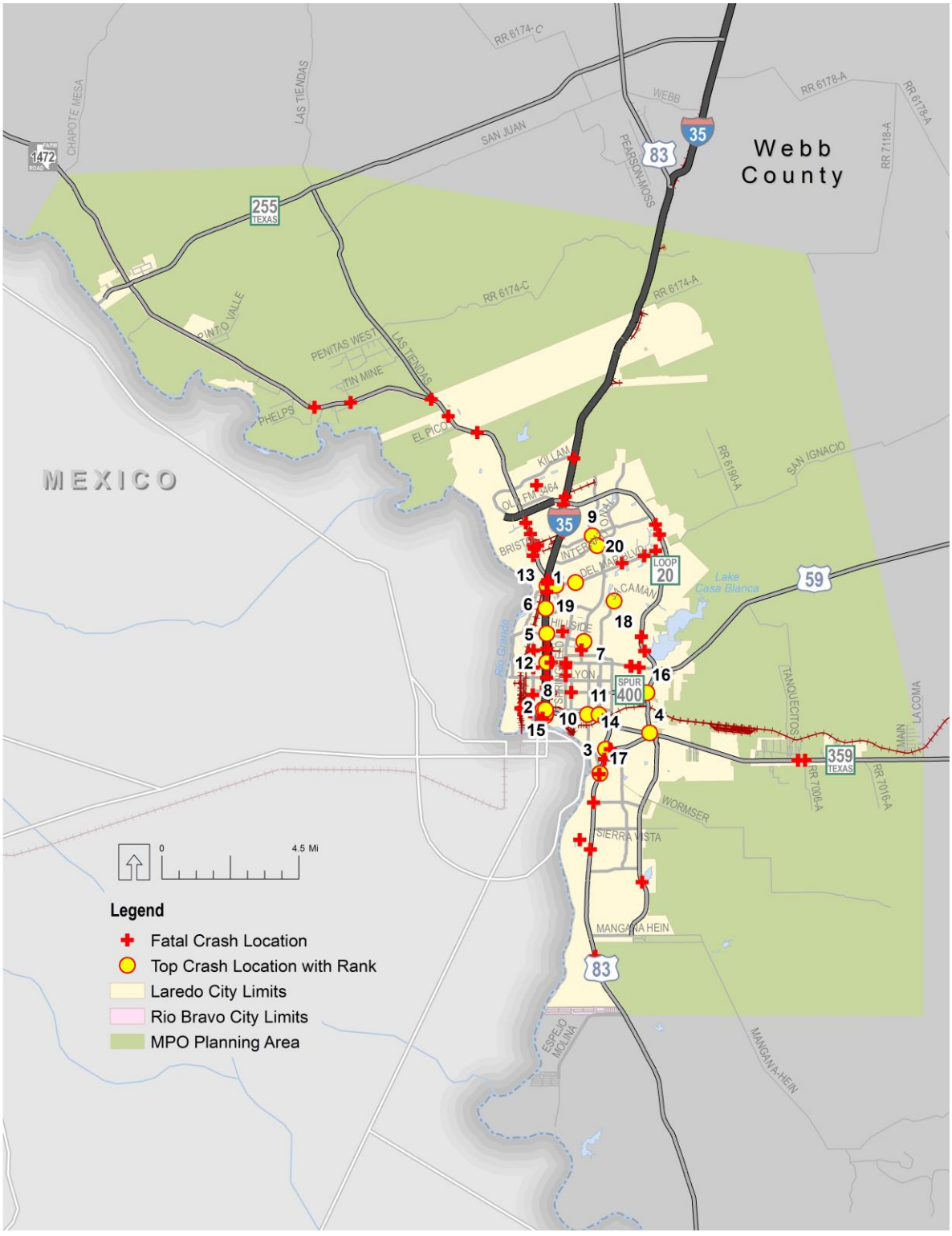
The locations of the 60 fatal crashes are scattered throughout the Laredo MPO region and in particular, the crashes are clustered around downtown Laredo and on the major arterials in the area. However, there are a few small but recognizable clusters of fatal crashes. Between 2016 and 2018 5 of the 60 fatal crashes took place on Mines Road (FM 1472) between I-69 and I-35, including 3 clustered around the intersection of Mines Road (FM 1472) and San Lorenzo Drive. There were also 3 fatal crashes on I-35 around the intersection with Del Mar Boulevard, 2 fatal crashes on US 59 near Casa Blanca Lake Road, 2 fatal crashes on the Bob Bullock Loop (Loop 20) at the intersection with E Corridor Road.

Table 4-8: Top 20 Crash Locations, 2016 to 2018

Intersection	Number of Crashes
1. McPherson Rd and Del Mar Blvd	297
2. IH 35 and US 83 (Matamoros St)	296
3. Ross St and US 83	191
4. Loop 20 (Bob Bullock Loop) and SR 359	165
5. IH 35 and Calton Rd	164
6. IH 35 and Mann Rd	163
7. McPherson Rd and Calton Rd	151
8. IH 35-BR and Victoria St	146
9. McPherson Rd and Shiloh Dr	144
10. IH 35 and Farragut St	143
11. US 83 and Bartlett Ave	124
12. IH 35 and US 59 (Lafayette St)	123
13. IH 35 and Del Mar Blvd	123
14. US 83 and N Meadow Ave	120
15. IH 35 and Victoria St	107
16. Loop 20 (Bob Bullock Loop) and Spur 400 (Clark Blvd)	104
17. US 83 and S Meadow Ave	103
18. N Bartlett Ave and Jacaman Rd	99
19. Springfield Ave and Del Mar Blvd	98
20. McPherson Rd and International Blvd	97

Source: TxDOT, Crash Records Inventory System

Figure 4-10: Top 20 Crash and All Fatal Crash Locations, 2016-2018



Source: TxDOT, Crash Records Inventory System

Deaths and Injuries from Crashes

Of the total, 3,133 led to incapacitating injuries, 180 led to serious incapacitating injuries, 60 were fatal. The rate of serious injury at the intersections between 2016 and 2018 is low, meaning that the Laredo MPO region's road network is performing well by the standards of the performance measures adopted by TxDOT in 2019.

Manner of Collision in Crashes

To understand the causes of collisions, CRIS crash data was reviewed for manner of collision. This analysis encompassed crashed occurring between 2016 and 2018 within 150 feet of the top 20 most dangerous intersections as defined in the preceding sections. Because of different methods, the totals are not equivalent. **Table 4-9** shows total crashes between 2016 and 2018 at the top 20 most dangerous intersections in the Laredo MPO region by manner of collision.

Table 4-9: Manner of Collision for Crashes at Top 20 Crash Locations, 2016-2018

Manner of Collision	Total
Same Direction - One Straight-One Stopped	580
Same Direction - Both Going Straight-Rear End	442
Angle - Both Going Straight	260
Same Direction - Both Going Straight-Sideswipe	236
Opposite Direction - One Straight-One Left Turn	165
One Motor Vehicle - Going Straight	111
Same Direction - One Straight-One Left Turn	111
Angle - One Straight-One Left Turn	75
Same Direction - Both Left Turn	65
Same Direction - Both Right Turn	60
Angle - One Straight-One Right Turn	59
Same Direction - One Straight-One Right Turn	39
Opposite Direction - One Backing-One Stopped	20
One Motor Vehicle - Turning Left	19
Angle - One Right Turn-One Stopped	11
Opposite Direction - One Right Turn-One Left Turn	11
One Motor Vehicle - Turning Right	10
Opposite Direction - One Straight-One Backing	6
Opposite Direction - Both Going Straight	5
Same Direction - One Right Turn-One Stopped	4
Angle - One Straight-One Stopped	3
One Motor Vehicle - Backing	3
Angle - One Straight-One Backing	3
Opposite Direction - One Straight-One Stopped	2
Angle - Both Left Turn	2
Same Direction - One Left Turn-One Stopped	2
One Motor Vehicle - Other	1
Opposite Direction - Both Left Turns	1
Angle - One Left Turn-One Stopped	1
Opposite Direction - One Left Turn-One Stopped	1

In the most dangerous parts of the Laredo MPO region, the most common manners of collision by far are same direction collisions, usually with one vehicle travelling and one stopped or with both vehicles travelling straight. Out of each manner causing over 100 crashes, six involve vehicles traveling straight or only one vehicle, with one straight and one left turn being the only exception with 165 crashes between 2016 and 2018.

Summary of Crash Data And Recommendations

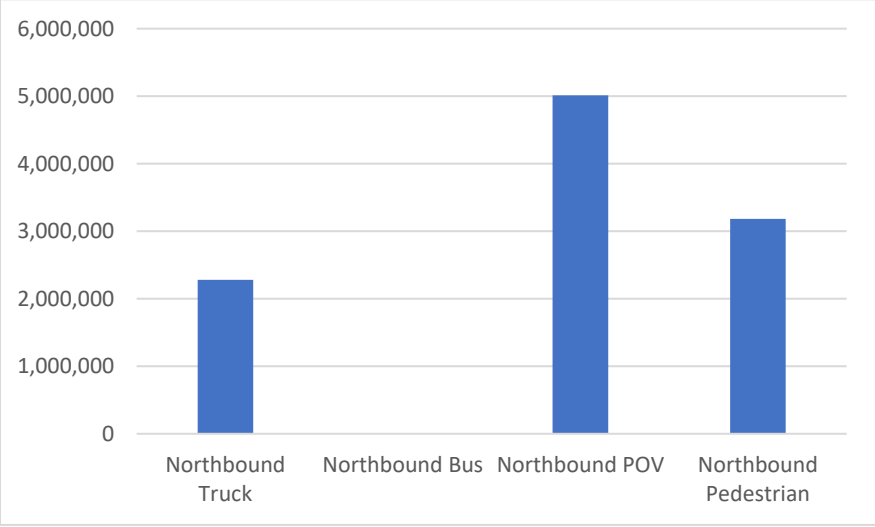
Available CRIS crash data shows that in recent years the roadway network in the Laredo MPO region is safe to travel on. Globally, even the most dangerous and highest volume roadways in the region suffer from serious injury and fatality rates that are lower than TxDOT's 2019 targets for five federal safety performance measures, and it is even safer on other roadways in the region. However, crashes are still frequent, with vehicles traveling in the same direction being the most likely to collide and left turns being a frequent cause of collisions. **This suggests that the steps that the City of Laredo, TxDOT, and US DOT can take to reduce the number of car collisions and ameliorate their severity are traffic calming measures, improved sight distances, lower speed limits, and improved signal timing.**

Border Crossing Conditions and Needs

Border traffic at the international bridge crossings is a significant concern in the Laredo MPO region and managing that congestion is important to maintaining the region's strong freight economic base and is important at a statewide and international trade level as well. According to the Laredo Development Foundation, the City of Laredo is the number one inland port on the US/Mexico border. The US only collects border crossing data for crossings entering the US; therefore, in the following graphs and charts, all border crossing data is for northbound crossings entering the US.

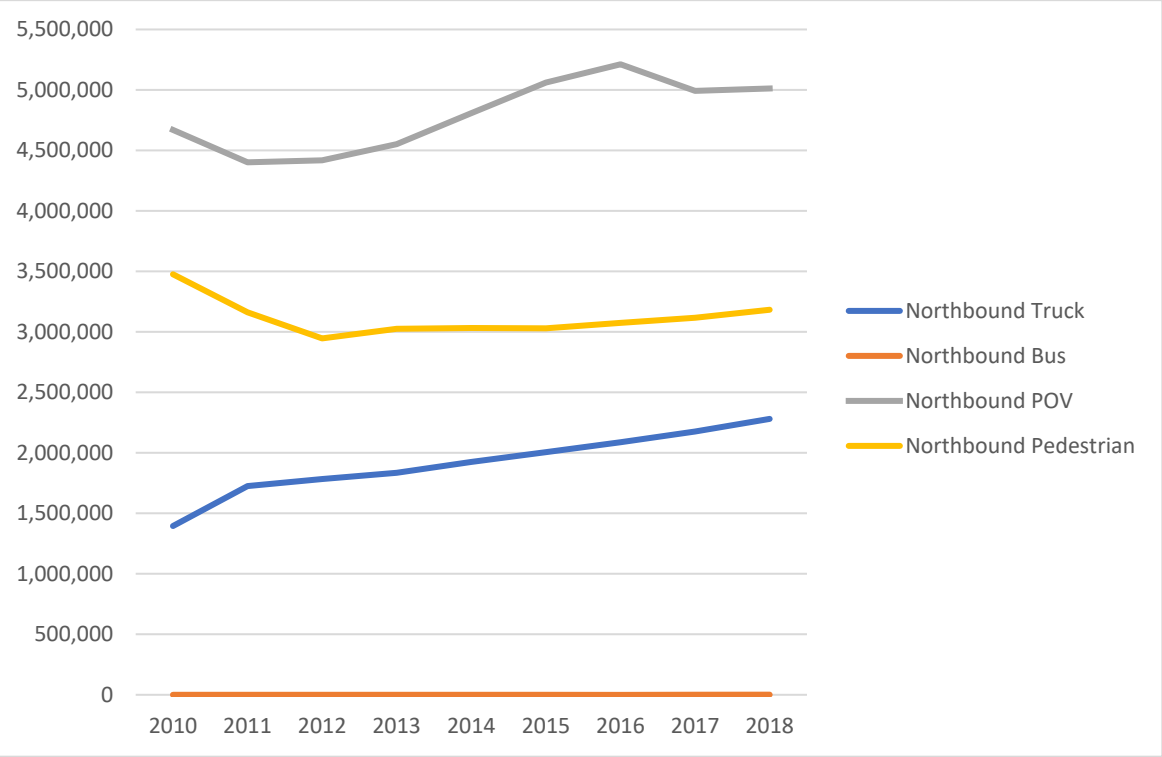
Figure 4-11 shows the distribution of truck, bus, person operated vehicle (POV), and pedestrian traffic for all bridge northbound crossings in 2018. Out of a total of 10.5 million northbound crossings, about 2.3 million were trucks, one thousand were buses, 5.0 million were privately owned vehicles and 3.1 million were pedestrians. **Figure 4-12** shows border traffic coming into the US from Mexico for all border crossings in the Laredo MPO region for years 2010 to 2018. In general, truck traffic has increased slightly over recent years, pedestrian traffic has gone up slowly since 2012, and POV traffic has gone up since a low point in 2012.

Figure 4-11: Total Bridge Crossings, 2018



Source: City of Laredo, International Bridge System

Figure 4-12: Total Border Crossings, 2010 to 2018



Source: City of Laredo, International Bridge System

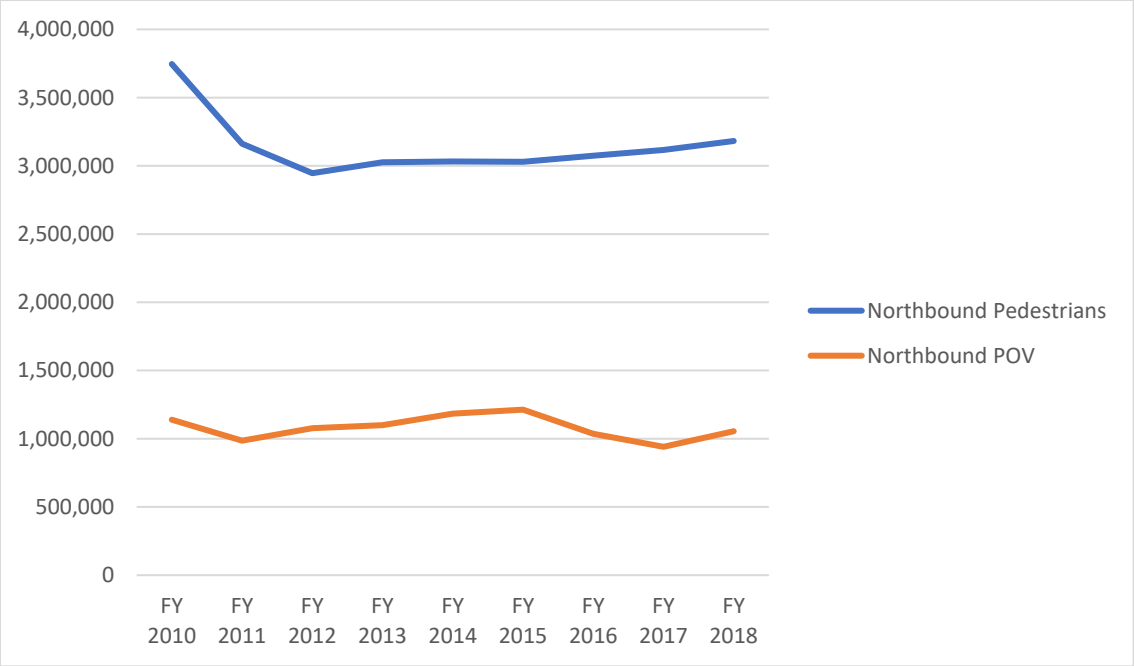
Increased population and trade will continue to be a concern in the Laredo MPO region, and so the international border crossings must be able to keep up with user demands. Because of this, it is important to understand the existing conditions of the crossings in order to identify potential improvements of the infrastructure. The following subsections describe existing border crossing characteristics as well as historical traffic conditions.

Gateway to the Americas (Bridge #1)

The Gateway to the Americas crossing, which is known locally as Bridge #1, is located in downtown Laredo on Convent Avenue near its intersection with US 83. The crossing is a tolled facility and handles privately owned vehicles (POV) and pedestrians. It is accessed southbound from Santa Maria Avenue and northbound via Convent Avenue. The City of Laredo owns the bridge facility while the General Services Administration owns the border station. The crossing is open 24 hours a day, seven days a week. The bridge itself is a four-lane facility with two lanes in each direction. Pedestrian accommodations occur on both sides of the bridge. The total length of the bridge is approximately 1,050 feet, and it operates 24 hours a day for pedestrians and POV. It was reconstructed in 1956 after being destroyed in 1954 by floods resulting from a hurricane in the Gulf of Mexico.

Figure 4-13 shows border traffic coming into the US and Mexico via the Gateway to the Americas Bridge in the past ten years (2010 to 2018). The bridge primarily serves as the main pedestrian crossing for the Laredo MPO region. Pedestrian northbound traffic is three times as heavy as non-commercial traffic.

Figure 4-13: Gateway to the Americas Bridge Crossings, 2010 to 2018



Source: City of Laredo, International Bridge System

At the Gateway to the Americas Bridge, pedestrian traffic fell greatly between 2010 and 2012, from approximately 3.75 million to a low of 2.95 million. In aggregate northbound pedestrian crossings are 15.05% lower in 2018 than in 2010 – however, there has been a slow and consistent rise in northbound pedestrian crossings from 2012 to 2018, averaging 1.34% per year. Northbound POV traffic has stagnated and is 7.39% lower than in 2010.

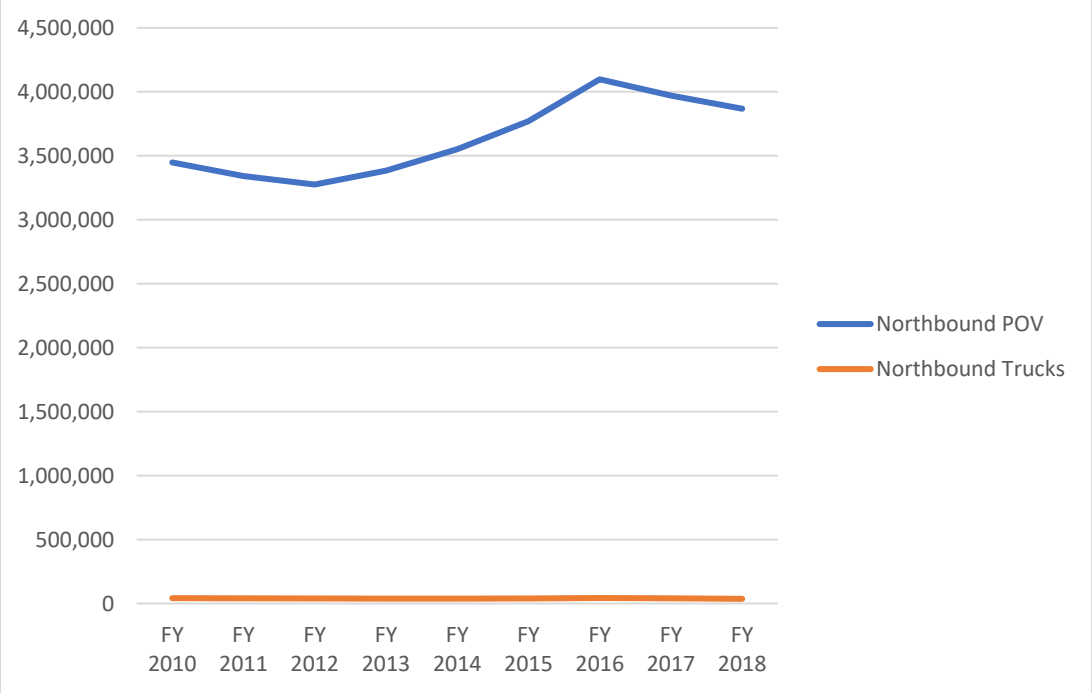
Growth in both northbound pedestrian and POV traffic at this bridge will depend on many factors, mostly upon continued economic and population growth in Laredo and Nuevo Laredo and on the structure of tolls. Because this bridge carries pedestrian and non-commercial vehicle traffic only, growth in traffic will not be determined by freight trends except insofar as it affects the broader economy. In 2045, northbound pedestrian traffic will shrink as low as 1.91 million (with a 2010 – 2018 growth trend) or grow to 4.56 million (with a 2012 – 2018 growth trend) and northbound POV traffic will fall to 824,033 with a 2010 – 2018 growth trend. POV traffic may be reduced if a future fifth international bridge crossing between Laredo and Nuevo Laredo is constructed, but because of the unique market for pedestrian travel between downtown Laredo and Nuevo Laredo the bridge serves pedestrian traffic is likely to increase long term. The Laredo MPO should plan for growth closer to the high scenario than the low scenario.

Juarez-Lincoln Bridge (Bridge #2)

The Juarez-Lincoln Crossing, known locally as Bridge #2, was a POV and buses only bridge but has since been opened to very small volumes of truck traffic. The crossing is tolled and is located in downtown Laredo on San Dario Avenue near its intersection with US 83, at the beginning of Interstate 35. Santa Ursula Avenue carries southbound traffic toward the crossing, while northbound traffic uses San Dario Avenue. The bridge is open continuously, 24 hours a day, seven days a week. The bridge itself is an eight-lane facility, four lanes in each direction, and has a non-commercial Automatic Vehicle Identification dedicated lane. The length of the bridge is approximately 1,010 feet and operates 24 hours a day for POVs. Intelligent traffic systems (ITS) are deployed on the northbound and southbound approaches to the bridge on the US side of the border. The bridge became operational in 1976 and is owned by the City of Laredo. The border station was completed in 1982 and is owned by the US General Services Administration.

Figure 4-14 shows border traffic coming into the US and Mexico via the Gateway to the Americas Bridge for the years 2010 to 2018. Compared with the other border crossings, the Juarez-Lincoln Bridge handles the most POV traffic.

Figure 4-14: Juarez-Lincoln Bridge Crossings, 2010 to 2018



Source: City of Laredo, International Bridge System

Northbound POV traffic at the Juarez Lincoln Bridge declined from 2010 to 2012, rose substantially between 2012 and 2016, and then began to fall again between 2016 and 2018. Northbound POV traffic growth from 2012 to 2016 was 6.28% per year but overall growth between 2010 and 2018 was much lower, at 1.53% per year. Truck traffic, which makes up a very small part of overall traffic on the Juarez-Lincoln Bridge, is on the decline, falling 1.57% per year between 2010 and 2018.

The growth trend for northbound POV traffic at the Juarez Lincoln Bride in the future is likely to trend closer to the high growth seen from 2012 to 2016 in the near future than in the overall figure, as the 2010-2012 decline related to the Great Recession and the 2016-2018 decline related to disrupted operations related to bridge modernization. The relatively small amount of northbound truck traffic will continue to decline as the World Trade Bridge and a possible fifth border crossing bridge will continue to divert truck traffic from downtown Laredo. Under a high growth rate, northbound POV traffic at the Juarez Lincoln Bridge could grow from 3.87 million in 2018 to 5.83 million (with 2010-2018 growth rates) or to as high as 20.03 million (with 2012-2016 growth rates). While the traffic figures in the highest growth scenarios are not feasible due to capacity issues, the possibility of strong continued growth in northbound POV traffic at this bridge points to the need for more capacity improvements and a possible fifth bridge. Northbound truck traffic will fall to around 23,600 per day under the 2010 – 2018 growth rate. The Juarez-Lincoln Bridge's location near downtown Laredo and weak truck traffic mean that it is unlikely to see future growth in northbound truck traffic.

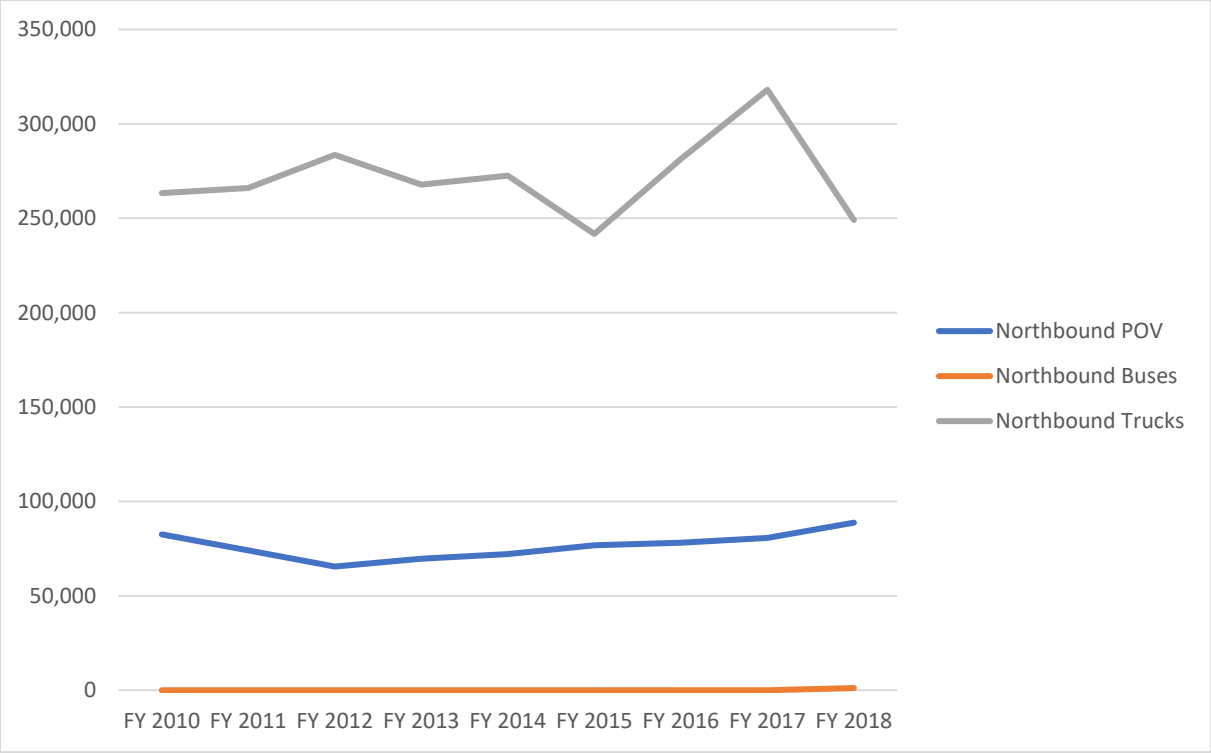
Laredo-Colombia Solidarity Bridge (Bridge #3)

The Laredo-Colombia Solidarity Bridge is located on FM 255 near its intersection with FM 1472, locally known as Mines Rd. It was completed in the summer of 1991 and is approximately 1,215 feet long. The crossing is a tolled facility that handles both commercial and non-commercial vehicles, as well as pedestrian traffic. For commercial traffic the bridge is open from 9:00am to 10:30pm Monday through Friday, from 10:00am to 4:00pm on Saturday, and from 12:00pm to 4:00pm on Sunday. For non-commercial traffic, bridge open hours are from 8:00am to 12:00am, 7 days a week.

The eight-lane bridge is the designated crossing within the Laredo MPO region for transporting hazardous materials between Mexico and the US. The City of Laredo owns the bridge facility while the General Services Administration owns the border station.

Figure 4-15 shows border traffic coming into the US and Mexico via the Laredo-Colombia Solidarity Bridge for the years 2010 to 2018. Northbound truck traffic is by far the most common use of this bridge.

Figure 4-15: Laredo-Colombia Solidarity Bridge Crossings, 2010 to 2018



Source: City of Laredo, International Bridge System

Northbound POV traffic at the Laredo Columbia Solidarity Bridge declined sharply from 2010 to 2012 before rising sharply from 2012 to 2018. Including the recessionary years of 2010 – 2012 annual average growth between 2010 and 2018 was only 0.95%, but between 2012 and 2018 it was 5.91%. Northbound truck traffic rose slightly from 2010 to 2012, fell again from 2012 to 2015, rose dramatically between 2015 and 2017, and then fell dramatically between 2017 and 2018. The dramatic recent fluctuations in northbound truck traffic give very different growth percentages depending on which years are considered (-1.64% annual growth for 2010 to 2015, -0.67% annual growth for 2010 to 2017, and -0.67% growth for 2010 to 2018).

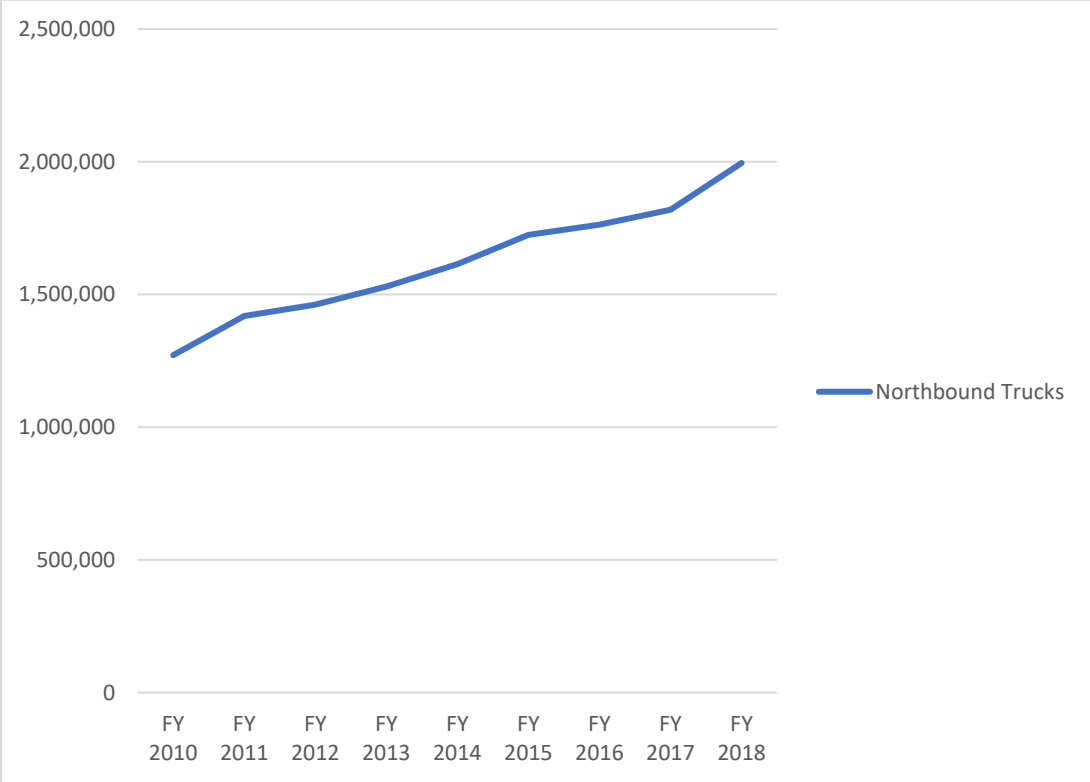
By 2045, northbound POV traffic will rise from 88,770 to 114,587 under the 2010 – 2018 annual growth rate of 0.97% but will rise to 418,374 under the 2012 – 2018 annual growth rate of 5.91%. This would add nearly over 300,000 vehicles to the daily bridge traffic – equivalent to more than truck traffic today. Meanwhile northbound truck traffic will fall to 159,393 in the low growth scenario (-1.64% for 2010 – 2015), fall to 207,750 in the medium growth scenario (-0.67% for 2010 – 2018), and rise to 548,982 in the high growth scenario (2.97% for 2010 – 2017). Overall northbound traffic on the Laredo Columbia Solidarity Bridge is likely to grow at a slower pace than at other bridges, and there is a clear trend showing a shift away from freight traffic and towards POV travel. This may be due to the increasing popularity of the World Trade Bridge for freight.

World Trade Bridge (Bridge #4)

The World Trade Crossing is located on Loop 20 near its intersection with FM 1472, locally known as Mines Rd. This eight-lane bridge is open to commercial vehicles only. The bridge is not intended for pedestrian traffic; the number of pedestrians crossing northbound from Mexico to the U.S. are actually the accompanying passengers other than the driver from freight trucks. The bridge and border station opened on April 15, 2000. The City of Laredo owns the bridge facility while the General Services Administration owns the border station. The tolled bridge has eight-lanes and is approximately 975 feet in length. It is the busiest international bridge in Texas, carrying over one-third of inbound trucks.

Figure 4-16 shows border traffic coming into the US from Mexico via the World Trade Bridge for the years 2010 to 2018. In particular, the World Trade Bridge serves as the primary commercial vehicle bridge in the region. From 2010 to 2018, commercial traffic in both directions has risen to almost 2 million. The hours for commercial traffic are from 8:00am to midnight Monday through Friday, from 8:00am to 4:00pm on Saturday, and from 10:00am to 2:00pm on Sunday.

Figure 4-16: World Trade Bridge Crossings, 2010 to 2018



Source: City of Laredo, International Bridge System

Northbound truck traffic at the World Trade Bridge has been growing at a consistent rate. The average growth rate per year of this traffic has been 7.12%. If northbound truck traffic rises at this consistent rate every year then there will be 12.8 million trucks crossing northward into the United States in 2045. While volumes are unlikely to ever reach this high level, this does call

out the need for increased bridge capacity in the case that northbound truck traffic continues to grow at high rates.

Bridge Conditions and Needs

Bridges are the structures that carry a road across waterways, low-lying land, and other obstacles within the terrain. Bridge conditions are important to maintaining infrastructure and mobility in the region. The 2018 TxDOT Bridge Condition Report was reviewed to understand age and conditions of bridges within the region.

On January 22nd, 2019, the City of Laredo received public testimony and approved Resolution No. MPO 2019-01 adopting pavement, bridge, and travel time reliability performance measures and targets as established by TxDOT and the 2015 FAST act. The goals for bridge performance are shown below in **Table 4-10**.

Table 4-10: TxDOT / TEMPO Performance Goal and Measures

Performance Measure	Baseline	2020 Target	2022 Target
NHS Bridge Deck Condition			
% in "good" condition	50.6%	50.6%	50.4%
% in "poor" condition	0.9%	0.8%	0.8%

In the 2018 Report on Texas Bridges, the conditions of bridges are characterized according to their condition. **Table 4-11** details the terms used to characterize bridge conditions and the criteria that bridges must meet to be characterized. **Table 4-12** and **Table 4-13** show the number of bridges meeting each category in Webb County and throughout the State of Texas in 2018 for on-system and off-system bridges.

Table 4-11: Bridge Categories and Criteria

Bridge Category	Criteria for Bridge Category
Good or Better (GB)	• Meets all federal and State of Texas requirements
Structurally Deficient (SD)	• Restricted load-carrying capacity • Load-carrying capacity below as-built capacity • Closed • Over tops during flood events
Functionally Obsolete (FO)	• Fails to meet design criteria for one or all of the following: Deck geometry, load-carrying capacity, vertical or horizontal clearances, or roadway alignment.
Sub Standard for Load Only (SSLO)	• Original load-carrying capacity not designed to carry current legal roads • Recommended for load posting

Source: 2018 Report on Texas Bridges

Table 4-12: On-System Bridge Conditions in Webb County and the State of Texas, 2018

Jurisdiction	Total	Good or Better	Structurally Deficient	Functionally Obsolete	Sub Standard Load Only
Webb County	267	251	0	16	0
State of Texas	35,548	31,577	203	3,703	65

Source: 2018 Report on Texas Bridges

Table 4-13: Off-System Bridge Conditions in Webb County and the State of Texas, 2018

Jurisdiction	Total	Good or Better	Structurally Deficient	Functionally Obsolete	Sub Standard Load Only
Webb County	104	73	3	28	0
State of Texas	18,790	12,962	504	4,225	1,099

Source: 2018 Report on Texas Bridges

Of the 104 and 267 on-system and off-system bridges in Webb County, 251 (94.0%) and 73 (70.2%) are rated as “good or better”. By this criterion, the bridges in the Laredo MPO region is meeting the City of Laredo’s stated standards for bridges in “good” condition. However, 16 (6.2%) of on-system bridges and 28 (26.9%) of off-system bridges in each category are functionally obsolete, meaning that some or all of these bridges may have deficient deck geometries.

Under the Highway Bridge Program (HBP), both on-system and off-system bridges are eligible for programmed repair funding if they are structurally deficient or functionally obsolete and have a sufficiency rating of 80 or less. If they are structurally deficient or functionally obsolete and have a sufficiency rating of 50 or less, they qualify for programmed replacement funding. The lower the sufficiency rating of a bridge is, the higher priority funding for repair or replacement is.

Additionally, there are resources for local governments to improve off-system bridges. One is the Participation-Waived Project/Equivalent Match Project (PWP/EMP) program, which allows a local government to waive 10% of its cost participation requirement on an off-system bridge project if it uses the equivalent dollar amount to improve another deficient bridge structure. Another is the Economically Disadvantaged Counties (EDC) program, which allows counties to adjust their participation amounts in lieu of part or all of the cost of participation in the PWP/EWP program.

Regional Strategies

The Laredo MPO region has an extensive transportation infrastructure that is an indispensable asset to the regional and national economy. This infrastructure is the result of a large investment over many years and is relied upon by residents, visitors, and the business community to provide reliable transportation service. Based on the existing and future conditions analysis conducted above, several regional strategies have been identified to effectively utilize limited transportation resources and meet regional goals and objectives:

- Implementing system preservation and resiliency programs to maintain facilities including roadways, bridges, and stormwater facilities;
- Promoting alternative programs and modes of transportation through travel demand management;
- Utilizing transportation system management strategies to improve mobility, accessibility, and operational efficiency;
- Adopting land use and urban design elements that are more appropriate for a multimodal transportation environment.

Safety, security, and resiliency are also important factors that were integrated into the planning process. More details on these plans, policies, and initiatives are discussed in **Chapter 9**.

System Preservation and Resiliency Programs

Preserving existing facilities and proactively addressing resiliency and reliability of the transportation system is an important priority and guiding principle of the Laredo MPO. Bridge and roadway deterioration are closely related to use, especially by heavy trucks, which make up a significant component of regional traffic volumes. Adequate resources must be directed toward preservation efforts to continue to meet the challenge of keeping the transportation system in good condition.

Roadway Maintenance

The implementation of an effective roadway maintenance program requires expertise in management, engineering, and economics, and encompasses routine/corrective maintenance, preventive maintenance, and rehabilitation activities.

Roadway pavements require continual reinvestment to sustain their structural viability and to maximize the original financial investment made to build them. Roadways that lack proper maintenance experience increased failure rates, cause increases in costs overall, and contribute to safety hazards and property loss.

Roadway maintenance activities can be generally categorized into three areas:

- **Routine** - These activities are undertaken on a regular, ongoing basis and can be grouped into cyclic and reactive works efforts. Cyclic works are those undertaken on a regular pre-defined schedule, such as mowing, while reactive works are those undertaken in response to any deficiencies that may arise, such as pothole repairs.
- **Preventive** - These are projects undertaken at regular, somewhat longer intervals to preserve the structural integrity and resiliency of a road, such as crack sealing.
- **Special** – The activities include emergency work to repair unexpectedly damaged roads.

In the Laredo MPO region, TxDOT's Maintenance Division oversees the preservation, upkeep and restoration of all state-owned roadways. One of the five TxDOT budget categories, "Maintain It," focuses on preventive maintenance and rehabilitation. The goal of the "Maintain It" funds category is to minimize the costs over time of managing and maintaining the transportation system. These funds are used to preserve the structural integrity of transportation facilities and for some safety improvements. Work under this category includes reconstruction, resurfacing, signing, striping, and other routine or periodic maintenance.

The City of Laredo and Webb County undertake street maintenance and rehabilitation responsibilities of all non-state-owned roadways. Through scheduled routine maintenance, department staff and contractors fill potholes, mow the grass, clean out ditches, and perform other routine preventive maintenance activities. Both the city and county maintain Capital Improvement Programs, which include roadway paving, resurfacing, and reconstruction projects.

Pavement Management

TxDOT monitors the surface condition of all of its roadways in a Pavement Management and Information System (PMIS). Road conditions are rated on a five-class scale from "very poor" to "very good" that considers factors that include the smoothness of the ride and the structural integrity of the roadway.

Stormwater Management

TxDOT has taken steps to reduce the impact of stormwater pollutants on bodies of water through the *Stormwater Management Plan (SWMP)*. The SWMP provides minimum control measures and best management practices to implement programs, controls, and activities intended to reduce the discharge of pollutants in stormwater from reaching bodies of water. More locally, the City of Laredo Environmental Services Department provides the *Storm Water Management Guidance Manual* detailing best management practices for day to day activities and infrastructure intended to reduce and mitigate the impacts of stormwater runoff.

Bridge Maintenance and Rehabilitation

Bridges also require scheduled maintenance and inspection to ensure they can continue to safely carry increasing traffic volumes and higher numbers of loaded trucks. The SAFETEA-LU Technical Corrections Act, enacted June 6, 2008, changed the Federal Highway Bridge Replacement and Rehabilitation Program to the Highway Bridge Program and placed greater emphasis on the importance of proper and timely bridge preservation. Highway Bridge Program funds were used for replacement, rehabilitation, painting, performing systematic preventive maintenance, and seismic retrofitting to eligible bridges. The MAP-21 Act reconstructed core highway formula programs. Highway Bridge Program, along with other major programs, was incorporated into new core formula programs, such as National Highway Performance Program (NHPP), Surface Transportation Program (STP), and Highway Safety Improvement Program (HSIP). These remain under the FAST Act.

Based upon structural assessments, TxDOT determines condition ratings for bridges in the Laredo MPO region. Bridges are rated as being either in "Good or Better" condition, "Structurally Deficient" condition, "Functionally Obsolete" condition, or "Sub Standard for Load Only" condition. Currently, 6.2% of on system and 26.9% of off-system bridges in Webb County are functionally obsolete, meaning that the City of Laredo's goals for keeping bridge deficiency rates under 1% is failing. Bridges in the Laredo MPO region are available for HBP funding for repair and replacement based on condition rating and sufficiency rating. To determine needs and formulate a strategy for reaching City of Laredo goals, the Laredo MPO should study the sufficiency rating of its bridge inventory.

Travel Demand Management

With any good or service, a balance is typically achieved between supply and demand. For roadway transportation, the "supply" consists of all public roads that enable travel between origins and destinations, while the "demand", of course, is people's mobility requirements which are evidenced by their travel patterns. As previously discussed, simply increasing the "supply" alone is not a sustainable strategy. Travel demand management (TDM) seeks to improve system performance by decreasing or shifting the demand for travel, primarily for those trips made by single-occupant automobiles. TDM strategies are effective in influencing travel patterns and behavior, increasing vehicle occupancy, promoting and encouraging alternative transportation modes, and redistributing the timing of trips to reduce traveling peaks, thereby reducing the overall demand on the transportation system.

The following list of TDM strategies could be of benefit to the Laredo MPO region:

- **Telecommuting and Flexible Work Schedules** – With today's communications technology, it is quite feasible and practical to work at or closer to home. This is an excellent tactic in reducing the number of vehicles on the road. Additionally, other flexible work options which enable employees to shift their work schedules to earlier or later parts of the days spreads out demand for travel, thereby reducing congestion.
- **Ridesharing** – Carpool, vanpool, and other ride-share programs result in fewer single-occupancy vehicle trips and less congestion on roadways. Carpools are typically informal, while vanpool programs are more likely to be a more formal agreement through

a local transit agency. Park-and-ride lots can help to encourage not only public transit, but also both informal and formal ridesharing services.

- **Parking Management** – The cost and availability of parking can affect the choice of whether or not to drive a personal vehicle. Downtown areas and other employment centers are more likely to promote diversified transportation choices when parking is unavailable or too costly. Presently, the City of Laredo has an effective system of monitoring parking meters in their downtown areas.
- **Support for Transit** – Providing necessary support for transit ridership can be instrumental in encouraging people to use alternative modes of transportation. People value their time and the convenience of a vehicle; therefore, transit should provide frequent service and be accessible to multiple origins and destinations. Specific programs to encourage transit use include employer-provided, tax-free transit passes, and guaranteed ride-home programs.
- **Support for Intercity Bus and Commuter Vanpools** – The availability of facilities that support intercity buses and commuter vanpools provides commuters across the MPO region the option of alternative modes to single-occupant automobiles. Intercity buses and commuter vanpools increase vehicle occupancy and help in reducing the overall travel demand of the transportation system.
- **Support for Bicycling and Walking** – Bicycle and pedestrian facilities that offer safe, accessible, contiguous, and direct pathways are most ideal for bicyclists and pedestrians and can take some of the burden off of the roadway network.
- **School Considerations** – Schools generate a substantial amount of vehicular traffic when parents drive their children to and from school. Children even living within close proximity to schools may not walk or bike to school because parents do not feel that the environment is safe to do so. Programs such as Safe Routes to School (SRTS) and the Walking School Bus (which provides chaperoned walks to schools), are effective in providing safe and accessible walking environments. Previously funded by the SAFETEA-LU, the SRTS Program makes funding available for a wide variety of programs and projects, from building safer street crossings to establishing programs that encourage children and their parents to walk and bicycle safely to school. The current authorization bill the FAST Act does not provide specific funding for SRTS, but the SRTS programs and projects are eligible for Transportation Alternatives Program (TAP) and Surface Transportation Program (STP) funds. Better coordination between local governments and school districts can also help in selecting sites for new schools that are conducive to walking and bicycling.

Transportation System Management and Operational Efficiency

Transportation System Management (TSM) programs help to accommodate the safe and efficient movement of people and vehicles within the existing transportation system. They typically involve roadway improvements that increase capacity, optimize traffic operation, or apply traffic calming in residential areas. Furthermore, they generally may come at a relatively low cost, require minimal right-of-way, and often can be accomplished quickly. An example of a broad TSM program is the implementation of intelligent transportation systems (ITS) technologies. In particular, ITS can improve transportation safety and mobility and enhance efficiency through the integration of advanced communications technologies. The Laredo MPO recognizes the importance of best practices involving operational and management strategies for solving transport problems.

Intersection and Signal Improvements

Intersections are a significant component of traffic delay. The City of Laredo conducts traffic impact studies, signal warrant analyses, and traffic flow studies to improve the traffic operations at intersections throughout the city. Types of intersection improvements include intersection channelization projects, signal upgrades, realignments, and interchange construction. The City of Laredo continually coordinates with TxDOT to improve signal synchronization. In 2012, City of Laredo completed the ITS signal upgrade for improved signal synchronization of the 56 intersections in the downtown area to improve traffic operations. The Laredo MPO will continue to work to enhance traffic operations in the region by funding intersection improvements on regionally significant roadways.

Intelligent Transportation Systems

Intelligent transportation systems (ITS) include a broad range of wireless and wire line communications-based information and electronics technologies. These technologies improve transportation mobility, safety, and security of the transportation system infrastructure. ITS technology is employed by various agencies in the Laredo MPO region. In 2003, a four-county region including Webb, Duval, LaSalle, and Dimmit Counties, developed the Laredo Regional ITS Architecture and Deployment Plan with representatives from the City of Laredo, El Metro, Webb County, TxDOT, FHWA, US Border Patrol, and US Customs. This effort was a part of a TxDOT initiative to develop regional ITS architectures and deployment plans throughout the state for regions without ITS plans. In 2015, the City of Laredo Traffic Department developed the *City of Laredo ITS Master Plan* to identify ITS components, technology, and project concepts that have the potential to improve traveler safety, decrease traffic congestion, and generally manage the demand on the regional transportation system. South Texas Regional Advanced Transportation Information System (STRATIS).

STRATIS is the transportation management center administered by TxDOT's Laredo District and has been operational since February 2004. The mission of the program is "to provide best transportation and emergency management services through the use of our collective resources to maximize safety and mobility to the public". From STRATIS center, TxDOT has access to ITS implementations such as CCTV Cameras, Dynamic Message Signs (DMS), Highway Advisory Radio (HAR), and Video Image Vehicle Detection System (VIVIDS). TxDOT has also deployed nearly 30 miles of optic fiber cables around the City to provide communications to their roadside infrastructure. The deployed TxDOT optic fiber cables are on most of Loop 20 and Interstate 35 and several segments of US 59, SH 359, and FM 1472 within the Laredo MPO region. HAR is used by TxDOT to broadcast traveler information messages to drivers. DMSs provide up-to-date information about traffic flow conditions that helps drivers to make decisions about their trip. For instance, DMS boards on the I-35 southbound frontage road near Washington Street and Scott Street show the warning information of train obstruction to drivers to help them make better travel decisions. TxDOT also provides "Twitter" feeds about local traffic information.

The STRATIS system is connected to the City of Laredo Transportation Management Center (TMC) to share CCTV camera feeds and control. This connection also allows the City of Laredo

TMC to view messages that have been placed on the DMSs. TxDOT has also provided monitors to the City of Laredo 911 Dispatch Center to provide CCTV camera images to the center. The STRATIS center assists the local law enforcement agencies in detecting and responding to traffic incidents or any emergency incidents. These centers enable better communication and response times resulting in faster clearing of incidents, improved mobility and air quality, and reduced risk of further incidents.

The city of Laredo has implemented ITS solutions for traffic signals in the downtown area. ITS elements include new traffic signal control equipment and communication devices, video monitoring devices at major intersections, and dynamic message signs at major arterials, all of which will be operated from the TMC.

The city is currently experimenting a vehicle detection sensing system which utilizes a 3''x3''x3'' wireless devices to collect traffic information as a potential replacement over the traditional inducting loop and video detection. It could be a more accurate and cost-effective way to collect traffic information on arterials in the city.

International Bridges

The City of Laredo Bridge Department along with the General Services Administration (GSA) operates and manages four international bridges within the City of Laredo. Tolls for bridge crossing are collected in the form of cash, swipe cards, or automated vehicle identification (AVI) transponders. The city has installed Automatic Vehicle Identification (AVI) system at all bridges which identifies the vehicle automatically and deduct the proper toll amount from a pre-set account for toll collection. The AVI operates using an electronic sticker tag placed on the windshield inside the vehicle. As vehicle pass through the bridge, an overhead antenna reads the tag and automatically debits the correct toll amount from the prepaid AVI account of the user. All bridges are also equipped with CCTV cameras that transmit images to the Bridge Department and are also displayed on the Bridge Department's website for public access. Weigh-in-motion devices were also recently installed on Bridges III and IV, improving inspection operations at those crossings.

Several recently completed projects help improve the efficiency and security of border crossing through the international bridges. For instance, Multi-Protocol Reader System (MPRS) at all bridges is capable of reading different systems of tags; Digital Video Audit System (DVAS) at all bridges improves monitoring the border crossing activities; and Access Control System at all bridges is a system that controls access to and within the buildings, such as doors and gates. Future projects include the continuous upgrade to the toll collection system and weight-in-motion devices.

Land Use and Urban Design Strategies

Traffic Calming

Traffic calming efforts can include an array of programs, such as traffic law enforcement, public awareness and educational programs, as well as physical measures, which calm traffic flows and encourage safer roadways. In terms of transportation management, this usually includes a variety of infrastructure improvements that reduce the negative effect of vehicle use and improves conditions for non-motorized transportation. Further, these strategies can be effective in eliminating cut-through traffic on local or neighborhood streets. Some examples of traffic calming techniques utilized in transportation management include speed humps, roundabouts, traffic circles, and raised medians or islands that limit vehicular access and turning capabilities. The city of Laredo has employed various traffic calming techniques and will continue to do so as the need for such measures arises.

Access Management

Another technique to improve mobility and alleviate congestion is access management. Access management includes a broad set of techniques designed to improve roadway capacity, mobility, and safety by limiting the accessibility of vehicular traffic. This is accomplished by inhibiting the amount of conflict points, separating them, and removing turning vehicles and traffic buildup from through-vehicle movements. roadways.

Access management must be integrated into the roadway transportation system at every level of transportation planning. It is recommended that the Laredo MPO establish an access management classification system that is fully integrated with and informs Laredo's functional classification system for its roadways.

Land Use and Urban Design Considerations

How a city is planned in terms of the types of land uses has a direct effect on how the transportation system is developed. This is also true for how the transportation system is planned and how it can affect future land use. For instance, new or improved transportation infrastructure, combined with other services, enables a community to extend into new areas of development. Therefore, promoting smart and integrated land use and transportation development planning policies is vital for the overall health of a region.

A few best practices in integrating land use and urban design considerations with transportation systems include the following:

- **Grid street pattern** – A road system best serves the transportation needs of a region in a hierarchical, grid-like street pattern. A hierarchical structure of major thoroughfares, arterials, collectors, and local roads in a grid-like pattern more evenly distributes traffic volumes over multiple roads. It also offers connectivity benefits.
- **Complete Streets** – This concept seeks to convert roadways from auto-centric thoroughfares into people or community-oriented streets that accommodate the safe and efficient movement of all transportation users. The San Bernardo project is one example

of the Laredo MPO pursuing a complete street concept in that it is planned to be a "linear transit hub."

- **Context Sensitive Solutions** – Context sensitive solutions are concerned with involving all stakeholders and design professionals in a collaborative way to develop a transportation facility that not only provides for safety and efficient mobility for transportation users, but also blends into its physical and cultural context and preserves historic, natural, and other existing environmental resources. This type of approach focuses on considering the total context and community setting of transportation improvement projects.
- **Corridor Preservation** – Presently, the city of Laredo has identified major existing and future transportation corridors in the region within its thoroughfare plan. This is necessary in order to preserve future right-of-way and ensure a continuing and connected roadway system for future use.

The *Highway Safety Manual* by the American Association of State Highway and Transportation Officials (AASHTO) and the *Urban Street Design Guide* by the National Association of City Transportation Officials (NACTO) are referenced when the MPO seeks guidance on design criteria and standards. The Urban Street Design Guide provides a toolbox of the tactics and design criteria that cities can use to encourage safer, more livable, and economically thriving streets. The Highway Safety Manual provides information, techniques, and methodologies to quantify the safety-related effects of transportation decisions. Both manuals have been endorsed by TxDOT.

Chapter 5:
Transit

Introduction

To provide a comprehensive, multimodal transportation system, careful consideration should be given to investment decisions. Infusing monetary resources into roadways and infrastructure that primarily benefit personal vehicular transportation alone will not provide enough support for alternative transportation such as public transit, intercity buses, vanpools, bicycling, and walking. Given the rapid population growth facing the Laredo region, growing concerns about the environment and sustainability, and the recently adopted Viva Laredo Comprehensive Plan which calls for a better integrated multimodal network of travel options, there is a focused interest in actions that promote alternative transportation choices.

Public transit offers many societal, personal, and environmental advantages. It is the primary transportation option for individuals without access to their own automobile or those who are unable to drive. Personal benefits include cost savings, reduced stress from driving, and increased "down time." The primary environmental benefit of public transit is a reduction in vehicle miles traveled, which results in lower fuel consumption and better air quality.

This chapter reviews the existing transit systems, facilities, and services in the region, operating costs, funding, and other transit performance factors; analyzes transit service gaps and identifies outstanding issues; and suggests strategies and policies to address the overall demand for public transit services through the 2045 planning horizon.

Regional Transit Services

Regional transit services include El Metro fixed-route and paratransit services in the city of Laredo and El Aguila, a rural transportation service in rural Webb County. In addition, Greyhound and Valley Transit operate intercity services to provide longer transit travel options outside of the region and a number of services also provide international transit services from Laredo into Mexico. Each of these services are further described below. 2017 data from the Federal Transit Administration's National Transit Database, available data from these service providers and the most recently adopted 2016 Regional Transit Development Plan were used to provide additional information on each of these services.

El Metro Fixed Route Service

El Metro is the primary transit provider in the Laredo region, which operates 35 buses and maintains 1,200 bus stops for its 23 fixed bus routes. **Figure 5-1** presents the El Metro fixed route bus system.

Figure 5-1: El Metro System Map

As of 2017, the average fixed route bus fleet age is 6.8 years. El Metro's bus fleet is presently powered mainly by compressed natural gas (CNG), which is more environmentally friendly and less expensive than regular gasoline and diesel fuel. In addition, all new model buses have bike racks, which are equipped to carry two bicycles.

El Metro's major transportation facility is the five-story Laredo Transit Center located in downtown Laredo at 1301 Farragut Street across from Jarvis Plaza. The transit center serves as a multimodal transportation terminal for the Laredo region and is the main point of transfer for all El Metro routes, El Aguila rural routes, and inter-city services like Valley Transit and Greyhound. It also houses El Metro's administrative offices and a public parking garage for downtown visitors. El Metro's Operations and Maintenance facility is currently located at 401 Scott Street and will be replaced by a new facility at the intersection of Jacaman Road and Bartlett Avenue in a $30 million-dollar project funded by a mixture of US Department of Transportation grants, sales tax proceeds generated within the City of Laredo, and an in-kind match in real estate and labor. Additionally, there is a park and ride lot located at the airport on Hillside Road; it was previously owned by El Metro but is now under the jurisdiction of the Laredo International Airport.

Since 2003, First Transit has administered the operational duties of El Metro, including operations at the downtown Laredo Transit Center. Currently, El Metro has an operating budget of approximately $15.7 million, and an annual ridership of approximately three million passengers.

Hours of Operation

The fixed route system operates Monday through Saturday from 6:00 AM until 10:30 PM. On Sundays and major holidays, the fixed route system operates from 7:00 AM to 8:30 PM. The peak hours are from 6:00 AM to 9:00 AM and 3:00 PM to 6:00 PM on weekdays.

Fares

El Metro fixed route bus fares are listed in **Table 5-1** and paratransit fares in **Table 5-2**. Electronic value cards can be purchased on the buses or at the ticket vending machines at the El Metro Transit Center and can store up to $20 worth of bus fares.

Table 5-1: Current El Metro Fare Structure – Fixed Route

Fare Type	Fare
Adults	$2.00
Students with I.D.	$1.50
Children 5 - 11 years of age	$0.50
Children under 5 years of age	Free
Senior Citizens (62+) / Disabled w/ Metro I.D. (Peak Hours)	$0.75
Senior Citizens (62+) / Disabled w/ Metro I.D. (Off-Peak Hours)	$0.50
Disabled (Peak Hours with El Metro ID)	$0.75
Disabled (Off Peak Hours with El Metro ID)	$0.50
Medicare Card Holder w/picture I.D.	$0.75
Transfers	$0.50

Source: El Metro, 2019

El Lift Paratransit Service

The El Lift Paratransit Service provides persons within the City of Laredo who are unable to utilize the El Metro fixed route system due to a disability, with shared, curb-to-curb public transportation. A total of 10 diesel-powered vans and 10 unleaded vans provide El Lift paratransit service and the average van fleet age is 7.3 years. Wheel chair lifts are provided on all vans as well as on all fixed route buses. To use El Lift, a personal doctor or social service agency must determine a person's eligibility. Eligible passengers must schedule trips in advance by calling El Lift customer service.

Hours of Operation

The demand response or El Lift system operates Monday through Saturday from 6:00 AM to 10:30 PM and on Sunday and major holidays from 7:00 AM to 8:30 PM.

Fares

The fare structure for El Lift is shown in **Table 5-2**.

Table 5-2: Current El Metro Fare Schedule - Paratransit

Fare Type	Fare
El Lift Paratransit (Regular for rides up to 7 miles)	$1.75
El Lift Paratransit (Plus for rides from 7.1 0 14 miles)	$2.00
El Lift Paratransit (Premium for rides 14.1 miles and over)	$2.25

Source: El Metro, 2019

El Aguila Rural Transit Fixed Route Service

El Aguila is the designated rural public transit provider in Webb County and connects patrons living in the rural parts of Webb County to the City of Laredo's fixed route system at certain route stops and the transit center in downtown Laredo. El Aguila's fleet of 12 vehicles operated 209,456 miles and 14,071 hours annually and transported 70,581 annual passengers a year in 2017. El Aguila provides both fixed route and demand response services to the general public, including the elderly, persons with disabilities, students, and welfare-to-work participants. The six fixed routes serve these cities or areas: Rio Bravo, El Cenizo, Pueblo Nuevo, Aguilares, Mirando, Oilton, and Bruni. **Table 5-3** shows the El Aguila fixed route bus system.

Hours of Operation

El Aguila rural fixed route service operates between 5:45 AM and 8:00 PM Monday through Saturday and from 7:30 AM to 6:45 PM on Sundays. The route connecting Rio Bravo, El Cenizo, Pueblo Nuevo, Aguilares, Mirando City, Oilton, and Bruni runs between 8:00 AM and 2:45 PM on Monday, Wednesday, and Friday.

Fares

The structure of fares is shown below in **Table 5-3**. Tickets can be purchased at Jarvis Plaza at 4801 Daughtery Street, Rio Bravo Meat (Rio Bravo), C & C Groceries (El Cenizo) or Los Compadres (El Cenizo).

Table 5-3: El Aguila Fare Structure

Description	Fares
Fixed Route	$1.50
Elderly/Disabled	$0.75 with discount/ID card
Demand Response	$1.00
Students at LCC	$0.50
Inter-City	$0.25

Source: El Aguila

El Aguila Rural Transit Demand Response Service

El Aguila provides both fixed route and demand response services to the general public, including the elderly, persons with disabilities, students, and welfare-to-work participants. This includes curb to curb service from private homes to medical facilities and medically related personal appointments.

Hours of Operation

El Aguila Rural Transit Demand Response services operate Monday through Friday from 7:00 AM to 5:00 PM throughout Webb County. El Aguila system routes are shown in **Figure 5-2**.

Fares

The fare for El Aguila Rural Transit Demand Response Service is currently priced at $1.00 each way for adults, $0.75 one way for seniors, and $0.50 for students. A discount card is issued for free of charge to first time riders.

Intercity Transportation Services

Greyhound Lines, Inc. is the largest provider of intercity bus transit services in the United States, with 3,800 destinations and 13,000 departures daily throughout North America. Within the Laredo region, Greyhound's Laredo station is co-located at the El Metro Transit Center. According to scheduling information, provided online through Greyhound's website, the highest frequency of passenger services occurs between Laredo and San Antonio, with approximately 10 one-way, non-stop trips per day. Other non-stop destinations from Laredo to major cities include Austin, Dallas, Houston, and McAllen. These services are provided through the Valley Transit Company and Americanos USA, which are operating subsidiaries in the Greyhound family of services. Besides providing passenger services, Greyhound also provides same-day and next-day package delivery, as well as charter services for businesses, conventions, schools, and other groups.

Within the Laredo region, several bus operators also provide international passenger bus service from Laredo to destinations across Mexico. These intercity bus operators providing international service include Turimex Internaccional (Grupo Senda), Tornado Bus Company, El Expresso Bus Company, El Conejo, and Omnibus Express.

Figure 5-2: El Aguila System Map

Transit Performance

Metro and El Lift Performance

Transit Ridership

Transit utilization is determined by the level of ridership or passenger trips on a system. Passenger miles traveled is the sum of the distances ridden by each passenger in a transit system. Unlinked passenger trips refer to the total number of passengers who board public transit vehicles, regardless of how many vehicles it takes to reach a destination.

Table 5-4 presents annual passenger miles and unlinked trips for the years 2007 through 2012. There was slight decrease in passenger miles after 2009, continuing through 2015 when demand response passenger miles bottomed out at almost 250,000 and 2016 when fixed route passenger miles bottomed out at around 9.5 million. Ridership has recovered slightly since then, but the recency of past data makes it impossible to generalize about future trends. Fixed route unlinked trips have declined to under 3 million from a peak in the mid-2000s of over 4.3 million, while demand response passenger miles have fluctuated up and down in the mid to high 200,000s. This indicates that passengers are traveling longer distances within the system than in the past.

Table 5-4: Annual Passenger Miles and Unlinked Trips

Year	Fixed Route		Demand Response	
	Passenger Miles	Unlinked Trips	Passenger Miles	Unlinked Trips
2007	13,311,072	4,324,395	256,981	51,548
2008	14,451,730	4,358,456	273,540	50,199
2009	13,222,181	3,987,845	230,597	48,403
2010	11,166,761	3,365,703	214,969	52,368
2011	10,012,260	3,149,631	288,939	55,983
2012	10,121,410	3,183,633	265,053	52,440
2013	10,121,410	3,243,378	287,069	53,107
2014	10,322,701	3,184,119	261,299	51,966
2015	9,819,675	3,097,759	249,027	45,819
2016	9,534,915	3,007,941	261,492	47,529
2017	10,122,069	2,985,861	265,817	51,650

Source: National Transit Database, 2007-2017

Data from the El Metro 2017 Frequency Service Table and ridership data taken from El Metro in 2014 were reviewed to determine the service levels and ridership for the most heavily used routes in Laredo. Based on the above ridership levels, it is evident that the most popular routes during the weekdays are Route 1 – Santa Maria, Routes 2A and 2B – San Bernardo, Route 3 – Convent, Route 10 – Corpus Christi, and Route 4 – Springfield.

Route 1 serves downtown Laredo along Santa Maria Street between the Transit Center and the retail destinations of Mall del Norte and Target, while Route 2A operates in a similar fashion

along the busy commercial corridor of San Bernardo and connects the Transit Center with Mall del Norte. Route 2B follows the same alignment as Route 2A along San Bernardo until it heads east on Hillside towards the park and ride lot near the airport and circles back to downtown via Calton Road. Similarly, Route 3 begins at the Transit Center downtown but heads in a mainly northwest direction, serving such destinations as the Laredo Medical Center, Laredo Main Library, and the Doctor's Hospital of Laredo. Route 4 also begins at the Transit Center downtown and travels in a mainly north/southern direction, serving the Springfield Avenue corridor. Route 10 connects the Laredo Transit Center with South Laredo in a north to south direction and is the main route serving South Laredo.

The routes with highest ridership have the high ridership for numerous reasons. Route 1, Route 2A, and Route 2B run along major arterials connecting the Laredo Transit Center to dense central neighborhoods and demand generating destinations, while Route 3 and Route 4 connect dense neighborhoods on less busy thoroughfares. Route 10 connects the Laredo Transit Center with an area of South Laredo that the 2016 El Metro Transit Development Plan identifies as having one of the largest clusters of highly transit dependent riders in the Laredo MPO region.

Fixed Route Ridership

Table 5-5 shows the 2017 frequency and 2014 ridership for each El Metro fixed route. Route 1 Santa Maria has the most riders with approximately 440,000 passenger-trips each year, which is 14 percent of the total ridership for the system. Route 2A San Bernardo/Social Security and Route 3 Convent carry the second and third highest ridership with approximately 295,000 (9 percent) and 220,000 (7 percent) annual passenger trips respectively for each route.

Table 5-5: Frequency and Ridership for El Metro Fixed Route Services, 2014

Route	Route Name	Approximate Frequency (in minutes)							2014 Ridership
		Weekday			Saturday		Sunday		
		Peak	Day	Eve	Day	Eve	Day	Eve	
1	Santa Maria	25	25	25-50	25	25-50	35-40	35-40	439,853
2A	San Bernardo	35	35	35-70	35	35-70	70	70	294,815
2B	San Bernardo	35	35	30-70	35	35-70	70	70	191,518
3	Convent	60	60	60	60	60	120	NA	220,220
4	Springfield	38	38	38	38	38	75	75	190,824
5	Tilden	70	70	70	70	70	140	-	63,275
6	Cedar	70	70	70	70	70	140	-	122,428
7	LCC	30	30	30	30	30	30	30	94,348
8A	Guadalupe/Lane	70	70	70	70	70	70	70	106,443
8B	Guadalupe/Villa Del Sol	90	90	90	90	90	-	-	41,798
9	Market	45	45	45-90	45	45-90	90	90	147,078
10	Corpus Christi	30	30	30	30	30	60	60	193,028
11	Gustavus/LEC	85	85	90	85	90	85	85	90,847
12A	Del Mar Express	20-35	75	75	75	75	75	75	129,618
12B	Shiloh Express	45	75	40-75	80	80	-	-	119,210
13	Heritage Park	75	75	90	85	90	85	85	67,271
14	Santa Rita	90	90	90	90	90	90	90	108,202
15	Main/Riverside	80	80	80	80	80	80	80	60,121
16	TAMIU	15-30	75	40-75	75	75	60	-	174,536
17	Mines Road	40-60	100	100	75	75	75	75	134,475
19	Santo Niño	80	80	80	80	80	80	80	99,736
20	Los Angeles	85	85	85	85	85	90	90	113,451

Source: El Metro 2017 Service Frequency Table and El Metro 2014 Ridership Data

Operating Costs and Funding Sources

In 2017, El Metro incurred approximately $14.5 million in operating expenses for its fixed route and demand response services. **Table 5-6** exhibits annual operating expenses and for El Metro's transit services from 2007 through 2017. Between 2007 and 2017 fixed route operating expenses grew by an average of 1.07% a year, and demand response operating expenses grew by 2.72% a year. If current trends continue to 2045 fixed route operating expenses could be as high as $16,263,861 and demand response operating expenses as high as $5,586,830.

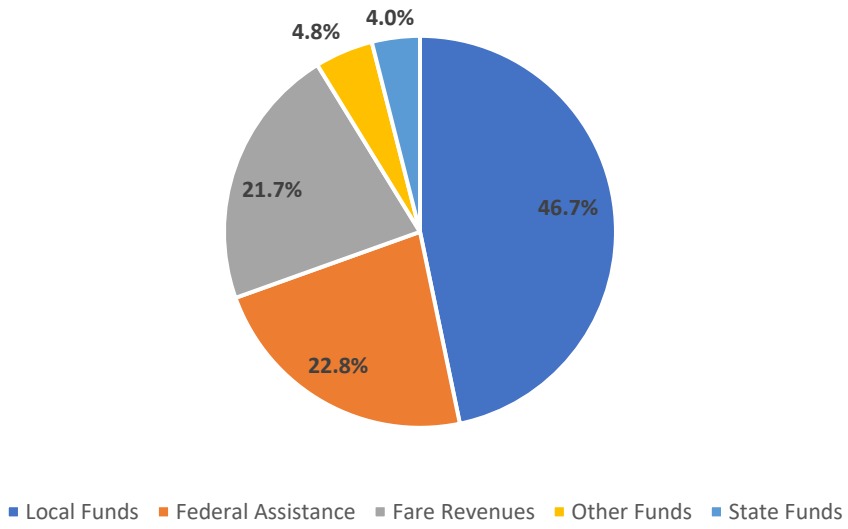
Table 5-6: Annual Operating Expenses

Year	Fixed Route Operating Expenses	Demand Response Operating Expenses
2007	$10,827,000	$2,015,000
2008	$10,985,000	$2,167,000
2009	$10,534,000	$2,106,000
2010	$10,753,000	$1,956,000
2011	$10,440,000	$1,936,000
2012	$11,173,000	$2,003,000
2013	$11,925,274	$2,142,420
2014	$11,996,967	$2,220,342
2015	$11,873,788	$2,389,147
2016	$12,087,791	$2,486,949
2017	$11,991,301	$2,564,093

Source: National Transit Database

El Metro's services are funded mostly through user fees (fares), sales tax, state funds, and federal funds, while a small percentage are covered by other funds such as advertising sales. **Figure 5-3** shows the specific breakdown by funding source.

Figure 5-3: El Metro Operating Cost Funding Sources, 2017



Source: National Transit Database

Local funding from City of Laredo taxes amount accounted for about $6.8 million of operating expenses in 2017, while federal funds accounted for $3.3 million and state funds covered only about $577,000. Fare revenues contributed a total of about $3.1 million for operating expenses in 2017. **Table 5-7** shows the amount of fare revenues collected each year from 2007 through

2017. Annual fare revenue growth for the fixed route system between 2007 and 2017 was 1.23%, and for the demand response system annual fare revenue growth was 2.11%.

Table 5-7: Annual Fare Revenues

Year	Fixed Route	Demand Response
2007	$2,775,000	$33,109
2008	$3,487,000	$34,272
2009	$3,201,000	$34,007
2010	$3,140,000	$44,983
2011	$3,244,000	$48,469
2012	$3,298,000	$42,980
2013	$3,367,797	$41,644
2014	$3,338,050	$42,036
2015	$3,240,096	$38,314
2016	$3,129,609	$36,999
2017	$3,117,455	$40,121

Source: National Transit Database

Service Performance Measures

Transit service performance measures provide insight on the operational status of a transit system. It is important to note that transit service performance measures are different from the performance measures required by the FAST Act. Service performance measures are useful as a basis for future strategic decision-making regarding route planning, fleet planning, budgeting, and scheduling. Three service performance measures are used to monitor the service performance of the transit agency: service effectiveness, service efficiency, and cost effectiveness.

Service effectiveness is measured by dividing annual passenger trips (APT) by vehicle revenue miles (VRM) and vehicle revenue hours (VRH). APT represents the number of passengers who board the operational revenue vehicles. Passengers would be counted each time they board the vehicles, regardless of how many vehicles they have boarded in the current trip. VRM and VRH are the total amount of miles and hours for all vehicles in a transit system when the vehicles are available to the general public. Higher numbers of the measures mean better service effectiveness.

It is a measure of transit utilization describing the level of ridership on a system given the level of service of a transit system. The service effectiveness from 2013 through 2017 is described in **Table 5-8**. For fixed route services, APT per VRM fell by 1.6% per year and APT per VRH fell by 2.04% per year. For fixed route services, the average APT per VRM for peer agencies is 1.19 and the average APT per VRH is 15.35, which El Metro outperforms. For demand response services APT per VRM rose by 1.31% per year and APT per VRH fell by 1.8% per year. Future changes to APT per VRM and APT per VRH going out to 2045 will be driven by changes in ridership.

Table 5-8: Service effectiveness in 2013 through 2017

Year		2013	2014	2015	2016	2017
Fixed Route	APT per VRM	1.92	2	1.8	1.8	1.8
	APT per VRH	21.89	21.4	20.7	20.4	20.1
Demand Response	APT per VRM	0.19	0.2	0.2	0.2	0.2
	APT per VRH	1.94	1.8	1.7	1.8	1.8

Source: National Transit Database

Service efficiency is calculated by dividing the operating expenses by vehicle revenue miles (VRM) and vehicle revenue hours (VRH). Lower numbers of the measures translate to better service efficiency. The service efficiency from 2013 through 2017 is described in **Table 5-9**. In recent years, these numbers fluctuated but stayed at a similar level. For fixed route services, operating expenses per VRM did not change and operating expenses per VRH rose by 0.1% per year. For fixed route services, El Metro outperforms peer agencies for operating expenses per VRM (which averages $7.42) but not for operating expenses per VRH (which averages $71.99). For demand response services, operating expenses rose by 6.3% per year and operating expenses per VRH rose by 5.17% per year. There is not a long-term trend that indicates whether service effectiveness for El Metro's fixed route services will increase or decrease going out to 2045, but service effectiveness for demand response services show a declining trend.

Table 5-9: Service Efficiency in 2013 through 2017

Year		2013	2014	2015	2016	2017
Fixed Route	Operating Expense per VRM	$7.06	$7.42	$7.05	$7.09	$7.06
	Operating Expense per VRH	$80.47	$80.64	$79.44	$81.90	$80.88
Demand Response	Operating Expense per VRM	$7.78	$8.37	$9.46	$9.61	$9.76
	Operating Expense per VRH	$78.14	$78.44	$88.89	$92.04	$94.30

Source: National Transit Database

The measures for cost effectiveness are operating expenses per APT and passenger mile traveled (PMT). PMT is the cumulative sum of a passenger who boards an operational revenue vehicle. Lower figures for the measures mean higher cost effectiveness. The service efficiency from 2013 through 2017 is described in **Table 5-10**. For fixed route services between 2013 and 2017, operating expenses per passenger mile fluctuated but did not change and operating expenses per passenger trip rose by 3.7% per year. For fixed route services, the average operating expenses per passenger mile is $5.41, which El Metro outperforms, and average operating expenses per unlinked passenger trip is $1.83, which El Metro also outperforms. For demand response services, operating expenses per passenger mile rose by 7.33% per year and operating expenses per passenger trip rose by 5.76% per year.

Table 5-10: Cost Effectiveness in 2013 through 2017

Year		2013	2014	2015	2016	2017
Fixed Route	Operating Expense Per Passenger Mile	$1.18	$1.16	$1.21	$1.27	$1.18
	Operating Expense per Unlinked Passenger Trip	$3.58	$3.77	$3.83	$4.02	$4.02
Demand Response	Operating Expense Per Passenger Mile	$7.46	$8.50	$9.59	$9.51	$9.65
	Operating Expense per Unlinked Passenger Trip	$40.34	$42.73	$52.14	$52.32	$49.64

Looking out to 2045, there is currently no trend that indicates that indicates a significant rise in operating expenses for fixed route service but operating expensive for demand response services has increased substantially since 2013. This represents a long-term threat to the financial sustainability of El Metro's demand response service, especially if El Metro wishes to expand it.

MAP-21 directed the USDOT to establish a set of performance measures to increase accountability and transparency of the federal highway and transit programs and to improve decision making through performance-based planning and programming. The FAST Act carries over these requirements for performance measures. The performance measures are being established in a series of rulemakings by the FHWA and FTA. The FTA published the Final Rule for Transit Asset Management (TAM) in July 2016 requiring public transportation providers to develop transit asset management plans for public transportation assets, including vehicles, facilities, equipment, and other infrastructure. The TAM final rule requires transit providers to set state of good repair performance targets. El Metro has accordingly set state of good repair performance targets that align with state targets described in **Chapter 12**.

El Metro collects and submits all public transit data to the TxDOT Public Transportation Division in the standard format described in *PTN-128 Reporting Manual: Data Collection and Performance Reporting*. In 2016, the *Transit Development Plan (TDP)* for El Metro was updated and includes service recommendations and updated performance measures. Ensuring regular updates of the TDP, 2016 Transit Development Plan provides updated performance measures and regular updates of the TDP provides for short term planning and performance monitoring of the transit system. A memorandum of understanding (MOU) has been developed to communicate performance data between the MPO, TxDOT, and the FTA.

El Aguila Performance

Transit Ridership

Transit utilization is determined by the level of ridership or passenger trips on a system. Unlinked passenger trips refer to the total number of passengers who board public transit vehicles, regardless of how many vehicles it takes to reach a destination.

Table 5-11 shows unlinked passenger trips for the El Aguila service. Overall fixed route passenger trips declined rapidly between 2014 and 2017 from almost 96,000 to under 69,000 while demand response passenger trips fell from almost 3,000 to slightly over 2,000. (The figure for unlinked passenger trips for 2015 is likely to be an erroneous outlier). There could be many reasons for this decline in ridership, including lower funding and a shrinking population of transit dependent riders in rural Webb County. Between 2014 and 2017, unlinked passenger trips on the fixed route system fell by an average of 1.07% a year, and unlinked passenger trips on the demand response system fell by 7.65% a year.

Table 5-11: El Aguila Passenger Trips

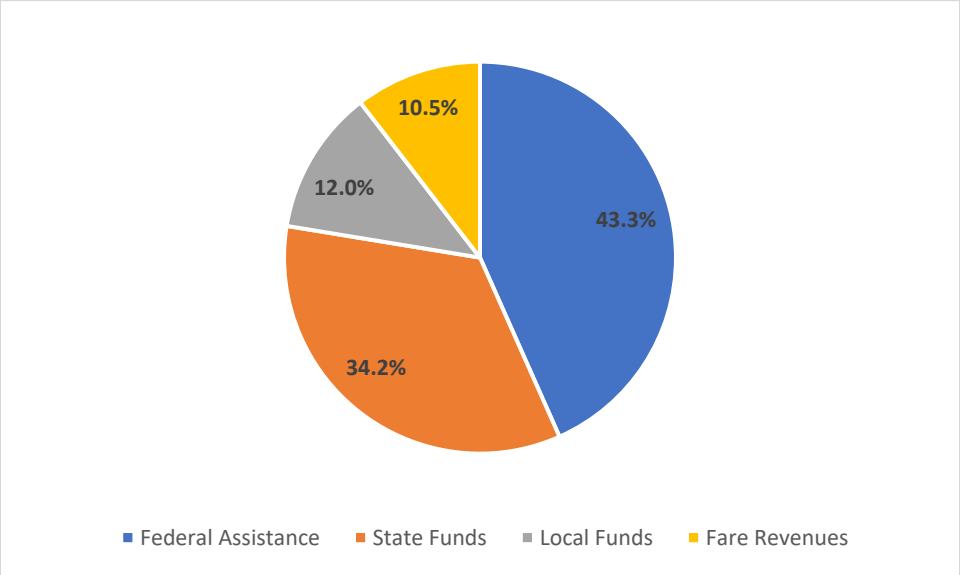
Year	Unlinked Passenger Trips – Fixed Route	Unlinked Passenger Trips – Demand Response
2014	95,898	2,904
2015	74,129	18,599
2016	77,811	2,691
2017	68,566	2,015

Source: National Transit Database

Operating Costs and Funding Sources

El Aguila's services are mostly through federal grants, state, and local tax funds. El Aguila's farebox recovery rate is 10.5%. **Figure 5-4** shows the specific breakdown by funding source.

Figure 5-4: El Aguila Operating Cost Funding Sources, 2017



Source: National Transit Database

El Aguila's operating costs total $853,871. Federal assistance to El Aguila is $370,153 (43.3%), funding from the State of Texas is $292,352 (34.2%), local funding is $102,094% (12.0). El Aguila's farebox recovery rate is 10.5%. Between 2014 and 2017 El Aguila's fixed route fare revenue fell by 2.26% a year, and El Aguila's demand response fare revenue fell by an average of 8.79% a year. **Table 5-12** shows the history of El Aguila's annual fare revenues from 2014 to 2017:

Table 5-12: El Aguila Annual Fare Revenues

Year	Fixed Route	Demand Response
2014	$89,454	$12,198
2015	$107,621	$16,509
2016	$91,036	$9,237
2017	$81,362	$7,910

Source: National Transit Database

Service Performance Measures

Transit service performance measures provide insight on the operational status of a transit system. It is important to note that transit service performance measures are different from the performance measures required by the FAST Act. Service performance measures are useful as a basis for future strategic decision-making regarding route planning, fleet planning, budgeting, and scheduling. Three service performance measures are used to monitor the service performance of the transit agency: service effectiveness, service efficiency, and cost effectiveness.

Service effectiveness is measured by dividing annual passenger trips (APT) by vehicle revenue miles (VRM) and vehicle revenue hours (VRH). APT represents the number of passengers who board the operational revenue vehicles. Passengers would be counted each time they board the vehicles, regardless of how many vehicles they have boarded in the current trip. VRM and VRH are the total amount of miles and hours for all vehicles in a transit system when the vehicles are available to the general public. Higher APT per VRM and APT per VRH mean better service effectiveness.

It is a measure of transit utilization describing the level of ridership on a system given the level of service of a transit system. The service effectiveness from 2013 through 2017 is described in **Table 5-13**. From 2014 to 2017, El Aguila remained minimally effective as a rural transit and paratransit service serving captive riders. APT per VRM increased 50% per year between 2014 and 2017 for fixed route services while APT per VRH fell 7.67% per year between 2014 and 2017. For demand response services, APT per VRM fell by 3.04% per year between 2014 and 2017 and APT per VRH fell by 11% per year between 2014 and 2017. Overall, the effectiveness of service for the El Aguila system is declining over time.

Table 5-13: Service effectiveness of the El Aguila System - 2014 through 2017

Year		2014	2015	2016	2017
Fixed Route	APT per VRM	0.12	0.35	0.13	0.36
	APT per VRH	8.41	6.29	6.54	5.83
Demand Response	APT per VRM	0.41	0.56	0.38	0.36
	APT per VRH	1.55	8.00	1.18	0.87

Source: National Transit Database

Service efficiency is calculated by dividing the operating expenses by vehicle revenue miles (VRM) and vehicle revenue hours (VRH). Lower numbers of the measures translate to better service efficiency. The service efficiency from 2014 through 2017 is described in **Table 5-14**. Between 2014 and 2017, fixed route operating expenses per VRM increased by 8% per year and operating expenses per VRH increased by 1.19% per year. For demand responsive services between 2014 and 2017, operating expenses per VRM increased by 0.8% per year and operating expense per VRH fell by 9.4% per year. This was due to a large fall in total operating expenses for the demand response service.

Table 5-14: Service efficiency of the El Aguila System – 2014 through 2017

Year		2014	20152015	20162016	2017
Fixed Route	Operating Expense per VRM	$3.09	$3.46	$3.45	$4.08
	Operating Expense per VRH	$63.17	$61.34	$59.94	$66.19
Demand Response	Operating Expense per VRM	$3.94	$3.32	$3.45	$4.08
	Operating Expense per VRH	52.43	47.75	31.79	32.69

The measures for cost effectiveness are operating expenses per APT and passenger mile traveled (PMT). Unfortunately, data on El Aguila's PMT is lacking. Lower numbers of the measures mean better cost effectiveness. Unfortunately, data on El Aguila's PMT is lacking so only operating expense per APT is analyzed here. The service efficiency from 2014 through 2017 is described in **Table 5-15**. Between 2014 and 2017, operating expenses per APT for fixed route services rose by 12.8% a year and for demand response services rose by 2.5% per year. The figure for demand response operating expenses per API in 2015 is an outlier and possibly based on poorly reported data.

Table 5-15: Service efficiency of the El Aguila System - 2014 through 2017

Year		2014	2015	2016	2017
Fixed Route	Operating Expense per APT	$7.51	$9.75	$9.17	$11.35
Demand Response	Operating Expense per APT	$33.80	$5.96	$26.89	$37.55

Defining Regional Transit Issues and Needs

Transit systems must receive adequate funding to provide quality service and attract ridership to increase revenue sources. In contrast, if funding is insufficient, service suffers and ridership decreases, which in turn causes revenue to drop. Securing funding adequate for meeting the needs of the system and keep ridership at healthy levels is crucial for managing a healthy transit system.

Among the more important issues that El Metro and El Aguila will be facing during the upcoming years include the following:

- **More customers**: Population projections show growth in regions with a large transit dependent population, including South Laredo.
- **More service needs**: Recent ridership surveys conducted during the *Laredo Transit Development Plan* process revealed concerns about frequency of service, slowness of buses, and the length of wait; suggested improvements included more frequent services and longer service hours
- **Higher costs**: While the dramatic spike in fuel cost during 2008 has subsided, fuel and other costs are expected to rise.
- **Less funding**: Decrease in federal and state operation funding assistance resulted from the fact that in 2010 census the population of the Laredo region increased to over 200,000. It is necessary to rely on more local funding sources.

These challenges are further underscored by the already weakened overall economic conditions which make finding other funding sources more difficult. New sources of revenue and other funding strategies will be needed to meet the transit demands in the future as well as maintain the existing transit service.

Captive and Choice Riders

Users of public transportation services can be divided into two general types of riders: captive riders and choice riders. Captive riders usually have no other choice but to use public transit and consist of people without access to other means of transportation, persons with disabilities, and individuals who are otherwise unable to transport themselves. For captive riders, transit is an integral component of the transportation system and enables access to jobs, education, medical care, and other needed services. In contrast, choice riders have other means of transportation at their disposal and may use transit for a variety of reasons, including cost savings, convenience, or environmental cognizance. Attracting additional choice riders is a challenge for many public transit systems in small to medium sized urban areas where roadway congestion or parking prices are not a significant problem or where a stigma or negative perception of transit is attached to using the system. In addressing future mobility issues, transit must offer a competitive alternative to the personal automobile.

Currently, the majority of the ridership of El Metro and El Aguila is made up of captive riders. Riders surveyed indicate that more residents of the Laredo MPO region would ride more frequently if El Metro and El Aguila service was more frequent and more convenient, linking riders with their destinations more efficiently. More direct connections to regional destinations could bolster ridership, especially as economic trends like a decline in carless households could lead to a decline in transit ridership.

Growing Elderly Population

As the population ages, it is imperative to consider additional transportation options for elderly individuals less able to operate their own vehicle. Public transit and special mobility services, such as demand-response paratransit services, will enable a growing elderly population to continue to engage in the community and receive needed medical and support services. However, the cost of specialized transportation services can be extensive. The Federal Transit Administration provides formula-based funding to states to assist private non-profit organizations in meeting the transportation needs of our senior citizens.

Asset Management and Replacement Needs

The assets and facilities owned by any public agency, including transit agencies, age out of their useful service lives over time. Because of this, El Metro needs to plan to prioritize and secure funding for the replacement of existing revenue vehicles, equipment assets, and existing facilities into the future.

The 2017 El Metro Transit Asset Management Plan (TAMP) evaluated revenue vehicles and equipment assets owned by El Metro on the basis of their Universal Life Benchmark (ULB), a

measure of the useful service live of a vehicle evaluated in this case on the basis of mileage, and facilities owned by El Metro on the basis of the FTA's Transit Economics Requirements Model (TERM) scale, which scores transit facilities from as having (1) to excellent (5) condition. In January 2017, the Laredo MPO adopted performance targets requiring that 75% of vehicles and equipment should be within their ULB and that 75% of facilities have a TERM rating of 3 or higher.

As of 2017, 100% of vehicles and equipment owned by El Metro are within their ULB and 85% of facilities have a TERM rating of 3 or higher, so El Metro is currently meeting its performance targets. El Metro is facing budgetary challenges on doing so in the future. Currently, the needs to maintain a state of good repair are exceeding budget provided, and distance between asset failures is expected to decline.

Key Plans and Studies

The 2017 Viva Laredo Comprehensive Plan, the 2016 Laredo Transit Development Plan, and the 2011 Bus Rapid Transit Feasibility Study were all analyzed for key recommendations and policies to guide the development of the Laredo MPO region's future transit system.

Viva Laredo Comprehensive Plan

The Viva Laredo Comprehensive Plan was adopted by Laredo City Council on September 18th, 2017 and governs the city of Laredo's long-term land use and transportation planning, urban design and historic preservation, sustainability initiatives, and health and education planning. Chapter 4 of the plan (Mobility) evaluates the multi-modal transportation system's mobility, accessibility, and connectivity within the city.

A few notable trends and policies were identified by the Viva Laredo Comprehensive Plan:

- Laredo's transportation system is dominated by the use of single occupancy vehicles. In the mid-2010s, 86% of Laredo's workers commuted by private vehicle. Only 1.5% walk or 0.1% bike to work. In what is generally a lower income city, a disproportionate number of residents are made to travel to work by a relatively expensive mode.
- The driving costs of Laredo residents are estimated to be approximately 32% of median household income. This is over twice the 15% of median income threshold held to be affordable by the FHWA.
- Community concerns expressed by Laredo residents include expanding walkability and mixed-use zoning, addressing congestion, transit, rail, and airport investment, and improved bridges. Reducing congestion was foremost.

The stated goal for public transportation of the Viva Laredo plan is to make the transit system of the Laredo MPO region the most used citywide transit system in the State of Texas. Policies involve promoting route efficiency, transit quality, the reservation of right-of-way for future transit, the enhancement of local and regional bus service, the provision of bus station amenities, enhancement of the bike/ped network near transit stops, ITS implementation, transit-oriented development, and the consideration of a downtown streetcar.

Laredo Transit Development Plan

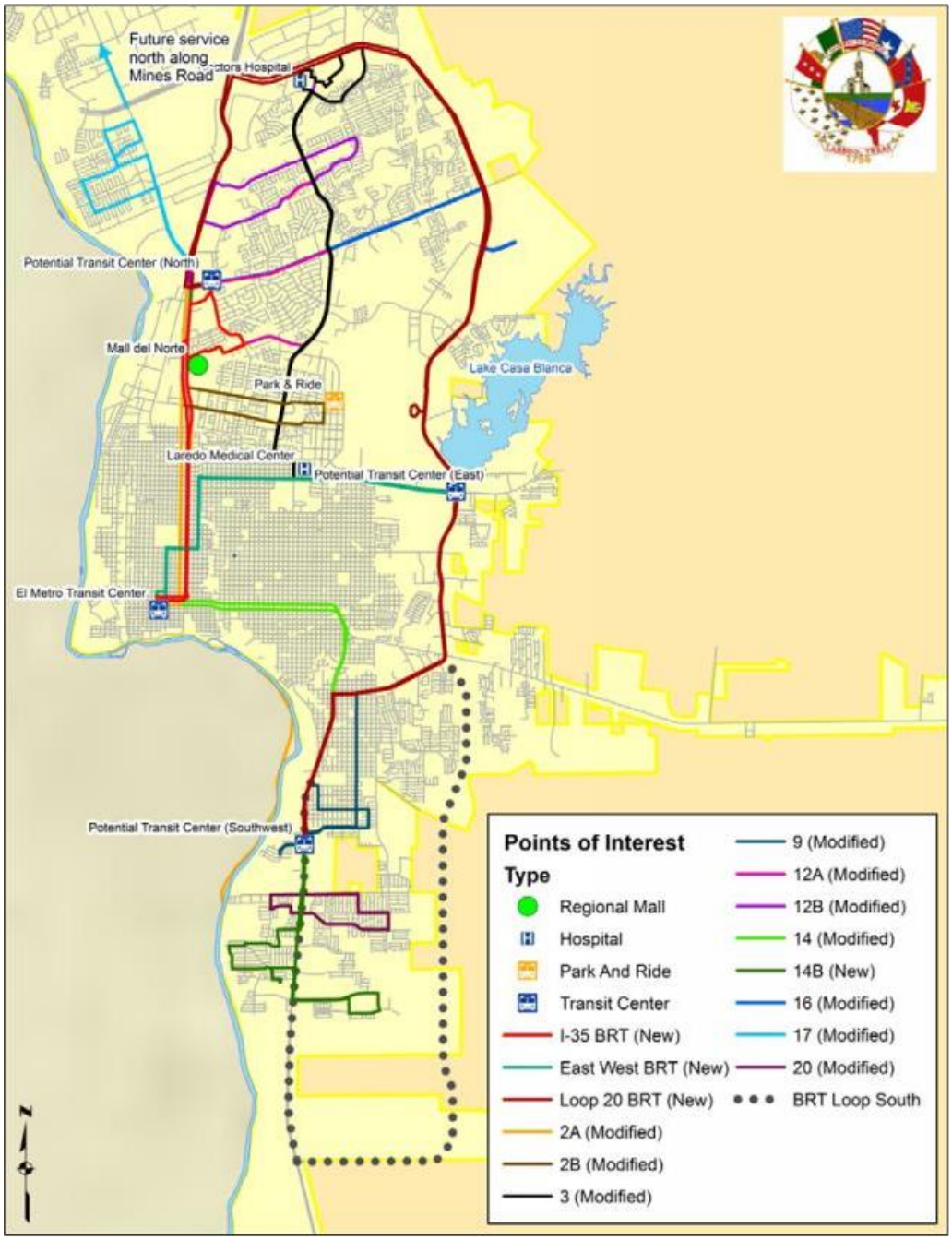
To enhance Laredo's transit system, the MPO completed the Laredo Transit Development Plan in 2016 to recommend improvements over a five-year period. Highlights of the plan's recommendations include the following:

- Consider fare increases and limited service reductions to address the recent ridership and fare revenue losses.
- Refine and optimize current bus schedules to provide reliable service for patrons.
- Stagger arrival times of routes with the most frequent services at the Transit Center in order to decrease bus congestion.
- Continue to recognize service expansion needs and consider the city's future planning efforts such as their thoroughfare and land use plans.
- Consider restructuring and consolidating routes that provide similar services. This is especially targeted at the San Bernardo corridor and includes a "Linear Hub" that reorganizes six current routes into two: one to serve local needs along San Bernardo and the other to provide express service on IH-35.
- Replace the current Downtown Trolley route with a new downtown circulation system.
- Initiate a major route restructuring study to determine the feasibility of the San Bernardo Linear Hub concept and other route improvements that would improve operational efficiency and level of service.
- Reduce expenditures for paratransit by establishing stricter eligibility requirements through an interview method and evaluate the feasibility of contracting paratransit services through taxicab operators.
- Consider recommended marketing strategies and prepare and implement such transit marketing programs. This resulted in the creation of the 2017 El Metro Marketing Plan.
- Provide real-time passenger trip planning service.
- Make certain capital improvements, including new bus stops and shelters and a new operations and maintenance facility.

Bus Rapid Transit Feasibility Study

The Bus Rapid Transit Feasibility Study was completed in 2011 to access the feasibility of implementing Bus Rapid Transit (BRT) service in Laredo and develop implementing strategies. The BRT goals, objectives, and performance measures were also identified. The existing conditions including transit network, roadway network, land use, socioeconomic conditions, and future travel and transit demand were reviewed. In addition to the review of existing conditions, inputs from stakeholders and Laredo MPO staff were also used to envision the different potential BRT scenarios. In the scenarios, existing bus routes are modified to work in tandem with new BRT routes. Different performance measures were evaluated, and the Preferred Transit Scenario was selected, and the phases of implementation and cost estimates were also developed. **Figure 5-5** shows the map of the preferred BRT scenario.

Figure 5-5: Preferred BRT Scenario



Source: 2011 Bus Rapid Transit Feasibility Study

Best Practices and Strategies

A wide variety of best practices exists to ensure successful operation of a public transit system. To address the transit-related challenges of the Laredo region, the MPO will pursue the following "toolbox" of policies, strategies, and actions, along with recommendations presented in the *Laredo Transit Development Plan*.

Continually Evaluate Transit Operations and Improve Service

To promote a balanced transit system, it is necessary to continually assess overall system and route-level performance. Understanding the tradeoffs involved in changing the number of routes, the frequency of service, and the extent of service hours is important in making strategic decisions about allocating resources. A transit system should also continually evaluate its transit coverage as it relates to the region's growth from new development. As development occurs, a transit system should determine the feasibility of extending coverage to newly populated areas. Expanding system coverage to new areas may attract new riders, but at the same time may lower the level of service to areas or destinations in higher demand. As such, it is important to continually monitor the location of popular destinations and new development.

Extended service hours, higher service frequencies, additional routes, and expanded coverage areas are all more likely to be achieved through improved overall operational efficiency, more direct routes, better accessibility, and increased schedule reliability. In short, providing the broadest, most efficient, and most reliable service can greatly improve system operations and, in turn, increase ridership. Regular surveys of users and service studies can provide a cost-efficient way to allocate limited service hours. Furthermore, simple concepts, such as longer spacing between bus stops and transit priority at signalized intersections, can help improve transit speed.

El Metro will continue to employ best practices to increase operational efficiency in order to maximize services to the benefit of its users.

System Resiliency and Maintenance

Maintenance is an important activity for the operation of a transit system for the purpose of extending the useful life of vehicles, equipment, and facilities. Such maintenance is also critical to passenger comfort and transit service reliability. Vehicles in poor condition (e.g., torn seats, broken wheelchair lifts, or poor temperature control) affect the comfort of transit patrons. On-street boarding locations that fall into disrepair affect safety and accessibility. Vehicle breakdowns may cause severe hardships to transit patrons, affecting future ridership.

Examples of vehicle maintenance programs are the following:

- **Daily Service** - Pre-trip inspections prior to operating a vehicle in public service and post-trip inspections upon return to the operating facility are conducted by bus operators. Inspections can detect problems in areas such as lighting, tires, and safety equipment before failures occur while the vehicle is in service. The bus operators also monitor the operating condition of the vehicle throughout the operating day. All defects are

documented on vehicle condition reports, and corrective action will be taken before the vehicle is returned to service.

- **Periodic Inspection** - These inspections are generally performed on a mileage basis and cover all major components of the vehicle. They are designed to provide maintenance personnel an opportunity to detect and repair damage or wear conditions before major repairs are necessary. They will include, at a minimum, inspection of suspension elements, leaks, belts, electrical connections, tire wear, and any noticeable problems. Additionally, the 2017 El Metro Transit Development Plan recommends that El Metro audits more than once per year the following:
  - Conditions of the vehicles as per above.
  - Age and anticipated remaining useful life of the vehicles.
  - Needed spare ratio for the maintenance of service.
  - Any successful reductions in maintenance costs or service failures.

  The findings can then be integrated into a report as part of a transit asset management plan to demonstrate the return on investment for any investments by El Metro.
- **Interval Related Maintenance** - Specific components are inspected on an interval basis to identify wear, alignment, or deterioration problems of parts or fluids. The interval maintenance program includes lubricating oils and filters, alignment, tires, steering components, engine, transmission, and brakes.
- **Standardization of Vehicle Replacement and Reduction in Spare Efforts –** In addition to vehicle replacement efforts that will be for more burdensome than in past years, El Metro maintains a "spare ratio" (the number of additional buses greater than those needed for maximum operation divided by the number of buses used during maximum operation) of 35% (12 spare buses for 35 buses in maximum use) for the fixed route fleet and 29% (4 spare vans for 14 vans in maximum service) – more than twice the Texas average and over the 20% industry standard for transit agencies. Based on current review, it is estimated that El Metro purchase 31 new fixed route vehicles through 2026 and 9 new paratransit vehicles through 2021. Additionally, spare reductions can be implemented, either through writing off older vehicles or by extending fixed or demand response service.

Improved Passenger Technology – El Metro currently faces problems with its passenger experience and technology, including limited access to bus pass products and a lack of information at bus stops. To improve on these issues, El Metro should consider implementing:

- A greater variety of pass products, including daily, monthly, and annual passes and student or employer pass programs implemented through partnerships.
- Updating information at flagpole stops on operating routes and on steps to access information about the transit system, improving shelter space at bus stops, and investing in a planning study to create an inventory of bus stops and their conditions.

Even with regular, routine maintenance, transit vehicles reach the end of their useful service life. Although El Metro preserves and maintains their bus fleet on an as-needed basis, they still must invest in new vehicles and equipment. El Metro has in recent years begun converting its bus

fleet to compressed natural gas (CNG) vehicles, which have lifecycle and efficiency advantages over diesel buses that will improve system efficiency and lower operations and maintenance costs. Because of these advantages, the conversion of El Metro's bus fleet away from diesel buses and to CNG vehicles should be continued.

A new maintenance facility has been constructed at the site near the intersection of Bartlett Avenue and Jacaman Road. Other maintenance and system preservation projects include vehicle replacement for fixed route and paratransit services, bus lift replacements, maintenance equipment and general preventive maintenance.

Land Use and Development Considerations

Transit service is most effective where land development patterns are compact, densely populated, and include a mix of uses. Transit service also requires direct pedestrian connections between transit stops and origins and destinations. As such, considerations for pedestrians should coincide with development considerations for transit users.

The City of Laredo supports land use design standards, policies, and principles which promote more pedestrian and transit friendly developments and more sustainable growth patterns using the Viva Laredo mobility plan. Investments in a multimodal transportation system, which include enhancements to the transit system, are needed to support an increased quality of life for all citizens. The Laredo MPO references the American Association of State Highway and Transportation Officials (AASHTO) Highway Safety Manual and the National Association of City Transportation Officials (NACTO) Urban Street Design Guide as resources in developing design guidelines. This includes guidance on correct bus stop placement, bus stop amenities and topology, bus bay spacing needs, and facilities for bus turning movements that meet NACTO standards and are consistent with TxDOT requirements.

Improving Transit Amenities

Offering certain facilities and other amenities to transit users may greatly enhance the transit experience to further promote transit usage. Park-and-ride facilities in strategic locations can act as important anchors to the regional transit system, serving as satellite hubs for local, intercity, and regional transit services. Enhanced transit centers with amenities such as weather protection, passenger information, and vending machines provide additional incentives for regional and local riders. Furthermore, transit stops with bus shelters, signage, and passenger information enhance the attractiveness, comfort, and safety of the transit system. On the vehicles themselves, amenities such as bike racks and automated route information improve the experience of traveling customers. El Metro currently have the AVL-GPS system that show the real-time bus locations in all fixed-route buses online and bike racks on most fixed-route buses.

Integrating Transit Considerations with Designing Roadway Improvements

A transit system must be considered in conjunction with other modes in a multimodal transportation system. For example, a bus requires a roadway upon which to operate, which require adequate surfaces, conditions, and other design features which can accommodate large transit vehicles. Congested roadways with poorly engineered street systems and traffic signals degrade transit service. Lastly, transit users are also most likely pedestrians at some point during their trip, and therefore must also have adequate sidewalks, transit stops, safe street crossings, and proper lighting to safely and efficiently conduct their travel.

Intelligent Transportation Systems (ITS) for Transit

ITS enhancements should be considered when developing improvements for achieving increased efficiency of the transit system. For example, technology that enables signal preemption for buses increases the speed of transit service. Instant traveler information technology informs patrons more reliably when the next bus will arrive. Such investments may be more cost effective in order to increase the efficiency and attractiveness of the system.

Policy 4.12.4 of the Viva Laredo Mobility Plan is to "implement intelligent transportation systems (ITS) to reduce congestion and facilitate cross border travel". Examples of an ITS improvement that could be used for congestion reduction include dynamic routing, in which variable message signs are used to reroute cars around overly congested or closed arterial streets, or pre-trip traveler information systems that allow travelers to plan their trips around present conditions. Freight mobility information systems can also be used to manage freight traffic at the five border crossings.

Coordination among Transit Entities

Transit service providers in a region should coordinate and collaborate as much as possible to reduce the occurrence of repeated services. In particular, each region is mandated by the federal government to produce a coordinated regional service plan. Coordination of existing services and general improvements to public transportation services in the South Texas Planning Region, of which Webb County is a part, are provided in the *South Texas Planning Region Public Transportation Coordination Plan*. Some of the recommendations and issues discussed relevant to the Laredo metropolitan planning area include:

- Increasing transfer points between El Aguila and El Metro
- Extending services to highly needed areas such as the colonias in the more rural areas
- Extending El Aguila routes to service destinations along the Bob Bullock Loop
- Providing new transit service to access major employment centers along Mines Road near Loop 20
- Providing vanpools along some major corridors may be a viable option as census data indicates a higher propensity to rideshare

- Offering Dial-a-Ride service for more rural areas and also for after-hour, fixed route service needs
- Targeting projects that uses Section 5310 funds for low-income individuals, persons with disabilities, and the elderly
- Identifying local funding sources to match federal spending in rural areas
- Establishing a mechanism such as a Memorandum of Agreement to enable different transit providers to enter into agreements to coordinate services and reduce duplication of services
- Establishing a forum, such as an internet webpage or telephone support, that provides a "one stop shop" for transit services offered in the region
- Providing a mentoring and support program initiated by El Aguila and El Metro for small transit operators that provide paratransit service

Enhanced Marketing

To attract additional ridership, transit service providers should develop a comprehensive marketing program to promote transit usage. The marketing program should advertise the extent of transit amenities and educate the region about the benefits of using mass transit. Moreover, the marketing program can target existing or potential customers such as college students and residents of new developments. El Metro Marketing Plan was updated in 2017 to build visibility, educate existing and potential riders, generate ridership, and build community support and partnership opportunities to expand the usage of transit in Laredo by attracting choice riders. Currently, less than 1% of El Metro's budget is spent on marketing – lower than the industry standard of 1% of budget. Strategies identified in the marketing plan include a tagline marketing campaign to address concerns or perceived issues associated with riding El Metro buses, plans to make El Metro brochures and tickets more widely available, information on El Metro buses on jury duty notices, employer and university pass programs, presentations to agencies and community groups, coordination with Uber and El Aguila, and continued campaigns.

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Chapter 6:
Bicycle and Pedestrian

Introduction

Bicycle and pedestrian modes of transportation serve as an alternative, affordable means of transportation for a variety of purposes. The City of Laredo is committed to improving bicycle and pedestrian infrastructure. The City of Laredo has employed a Bicycle Coordinator as within the Traffic Department to advance bicycle and pedestrian needs. Bicycle and pedestrian facilities that are safe, accessible, and interconnected are important to supporting a high quality of life. They also contribute to environmental and societal enhancements through reduced vehicle miles traveled, decreased roadway congestion, overall improved public health, an increased sense of community, improved mobility for those without access to a personal automobile, reduced air and noise pollution, and improved water quality.

Moreover, bicycle and pedestrian travel is consistent with the MTP's vision to "develop a transportation system that offers safe, efficient, affordable travel choice for people and goods, while supporting economic development and long-term quality of life." Bicycle/pedestrian travel is efficient, affordable, and available to segments of the population who do not or choose not to drive. It does not disrupt neighborhoods or have a negative impact on the environment; in fact, it can help to better improve neighborhood connectivity and promote healthy and sustainable communities. Every potential motorized trip which is taken by foot, improves environmental quality, improves individual health and fitness, reduces traffic congestion and delay and can contribute to a sustainable development pattern by delaying the need for additional roadway widening. Unfortunately, however, bicyclists and pedestrians are often overlooked when planning for transportation improvements and investments.

Regional Bicycle and Pedestrian Facilities

Existing Facilities

Presently, the Laredo region has only a few bicycle-only facilities, including existing bike lane along Clark Boulevard (Spur 400) between Bob Bullock Loop (Loop 20) and Arkansas Avenue and a cycle track along the northbound side of Bob Bullock Loop (Loop 20) from Shiloh Drive to just south of Sinatra Parkway.

Currently, the Zacate Creek Greenway provides a three-mile trail along Zacate Creek from Canal Street to Rio Grande River.

The Chacon Creek Hike and Bike Trailruns for 2.7 miles and connects the LCC South campus to the southern terminus of the existing Loop 20 trail. Along its path, it connects several parks including Santa Rita Park, Benavidez Park, Dryden Park, Villa Del Sol Park, and Eastwoods Park. This trail serves cyclists traveling between Texas A&M International University (TAMIU)

to Laredo Community College's (LCC) South campus. Similarly, the completed segments of Manadas Creek Trail are located at North Central Park and San Isidro Park. It is part of the proposed 15-mile long hike and bike trail. It encourages non-motorized transportation use by providing connections between the parks and the surrounding neighborhoods **Table 6-1** shows the bike route name, limits, and type of the existing bicycle facilities.

Table 6-1: Existing Bicycle-Pedestrian Routes

Bike Route Name	Limits	Type
Loop 20	Shiloh Dr to South of Sinatra Pkwy	Cycle Track
Spur 400	N Arkansas Ave to Loop 20	Bike lane
Zacate Creek Greenway Trail	Canal St to Rio Grande River	Shared path
Manadas Creek Trail	At North Central Park and San Isidro Park	Shared path
Chacon Creek Trail	Rio Grande River to SH 359 and Haynes Recreation Center to Eastwoods Park	Shared path

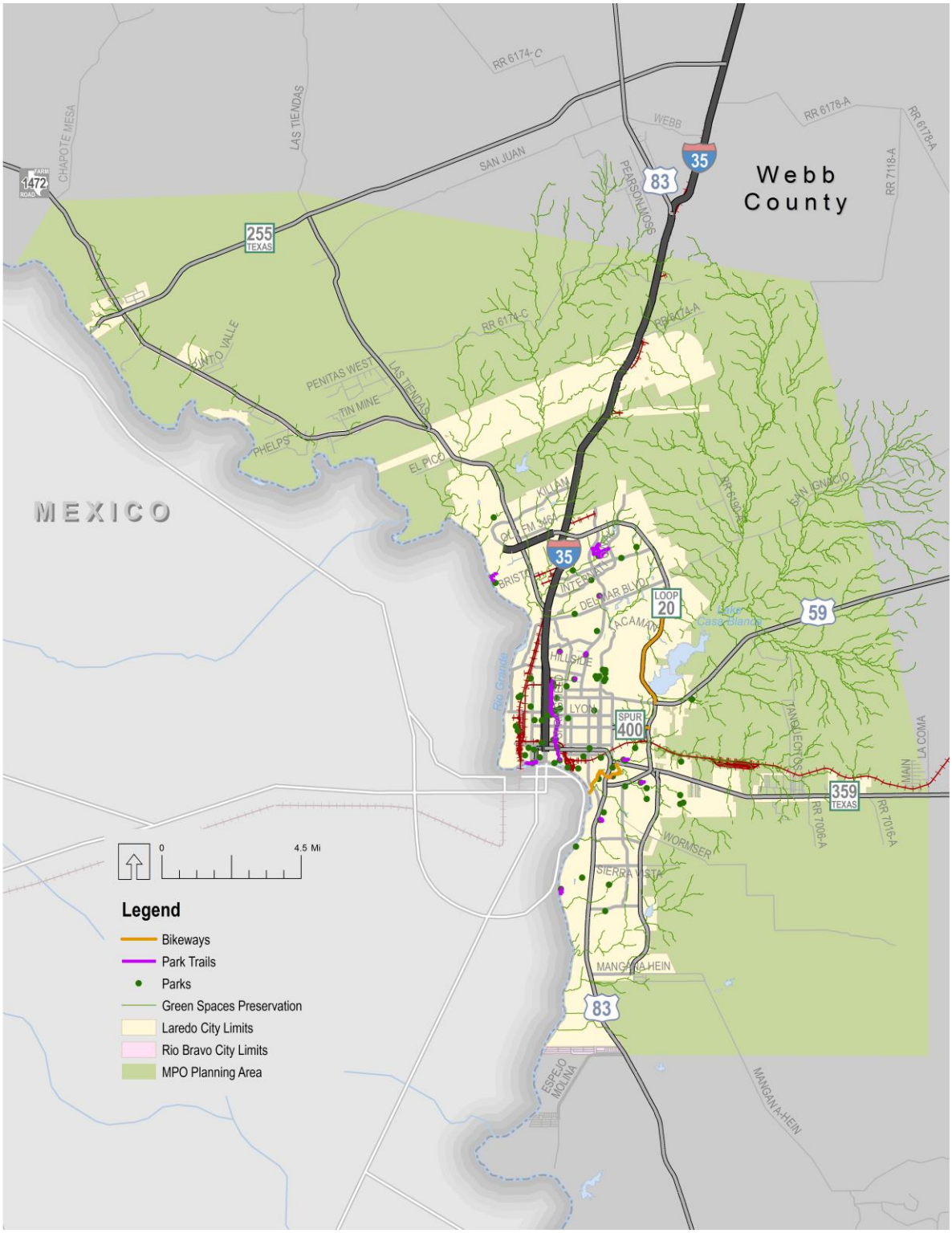
Figure 6-1 on the following page presents the area's existing bicycle routes and the locations parks and preserved green spaces. The Green Spaces Preservation Ordinance of 2004, which is intended to preserve vegetated stream buffers in the city of Laredo that have otherwise been destroyed, has largely been successful. Connecting parks and green space can serve as a framework for identifying where additional bicycle facilities could improve connectivity across the region.

Additionally, the region possesses many qualities that contribute to its ability to attract bicyclists and pedestrians, including a favorable climate, a flat landscape, and good connectivity through its local street network in the central city of Laredo. However, as in most regions, automobiles are the dominant form of transportation, and bicycling and walking may not be considered viable alternatives for many people in the area. This may be further exacerbated by the presence of unsafe crossings, missing segments in bicycle facilities and sidewalks, design of arterials and major roadways, and a lack of dedicated lanes to give the sense of a visible division between automobiles and bicyclists.

Future Proposed Network

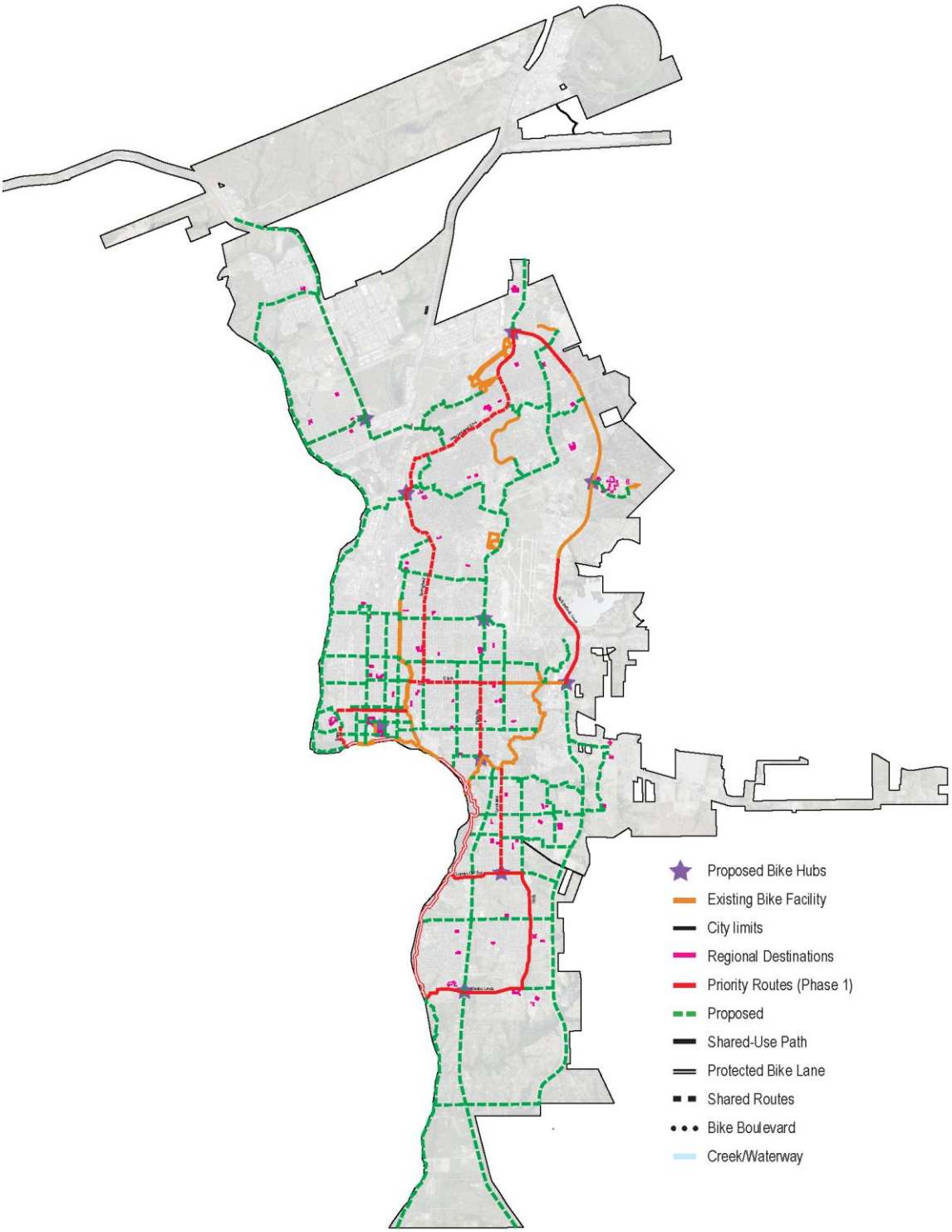
The proposed future bicycle network for Laredo is shown in **Figure 6-2**. The purpose of Laredo's future bike network is to connect regional destinations, including school and university campuses, to each other and to major residential and commercial areas, including downtown Laredo. Priority routes include the Bob Bullock Loop, connecting downtown to North Laredo by bike, and connections to South Laredo, an area with high dependence on non-automobile transportation.

Figure 6-1: Existing Bicycle and Pedestrian Facilities, Parks, and Green Space Buffers



Source: CDM Smith

Figure 6-2: Proposed Future Bicycle Network for Laredo



Source: Viva Laredo, 2017

Identifying Regional Bicycle and Pedestrian Needs

In the Laredo region, bicycling and walking are important means of transportation. On any given day, the urban core of the city is teeming with shoppers on foot and the presence of cyclists using the roadways and sidewalks for transportation is very evident. Visitors from Nuevo Laredo, students at Laredo Community College (LCC), and other residents that rely on walking and bicycling to meet their daily transportation needs require a safe experience during their travels.

To identify needs for this plan, available state and local bicycle and pedestrian data sources were used. The Viva Laredo Comprehensive Plan also contains challenges and opportunities for improvements to bicycle and pedestrian facilities that were reviewed to identify gaps and define needs from a regional perspective through the 2045 planning horizon.

Performance Data Challenges

Currently, there is limited data available on the performance of bicycle and pedestrian facilities including asset conditions and maintenance programming, however, there are best practices for bicycle and pedestrian facilities that the City of Laredo should consider. The FTA has developed a toolbox of performance measures that city governments, regions, and states can use to evaluate their bicycle and pedestrian systems. Localities can develop bicycle and pedestrian systems plans and asset management plans as part of their transportation plans or conduct asset studies and inventory studies to check their bicycle and pedestrian networks for completeness, safety, and reliability. In turn, these studies can be used to set new goals and evaluate progress towards existing goals.

Funding Challenges

Funding for proposed bicycle and pedestrian projects is often the last obstacle to their implementation. While the level of state and federal enhancement grants has varied over time, but in particular few federal funding opportunities for proposed bicycle and pedestrian projects have materialized in recent years. Currently, TxDOT has limited the use of its transportation alternatives (TA) funds to bicycle and pedestrian construction only, and future TA funding will be available after FY 2021, amounting to $13 million dollars available for small urban areas. This program provides 80% of construction funds with a 20% minimum required local match.

Establishing priorities is critical to the success of the bicycle and pedestrian element of this transportation plan. The MPO can pursue alternative funding sources, such as private sponsorship or the Laredo Development Foundation. Another option to consider is the development of a Tax Increment Reinvestment Zone. A Tax Increment Reinvestment Zone (TIRZ) is an economic development tool available to Texas cities to help finance public improvements that are needed to promote development or redevelopment in a specific geographic area. In 2017, Laredo City Council implemented a TIRZ in downtown Laredo and then in 2018 a second TIRZ at the Coves at Winfield, a $100 million-dollar mixed-use development in North Laredo. The downtown Laredo urban core is one area to consider for a

TIRZ. This area is bounded by Santa Maria Avenue, Moctezuma Street, Santa Ursula Avenue, and Water Street and sees the greatest amount of pedestrian traffic in the city.

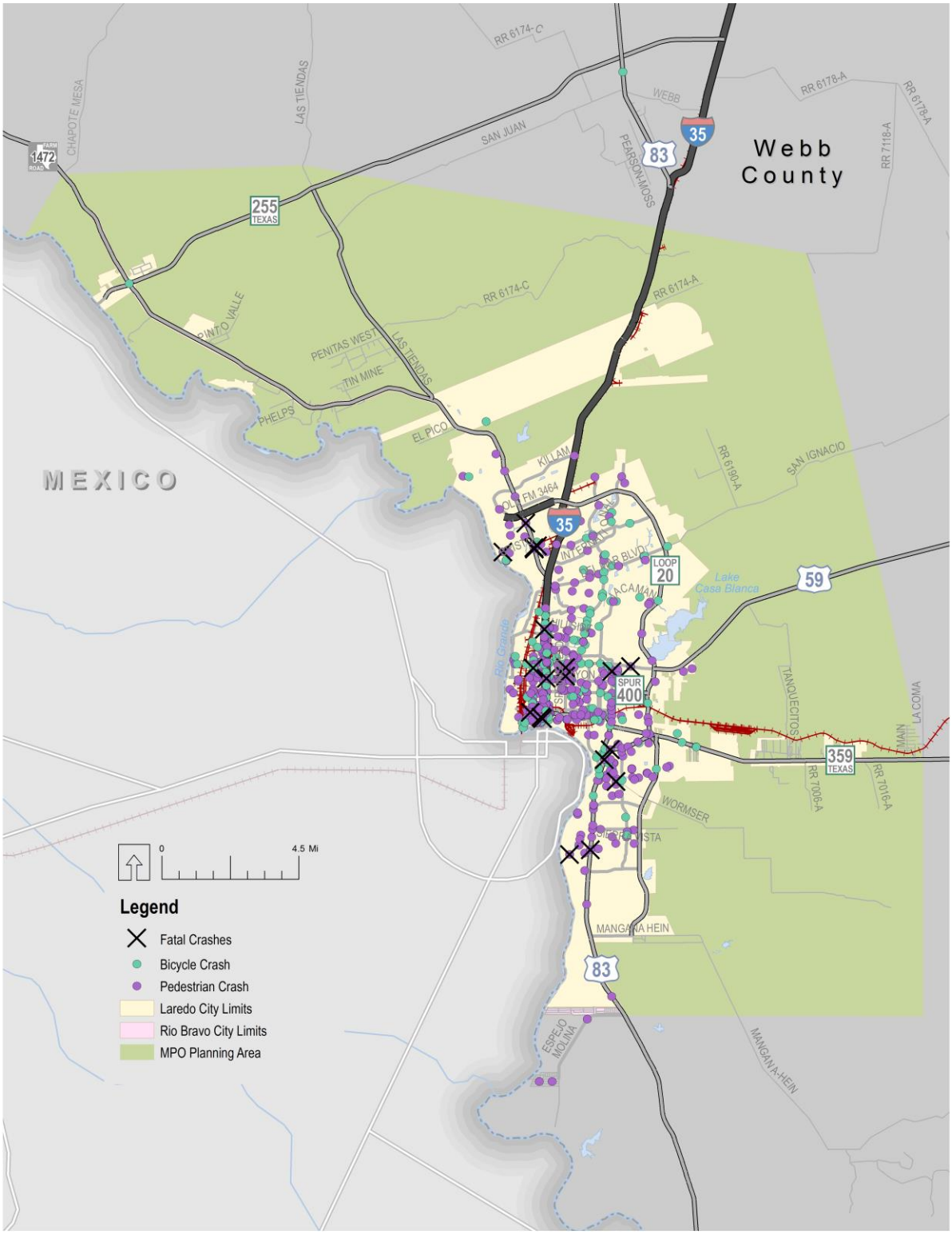
Gaps in the Regional Network

Currently, the pedestrian and bicycle network in Laredo suffers from large service gaps. While Downtown Laredo has an easy to navigate grid system, a built-out sidewalk network, and low speed limits making bicycling and walking safe and convenient, communities throughout the rest of Laredo have curvilinear streets, long distances between destinations, high speed limits, arterial roads, and other characteristics that make bicycling and walking difficult. For example, 1105 Houston Street in downtown Laredo has a walk score of 95 and a bike score of 65, but the Walmart Supercenter at 2320 Bob Bullock Loop has a walk score of 35 and a bike score of 50. According to the Housing + Transportation Index, Laredo's high location inefficiency and low average household income result in housing and transportation each consuming over a third each of an average Laredo household's budget.

The main pedestrian and bicycle gaps in Laredo's regional transportation network are between destinations like school campuses, shopping centers, and other major destinations including Laredo International Airport. Additionally, better connections are needed between transit stops and other destinations for last and first mile travel to transit connections. Non-motorized accessibility, including sidewalks and bicycle facilities including racks and shelters, would make walking and biking easier to use as active modes.

According to TxDOT's Crash Records Inventory System (CRIS), there are a total of 468 pedestrian related crashes, and a total of 162 bicycle related crashes that occurred within the Laredo MPO area during the years 2014 through 2018. The location of fatal crashes and bicycle and pedestrian crashes is shown in **Figure 6-3**. Among these crashes, 24 pedestrian fatalities were recorded, and one fatal bicycle related crash was recorded. A high number of bicycle or pedestrian crashes occurred in the downtown area and near the Gateway to the Americas bridge, with other clusters in South Laredo near a cluster of public schools and around Mines Road, which hosts dangerous freight traffic. This cluster downtown is due to the very high numbers of pedestrians using the downtown sidewalk network. Locations with multiple crashes could indicate where the safety of bicyclists and pedestrians should be improved. At these locations, future roadway projects to improve bicycle and pedestrian safety should be advanced.

Figure 6-3: Bicycle and Pedestrian Crash Locations

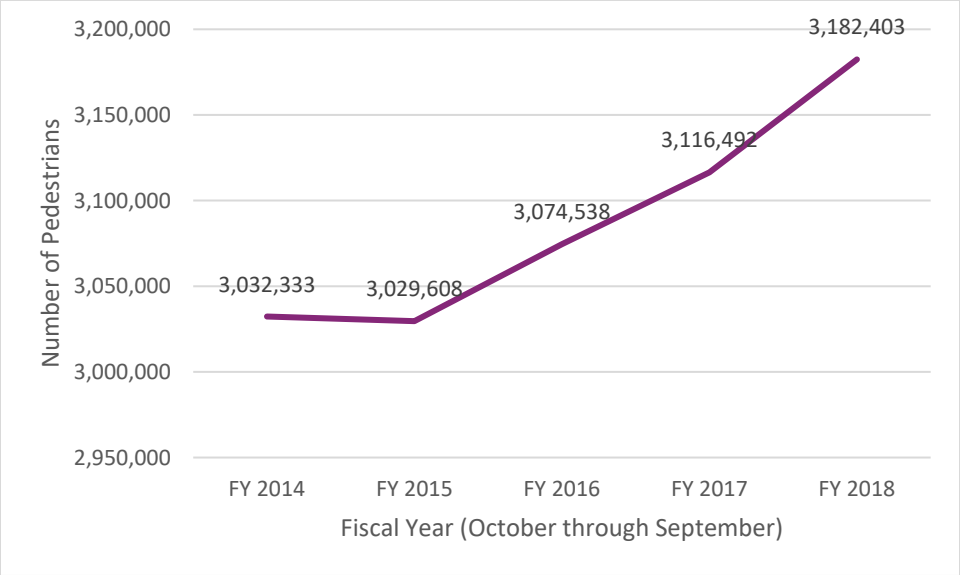


Source: TxDOT Crash Records Inventory System

Large International Pedestrian Border Crossings

Over three million pedestrians crossed the border through the Gateway to the Americas Bridge (Bridge 1) in the downtown area from Nuevo Laredo during Fiscal Year (FY) 2018 (October 2017 through September 2018). Pedestrian crossings across the Gateway to the Americas Bridge (Bridge 1) for FY 2014 through FY 2018 is shown in **Figure 6-4**. Between 2014 and 2017, pedestrian bridge traffic at the Gateway to the Americas Bridge grew by 1.2% a year. If that average growth rate continued to 2045, 2045 pedestrian bridge traffic at the bridge would be 4,444,363 a year! This high number will cause a severe strain on currently existing pedestrian facilities serving border crossers.

Figure 6-4: Pedestrian Crossings as Gateway to the Americas (Bridge 1)



Source: City of Laredo

The needs for bicyclists are closely related to those of pedestrians. In general, bicyclists are made up of advanced, basic, and child users. As such, bicycle facilities should accommodate the needs of each level of users. Various bicycle facility options include shared lanes, paved shoulders, striped lanes, cycle tracks, shared-use paths, and signed routes. Shared lanes are usually wider outside lanes that provide additional room to accommodate bicyclists, while striped lanes are narrow lanes for the exclusive use of bicyclists and contain markings to indicate their designated use. Cycle tracks are bike lanes that are physically separated from the roadway. Shared-use paths are typically asphalt or concrete pathways that run adjacent to roadways and can be shared by both pedestrians and bicyclists. Signed routes are created in cases where no room exists to create additional space for bicyclists and are often on less congested streets with reduced traffic speeds. Basic and child bicyclists may feel more confident utilizing multi-use paths and striped lanes; while more advanced users may travel safely on shared lane facilities.

A bicycle transportation network should meet certain requirements to ensure that bicycling is safe, convenient, and efficient for both utilitarian travel and recreational purposes. Hazards

include a lack of proper lighting, overhead and horizontal obstructions, vehicular traffic, drainage grates, and conflict with other users such as pedestrians. There are different types of treatments for bicycle traffic, such as paved shoulders, shared use paths, dedicated bicycle lanes, and cycle tracks which are also known as physically separated bicycle lanes. The selection of bikeway type should consider the intended travel purpose, interaction with vehicular traffic, and the available right-of-way. The bicycle network itself should be direct and provide adequate connections between popular destinations, as well as access to public transit routes.

Clear and consistent route signage not only assists bicyclists in wayfinding, but also helps motorists be aware of the presence of bicyclists. Bicycle parking that is safe, secure, and convenient is critical at popular destinations. Ancillary facilities, such as showers and lockers at places of employment, are also important for those that travel to work by foot or bike.

Five critical components augment the success of a non-motorized transportation system: engineering, education, encouragement, enforcement, and evaluation. Proper engineering and design of roadways incorporating a multimodal environment are vital in promoting a successful pathway network. Educational programs that administer information about the correct and safe way of traveling by foot or bicycle and that make motorists aware of “sharing the road” with different types of transportation uses are imperative for transportation safety. This is further complemented by the enforcement of traffic laws that relate to the interaction between motorists and pedestrians and bicyclists. Evaluation helps analyze the effectiveness, extent, and cost of various efforts and programs, and provide guidance to what resources should be made available and the direction of policies in the future.

Bike share programs have been established in cities of varying sizes across the country. Dockless bike and scooter share companies like Lime and Bird are also increasingly popular in cities across the US. The City of Laredo is coordinating with Lime to bring the company’s bike and scooter share services to the Laredo region. The increasing number of bike share programs and bicycle-related facilities and programs to encourage bicycle use indicates the increasing interest in seeking non-motorized transportation as a viable mode choice from different levels. Bicycle-friendliness and walkability have become the selling point in some real estate advertising, and some communities have even invested in bicycling and walking for economic growth purposes.

Regional Bicycle and Pedestrian Strategies

Based on the needs identified and a review of best practices concerning the proper planning of bicycle and pedestrian facilities, several strategies are recommended to advance bicycle and pedestrian transportation in the region.

Maintaining a Database of Bicycle and Pedestrian Facilities

To maintain awareness of bicycle and pedestrian needs, it is important for communities to maintain a database of pedestrian and bicycle facilities. This database should first involve creating an inventory of the existing system and contain information as to the conditions and features of the infrastructure. Besides facility conditions and other basic features, the database could also include the location of missing links in sidewalks and pathways, and the conditions of

existing traffic operations and geometric conditions which impact a pedestrian or bicyclist's decision in using certain roadways. Criteria for determining bicycle and pedestrian levels of service could also be maintained to evaluate system performance. The database should be updated regularly to help in planning for future improvements to better accommodate bicyclists and pedestrians. The City of Laredo currently has a basic, regularly updated inventory of existing facilities.

Integrating Land Use and Transportation

Land use and transportation planning should be integrated to make communities livable and accessible for walking and bicycling. While in the downtown Laredo area, there is a strong established grid pattern to support bicycling and walking, much of Laredo's suburban development and new developments do not support a strong and connected bicycle and pedestrian network. Standards, policies, and guidelines should be developed in order to support a safe, walkable, and bicycle-friendly environment. Land uses most conducive to bicycling and walking are concentrated in mixed-use, dense, compact developments with a variety of connections to services and facilities.

In addition, pathways along an interconnected network of streets generally offer more direct travel to destinations than curvilinear and cul-de-sac streets. Street crossings should be well-designed, visible, and contain crosswalks and signal activation devices where appropriate. Street crossings that incorporate raised medians and innovative design features such as curb extensions, or bulb-outs, which act as extensions of the pedestrian network into the roadway, make crossing streets safer for pedestrians. Streets that provide visible interest and features such as street furniture and trees encourage more people to walk. Also, a sense of safety and security is achieved through street lighting, pedestrian signs, and other visibility-related design features.

Specific policies for land use and transportation considerations may include providing clearly defined, separate lanes for bicyclists to create a physical division between motorists and bicyclists. This helps to elevate the importance of bicycling as a legitimate form of transportation. Other examples include requiring public rights-of-way for the construction of pathways connecting cul-de-sacs between developments, encouraging schools to include pedestrian and bicycle accessibility issues in new school location decisions, and developing specific requirements for pedestrian and bicycle facilities in town centers, transit corridors, and employment centers.

Preserving Future Bicycle and Pedestrian Corridors

To further assist bicycle and pedestrian efforts, it is prudent to plan for and preserve future bicycle and pedestrian corridors. Strategies include requiring future development to set aside trail and pathway easements, incorporating bikeway right-of-way designations in transportation and master plans, identifying recreational trail corridors in park and community plans, and establishing pathways along utility easements and railroad corridors.

Incorporating Bicycle and Pedestrian Elements into Roadway Design

Requiring that roadway design to include bicycle and pedestrian elements would also improve non-automobile modes of transportation. The concept of the "complete street" is for the roadway to accommodate all road users, regardless of age, ability, or mode of transportation. Complete streets can be achieved through wider outer lanes, bike lanes, cycle tracks, wide paved shoulders, bicycle-friendly drainage infrastructure, sidewalks, dedicated bus lanes, comfortable and accessible transit stops, safe and frequent crossing opportunities, medians, pedestrian signals, and/or curb extensions.

In June 2017, FHWA in partnership with the Laredo MPO held a two-day educational workshop titled "Designing for Bicyclist Safety". The workshop served as a means to educate local transportation design and implementation authorities on best practices for bicycle facility design and implementation within the region. The workshop provided participants with background on bicycle safety and crash statistics, design guidance and best practices for on-road bicycle facilities and intersection design treatments, tools for implementation within a variety of contexts, and facilitated discussion on existing bikeways and current design challenges in the region.

When incorporating bicycle and pedestrian elements into roadway design, coordination with TxDOT and other implementation partners is important to ensure such accommodations on new or improved major roadways, bridges, underpasses, at-grade rail crossings, and highway interchanges could better support regional non-motorized transportation. In 2019, TxDOT will distribute $19.3 million dollars in funds for bicycle and pedestrian projects, including $10.6 million through the FAST Act and $8.7 million through the US Department of Transportation's Safe Routes to School Program.

Establishing the Future Bicycle Network by Function

Table 6-2 shows common treatments for installing bikeways. Additionally, the mobility section of the Viva Laredo plan identifies bikeway types appropriate for different road typologies.

Table 6-2: Five Common Types of Bikeway Treatments

Type	Description	Example
Paved Shoulders	• Adequate in rural areas • Benefits to drivers: space for evasive maneuvers, space for disabled vehicles to slow down or stop safely, and increased sight distance for through vehicles and for vehicles entering the roadway • Benefits to bicyclists and pedestrians: reduce passing conflicts between motor vehicles and bicyclists and pedestrians, making storm water discharge farther from	 *(Austin, TX)*

Type	Description	Example
	the travel lanes, reducing splash and spray to pedestrians and bicyclists, and allowing bicyclists to ride at their own pace	
Shared Lane Marking	• Known as “sharrow”, used to label a shared environment of automobiles and bicyclists • Encourages bicyclists to position themselves safely in lanes too narrow for vehicles to safely pass bicyclists in the same lane • Alerts drivers of the potential presence of bicyclists • Shown to increase the distance between bicyclists and parked cars to let bicyclists avoid getting “doored” • Serves to advertise bikeways to all road users without requiring additional right of way. **Considerations:** • Appropriate for low design speed and low volume roadways	 *(Austin, TX)*
Bike Lane	• A portion of the roadway that has been designated by striping, signage, and pavement markings for the preferential or exclusive use of bicyclists. • Allows bicyclists to ride at their own pace with little interference from vehicular traffic • Makes both bicyclists and drivers predict each other’s movement more easily **Considerations:** • A designated buffer space between bike lane and vehicular traffic or parked cars	 *(Austin, TX)*

Type	Description	Example
	can be provided to further improve the safety of bicyclists • Appropriate for streets with posted speed under 35 MPH and should be 6' in width • Careful study must be implemented to consider the interaction of bicycle traffic and vehicular traffic when installing bike lanes • Law enforcement should help prevent vehicle encroachment and double parking	
Cycle Track	• Providing physical separation between bicyclists and auto traffic or sidewalk by a physical barrier • Helps bicyclists of all skills ride in a more protective environment but requires wider right-of-way and more intricate engineering design at intersections **Considerations:** • Can be installed at the street level, the sidewalk level, or an intermediate level • Different pavement color or texture can be used to accentuate the right-of-way of cycle track • Correct type of separation (parking protection, painted buffer space, raised tracks) is context dependent	 *(Boulder, CO)*
Shared Use Path	• Best used where there are minimal driveways or cross streets • Helps bicyclists of all skills ride in a more protective environment but requires wider right-of-way **Considerations:** • Requires grade separation or exclusive signal operation at intersections with major roadways • Usually installed along waterways, railroad lines, limited access highways, or within parks and open space areas • Can be installed for mobility or recreational purposes	 *(Houston, TX)*

Type	Description	Example
Source: National Association of City Transportation Officials, Viva Laredo, Oregon Department of Transportation, Austin Cycling Association, Pedestrian and Bicycle Information Center, and Houston Chronicle.		

Coordinating Bicycle and Pedestrian Improvements with Health Outcomes

Obesity and lack of exercise have become a major concern that affects the wellbeing of our lives. As non-motorized modes of transportation, bicycling and walking are good means to exercising while traveling from one place to another. According to the County Health Rankings and Roadmaps, in 2019, 33.3% of the population of Webb County was obese. In addition, 25% of the population is physically inactive. Additionally, 23% of Webb County workers are burdened with long driving alone commutes, with 23% driving alone for 30 minutes or more to work.

In 2015, 29.0% of Texans were obese according to the Behavioral Risk Factor Surveillance System. On most health indicators, Webb County performs worse than the Texas and national averages. Obesity and long commutes are both correlated with a large range of poor health outcomes, including disease and poor sleep. A concerted effort to improve bicycle and pedestrian travel could lead to significant improvement in health outcomes in Webb County.

As a result of a collaborative effort among various community stakeholders in public health, the Healthy Eating Active Living (HEAL) Laredo Initiative has been developed in the region as a resource to combat the prevalence of obesity and diabetes in Laredo and the surrounding area. Through a coordinated, community-wide approach that includes outreach and health promotion efforts, along with targeted environmental and policy changes, the HEAL Laredo Initiative aims to mobilize the community toward a healthier lifestyle. Coordination with partners like this organization can offer the region greater partnership opportunities to support diversified funding of bicycle and pedestrian improvements and to better link transportation improvements and policies with health outcomes in the region.

Marketing and Encouraging Bicycling and Walking

Marketing non-motorized transportation facilities as strongly-valued community assets may encourage more people to bicycle and walk. In doing so, efforts should focus on bicycling and walking as practical, popular, and mainstream activities that all types of people can enjoy. “Selling points” could include that transportation can be more than just a means of traveling to destinations, but also a healthy, fun and recreational experience that can be done safely and at little or no cost. Materials, such as route maps and websites and mobile applications, can be created to promote bicycling and walking and inform people about bicycle-compatible roads, pedestrian-friendly areas, and other bicycle and pedestrian amenities and programs.

Educational/Safety Programs

To increase bicycle and pedestrian safety, educational programs can be implemented which teach basic pedestrian and bicycling safety skills. Youth can especially benefit from bicycling and safety education, since they are very likely to walk or bike to school or other destinations. Typically, college students are more likely to bike or walk, according to the report *Modes Less Traveled—Bicycling and Walking to Work in the United States: 2008–2012* by the U.S. Census Bureau and that many college towns have the highest shares of bicycle use in the U.S. They are also like to have higher trip generation rates. Students at Laredo Community College and Texas A&M International University could be the targets of such safety programs. Further, public awareness programs can educate motorists about the importance of sharing the roadway with non-vehicular traffic and other such safety considerations.

Bicyclist and Pedestrian Safety Projects

Schools can be considerable sources of traffic and congestion, as many parents drive their children to school. Cities should work with school districts to ensure that roadway improvements near schools are designed to minimize conflicts between pedestrians, bicyclists, and motorists by directing students to safer routes to schools. Further, school districts should be encouraged to consult with local governments about transportation circulation and to ensure safe and appropriate pedestrian and bicycle access. Safe Routes to School (SRTS) is a federal program that was implemented through SAFETEA-LU to encourage bicycle and pedestrian safety. It provides funds for pedestrian and bicycle improvements, including those related to safety and education. Under MAP-21, funding for bicycle and pedestrian projects was provided under the Transportation Alternatives Program (TAP). The FAST Act; however, eliminates the TAP and replaces it with Surface Transportation Block Grant (STBG) program funding for transportation alternatives (TA). These TA funds include all projects and activities that were previously eligible under TAP including pedestrian and bicycle facilities, recreational trails, and SRTS projects. Though the MAP-21 bill did not provide specific funding for SRTS, these projects are eligible for Transportation Alternatives Program (TAP) funds. The Laredo MPO should continue to pursue the development of bicyclist and pedestrian safety projects and programs for schools and surrounding neighborhoods that are in most need of bicycle and pedestrian infrastructure and programs.

Federal Funding Opportunities

Several US Department of Transportation programs provide funding to bicycle and pedestrian projects. These federal funding programs include:

- BUILD: Better Utilizing Investments to Leverage Development Transportation Discretionary Grants
- INFRA: Infrastructure for Rebuilding America Discretionary Grant Program
- TIFIA: Transportation Infrastructure Finance and Innovation Act (loans)
- FTA: Federal Transit Administration Capital Funds
- ATI: Associated Transit Improvement (1% set-aside of FTA)
- CMAQ: Congestion Mitigation and Air Quality Improvement Program
- HSIP: Highway Safety Improvement Program
- NHPP: National Highway Performance Program
- STBG: Surface Transportation Block Grant Program
- TA: Transportation Alternatives Set-Aside (formerly Transportation Alternatives Program)
- RTP: Recreational Trails Program
- SRTS: Safe Routes to School Program / Activities
- PLAN: Statewide Planning and Research (SPR) or Metropolitan Planning funds
- NHTSA 402: State and Community Highway Safety Grant Program
- NHTSA 405: National Priority Safety Programs (Nonmotorized safety)
- FLTTP: Federal Lands and Tribal Transportation Programs (Federal Lands Access Program, Federal Lands Transportation Program, Tribal Transportation Program, Nationally Significant Federal Lands and Tribal Projects

Figure 6-5 and **Figure 6-6** provides a summary of the bicycle and pedestrian project types that the federal programs provide funding opportunities.

Figure 6-5: Federal Funding Opportunities for Bicycle and Pedestrian Projects

Key: $ = Funds may be used for this activity (restrictions may apply). ~$ = Eligible, but not competitive unless part of a larger project. $* = See program-specific notes for restrictions.																
	Pedestrian and Bicycle Funding Opportunities U.S. Department of Transportation Transit, Highway, and Safety Funds															
Activity or Project Type	BUILD	INFRA	TIFIA	FTA	ATI	CMAQ	HSIP	NHPP	STBG	TA	RTP	SRTS	PLAN	NHTSA 402	NHTSA 405	FLTTP
Access enhancements to public transportation (includes benches, bus pads)	$	~$	$	$	$	$		$	$	$						$
ADA/504 Self Evaluation / Transition Plan									$	$	$		$			$
Bicycle plans				$					$	$		$	$			$
Bicycle helmets (project or training related)									$	$SRTS		$		$*		
Bicycle helmets (safety promotion)									$	$SRTS		$				
Bicycle lanes on road	$	~$	$	$	$	$	$	$	$	$		$				$
Bicycle parking	~$	~$	~$	$	$	$		$	$	$	$	$				$
Bike racks on transit	$	~$	$	$	$	$			$	$						$
Bicycle repair station (air pump, simple tools)	~$	~$	~$	$	$	$			$	$						$
Bicycle share (capital and equipment; not operations)	$	~$	$	$	$	$		$	$	$						$
Bicycle storage or service centers (example: at transit hubs)	~$	~$	~$	$	$	$			$	$						$
Bridges / overcrossings for pedestrians and/or bicyclists	$	~$	$	$	$	$*	$	$	$	$	$	$				$
Bus shelters and benches	$	~$	$	$	$	$		$	$	$						$
Coordinator positions (State or local)						$ 1 per State			$	$SRTS		$				
Crosswalks (new or retrofit)	$	~$	$	$	$	$*	$	$	$	$	$	$				$
Curb cuts and ramps	$	~$	$	$	$	$*	$	$	$	$	$	$				$
Counting equipment				$	$		$	$	$	$	$	$	$*			$
Data collection and monitoring for pedestrians and/or bicyclists				$	$		$	$	$	$	$	$	$*			$
Historic preservation (pedestrian and bicycle and transit facilities)	$	~$	$	$	$				$	$						$
Landscaping, streetscaping (pedestrian and/or bicycle route; transit access); related amenities (benches, water fountains); generally as part of a larger project	~$	~$	~$	$	$			$	$	$						$
Lighting (pedestrian and bicyclist scale associated with pedestrian/bicyclist project)	$	~$	$	$	$		$	$	$	$	$	$				$
Maps (for pedestrians and/or bicyclists)				$	$	$			$	$		$	$*			
Paved shoulders for pedestrian and/or bicyclist use	$	~$	$			$*	$	$	$	$		$				$

Figure 6-6: Federal Funding Opportunities for Bicycle and Pedestrian Projects

Key: $ = Funds may be used for this activity (restrictions may apply). ~$ = Eligible, but not competitive unless part of a larger project. $* = See program-specific notes for restrictions.																
	Pedestrian and Bicycle Funding Opportunities U.S. Department of Transportation Transit, Highway, and Safety Funds															
Activity or Project Type	BUILD	INFRA	TIFIA	FTA	ATI	CMAQ	HSIP	NHPP	STBG	TA	RTP	SRTS	PLAN	NHTSA 402	NHTSA 405	FLTTP
Pedestrian plans				$					$	$		$	$			$
Recreational trails	~$	~$	~$						$	$	$					$
Road Diets (pedestrian and bicycle portions)	$	~$	$				$	$	$	$						$
Road Safety Assessment for pedestrians and bicyclists							$		$	$			$			$
Safety education and awareness activities and programs to inform pedestrians, bicyclists, and motorists on ped/bike safety									$SRTS	$SRTS		$	$*	$*	$*	
Safety education positions									$SRTS	$SRTS		$		$*		
Safety enforcement (including police patrols)									$SRTS	$SRTS		$		$*	$*	
Safety program technical assessment (for peds/bicyclists)									$SRTS	$SRTS		$	$*	$		
Separated bicycle lanes	$	~$	$	$	$	$	$	$	$	$		$				$
Shared use paths / transportation trails	$	~$	$	$	$	$*	$	$	$	$	$	$				$
Sidewalks (new or retrofit)	$	~$	$	$	$	$	$	$	$	$	$	$				$
Signs / signals / signal improvements	$	~$	$	$	$	$	$	$	$	$		$				$
Signed pedestrian or bicycle routes	$	~$	$	$	$	$		$	$	$		$				$
Spot improvement programs	$	~$	$	$			$	$	$	$	$	$				$
Stormwater impacts related to pedestrian and bicycle projects	$	~$	$	$	$		$	$	$	$	$	$				$
Traffic calming	$	~$	$	$			$	$	$	$		$				$
Trail bridges	$	~$	$			$*	$	$	$	$	$	$				$
Trail construction and maintenance equipment									$RTP	$RTP	$					
Trail/highway intersections	$	~$	$			$*	$	$	$	$	$	$				$
Trailside and trailhead facilities (includes restrooms and water, but not general park amenities; see program guidance)	~$*	~$*	~$*						$*	$*	$*					$
Training						$	$		$	$	$	$	$*	$*		
Training for law enforcement on ped/bicyclist safety laws									$SRTS	$SRTS		$			$*	
Tunnels / undercrossings for pedestrians and/or bicyclists	$	~$	$	$	$	$*	$	$	$	$	$	$				$

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Chapter 7:
Airport

Introduction

Airports are a key economic engine that ties a region to national and global markets and to support travel and tourism. It provides efficient long-distance transportation to move people and goods, and it is essential for a region's business activities, tourism, and trade. This chapter discusses the existing conditions of the Laredo International Airport, including the physical characteristics and operational statistics, forecast of future traffic, and strategies to improve the operations of the airport.

Overview of Existing Airport Facilities

The Laredo International Airport (LRD), illustrated in **Figure 7-1**, is the primary airport in the Laredo MPO region and provides air transportation services for both cargo and passengers. LRD is located on approximately 1,800 acres of the former Laredo Air Force Base in eastern Laredo and is generally bounded by U.S. 59 to the south, Lake Casa Blanca State Park and Loop 20 to the east, and Jacaman Road to the north. Because of its location in the heart of the Laredo MPO region, it is surrounded by developed land and expansion potential is limited. LRD is located near the center of the City of Laredo, slightly over seven miles from downtown Laredo itself.

LRD is owned and operated by the City of Laredo. Airport improvement projects are primarily funded through the Federal Aviation Association (FAA) Airport Improvement Program and local fund contributions.

LRD provides daily commercial passenger service daily commercial flights through three airlines. Commercial passenger service is provided by American Airlines with service to Dallas/Fort Worth, United Express with service to Houston Intercontinental Airport, and Allegiant which offers year-round scheduled service to Las Vegas, Nevada and seasonal service to Orlando-Sanford, Florida. Private fixed wing and helicopter service is also available.

Additionally, LRD is classified as a Foreign Trade Zone (FTZ) site, which is a federal designation that allows for exemption from many regular U.S. Customs rules and regulations, and which serves to benefit companies and trade. LRD's FTZ can currently accommodate aeronautical and industrial commercial trade. Additional information on freight services is provided in more detail in **Chapter 8**.

Figure 7-1: Location of Laredo International Airport

Airport Characteristics

Physical Characteristics

LRD's airfield contains two parallel runways and one cross-wind runway. Taxiways connect the runways to the apron and terminal areas located on the west side of the airfield. The primary runway, Runway 17L/35R is approximately 8,200 feet long; while the secondary runway, Runway, 17R/35L is approximately 8,700 feet long. The cross-wind runway, Runway 14/32, is approximately 5,900 feet long. Further, LRD is aided by runway and taxiway lighting systems, an instrument landing system (ILS) for the Runway 17R/35L, an air traffic control tower in operation 18 hours on the weekdays and 12-13 hours on the weekends, and other navigational aids for operation under both visual flight rule (VFR) and instrument flight rule (IFR) conditions. The installed airport geographic information system (AGIS) helps the FAA collect airport data to develop electronic Airport Layout Plans.

The current passenger terminal is approximately 78,000 square feet and provides space for five airlines, five car rental agencies, a duty-free store, and government and federal inspection facilities. In particular, the passenger terminal has the potential to be expanded on surrounding available land. In fact, the Laredo International Airport Master Plan Update calls for the passenger terminal to be expanded by approximately 26,500 square feet with two additional gates in order to accommodate future demand.

LRD has a Federal Inspection Station that offers 24 hour/7 day a week federal inspection services, including custom, agriculture, and immigration services for the international aviation community. Additionally, the airport is serviced by three fixed base operators that provide general aviation services. Surrounding land on the city-owned airport property is available for lease, and other entities, such as the Laredo Police Department, are located on airport property. In addition, a former El Metro owned park and ride lot is near the airport entrance. The basic airport characteristics of LRD are summarized in **Table 7-1**.

Table 7-1: Airport Characteristics of the LRD

Characteristics	Laredo International Airport
Location ID	LRD
Year Built	1975 (converted from military to civilian airport)
Land Area (Acres)	Approximately 1,800
Ownership	City of Laredo (public)
Distance from Laredo city center	3 nautical miles northeast of Laredo, TX
Opening Hours	Opens 24/7 to the public
Roadway Access	Bob Bullock Loop (Loop 20)
Terminals	1
Commercial Airlines	Allegiant, American Airlines, and United Airlines
Aircraft Hangars	7
Runways	3
Taxiways	12
Fuel Types	100LL, JET A

Source: The National Flight Data Center (NFDC) of FAA and Laredo International Airport (LRD)

Physical Upgrades

Over the past 25 years, the City of Laredo and the FAA have invested over $230 million to upgrade the airport's infrastructure. This has included improvements to commercial passenger services as well as investments to improve air/freight trade. Notable projects that have been completed during this period include:

- A totally reconstructed Runway 17L/35R to accommodate heavy aircraft;
- A totally reconstructed runway 17R/35L to accommodate heavy aircraft;
- Rehabilitated Runway 14/32;
- Engineered Materials Arresting System (EMAS);
- New and reconstructed cargo aprons with capacity to simultaneously park an additional 20 large cargo aircraft;
- New and reconstructed taxiways, a new passenger terminal, and a new fuel farm;
- Constructed airside cargo warehouses;
- Airport Geographic Information System (AGIS);
- Constructed ARFF Station (fire station);
- Noise Abatement;
- Upgraded Federal Inspection Station (FIS);
- Rehabilitated general aviation aprons;
- Upgraded Runway 17R lights and electrical vault; and,
- Constructed cargo pads at cargo aprons
- Constructed an approximately 13,000 square feet of Federal Inspection Service Facility to clear private and cargo aircraft and house U.S. and Mexican Customs.

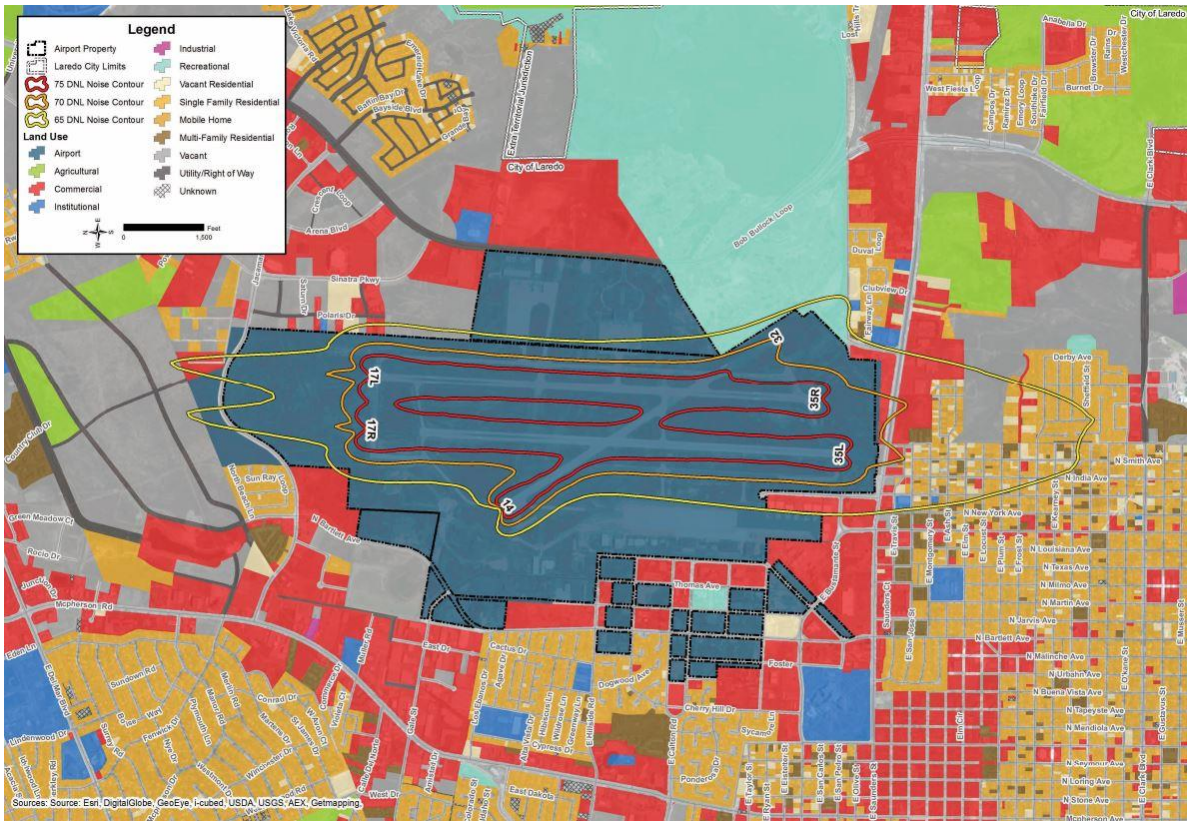
Most recently, in 2018, the Laredo International Airport received $7.5 million dollars in federal grant money for improvements to its cargo runway, specifically to rehabilitate the concrete of the cargo apron, and another $2 million dollars in federal grant money to implement noise mitigation using sound insulation.

It is worth noting that LRD is the only airport outside Republic of Mexico to have an operation of Mexican Customs. Products pre-inspected at the customs operation include auto parts, automotive, electronics, aerospace parts, cellphones, and gasoline. Freight trade plays a prominent role in LRD traffic.

Noise Impacts

LRD is the single largest generator of transportation-originated noise in the Laredo area. **Figure 7-2** shows the modeled 2019 daily noise contours of the area around LRD with land uses in the area. Noise levels are measured in day-night average sound level (DNL), the total accumulation of average sound throughout a 24-hour long period. A DNL of 65 dB is currently the federal standard for requiring mitigation. Noise mitigation is an important use for Airport Improvement Program (AIP) funds and may impact the funding available for other items from the AIP. The last Airport Noise Abatement Study was published in 2014. It provides noise analysis and land use compatibility information for 2013 base year noise as well as modeled 2019 noise impacts. Based on these findings, noise abatement and mitigation has been identified and federal funds (mentioned above) are being used for this purpose.

Figure 7-2: Noise Contours in LRD Area



Source: URS, 2014

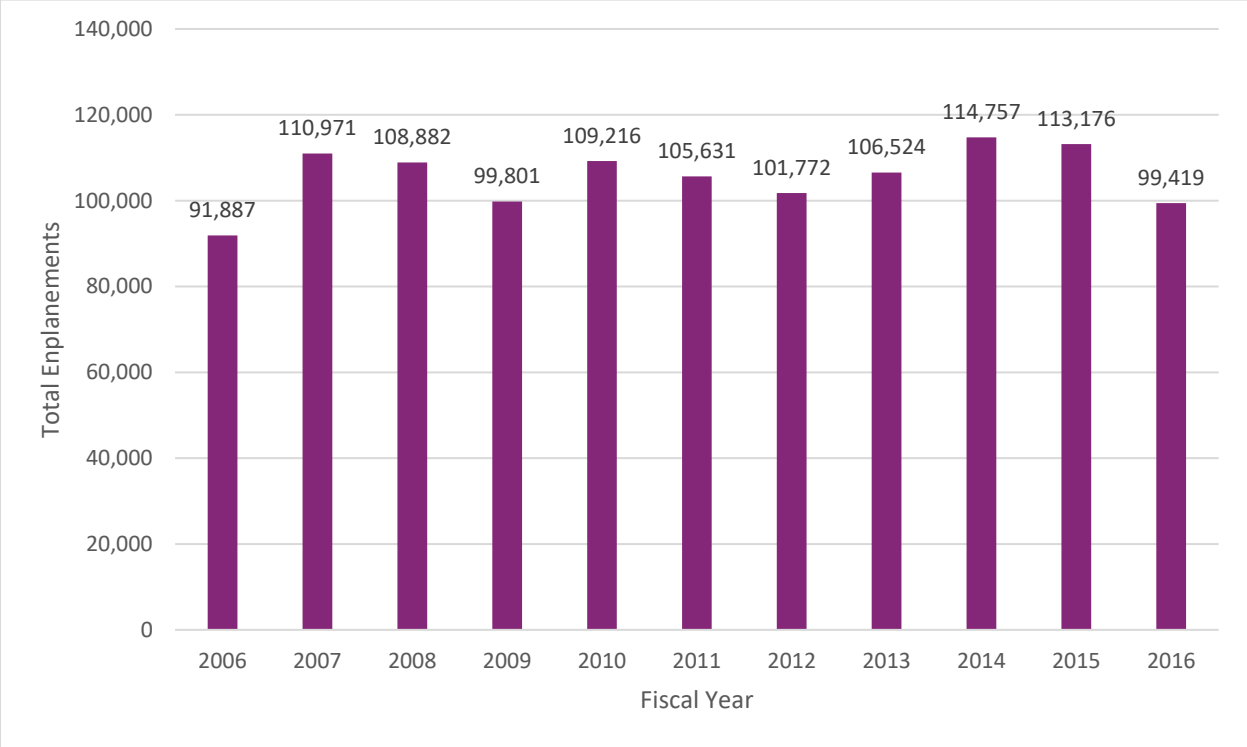
Operations

Passenger Operations

The FAA Terminal Area Forecast (TAF) Summary for Fiscal Years 2017-2045 provides historical and forecasted statistics on passenger demand and aviation activity at airports in the United States. **Figure 7-3** portrays the total number of enplanements at LRD for fiscal years 2007 through 2016 based on this TAF data. Enplanements are defined as the sum of originating and connecting passengers at an airport.

Between fiscal years 2007 and 2016, enplanements have fluctuated but remained relatively consistent. Since 2014, however, the total number of enplanements has decreased each year. The total number of enplanements in 2016 was 99,419. LRD is following the same trend as other small regional airports across the nation, which have exhibited stagnant and/or declining enplanements. If trends continue as they have historically (rates of growth from 2006-2016, or a 0.8% average rate of growth), in 2045 it is expected that there would be as many as 125,263 enplanements. This estimate is not substantially higher than peak enplanements over the 2006 – 2016 period. Since the number of enplanements at LRD drives demand for travel to and from LRD, the current enplanement trends indicate that passenger travel along corridors to and from the LRD will not substantially increase due to increases in enplanements.

Figure 7-3: Annual Enplanements 2006 - 2016

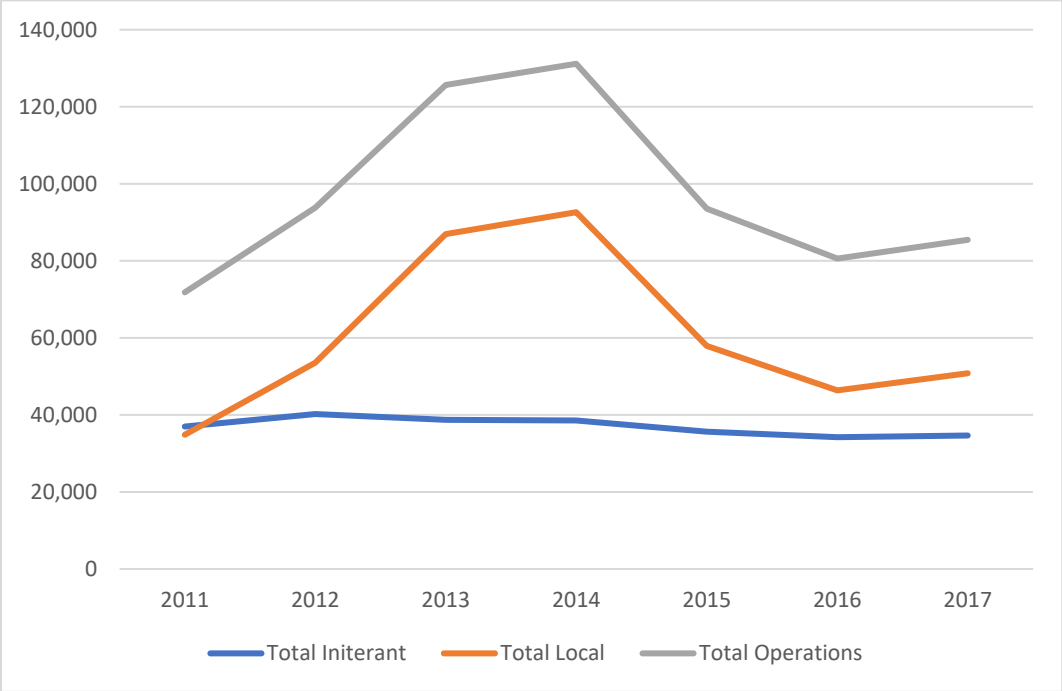


Source: FAA Air Traffic Activity Data System (ADATS)

Changes in annual operations between 2011 and 2016 are depicted in **Figure 7-4**. There are two types of airport operations that are important to look at in understanding operational trends: local and itinerant. Local operations are those operations performed by an aircraft that remain in the local traffic pattern, execute simulated instrument approaches or low passes at the airport, and where operations to or from the airport and a designated practice area are within a 20−mile radius of an air traffic control tower. Itinerant operations are operations performed by an aircraft that lands at an airport, arriving from outside the airport area, or departs an airport and leaves the airport area.

Local operations rose between 2011 and 2014 before falling again and in 2017 they were only slightly higher than in 2011. While local operations varied significantly between 2011 and 2016, itinerant operations minimally changed throughout the period, only declining slightly. Any long-term trend in the growth of operations from this data is therefore difficult to track. If operations rise substantially, it is possible that more noise mitigation may be required and higher levels of requisite funding for mitigation may be required.

Figure 7-4: Annual Operations 2011 – 2016

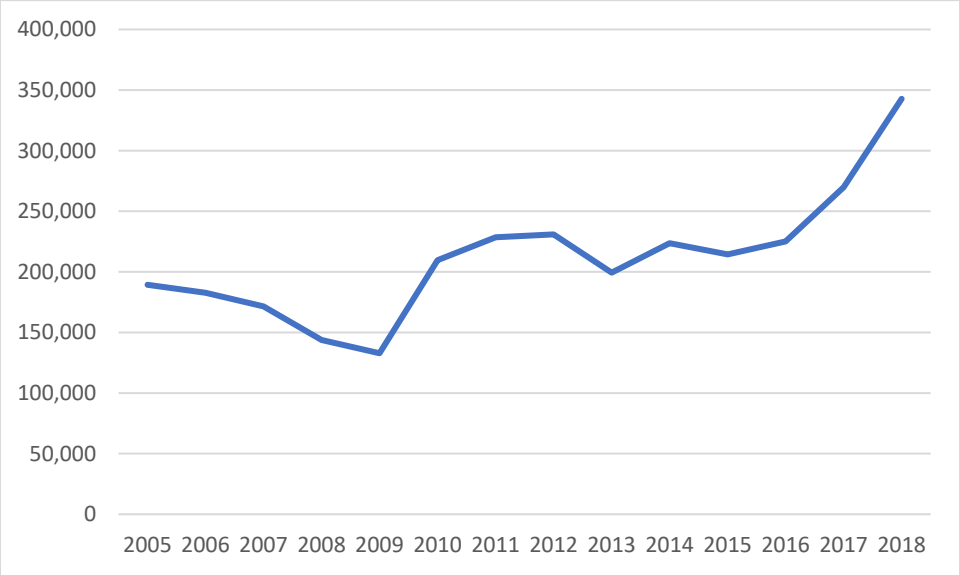


Source: FAA Air Traffic Activity Data System (ADATS)

Freight Operations

LRD serves air freight throughout the Laredo region, hosts 20 air cargo operators, and 597,000 square feet of storage space across 10 aircraft hangars, 15 air cargo facilities, and a federal express facility. Historic data on air cargo shipments in and out of LRD were reviewed and are shown in **Figure 7-5**.

Figure 7-5: Historic Air Cargo Data, 2005-2018 (Tons)



Despite a steep decline in air cargo during the recession and stagnation until 2015, air cargo significantly increased between 2015 and 2018 in Laredo, increasing by over 130,000 tons and averaging a 15.0% increase per year. While this growth rate may not hold through a long-range planning horizon, it points to the importance of LRD in trade and economic development in the region. Continued rises in the amount of air cargo being transported to or leaving LRD can substantially increase congestion and wear and tear along the main roads connecting freight routes to and from LRD.

Several improvements to freight operations are currently proposed. The *Airport Master Plan Update* calls for an expansion of LRD's storage space to 720,000 square feet, along with 246,000 square feet for expanding aircraft parking apron, 82,100 square feet of truck docking area, and 55,000 square feet of fuel farm and non-aviation commercial activities. As these improvements are implemented, the region must carefully review the impact these expansions will have on connecting roadways and freight movements.

Proposed Strategies

Continued investment in LRD is essential to maintain and enhance Laredo's ability to attract businesses and passengers. LRD was ranked as the 42nd largest all-cargo airport in the United States in 2017 by the FAA. It is also projected to have an increased in numbers of enplanements and aircraft operations in future years to 2045. Several strategies are therefore proposed to retain the competitiveness of LRD in the coming years. Strategies related to physical facility improvements, accessibility, and land use coordination are needed to improve airport operations, support economic development, and enhance travel and tourism and further discussed below.

Coordination of Airport Infrastructure Investments with Other Regional Transportation Needs

Continuous efforts are constantly being made to improve the operations of LRD. Based on current airport master planning efforts, the currently planned improvements for the next 20 years include the following projects:

- Extend Runway 17L/35R;
- Install Instrument Landing System (ILS) for Runway 17L/35R;
- Continue Reconstruction of West Side General Aviation/Air Cargo Apron;
- Expand West Side General Aviation/Air Cargo Apron;
- Construct New Airport Traffic Control Tower;
- Extend Taxiway G;
- Construct Connecting Taxiways;
- Construct Runway and Taxiway Shoulders;
- Expand Airport Terminal Building and Apron;
- Reconstruct Airport Perimeter Road;
- Construct Airport Maintenance Facility;
- Replace Localizer V-Ring Antenna with Log Periodics Antenna;
- Replace Mark 1F Transmitter with Mark 20 Transmitter;
- Construct Air Cargo Development Road;
- Acquire Land for Runway 17L Protection Zone;
- Expand Airport Terminal Building Parking Lot;
- Southwest and Northwest Air Cargo Development;
- Hotel Development.

A new airport maintenance facility which the airport currently lacks is also planned.

As mentioned earlier, FAA's Airport Improvement Program provides a primary federal source for funding LRD improvements. **Table 7-2** lists out the AIP grants that have been provided for development at LRD between 2014 and 2018. Major physical improvements include apron rehabilitation, perimeter fencing for security, and noise mitigation. While the Laredo MPO is not responsible for allocating funding for these projects, long-range planning to monitor physical airport investments, leverage funding opportunities, and to coordinate airport needs with other transportation improvements is important.

Of particular importance to the region with regard to these airport physical improvements is the need to coordinate airport improvements with other ongoing transportation improvements. If LRD continues to receive federal grants to make substantial improvements to its physical plant, then passenger and cargo traffic may continue to grow to high levels, potentially impacting levels of service and state of repair on roads connecting to LRD. The Laredo MPO is therefore committed to continuing to work with LRD and the City of Laredo to facilitate continued coordination between federal, state, and local transportation agencies and the airport.

Table 7-2: AIP Grants for Laredo International Airport, 2014-2017

Project Year	Federal AIP Funds	Project Description
2014	$2,890,905	Perimeter Fencing
2014	$4,202,381	Acquire equipment, rehab apron
2014	$4,000,000	Noise mitigation measures for residences within 65-69 DNL
2015	$7,596,816	Rehabilitate taxiway
2015	$6,000,000	Noise mitigation measures for residences within 65-69 DNL
2016	$5,000,000	Noise mitigation measures for residences within 65-69 DNL
2016	$7,819,990	Extend taxiway, install guidance signs, rehab apron, rehab taxiway
2017	$5,796,502	Install guidance signs, rehab apron, widen taxiway
2018	$3,625,107	Rehabilitate apron
2018	$2,000,000	Noise mitigation measures for residences
2018	$7,549,126	Rehabilitate apron

Coordinating Accessibility Needs

Safe and efficient access to and from the airport is essential to attracting passengers and enhancing travel and tourism. LRD is located approximately six-and-half-mile by roadway from the downtown area, and near the intersection of US 59 and Bob Bullock Loop. The main entrance is on the east side of the airport from Bob Bullock Loop and the parking lot is just in front of the terminal building.

While there are currently no El Metro fixed-route transit routes that directly serve the airport, the rise of transportation network companies, such as Uber and Lyft, has reached the Laredo region and passengers at the airport can coordinate rides with these providers independently. There are currently no designated facilities for these types of services, however they can play an integral role in providing enhanced and multimodal access to and from the airport. The Laredo MPO supports and is wiling to act as a facilitator with LRD, as needed, to support these additional accessibility options in the future.

Land Use Coordination

Land use around an airport is important to an airport. When preparing the future land use plans and allocating future population and employment growths, it is crucial to consider the impact of these developments on the airport. Well-planned developments around the airport would support its operations. Consideration of noise-sensitive land uses and locating those outside of the airport noise mitigation buffer areas identified will help to ensure that development proposed is consistent with airport operations and conditions. Further, recent and planned hotel development around the airport area would provide more convenient accommodations to further support travel and tourism. The Laredo MPO will continue to coordinate with LRD for developing an integrated land use and transportation plan around the airport.

Under Title 14 of the Code of Federal Regulations (CFR), all residential uses, schools, and outdoor performance venues are incompatible with a DNR of 65 dB or over. The City of Laredo and the FAA should adjust land use policies or provide noise mitigation work in accordance with these figures.

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Chapter 8:
Freight and Goods Movement

Introduction

The Laredo regional economy relies significantly on the freight transportation system due to its unique geographic location, socioeconomic trends, and developmental characteristics. Increased trade with Mexico by the North American Free Trade Agreement (NAFTA), recently renegotiated in 2018 under the name United States-Mexico-Canada Agreement (USMCA), has resulted in increased demands for trucking, warehousing, and supporting industries in the Laredo region.

The Port of Laredo serves as a major national gateway connecting the U.S. with Mexico, making freight movement an extremely important local issue. Over time, increasing freight movement will require more infrastructure improvements and better connectivity between the national transportation system corridors and trade partners in order to increase synergies that reduce logistics costs of goods and services in final consumption markets. By being able to provide quick, affordable, and efficient goods movement, the Laredo MPO region is expected to attract more freight-dependent industries and benefit from trade related strategies.

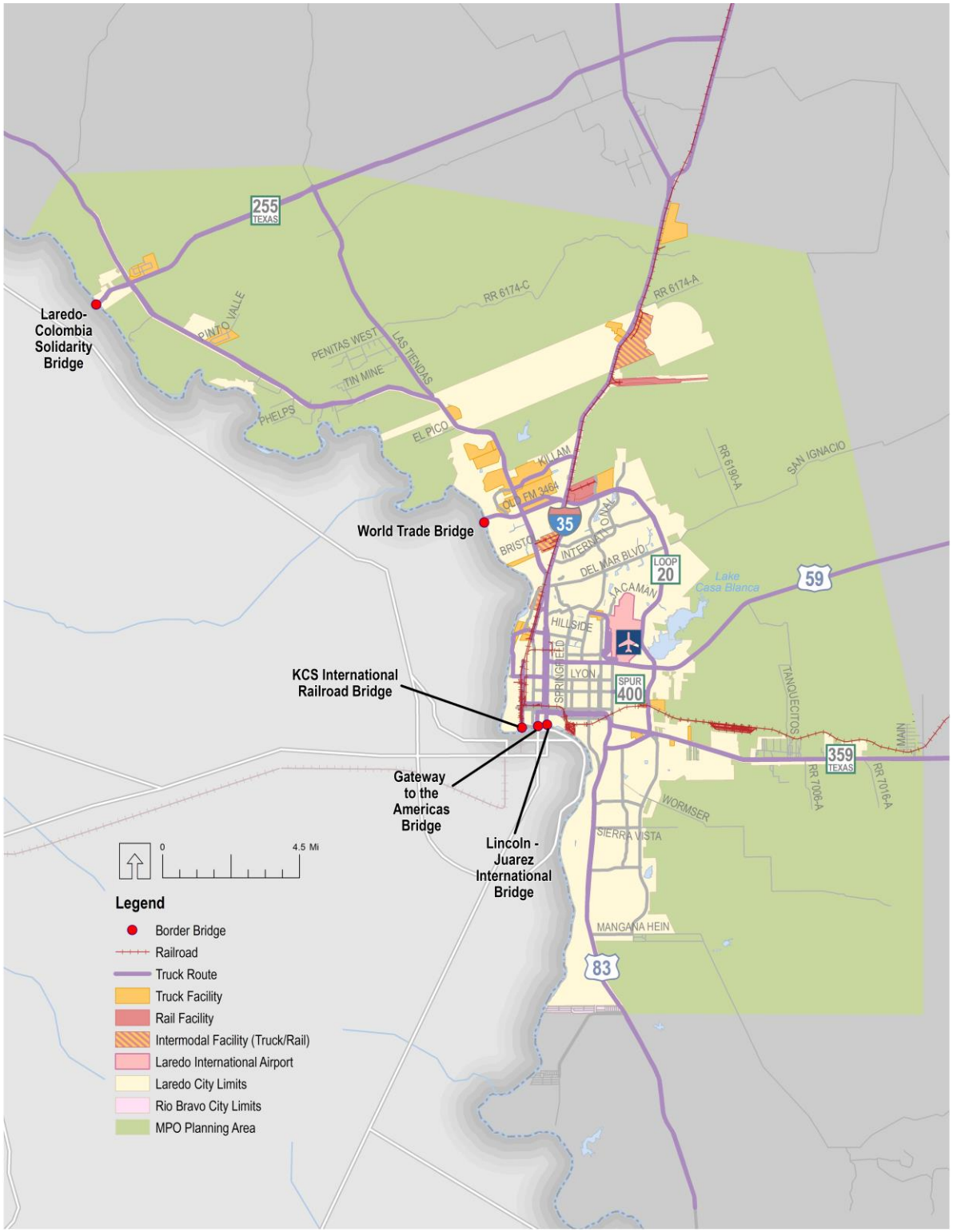
The purpose of this chapter is to provide a general understanding of freight activities in the Laredo MPO region and aid planners in making informed freight planning policies and investment decisions. This chapter addresses various aspects of freight transportation, including freight infrastructure, current and forecasted goods movement, identifies needs and challenges in the region, and provides best practices and strategies for addressing freight needs through the 2045 planning horizon.

It should be noted that at the time of this MTP development, a Regional Freight Master Plan has not been developed but is a key priority for the Laredo MPO. Given the high importance of freight to the region and national economy, the region's strategic location near the U.S. and Mexico border, and the impact freight has on transportation in the region, additional detailed master planning specific to this mode is desirable in the near-term to further focus freight transportation improvements in the region.

Freight Infrastructure

Laredo has a strong freight transportation system that serves the movement of goods and chiefly supports international trade between the U.S. and Mexico. The main freight transportation modes in the Laredo MPO region are highway and rail, however international bridges, air freight, and other intermodal facilities are also important to the freight infrastructure in the region. **Figure 8-1** shows the major freight transportation infrastructure, including transportation systems and facilities within the Laredo MPO region. The following sections provide further details on the major roadway and multimodal freight network in the region.

Figure 8-1: Regional Freight Infrastructure



Source: Laredo MPO

Freight Roadway Network

Laredo is the busiest truck freight gateway in Texas, and truck transportation is the most important mode serving the area for goods movement. The value of cargo moved by truck in 2016 represents about 72% of total cargo moved in the Laredo MPO region. Several roadway designations have been established that help to identify and prioritize freight roadway infrastructure from a federal, state, and local perspective.

National Highway Freight Network

As stated in **Chapter 4**, the FAST Act introduced the National Highway Freight Network (NHFN) to strategically direct federal resources and policies toward improved performance of highway portions of the freight transportation system. The NHFN includes four subsystems of roadways:

- **Primary Highway Freight System (PHFS):** The most critical highway portions of the US freight transportation system.
- **Other Interstate routes not on the PHFS:** The remaining Interstate highways not included on the PHFS. These routes provide important continuity and access to freight transportation facilities.
- **Critical Rural Freight Corridors (CRFCs):** Public roads not in an urbanized area that provide access and connection to important freight facilities
- **Critical Urban Freight Corridors (CUFCs):** Public roads in urbanized areas that provide access and connection to important freight and intermodal facilities

Within the Laredo MPO area, there are 19 miles of the PHFS as part of the NHFN. The other NHFN subsystems are not represented within the Laredo MPO region.

Roadways on the NHFN in the Laredo MPO region, shown on **Figure 8-2**, include: IH-35 from its Interstate Highway designation at Victoria Street; US 59 from IH-35 east to Bartlett Avenue; and the Bartlett Ave / Maher Avenue connection to the industrial area on the west side of the Laredo International Airport at Pappas Street.

Figure 8-2: National Highway Freight Network

Source: USDOT Bureau of Transportation Statistics

Designated Truck Routes

The Laredo MPO region has also designated truck routes to help remove commercial freight traffic from roadways that are either inappropriate or unable to handle commercial freight trucks and to further facilitate safe and efficient local freight and goods movement. These truck routes consist of major transportation corridors and major arterials, as well as some local streets that provide access and connections to intermodal and industrial facilities within the region. The regional truck routes are shown on **Figure 8-1**. The primary truck routes that provide for the movement of goods are:

- Interstate: Interstate 35
- U.S. Highways: U.S. 59 and U.S. 83
- State Highways/Loops: SH 359, Loop 20 (including Cuatro Vientos Boulevard), SH 255, and Spur 260
- Farm-to-Market (FM) roads: FM 1472, FM 3338, and FM 3464/Milo Road, and
- Arterials: Killam Industrial Boulevard, Santa Isabel Avenue (a segment), Santa Maria Avenue (a segment), Anna Road, Calton Road (a segment), and Jefferson Street (westbound only).

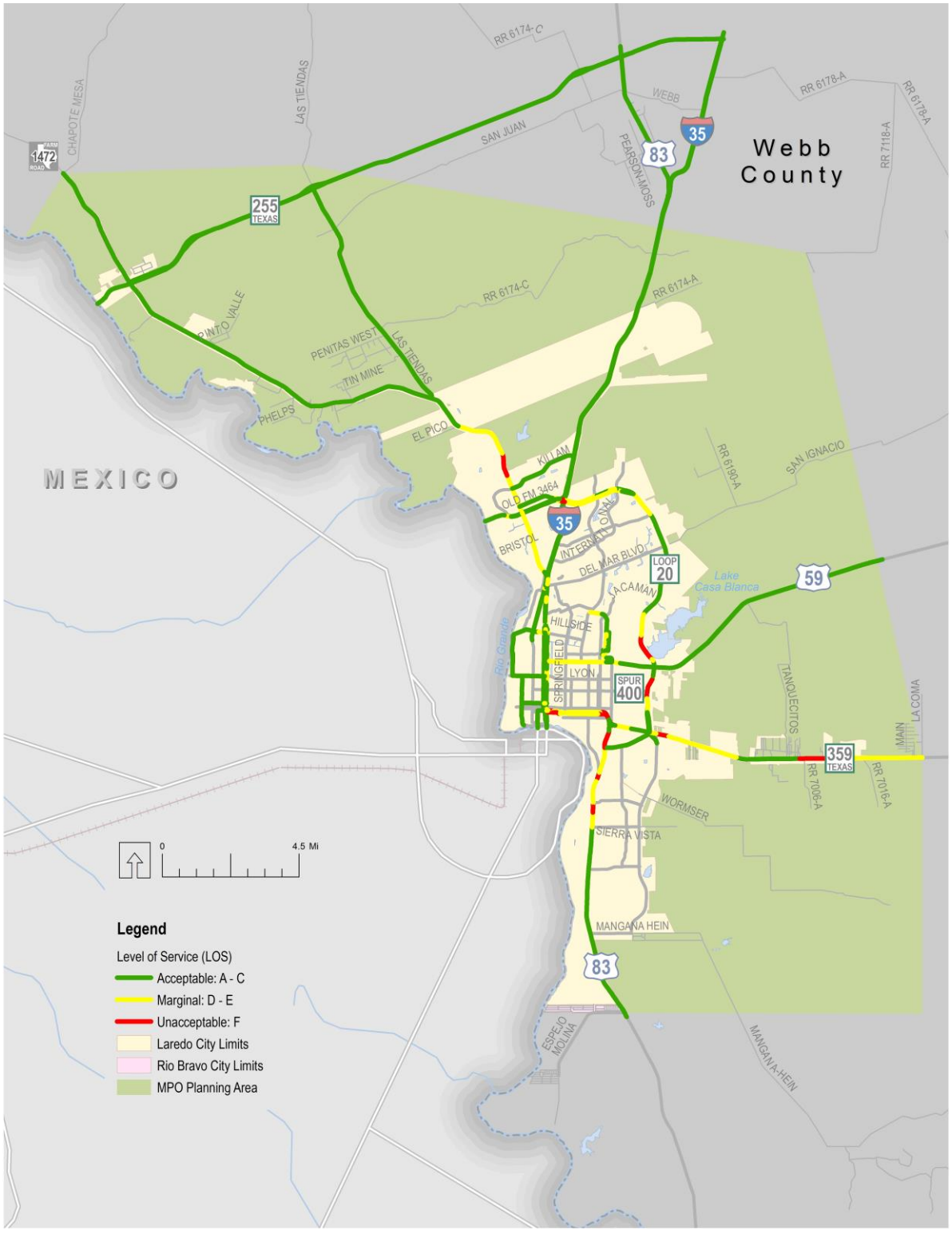
These designated truck routes mirror federally designated and important freight roadways in the region, specifically portions of I-35, US 59, Bartlett Avenue, and Maher Avenue which are critical for freight movements through the region and the United States.

As described in **Chapter 4: Roadways, Border Crossings, and Bridges**, level-of-service (LOS) is a measure of roadway congestion ranging in values from A to F. The LOS value of a roadway segment is based on the ratio of traffic volume to capacity, known as the VC ratio. For clarity, LOS ranges are grouped as LOS A, B, and C as acceptable congestion, LOS D and E as marginal, and LOS F as unacceptable. Truck route LOS for 2013 is shown on **Figure 8-3**. The most severe general locations with an unacceptable LOS of F for 2013 are located:

- Along Mines Road between Trade Center Boulevard and Interamerica Boulevard
- At the Uniroyal interchange and IH 35 approaching the interchange
- The at-grade crossing of Loop 20 at IH 35
- Sections of Loop 20 north and south of US 59
- SH 359 approaching Loop 20
- US 83 in southern Laredo
- The combined segment of SH 359/US 83 (Guadalupe St and Chihuahua St) between US 83 and IH 35

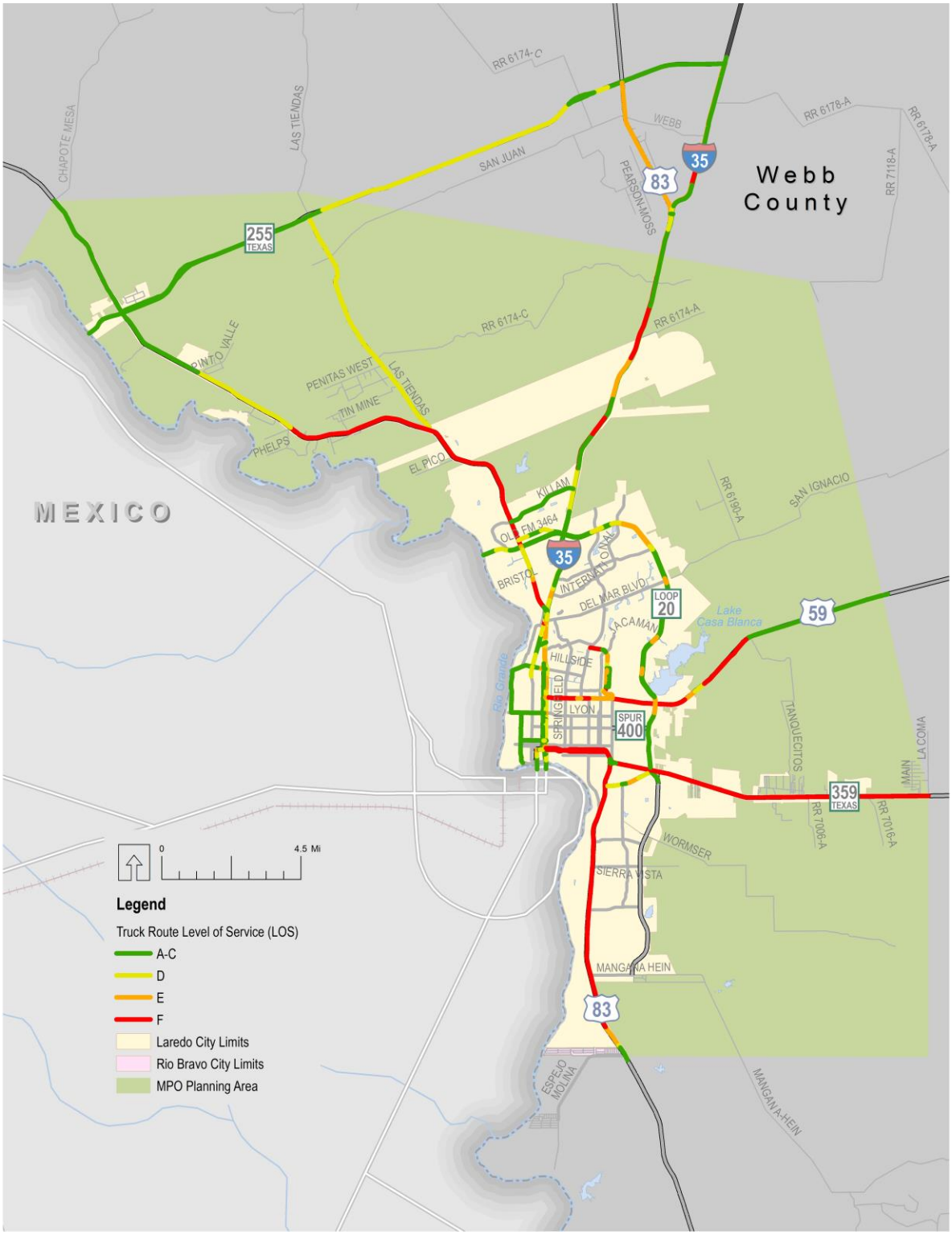
LOS was forecasted to the year 2045 using the travel demand model. Forecasted LOS is shown on **Figure 8-4**. As shown in the figure, congestion levels for the year 2045 will rise throughout the study area if no additional transportation investments are made beyond those that are currently committed in the current Transportation Improvement Program.

Figure 8-3: Truck Route Level of Service, 2013



Source: Laredo MPO Travel Demand Model

Figure 8-4: Truck Route Level of Service, 2045



Source: Laredo MPO Travel Demand Model

Comparing LOS for the years 2013 and 2045 shows an increase in forecasted congestion in the year 2045 along many of the truck routes:

- Mines Rd from Loop 20 to beyond FM 3388 drops from acceptable and marginal LOS and a small segment rated unacceptable to congestion consistently rated as unacceptable.
- IH-35 is being expanded to 6 lanes and remains uncongested in its southern sections, but between Killam Industrial Blvd and Uniroyal Dr congestion increases to LOS F.
- Along US 59 and SH 359 to past Lake Casa Blanca is expected to increase congestion to unacceptable levels by the year 2045.
- The combined segment of SH 359/US 83 (Guadalupe St and Chihuahua St) between US 83 and IH 35 is shown to operate at a marginal LOS in 2013, degrading to unacceptable LOS along their entire length by the year 2045.
- US 83 is shown to operate at LOS F for most of its length between Rio Bravo and the intersection with SH 359.

Major Truck Facilities

As shown on **Figure 8-1**, there are several truck facilities in the region that support the freight trucking industry. These truck facilities provide a variety of services, from industrial parks to truck stops. Industrial parks provide such services as warehousing and storage or transferring and handling of freight cargo between trucks. Truck stops provide services to truck drivers, such as parking, rest areas, fueling, and maintenance. Most of the truck facilities within the region are located within the northside of the Laredo, many along Mines Road (FM 1472). A density of truck facilities is located near the intersection of Mines Road and Killam Industrial Boulevard including Killam Industrial Park, El Portal Industrial Park, Embarcadero, and R.M.R. Industrial Park. Two major truck facilities are adjacent to the Laredo Columbia Solidarity Bridge – the International Commerce Center and Las Minas Industrial Park. Major truck facilities along the northside of I-35 include La Barranca Industrial Park, Flying J, and Travel Centers of America.

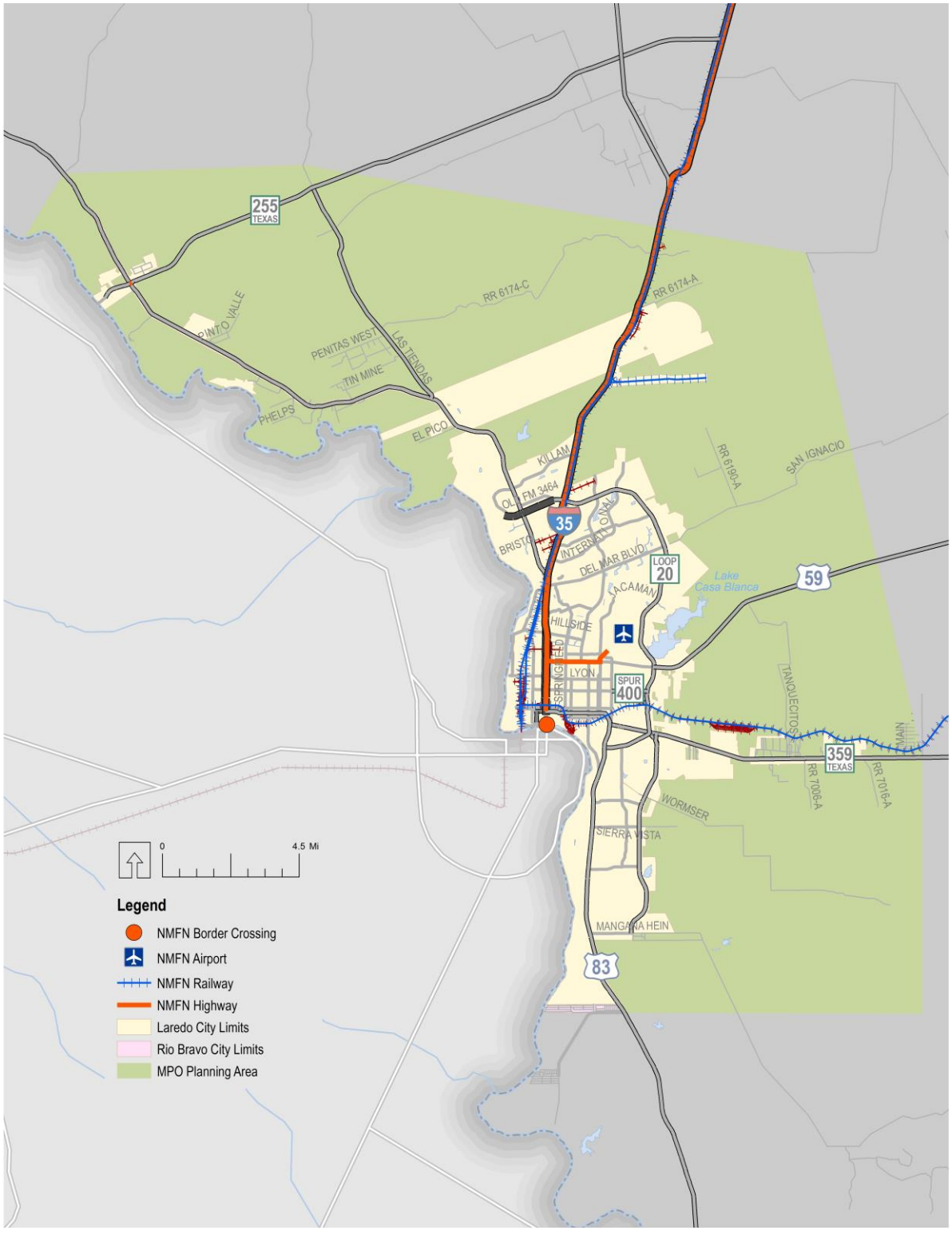
Multimodal Freight Network

National Multimodal Freight Network

In addition to the NHFN designation for important freight roadways, the FAST Act also provided for a new National Multimodal Freight Network (NMFN) designation for other important freight multimodal infrastructure. Components of the NMFN within the Laredo MPO area are shown on **Figure 8-5**. The purpose of the NMFN is to:

- Strategically direct resources toward improved system performance for the efficient movement of freight
- Inform freight transportation planning
- Assist in the prioritization of Federal investments
- Evaluate and support investments to achieve national goals

Figure 8-5: National Multimodal Freight Network



Source: USDOT Bureau of Transportation Statistics

An Interim National Multimodal Freight Network (Interim NMFN) was established in 2016 for public comment, and the public comment period ended in February 2018. The Interim NMFN consists of the NHFN, the freight rail systems of Class I railroads, public ports of the United States that have total annual foreign and domestic trade of at least 2,000,000 short tons, the inland and intracoastal waterways of the United States, Great Lakes, the St. Lawrence Seaway, and coastal and ocean routes along which domestic freight is transported, the 50 airports located in the United States with the highest annual landed weight, and other strategic freight assets such as railroad connectors and border crossings.

NHFN components within the Laredo region include:

- *Highways*: 19 miles total consisting of the NHFN designations of I-35, US 59, Bartlett Avenue, and Maher Avenue, as discussed above
- *Railways*: 40 miles total consisting of Kansas City Southern (KCS) and Union Pacific (UP) railroads
- *Border Crossings*: Lincoln-Juarez/Bridge #2
- *Airports*: Laredo International Airport (LRD)

Railroad Network and Facilities

Class I Railroads

Rail is the only freight mode that relies almost exclusively on private funding for both infrastructure and operations. Rail is an important freight mode for the Laredo region. Of the seven Texas rail Ports of Entry (POEs) along the United States-Mexico international border, one is located within Laredo. This rail POE, the Texas Mexican Railway International Bridge, is the largest freight rail gateway in the US.

Railroads are classified by the US Surface Transportation Board based on their annual operating revenues. The railroad classification is determined by the following operating revenue thresholds:

- **Class 1** – $447, 621, 226 or more
- **Class 2** – Less than $447,621,226 and greater than $35,809,698
- **Class 3** – $35,809,698 or less

These revenue thresholds are periodically updated to account for the effect of inflation. The most recent update was in 2017.

Two major Class 1 railroads operate in the region:

- **Union Pacific (UP) Railroad** – UP Railroad operates the most extensive rail network in not only Texas, but also the US. UP Railroad operates between 15 and 20 trains per day through Laredo south of Loop 20, and 20 to 25 trains per day from the Texas Mexican Railway International Bridge to the city limits.
- **Kansas City Southern (KCS) Railroad** – KCS Railroad operates in the central US. KCS Railroad owns and indirectly operates Kansas City Southern de México (KCSM) in the central and northeastern states of México. KCS Railroad currently operates six to seven trains per day in the region.

The Texas Mexican Railway International Bridge is currently owned by KCS. It is a single-track bridge, and both UP and KCS Railroads share operation of it. According to the US Department of Transportation's border crossing entry data, 11.3 trains per day entered the Port of Laredo (the number of trains leaving was not recorded). More stringent screening and inspections could substantially decrease the total capacity.

Rail Yard Facilities

Railroad facilities within the region provide locations for storing, sorting, or loading and unloading freight cargo from railroad cars. UP Railroad owns and operates two rail yards, one located about four miles north of the IH 35 and Loop 20 interchange, south of the Unitec Industrial Park, and the second located north of the International Railroad Bridge yard, between Zaragosa and Moctezuma Streets.

The main KCS rail yard is located about two miles east of Loop 20 and has a capacity of 1,375-cars. On the Mexican side of the border, KCS-Mexico (KCSM) maintains the Sanchez yard, which is located 11 miles south and west of Nuevo Laredo. This rail yard contains 22 tracks, including two for car repairs and an intermodal terminal capable of handling 1,500 trucks per day.

Major Intermodal Facilities

Intermodal facilities within the Laredo MPO area are shown on the map on **Figure 8-1**. Intermodal facilities are cargo transfer points between one mode of freight transportation to another. In Laredo, intermodal facilities transfer freight loads from truck to rail, or from rail to truck. Typically, the freight cargo is packaged in a container, and the container is transferred from one mode to another. The use of the container allows the transfer to occur without any direct handling of the cargo. This method reduces cargo handling, and therefore improves security, reduces damages and losses, and allows a faster transport of freight. As the transfer point between rail and truck modes, intermodal facilities in the Laredo region are located at the nexus of the railroads and highways.

Three intermodal facilities are located at locations on the northside of Laredo where the railroad and I-35 meet:

- Tejas Industrial Park
- Unitec Industrial Park
- Del Mar Industrial Park

Two intermodal facilities are located on the eastside of Laredo where the railroad and Loop 20 meet:

- Tex-Mex Industrial Park
- Ponderosa Industrial Park

International Border Crossings

Five international bridges serving the border crossings between the US and Mexico are located within Laredo. Only three of these bridges, the Colombia-Solidarity Bridge, the World Trade Bridge, and the Texas Mexican Railway International Bridge, allow commercial traffic. The

other two international bridges (Juarez-Lincoln International Bridge, Gateway to the Americas Bridge) are for passenger usage only. Additional detailed information regarding the international border crossings is provided in **Chapter 5: Roadways, Border Crossings, and Bridges**. According to the Laredo Economic Development Council, between the World Trade Bridge and Columbia alone, about 12,000 commercial trucks cross the bridges each day. This accounts for about 40% of the capacity of these bridges. As noted earlier in **Chapter 5**, the anticipated and continual rise in freight movements for the Laredo-Columbia-Solidarity and World Trade Bridge indicate existing freight congestion levels that are expected to continue to rise without additional investments to improve freight border crossings.

Air Freight

Air freight in Laredo is served by the Laredo International Airport (LRD), which has dedicated facilities to handle air freight. LRD is located approximately three and half miles from the center of the city, and six miles from the international border (straight distance). The airport has direct access to US 59 and Loop 20.

LRD currently has three runways, 597,000 square feet of storage space, and 20 air cargo operators, including Federal Express, UPS, Kallita Charters, McNeely Charters, Encore Air Cargo, IFL Group LCC, Northern Air Cargo, and USA Jets. **Table 8-1** shows the existing hanger and air cargo facilities in the airport.

Table 8-1: Storage Facilities in Laredo International Airport

Category	Storage Space (square feet)
10 Aircraft Hangars	207,000
15 Air Cargo Facilities	360,000
Federal Express Facility	30,000
Total Storage Space	597,000

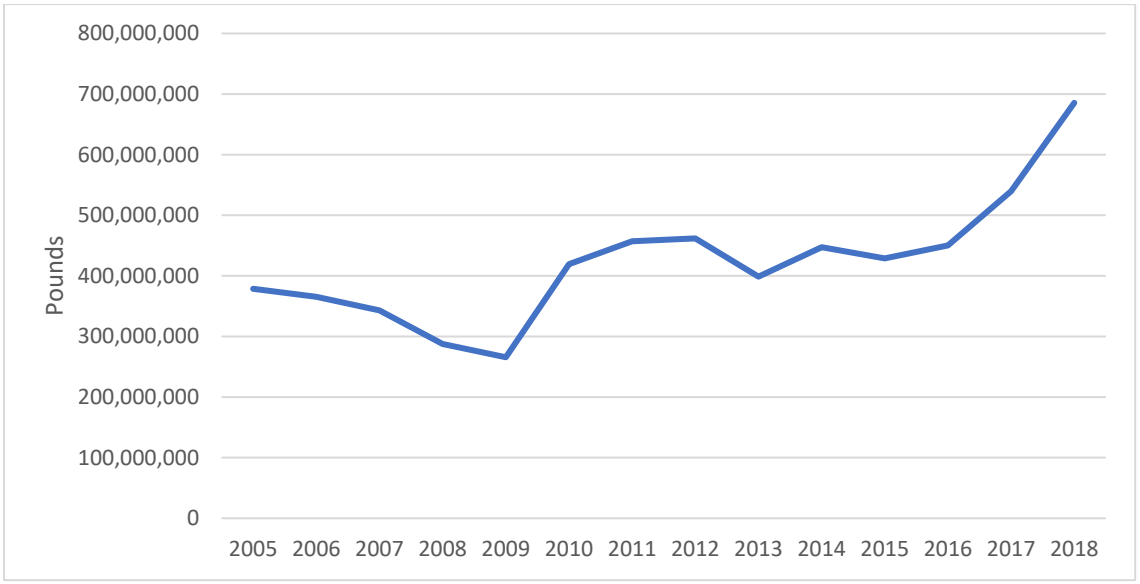
Source: Laredo International Airport

Detailed information and analysis on the LRD facilities and operations is provided in **Chapter 7: Airport**.

In the Laredo MPO region, air freight is becoming an increasingly important component of the transportation of goods. Air freight typically serves time-sensitive, high-value commodities such as documents and precision equipment. FedEx and UPS currently serve LRD on a scheduled basis, while non-scheduled operators include Northern Air Cargo, Ameristar, U.S.A Jet, and others. After stagnating in the aftermath of the recession, air cargo shipments by weight began to rise in 2016.

Figure 8-6 shows the historical air cargo shipments measured by air cargo aircraft gross landed weight in LRD from 2005 to 2018. Air cargo shipments have gone up by 6.2% annually since 2005. According to the information provided by LRD, approximately 90% of the air cargo business is related to the automobile industry.

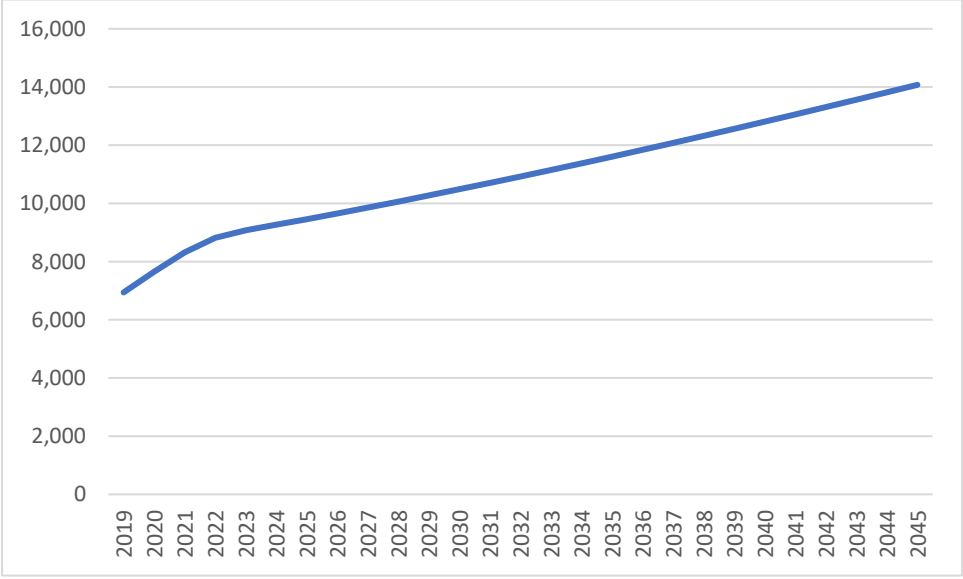
Figure 8-6: Air Cargo Aircraft Gross Landed Weight at LRD, 2005-2018



Source: Laredo International Airport via Laredo Development Foundation

The FAA forecasts that growth in air freight, measured in air carrier operations, between 2019 and 2045 will be 4.0 % annually. The result is based on the regression analysis of the historical activity and the FAA's Terminal Area Forecast Detail Report for 2019 to 2045. The future projections are presented on **Figure 8-7**.

Figure 8-7: Projected Air Carrier Operations at LRD, 2019-2045



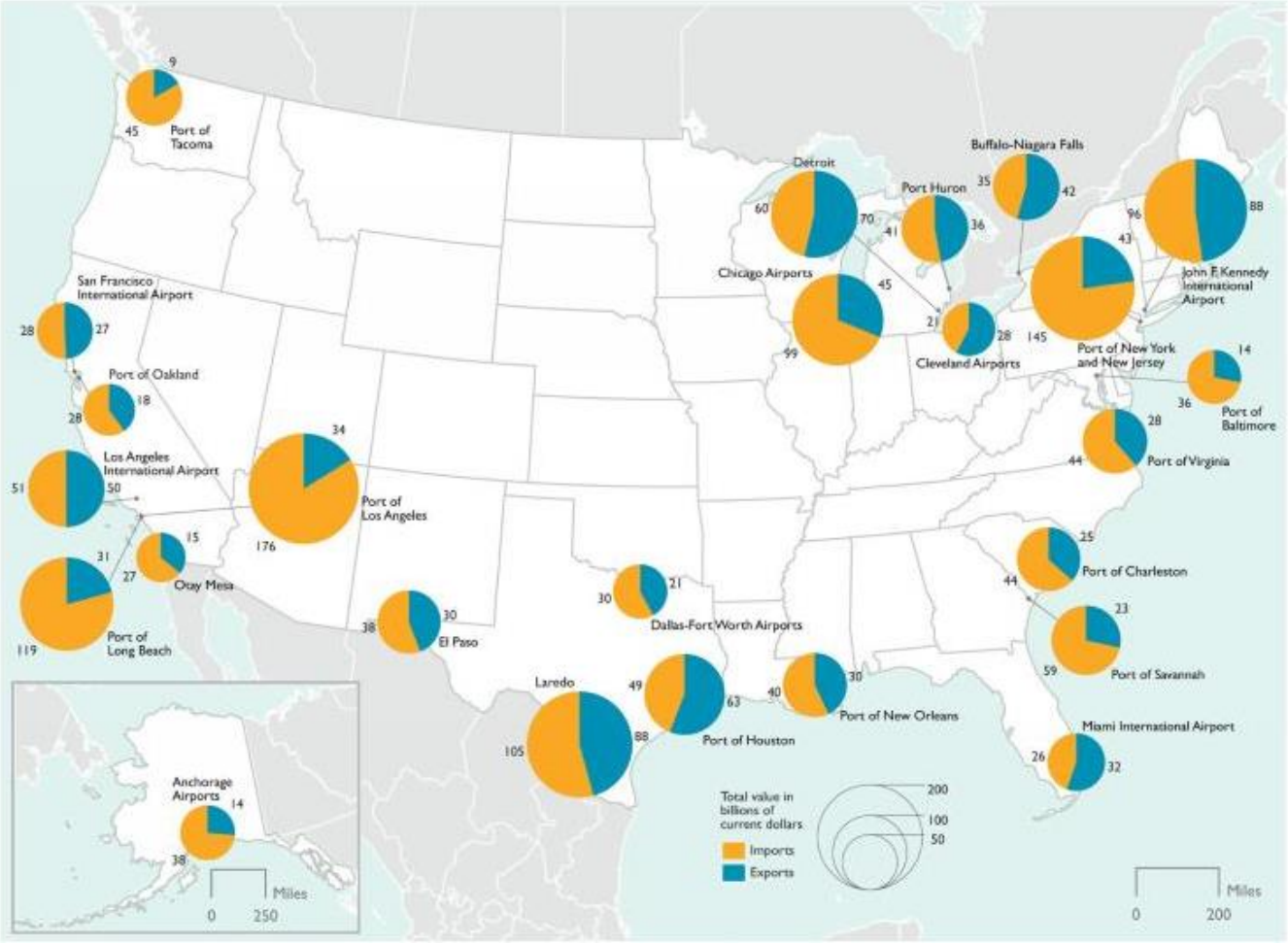
Source: Terminal Area Forecast Detail Report, FAA

Goods Movements

In addition to the actual freight infrastructure, understanding the role of regional freight and goods movements is an important component in developing a comprehensive assessment of the transportation system for the 2020-2045 Laredo MTP.

Within the United States and according to the *2018 Transportation Statistics Annual Report*, Laredo is the top land-border crossing in the United States. As shown on **Figure 8-8**, inbound and outbound international freight movements by value of trade in Laredo are significantly larger than many of the other top U.S.-international freight gateways in the nation combined.

Figure 8-8: Top 25 U.S.- International Freight Gateways by Value of Shipments: 2016

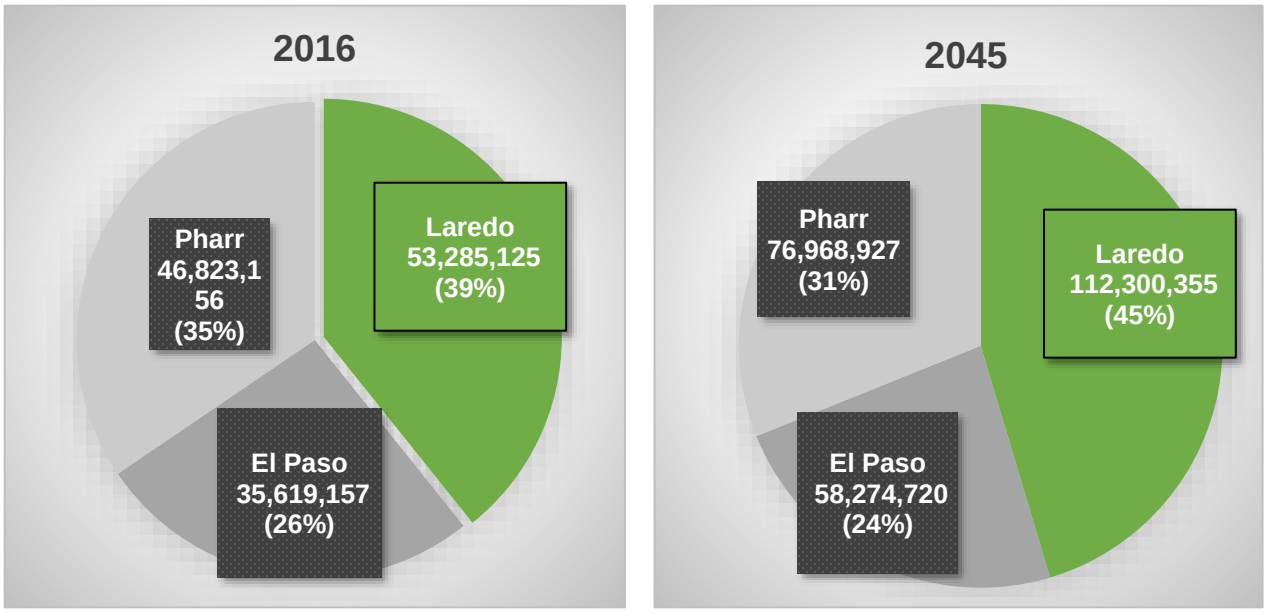


Source: U.S. Department of Transportation Bureau of Transportation Statistics, 2018 Transportation Statistics Annual Report.

Within the state of Texas, there are three designated and significant border crossing districts – Laredo, El Paso, and Pharr. These major freight border districts provide the primary land access points for trade between the U.S. and Mexico and the Laredo district itself provided

approximately 39% of the total combined freight tonnage of all of the border districts in the state in 2016. Based on projected freight tonnage from the FHWA Freight Analysis Framework Version 4 (FAF4) and as shown on **Figure 8-9**, freight tonnage in this border district is expected to make up 45% of the combined freight tonnage within these three border districts in the state by 2045. It is clear that these existing trends and future projected share of growth within the Laredo District make the Laredo region particularly important to providing the infrastructure needed to meet existing and future freight demands in the state.

Figure 8-9: Combined Freight Tonnage for Texas Border Districts, 2016 and 2045

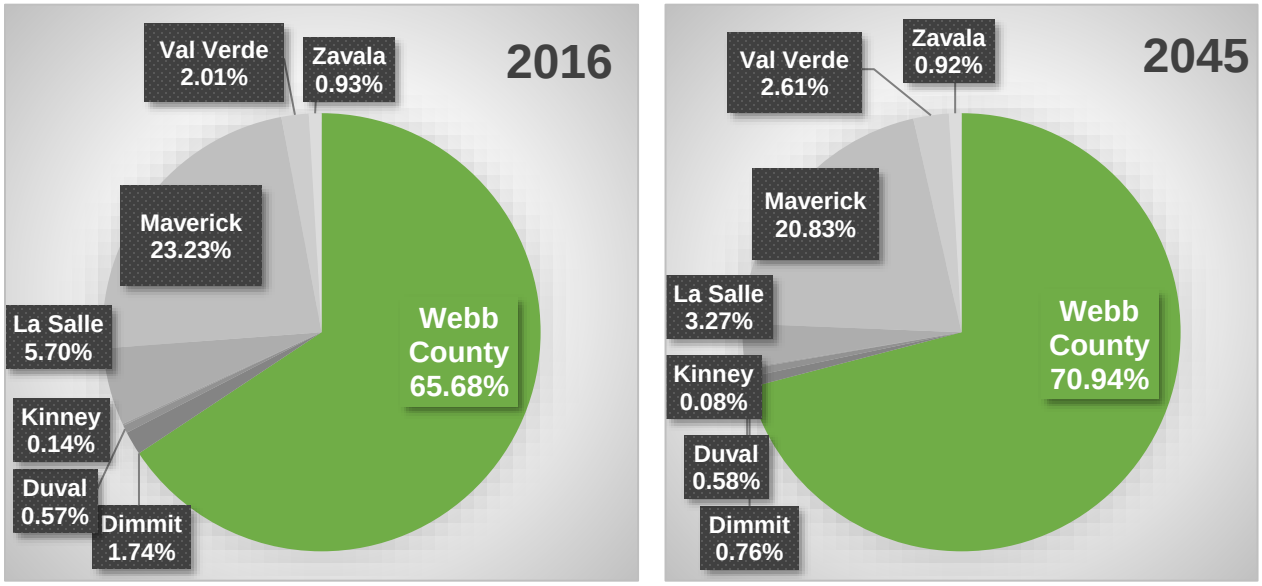


Source: TxDOT Border District Profiles, Texas Freight Mobility Plan, 2018.

The Laredo Border District itself includes areas within the Laredo MPO boundary – notably Webb County - and other counties outside of the MPO. Counties included in the Laredo Border District are: Dimmit, Duval, Kinney, La Salle, Maverick, Val Verde, Webb, and Zavala. Within the Laredo Border District, freight tonnage in Webb County makes up the most significant portion of total freight tonnage moved by a county in this border district in 2016 (65.68%) and is expected to continue to increase that share through 2045 (70.94%). **Figure 8-10**and **Table 8-2** provide 2016 and 2045 combined freight tonnage data for the Laredo Border District by County and highlight Webb County's contribution to these movements.

Notably, combined freight tonnage in the district is expected to more than double over current conditions by 2045 and Webb County is expected to grow by 128% between 2016 and 2045, a rate higher than the Laredo Border District as a whole. This growth in demand not only demonstrates the importance of freight within the regional economy, but the need to plan and develop road, rail, and border crossing infrastructure to meet these demands in the future.

Figure 8-10: Laredo Border District Combined Freight Tonnage, 2016 and 2045



Source: TxDOT Laredo Border District Profile, Texas Freight Mobility Plan, 2018.

Table 8-2: Laredo Border District Combined Freight Tonnage, 2016 and 2045

County	2016 Tonnage	2045 Tonnage	% Change
Webb County	**34,997,662**	**79,662,768**	**128%**
Dimmit	929,149	852,115	**-8%**
Duval	301,667	653,276	**117%**
Kinney	72,098	93,592	**30%**
La Salle	3,035,887	3,669,656	**21%**
Maverick	12,380,768	23,395,644	**89%**
Val Verde	1,071,808	2,934,691	**174%**
Zavala	496,086	1,038,613	**109%**
TOTAL:	**53,285,125**	**112,300,355**	**111%**

Source: TxDOT Laredo Border District Profile, Texas Freight Mobility Plan, 2018.

These high-level trends underscore the vital role that the Laredo region plays in facilitating economic development and freight goods movement within the state and at a national level. The following sections below provide further analysis and details on domestic and international freight and goods movement needs within the region itself that are expected to influence transportation needs now and into the 2045 planning horizon. Factors influencing these domestic and international trade in the region include freight flows (inbound and outbound), mode share, and commodities.

Domestic Trade Flows

According to FAF4 data, Laredo's top five domestic trading partners include locations in other parts of Texas, Michigan, and Illinois.

Table 8-3 shows the value of the amount traded with these regions along with four-year growth rates between 2012 and 2016. These trading partners reflect Laredo's role as the main Port of Entry for Mexican goods bound for the Eastern United States and Canada. In particular, Laredo serves as a key port of entry for distribution to important freight hubs in Texas, such as Houston, Dallas, and San Antonio and across the nation. Given the expected growth in freight tonnage anticipated through 2045, substantial increases in freight movements can be expected to increase bottlenecks along major freight corridors that provide access to these bubs and the national network – particularly along I-35 and US 58.

Table 8-3: Top Domestic Trading Partners in the U.S. (Millions of Dollars)

State	Region	Annual Trade Value (Millions)		Annual Growth Rate (2012-2016)
		2012	2016	
Texas	Houston-The Woodlands CSA*	$20,412.94	$18,484.61	-2.36%
	Dallas-Fort Worth CSA*	$16,861.10	$18,606.76	2.59%
	San Antonio CSA*	$5,121.38	$6,227.45	5.40%
Michigan	Detroit-Warren-Ann Arbor CSA*	$16,645.55	$17,090.58	0.67%
Illinois	Chicago-Naperville CSA*	$8,245.84	$9,644.80	4.24%
** CSA is defined as a Combined Statistical Area.*				

Source: Federal Highway Administration, Freight Analysis Framework 4, 2016

Inbound and Outbound Movements

Table 8-4 provides a summary of 2016 and 2045 trade values by inbound and outbound movement types and anticipated changes. According to FAF4 data, in 2016 a total of $33.4 billion dollars or 17.9 million tons of goods were transported inbound into the Laredo metropolitan statistical area from other destinations in the US via various modes including air, truck, rail, pipeline, and mail. A total of $17.5 billion dollars or 20.0 million tons of goods were transported outbound from Laredo to other destinations in the U.S. in 2016.

Table 8-4: Domestic Goods Movements, 2016 and 2045

Type	Trade Values ($ Billions)			Trade Value (Tons-Millions)		
	2016	2045	% Change	2016	2045	% Change
Inbound	33.4	52.5	**57.19%**	17.9	20.5	**14.53%**
Outbound	17.5	22	**25.71%**	20	24.7	**23.50%**

Both inbound and outbound domestic goods movements are anticipated to increase substantially in terms of trade value and tonnage by 2045. Notably, trade value as measured in tons is expected to increase for inbound domestic trade by almost 15% and by almost 24% for outbound domestic trade. As additional domestic goods are moved in and out of the Laredo region, there will be additional demands placed on the transportation network – both roadways and rail – to accommodate this increase in domestic goods movement. Should truck freight movements continue to be the predominant form of transportation for this trade, roadway networks in the region will continue to degrade in performance without additional investments and planning for transportation efficiency.

Goods Movement by Mode

Trucks the dominant mode for transporting domestic goods between Laredo and other locations in the U.S. **Table 8-5** shows the total value and weight of domestic freight by mode in 2016 and projected for 2045 and percentage they make up by mode. Trucks transported approximately 51.8 billion dollars or 44.9 million tons of goods in domestic trade in 2016. Rail carries the second highest value of the modes with approximately 650 million dollars and 1.3 million tons of goods moved. Meanwhile, pipelines (which transport liquids or gases long-distance through systems of pipes) transported approximately 281 million dollars or approximately 710,000 tons of goods and air 374 million dollars and 4.5 million tons of goods, respectively. In terms of percentages, trucks provide over 90% of domestic trade in the region whether measured in the dollar value of trade or tons of value transported.

Table 8-5: Domestic Freight Values by Mode, 2016 and 2045

Type	Trade Values ($ Billions)				Trade Value (Tons-Millions)			
	2016	% of Total	2045	% of Total	2016	% of Total	2045	% of Total
Truck	51.8	91.13%	67.6	86.86%	44.9	95.30%	47.4	92.26%
Air	0.37	0.65%	0.94	1.21%	0.0045	0.01%	0.0088	0.02%
Pipeline	0.62	1.09%	0.11	0.14%	0.71	1.51%	0.12	0.23%
Rail	0.65	1.14%	0.98	1.26%	1.3	2.76%	3.5	6.81%
Other Modes	3.4	5.98%	8.2	10.54%	0.2	0.42%	0.35	0.68%
Total	56.84	100.00%	77.83	100.00%	47.11	100.00%	51.38	100.00%

Source: Federal Highway Administration, Freight Analysis Framework 4, 2016

Table 8-6 shows the total changes in freight values by mode expected between 2016 and 2045. Value of domestic truck freight by dollars and tons is expected to continue rise, with tonnage expected to increase by 5.57%. Most notably for the surface transportation system, however, substantial increases in air freight modes are anticipated by 2045 – with tonnage almost doubling and values in dollars almost double what they were in 2016. Additionally, tonnage moved by rail is expected to more than double between 2016 and 2045.Similarly, “other modes”, which include those transported by multiple modes or those not otherwise defined by mode are expected to more than double in terms of trade value and to increase in tonnage by 75% between 2016 and 2045.

Table 8-6: Domestic Freight Flow Changes by Mode, 2016 and 2045

Type	Trade Values ($ Billions)			Trade Value (Tons-Millions)		
	2016	2045	% Change	2016	2045	% Change
Truck	51.8	67.6	**30.50%**	44.9	47.4	**5.57%**
Air	0.37	0.94	**154.05%**	0.0045	0.0088	**95.56%**
Pipeline	0.62	0.11	**-82.26%**	0.71	0.12	**-83.10%**
Rail	0.65	0.98	**50.77%**	1.3	3.5	**169.23%**
Other Modes	3.4	8.2	**141.18%**	0.2	0.35	**75.00%**
Total	56.84	77.83	**36.93%**	47.11	51.38	**9.05%**

Source: Federal Highway Administration, Freight Analysis Framework 4, 2016

The changes or consistency in modes used for carrying freight now and into the future as well as the changes in freight moved by mode are significant factors in planning for the needs of the future freight transportation network. The continued reliance on trucks as the dominant mode for carrying freight means that major interstates and state roads will need to provide adequate levels of service to address roadway truck travel needs and provide on time reliability for freight movements. Additionally, the increase in air and rail modes in the future indicate that expansions of airport freight intermodal hubs may be required and that rail infrastructure in the region may need to be further modernized and greater intermodal connections may be needed to address these freight needs.

Commodities

Table 8-7 shows the top five total commodities of total domestic trade value of freight in 2016 and 2045 and **Table 8-8** shows anticipated changes in these domestic commodity values between 2016 and 2045. Fuel oils made up over 50% of domestic freight trade values by dollars in 2016 and almost 84% of trade value in tons in 2016.

In 2045, this is expected to decrease slightly, while other commodities such as electronics and machinery are anticipated to make up a greater share of the top domestic trade commodities in the region and are expected to make up a smaller percentage of total domestic trade commodities in the future. Similarly, fuel oil trade in general is expected to decrease during this same timeframe. Most of the domestic trade by these top five commodities are expected to decrease somewhat between 2016 and 2045, with the exception of electronics and machinery, which are expected to more than double in trade value dollars over this timeframe.

Table 8-7: Domestic Trade Values by Commodity, 2016 and 2045

Type	Trade Values ($ Billions)				Trade Value (Tons-Millions)			
	2016	% of Total	2045	% of Total	2016	% of Total	2045	% of Total
Fuel Oils	20.2	53.30%	16.7	36.07%	22.1	83.52%	18.4	75.47%
Electronics	5.5	14.51%	12.4	26.78%	0.28	1.06%	0.5	2.05%
Gasoline	4.2	11.08%	3.8	8.21%	2.9	10.96%	3.8	15.59%
Motorized Vehicles	4.2	11.08%	4.7	10.15%	0.74	2.80%	0.75	3.08%
Machinery	3.8	10.03%	8.7	18.79%	0.44	1.66%	0.93	3.81%
Total	37.9	100.00%	46.3	100.00%	26.46	100.00%	24.38	100.00%

Source: Federal Highway Administration, Freight Analysis Framework 4, 2016

Table 8-8: Domestic Trade Value Changes by Commodity, 2016 and 2045

Type	Trade Values ($ Billions)			Trade Value (Tons-Millions)		
	2016	2045	% Change	2016	2045	% Change
Fuel Oils	20.2	16.7	**-17.33%**	22.1	18.4	**-16.74%**
Electronics	5.5	12.4	**125.45%**	0.28	0.5	**78.57%**
Gasoline	4.2	3.8	**-9.52%**	2.9	3.8	**31.03%**
Motorized Vehicles	4.2	4.7	**11.90%**	0.74	0.75	**1.35%**
Machinery	3.8	8.7	**128.95%**	0.44	0.93	**111.36%**
Total	37.9	46.3	**22.16%**	26.46	24.38	**-7.86%**

Source: Federal Highway Administration, Freight Analysis Framework 4, 2016

Changes in domestic commodity flows have direct impacts on the transportation network, since weights and composition of commodities differ and may impact on the modes used, the distribution needs for transferring commodities to end uses, and types of vehicles (e.g., rail, truck, air,) needed to support freight demands.

International Trade Flows

Table 8-9 and **Table 8-10** show the import and export trade values for 2012 and 2016 between Laredo and foreign trading partners. According to the FAF4 data, Laredo's top foreign trade partner is Mexico, and total trade value accounts for 99 percent of the total international trade values in 2016. Although Mexico is overwhelmingly Laredo's largest trading partner there has also been significant growth in import trade value coming through Laredo from Southeast Asia and Oceania (62%) and from the rest of Latin America (35%). While Canada is not a top trading partner for the region, annual trade values for Canadian trade increased substantially from 2012 to 2016 (over 600%).

Table 8-9: Top Foreign Trading Import Partners (Millions of Dollars)

Country/Region	Annual Trade Value (millions)		Annual Growth Rate
	2012	2016	(2012-2016)
Mexico	$92,477.86	$111,161.12	5.05%
SE Asia and Oceania	$14.39	$49.99	61.84%
Eastern Asia	$48.90	$46.79	-1.08%
Europe	$39.35	$33.95	-3.43%
Rest of Americas	$3.58	$8.52	34.53%

Source: Federal Highway Administration, Freight Analysis Framework 4, 2016

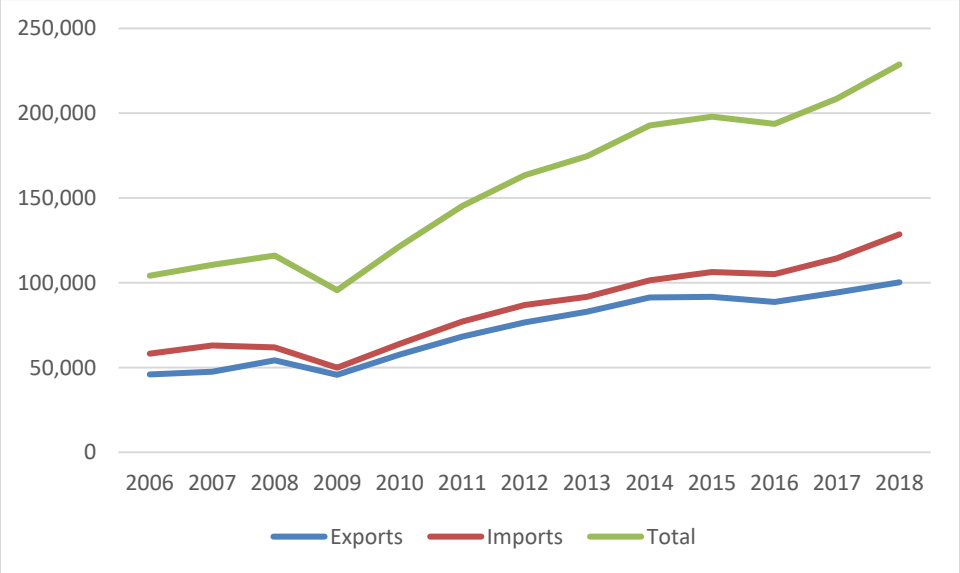
Table 8-10: Top Foreign Trading Export Partners (Millions of Dollars)

Country/Region	Annual Trade Value (millions)		Annual Growth Rate
	2012	2016	(2012-2016)
Mexico	$80,158.58	$91,466.29	3.53%
Canada	$1.79	$45.13	605.31%
Rest of Americas	$2.23	$5.46	36.21%
Europe	$2.80	$3.09	2.59%
Eastern Asia	$1.95	$2.07	1.54%

Source: Federal Highway Administration, Freight Analysis Framework 4, 2016

Figure 8-11 shows that US-Mexico trade value through the port of Laredo has steadily increased over the last 13 years, with an annual growth rate of 9.9 percent. In 2018, total combined exports to and imports from Mexico through the Port of Laredo totaled $228.7 billion.

Figure 8-11: U.S.-Mexico Trade Value, Through Port of Laredo in Millions of Dollars



Source: Bureau of Transportation Statistics. North American Transborder Data

Existing and future international freight demands, by movement types (inbound and outbound movements), modes, and commodities were further examined to understand current and future goods demands that may impact the freight network in the region today and in 2045.

Inbound and Outbound Movements

Table 8-11 shows 2016 and 2045 international import and export values. In 2016 approximately 109.7 billion dollars or 24.2 million tons of goods were imported from foreign countries through Laredo into the U.S, and approximately 91.5 billion dollars or 37.6 million tons of goods from the U.S. were exported through Laredo to foreign countries. The total trade value of import goods is projected to increase from approximately 109.7 billion dollars in 2016 to 358.9 billion dollars in 2045, which translates to a growth of more than 300 percent. The total trade value of export goods is projected to grow from approximately 91.5 billion dollars in 2016 to 300.7 billion dollars in 2045. The total weights of import and export goods are also projected to grow in a similar way. The substantial amount of international trade values, in dollars and tons, and significant increases in international trade anticipated between 2016 and 2045 underscore the need for freight improvements in the region that will enhance the ability to move freight effectively and efficiently within the region and to other destinations statewide, nationally, and into Mexico and Central and South Americas.

Table 8-11: International Import and Export Trade Flows, 2016 and 2045

Type	Trade Values ($ Billions)			Trade Value (Tons-Millions)		
	2016	2045	% Change	2016	2045	% Change
Imports	109.7	358.9	**227.16%**	24.2	73.4	**203.31%**
Exports	91.5	300.7	**228.63%**	37.6	86.5	**130.05%**
Total	201.2	659.6	**227.83%**	61.80	159.90	**158.74%**

Source: Federal Highway Administration, Freight Analysis Framework 4, 2016

Goods Movement by Mode

Table 8-12 shows the total international trade values of goods transported by mode in 2016 and 2045. As with domestic goods movements, trucks provide the primary mode for transporting international goods, accounting for over 78% of the total value of goods movement by mode in 2016 and over 61 percent of the value in tons of international goods moved. By 2045, truck mode share for carrying international goods is expected to continue increase, and values of international trade by dollars and tons are expected to decrease for rail modes as a share of the goods moved. If these trends continue as predicted, it will place additional burdens on an already taxed freight roadway and not provide any additional mode shifts for moving these goods.

Table 8-12: International Trade Values by Mode, 2016 and 2045

Type	Trade Values ($ Billions)				Trade Value (Tons-Millions)			
	2016	% of Total	2045	% of Total	2016	% of Total	2045	% of Total
Truck	156.3	78.13%	540.2	81.89%	37.8	61.16%	116.9	73.09%
Rail	36.7	18.35%	92.9	14.08%	22.4	36.24%	32.9	20.57%
Air	0.24	0.12%	1.9	0.29%	0.005	0.01%	0.033	0.02%
Other Modes	6.8	3.40%	24.7	3.74%	1.6	2.59%	10.1	6.32%
Total	200.0	100.00%	659.7	100.00%	61.8	100.00%	159.9	100.00%

Table 8-13 shows total changes in international trade values by mode between 2016 and 2045. Substantial increases in international trade values are expected between this timeframe. Most notably, air transportation is anticipated to grow by approximately 540 percent, railroad by approximately 47 percent, and trucks by more than 200 percent between 2016 and 2045. To meet this significant growth, additional investments are likely to be needed for logistics and distribution of air freight, to upgrade and modernize rail and intermodal facilities, and to address the impacts of additional truck freight volumes on the freight roadway network.

Table 8-13: International Trade Value Changes by Modes, 2016 and 2045

Type	Trade Values ($ Billions)			Trade Value (Tons-Millions)		
	2016	2045	% Change	2016	2045	% Change
Truck	156.3	540.2	**245.62%**	37.8	116.9	**209.26%**
Rail	36.7	92.9	**153.13%**	22.4	32.9	**46.88%**
Air (includes truck-air)	0.24	1.9	**691.67%**	0.005	0.033	**560.00%**
Other Modes	6.8	24.7	**263.24%**	1.6	10.1	**531.25%**
Total	200.0	659.7	**229.78%**	61.8	159.9	**158.77%**

Source: Federal Highway Administration, Freight Analysis Framework 4, 2016

Commodities

Table 8-14 shows the top five total commodities of international trade measured by value in 2016 and 2045. The top five outbound commodities include motorized vehicles, machinery, electronics, plastics/rubber, and base metals. These commodities represented 72 percent of the total international value of commodities in 2016. All these five commodities are expected to grow substantially by year 2045. It is projected that machinery will have the highest percentage of growth between 2016 and 2045 among these five – 282 percent, followed by electronics – 248 percent. Further, in 2045, these commodities are projected to account for 71 percent of all commodities traded in and through the region. With this substantial growth in commodities traded, additional logistics to effectively distribute these goods may be needed to further support efficient international goods movements.

Table 8-14: International Trade Values by Commodity, 2016 and 2045

Type	Trade Values ($ Billions)			Trade Value (Tons-Millions)		
	2016	2045	% Change	2016	2045	% Change
Motorized Vehicles	44.0	93.5	**112.50%**	7.1	15.5	**118.31%**
Electronics	41.6	144.8	**248.08%**	2.4	8.7	**262.50%**
Machinery	34.3	131.2	**282.51%**	4.6	15	**226.09%**
Plastics/rubber	14	44.5	**217.86%**	5.6	13.3	**137.50%**
Base Metals	4.7	11.8	**151.06%**	4.6	7.8	**69.57%**
Total	138.6	425.8	**207.22%**	24.3	60.3	**148.15%**

Source: Federal Highway Administration, Freight Analysis Framework 4, 2016

Defining Regional Freight Issues and Needs

In addition to technical analysis examining the performance of freight infrastructure and goods movement in the region described above, major state and regional plans were reviewed and regional public involvement was conducted, including stakeholder and focus group meetings, to further define freight issues and needs for the Laredo MPO region through the 2045 planning horizon.

Statewide and Regional Planning Efforts Reviewed

Two major planning initiatives were identified and reviewed for this MTP to ensure that strategies and recommendations for freight improvements in the region are consistent with ongoing planning efforts: the Texas Freight Mobility Plan and the Texas-Mexico Border Transportation Master Plan.

Texas Freight Mobility Plan

With the enactment of the FAST Act, each state is required to develop a freight plan that comprehensively addresses short- and long-term freight planning activities and investments. The latest 2018 Texas Freight Mobility Plan serves as a guide to address freight transportation needs by establishing goals and strategies to guide investment decisions and prioritize projects that align with the state's transportation and economic development goals. The plan outlines priorities for freight investments, identifies facilities that are critical for economic growth and the movement of goods, strategizes for enhanced economic growth and competitiveness, expands freight policies, ensures consistency with neighboring states and federal goals and objectives, and provides a realistic implementation plan.

The 2018 Texas Freight Mobility Plan identifies strategic recommendations for significant investments that will shape the state's future freight transportation demands as well as address current unmet needs. One of the strategic recommendations is the I-27 Extension from Lubbock to Laredo. The Ports-to-Plains (I-27) corridor from Laredo to Denver would be a catalyst to spur economic development in the state and support agricultural and energy sector

development. The I-27 extension would provide the only major north-south corridor in Texas west of I-35, and it would intersect three major east-west routes: I-10, I-20 and I-40. Currently, nearly 125 miles between Amarillo and Lubbock are designated as I-27. The I-27 extension would upgrade approximately 500 miles from Lubbock to Laredo at a conceptual cost estimate of $5.2 billion. TxDOT has recommended more detailed study of the extension to determine whether an incremental improvement approach or a complete interstate facility approach would meet safety and mobility needs.

The 2018 Texas Freight Mobility Plan includes a 5-Year Freight Investment Plan that includes 515 projects that are fully funded. Within 5-Year Freight Investment Plan, there is one investment identified for the Laredo MPO area, shown in **Table 8-15**.

Table 8-15: 2018 Texas Freight Mobility Plan 5-Year Investment Plan, Projects in Laredo MPO

TIP/ Project Number	Facility	Location	Description	Project Category	Fiscal Year	Project Cost (Millions)	Priority
0018-06-183	I-35	0.5 mi South of US 59 - SL 20 to 0.50 mi East of I-35 / US 59 -SL 20	Construction of Direct Connector Interchange (Dc#5)	Alternate Routes	2019	$30.000	High

The 2018 Texas Freight Mobility Plan includes an Unconstrained Freight Investment Plan, this project list identifies projects for which funding has not been secured yet. For the Laredo MPO area, these projects are shown in **Table 8-16**.

Table 8-16: 2018 Texas Freight Mobility Plan Unconstrained Freight Investment Plan, Projects in Laredo MPO

TIP/ Project Number	Facility	Location	Description	Project Category	Fiscal Year	Project Cost (Millions)	Priority
2150-04-068	FM 1472	At Flecha Lane	Improve traffic signals	Safety		$0.087	High
2150-04-069	FM 1472	At Killam Blvd	Improve traffic signals	Safety		$0.423	High
0018-05-089	I-35	0.500 mi S of Uniroyal Interchange to 1.000 mi N of Uniroyal Interchange	Replacement of existing bridge	Asset Preservation	2022	$65.000	High
0018-06-136	I-35	Shiloh Drive to 0.25 Miles N. of US 59/ I-69W	Widen of Mainlanes and RR Grade Separation	Alternate Routes	2021	$54.000	High

TIP/ Project Number	Facility	Location	Description	Project Category	Fiscal Year	Project Cost (Millions)	Priority
0018-06-183	I-35	0.5 mi South of US 59 - SL 20 to 0.50 mi East of I-35 / US 59 - SL 20	Construction of Direct Connector Interchange (Dc#5)	Alternate Routes	2019	$30.000	High
0018-06-184	I-35	0.5 mi West of I-35 / US 59 - SL 20 to 0.50 mi South of US 59 - SL 20	For the Construction of Direct Connector Interchange (Dc#8)	Alternate Routes		$20.000	High
0018-06-185	I-35	0.50 mi East of I-35 / US 59 - SL 20 to 0.50 mi North of I-35 / US 59 - SL 20	For Construction of Direct Connector Interchange (Dc#3)	Alternate Routes		$30.000	High
0018-06-186	I-35	0.5 mi East of I-35 / US 59 - SL 20 to 0.5 mi North of I-35 / US 59 - SL 20	For Construction of Direct Connector Interchange (Dc#4)	Alternate Routes		$20.000	High
0018-06-187	I-35	0.5 mi South of US 59 - SL 20 to 0.5 mi East of I-35 / US 59 - SL 20	For Construction of Direct Connector Interchange (Dc#6)	Alternate Routes		$15.000	High
0086-14-073	SL 20	At Del Mar Blvd	Improve Traffic Signals	Safety		$0.084	High
0086-14-074	SL 20	At International Blvd	Improve traffic signals	Safety		$0.090	High
0086-14-075	US 59	At Del Mar Blvd	Construction of Interchange	Alternate Routes	2022	$24.100	High
0086-14-076	US 59	At Shiloh	Construction of Interchange	Alternate Routes	2022	$21.500	High
0086-14-077	US 59	At International Airport	Construction of Interchange	Alternate Routes	2024	$14.786	High
0086-14-078	US 59	0.50 mi S of Jacaman Rd to 0.50 mi N of Jacaman Rd	Construction of Interchange	Alternate Routes	2021	$19.691	High

TIP/ Project Number	Facility	Location	Description	Project Category	Fiscal Year	Project Cost (Millions)	Priority
0086-14-079	US 59	At University Blvd	Construction of Interchange	Alternate Routes	2022	$16.850	High
0542-01-086	US 59	7.496 mi W of FM 2895 to 2.076 mi E of SH 20	Profile Edgeline Markings, Profile Centerline Markings	Safety		$0.471	High

The 2018 Texas Freight Mobility Plan also identifies several railroad improvements for the Laredo MPO area, shown in **Table 8-17**. Theses recommended railroad improvements are not funded at this time.

Table 8-17: 2018 Texas Freight Mobility Plan Railroad, Projects in Laredo MPO

Project Name	Project Description	Estimated Cost (Millions)	Source / Sponsor	Class I Railroad Stakeholders
Laredo Grade Separations	Relieve congestion in downtown Laredo caused by the 14 at-grade crossings along the existing Texas-Mexico approach to the existing Laredo rail bridge	TBD	TxDOT Rail Division	KCS, UP
Laredo Bridge double track	Double track bridge at Laredo to improve rail traffic flows to/from Mexico.	TBD	TxDOT Rail Division	KCS, UP
2nd ML from Laredo Bridge to Pt Laredo	2nd main line from Laredo rail bridge to Pt Laredo to facilitate additional movements to and from the border	0.07	TxDOT Rail Division	UP

Texas-Mexico Border Transportation Master Plan

TxDOT, in collaboration and partnership with the Border Trade Advisory Committee, is working with U.S. and Mexican agencies and stakeholders to develop the Border Transportation Master Plan (BTMP). The master plan will identify the cross-border challenges of moving people and goods and will include analysis of existing transportation systems--roadway, transit, pedestrian, pipeline, airport, maritime, and rail. The plan will analyze current and future transportation and will include a prioritized list of transportation investment strategies that support binational, state, regional, and local economic competitiveness and improve the impacts of cross-border trade and transportation. The purpose of the BTMP is to facilitate coordination and collaboration between Texas and Mexico on binational planning, programming, and the implementation of policies, programs, and projects (a) at border crossings and (b) support the facilities and the multimodal transportation system that serves the Texas-Mexico border. Key objectives of the study include:

- Conduct a binational analysis of the existing transportation systems (roadway, transit, pedestrian, pipeline and rail, etc.) and analyses of current and future transportation needs.
- Assess all ports-of-entry (POE) support facilities that facilitate the cross-border movement of people and goods.
- Develop an extensive and collaborative binational public and private-sector stakeholder engagement.

The development of the BTMP has initiated in April 2019 and will be completed in about 12 to 18 months.

Regional Freight Focus Group Meetings and Public Input

The Laredo region experiences many challenges to the efficient movement of freight and goods through the transportation system. In November 2018, the Laredo MPO held a focus group meeting that served as a forum for regional carriers, shippers, and members of the international trade industry focused on issues related to the transportation system's capacity, accessibility, and reliability for freight and goods movement and economic development, both as existing and for the future. The focus group meeting, public outreach activities, and data analysis have led to the identification of several regional challenges to freight and goods movement, discussed below.

System Capacity

Capacity issues are the most critical challenge to the international gateways, and Laredo will be no exception. The freight flow forecasts presented above indicate that freight growth will continue to add capacity burdens on an already congested network.

Several existing and future challenges and recommendations were noted as part of public outreach and focus group meetings related to system capacity:

- Land use barriers (including zoning restrictions, development interests, lack of land availability, and livability factors) are influencing the lack of new freight facilities in the Laredo MPO area.
- Property owners on the south side of Laredo are more willing to subdivide land for development than on the north side of Laredo, but most of the freight related zoning changes are being made on the north side of Laredo. This could be remedied with changes to zoning on the south side of Laredo.
- There are two railyards, one on the north side of Laredo and one on the south side of Laredo. In particular, providing development adjacent to the south side railyard that would be compatible with multimodal freight development could greatly increase freight efficiency.
- ITS solutions should be considered to assist the efficient movement of freight.
- Loop 20, as a means to divert truck traffic from I-35, is not complete and not continuous. There is a lack of direct connection to I-35 that needs to be better addressed.
- Laredo should find ways to obtain more funding for improvements to I-69/US 59, which would not just impact Laredo, but would provide greater capacity to important freight connections across the state.

- The UP trains in the downtown area block traffic at the rail crossings. Emergency vehicles and other vehicles are often delayed waiting for trains to cross.
- I-69 as it ties into Loop 20 and connects to I-35 should be examined. Mobility might be increased with another lane on I-35 to San Antonio.

Border/Ports-of-Entry

Border crossing wait times is another factor that exacerbates highway and rail congestion. Heightened security practices instituted over the last decade coupled with growing demand have increased travel times and delay. A non-delayed border crossing should normally take only 10 minutes. Some of the public outreach and focus group comments related to border/port-of-entry challenges and opportunities:

- Peak hour congestion lasts until about 6 PM from the north to the south of Laredo due to travel to and from Mexico.
- High levels of congestion have been observed at Laredo's international bridges.
- If trucks entered at the Columbia Bridge, and had pre-clearance and did not have to go through Laredo they could travel on SH 255 and pass through going north, avoiding Laredo. Capacity improvements at the Columbia Bridge are possible as well as there is room to widen the bridge.

Mexico Trade and Relationship

As Laredo's top trading partner, Mexico's economic performance affects Laredo's freight transportation network. Some of the public outreach and focus group comments related to border/port-of-entry challenges and opportunities:

- Mexico's growing economy with auto and other manufacturing industries makes freight in Laredo increase. When Mexico prospers, this area prospers, and the region needs to be prepared for those changes.
- Mexican drayage companies complain that they operate only 3 crossings per day, and while they would like to operate more, current congestion levels are too high.
- Mexican ports are looking to implement regulations requiring cleaner air, similar to ports in U.S. and this should be coordinated.
- Building infrastructure strictly based on current traffic counts does not consider the rate of infrastructure growth in Mexico relative to the Del Rio and Eagle Pass ports.
- Bi-national movement of cargo is high and has more of an impact on truck traffic than some of the local development.
- Consideration of a new international commercial bridge that connects Loop 20 to Mexico is being discussed to address border crossing freight volumes and congestion and should be noted.

Best Practices and Strategies for Freight and Goods Movements

Based on the technical performance review of the freight system in the region, a review of statewide and regional planning efforts, and feedback received as part of focus group meetings held as part of this MTP update, several best practices and strategies are recommended to guide future freight investment decisions through the 2045 planning horizon. Some potential strategies that could help improve the freight movement include:

Develop a Regional Freight Master Plan

The development of a Laredo Freight Master Plan is an essential planning exercise needed in the short-term to more comprehensively address freight challenges today and to better coordinate future plans. A freight master plan would lay out Laredo's vision for freight by integrating the interests of relevant stakeholders into a framework for evaluating future plans and policies affecting Laredo's freight network.

Ideally, the plan would prioritize goals for the performance of Laredo's freight network and would identify and conceptualize future improvements, ranging from operational improvements (lane reconfiguration, ITS, etc.) to projects to enhance capacity (new roadways and bridges) and demand management strategies like congestion pricing, tolling, and transportation demand management strategies. This planning project should be done in coordination with TxDOT's freight and border master planning efforts to ensure that regional plans are consistent with statewide plans and priorities as well.

Coordination of Land Use Decisions and Safety Improvements with Freight and Goods Movement Demands

The integration of freight planning into Laredo's land use plan and zoning code is an important strategy to better help concentrate freight uses to maximize the efficiency of goods movement and to plan safe, and vibrant communities in the region. The efficient flow of freight corridors can be negatively impacted by certain land uses, and in turn freight traffic can have a harmful effect on the same land uses due to pollution and congestion. Provision for new freight specific zones into the zoning code may be considered, which could effectively ban certain sensitive uses, like schools or new communities, from areas adjacent to freight corridors and clusters of freight movements and/or help to create incentive zoning for freight improvements into more clustered areas rather than in dispersed locations throughout the region. Zoning changes could be done concurrently or be driven by the freight master plan. Given challenges noted in public and stakeholder outreach regarding the limitations of continued growth in the northern area of the region, additional consideration on creating freight zones or hubs in other areas in the region should be given so that future freight proposals are collocated with adjacent freight roadway routes and rail yards/terminals and provide a buffer between proposed new freight uses in other areas of the region and existing or other planned residential and general commercial growth.

Additionally, where non-compatible uses between freight and other uses are already a dominating issue within the region, consideration of improvements to better separate freight truck movement from transit users, pedestrians, and bicyclists should also be considered for enhancing safety and reducing crashes. Improvements, such as pedestrian bridges or separated bicycle use paths may be considered not only as an improvement to those modes, but as a safety improvement to reduce harmful crashes between modes. Similarly, transit modes may be desirable around freight concentrated areas to provide access to jobs and improvements to accessible bus stops and sidewalk connections is required to make these transit improvements and provide safe access for users. Making these types of improvements as part of a wholistic and connected network to provide alternative and safe access instead of as standalone projects to solve one particular locational challenge is recommended to maximize these safety benefits.

Implement Technological and Operational Improvements

With the importance of freight and goods movements to the regional, statewide, national and international economies, providing technology and operational improvements will be an essential element in developing a comprehensive and efficient freight network into the future. The continued implementation of Intelligent Transportation Systems (ITS) improvements to provide real-time information on incidents, weather, congestion and other traffic congestions are needed.

In addition, a number of cities across the nation are beginning to look at other technological solutions to effectively moving freight and goods in the future. Of particular note is the concept of “freight platooning”. This involves grouping vehicles into platoons to increase capacity and improve operations for freight and other traffic. Platoons effectively decrease the distances between trucks using electronic or mechanical coupling and allows trucks to accelerate or brake simultaneously, Automated highway systems will be needed to bring this type of strategy to reality and this may require larger investments in the future to provide new or retrofitted vehicles.

Several other non-technological operational strategies may also serve to improve operational efficiency into the future, such as:

- Routing restrictions and other modifications for heavy truck loads;
- The improvement of truck and container traffic management at terminals at freight and rail terminals;
- The adjustment of signalization near freight terminals to optimize flow;
- Curb space management strategies for freight delivery areas;
- The establishment of dedicated truck-only routes where freight traffic is significant and where there are available parallel facilities for local traffic movements;
- The creation of emergency management and incident response systems for truck routes to keep flow high after accidents.

Address System Capacity Issues

Addressing system capacity issues now and into the future will be an essential strategy for effective and efficient freight and goods movement that supports continued economic vitality and provides a safe, and connected network. Incorporating a combination of demand management strategies, considering planning for creating greater modal balance in moving freight, and roadway and rail capacity enhancement strategies will be needed to address these challenges. Several supportive strategies for this that may considered are highlighted below.

Demand Management Strategies and Potential for Modal Shifts

- The implementation of tolls or congestion pricing during peak periods;
- The implementation of off-peak delivery for freight;
- The reduction of demand for truck freight through shifting freight traffic to rail. Expected benefits include lower congestion and lower concentrations of pollutants along freight corridors.

Capacity Enhancement Strategies

- The creation of truck-only lane facilities along freight corridors;
- The creation of truck parking around freight corridors;
- The widening of access roads to rail intermodal yards to improve the efficiency of rail to truck freight conversion;
- The construction of grade separated railroad crossings;
- The improvement of landside access to airports;
- The reconfiguration of freight terminals to provide for greater freight throughput and access.
- The construction of additional border crossings between Laredo and Nuevo Laredo, including a proposed fifth additional bridge on the south side of Laredo.

Chapter 9:
Safety, Security, and Resiliency

Introduction

While the previous chapters benchmarked and assessed performance by each mode of transportation, this chapter considers other factors applying to all modes that should be evaluated when planning for improvements in the region – safety, security, and resiliency. The safety, security, and resiliency of the regional transportation system has increasingly become a crucial component of the metropolitan planning process. MPOs are responsible for coordinating and communicating with federal, state, and local agencies and officials involved with the planning of the safety, security, and resiliency of the transportation system for both motorized and nonmotorized users.

The purpose of this chapter is to discuss transportation safety, security, resiliency, and environmental considerations, and to provide an overview of related issues, plans, programs, and ongoing efforts that are being coordinated to protect the transportation network, infrastructure, users of the transportation system, modes of travel, and transport of goods in the Laredo region.

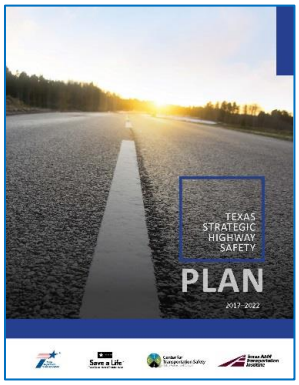
Safety

Safety may be defined as the freedom from unintentional harm. When planning for transportation system safety, it is important to consider how the system can operate efficiently while maintaining the safety of all system users. The MPO and partner agencies work to ensure the overall safety of the multimodal transportation system.

TxDOT Strategic Highway Safety Plan

The Laredo MPO coordinates closely with the TxDOT Strategic Highway Safety Plan (SHSP) and other safety related initiatives and activities to ensure that the MPO's work is consistent with and supports statewide efforts.

The SHSP is the federally required statewide safety plan that provides a comprehensive framework for reducing highway fatalities and serious injuries on all public roads. The SHSP was produced by reviewing national crash initiatives and emphasis areas from key publications and professional organizations, examining Fatal Analysis Reporting System (FARS) crash data, and consulting with various stakeholders throughout Texas. Under the FAST Act, regular updates to the SHSP are required. The most recent version of the SHSP was published in 2017. It includes the following seven emphasis areas: distracted



driving; impaired driving; intersection safety; older road users; pedestrian safety; roadway and lane departures, and speeding.

The long-term vision of the 2017 Texas SHSP is to achieve zero fatalities and serious injuries on Texas roadways. In the interim, the current SHSP establishes five targets to be achieved over the next five years or by the end of 2022. These safety targets defined in the SHSP serve as the statewide performance targets for the federally required performance measures. Further details on safety performance management is in **Chapter 10: Performance Management**.

Regional Crash Analysis

The Laredo MPO emphasizes the use of transportation safety data for use in evaluating safety issues and planning for the implementation of safety improvements. MAP-21 and the subsequent FAST Act both highlight the use of a data driven approach to planning for safety. TxDOT manages and makes available the Crash Record Information System (CRIS). CRIS data is information from crash reports submitted by law enforcement responding to crashes. The data includes the crash location, contributing factors, driver, vehicle, and vulnerable road user characteristics. The Laredo MPO performed a crash analysis using the TxDOT CRIS data to benchmark crash rates by crash types and to determine the top 10 crash locations within the region.

According to the TxDOT CRIS data, 21,173 crashes occurred within the Laredo MPO area between the years 2016 and 2018. The number and rate of fatalities and serious injuries along with the number of non-motorized fatalities and serious injuries was determined from the CRIS data. Currently, the Laredo MPO region is meeting adopted safety performance targets. Additional details on the safety performance targets are in **Chapter 10: Performance Management.**

A spatial analysis using GIS was used to determine the top 20 intersection locations by crash occurrences. The most crashes occurred at the intersection of McPherson Road and Del Mar Boulevard, two of the busiest arterial roadways in Laredo. For detailed information on the regional crash analysis, reference **Chapter 4: Roadways, Border Crossings, and Bridges**.

Safety Committees

Several committees within the Laredo region consider, advise, and shape policies for transportation safety. Two such committees are the City of Laredo Transportation and Traffic Safety Advisory Committee and the City of Laredo Public Safety Advisory Committee.

- The City of Laredo Transportation and Traffic Safety Advisory Committee is an active committee of 10 residents appointed by the mayor and city council. The Safety Advisory Committee advises the city council and city manager on issues related to transportation and traffic safety, policies and efforts to enhance safety, and urban planning. The Safety Advisory Committee meets once per month to discuss current safety issues and considerations.
- The City of Laredo Public Safety Advisory Committee is composed of four city council members, the city manager, and the police chief. The Public Safety Advisory Committee

provides guidance on city policies, programs, and initiatives involving public safety considerations.

Security

While safety is freedom from unintentional harm, security may be defined as the freedom from intentional harm and natural disasters. Security of critical infrastructure is increasingly important for the Laredo MPO area. Planning for transportation security includes preventing, managing, and responding to threats against the regional transportation system. These threats could include a variety of events, such as natural disasters, terrorism, or hazardous spills, all of which endanger the lives of people and important transportation infrastructure. As our world becomes increasingly dependent on technology and data, the integrity of data and how to protect data from attack is important. Cybersecurity will be discussed at a high level and the commitment the region has made to ensure the integrity of information and data systems.

Border Control

The City of Laredo International Bridge System includes four roadway border crossings and one railway border crossing between the US and Mexico. As Laredo is a premier trade hub between Mexico and the US, maintaining secure and efficient border crossings is critical to the regional economy. The US Customs and Border Protection Agency (CBP) is responsible for securing the country's border at and between the border crossings. The CBP facilitates the legal flow of trade and travel across the country's borders by preventing the illegal entry of people and goods, including terrorists and terrorist weapons, while simultaneously enforcing numerous U.S. laws. Within the CBP, the Office of Border Patrol and the Office of Field Operations play key roles in securing the border and the Laredo port of entry. In the Office of Border Patrol, the agents are responsible for securing the borders between the ports of entry; whereas, the Office of Field Operations is responsible for securing the ports of entry.

Intelligent Transportation Systems and Cybersecurity

Intelligent Transportation Systems (ITS) technologies advance transportation safety, security, and mobility by integrating innovative communications technologies into transportation infrastructure and vehicles. ITS encompasses a broad range of both wireless and traditional communications-based information and electronic technologies. The use of ITS enables transportation operators to make informed and coordinated decisions that lead to more efficient travel. Within the Laredo region, ITS has been implemented through TxDOT, the City of Laredo, and El Metro.

TxDOT ITS

TxDOT has implemented various ITS technologies to monitor traffic safety and security across the region. These ITS technologies include dynamic message signs (DMS), closed-circuit television (CCTV) cameras, lane control signals, highway advisory radios, speed detectors, and video image vehicle detection systems (VIVDS). Additionally, a railroad coordination system called the Wireless Advisory Railroad Network (WARN) is in place to inform drivers of closures at railroad crossings.

The TxDOT Laredo District operates the South Texas Regional Advance Transportation Information System (STRATIS), which serves as a traffic management center (TMC) for the region. Working in cooperation with local agencies, TxDOT provides a data connection between STRATIS and the City of Laredo TMC for sharing of CCTV camera feeds and control. This system also allows the City of Laredo TMC to view messages placed on the DMS by TxDOT. Further, TxDOT also provides the City of Laredo 911 Dispatch Center with its CCTV camera images.

City of Laredo ITS

The City of Laredo has implemented a variety of ITS technologies to enable more efficient travel on the region's roadways and international border crossings. The City of Laredo has implemented CCTV cameras on arterial streets, synchronized traffic signal systems, improved vehicle detection capabilities, and a TMC connected to the TxDOT STRATIS.

Along the international border crossings, the City of Laredo has installed cameras linked to an online system that posts images of the Laredo side and the Mexico side of crossings at the four bridges to show the current traffic at the border crossings. This camera system allows the public to make better informed decisions when planning cross border travel. The system can be viewed at: http://www.ci.laredo.tx.us/bridgesys/Cameras/bridge4cam.html. Some of the international bridges also have an ITS technology for the electronic payment of border crossing tolls through an automatic vehicle identification system.

El Metro ITS

The urban transit agency within the City of Laredo, El Metro, has implemented the ITS technology of electronic fare payment on all buses. In addition, El Metro has implemented automated vehicle location (AVL) and security cameras to the transit fleet. AVL identies the spatial location of buses along transit routes. AVL data is used to communicate wait times at bus stops tocustomers via Real Time or Goggle Transit.

Cybersecurity

Cybersecurity is the protection of computer and internet-connected systems from theft and damage to hardware, software, and electronic data. With increasing deployments of ITS technologies, ensuring the security of these systems is important. Disruptions to the services ITS technologies provide can cause impactful disruptions to the regional transportation system. The MPO understands the importance of maintaining cybersecurity to ensure the integrity of transportation related data information systems.

In May 2019, the City of Laredo suffered a cyberattack, affecting Laredo MPO staff. The cyberattack was a ransomware attack. Ransomware is a type of virus that blocks the computer's information until the user pays a certain amount of money (ransom). The affected server was quickly isolated, and authorities were immediately contacted. The recovery process

took several weeks, and the Federal Bureau of Investigation (FBI) is currently investigating the cyberattack. No personal or financial information was obtained during the cyberattack.

South Texas Development Council

The South Texas Development Council (STDC) is a council of governments that coordinates regional planning for Webb, Starr, Zapata, and Jim Hogg Counties. The STDC Department of Homeland Security acts as a coordinator for emergency management and response within the South Texas region, assisting local jurisdictions and administering funds from state to local governments. The Department of Homeland Security is aided by the South Texas Homeland Security Advisory Committee, serving as an advisory role to address issues related to homeland security, terrorism, disaster planning, regional response issues, communication, and training.

The STDC Department of Homeland Security is a key leader in the development of two regional plans related to security and disaster mitigation: The Interoperability Plan and the Regional Action Mitigation Plan. The Interoperability Plan sets a framework for communication and coordination between agencies to ensure communication is interoperable for emergency operations. The Regional Action Mitigation Plan identifies mitigation strategies for natural hazards along the Rio Grande border, including hurricanes, drought, flooding, hazardous material release, fuel pipeline breaches, dam failures, wildfires, hail, tornadoes, and extreme heat.

Resiliency and Environmental Considerations

The risks associated with climate change and extreme weather events such as flooding, severe heat, and intense storms have emerged as significant concerns for transportation system resiliency and reliability. Resiliency may be defined as the ability of the transportation system to return to acceptable operation after an event. Transportation systems are already experiencing costly climate related impacts, causing disruption and damage to roads, bridges, rail systems, and other transportation infrastructure. In the future, these impacts are expected to intensify in magnitude, duration, and frequency. Preparing for the uncertainties in a changing climate is essential to ensure the safety and security of the population which the transportation system serves.

The past two federal transportation authorization bills, MAP-21 and the FAST Act, have addressed the issue of improving the condition and resiliency of transportation assets. The FAST Act, however, requires transportation agencies to take resiliency into consideration during the transportation planning processes. The updated metropolitan and statewide transportation planning regulations require that the MTP assess capital investment and other strategies that reduce the vulnerability of the existing transportation infrastructure to natural disasters.

Climate Change and Natural Disasters

The Texas climate is changing. Average annual rainfall is increasing, but it tending to be distributed less evenly throughout the year, so the soil is becoming drier. Rainstorms are becoming more intense, and floods are becoming more severe. The sea level is rising about 0.13 inches per year and the rate of rise is increasing. In the future, storms are likely to become

more severe, deserts may expand, and summers are likely to become increasingly hot and dry, creating problems for agriculture, the economy, and human health.

The climate is changing because the earth is warming. Humans have increased the amount of carbon dioxide in the air by 40 percent since the late 1700s. Other heat-trapping greenhouse gases are also increasing. These heat-trapping greenhouse gases have warmed the surface and atmosphere of the earth about one degree over the course of the last 50 years. As the atmosphere warms, evaporation increases, which increases humidity, average rainfall, and the frequency of heavy rainstorms in many places (and contributes to drought in others).

Potential extreme events that could impact the Laredo MPO area over the next 25 years are:

- **Tropical storms and hurricanes** – The wind speeds, rainfall rates, and storm surge of hurricanes and tropical storms are likely to increase as the climate continues to warm. People may move away from vulnerable coastal communities and stress the infrastructure of communities that receive them.
- **Rainstorms** – The amount of rainfall during the wettest days of the year is likely to continue to increase over the next several decades, which would increase flooding.
- **Dam overflow** – with increased rainfall in shorter periods, the Amistad Dam in Del Rio may reach its capacity. Outflow from the dam may cause flooding on the Rio Grande, impacting communities well downstream. Additionally, the six dams along the Rio Grande River have been evaluated in a safety study by the International Boundary and Water Commission. The Amistad Dam but has issues with naturally occurring sinkholes and other “urgent” or “high priority” issues but was found to be safe for normal operations. Extreme events and dam failures can impact Laredo with flooding, evacuation from vulnerable communities, and availability of drinking water.
- **Water resources** - As warmer temperatures increase evaporation and water use by plants, soils are likely to continue to become drier. Average rainfall is likely to decrease during winter, spring, and summer. Drier soils will increase the need for farmers to irrigate their crops, but enough water might not be available.
- **Agriculture** - Increasing droughts and higher temperatures are likely to interfere with farms and ranches. Hot weather causes livestock to eat less, grow more slowly, and produce less milk, and it can threaten their health. Reduced water availability would create challenges for ranchers, as well as farmers who irrigate crops.
- **Wildfires and Landscape Change** - Higher temperatures and drought are likely to increase the severity, frequency, and extent of wildfires, which could harm property, live-lihoods, and human health. The combination of more fires and drier conditions may expand deserts and otherwise change parts of the landscape.
- **Hot weather and air pollution** - Certain people are especially vulnerable, including children, the elderly, and the sick. High air temperatures can cause heat stroke and dehydration and affect people’s cardiovascular and nervous systems. Warmer air can also increase the formation of ground-level ozone, a key component of smog. Poverty is a resilience and mitigation issue for hot weather and air pollution, since poorer households are less able to afford air conditioning and other means of relief.
- **Manmade Disasters** – As a gateway between the US and Mexico, a lot of goods travel along the Laredo transportation system. Crashes and incidents involving hazardous materials can result in a manmade disaster threating the public. Since the Rio Grande River is the source of drinking water for the City of Laredo, any incident in which

hazardous materials contaminate the river may also impact the operations of the water treatment plant and its capacity to produce safe drinking water.

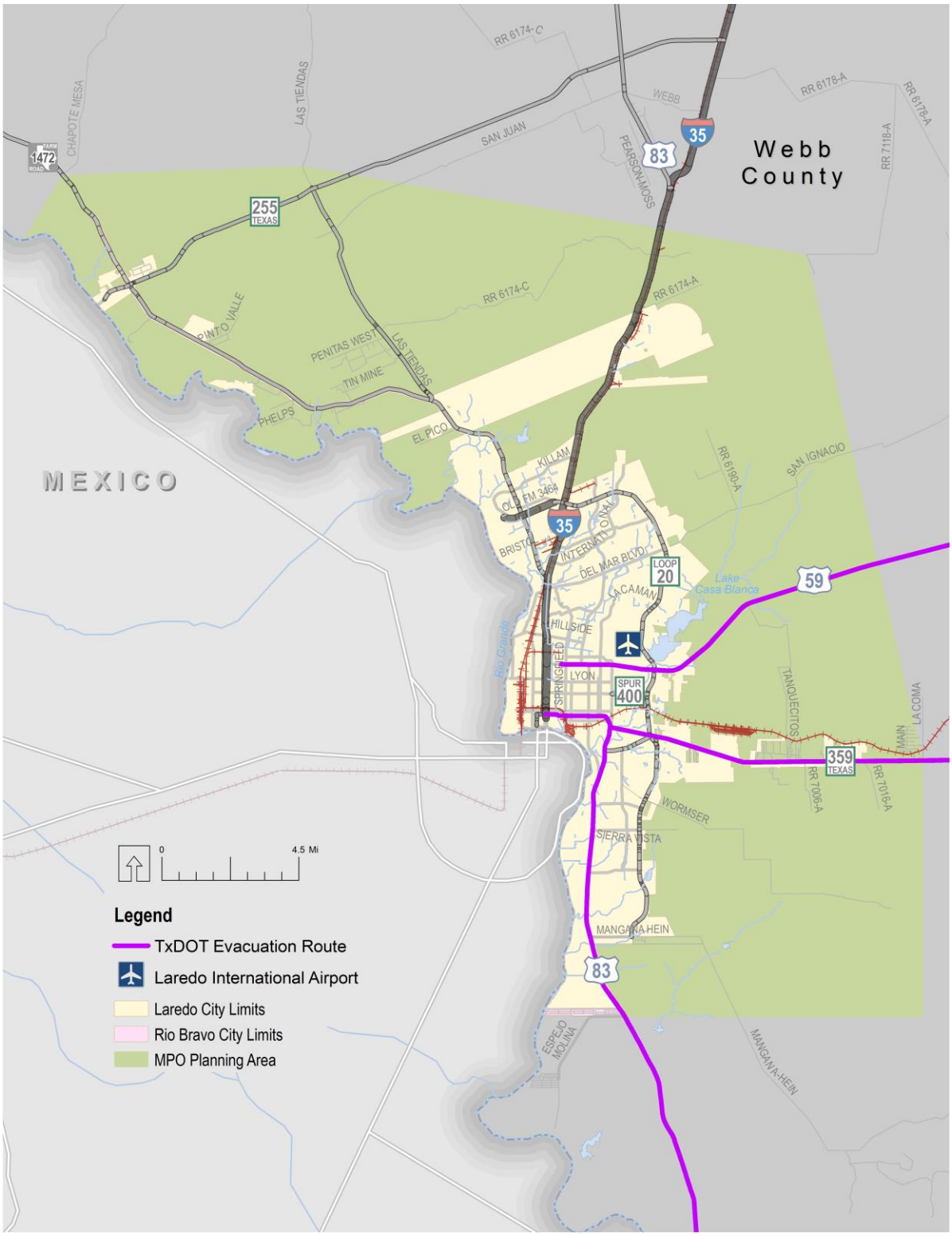
The Laredo MPO recognizes these threats and will continue to coordinate with partner agencies to plan and prepare for a resilient future.

Emergency Evacuation and Hazardous Materials Routes

In preparation for potential disaster scenarios, TxDOT has designated evacuation routes in the event of hurricanes. Given the inland geographic position of Laredo, the region serves as an evacuation point for Gulf Coast communities such as Brownsville and Corpus Christi. US 59, US 83, and SH 359 serves as statewide evacuation routes from the Gulf Coast to the Laredo region, as shown in **Figure 9-1**.

The transport of hazardous materials (HAZMAT) also poses a threat to the safety and security of the general public. Incidents involving HAZMAT can pose a manmade threat to the public. The Federal Motor Carrier Safety Administration (FMCSA) Hazardous Materials (HM) Program develops programs to reduce the number of transportation incidents involving hazardous materials that could potentially harm the public and the environment. Within the Laredo MPO area, SH 255 (Camino Columbia Toll Road) from the Columbia-Solidarity Bridge (Bridge III) to I-35 is the designated HAZMAT route. The El Pico and the Jefferson water treatment plants are both downstream of this HAZMAT route and inspection facility, posing an issue with the drinking water supply in case of an event releasing contaminants into the river.

Figure 9-1: Designed Emergency Evacuation Routes

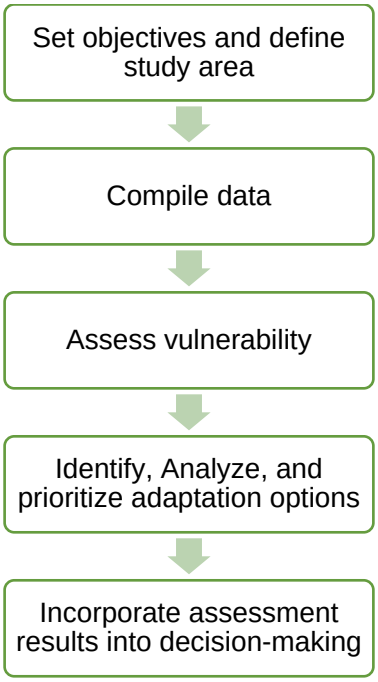


Source: TxDOT

Flood Vulnerability Assessment

In December 2017, the Federal Highway Administration (FHWA) published the *Vulnerability Assessment and Adaptation Framework, 3rd Edition*. The *Framework* serves as a guide for MPOs and other transportation agencies to evaluate vulnerability of transportation infrastructure and systems to extreme weather and climate effects. The *Framework* serves to assist transportation agencies and MPOs to integrate climate adaptation considerations into the decision-making process. The Laredo MPO has applied the guidelines provided by the FHWA *Framework* to conduct a high-level evaluation of the region for vulnerability of the transportation system to flooding. The FHWA is currently working to develop tools and collect the necessary data for MPOs and agencies to conduct in-depth, comprehensive vulnerability assessments.

The FHWA *Framework* consists of the following steps:



Laredo MPO Area Flood Vulnerability Assessment

For the purposes of this 2020-2045 Laredo MTP, the Laredo MPO assessed regional vulnerability to flooding through a process informed by the FHWA *Framework* and is discussed below. As future analytical tools and data becomes available, the Laredo MPO will conduct further detailed and comprehensive analyses.

Objective and Study Area

The objective of this vulnerability assessment is to identify transportation infrastructure vulnerable to flooding within the Laredo MPO area at a systems-level using a GIS approach.

Compile Data

Using a GIS approach for this vulnerability assessment, GIS data was compiled for FEMA Special Flood Hazard Areas (SFHA), TxDOT roadways, Webb County roadways, City of Laredo roadways, Texas railroads, bridges, and airports.

Assess Vulnerability

An indicator-based vulnerability assessment approach was applied to the Laredo region to determine vulnerable transportation infrastructure from available data. This approach provides a big picture understanding of system-wide vulnerabilities and identifies where additional resources could be used to further distinguish asset-specific vulnerabilities.

Using a GIS approach, transportation infrastructure located within the FEMA SFHA were identified. The FEMA SFHA are areas within the 100-year floodplain. These transportation assets are at risk for disruption during extreme flooding events, as shown in **Figure 9-2**. No airports within the region are located within the SFHA. Multiple segments of roadways and railroads are located within the SFHA. Major roadways with vulnerable segments identified include I-35, I-69, Loop 20, FM 1472 (Mines Road), SH 255, SH 359, US 59, BU 59, and US 83. The vulnerabilities of these roadway segments were considered in the development and evaluation of projects. The fiscally constrained project list is included in **Chapter 10**.

A different GIS approach was used to assess the risk of bridges from flooding. Using National Bridge Inventory (NBI) data, bridges at risk for flooding was determined. **Figure 9-3** shows the maps of bridges at risk for flooding within the Laredo MPO area, and **Table 9-1** shows the counts of bridges at risk for flooding in the region. The bridge flood ratings are defined as:

- **Critical:** The bridge has flooded at a frequency of at least once every 3 years or less.
- **Concern:** The bridge has flooded at a frequency of at least once every 3 to 10 years.
- **Slight Concern:** The bridge has flooded at a frequency of at least once every 11 to 100 years.
- **Remote Concern:** The bridge has flooded at a frequency of at least once every 100 years or greater.

Table 9-1: Bridge Flood Ratings in Laredo MPO Area

Bridge Flood Rating	Number of Bridges
Critical	0
Concern	52
Slight Concern	47
Remote Concern	45

Figure 9-2: Vulnerable Transportation Infrastructure within Floodplains

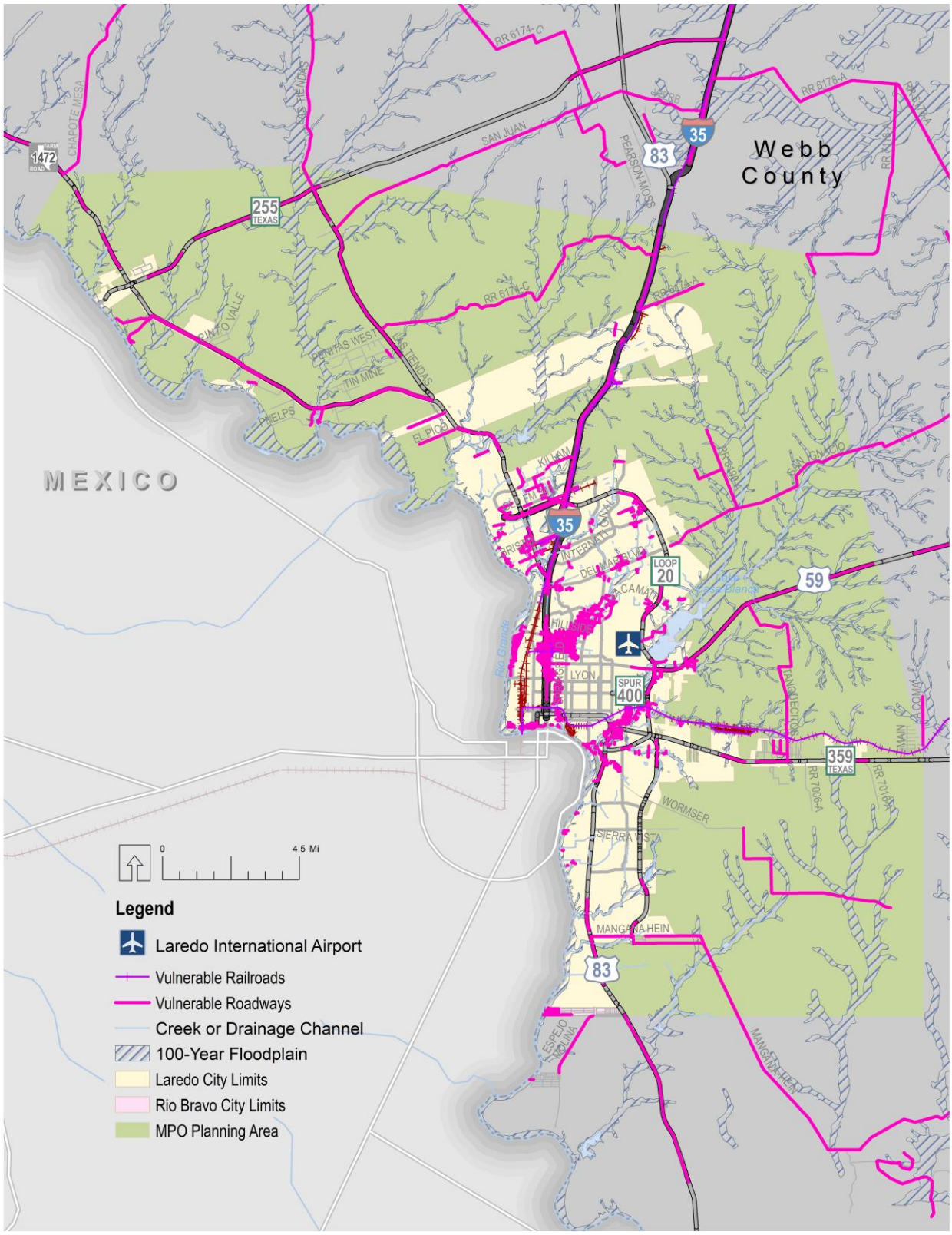
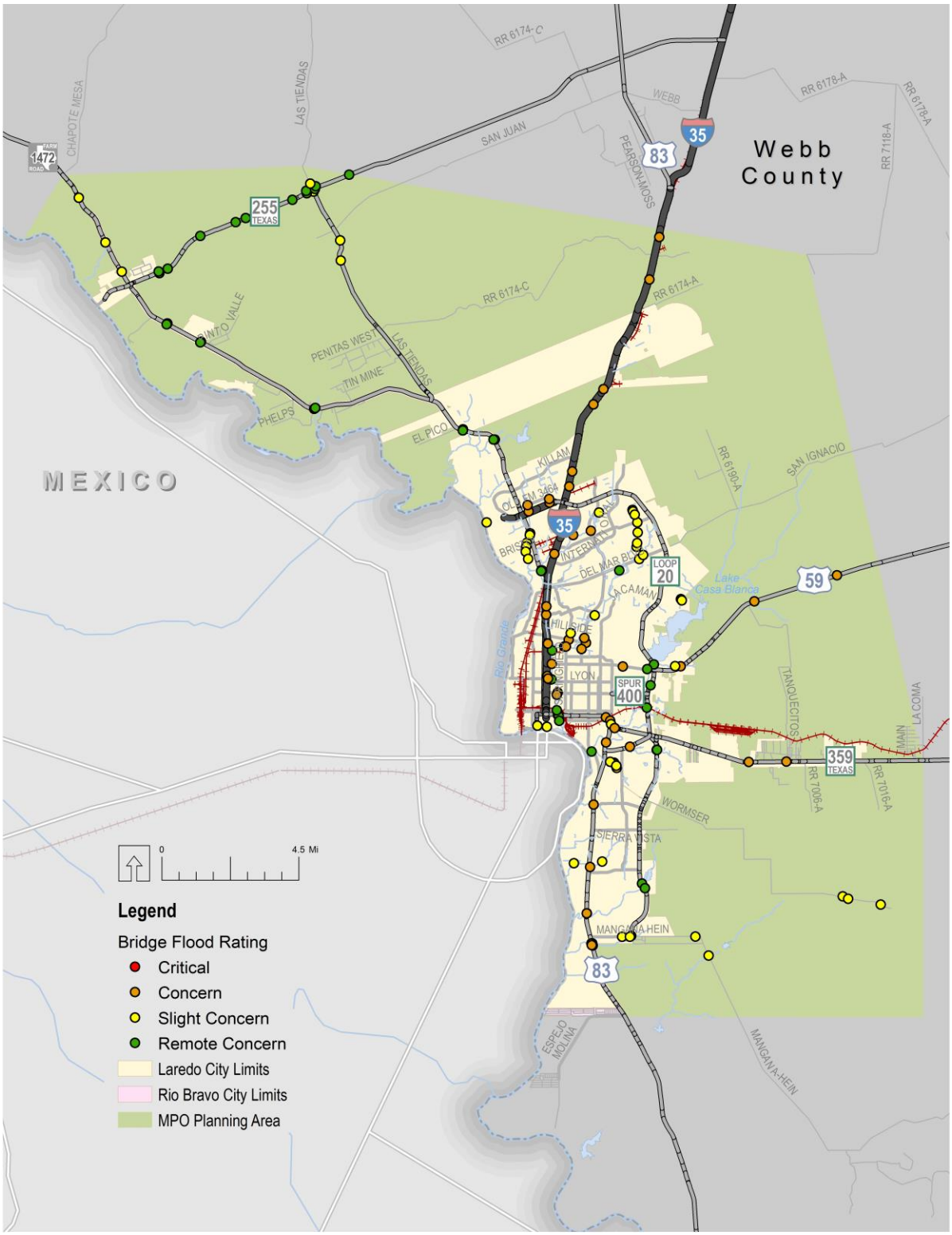


Figure 9-3: Bridges at Risk of Flooding



Source: National Bridge Inventory

Identify, Analyze, and Prioritize Adaptation Options

After identifying vulnerabilities through a system-level analysis, adaptation strategies were developed to address vulnerabilities within the region. Potential adaptation strategies to address vulnerabilities to climate change and extreme weather events include:

- Engineer new transportation assets that can withstand environmental conditions expected in the future.
- Retrofit existing assets to accommodate future environmental conditions expected in the future.
- Increase redundancy of the transportation system to avoid disruptions and provide alternative means/routes of travel.
- Relocate transportation assets to avoid damage.
- Program maintenance schedules at a higher frequency.
- Improve operations plans during emergency situations.

Incorporate Assessment Results into Decision-making

The metropolitan transportation planning process provides a key opportunity for transportation agencies to proactively identify strategies that address risk and promote resiliency at the transportation system level. Resiliency to climate change and extreme weather events should be considered during the decision-making process, when options are considered for transportation investments. The results of a vulnerability assessment provide the Laredo MPO with useful information to avoid making investments in particularly vulnerable areas or to build resiliency into project design. The results of the vulnerability assessment are linked to the project evaluation criteria for Environmental Considerations. The results inform the evaluation of projects based on the capability of a project to address facilities located in floodplain zones, improve emergency access, or facilitate movement along statewide evacuation routes.

Environmental Mitigation

Some of the projects recommended in this MTP will have an impact on the environmental assets of the region. Transportation projects sometimes require land acquisition in order to construct a new facility or widen an existing facility. As a result, transportation improvements may have an impact on the natural environmental. As the population continues to grow, the region will face the challenge to strike an acceptable balance between urban development, mobility, and economic development with the desire for a high quality of life that includes clean air and water, environmental preservation, and recreation and tourism opportunities.

To reduce the impacts of transportation improvements, potential environmental mitigation activities must be developed in consultation with federal, state, tribal, wildlife, land management, and regulatory (resource) agencies. The Laredo MPO is committed to minimizing and mitigating the negative effects of transportation projects on the natural and built environment in order to preserve natural environment and the region's quality of life. Accordingly, the MPO recognizes that not every project will require the same type or level of mitigation.

Some projects, such as new roadways and new interchanges, involve major construction with considerable disturbance to the environment. Others, like intersection improvements, street lighting, and resurfacing projects, involve minor construction and minimal disturbance to the

environment. The mitigation efforts used for a project should depend upon how severe the impact on environmentally sensitive area is expected.

The National Environmental Policy Act (NEPA) suggests mitigation in the following five steps:

1. **AVOIDING THE IMPACT ALTOGETHER** by not taking a certain action or parts of an action.
2. **MINIMIZING IMPACTS** by limiting the degree or magnitude of the action and its implementation.
3. **RECTIFYING THE IMPACT** by repairing, rehabilitating, or restoring the affect environment.
4. **REDUCING OR ELIMINATING THE IMPACT** over time by preservation and maintenance operations during the life of the action.
5. **COMPENSATING FOR THE IMPACT** by replacing or providing substitute resources or environments.

Source: (Source: 40 CFR 1508.20)

Effective mitigation starts at the beginning of the environmental process, not at the end. Mitigation must be included as an integral part of the alternative's development and analysis process. **Table 9-2** below details possible mitigation measures that could be considered when dealing with environmental impacts. Many of the measures are considered by the Laredo MPO and project partners during the project development phase. As projects are selected and programmed, additional project level evaluations of impacts are required. Impacts at the project level should be minimized through an alternative's analysis process.

Table 9-2: Potential Environmental Mitigation Activities

Resource	Mitigation Measures
Agricultural areas	Mitigation sequencing requirements involving avoidance, minimization, compensation (could include preservation, creation, restoration, in-lieu fees); design exceptions and variances; environmental compliance monitoring.
Ambient air quality	Transportation control measures, transportation emission reduction measures, adoption of local air quality mitigation fee program, development of energy efficient incentive programs; adoption of air quality enhancing design guidelines.
Cultural Resources	Avoidance, minimization; landscaping for historic properties; preservation in place of excavation for archeological sites; Memoranda of Agreement with the Texas Historical Commission and the TxDOT Environmental Division; design exceptions and variances; environmental compliance monitoring.
Endangered and threatened species	Avoidance, minimization; time of year restrictions; construction sequencing; design exceptions and variances; species research; species fact sheets; Memoranda of Agreement for species management; environmental compliance monitoring.
Forested and other natural areas	Avoidance, minimization; replacement property for open space easements to be of equal fair market value and of equivalent usefulness; design exceptions and variances; environmental compliance monitoring.
Neighborhoods, communities, homes and businesses	Impact avoidance or minimization; context sensitive solutions for communities (appropriate functional and/or aesthetic design features).
Parks and recreation areas	Avoidance, minimization, mitigation; design exceptions and variances; environmental compliance monitoring.
Wetlands or water resources	Avoidance, minimization; design exceptions and variances; environmental compliance monitoring.

Stormwater Mitigation

Stormwater is defined as rainfall runoff that flows across the ground and impervious surfaces such as roads, parking lots, and buildings. Stormwater includes overland water flow and the water flow in ditches. When measures are not taken to reduce or mitigate the stormwater from surface transportation, the transportation system is at risk to disruption and damages to assets.

Urbanization, including transportation activities, increases stormwater volume and velocity by increasing the volumes of stormwater runoff from an increasing amount of impervious surfaces. Rapid runoff from impervious surfaces increases the risk of flooding. Stormwater runoff can increase flooding, soil erosion, sedimentation, stream bank erosion and channel enlargement, and pollution of waterways.

For the State of Texas, the TxDOT Hydraulic Design Manual: Storm Water Management provides guidelines to reduce or mitigate the impacts of storm water from surface transportation. This manual provides recommended stormwater management measures that are both structure and nonstructural including:

- Erosion control to minimize erosion and sediment transport,
- Stormwater detention and retention systems to reduce peak runoff rates and improve water quality, Sedimentation and filtration systems to remove debris, suspended solids, and insoluble pollutants, and
- Vegetation buffers to reduce transport of pollutants.

The manual recommends several best management practices to mitigate stormwater quantity and quality including detention and retention ponds, rock filter dams, silt fences, and vegetation to filter and slow the flow of water. The NACTO Urban Street Stormwater Guide provides a supplementary manual that augments the guidelines of the TxDOT manual.

As the Laredo MPO area continues to urbanize and experience development pressures, the stormwater impacts of surface transportation become increasingly important to reduce and mitigate through policies and design standards.

Air Quality

Air quality is an important factor in long-range transportation planning. The National Ambient Air Quality Standards (NAAQS) are federal standards that set allowable concentrations and exposure limits for certain pollutants. Primary standards are intended to protect public health, while secondary standards protect public welfare. Air quality standards have been established for the following six pollutants: ozone, carbon monoxide, particulate matter, nitrogen dioxide, lead, and sulfur dioxide. If monitored levels of any of these pollutants violate the NAAQS, then the Environmental Protection Agency (EPA), in cooperation with the State of Texas, will designate the contributing area as “nonattainment”.

The Laredo MPO area is currently designated as an attainment area, meaning that the area meets applicable air quality standards. Most federal air quality regulations apply only to areas designated as nonattainment under the air quality standards of the Clean Air Act. The Laredo MPO recognizes the importance of air quality standards and is cognizant of the importance of maintaining the region’s attainment status.

Environmental Committees

The City of Laredo Citizens Environmental Advisory Committee is an active committee advocating for environmental protection and resiliency within the region. The committee is composed of nine members appointed by the city council and mayor. The major responsibility of the committee is to function as liaison between residents and local government officials on regional environmental issues and concerns.

Related Planning Processes

Several planning processes related to resiliency and preparedness for disasters exist at both the state and local level. At a statewide level, TxDOT developed the Statewide Freight Resiliency Plan in 2011. At the local level, the City of Laredo has two important plans in place to respond to emergency situations caused by natural and manmade disasters: The Pre-Disaster Mitigation Plan and the Emergency Management Plan.

- The TxDOT Statewide Freight Resiliency Plan (2011) provides a comprehensive framework for identifying key freight infrastructure corridors and strategies to ensure a resilient freight network across the state. The plan provided an assessment of ten primary corridors of the Texas highway freight transportation system. The assessment measures the robustness and redundancy of the freight transportation system corridors and any potential constraints. Four of the assessed corridors are part of the Laredo freight highway system: I-35, US 59, US 281, Port-to-Plains (portions of US 83, I-35).
- The City of Laredo Pre-Disaster Mitigation Plan to serve as a blueprint for the prevention of hazards and emergency situations. Particularly, it seeks to make areas more resistant to disasters and sustain fewer losses by reducing the risks of loss of life and property damage associated with various disasters.
- The City of Laredo's Emergency Management Plan is a standard plan required of all local jurisdictions or regions in the State of Texas. The plan outlines the general approach to emergency operations and provides guidance for emergency management activities. It provides for organization and designated responsibilities to mitigate, prepare, respond to, or recover from incidents or emergency situations.

Identifying Needs – Community Input

In addition to the safety, security, and resiliency measures taken in the Laredo region, input was sought from stakeholders through a series of focus group meetings held to inform this 2020-2045 Laredo MTP. The Laredo MPO held a focus group meeting on safety, security, and resiliency with regional stakeholders on November 14, 2018. The focus group meeting served as a forum for public and private agencies involved in the environmental sustainability, safety, and security of residents to discuss how the transportation system can best address emergency response and preparedness issues, border control and security, and environmental and resiliency issues for the next 25 years. Key discussion topics on areas for improvement for the region included:

- The need for redundant roadways to serve as evacuation routes during emergency events.
- The need to use technology to better inform the general public on risks and risk prevention.
- The need for improved multiagency emergency response coordination.
- The need for roadway standards and building regulations that can support a resilient and sustainable future population.

Additional details on the focus group meetings held to inform this 2020-2045 Laredo MTP are in **Chapter 3: Vision, Goals, and Objectives.**

Recommended Strategies

Based on the initiatives in the region, best practices, guidance from FHWA, and community input received for this MTP update, the following are recommended strategies for improved safety, security, and resiliency in the Laredo MPO region.

Safety Strategies

The major strategy for improving safety in the region is to implement programs and projects that will reduce transportation fatalities and serious injuries by supporting comprehensive, system-wide, multimodal, data-driven, and proactive regional transportation planning processes that integrate safety into transportation decision-making. The Laredo MPO will continue to benchmark safety conditions and prioritize implementation of programs and projects that will achieve safety performance targets (as described in **Chapter 10: Performance Management**) while maintaining a long-term vision to achieve zero fatalities and serious injuries on roadways.

The MPO can play an important role in safety education and messaging for the region. A strategy to improve safety through education and messaging is to provide education outreach through classes and messaging for bicycling safety, pedestrian safety, and driver behavior on multimodal roadways. The FHWA-sponsored Safe Routes to School program is an example of an integrated approach which includes emphases on infrastructure design, operations, and education. The development of a Safe Routes to School program for Laredo could help implement safer routes of travel for walking and bicycling in the region.

As a region with an economy driven by international trade and the freight transportation industry, conflicts between freight traffic and residential vehicular, pedestrians, and bicycling is a real safety concern. The integration of these safety considerations into land use planning and other planning efforts is an important strategy for safety.

ITS Security Strategies

Developing and implementing ITS solutions enables transportation operators to make informed and coordinated decisions that lead to more secure and efficient travel. Increased coordination for multimodal ITS solutions to improve the security of the transportation is important.

As disruptions to the services that ITS technologies provide can cause impactful disruptions to the regional transportation system, protecting the region from cyberattacks has become increasingly important as well. The MPO's regional transportation partners share data and information electronically daily to support a more secure transportation system. Each of the MPO's regional partners, however, manage their own internal policy with regards to cybersecurity. A strategy for regional coordination in achieving a more secure transportation system is to open communication with regional partners regarding the importance of maintaining a cybersecurity policy and conducting appropriate training with employees to ensure the integrity of transportation related data information systems.

Resiliency Strategies

The transportation system is essential to economic prosperity and quality of life. In order to play this critical role, infrastructure must be resilient to a multitude of hazards and risks. To plan for a resilient transportation system, the Laredo MPO is committed to continued consultation with agencies and officials responsible for natural disaster risk reduction.

This chapter presented a brief, high-level vulnerability assessment of the region to flooding risks. Another strategy for improved resiliency is to develop a comprehensive vulnerability assessment of the region to understand the vulnerabilities of the transportation system to the impacts of climate change and extreme weather events. FHWA and other federal and state agencies have been supporting efforts for assessing regional vulnerability to climate change and extreme weather events. Opportunities such as the FHWA Climate Resilience Pilot Program fund planning processes to assess regional vulnerability and resiliency.

For example, the Capital Area MPO (CAMPO) received funding from FHWA to conduct a vulnerability assessment using the FHWA Framework. The study focused on five climate impacts: flooding, drought, extreme heat, wildfire, and extreme cold and ice. CAMPO evaluated these impacts on 10 critical assets, including key roadway and transit facilities, and ranked risk as low, moderate, or high for each climate impact at each location as shown in **Figure 9-4**

Figure 9-4: CAMPO Vulnerability Assessment Example

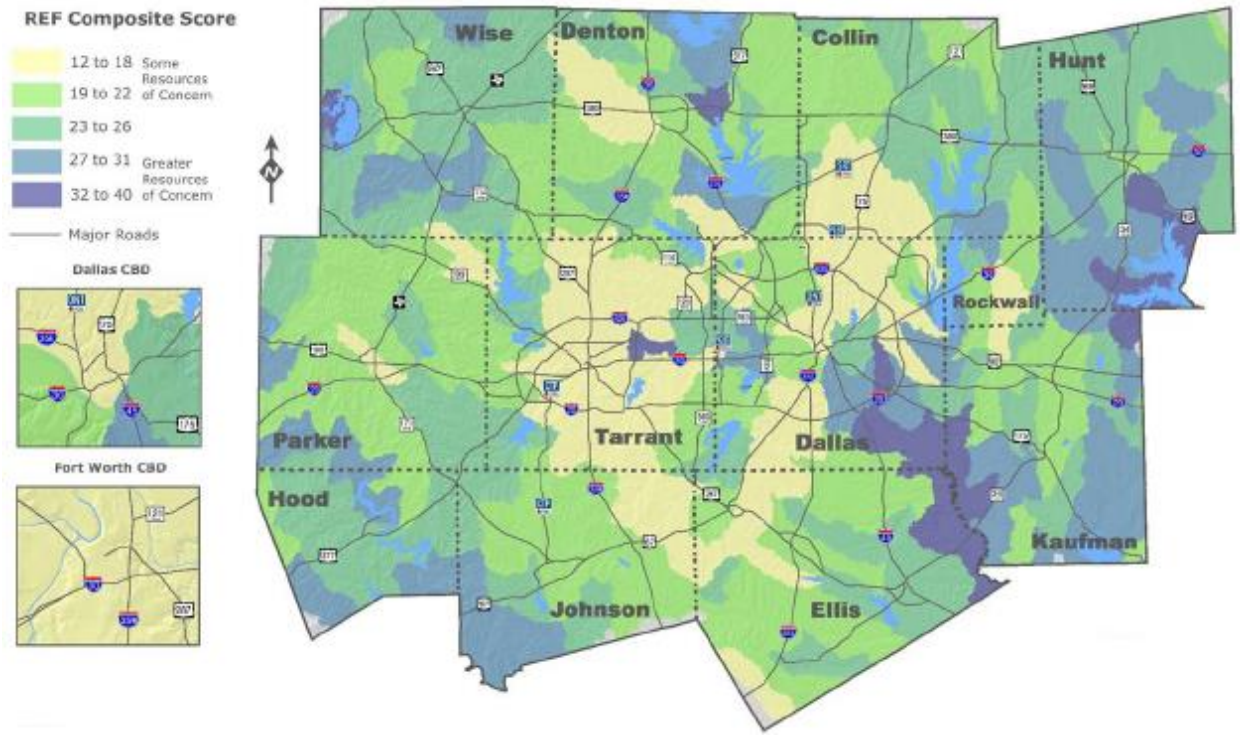
Table 15 Risk Rating Summary

ID	Asset	Flooding	Drought	Heat	Wildfire	Extreme Cold
2	MetroRail Red Line at Boggy Creek	Moderate-High	Inconclusive	Moderate	None	Low-Moderate
3	SH 71E at SH 21	High	Moderate-High	Low-Moderate	Moderate-High	Low-Moderate
4	I-35 at Onion Creek Parkway	Low	None	None	Moderate-High	Low-Moderate
5	US 290W/SH 71 - Y at Oak Hill	Moderate	Moderate	None	High	Low
6	Loop 360/RM 2222	Moderate	Moderate	None	High	Low-Moderate
7	FM 1431 at Brushy Creek/Spanish Oak Creek	None	Moderate	Low	Moderate-High	Low
8	US 281 and SH 29 Intersection	Moderate-High	Low	Low	Moderate	Low
9	US 183 north of Lockhart	Low-Moderate	High	Low-Moderate	Moderate-High	Low-Moderate
10	SH 80 (San Marcos Highway) at the Blanco River	Moderate	Low	Low	Moderate	Low

Another resiliency study example, The North Central Texas Council of Governments (NCTCOG) developed a “regional ecosystem framework” that used composite scores to represent the combine score of vulnerability scores for 10 natural resources. A higher score indicates that the resources of relatively high concern may be present and that additional review, documentation,

and consultation with the applicable agency may be needed. The composite scores were used as a preliminary screening tool for regional vulnerability identification as shown in **Figure 9-5**.

Figure 9-5: NCTCOG Regional Ecosystem Framework Example



The Laredo MPO can apply for similar funding programs or collaborate with partner agencies to identify and access funding sources and climate data, provide expertise of vulnerabilities in the area, and strategize around resiliency options. These potential partners include municipalities, local planning agencies, consultants, universities, other sectors, and Federal and State agencies. The Laredo MPO can also benefit from working with local stakeholders who have on-the-ground insight into vulnerabilities, and from coordinating with other planning efforts such as hazard mitigation planning or other sectors such as water management.

Chapter 10:
Financial Plan and Recommended Improvements

Introduction

Federal planning regulations require that the financial plan in Metropolitan Transportation Plans be "financially constrained," meaning that the estimated cost for all transportation improvements presented in the plan cannot exceed the amount of "reasonably expected" revenues projected from identified funding sources. This requirement ensures that the plan is based upon realistic assumptions and is not merely a "wish list."

This chapter discusses the long-range financial constraints and opportunities in the Laredo MPO region over the next 25 years. The Laredo MPO cooperated with Technical Committee members and TxDOT staff to conduct a detailed analysis of what funds are to be reasonably expected, how these funds can be allocated, and how and when the selected projects will be financed. Undoubtedly, actual funding availability in the next 25 years which this MTP covers will largely hinge on future actions, public directives, and transportation planning related bills initiated at the federal and state levels.

Identification of Projects

A full list of projects was identified for evaluation. These projects were identified from the following sources:

- TxDOT Unified Transportation Plan (UTP) 2020
- Existing Regional Plans and Projects
- Congestion Management Process
- Travel Demand Modeling
- Agency and Public Call for Projects

TxDOT Unified Transportation Program 2020

The Unified Transportation Program (UTP) is the TxDOT ten-year programming document to authorize and guide transportation project development and construction on the statewide multimodal transportation network. The UTP authorizes projects for construction, development, and planning activities. Projects included within the UTP are multimodal including roadways, aviation, rail, public transportation, and waterways.

The UTP is updated annually and adopted annually by the Texas Transportation Commission prior to August 31. At the time of the preparation of this 2020-2045 MTP, the 2020 UTP was the current adopted document.

In preparing the fiscally constrained project list, the UTP was used to identify programmed projects through the year 2030. The MPO coordinated with TxDOT to identify projects to program with expected revenue for the years 2020-2045. The MPO has discretion over projects funded by TxDOT funding categories 2 (Metropolitan and Urban Area Corridor Projects) and 7 (Metropolitan Mobility/Rehabilitation).

TxDOT organizes UTP funds into 12 funding categories that address specific project types. **Table 10-1** describes these funding categories.

Table 10-1: TxDOT Funding Categories

Category Name		Category Description
1	Preventative Maintenance and Rehabilitation	Category 1 addresses preventive maintenance and rehabilitation of the existing state highway system, including pavement, signs, traffic signals, and other infrastructure assets.
2	Metropolitan and Urban Area Corridor Projects	Category 2 addresses mobility and added capacity projects on urban corridors to mitigate traffic congestion, as well as traffic safety and roadway maintenance or rehabilitation. Projects must be located on the state highway system. Funds are allocated to each MPO by formula, and MPOs select projects for this category. Common project types include roadway widening (both freeway and non-freeway), interchange improvements, and roadway operational improvements.
3	Non-Traditionally Funded Transportation Projects	Category 3 is for transportation projects that qualify for funding from sources not traditionally part of the State Highway Fund, including state bond financing (such as Proposition 12 and Proposition 14), the Texas Mobility Fund, pass-through financing, regional revenue and concession funds, and local funding. Common project types include new-location roadways, roadway widening (both freeway and nonfreeway), and interchange improvements.
4	Statewide Connectivity Corridor Projects	Category 4 addresses mobility on major state highway system corridors, which provide connectivity between urban areas and other statewide corridors. Projects must be located on the designated highway connectivity network which includes the Texas Highway Trunk System, the National Highway System (NHS), connections to major seaports or border crossings, the National Freight Network, and hurricane evacuation routes.
5	Congestion Mitigation and Air Quality Improvement	Category 5 addresses attainment of National Ambient Air Quality Standard in non-attainment areas. Each project is evaluated to quantify its air quality improvement benefits. Funds cannot be used to add capacity for single-occupancy vehicles. Common project types include interchange improvements, local transit operations, and bike and pedestrian infrastructure.

Category Name		Category Description
6	Bridges	Category 6 addresses bridge improvements through the following subprograms: • Highway Bridge Program – for the replacement or rehabilitation of eligible bridges on and off the state highway system that are considered functionally obsolete or structurally deficient. • Railroad Grade Separation program – for elimination of at-grade highway-railroad crossings through the construction of highway overpasses or railroad underpasses, and rehabilitation or replacement of deficient railroad underpasses on the state highway system. • Bridge Maintenance and Improvement Program – (for rehabilitation of eligible bridges on the state highway system.
7	Metropolitan Mobility / Rehabilitation	Category 7 addresses transportation needs within the boundaries of MPOs with populations of 200,000 or greater — known as transportation management areas (TMAs). This funding can be used on any roadway with a functional classification greater than a local road or rural minor collector. Common project types include roadway widening (both freeway and non-freeway), new-location roadways, and interchange improvements.
8	Safety	Category 8 addresses highway safety improvements through the Highway Safety Improvement Program (HSIP), the Safety Bond Program, the Systemic Widening Program, the Federal Railway Set-Aside, and the Road to Zero (RTZ) program. Common Category 8 project types include new medians and shoulders; signals, lighting and signs; guard rails; and rumble strips
9	Transportation Alternatives Set-Aside Program	Category 9 handles the federal Transportation Alternatives (TA) Set-Aside Program. These funds may be awarded for the following activities: • Construction of sidewalks, bicycle infrastructure, pedestrian and bicycle signals, traffic-calming techniques, lighting and other safety-related infrastructure, and transportation projects to achieve compliance with the Americans with Disabilities Act. • Construction of infrastructure-related projects that provide safe routes for non-drivers. • Conversion and use of abandoned railroad corridors for trails for pedestrian, bicyclists, or other nonmotorized transportation users. • Construction of infrastructure-related projects to improve the ability of students to walk and bicycle to school.
10	Supplemental Transportation Projects	Addresses projects that do not qualify for funding in other categories, such as state park roads, landscaping, and handicap accessible curb ramps at on-system intersections.
11	District Discretionary	Category 11 addresses TxDOT district transportation needs through the following sub-programs: District Discretionary, Energy Sector, and Border Infrastructure. Common Category 11 project types include roadway maintenance or rehabilitation, added passing lanes (Super 2), and roadway widening (non-freeway).

Category Name		Category Description
12	Strategic Priority	Category 12 addresses projects with specific importance to the state, including those that improve: • Congestion and connectivity • Economic opportunity • Energy sector access • Border and port connectivity • Efficiency of military deployment routes or retention of military assets in response to the Federal Military Base Realignment and Closure Report • The ability to respond to both man-made and natural emergencies Common project types include roadway widening (both freeway and non-freeway), interchange improvements, and new-location roadways.

The Laredo MPO coordinated with the TxDOT Laredo District to collect the list of projects programmed within the UTP that are located within the Laredo MPO area. **Figure 10-1** shows a map and **Table 10-2** shows the list of projects TxDOT has programmed within the Laredo MPO area under the current UTP. The projects within the UTP are located on facilities that are part of the state highway system and several city streets. Improvements are primarily focused on Interstate Highway (IH) 35, United States Route (US) 59, US 83, State Loop (SL) 20, State Highway (SH) 359, and Farm-to-Market Road (FM) 1472 (locally named Mines Road). The roadway improvements within the UTP include capacity improvements (lane additions to highways, upgrading highways to interstate standards), interchange improvements (converting intersections into free flow interchanges), preventative maintenance and rehabilitation, and safety improvements (such as raised medians and channelizing islands).

Please note that the table shows funding categories for Plan Authority (PA) and Develop Authority (DA). Plan authority and develop authority are the earliest phases of project scoping and funding, prior to the assignment of a project to the 12 funding categories.

Plan authority projects have been scoped in general terms and can remain in the plan authority stage for up to 10 years. Once funding has been generally identified, a project the receives develop authority status within the UTP. Projects may remain in the development stage for up to seven years while the following is being completed:

- PS&E (Plans, Specifications and Estimates)
- Right-of-Way (ROW) acquisition
- Local agreements (if required)
- Environmental clearance (NEPA)
- Public involvement

Finally, the project will receive construct authority with all sources of funding for implementation identified. At this point, the project will be assigned funding from the 12 funding categories.

Figure 10-1: Map of TxDOT UTP Programmed Projects

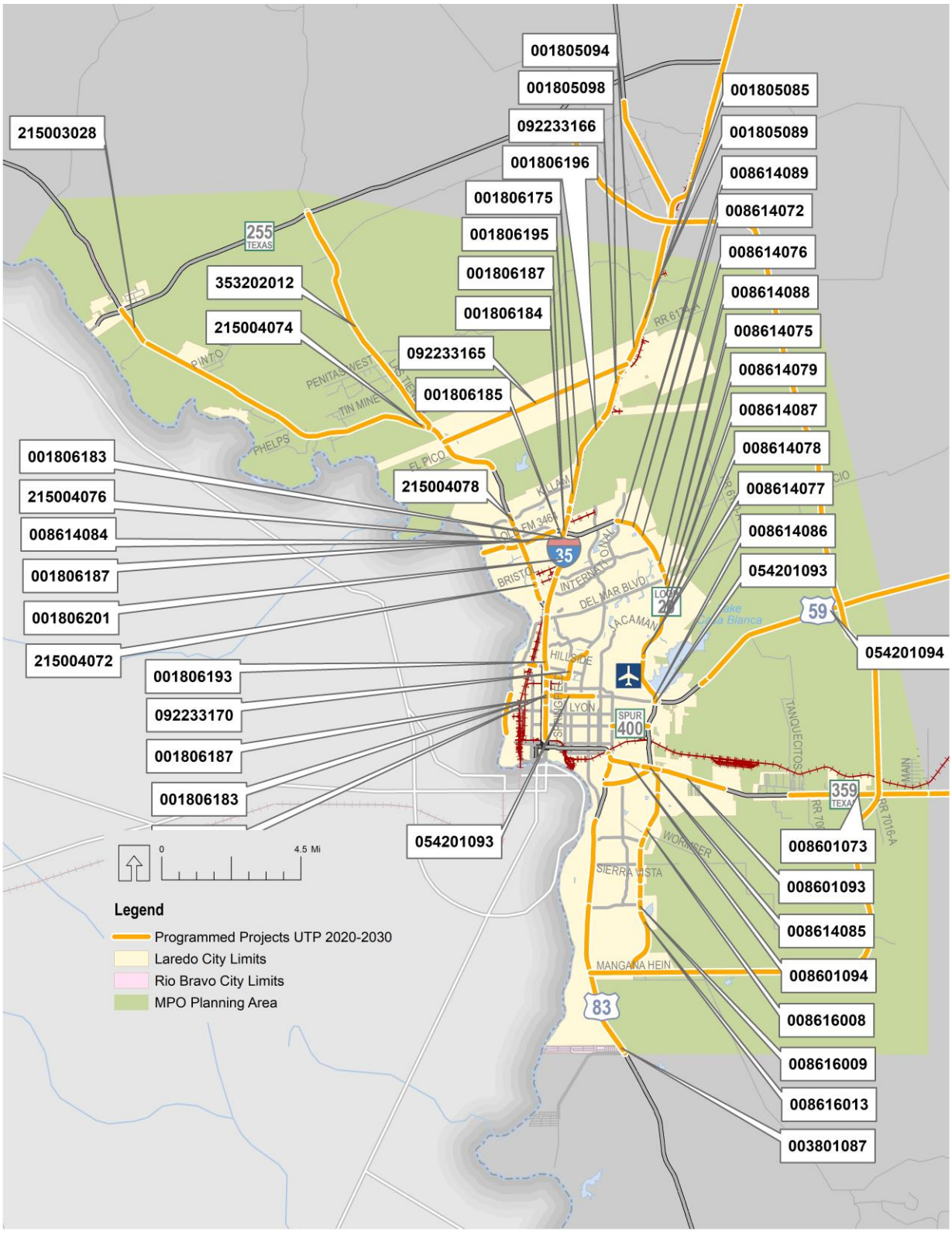


Table 10-2: List of TxDOT UTP 2020-2030 Programmed Projects

CSJ/ID	Facility	Limits	Description	Funding Categories	Letting Year	Total Funds
IH 35						
001806136	IH 35	Shiloh Dr to 0.25 miles North of US 59/IH 69W	Widen mainlanes and construct overpass	2, 4, 12	2020	$54,000,000
001806183	IH 35	0.5 miles South of US 59 to 0.5 miles East of IH 35	Construct Direct Connector #5 (DC#5)	4	2020	$30,000,000
001806198	IH 35	0.38 miles South of US 59/IH 59 Interchange to 0.8 miles North of US 59/IH 59 Interchange	Widen from 4 lanes to 6 lanes	11	2020	$5,000,000
001806201	IH 35	At San Isidro Pkwy	Wrong Way Driver Advanced Tech	8	2020	$58,045
001805085	IH 35	1.19 miles South of Carriers Dr to 1.80 miles North of US 83	Preventive Maintenance	1	2021	$2,714,168
001805089	IH 35	0.5 miles South of Uniroyal Interchange to 1.0 North of Uniroyal Interchange	Replacement of existing bridge	4, 12	2021	$110,000,000
001805094	IH 35	2.68 miles North of Uniroyal Interchange to 1.2 miles North of US 83 Interchange	Widen Road - New six land undivided section with shoulders	4	2021	$75,000,000
001806175	IH 35	SL 20 concrete section to 1.19 miles South of Carriers Dr	Preventive Maintenance	1	2021	$729,670

CSJ/ID	Facility	Limits	Description	Funding Categories	Letting Year	Total Funds
001806194	IH 35	Del Mar Blvd to 0.222 miles North of Shiloh Dr	Preventive Maintenance	1	2022	$2,779,612
001805090	IH 35	0.173 miles North of Uniroyal Drive to US 83	Rehabilitate Existing Roadway	1	2023	$3,048,449
001806192	IH 35	Scott St to 0.403 miles North of Shiloh Dr	Preventive Maintenance	1	2023	$2,779,612
001806193	IH 35	Scott St to Del Mar Blvd	Preventive Maintenance	1	2023	$1,521,857
001805098	IH 35	1.353 miles South of Carriers Dr to Uniroyal Interchange	Add turnarounds to Carriers Dr Bridge	DA	2024	$22,000,000
001806184	IH 35	0.5 miles West of IH 35 to 0.5 miles South of US 59	Construct Direct Connector #8 (DC#8)	12	2024	$22,000,000
001806185	IH 35	0.5 miles East of IH 35 to 0.5 miles North of US 59	Construct Direct Connectors	12	2024	$35,000,000
001806186	IH 35	0.5 miles East of IH 35 to 0.5 miles North of US 59	Construct Direct Connectors	DA	2024	$22,000,000
001806187	IH 35	0.5 miles South of US 59 to 0.5 miles East of IH 35	Construct Direct Connectors	DA	2024	$18,000,000
001806196	IH 35	0.25 miles North of US 59 Interchange to 1.353 miles South of Carriers Dr	Widen United Ave Overpass - Add one additional lane with turnarounds	DA	2024	$22,000,000
001806203	IH 35	Shiloh Dr to 0.25 miles	Interchange Improvement -	DA	2028	$25,000,000

CSJ/ID	Facility	Limits	Description	Funding Categories	Letting Year	Total Funds
		North of US 59/IH 69W	New grade separation two lane frontage road			
IH 69W						
008614084	IH 69W	World Trade Bridge GSA Facility to IH 35	Widening of existing freeway from four lanes to six lanes	11	2020	$15,000,000
US 59						
008614078	US 59	0.5 miles North of Jacaman Rd to 0.5 miles South of Jacaman Rd	Construct interchange - New six lane grade separation interchange	2, 12	2021	$19,691,424
008614075	US 59	0.5 miles South of Del Mar Blvd to 0.5 miles North of Del Mar Blvd	Construct interchange - New six lane grade separation interchange	2	2022	$24,100,000
008614076	US 59	0.5 miles South of Shiloh Dr to 0.5 miles North of Shiloh Dr	Construct interchange - New six lane grade separation interchange	2	2022	$21,500,000
008614079	US 59	0.5 miles South of University Blvd to 0.5 miles North of University Blvd	Construct interchange - New six lane grade separation interchange	2	2022	$16,850,000
008614086	US 59	US 59 to 0.4 miles North of Airport	Reconstruct Existing Roadway	12	2023	$15,600,000
008614087	US 59	0.4 miles North of Airport to 0.14 miles North of Del Mar Blvd	Reconstruct Existing Roadway	10, 12	2023	$34,100,000
054201095	US 59	7.4 miles West of FM 2895 to 1.982 miles	Resurface Roadway	1	2023	$6,150,639

CSJ/ID	Facility	Limits	Description	Funding Categories	Letting Year	Total Funds
		East of SL 20				
008614077	US 59	International Airport	Construct interchange - New six lane grade separation interchange	2, DA	2024	$14,785,990
008614088	US 59	0.36 miles South of University to 0.51 miles South of Shiloh Dr	Reconstruct Existing Roadway	2, 10	2024	$20,000,000
008614089	US 59	0.51 miles South of Shiloh Dr to International Blvd	Reconstruct Existing Roadway	2	2024	$31,500,000
BU 59						
054201093	BU 59	Buena Vista Ave to IH 35	Resurface of Existing Highway	1	2024	$1,031,501
US 83						
003801090	US 83	Market St to Chacon St Bridge	Resurface Roadway	1	2020	$398,469
003801089	US 83	Palo Blanco St to Cielito Lindo Blvd	Preventive Maintenance	1	2022	$776,149
003801087	US 83	Cielito-Lindo Blvd to Espejo Molina Rd	Preventive Maintenance	PA	2029	$238,550
SH 359						
008601093	SH 359	SL 20 to RR 6086L	Install Raised Median	8	2020	$1,353,740
008601094	SH 359	US 83 to SL 20	Install Raised Median	8	2020	$688,677
008601095	SH 359	0.25 miles East of SL 20 Intersection to 0.25 miles West of SL 20 Intersection	Intersection Improvement - Preliminary Engineering for continuous flow intersection	11	2023	$500,000
008601073	SH 359	4.06 miles East of SL 20 to 8.935 miles East of SL 20	Widen Road - New four lane undivided section with one left turn continuous lane,	12	2024	$18,000,000

CSJ/ID	Facility	Limits	Description	Funding Categories	Letting Year	Total Funds
			and a new four lane divided section			
SL 20 (Loop 20 / Bob Bullock Loop)						
008616013	SL 20	SH 359 to Mangana Hein Rd	Preventive Maintenance	1	2021	$801,960
008616015	SL 20	0.5 miles North of SL 20 to 0.5 miles South of SL 20	Intersection Improvements - Construction of right/left turn lane and driveway	11	2021	$664,625
008616008	SL 20	2.77 miles South of SH 359 to 2.39 miles South of SH 359	Construct interchange - New four lane grade separation interchange	DA	2026	$22,000,000
008616009	SL 20	0.1 miles South of Cielito Lindo Rd to 0.1 miles North of Cielito Lindo Rd	Construct interchange - New four lane grade separation interchange	DA	2026	$22,000,000
008616010	SL 20	0.1 miles South of Sierra Vista Rd to 0.1 miles North of Sierra Vista Rd	Construct interchange - New four lane grade separation interchange	DA	2026	$22,000,000
008614072	SL 20	International Blvd to US 59	Upgrade to interstate standards	10	2035	$6,897,669
SS 260 (Spur 260)						
008614085	SS 260	SH 359 to US 83 (Zapata Hwy)	Preventive Maintenance	1	2022	$1,632,745
SS 400 (Spur 400)						
354301008	SS 400	North Arkansas Ave to SL 20	Resurface Roadway	1	2024	$209,930
FM 1472 (Mines Road)						
215003028	FM 1472	SH 255 to 1.321 miles South of SH 255	Preventive Maintenance	1	2020	$104,409

CSJ/ID	Facility	Limits	Description	Funding Categories	Letting Year	Total Funds
215004074	FM 1472	1.321 miles South of SH 255 to 0.226 miles North of Pan American Blvd	Preventive Maintenance	1	2020	$1,070,193
215004076	FM 1472	Big Bend Blvd to Killam Industrial Blvd	Widening of pavement to provide additional travel lane	11	2020	$3,340,000
215004072	FM 1472	0.123 miles South of SL 20 to 0.4 miles North of IH 35	Resurface of Existing Highway	1	2024	$574,146
215004078	FM 1472	Killam Industrial Blvd. Int. to 0.187 miles North of Killam Industrial Blvd. Int.	Intersection Improvements - Construction of right turn acceleration lane	3	2020	$1,255,375
FM 3338						
353202012	FM 3338	FM 1472 to SH 255	Widen Road - Add two additional turn lanes with one continuous left turn lane	DA	2024	$45,000,000
County Roads						
092233160	County Road	Wormser Rd at Dolores Creek	Replacement of Off-System Bridge	6	2020	$855,000
City Streets						
092233076	City Street - At the intersection of FM 1472 and Flecha Ln/Las Cruces Dr	Intersection of FM 1472 and Flecha Ln/Las Cruces Dr	Re-align intersection	3, 10	2020	$1,382,893
092233093	City Street - Calton Road	Santa Maria Ave	Construct interchange - New two lane grade separation interchange over the UPRR tracks	3, 10	2020	$13,221,355

CSJ/ID	Facility	Limits	Description	Funding Categories	Letting Year	Total Funds
092233149	City Street	Spur 400 to US 59	Transportation Non-Roadway	3, 10	2020	$1,644,700
092233159	City Street	Wormser Rd at Dolores Creek Relief	Replacement of Off-System Bridge	6	2020	$402,000
092233165	City Street - Hachar Parkway	FM 1472 to 0.1 miles East of Beltway Pkwy	Preliminary Engineering-Construction of 5.07 miles of 5 lane rural roadway	7	2020	$26,796,901
092233170	City Street	At Zacate Creek	Zacate Creek MultI-Use Alternative Transportation Trail	9	2020	$818,144
092233177	City Street - MSC	Anna Park to LCC Campus	River Vega Hike and Bike Trail	9	2020	$815,798
092233181	City Streets	Various Locations	Construct ADA compliant bus stops and bicycle plazas	9	2020	$250,000
092233178	City Street - World Trade Bridge (Inspection Booths)	World Trade Bridge	Construct inspection booths	3, 10	2021	$10,300,000
092233166	City Street - Hachar Parkway	0.1 miles East of Beltway Pkwy to IH 35	Construction of 5 lane rural road	7, 10	2022	$21,740,668
VA (Various)						
092200066	VA	Districtwide	Bridge Maintenance	11	2020	$2,250,000
092233179	VA	Various Locations	Traffic Signal Improvements	11	2022	$120,000
092200063	VA	Districtwide at various locations	Drainage Improvements	11	2023	$1,000,000
092200067	VA	Districtwide	Bridge Clearance Sign Installations.	11	2023	$1,000,000
092233022	VA	Proposed International Bridge #5 To SH 255	Preliminary Engineering for the new location of the Laredo Outer Loop	PA	2035	$1,255,781

Operations and Maintenance UTP Projects

TxDOT programs projects for operations and maintenance through Category 1 funds. Category 1 addresses preventative maintenance and rehabilitation of the existing state highway system, including pavement, signs, traffic signals, and other infrastructure assets. Within the current 2020-2030 UTP, TxDOT has $26,323,509 programmed for Category 1 projects relating to operations and maintenance. Through revenue projections, it is reasonably expected that over $38,000,000 is available for operations and maintenance projects for the years 2020-2045. Revenue projections will be discussed in greater detail later in this chapter.

Regional Plans and Studies

Regional plans and studies were used to identify projects for potential inclusion within the MTP. These regional plans and studies identified transportation issues and projects to fulfil identified needs. The 2015-2040 Laredo MTP (preceding MTP) was reviewed to identify previously unfunded projects for potential inclusion in this 2020-2045 Laredo MTP. The 2019-2022 Laredo Transportation Improvement Program (TIP) was used to identify typical funding amounts awarded to the Laredo MPO for transit capital projects, maintenance, and operations.

The City of Laredo's 2017 Comprehensive Plan, *Viva Laredo*, was reviewed for transportation projects as well. The Viva Laredo *Bike Master Plan* as well as the El Metro Transit Development Plan was utilized to identify priority bicycle routes and other multimodal improvements that could potentially be funded through TxDOT Category 9 (Transportation Alternatives Set-Aside Program) discretionary funds.

The City of Laredo's 2015 Congestion and Delay Study was used to identify any recommendations and projects relating to operational improvements to increase efficiency on the roadways without physical capacity improvements.

A variety of feasibility studies for new roadways throughout the region were collected and reviewed for inclusion in the unconstrained project list. For example, feasibility studies for River Road and Vallecillo Road were provided to the MPO and evaluated for potential inclusion in the recommended projects list.

Congestion Management Process

The Laredo MPO's congestion management process (CMP) is a systematic approach coordinated regionally that evaluates system performance and identifies strategies that meet local objectives for maintaining performance on the existing transportation network. The most recently completed CMP analysis, the 2015 Congestion and Delay Study, analyzed trends in regional congestion and recommended a series of projects at problem locations in the region. Projects identified in the 2015 Congestion and Delay Study were incorporated into the comprehensive identification of projects for evaluation and scoring.

A total of 20 recommendations to mitigate congestion were identified in the 2015 Congestion and Delay Study and were incorporated into the identification of projects for further scoring and evaluation.

Travel Demand Model

Using the existing and committed (E+C) transportation network, the regional travel demand model was updated as part of this 2020-2045 MTP to the forecast year 2045. The travel demand model projects future Level-of-Service (LOS) on the roadway network in the year 2045.

This future year LOS assessment was used as a tool to identify roadways that were functioning at LOS values of E (congested) and F (severely congested) in the year 2045. Projects were identified that would help prevent future failing LOS values. The projects identified through the travel demand model are all capacity adding projects such as roadway widenings and new roads.

Agency and Public Call for Projects

In addition to recommending projects based on technical analysis, the MPO also coordinated a Call for Projects with agencies and the public from December 10, 2018 through January 31, 2019 (72 days) All Laredo MPO member organizations wishing to submit projects for inclusion in the 2045 MTP were requested to complete a Candidate Project Submission Package. Agencies were encouraged to submit an unlimited number of projects for evaluation. The public Call for Projects involved a simplified submission form, which was reviewed and coordinated with appropriate public agency sponsors for further consideration. Through the Call for Projects, the Laredo MPO received two projects submissions from the public and no project submissions from agencies. Additional coordination was conducted with public agencies, such as TxDOT, the County, City, and El Metro, and through the Technical Advisory Committee (TAC) to obtain additional suggestions and verify identified projects from local and regional planning efforts and based on local knowledge.

Project Needs List

During the planning process, a long list of projects was identified for the Laredo region from the variety of sources described in this chapter. The MPO has determined that the following projects are needed for congestion relief, economic development, and improved safety. However, project needs tend to be significantly greater than funding available. The project needs list (or "illustrative projects list") is shown in **Table 10-3**.

The Laredo MPO has a set of adopted objective and subjective evaluation criteria that is used to prioritize these transportation improvements in the reality of limited funding availability for all transportation needs. The evaluation criteria align with the goals, objectives, and performance measures, and performance targets identified within this MTP. After determining the project needs list, the MPO's evaluation criteria was applied to prioritize projects. As described later in this chapter, the MPO coordinated with the TxDOT Laredo District to determine the reasonably expected funding revenues available to program roadway projects under the MPO's discretion. The MPO also coordinated with El Metro to determine the reasonably expected funding revenues available to program transit funds.

Table 10-3: Project Needs List

ID	Facility	Limits	Project Description	Cost Est.
5	Loop 20 (Cuatro Vientos)	To US 83 near the City of Rio Bravo	Extend existing 2-lane roadway	$12,210,000
6	US 59	From Laredo city limit To Duval County line	Upgrade to IH 69 design standards	$156,140,000
7	Green Ranch Pkwy	From FM 1472 To IH 35	Construct new roadway with 2 lanes	$34,410,000
8	Laredo Outer Loop	From IH 35 To US 83	Construct new roadway with 4 lanes	$300,810,000
10	FM 1472 (Mines Rd)	From SH 255 To Killam Industrial Blvd	Widen from 4 lanes to 6 lanes	$76,590,000
001805904	IH 35	From 0.5 mi N of Uniroyal Dr to 0.5 mi north of US 83	Widen from 4 lanes to 6 lanes	$25,530,000
001806155	Shiloh Dr	At Railroad	Construct overpass	$38,850,000
001806203	IH 35	From Shiloh Dr to 0.25 Mi N of US 59/IH 69 W	New frontage road and RR grade separation	$25,000,000
92233022	Laredo Outer Loop	From Proposed International Bridge 5 to SH 255	Outer Loop Feasibility Study and Schematic	$1,255,781
092233039	Laredo Outer Loop	From SH 359 To US 59	Construction of a new location non-freeway	$150,405,000
092233108	Laredo Outer Loop	AT SH 359	Construction of an interchange	$32,000,000
092233182	Laredo Outer Loop	US 59	Construction of a new location non-freeway	$150,405,000
092233183	Laredo Outer Loop	AT US 59	Construction of an interchange	$32,000,000
B-02	US 59	At Zacate Creek	Replace bridge	$14,430,000

ID	Facility	Limits	Project Description	Cost Est.
B-03	Convent Ave	At Rio Grande River	Rehabilitate bridge	$6,660,000
B-04	Sanchez St	At Zacate Creek	Replace bridge	$1,110,000
B-05	Mangana-Hein Rd	At Becerra Creek	Replace bridge	$1,110,000
B-06	Wormser Rd	At Dolores Creek	Replace bridge	$1,110,000
B-07	Las Tiendas Rd	At Tejones Creek to Isabel Creeks and Palito Blanco Arroyo	Replace bridge	$2,220,000
B-08	-	At Juárez-Lincoln Bridge	Construct new bus facility	$44,400,000
C-1	New Road	From Union Pacific Blvd to IH 35	Add new roads and new connector	$744,854
C-2	McPherson Rd	From Saunders (US 59) to Loop 20	Convert to complete Streets	$28,100,725
CMP-1	FM 1472	From Loop 20 To Pan American Blvd	Replace all traffic signal hardware and provide optimized traffic signal timing	$405,000
CMP-2	BU 59 (Saunders St)	From I-35 To Loop 20	Replace all traffic signal hardware and provide optimized traffic signal timing	$648,000
E-1	Clark	at Loop 20	Multimodal hub - park-n-ride transit facility for 75 parking spaces plus bike hub facility	$2,124,864
E-2	University Blvd	At Loop 20	Multimodal hub - park-n-ride transit facility for 75 parking spaces plus bike hub facility	$2,124,864
M-1	River Road	From River Bank Rd to Vidal Cantu Blvd	New 2 lane roadway	$21,000,000
P-01	Santa Maria Ave	At KCS Railroad	Construct overpass	$11,100,000
P-02	Dorel Dr	From W of Loop 20 to Cheyenne Dr	Construct the remaining segment of Dorel Dr to make it into a continuous roadway from SH 359 to Loop 20	$1,890,000
R-05	US 83 (Chihuahua)	IH 35 to SH 359	Widen from 2 lanes to 3 lanes	$26,640,000
R-06	US 83 (Guadalupe)	From IH 35 To SH 359	Widen from 2 lanes to 3 lanes	$26,640,000
T-1	Hachar Pkwy	From FM 1472 To IH 35	Widen to 6 lanes and add interchange at IH 35	$53,100,651
T-10	Fasken Blvd	From Mines Rd To IH 35	Build new 2 lane minor arterial and IH 35 ramp	$9,365,784

ID	Facility	Limits	Project Description	Cost Est.
T-11	Del Mar Blvd	From IH 35 To Loop 20	Widen to 6 lanes, Upgrade traffic signal hardware and traffic signal timing for three intersections between Springfield and San Dario (recommendation from CMP). Per 2016 TDP, add 5 bus bays as part of roadway improvement at (1) Del Mar and Bartlett, (2) Del Mar and JB Alexander Highschool, (3) Del Mar and King Arthurs Court, (4) Del Mar and Laguna Del Mar, and (5) Del Mar and W Village Blvd as recommended from El Metro 2016 TDP	$19,644,172.80
T-12	San Ignacio Rd	From Loop 20 To 2.37 mi East	Upgrade to 4 lanes minor arterial	$11,167,931
T-13	Shiloh Dr	From McPherson Rd To Start of 4 ln section E of Woodridge Dr	Widen to 4 lanes	$6,199,148
T-14	Bartlett/University	From Bartlett To Casa Verde	Extend existing roads for connectivity, make 4 lanes undivided minor arterial	$14,385,810
T-15	Jacaman Rd	From McPherson Rd To Loop 20	Upgrade to 6 lane minor arterial with center turn lanes	$9,320,074
T-16	McPherson Rd	From Gale To Del Mar Blvd	Widen to 6 lanes	$7,072,016
T-17	Gale	From McPherson Rd To Bartlett Ave	Upgrade to 4 lanes minor arterial with center turn lanes for consistency	$2,529,065
T-18	Hillside Rd	From IH 35 To Bartlett Ave	Upgrade to 4 lanes minor arterial with center turn lanes	$8,943,452
T-19	Calton Rd	From N San Bernardo Ave To Overpass	Widen to 4 lanes	$0
T-2	FM 1472	From Hachar Pkwy To 5 mi west	Widen to 6 lanes	$12,945,586
T-20	Calton Rd	From IH 35 To McPherson Rd	Widen to 6 lanes	$5,526,476
T-21	Calton Rd	From McPherson Rd To Thomas Ave	Widen to 4 lanes minor arterial	$2,886,626

ID	Facility	Limits	Project Description	Cost Est.
T-22	Springfield Ave	From Lane Ave To Del Mar Blvd	Widen to 4 lanes; Include bicycle facilities as recommended by the 2017 Viva Laredo Bike Master Plan (recommends shared bike route)	$21,989,353
T-23	N Santa Maria Rd	From Del Mar Blvd to Industrial Blvd	Widen to 4 lanes, Upgrade traffic signal hardware and traffic signal timing for three intersections between Industrial and Del Mar (recommendation from CMP)	$1,057,218.90
T-24	Industrial Blvd	From CPL Rd To N Santa Maria Rd	Widen to 4 lanes	$436,513
T-25	CPL Ave extension	From Flecha Ln To CPL Rd	Extend existing road and connector for diversion	$11,768,700
T-26	Dogwood Rd	From E Bustamante St To Calton Rd	Widen to 4 lanes	$2,291,694
T-27	Bartlett Ave	From US 59 To Bartlett Split	Upgrade to 6 lanes principal arterial	$10,397,268
T-28	Thomas Ave	From E Bustamante St To Bartlett Ave	Widen to 4 lanes	$7,202,468
T-29	Washington/Corpus Christi	From IH 35 To Arkansas Ave	Widen to 4 lanes	$11,949,549
T-3	FM 3338	From FM 1472 To SH 255	Upgrade to 4 lane divided principal arterial to increase speed for a diversion	$23,469,699
T-30	US 83	From @ SH 359 To	Reconfigure interchange with direct connectors	$26,118,398
T-31	Arkansas Ave	From SH 359 To US 59	Widen to 4 lanes	$10,312,625
T-32	Market St	From IH 35 To US 59	Widen to 4 lanes minor arterial with center turn lanes, upgrade connections	$14,404,936
T-33	Bartlett/Malinche	From E Bustamante St To Zapata Hwy	Upgrade to 6 lanes divided principal arterial, build bridge, Willow connector to 1-way	$13,816,190
T-34	Meadow Ave	From US 59 To US 83	Widen to 4 lanes. Per 2016 TDP, add bus bay at Meadow Ave and Boulanger St as	$20,461,557

ID	Facility	Limits	Project Description	Cost Est.
			recommended from El Metro 2016 TDP	
T-35	SH 359	From US 83 To E study area boundary	Widen to 6 lane consistent as principal arterial with center turn lanes	$48,052,239
T-36	SH 359 Reliever	From Loop 20 To E study area boundary	Add reliever and connectors	$96,086,222
T-37	Cuatro Vientos/Ejido	From Cielito Lindo To US 83	Upgrade to 4 lanes expressway, connectors, and add 1 ln each way to Ejido	$298,794,472
T-38	SH 359 Reliever/Ave Los P & Wormser	From Developer Rd - 2045-V To 2 mi east	Add reliever and connectors	$60,631,151
T-39	Boomtown St	From SH 359 To Zapata Hwy	Widen to 4 lanes	$2,291,694
T-4	SH 255	From FM 1472 To IH 35	Upgrade to 4 lane expressway to increase speed for a diversion	$114,806,354
T-40	La Pita Mangana	From W of SH 359 To E of Concord Hills	Upgrade consistently to 4 lanes minor arterial with center turn lanes	$15,168,834
T-41	Cielito Lindo	From US 83 To Ejido Ave	Upgrade consistently to 6 lanes principal arterial with center turn lanes; Include bicycle facilities as recommended by the 2017 Viva Laredo Bike Master Plan (recommends shared use path)	$5,245,469
T-42	SH 359	From E of Arkansas Ave to 3 miles east	Upgrade to EXP	$34,128,040
T-43	Fasken Blvd	From Loop 20 To 0.5 mi east	Widen to 4 lanes	$2,564,515
T-44	Fairfield Rd	From Loop 20 To 0.3 mi east	Widen to 4 lanes	$1,636,925
T-5	Reliever Rd 5	From FM 1472 To IH 35	Build new 4 lane divided principal with ramps at IH 35 for a diversion	$77,198,863
T-6	FM 1472	From Hachar Pkwy to A F Muller Blvd	Widen to 6 lanes to match rest of Mines Rd	$16,017,413
T-7	Vellecillo Dr	From FM 1472 To IH 35	Build new 4 lane undivided principal arterial with Sara Rd	$26,998,038

ID	Facility	Limits	Project Description	Cost Est.
			extension and ramps at IH 35 for a diversion	
T-8	Eastside Connectors	From Uniroyal Dr To Independence Blvd	Build new roads & extensions to relieve Uniroyal Dr	$36,715,864
T-9	Mines Rd	From A F Muller Blvd To IH 35	Widen to 8 lanes	$20,122,685
VL-1	Loop 20 (Bob Bullock)	From Sinatra Pkwy to Clark Blvd	Bicycle facility. Identified as priority route (Phase I) Shared Bike Route in Viva Laredo Bicycle Master Plan	$81,720
VL-10	Malinche Ave	From Chacon Creek to Clark Blvd	Bicycle facility. Identified as priority route (Phase I) Shared Bike Route in Viva Laredo Bicycle Master Plan	$40,860
VL-11	Springfield Ave	From Del Mar Blvd to Michigan Ave	Bicycle facility. Identified as priority route (Phase I) Shared Bike Route in Viva Laredo Bicycle Master Plan	$6,810
VL-12	Michigan Ave	From Springfield Ave To International Blvd	Bicycle facility. Identified as priority route (Phase I) Shared Bike Route in Viva Laredo Bicycle Master Plan	$13,620
VL-13	International Blvd	From Michigan Ave To San Isidro Pkwy	Bicycle facility. Identified as priority route (Phase I) Shared Bike Route in Viva Laredo Bicycle Master Plan	$81,720
VL-14	International Blvd	From San Isidro Pkwy to Loop 20 (Bob Bullock)	Bicycle facility. Identified as priority route (Phase I) Shared Use Path in Viva Laredo Bicycle Master Plan	$261,000
VL-15	Loop 20 (Bob Bullock)	From International Blvd To Shiloh Dr	Bicycle facility. Identified as priority route (Phase I) Shared Use Path in Viva Laredo Bicycle Master Plan	$391,500

ID	Facility	Limits	Project Description	Cost Est.
VL-2	Clark Blvd	From Arkansas Ave To Zacate Creek	Bicycle facility. Identified as priority route (Phase I) Shared Bike Route in Viva Laredo Bicycle Master Plan	$54,480
VL-3	Washington St	From Zacate Creek to Victoria St	Bicycle facility. Identified as priority route (Phase I) Shared Use Path in Viva Laredo Bicycle Master Plan	$391,500
VL-4	Evans Rd	From Ainsworth Rd To Rio Grande River	Bicycle facility. Identified as priority route (Phase I) Shared Bike Route in Viva Laredo Bicycle Master Plan	$6,810
VL-5	Rio Grande Path	From Evans Rd To Cielito Lindo Blvd	Bicycle facility. Identified as priority route (Phase I) Protected Bike Lane in Viva Laredo Bicycle Master Plan	$894,700
VL-6	Cielito Lindo Blvd	From Rio Grande To US 83	Bicycle facility. Identified as priority route (Phase I) Shared Use Path in Viva Laredo Bicycle Master Plan	$65,250
VL-7	Ejido Ave	From Cielito Lindo Blvd To Lomas Del Sur	Bicycle facility. Identified as priority route (Phase I) Shared Use Path in Viva Laredo Bicycle Master Plan	$587,250
VL-8	Lomas Del Sur	From Rio Grande To Ejido Ave	Bicycle facility. Identified as priority route (Phase I) Shared Use Path in Viva Laredo Bicycle Master Plan	$391,500
VL-9	Louisiana Ave	From Lomas Del Sur To Chacon Creek	Bicycle facility. Identified as priority route (Phase I) Shared Bike Route in Viva Laredo Bicycle Master Plan	$54,480
X-01	US 83	From SH 359 to Prop. Outer Loop To	Widen from 4 lanes to 7 lanes	$72,150,000
X-02	Loop 20 (Cuatro Vientos)	At Lomas Del Sur Blvd	Construct overpass and ramps	$60,606,000

ID	Facility	Limits	Project Description	Cost Est.
X-03	Loop 20 (Cuatro Vientos)	From SH 359 to Prop. Outer Loop To	Widen 4 lanes to 6 lanes	$53,280,000
X-04	Loop 20	From World Trade Bridge to IH 35	Add 1 lane in each direction	$9,990,000
X-05	Interstate 35	From Shiloh Dr To Loop 20	Widen 4 lanes to 6 lanes	$54,390,000
X-08	Interstate 35	At Loop 20 To	Construct ramp from IH 35 Northbound to Loop 20 Eastbound	$35,520,000
X-11	US 83	At San Rio Blvd To	Construct overpass and ramps	$11,100,000
X-12	Loop 20 (Cuatro Vientos)	At Cielito Lindo/Sierra Vista	Construct overpass and ramps	$73,593,000
X-15	US 59	From 2.0 miles east of Loop 20 to Prop. Outer Loop To	Widen 2 lanes to 7 lanes	$81,030,000
X-16	Loop 20 (Cuatro Vientos)	At future minor arterial (1 mile north of Mangana Hein Rd)	Construct overpass and ramps	$73,593,000
X-22	Prop. Outer Loop Spur	From Loop 20 To Prop. Outer Loop	Construct new roadway with 2 lanes	$114,330,000
X-24	Clark Blvd (Spur 400)	From Loop 20 To Prop. Outer Loop	Construct new roadway with 5 lanes	$139,860,000
X-25	US 83	At Proposed Outer Loop	Construct ramps- Northbound US 83 to Eastbound Outer Loop and Westbound Outer Loop to Southbound US 83	$71,040,000
X-26	Market St	At KCS Railroad	Construct overpass	$11,100,000
X-27	Corpus Christi St	At KCS Railroad	Construct overpass	$11,100,000
X-28	IH 35 SB Frontage Rd (Santa Ursula)	At KCS Railroad	Construct overpass	$11,100,000
X-29	San Bernardo (Bus. Interstate 35)	At KCS Railroad	Construct overpass	$11,100,000
X-30	IH 35 NB Frontage Rd (Santa Ursula)	At KCS Railroad	Construct overpass	$11,100,000
X-31	Chicago St	At UP Railroad	Construct overpass	$11,100,000
X-32	Scott St	At UP Railroad	Construct overpass	$11,100,000
X-33	Sanchez St	At UP Railroad	Construct overpass	$11,100,000
X-34	Seymour Ave	At KCS Railroad	Construct overpass	$11,100,000

Project Evaluation and Prioritization of Needs

During the planning process, a long list of projects was identified for the Laredo region from the variety of sources described in this chapter. The Laredo MPO has a set of adopted objective and subjective evaluation criteria that is used to prioritize transportation improvements in the reality of limited funding availability for all transportation needs. The evaluation criteria align with the goals, objectives, and performance measures, and performance targets identified within this MTP as shown in **Table 10-4**. The MPO coordinated with the TxDOT Laredo District to determine the reasonably expected funding revenues available to program roadway projects under the MPO's discretion. The MPO also coordinated with El Metro to determine the reasonably expected funding revenues available to program transit funds.

Integrating Project Improvements

The full list of identified projects was categorized into four major types of improvements based on project description and how projects related to goals and objectives of the MTP. They included:

- Reducing Conflicts
- Enhancing Capacity and Operations
- Providing New Roadways to Support Regional Mobility
- Integrating Multimodal Connectivity

The region's congestion management process (CMP) is incorporated into three of the four types of improvements: reducing conflicts, enhancing capacity and operations, and integrating multimodal connectivity and is aligned with all five of the region's goals, as indicated in **Table 10-4**. In developing an integrated list of project improvements for evaluation, CMP recommended projects were included into the full list of project needs for further evaluation and scoring. These projects were further cross referenced with other capacity related improvement projects proposed in other regional and local plans used for the full list of projects evaluated. Where appropriate based on travel demand model performance of roadways, congestion management related improvements were included with capacity enhancing proposed improvements to provide comprehensive operational and capacity improvements to corridors in the region.

Table 10-4: Alignment of Goals and Objectives with Project Evaluation Groups

Goal	Project Category
Goal 1: Provide a transportation network that is safe and secure for all transportation modes and all system users.	• Reduce Conflicts • Multimodal
Goal 2: Sustain the region's existing transportation assets and infrastructure over the planning horizon.	• Capacity and Operations
Goal 3: Promote an efficient Network and system operations to maintain travel time reliability and reduce congestion in moving people and goods within and throughout the region.	• Reduce Conflicts • Capacity and Operations • New Roadways • Multimodal
Goal 4: Foster continued economic vitality by providing an effective and efficient freight network and supporting access to jobs and major destinations in the region.	• Reduce Conflicts • Capacity and Operations • New Roadways
Goal 5: Develop an integrated and connected transportation network that encourages vibrant, affordable, and equitable communities.	• Multimodal

Project Evaluation Criteria

To prioritize the future transportation needs of Laredo region, the MPO has developed a series of project evaluation criteria to objectively score projects and to align project evaluations with the goals, objectives, performance measures, and targets for the MTP. While the criteria attempt to quantify the potential benefits and effects of each project, they are not the sole determinant in establishing regional investment priorities. Rather, these criteria serve as a tool to help discuss the merits of each project and evaluate them on an equal playing field.

Project evaluation criteria were developed and adopted as part of the 2040 MTP development and were reviewed for alignment with established goals, objectives, and performance measures for the 2045 MTP and for adherence to FAST Act regulations. These evaluation criteria are consistent with all federal regulations and the established goals, objectives, and performance measures for the region and are carried over from the 2040 MTP with changes to address recently adopted performance measures from TxDOT and to align with updated regional goals, objectives, and performance measures for the 2045 MTP.

Objective Project Evaluation

Objective Project Evaluation Criteria is scored by the Laredo MPO based on technical performance data determined for each criterion. Objective Project Evaluation Criteria is shown below.

Congestion – 100 Points

If the project is a non-motorized mode, the project is automaticity given 50 points total to indicate an "average" rating and as to not disproportionately penalize non-motorized improvements over roadway projects. These projects provide enhancements as alternative modes to address congestion.

Current Congestion

Does the project specifically address a currently congested facility; or in the case of a new alignment roadway, does it specifically address a "parallel" facility that is congested? (New "parallel" facility for currently congested facility = 50 points).

- *Current Level of Service = E or F: 50 points*
- *Current Level of Service = D: 40 points*
- *Current Level of Service = C: 30 points*
- *Current Level of Service = B: 20 points*
- *Current Level of Service = A: 0 points*

Future Congestion

Does the project specifically address a facility that is expected to become congested at the end of the MTP planning horizon (currently 2045), or in the case of a new alignment roadway, does it specifically address a "parallel" facility that is projected to be congested?

- *Future Level of Service = E or F: 0 points*
- *Future Level of Service = D: 5 points*
- *Future Level of Service = C: 10 points*
- *Future Level of Service = B: 20 points*
- *Future Level of Service = A: 30 points*

Congestion Management Process

New roadways are automatically given 10 points (half). This criterion is focused on projects that are part of the congestion management program, but if the proposed project further alleviates an existing congestion management facility, the project receives an automatic 10-point rating.

Is this project a product of the congestion management process?

- *Yes: 20 Points*
- *Indirectly: 10 Points (Does the project support/relieve CMP facilities?)*
- *No: 0 Points*

Safety and Operations: 100 Points

Safety

Does the project specifically address a safety issue? Could it serve to improve safety performance measures, as defined by the MPO's adopted TxDOT measures for improvements to the number or rate of fatal or serious injuries, and non-motorized crashes?

- *Yes, directly: 60 Points*
- *Yes, indirectly: 30 Points*
- *No: 0 Points*

Yes, directly: Access Management, Frontage Road Conversion, Intersection Improvements, Bicycle/Pedestrian Facilities (some), Center Turn Lane, Lighting, Median, Realignment, Traffic Signal, Widen Lanes; located in an area where crash data support a safety improvement to address TxDOT adopted performance measures.

Yes, indirectly: Reconstruction/Rehabilitation/Repair/Resurface, Upgrade to Freeway.

No: Added Capacity, Drainage, Landscaping, Museum, Visitor Center, New Roadway.

Operational Efficiency

Does this project include elements that specifically improve the operational efficiency of the transportation system? Does this project specifically improve travel time reliability or truck travel time reliability, as measured by adopted TxDOT performance measures?

- *Yes, directly: 30 Points*
- *Yes, indirectly: 15 Points*
- *No: 0 Points*

Yes, directly: Upgrade Interchange/Intersection Improvement, Center Turn Lane, Add Turn lanes, Drainage, Frontage Road Conversion, Realignment, Signals, Traffic Flow Improvements, Median

Yes, indirectly: New Roadway, Additional Travel Lanes

No: Bicycle/Pedestrian Facilities, Landscaping, Lighting, Museum, Visitor Center, Reconstruction/Rehabilitation/Repair/Resurface

Environmental Considerations

Does this project address the safe transportation of hazardous material? Does this project address facilities located in a floodplain zone, improve emergency access, or facilitate movement on a statewide evacuation route?

For non-motorized improvements, such as bike-ped, these projects when off road can serve as remediation for previous hazardous materials sites and at minimum do not increase safety issues regarding hazardous materials. As such an automatic ten-point allocation is given to these modes.

- *Yes: 10 Points*
- *No: 0 Points*

Yes: Project located on a Hazmat route, on a floodplain vulnerability route, the statewide evacuation route, or improve emergency access on a congested local roadway?

No: Project not located on any of these designated facilities.

Project Cost: 50 Points

Cost Reasonableness

Is the project cost per future vehicle mile of travel (VMT from "build" alternative from travel demand model) a reasonable amount?

Non-motorized do not have an equivalent to VMT and are expected to help total VMT in the region by providing alternative access. Additionally, these non-motorized bicycle-pedestrian improvements have more limited state and federal funding sources available. These bike-ped improvements are less costly in general than roadway improvements and do not rely on alternative funding sources. As such, an automatic median point ranking is given to these types of projects.

- *$75 or less per VMT: 30 points*
- *Between $75 and $125 per VMT: 20 points*
- *Between $125 and $500 per VMT: 10 points*
- *More than $500 per VMT: 0 points*

Does this project include non-traditional funding sources and enhanced cost sharing?

- *Yes: 20 Points*
- *No: 0 Points*

Modal Impact: 150 Points

Does this project specifically promote the use of or access to an alternative mode of transportation?

- *Transit: 25 points*
- *Bicycling: 25 points*
- *Walking: 25 points*
- *Air Travel: 25 points*
- *Rail Travel: 25 points*
- *Freight: 25 Points*

Subjective Project Evaluation

Following the objective project evaluation, the top scoring projects for each project evaluation group (reduce conflicts, capacity and operations, new roadways, and multimodal) were advanced to the subjective evaluation. The subjective evaluation is performed by the Laredo MPO Technical Committee. During the subjective evaluation exercise in September 2019, the Technical Committee was provided worksheets to score projects within each project evaluation group. The Subjective Evaluation Criteria includes:

Community and Environmental Impacts: 20 Points

- *Does this project impact community vitality and the environment in a positive manner? (0 – 10 points)*
- *Does this project improve aesthetics of the community? (0 – 10 points)*

Public Acceptance: 80 Points

- *Does the project have explicit community support? (0 – 50 points)*
- *Is the project consistent with local and regional goals and objectives? (0 – 30 points)*

Project Priorities List

Following the objective and subjective project evaluations, the scores for the projects were assessed and ranked. The project evaluation groups (Reducing Conflicts, Enhancing Capacity and Operation, Providing New Roadways to Support Regional Mobility, Integrating Multimodal Connectivity) were used to determine a project priorities list that included a variety of projects that would address competing goals and objectives of the MTP. The top scoring projects within each project evaluation group were identified as recommended projects. The recommended projects reflect a mix of the strategies to address the regional goals, objectives, adopted performance targets, and congestion management strategies. Funding constraints are always a consideration when meeting the transportation needs of the region.

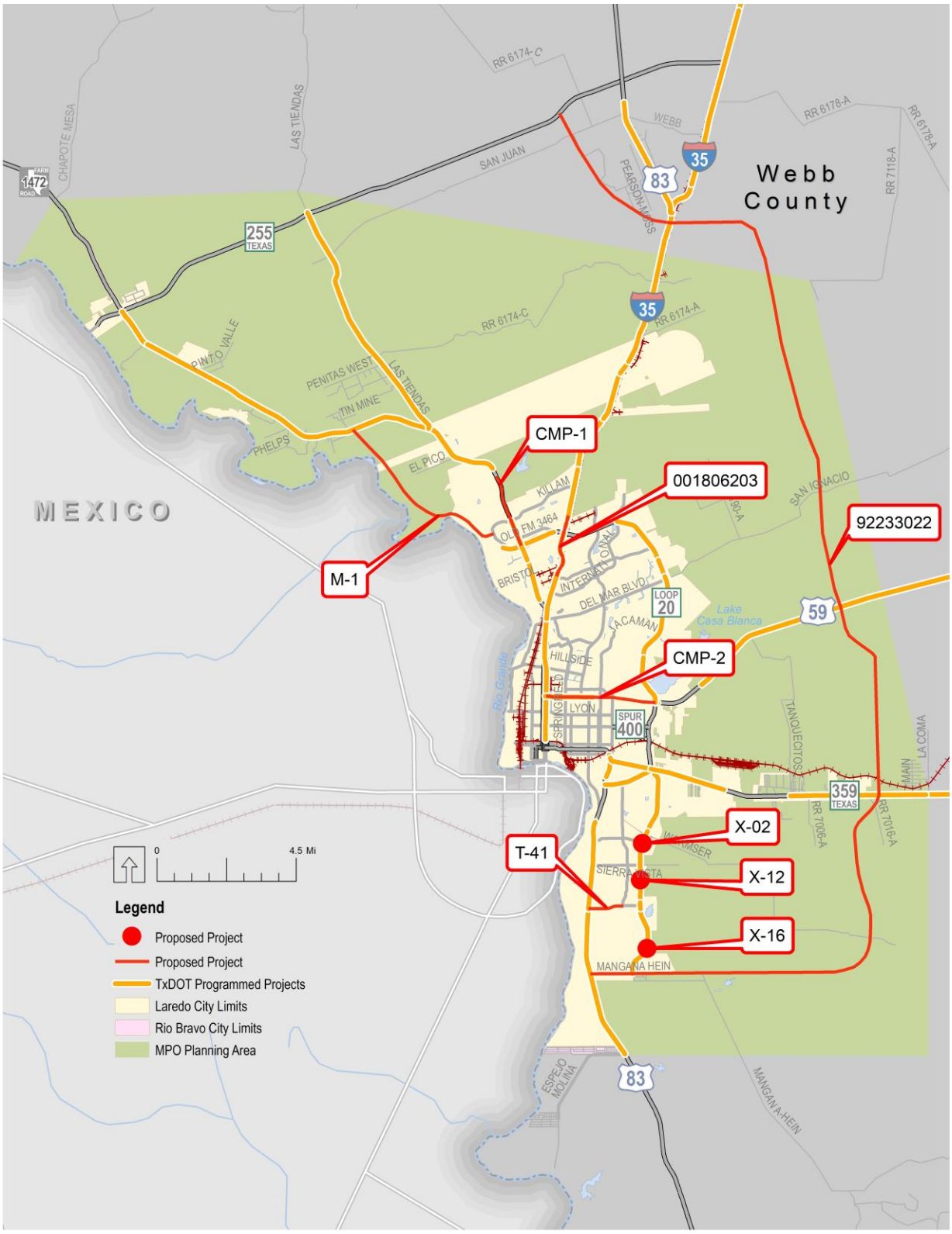
Potential TxDOT Category 2 and Category 7 Projects

The Laredo MPO has discretion over funding available through TxDOT Category 2 (Metropolitan and Urban Area Corridor Projects) and Category 7 (Metropolitan Mobility and Rehabilitation) funds. **Table 10-5** shows the prioritized projects eligible for TxDOT Category 2 and Category 7 funds with the rank from the project evaluation indicated, and **Figure 10-2** shows these projects on a map. The prioritized projects are intended to complete the build out of Loop 20 with needed interchanges, provide a feasibility study for the proposed Outer Loop, provide new roads in areas where access is needed (frontage road along IH 35 and River Road to parallel Mines Road (FM 1472), improve congestion through operations management, and integrate multimodal considerations through roadway construction (consider the addition of bus bays and bicycle lanes when widening roads).

Table 10-5: Prioritized Projects Eligible for TxDOT Category 2 and Category 7 Funds

ID	Facility	Limits	Description	Cost Estimate	Evaluation Rank	Justification
Reducing Conflicts						
X-02	Loop 20 (Cuatro Vientos)	At Lomas Del Sur Blvd	Construct overpass and ramps	$60,606,000	1	Complete Loop 20
X-12	Loop 20 (Cuatro Vientos)	At Cielito Lindo/Sierra Vista	Construct overpass and ramps	$73,593,000	2	Complete Loop 20
X-16	Loop 20 (Cuatro Vientos)	At future minor arterial (1 mile north of Mangana Hein Rd)	Construct overpass and ramps	$73,593,000	3	Complete Loop 20
Providing New Roadways to Support Regional Mobility						
92233022	Laredo Outer Loop	From Proposed International Bridge 5 to SH 255	Outer Loop Feasibility Study and Schematic	$1,255,781	4	Study the feasibility of the Outer Loop
01806203	IH 35	From Shiloh Dr to 0.25 Mi N of US 59/IH 69 W	New frontage road and railroad grade separation	$25,000,000	5	Needed capacity for regional mobility
M-1	River Road	River Bank Rd To Vidal Cantu Blvd	New two-lane roadway, addition of sidewalks and on-street bicycle facilities to be considered	$21,000,000	6	Regional need identified, runs parallel to Mines Rd
Enhancing Capacity and Operation						
CMP-1	FM 1472	From Loop 20 To Pan American Blvd	Replace all traffic signal hardware and provide optimized traffic signal timing	$526,500	7	Operational congestion management
CMP-2	BU 59 (Saunders St)	From I-35 To Loop 20	Replace all traffic signal hardware and provide optimized traffic signal timing	$842,400	8	Operational congestion management
Integrating Multimodal Connectivity						
T-41	Cielito Lindo	From US 83 To Ejido Ave	Upgrade consistently to 6 lanes principal arterial with center turn lanes; Include bicycle facilities as recommended by the 2017 Viva Laredo Bike Master Plan (recommends shared use path)	$6,819,109	9	Technical recommendation + Viva Laredo recommendation

Figure 10-2: Potential Projects Eligible for TxDOT Category 2 and Category 7 Funds



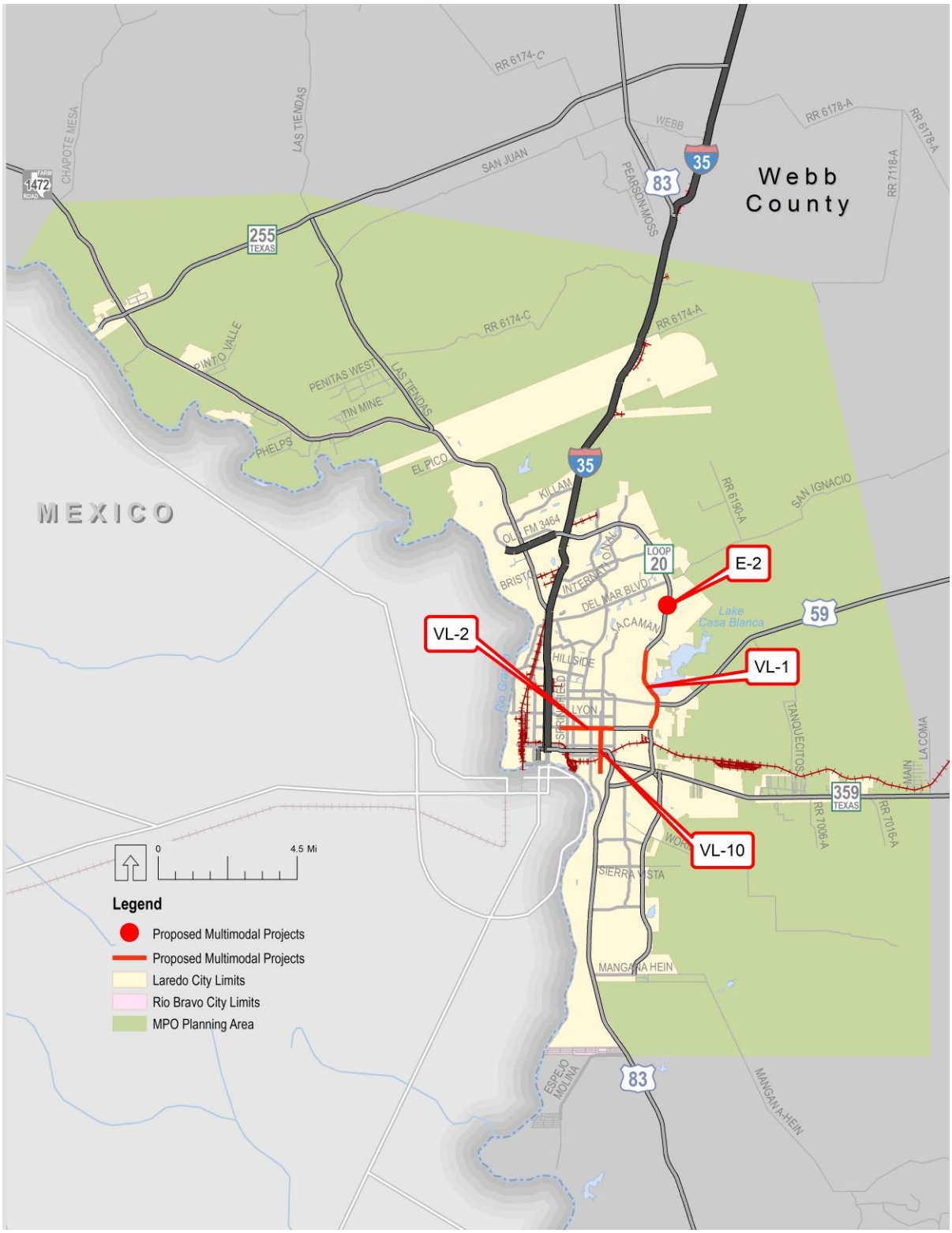
Potential TxDOT Category 9 Projects

TxDOT Category 9 funds handle the federal Transportation Alternatives (TA) Set-Aside Program. These funds may be awarded for bicycle-pedestrian projects. The funds for Category 9 are designated for these specific purposes and have separate eligibility and funding requirements. The TxDOT Public Transportation Division requires an application process to allocate these funds through a call for projects process. The Laredo MPO recommends that the projects shown in **Table 10-6** and **Figure 10-3** be submitted for consideration of TxDOT Category 9 funds.

Table 10-6: Potential Projects Eligible for TxDOT Category 9 Funds

ID	Facility	Limits	Description	Cost Est.	Group	Justification
VL-1	Loop 20	From Sinatra Pkwy to Clark Blvd	Bicycle facility - Priority Phase 1 Shared Bike Route in Viva Laredo	$106,236	Multimodal	Viva Laredo Bike Master Plan Recommendation, connects to existing bicycle facility
VL-2	Clark Blvd	From Arkansas Ave To Zacate Creek	Bicycle facility - Priority Phase 1 Shared Bike Route in Viva Laredo	$70,824	Multimodal	Viva Laredo Bike Master Plan Recommendation, connects to existing bicycle facility
VL-10	Malinche Ave	From Chacon Creek to Clark Blvd	Bicycle facility - Priority Phase 1 Shared Bike Route in Viva Laredo	$53,118	Multimodal	Viva Laredo Bike Master Plan Recommendation, connects to existing bicycle facility
E-2	University Blvd	At Loop 20	Multimodal hub - park-n-ride transit facility for 75 parking spaces plus bike hub facility	$2,762,323	Multimodal	El Metro TDP Recommendation, location near residential area and TAMIU

Figure 10-3: Potential Projects Eligible for TxDOT Category 9 Funds



Revenue Projections Development

The first step in the process of demonstrating financial constraints is to determine what revenues can be reasonably expected over the life of the plan. Most regional roadway projects are financed through federal and state funds which are primarily derived from taxes on fuel and fees from vehicle registration. Transit projects are also funded through federal, state, and local sources, as well as revenue received through fare collection.

TxDOT Funding

The MPO has worked with the TxDOT-Laredo District to determine the expected levels of funding for the fiscal years included in this plan. Both the 2020-2030 Unified Transportation Plan (UTP) and the Transportation Revenue Estimator and Needs Determination System (TRENDS) database from the Texas A&M Transportation Institute (TTI) to were used to project the reasonable revenues by each TxDOT funding category. TRENDS is a scenario planning model that forecasts revenues and expenses for TxDOT. It is updated regularly to include the latest cash forecasts and letting schedules from TxDOT. The Laredo MPO coordinated with the TxDOT Laredo District to confirm that projections were reasonable.

The annual average amount and the sum of the amounts of available funding through TxDOT by category from 2020 to 2045 are presented in **Table 10-7.**

Table 10-7: Roadway and Bicycle/Pedestrian Funding Revenue

Category	Annual Average Amount	FY 2020 to 2045 Projected Amounts
1	$2,609,084	$65,227,107
2	$14,245,356	$356,133,894
3	$84,417	$2,110,415
4	$7,880,000	$197,000,000
5	$0	$0
6	$50,280	$1,257,000
7	$6,603,958	$165,098,941
8	$10,000,000	$126,309,097
9	$736,859	$18,421,484
10	$1,000,000	$177,130,805
11	$3,700,000	$31,397,549
12	$0	$670,096,995

Transit Funding Revenue

The Laredo MPO coordinated with El Metro to determine funding programs for which transit funding is available for the Laredo region. **Table 10-8** shows a description of each of the Federal Transit Administration (FTA) programs from which funding is available for the Laredo region.

Table 10-8: FTA Funding Categories

Program Name	Program Description
Urbanized Area Formula Grants – 5307	The Urbanized Area Formal Grants program provides funding to public transit systems in Urbanized Areas (UZA) for public transportation capital, planning, job access and reverse commute projects, as well as operating expenses in certain circumstances.
Enhanced Mobility of Seniors & Individuals with Disabilities - 5310	The program provides formula funding to states for the purpose of assisting private nonprofit groups in meeting transportation needs of the elderly and persons with disabilities.
Formula Grants for Rural Areas - 5311	The Formula Grants for Rural Areas program provides capital, planning, and operating assistance to states to support public transportation in rural areas with populations less than 50,000, where many residents often rely on public transit to reach their destinations.

Table 10-9 contains the annual average amount of funding anticipated for the various FTA funding categories, along with the amount projected for all the fiscal years 2020-2045 included in this plan. The projected amount is based on the amount of funding awarded for transit improvements through the past four Laredo MPO Transportation Improvement Programs (TIP).

Table 10-9: Transit Funding Revenue

Category	Source	Annual Average Amount	FY 2020 to 2045 Projected Amounts
Section 5307 - Urbanized Formula	FTA	$3,401,493	$85,037,325
	TxDOT	$576,518	$14,412,950
	Local	$11,420,702	$285,517,550
	Total	$15,398,713	$384,967,825
Section 5310 - Seniors and People with Disabilities	FTA	$168,202	$4,205,050
	TxDOT	$0	$0
	Local	$42,051	$1,051,275
	Total	$210,253	$5,256,325
Section 5339 - Bus and Bus Facilities	FTA	$437,379	$10,934,475
	TxDOT	$0	$0
	Local	$77,185	$1,929,625
	Total	$514,564	$12,864,100
Total		$16,123,530	$403,088,250
Local-Only		$11,539,938	$288,498,450

Financially Constrained Project List

Although the preceding section described recommended projects, a funding gap exists. Funds available to the Laredo MPO are less than required to program all recommended projects. This section of the chapter describes the funding revenues that the MPO has discretion over and the projects that the MPO programs with those available funds through the year 2045.

Financially Constrained TxDOT Projects

The TxDOT UTP is an annually updated document that programs projects on a ten-year horizon. Through the revenue projections analysis, TxDOT will have the available funds shown in **Table 10-10** below to program from the year 2020 through 2045 given the current financial outlook. Ultimately, TxDOT will program projects beyond the years of the current 2020-2030 UTP using the performance-based Decision Lens tool to prioritize projects.

Table 10-10: Programmed and Projected TxDOT Funding

Category	FY 2020 to 2045 Projected Amounts	TxDOT UTP 2020-2030 Programmed Amount	Remainder Revenue Available 2020-2045
1	$65,227,107	$26,323,509	$38,903,598
2	$356,133,894	$129,497,414	$226,636,480
3	$2,110,415	$2,110,415	$0
4	$197,000,000	$197,000,000	$0
5	$0	$0	$0
6	$1,257,000	$1,257,000	$0
7	$165,098,941	$48,237,569	$116,861,372
8	$126,309,097	$2,100,462	$124,208,635
9	$18,421,484	$1,883,942	$16,537,542
10	$177,130,805	$44,891,577	$132,239,228
11	$31,397,549	$28,874,625	$2,522,924
12	$670,096,995	$201,200,000	$468,896,995

As mentioned previously in this chapter, the Laredo MPO has discretion over Category 2 and Category 7 TxDOT funds. **Table 10-11** demonstrates the total amount of funds available to the MPO to program projects through TxDOT Category 2 and Category 7 funds. The project funds are based on TRENDS and historic funding levels. Based on this data, the total amount programmed and projected $381,591,571 as shown in **Table 10-9**.

Table 10-11: Funding Amounts Available through TxDOT Category 2 and Category 7 Funds

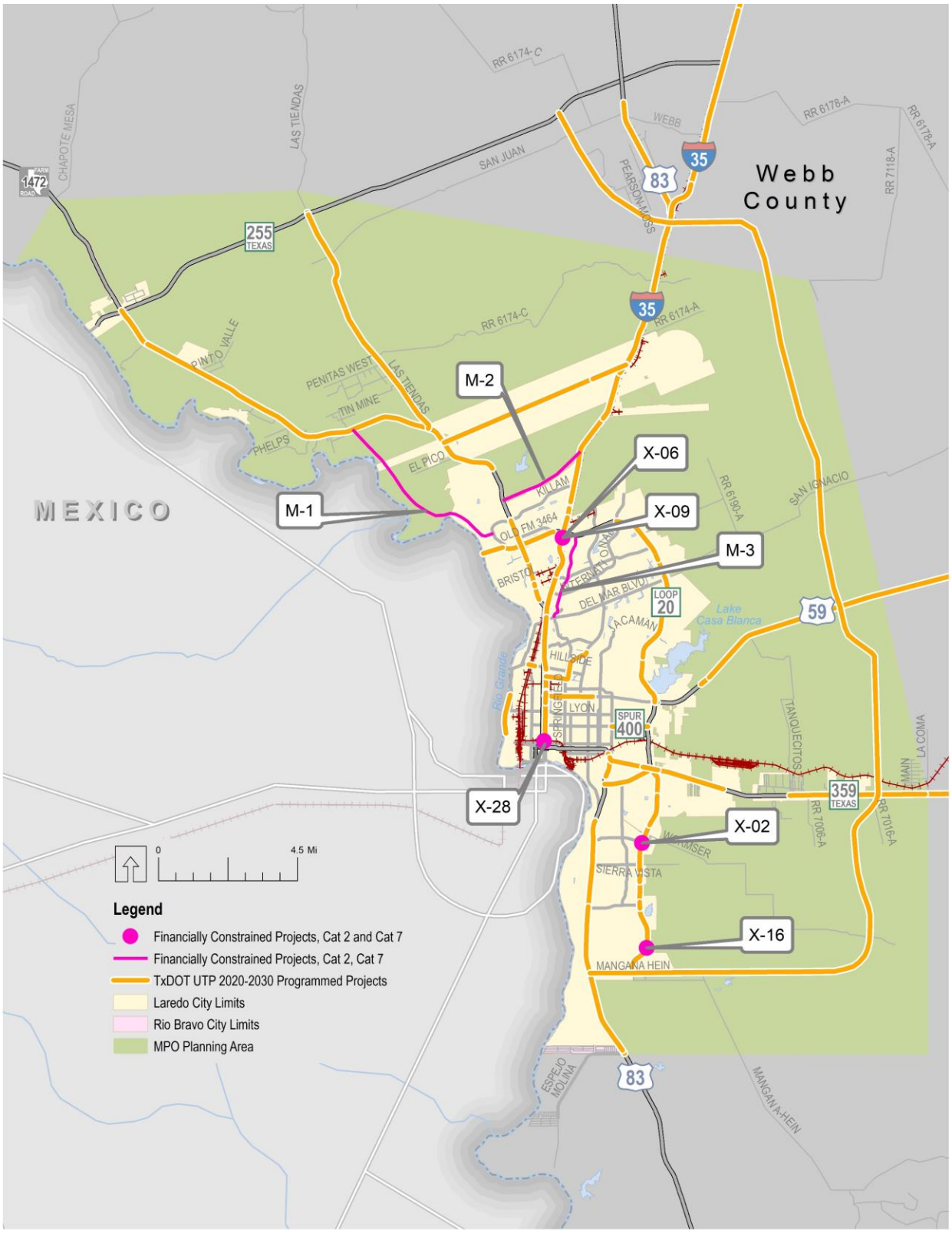
Category	FY 2020 to 2045 Projected Amounts	TxDOT UTP 2020-2030 Programmed Amount	MTP Programmed Amount 2020-2045
2	$356,133,894	$129,497,414	$226,636,480
7	$165,098,941	$48,237,569	$116,861,372

With the available TxDOT Category 2 and Category 7 funds available, the Laredo MPO can program eight additional projects through 2045. These projects were the top scoring projects from the project evaluation process and regional priorities identified by the MPO Policy Committee and MPO Technical Committee. These programmed projects are listed in **Table 10-12** and displayed in **Figure 10-4**.

Table 10-12: Financially Constrained Projects, Category 2 and Category 7

CSJ/ID	Facility	Limits	Description	Funding Category	Letting Year	Year of Expenditure Cost
X-02	Loop 20 (Cuatro Vientos)	At Southgate Blvd	Construct overpass and ramps	2	2023	$25,736,888
X-16	Loop 20 (Cuatro Vientos)	At future minor arterial (1 mile north of Mangana Hein Rd)	Construct overpass and ramps	2	2024	$26,766,364
X-28	IH 35 SB Frontage Rd (Santa Ursula)	At KCS Railroad	Construct overpass	2	2027	$30,108,519
X-06	IH 35	At Loop 20	Construct ramp from Loop 20 Westbound to IH 35 Northbound	2	2036	$69,189,426
X-09	IH 35	At Loop 20	Construct ramp from Loop 20 Eastbound to IH 35 Southbound	2	2038	$74,835,283
					Total Category 2	$226,636,480
M-1	River Road	River Bank Rd to Vidal Cantu Blvd	New two-lane roadway	7	2027	$28,739,950
M-2	Vallecillo Road	FM 1472 to IH 35	New five-lane major arterial facility with curb, sidewalk, and storm drain	7	2035	$57,531,593
M-3	Springfield Road	Del Mar Blvd to SL 20	New five-lane roadway extension	7	2037	$30,589,829
					Total Category 7	$116,861,372

Figure 10-4: Financially Constrained Projects, Category 2 and Category 7



TxDOT Category 1 Preventative Maintenance and Rehabilitation addresses preventive maintenance and rehabilitation of the existing state highway system, including pavement, signs, traffic signals, and other infrastructure assets. The average annual funding amount through Category 1 is shown in **Table 10-13** below. Additional funds related to operations and maintenance may be allocated through other TxDOT funding categories in addition over the course of this plan's horizon year, 2045.

Table 10-13: Category 1 Preventative Maintenance and Rehabilitation

Year	TxDOT Category	TxDOT Average Annual Funding Amount
2020	Category 1 Preventative Maintenance and Rehabilitation	$2,609,084
2021	Category 1 Preventative Maintenance and Rehabilitation	$2,609,084
2022	Category 1 Preventative Maintenance and Rehabilitation	$2,609,084
2023	Category 1 Preventative Maintenance and Rehabilitation	$2,609,084
2024	Category 1 Preventative Maintenance and Rehabilitation	$2,609,084
2025	Category 1 Preventative Maintenance and Rehabilitation	$2,609,084
2026	Category 1 Preventative Maintenance and Rehabilitation	$2,609,084
2027	Category 1 Preventative Maintenance and Rehabilitation	$2,609,084
2028	Category 1 Preventative Maintenance and Rehabilitation	$2,609,084
2029	Category 1 Preventative Maintenance and Rehabilitation	$2,609,084
2030	Category 1 Preventative Maintenance and Rehabilitation	$2,609,084
2031	Category 1 Preventative Maintenance and Rehabilitation	$2,609,084
2032	Category 1 Preventative Maintenance and Rehabilitation	$2,609,084
2033	Category 1 Preventative Maintenance and Rehabilitation	$2,609,084
2034	Category 1 Preventative Maintenance and Rehabilitation	$2,609,084
2035	Category 1 Preventative Maintenance and Rehabilitation	$2,609,084
2036	Category 1 Preventative Maintenance and Rehabilitation	$2,609,084
2037	Category 1 Preventative Maintenance and Rehabilitation	$2,609,084
2038	Category 1 Preventative Maintenance and Rehabilitation	$2,609,084
2039	Category 1 Preventative Maintenance and Rehabilitation	$2,609,084
2040	Category 1 Preventative Maintenance and Rehabilitation	$2,609,084
2041	Category 1 Preventative Maintenance and Rehabilitation	$2,609,084
2042	Category 1 Preventative Maintenance and Rehabilitation	$2,609,084
2043	Category 1 Preventative Maintenance and Rehabilitation	$2,609,084
2044	Category 1 Preventative Maintenance and Rehabilitation	$2,609,084
2045	Category 1 Preventative Maintenance and Rehabilitation	$2,609,084
Total		$65,227,107

Financially Constrained Transit Projects

Table 10-14 shows the comparison of projected revenue from FTA formula funding and the programmed amount of project cost, demonstrating that the MTP is financially constrained regarding transit projects. FTA formula-based funding is annual funding provided to the region based on criteria such as population and service area. The MTP provides projections for formula funding expected, but additional funds could become available based on individual competitive grants. Competitive grants are difficult to forecast because the availability of grants change over time and predicting opportunities that El Metro will choose to pursue is difficult. To be conservative with forecasts, projections were assumed to maintain a flat level of formula funding.

Table 10-14: Transit Financial Constraint

Category	FY 2019 to 2045 Projected Amount of Revenue	Programmed Amount of Project Costs
5307	$384,967,825	$384,967,825
5310	$5,256,325	$5,256,325
5311	$12,864,100	$12,864,100

The total cost, the programmed federal and state amount of funding, and other amount of funding of transit projects by different FTA category are summarized in **Table 10-15** through **Table 10-17**.

Table 10-15: Category 5307 Transit Projects

Year	Project	Total Cost	FTA Programmed Amount	TxDOT & Local Amount
2020	Operations and Maintenance	$15,398,713	$3,401,493	$11,997,220
2021	Operations and Maintenance	$15,398,713	$3,401,493	$11,997,220
2022	Operations and Maintenance	$15,398,713	$3,401,493	$11,997,220
2023	Operations and Maintenance	$15,398,713	$3,401,493	$11,997,220
2024	Operations and Maintenance	$15,398,713	$3,401,493	$11,997,220
2025	Operations and Maintenance	$15,398,713	$3,401,493	$11,997,220
2026	Operations and Maintenance	$15,398,713	$3,401,493	$11,997,220
2027	Operations and Maintenance	$15,398,713	$3,401,493	$11,997,220
2028	Operations and Maintenance	$15,398,713	$3,401,493	$11,997,220
2029	Operations and Maintenance	$15,398,713	$3,401,493	$11,997,220
2030	Operations and Maintenance	$15,398,713	$3,401,493	$11,997,220
2031	Operations and Maintenance	$15,398,713	$3,401,493	$11,997,220
2032	Operations and Maintenance	$15,398,713	$3,401,493	$11,997,220
2033	Operations and Maintenance	$15,398,713	$3,401,493	$11,997,220
2034	Operations and Maintenance	$15,398,713	$3,401,493	$11,997,220
2035	Operations and Maintenance	$15,398,713	$3,401,493	$11,997,220
2036	Operations and Maintenance	$15,398,713	$3,401,493	$11,997,220
2037	Operations and Maintenance	$15,398,713	$3,401,493	$11,997,220
2038	Operations and Maintenance	$15,398,713	$3,401,493	$11,997,220
2039	Operations and Maintenance	$15,398,713	$3,401,493	$11,997,220
2040	Operations and Maintenance	$15,398,713	$3,401,493	$11,997,220
2041	Operations and Maintenance	$15,398,713	$3,401,493	$11,997,220
2042	Operations and Maintenance	$15,398,713	$3,401,493	$11,997,220
2043	Operations and Maintenance	$15,398,713	$3,401,493	$11,997,220
2044	Operations and Maintenance	$15,398,713	$3,401,493	$11,997,220
2045	Operations and Maintenance	$15,398,713	$3,401,493	$11,997,220
	Total	$384,967,825		

Table 10-16: Category 5310 Transit Projects

Year	Project	Total Cost	FTA Programmed Amount	TxDOT & Local Amount
2020	Funds for Transportation for Seniors and People with Disabilities	$210,253	$168,202	$42,051
2021	Funds for Transportation for Seniors and People with Disabilities	$210,253	$168,202	$42,051
2022	Funds for Transportation for Seniors and People with Disabilities	$210,253	$168,202	$42,051
2023	Funds for Transportation for Seniors and People with Disabilities	$210,253	$168,202	$42,051
2024	Funds for Transportation for Seniors and People with Disabilities	$210,253	$168,202	$42,051
2025	Funds for Transportation for Seniors and People with Disabilities	$210,253	$168,202	$42,051
2026	Funds for Transportation for Seniors and People with Disabilities	$210,253	$168,202	$42,051
2027	Funds for Transportation for Seniors and People with Disabilities	$210,253	$168,202	$42,051
2028	Funds for Transportation for Seniors and People with Disabilities	$210,253	$168,202	$42,051
2029	Funds for Transportation for Seniors and People with Disabilities	$210,253	$168,202	$42,051
2030	Funds for Transportation for Seniors and People with Disabilities	$210,253	$168,202	$42,051
2031	Funds for Transportation for Seniors and People with Disabilities	$210,253	$168,202	$42,051
2032	Funds for Transportation for Seniors and People with Disabilities	$210,253	$168,202	$42,051
2033	Funds for Transportation for Seniors and People with Disabilities	$210,253	$168,202	$42,051
2034	Funds for Transportation for Seniors and People with Disabilities	$210,253	$168,202	$42,051
2035	Funds for Transportation for Seniors and People with Disabilities	$210,253	$168,202	$42,051
2036	Funds for Transportation for Seniors and People with Disabilities	$210,253	$168,202	$42,051
2037	Funds for Transportation for Seniors and People with Disabilities	$210,253	$168,202	$42,051
2038	Funds for Transportation for Seniors and People with Disabilities	$210,253	$168,202	$42,051
2039	Funds for Transportation for Seniors and People with Disabilities	$210,253	$168,202	$42,051
2040	Funds for Transportation for Seniors and People with Disabilities	$210,253	$168,202	$42,051
2041	Funds for Transportation for Seniors and People with Disabilities	$210,253	$168,202	$42,051
2042	Funds for Transportation for Seniors and People with Disabilities	$210,253	$168,202	$42,051
2043	Funds for Transportation for Seniors and People with Disabilities	$210,253	$168,202	$42,051
2044	Funds for Transportation for Seniors and People with Disabilities	$210,253	$168,202	$42,051
2045	Funds for Transportation for Seniors and People with Disabilities	$210,253	$168,202	$42,051
Total		$5,256,325		

Table 10-17: Category 5339 Transit Projects

Year	Project	Total Cost	FTA Programmed Amount	TxDOT & Local Amount
2020	Bus and van replacements, Facility improvements	$514,564	$437,379	$77,185
2021	Bus and van replacements, Facility improvements	$514,564	$437,379	$77,185
2022	Bus and van replacements, Facility improvements	$514,564	$437,379	$77,185
2023	Bus and van replacements, Facility improvements	$514,564	$437,379	$77,185
2024	Bus and van replacements, Facility improvements	$514,564	$437,379	$77,185
2025	Bus and van replacements, Facility improvements	$514,564	$437,379	$77,185
2026	Bus and van replacements, Facility improvements	$514,564	$437,379	$77,185
2027	Bus and van replacements, Facility improvements	$514,564	$437,379	$77,185
2028	Bus and van replacements, Facility improvements	$514,564	$437,379	$77,185
2029	Bus and van replacements, Facility improvements	$514,564	$437,379	$77,185
2030	Bus and van replacements, Facility improvements	$514,564	$437,379	$77,185
2031	Bus and van replacements, Facility improvements	$514,564	$437,379	$77,185
2032	Bus and van replacements, Facility improvements	$514,564	$437,379	$77,185
2033	Bus and van replacements, Facility improvements	$514,564	$437,379	$77,185
2034	Bus and van replacements, Facility improvements	$514,564	$437,379	$77,185
2035	Bus and van replacements, Facility improvements	$514,564	$437,379	$77,185
2036	Bus and van replacements, Facility improvements	$514,564	$437,379	$77,185
2037	Bus and van replacements, Facility improvements	$514,564	$437,379	$77,185
2038	Bus and van replacements, Facility improvements	$514,564	$437,379	$77,185
2039	Bus and van replacements, Facility improvements	$514,564	$437,379	$77,185
2040	Bus and van replacements, Facility improvements	$514,564	$437,379	$77,185
2041	Bus and van replacements, Facility improvements	$514,564	$437,379	$77,185
2042	Bus and van replacements, Facility improvements	$514,564	$437,379	$77,185
2043	Bus and van replacements, Facility improvements	$514,564	$437,379	$77,185
2044	Bus and van replacements, Facility improvements	$514,564	$437,379	$77,185
2045	Bus and van replacements, Facility improvements	$514,564	$437,379	$77,185
Total		$12,864,100		

Other Funding Sources

In 2003, the Texas Legislature passed HB 3588. The bill provided local officials the necessary tools to develop and improve Texas' transportation infrastructure including Regional Mobility Authorities (RMAs), the Texas Mobility Fund, bonding authority, TxDOT's participation in rail operations, statewide coordination of public transportation, innovative toll financing, and transportation fund allocation. The legislation gave local authorities more power and provided them with innovative techniques to finance transportation improvements allowing projects to be planned and built at a much faster rate.

Texas Mobility Fund

The Texas State Legislature created the Texas Mobility Fund in order to accelerate completion of TxDOT projects and improvements. The Fund allows the state to issue bonds, which is backed by a dedicated revenue source. HB 3588 authorizes certain transportation related fees such as motor vehicle inspection fees and driver's license fees to be moved from the state's General Revenue Fund to the Texas Mobility Fund.

Bonds

"Certificates of Obligation," commonly known as bonds, allow the state to borrow money to pay for roadway projects and other capital improvements over time. Issuing bonds to fund city improvements hugely depends on favorable bond rating and low interest rates. Bonds could be an attractive option for the Laredo MPO to fund transportation improvements.

Toll Roads

A toll road is the fastest method to generate revenue, which means projects can start sooner and finish quicker, reducing construction delays. Toll equity allows state funds to be combined with other funds to build toll roads. Toll Conversion allows the commission to transfer segments of any non-tolled state highway to a county or regional toll authority for operation and maintenance providing local authorities another option that can accelerate maintenance and expansion improvements.

Regional Mobility Authority

Regional Mobility Authorities (RMA) can construct, maintain, and operate transportation projects. RMAs can generate revenue through issuing bonds and collecting tolls. Additionally, RMAs can purchase right-of-way and lease portions for use by businesses including hotels, restaurants, and gas stations.

HB 3588 allows TxDOT to establish an agreement with Regional Mobility Authorities (RMAs) to pay a per-vehicle fee as reimbursement for construction and maintenance of state highways or as compensation for the cost of maintaining facilities transferred to an RMA. Based on pre-determined levels of usage, TxDOT could use this approach to effectively pay "tolls" on behalf of motorists using a new facility with revenues being derived from traditional funding sources such

as gas tax revenues. The “shadow toll” or “pass through financing” payments received by the RMA from TxDOT can then be used to repay revenue bonds issued by the RMA to advance the project.

Comprehensive Development Agreements

A Comprehensive Development Agreement (CDA) is a tool TxDOT uses to combines all phases of a roadway project into one contract. This includes the design, construction, right of way acquisition, and maintenance phases of a typical project. By combining them all into one contract, it also helps reduce the cost of completing a project and accelerates its completion. This could be an innovative financing tool for the Laredo MPO.

State Infrastructure Bank

TxDOT has a state infrastructure bank (SIB) that offers various loans and credit enhancement products for highway projects. SIB loans are available that can help pay for various phases of a project.

Rural Rail Transportation District

Rural Rail Transportation Districts (RRTDs) are special government entities or subdivisions of the State of Texas that have the power to purchase, operate, and/or build new railroad and intermodal facilities. RRTDs are formed by action of one or more county’s commissioners courts under rules outlined in Vernon’s Texas Civil Statutes Title 112, Chapter 13, Article 6650c. RRTDs have the power of eminent domain and can be used to construct new rail lines or acquire and rehabilitate existing rail lines and can be used to develop rail served industrial parks, intermodal facilities and transload facilities. Funding for RRTD projects can be derived from a variety of sources including revenue bonds, grants, private rail funding, property sales and leases, rents for use of right-of-way, and public and private partnerships. RRTDS cannot levy or collect ad valorem taxes. A Rural Rail Transportation District has been established by Webb County.

Traffic Impact Fees on New Development

Traffic impact fee are charges evaluated and implemented by local governments on new development projects. They ensure that new developments pay its fair share of the cost to improve the transportation system so as not to worsen existing transportation problems.

Tax Increment Reinvestment Zones (TIRZ)

A tax increment reinvestment zones (TIRZ) are special zones initiated by local governments, such as municipalities or counties, or by petition of owners whose total holdings in the zone consist of a majority of the appraised property value, in Texas to attract new investment in areas. TIRZs help finance the cost of redevelopment and encourage development in an area that would lack the ability to attract sufficient market development without TIRZs. Taxes attributable to new improvements are put aside in a fund to finance public improvement within the boundaries of the zone. The criteria for creating a TIRZ include that the area would

substantially impair the growth of the municipality or county creating the zone, decrease the provision of housing accommodations, or constitute an economic or social liability.

Local Motor Fuel Taxes

In addition to the state motor fuel tax, local governments also have the option to authorize local option motor fuel taxes. The use of local motor fuel taxes is common in Alabama, Florida, Hawaii, Illinois, and Nevada.

Local Option Sales Taxes for Transportation

Exercising local option sales tax is an increasingly popular revenue source for transportation funding. In general, the State of Texas Tax Code authorizes cities and counties to adopt local sales and use taxes for any purpose other than repaying bonds. Provided the sum of all local option taxes in a given area does not exceed 2%, and the local option tax is approved by referendum, each city and/or county in the southeast Texas region could adopt up to a 0.5% sales tax that could be earmarked to address transportation system needs.

It has a favorable public perception because everyone who spends pays, regardless of his or her income or wealth, Also, it is an attractive way to get revenue from non-resident users who use local transportation facilities.

Chapter 11:
Congestion Management Process

Introduction

For many, experiencing traffic congestion is a daily occurrence, especially in larger urban areas. As the population grows and residential and commercial developments increase, traffic congestion can become more severe. According to federal mandates (23 CFR 450.322), MPOs (metropolitan planning organizations) that are designated as Transportation Management Areas (TMAs) must develop and implement a Congestion Management Process (CMP), and the CMP must be reflected in the MTP. A TMA is a metropolitan area with a population exceeding 200,000. The Laredo MPO was designated as a TMA in 2013 due to the population exceeding this threshold. In 2014, in accordance with these requirements, the Laredo MPO adopted its CMP. This chapter describes the Laredo MPO's adopted CMP, how the CMP has been implemented to date, how the CMP was incorporated into the project identification and selection process for this 2020-2045 MTP, and the continual monitoring process of CMP performance.

Overview of the Congestion Management Process

Introduction

The Laredo MPO's Congestion Management Process (CMP) was adopted in January 2014[1]. The Laredo MPO's CMP is a systematic and regionally accepted approach that provides for the safe and effective management and operation of new and existing transportation facilities through the application of congestion management strategies. Congestion management is the application of congestion reduction strategies to improve transportation system performance and reliability by reducing the negative impact of congestion on the movement of people and goods.

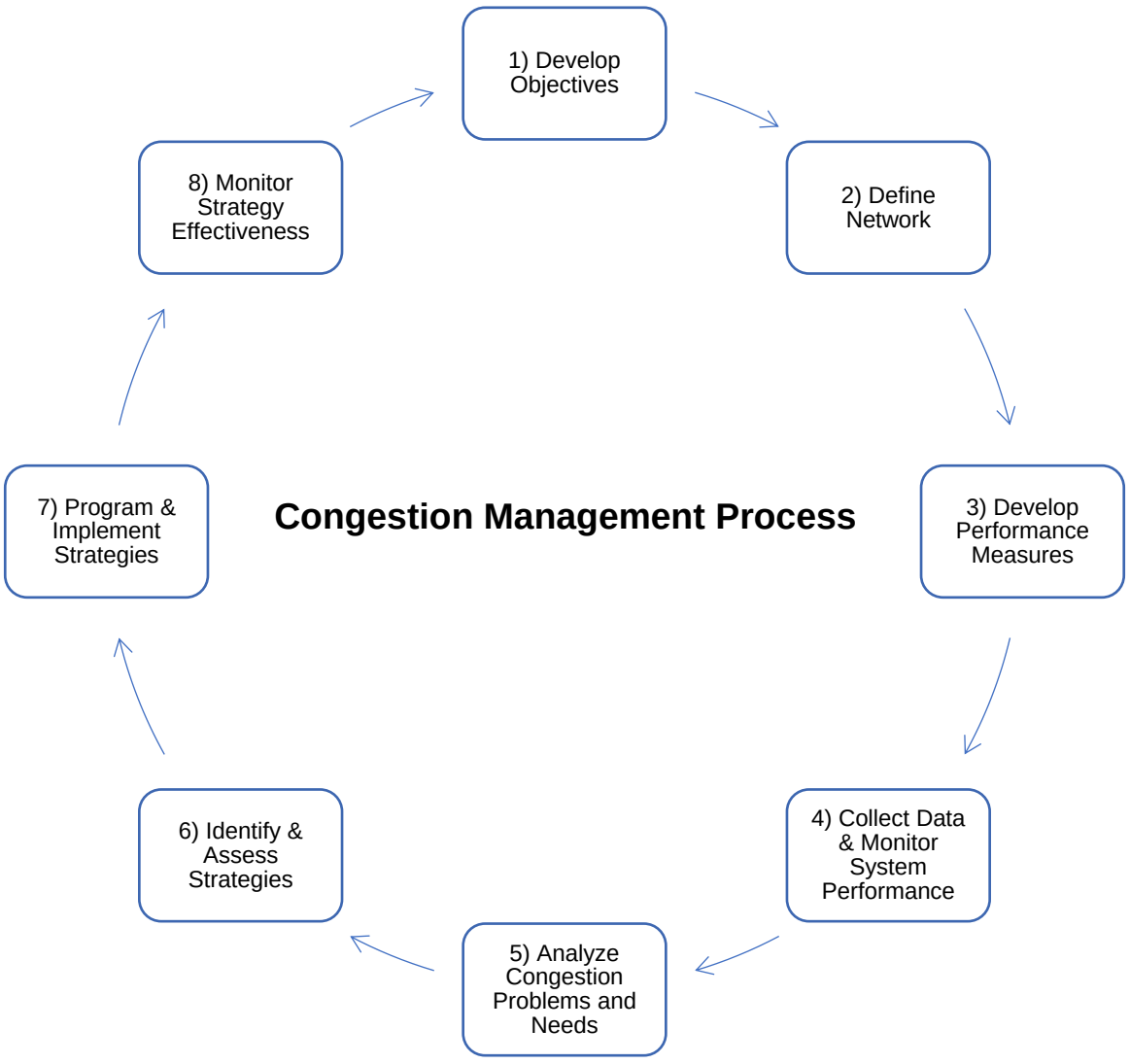
The CMP is an ongoing process that progresses and adjusts over time as current information changes, new issues arise, or new data becomes available. The eight-step CMP includes the following activities:

1. Development of Objectives
2. Define a Network
3. Develop Performance Measures
4. Collect Data/Monitor System Performance
5. Analyze Congestion Problems and Needs
6. Identify and Assess Strategies
7. Program and Implement Strategies
8. Monitor Strategy Effectiveness

[1] The Laredo MPO's Congestion Management Process is available online at http://www.laredompo.org/files/CMP/laredoCongestionManagementprocess.pdf

The structure of the Laredo MPO's CMP is illustrated in **Figure 11-1**. The figure shows the different activities being implemented in the CMP, and the directional arrows show the cyclical and on-going nature of the congestion management process. These key activities of the CMP are described in greater detail in the following sections.

Figure 11-1: Activities in Congestion Management Process



Step 1: The Vision, Goals, and Objectives of the CMP

The first step of the congestion management process is to identify the vision statement, goals, and objectives for local congestion management. Locally defined objectives are based on the local needs and serve as the primary connection between the CMP and this 2020-2045 MTP. The vision statement, goals, and objectives developed specifically for the Laredo MPO's CMP are based on the guidelines provided in the Federal Highway Administration (FHWA) *Congestion Management Process: A Guidebook (2011)*. During the development process for

the vision statement, goals, and objectives for the 2020-2045 MTP, the vision statement, goals and objectives of the CMP were reviewed to ensure consistency. The vision statement, goals, and objectives of the Laredo MPO's CMP are in alignment with the vision statement, goals, and objectives of this 2020-2045 MTP.

The vision statement for the Laredo MPO's CMP is:

> *To develop a transportation system that offers safe, efficient, and affordable travel choices for people and goods, while supporting economic development and long-term quality of life.*

The goals and objectives of the Laredo MPO's CMP are:

- Goal 1: Provide a safe transportation system.
  - Objective: Promote policies and projects that reduce the number and severity of vehicle collisions.
- Goal 2: Provide an efficient transportation system.
  - Objective: Encourage a proactive approach to addressing future transportation needs.
  - Objective: Promote policies and projects that reduce travel delay.
- Goal 3: Provide affordable travel choices for people and goods.
  - Objective: Promote the increase of viable, affordable travel choices for people and goods.
  - Objective: Promote policies and programs to increase transit ridership on existing services.
  - Objective: Promote awareness of multimodal facilities.
- Goal 4: A transportation system that promotes economic vigor and long-term quality of life.
  - Objective: Promote the efficient and effective connection of people, jobs, goods, and services.
  - Objective: Promote the minimization of environmental impact and improved environmental quality.
  - Objective: Promote the unique identities and qualities of neighborhoods, communities, and region as a whole.

The goals and objectives for the 2020-2045 MTP were developed through input from both the MPO Technical Committee and Policy Committee. This goals and objectives development process provided alignment of the CMP with the overall MTP goals and objectives. **Table 11-1** shows how the goals of both the adopted CMP and the 2020-2045 MTP are aligned.

Table 11-1: Alignment of Goals between the CMP and the 2020-2045 MTP

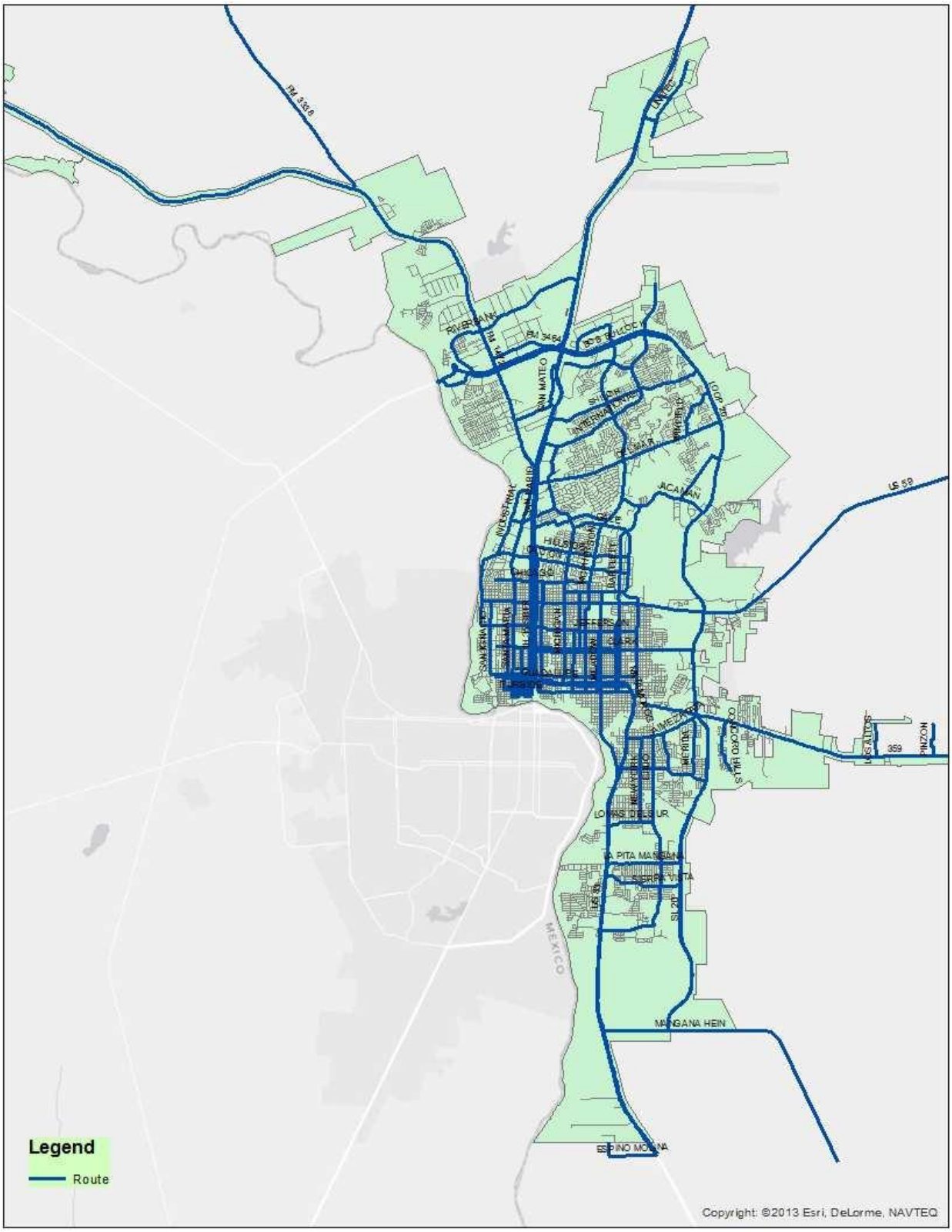
		CMP Goals			
		Goal 1: Safety	**Goal 2:** Efficiency	**Goal 3:** Affordable Travel Choices	**Goal 4:** Economic Vigor and Quality of Life
2020-2045 MTP Goals	**Goal 1:** Safety	●			
	Goal 2: Maintenance		●		
	Goal 3: Congestion Management		●		
	Goal 4: Economic Vitality			●	●
	Goal 5: Strengthen Communities			●	●

Step 2: Define the Network

After defining the goals and objectives of the CMP, to properly allocate resources and focus transportation planning efforts for congestion management, a CMP network must be identified. Efforts to improve traffic conditions in the region begin with the establishment of the CMP network, and the level of congestion on the network serves as a gauge for overall congestion in the area. The Laredo MPO's CMP network was adopted in 2015, as shown in **Figure 11-2**.

The MPO Technical Committee, which is comprised of 24 area agency representatives, held meetings in March, May, and October 2013 to identify Laredo's CMP network. The entire CMP network was reviewed, and the discussions were made to gather the information from the participants regarding various aspects, including operational issues, safety concerns, route usage, and history. Currently, the network includes 272 centerline miles of roadways in the Laredo MPO region. As part of the 2020-2045 MTP process, technical analysis for existing and future travel demands were conducted and confirmed the CMP network. As the CMP is a continuous process, future technical reviews using accurate and up-to-date data and relaying changes to the MPO Technical Committee and as part of public involvement provides continuous ways for the CMP network to be refined over time.

Figure 11-2: CMP Network, Adopted 2015



Step 3: Develop Performance Measures

Performance measures are essential tools to identify and assess congestion through the CMP, and they are objective ways to track progress of a project, program, or initiative. The adopted Laredo MPO's CMP recommends various measures for data collection methods to assess system performance and congestion levels. They include travel time measures, volume-to-capacity ratios, level-of-service, crash rate, freight performance, and congestion index. These recommendations from the CMP are consistent with the recently adopted performance measures for the Laredo MPO area as mandated by the FAST Act.

The Laredo MPO Policy Committee has adopted performance measures for the following performance areas: safety, pavement and bridge condition, roadway system performance, and transit asset management. Performance management through these adopted performance measures in the region actively incorporates the region's CMP and monitoring. Safety, pavement and bridge conditions, travel time reliability and transit management performance measures all relate to effective and ongoing congestion management in the region. Regular performance reporting provides valuable input into the region's transportation planning process and will continue to help identify strategic improvement projects to maintain the performance of roadways at a system level. As future congestion and delay studies and other CMP related planning studies are conducted, these performance measures will serve as the foundation for measuring effectiveness of the CMP in the region and for identifying additional project needs to manage congestion and improve system operations. Reference **Chapter 12** for additional details on the Laredo MPO's adopted performance measures.

Step 4: Data Collection

Continual and regular data collection and system performance monitoring are an essential element in assessing congestion levels and severity, and to evaluate the effectiveness of implemented mitigation strategies in the future. The Laredo MPO and the TxDOT Laredo District coordinate and lead the tasks of data collection for the performance measures in cooperation with their local planning partners. The types of data related to the performance measures that are to be regularly collected include traffic counts, travel time, crash data, STRATIS data, and ITS data.

In accordance with federal requirements, TxDOT and each Texas MPO must publish a System Performance Report for required systemwide performance measures in their respective statewide and metropolitan transportation plans and programs. The System Performance Report presents the condition and performance of the transportation system with respect to required performance measures, and documents performance targets and progress achieved in meeting the targets in comparison with previous reports. This process is explained in **Chapter 12**.

Step 5: Congestion Problems and Needs

Using available data and performance measures, this step serves to identify the locations and severity of congestion problems and needs. Persistent congestion could happen on different kinds of facilities, such as expressways and interchanges, arterial corridors, intersections, and transit facilities or routes. Different mitigation strategies should be considered for congestion on different facilities. As part of development of the 2020-2045 MTP, congestion problems and needs were identified through technical analysis and coordinated with the MPO Technical and Policy Committees to obtain additional input on congestion problems and needs.

Step 6: Identification of Strategies

Many congestion management strategies are available, and they must be carefully selected to apply to different roadways and intersections to effectively improve the congestion related problems. A range of strategies that the CMP framework identifies can be summarized into the following categories:

- Transportation Demand Management (TDM)
- Traffic Operational Improvements
- Public Transportation Strategies
- Road Capacity Strategies

The variety of congestion management strategy available are described in detail within the Laredo MPO's adopted CMP. To continue to identify congestion management strategies, regional meetings of the MPO Technical Committee provide continuous feedback on projects needed and solutions to address those identified needs. The 2020-2045 MTP identifies strategies that are consistent with these congestion management strategies within the modal chapters of this document and were shared with Technical Advisory Committee members for further feedback on strategies identified in each modal chapter.

Step 7: Implementation of Strategies

Congestion management strategies are implemented through the inclusion of strategies in the fiscally constrained MTP and TIP documents. Projects identified and included in the MTP require the consideration of a variety of criteria, such as traffic operations, safety, modal impacts, community development, project cost, project readiness, environmental impacts, and system management. Funding for the congestion management process as well as the implementation of the selected strategies is important to the success of the process. The Laredo MPO gives careful consideration to identification of federal or nonfederal funding for potential CMP-related programs and projects as part of ongoing planning and programming and as part of MTP project selection and fiscally constrained project planning activities.

Step 8: Evaluation of Strategies

According to the Federal Highway Administration (FHWA) *Congestion Management Process: A Guidebook (2011)*, it is essential to evaluate the strategy effectiveness of the CMP. The purpose of this step in the CMP is to confirm that the implemented strategies are effective in addressing congestion issues as intended, and to adjust the strategies based on those results. Two general approaches are used for this evaluation:

- System-level performance evaluation – Regional analysis of historical trends to identify improvement or degradation in system performance.
- Strategy effectiveness evaluation – Project-level or program-level analysis of conditions before and after the implementation of a congestion mitigation effort.

Findings from this evaluation help to indicate whether specific strategies or efforts lead to improvements in congested conditions. In tandem with the periodic and on-going data collection efforts in the CMP, the evaluation is an important step in the feedback loop that provides local decision makers with valuable information for adjusting current strategies or envisioning new strategies. Through ongoing MPO Technical and Policy Committee meetings, these strategies are continually monitored. System Performance Reporting, further discussed in **Chapter 12**, will provide a continual method to evaluate methods and progress and as input into further discussions with the MPO Technical and Policy Committees and the general public on proposed strategies identification and evaluations.

Implementation of the CMP to Date

To progress the Laredo MPO's CMP, a more detailed study on congestion was completed through the Laredo MPO's *2015 Congestion and Delay Study*[2]. Following the eight steps of the Laredo MPO's adopted CMP (as previously shown in **Figure 11-1**), the study identified trends in congestion and travel time to identify problem locations for possible improvements along the MPO's adopted CMP network (as shown previously in **Figure 11-2**). As an inaugural study to advance the region's CMP, the study served to establish the baseline of existing congestion for comparison for future study.

The study identified problem areas using travel time studies, and the results of this study were used as factors to prioritize needed regional improvements. Congested locations along the CMP network were identified using a Global Positioning System (GPS) in travel time runs. By collecting position and speed data every one second, areas of delay were highlighted. Based on the data collected, recommendations were developed for the top 20 most congested segments. The recommendations for these top 20 most congested segments are heavily weighted toward operational solutions or signal timing optimization. The recommendations are shown in **Figure 11-3**.

[2] The Laredo MPO's *2015 Congestion and Delay Study* is available online at http://www.laredompo.org/files/STUDIESPUBLICATIONS/CMPFinalReport.pdf

Figure 11-3: Recommendations from the 2015 Congestion and Delay Study

Hybrid Combined Rank	RouteID	Route Name	Intersection Segment	Peak Period	Average Speed (mph)	Volume (Direct ADT)	Recommendation
1	1164	DEL MAR - WB	SPRINGFIELD to SAN DARIO	PM	3.98	11,624	3 Intersections run by one controller, very long cycle which limits operations, consider alternative timing configurations
2	1090	FM 1472 - SE	MULLER MEMORIAL to INTERAMERICA	PM	7.79	14,579	Delays limited to intersections that appear to be uncoordinated along corridor, consider coordinating the corridor
3	1164	DEL MAR - WB	SPRINGFIELD to SAN DARIO	AM	5.88	11,624	3 Intersections run by one controller, very long cycle which limits operations, consider alternative timing configurations
4	1085	BOB BULLOCK / CUATRO VIENTOS - NB	MCPHERSON to IH 35 NBFR	PM	11.76	7,137	Delays due to excessive volume on frontage road ahead of mainlanes being constructed. Large portion of delay will be eliminated with construction of mainlanes beginning in 2016.
5	1111	US 59 - EB	BUENA VISTA to BARTLETT	PM	6.45	13,381	Evaluate the coordination on US 59 given the number of years since last studied
6	1180	MCPHERSON / MCCLELLAND - SB	COUNTRY CLUB to DEL MAR	PM	9.18	16,477	Consider access mgmt strategies along corridor to limit friction and improve operations
7	1170	MEADOW - SB	CORPUS CHRISTI to GUADALUPE	AM	3.56	6,354	Minor approach to Guadalupe and Matamoros, delays by design, signals not coordinated n/s b/n corridors. Consider 1-way pair b/n Seymour and Meadow
8	1115	US HIGHWAY 83 NB - NB	CANONES to SIERRA VISTA	PM	11.16	16,162	TxDOT Communication project in the works, update coordination in this area of US 83 taking into account volume changes due to Loop 20
9	1090	FM 1472 - SE	FM 3464 to BOB BULLOCK WBFR	PM	10.88	20,539	Heavy Industrial area, recent access mgmt changes, widening into shoulder, and updated changed timings to support improvements
10	1180	MCPHERSON / MCCLELLAND - SB	TIERA TRAIL to SHILOH	PM	13.18	19,043	Consider adding SB left turn lane given high volume movement
11	1115	US HIGHWAY 83 NB - NB	PALO BLANCO to ZACATECAS	AM	10.34	23,277	School zone. Delays expected with lower speeds duirng school zone periods. Considering 1 way pair b/n Zacatecas and Palo Blanco
12	1164	DEL MAR - WB	MCPHERSON to LINDENWOOD	AM	8.16	6,018	School zone. Delays expected with lower speeds duirng school zone periods.
13	1179	MCPHERSON / MCCLELLAND - NB	CALLE DE NORTE to JACAMAN	PM	12.97	20,207	Consider access mgmt strategies along corridor to limit friction and improve operations
14	1084	IH 35 - SB	Scott Off-Ramp to VICTORIA	PM	13.76	14,393	Frontage road signals are maintained by TxDOT, need to evaluate for N/S progression given the observed delays
15	1112	US 59 - WB	MEADOW to MCPHERSON	PM	10.24	17,382	Evaluate the signal coordination on US 59 given the number of years since last studied
16	1113	SANTA MARIA / OLD SANTA MARIA - NB	INDUSTRIAL to DEL MAR	PM	7.58	8,121	3 Intersections run by one controller, very long cycle which limits operations, consider alternative timing configurations
17	1170	MEADOW - SB	CORPUS CHRISTI to GUADALUPE	PM	4.62	6,354	Minor approach to Guadalupe and Matamoros, delays by design, sigs not coordinated n/s b/n corridors. Consider 1-way pair b/n Seymour and Meadow
18	1011	CLARK - EB	AGUILA AZTECA to BOB BULLOCK	AM	10.29	8,764	Planned interchange will address delays at the intersection
19	1090	FM 1472 - SE	INTERAMERICA to RIVER BANK	PM	15.83	15,420	Heavy Industrial area, recent access mgmt changes, widening into shoulder, and updated changed timings to support improvements
20	1155	BARTLETT - NB	LANE to CLARK	PM	7.22	7,651	Minor approaches to Clark, side street delay is expected given the 1 lane side street geometry. Evaluate signal timing

Linking the CMP and MTP Project Selection Process

Establishing linkage between the CMP and the long-range transportation process is important for developing cohesive solutions to regional transportation challenges. The adopted CMP and recommendations to date from Laredo MPO CMP efforts were reflected in the 2020-2045 MTP; specifically, the CMP was considered and incorporated throughout the project identification, evaluation, prioritization, and financially constrained project list.

CMP and MTP Project Identification

All roadways within the CMP network were analyzed for technical evaluation of existing and future congestion issues and combined with input from stakeholder and the general public, CMP roadways requiring capacity or other related congestion management improvements were identified. In addition, the most recently completed CMP analysis, the *2015 Congestion and Delay Study*, analyzed trends in regional congestion and provided a series of recommendations at problem locations in the region (as previously shown in **Figure 11-3**) that were considered and incorporated, as appropriate into initial project identification. Of the 20 recommendations, nine recommendations were combined into three projects. These projects were incorporated into the MTP project identification, scoring, and evaluation process. Six of the segments/recommendations from the *2015 Congestion and Delay Study* are recommended to advance as planning-level studies for the region's Unified Planning Work Program (UPWP). Three of the segments/recommendations have already been implemented by TxDOT, and these locations should undergo continued ongoing monitoring and performance evaluation to determine success of project as a congestion management strategy. One segment/recommendation requires the determination of a clear project purpose, limits, and project need through ongoing monitoring and performance evaluation. One segment/recommendation requires the determination of project need through TxDOT's regular maintenance and evaluation of traffic signal timing and optimization. **Table 11-2** indicates the recommendations from the *2015 Congestion and Delay Study*, and how they correspond to projects and recommendations considered in the 2020-2045 MTP.

Table 11-2: MTP Projects and Recommendations based on 2015 Congestion and Delay Study Recommendations

Rank	Route Name	Intersection Segment	2015 Congestion and Delay Study Recommendation	Corresponding MTP Project ID or Recommendation
1	Del Mar - WB	Springfield to San Dario	3 Intersections run by one controller, very long cycle which limits operations, consider alternative timing configurations	Identified and Combined into MTP Project ID: T-11
2	FM 1472 - SE	Muller Memorial to Interamerica	Delays limited to intersections that appear to be uncoordinated along corridor, consider coordinating the corridor	Identified and Combined into MTP Project ID: CMP-1
3	Del mar - WB	Springfield to San Dario	3 Intersections run by one controller, very long cycle which limits operations, consider alternative timing configurations	Identified and Combined into MTP Project ID: T-11
4	Bob Bullock / Cuatro Vientos - NB	McPherson to IH 35 NBFR	Delays due to excessive volume on frontage road ahead of mainlanes being constructed. Large portion of delay will be eliminated with construction of mainlanes beginning in 2016.	Project already implemented by TxDOT. Continue ongoing monitoring and performance evaluation to determine success of project as congestion management strategy.
5	US 59 - EB	Buena Vista to Bartlett	Evaluate the coordination on US 59 given the number of years since last studied	Identified and Combined into MTP Project ID: CMP-2
6	McPherson / McClelland - SB	Country Club to Del Mar	Consider access mgmt strategies along corridor to limit friction and improve operations	UPWP Recommendation: This MTP recommends additional planning level study
7	Meadow - SB	Corpus Christi to Guadalupe	Minor approach to Guadalupe and Matamoros, delays by design, signals not coordinated n/s b/n corridors. Consider 1-way pair b/n Seymour and Meadow	UPWP Recommendation: This MTP recommends additional planning level study
8	US Highway 83 NB - NB	Canones to Sierra Vista	TxDOT Communication project in the works, update coordination in this area of US 83 taking into account volume changes due to Loop 20	Project already implemented by TxDOT. Continue ongoing monitoring and performance evaluation to determine success of project as congestion management strategy.
9	FM 1472 - SE	FM 3464 to Bob Bullock WBFR	Heavy Industrial area, recent access mgmt changes, widening into shoulder, and updated changed timings to support improvements	Identified and Combined into MTP Project ID: CMP-1
10	McPherson / McClelland - SB	Tiera trail to Shiloh	Consider adding SB left turn lane given high volume movement	Determine clear project purpose and limits, and determine project need through ongoing monitoring and performance evaluation.
11	US Highway 83 NB - NB	Palo Blanco to Zacatecas	School zone. Delays expected with lower speeds during school zone periods. Considering 1-way pair b/n Zacatecas and Palo Blanco	UPWP Recommendation: This MTP recommends additional planning level study
12	Del Mar - WB	McPherson to Lindenwood	School zone. Delays expected with lower speeds during school zone periods.	Identified and Combined into MTP Project ID: T-11
13	McPherson / McClelland - NB	Calle de Norte to Jacaman	Consider access mgmt strategies along corridor to limit friction and improve operations	UPWP Recommendation: This MTP recommends additional planning level study
14	IH 35 - SB	Scott off-ramp to Victoria	Frontage road signals are maintained by TxDOT, need to evaluate for N/S progression given the observed delays	Determine project need through TxDOT's regular maintenance and evaluation of traffic signal timing and optimization.
15	US 59 - WB	Meadow to McPherson	Evaluate the signal coordination on US 59 given the number of years since last studied	Identified and Combined into MTP Project ID: CMP-2
16	Santa Maria / Old Santa Maria - NB	Industrial to Del Mar	3 Intersections run by one controller, very long cycle which limits operations, consider alternative timing configurations	Identified and Combined into MTP Project ID: T-11

Rank	Route Name	Intersection Segment	2015 Congestion and Delay Study Recommendation	Corresponding MTP Project ID or Recommendation
17	Meadow - SB	Corpus Christi to Guadalupe	Minor approach to Guadalupe and Matamoros, delays by design, sigs not coordinated n/s b/n corridors. Consider 1- way pair b/n Seymour and Meadow	UPWP Recommendation: MTP recommends additional planning level study
18	Clark - EB	Aguila Azteca to Bob Bullock	Planned interchange will address delays at the intersection	Project already implemented by TxDOT. Continue ongoing monitoring and performance evaluation to determine success of project as congestion management strategy.
19	FM 1472 - SE	Interamerica to River Bank	Heavy Industrial area, recent access mgmt changes, widening into shoulder, and updated changed timings to support improvements	Identified and Combined into MTP Project ID: CMP-1
20	Bartlett - NB	Lane to Clark	Minor approaches to Clark, side street delay is expected given the 1 lane side street geometry. Evaluate signal timing	UPWP Recommendation: This MTP recommends additional planning level study for full corridor extent of Bartlett

The details for the three projects identified from the *2015 Congestion and Delay Study* recommendations and further evaluated and scored as part of the 2020-2045 MTP are shown in **Table 11-3**.

Table 11-3: Projects Based on Recommendations from the 2015 Congestion and Delay Study

ID	Facility	Limits	Project Description	Cost Est.
T-11	Del Mar Blvd	From IH 35 To Loop 20	Widen to 6 lanes, Upgrade traffic signal hardware and traffic signal timing for three intersections between Springfield and San Dario (recommendation from Congestion and Delay Study). Per 2016 Transit Development Plan, add 5 bus bays as part of roadway improvement at (1) Del Mar and Bartlett, (2) Del Mar and JB Alexander Highschool, (3) Del Mar and King Arthurs Court, (4) Del Mar and Laguna Del Mar, and (5) Del Mar and W Village Blvd as recommended from El Metro 2016 TDP	$19,644,172.80
CMP-1	FM 1472	From Loop 20 To Pan American Blvd	Replace all traffic signal hardware and provide optimized traffic signal timing	$526,500
CMP-2	BU 59 (Saunders St)	From I-35 To Loop 20	Replace all traffic signal hardware and provide optimized traffic signal timing	$842,400

CMP and MTP Project Evaluation

As described in **Chapter 10**, the full list of identified projects was categorized into four major types of improvements based on the project description and how the project was related to goals and objectives of the MTP. The four improvement types are essentially types of strategies to achieve the goals of the 2020-2045 MTP and the goals of the CMP. The four types of improvements included:

- Reducing Conflicts
- Enhancing Capacity and Operations
- Providing New Roadways to Support Regional Mobility
- Integrating Multimodal Connectivity

The region's CMP is incorporated into three of the four types of improvements: reducing conflicts, enhancing capacity and operations, and integrating multimodal connectivity. In developing an integrated list of project improvements for evaluation, CMP related projects from the *2015 Congestion and Delay Study* were included into the full list of project needs for further evaluation and scoring. These projects were further cross referenced with other capacity related improvement projects proposed in other regional and local plans used for the full list of projects evaluated. Where appropriate based on travel demand model performance of roadways, congestion management related improvements were included with capacity

enhancing proposed improvements to provide comprehensive operational and capacity improvements to corridors in the region (i.e., project T-11 as shown in **Table 11-3**).

The MPO then applied a set of adopted objective and subjective evaluation criteria score the identified projects. The project evaluation criteria were developed and adopted as part of the 2015-2040 MTP development and were reviewed for alignment with established goals, objectives, and performance measures for the 2020-2045 MTP and for adherence to FAST Act regulations.

Objective project evaluation criteria were scored by the Laredo MPO based on technical performance data determined for each criterion. One criterion of the objective project evaluation is the contribution of the project to the CMP as shown below:

> *Congestion Management Process*
>
> *New roadways are automatically given 10 points (half). This criterion is focused on projects that are part of the congestion management program, but if the proposed project further alleviates an existing congestion management facility, the project receives an automatic 10-point rating.*
>
> *Is this project a product of the congestion management process?*
>
> - *Yes: 20 Points*
> - *Indirectly: 10 Points (Does the project support/relieve CMP facilities?)*
> - *No: 0 Points*

When objective scores were presented to the MPO technical review committee, CMP related projects from the *2015 Congestion and Delay Study* were identified with ID prefixes of "CMP-". The importance of the CMP and projects to the Laredo MPO was described and summarized to the technical review committee the July 2019 presentation preceding the objective evaluation score review and subjective evaluation meeting. Throughout the planning process, the importance of CMP and related projects has been emphasized to the Technical and Policy Committees and the general public. These CMP related projects are generally lower cost strategies to improve congestion without adding capacity.

CMP and MTP Priority Projects List

Following the objective and subjective project evaluations, the scores for the projects were assessed and ranked. The project type groups (Reducing Conflicts, Enhancing Capacity and Operation, Providing New Roadways to Support Regional Mobility, Integrating Multimodal Connectivity) were used to determine a priority projects list that included a variety of projects that would address competing goals and objectives of the MTP. The top scoring projects within each project evaluation group were identified as recommended projects. The project priorities list is not financially constrained. Rather, the priority projects list reflects a mix of the strategies to address the regional goals, objectives, adopted performance targets, and congestion management strategies.

Of the priority projects list, two priority projects are from the *2015 Congestion and Delay Study* within the Enhancing Capacity and Operation project type group. Five additional priority projects are located along the adopted CMP network with CMP related improvements. These four priority projects were within the project type groups of Reducing Conflicts and Integrating Multimodal Connectivity. The CMP related projects from the priority projects list are shown in **Table 11-4**.

Table 11-4: CMP Related Priority Projects

ID	Facility	Limits	Description	Cost Estimate
Reducing Conflicts				
X-02	Loop 20 (Cuatro Vientos)	At Lomas Del Sur Blvd	Construct overpass and ramps	$60,606,000
X-12	Loop 20 (Cuatro Vientos)	At Cielito Lindo/Sierra Vista	Construct overpass and ramps	$73,593,000
X-16	Loop 20 (Cuatro Vientos)	At future minor arterial (1 mile north of Mangana Hein Rd)	Construct overpass and ramps	$73,593,000
Enhancing Capacity and Operations				
CMP-1	FM 1472	From Loop 20 To Pan American Blvd	Replace all traffic signal hardware and provide optimized traffic signal timing	$526,500
CMP-2	BU 59 (Saunders St)	From I-35 To Loop 20	Replace all traffic signal hardware and provide optimized traffic signal timing	$842,400
Integrating Multimodal Connectivity				
T-41	Cielito Lindo	From US 83 To Ejido Ave	Upgrade consistently to 6 lanes principal arterial with center turn lanes; Include bicycle facilities as recommended by the 2017 Viva Laredo Bike Master Plan (recommends shared use path)	$6,819,109
E-2	University Blvd	At Loop 20	Multimodal hub - park-n-ride transit facility for 75 parking spaces plus bike hub facility	$2,762,323

CMP and MTP Financially Constrained Project List

A funding gap exists to finance all of the transportation needs in the region. The funds available to the Laredo MPO are less than required to program all priority projects. The Laredo MPO has discretion over Category 2 and Category 7 TxDOT funds. The Laredo MPO coordinated with the TxDOT-Laredo District and El Metro to determine the expected levels of funding for the 2020-2045 fiscal years. The revenue projections are shown in **Chapter 10**.

With the available TxDOT Category 2 and Category 7 funds available, the Laredo MPO can program eight additional projects through 2045. These projects were the top scoring projects from the project evaluation process and regional priorities identified by the MPO Policy Committee and MPO Technical Committee. Based on the funding available, four CMP related projects are included in the financially constrained project list. The projects were from the Reducing Conflicts project type group, a CMP related project type group. These projects are along the adopted CMP network and have project purposes to improve congestion and reduce conflicts. CMP related projects included in the financially constrained project list are shown in **Table 11-5**.

Table 11-5: CMP Related Projects Included in Financially Constrained Project List

CSJ/ID	Facility	Limits	Description	Funding Category	Letting Year	Year of Expenditure Cost
X-02	Loop 20 (Cuatro Vientos)	At Southgate Blvd	Construct overpass and ramps	2	2023	$25,736,888
X-16	Loop 20 (Cuatro Vientos)	At future minor arterial (1 mile north of Mangana Hein Rd)	Construct overpass and ramps	2	2024	$26,766,364
X-06	IH 35	At Loop 20	Construct ramp from Loop 20 Westbound to IH 35 Northbound	2	2036	$69,189,426
X-09	IH 35	At Loop 20	Construct ramp from Loop 20 Eastbound to IH 35 Southbound	2	2038	$74,835,283

Top scoring CMP related projects that remain as unfunded needs have been identified as priorities in the region as more funding is available. These unfunded needs are summarized in **Table 11-6**. Of the twelve TxDOT funding categories, the Laredo MPO only has discretion over Categories 2, 7, and 9. Through TxDOT's regular process of monitoring system performance and congestion management on state-maintained roadways, other opportunities for funding may become available to fund these needs and priorities through the other TxDOT funding categories. Local roadway issues continue to also be coordinated through regular MPO Technical and Policy Committee meetings where issues and priorities are discussed and considered.

Table 11-6: Unfunded CMP Projects

ID	Facility	Limits	Description	Cost Estimate
Reducing Conflicts				
X-12	Loop 20 (Cuatro Vientos)	At Cielito Lindo/Sierra Vista	Construct overpass and ramps	$73,593,000
Enhancing Capacity and Operations				
CMP-1	FM 1472	From Loop 20 To Pan American Blvd	Replace all traffic signal hardware and provide optimized traffic signal timing	$526,500
CMP-2	BU 59 (Saunders St)	From I-35 To Loop 20	Replace all traffic signal hardware and provide optimized traffic signal timing	$842,400
Integrating Multimodal Connectivity				
T-41	Cielito Lindo	From US 83 To Ejido Ave	Upgrade consistently to 6 lanes principal arterial with center turn lanes; Include bicycle facilities as recommended by the 2017 Viva Laredo Bike Master Plan (recommends shared use path)	$6,819,109
E-2	University Blvd	At Loop 20	Multimodal hub - park-n-ride transit facility for 75 parking spaces plus bike hub facility	$2,762,323

Continual Monitoring of CMP Performance

As part of the CMP, federal regulations require the periodic assessment of the effectiveness of congestion management strategies over time. Therefore, as part of this 2020-2045 MTP, it is recommended that the MPO's CMP continue to include the following steps to continue monitoring the process:

- Maintain and update available congestion data for accuracy
- Perform updates of the CMP
- Seek recommendations from the technical committee regarding congestion management, including developing a subcommittee if deemed necessary.

The Laredo MPO continues to maintain consistent data on the CMP network. Based on the *2015 Congestion and Delay Study*, several recommendations on additional planning-level analysis were developed and will be incorporated into ongoing UPWP programmed planning activities in the region. Based on the MPO Technical Committee review of the CMP findings, a comment from a representative of Webb County recommends that the IH-35 and Uniroyal Drive/Beltway Parkway intersection should be an additional congested location for review. This

location is also recommended to be added as a location for additional study within the UPWP programmed planning activities within the region.

The Laredo MPO also continues to obtain updates to CMP data in coordination with TxDOT for state and federally designated roadways. On a five-year basis, and consistent with TIP programming, updates to the initial *2015 Congestion and Delay Study* are recommended to be performed to maintain accurate and up to date data as well as to note progress made in addressing the CMP network. Additionally, as future regional planning activities are progressed, the Laredo MPO will annually review the CMP with the technical advisory committee to obtain input on any changes needed to update the CMP based on continued updated data on the CMP network performance.

Performance measurement and reporting, further discussed in **Chapter 12**, further strengthen the link between periodic assessment of congestion management strategies and the overall regional MTP process. Adopted performance measures in the region, including safety, pavement and bridge conditions, travel time reliability and transit management, that are directly tied to the effectiveness of congestion management are now part of regular performance management reporting in the region and this 2020-2045 MTP. As part of future MTP updates, this performance measure analysis and reporting will be an essential first step in the analysis process for regional planning and help to continually monitor and identify needed CMP related projects, assess the effectiveness of strategies, and to identify ways to improve the CMP network in the region. At its core, continued evaluation and monitoring of the CMP incorporates a feedback loop which provides local decision makers with a valuable mechanism for measuring the success of previously implemented congestion management strategies.

Chapter 12:
Performance Management

Introduction

The Laredo MPO recognizes the importance of transportation performance tracking, goal setting, and measurement to provide greater accountability and transparency and to achieve a more efficient and effective investment of transportation resources. To date, the MPO has met all federal deadlines requiring adoption of performance measures. The Laredo MPO has adopted performance measures associated with Safety (PM1), Bridge and Pavement Condition (PM2), Roadway System Performance (PM3), and Transit Asset Management (TAM).

Background

Transportation performance management is a strategic approach that uses system data to make investment and policy decisions to achieve national performance goals. Monitoring progress toward achieving these national performance goals is accomplished by establishing performance targets for key performance measures. Using a performance-based approach, decision-makers can apply key information and data to understand the consequences of investment decisions across transportation modes.

The development and implementation of performance measures for MPOs serves as a means to assess how the transportation system is functioning and operating. Performance measures can inform the decision-making process and improve accountability for the efficient and effective implementation of programs and projects. Performance measures serve the following functions for the Laredo MPO:

- During the **Plan Development** process, performance measures provide a framework to benchmark performance and the effects of alternatives. This performance data is used to define transportation projects and can help inform decision-making between trade-offs and help communicate the anticipated impacts of different investment strategies.
- Performance measures support **Plan Implementation** by emphasizing the Laredo MPO guiding principles and integrating them into budgeting, program structure, project selection, and implementation policies.
- System performance relative to the vision and guiding principles of the Laredo MTP can be tracked and reported to support **Accountability** for plan implementation and results.

Federal Legislation

In 2012, MAP-21 directed the United States Department of Transportation (USDOT) to establish a set of performance measures to increase the accountability and transparency of the federal highway and transit programs and improve project decision-making through performance-based planning and programming by a rulemaking process. After national performance measures are

established through a rulemaking, the state departments of transportation (DOTs) and transit providers must:

- Establish performance targets that reflect the national measures.
- Report on progress towards achieving those targets.
- Develop performance-based plans for safety and asset management.
- Implement a performance-based approach to planning and programming.

The FAST Act of 2015 continues the performance management and performance-based planning and programming introduced by MAP-21 with minor changes. As part of performance management, recipients of federal aid highway funds will make transportation investments to achieve performance targets that make progress toward national goals (**Table 12-1**).

Table 12-1: National Performance Management Goals

Goal Area	National Goal
Safety	To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
Infrastructure Condition	To maintain the highway infrastructure asset system in a state of good repair.
Congestion Reduction	To achieve a significant reduction in congestion on the National Highway System (NHS).
System Reliability	To improve the efficiency of the surface transportation system.
Freight Movement and Economic Vitality	To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
Environmental Sustainability	To enhance the performance of the transportation system while protecting and enhancing the natural environment.
Reduced Project Delivery Delays	To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

In a series of rulemakings, FHWA and FTA have established national performance measures in areas such as Safety (PM1), Pavement and Bridge Condition (PM2), Roadway System Performance (PM3), and Transit Asset Management (TAM). *The Final Rule on Statewide and Nonmetropolitan Transportation Planning and Metropolitan Transportation Planning* (May 27, 2016) established the requirement that states, MPOs, and transit providers use performance measures to document expectations for future performance. Each state or transit provider will have one year after the final rulemaking for each set of performance measures to establish performance targets. MPOs are required to establish performance targets within 180 days after the state or transit provider has established performance targets.

The USDOT has published the following rules which establish national performance measures for which state DOTs, transit providers, and MPOs must establish performance targets:

- Safety Performance Management Final Rule (PM1).
- Pavement and Bridge Condition Performance Management Final Rule (PM2).
- Travel Time Reliability Final Rule (PM3).
- Transit Asset Management Final Rule (TAM).

In accordance with the rulemakings, the Texas Department of Transportation (TxDOT) and each Texas MPO must publish a System Performance Report for applicable performance measures in their respective statewide and metropolitan transportation plans and programs. The System Performance Report presents the condition and performance of the transportation system with respect to required performance measures, and documents performance targets and progress achieved in meeting the targets in comparison with previous reports.

This System Performance Report for the 2020-2045 Laredo MTP is included for the required Safety (PM1), Bridge and Pavement Condition (PM2), Roadway System Performance (PM3), and Transit Asset Management (TAM) performance measures and targets to meet the FHWA and FTA requirements. The remaining performance goals listed in **Table 12-1** do not have established federal-level performance targets. This Laredo MTP therefore addresses these goals by including related criteria within the project selection process.

Alignment with the Congestion Management Process

Performance management through these adopted performance measures in the region actively incorporates the region's CMP and monitoring. Safety, pavement and bridge conditions, travel time reliability and transit management performance measures all relate to effective and ongoing congestion management in the region. Regular performance reporting provides valuable input into the region's transportation planning process and will continue to help identify strategic improvement projects to maintain the performance of roadways at a system level. As future Congestion and Delay studies and other CMP-related planning studies are conducted, these performance measures will serve as the foundation for measuring effectiveness of the CMP in the region and identifying additional project needs to manage congestion and improve system operations.

Safety Performance Management

Safety performance management is intended to ensure that safety improvements guide funding priorities to advance the national goal for safe roadways. The FHWA established the safety performance measures (PM1) to carry out the Highway Safety Improvement Program (HSIP), effective April 14, 2016. The five safety performance measures to evaluate fatalities and serious injuries on all public roads are:

1. Number of fatalities.
2. Rate of fatalities per 100 million vehicle miles traveled.
3. Number of serious injuries.
4. Rate of serious injuries per 100 million vehicle miles traveled.
5. Number of combined bicycle and pedestrian fatalities and serious injuries.

Safety performance targets are provided annually by the States to FHWA for each safety performance measure. Current statewide safety targets address calendar year 2019 and are based on an anticipated five-year rolling average (2015-2019). Texas statewide safety performance targets for 2019 are included in **Table 12-2**. The Laredo MPO adopted the Texas statewide safety performance targets on January 22, 2019.

Table 12-2: Safety (PM1) Performance Conditions and Adopted Performance Targets

2019 Safety Targets	Number of Fatalities (FARS / CRIS / ARF DATA)	Rate of Fatalities (FARS / CRIS / ARF DATA	Number of Serious Injuries (FARS / CRIS DATA)	Serious Injury Rate (CRIS DATA)	Total Number of Bicycle & Pedestrian Fatalities and Serious Injuries (FARS / CRIS DATA)
2015	3,582	1.39	17,110	6.63	2,036
2016	3,776	1.39	17,602	6.49	2,301
2017	3,726	1.36	17,546	6.39	2,148
2018	3,891	1.46	18,130	6.64	2,309
2019	3,980	1.47	18,367	6.60	2,394
2019 Target as a 5-Year Average	3,791	1.414	17,751	6.550	2,237.6

The values in **Table 12-3** display safety performance within the Laredo MPO area. Crash data was collected from the TxDOT Crash Records Inventory System (CRIS) on December 6, 2019. Safety performance for the fatality rate was better than the target value for 2015but exceeded the target for 2016, 2017, and 2018. Performance for the serious injury rate has been significantly better than the target for each year and has a declining trend.

Table 12-3: Safety (PM1) Performance in the Laredo MPO Area

Year	Fatalities (No.)	Fatalities (Rate)	Serious Injuries (No.)	Serious Injuries (Rate)	Fatalities and Serious Injuries (Bike/Ped)
2015	13	0.84	101	6.54	17
2016	27	1.76	87	5.77	21
2017	22	1.47	86	5.73	17
2018	29	1.67	56	3.23	15

The Laredo MPO recognizes the importance of linking goals, objectives, and investment priorities to stated performance objectives, and that establishing this link is critical to the achievement of national transportation goals and statewide and regional performance targets. As such, the Laredo MTP-2045 planning process directly reflects the goals, objectives, performance measures, and targets as they are available and described in other State and public transportation plans and processes, the Texas Strategic Highway Safety Plan (SHSP), the Texas Highway Safety Improvement Program (HSIP), the current statewide Texas

Transportation Plan 2040 (TTP), and the Laredo MPO Transportation Improvement Program FY 2019-2022 (TIP).

To support progress towards approved highway safety targets, the 2020-2045 Laredo MTP includes investments for safety improvements. The fiscally constrained 2020-2045 Laredo MTP recommends $2,100,462 of investments in safety projects and programs through Category 8 Safety funds allocated to the TxDOT Laredo District from FY 2020-2045. These funded safety projects are expected to contribute to the achievement of the safety performance targets.

Pavement and Bridge Condition Performance Management

The FHWA published the Pavement and Bridge Condition Performance Management Final Rule which established performance measures to evaluate the condition of pavement and bridges on the National Highway System (NHS) and the Interstate System in relation to the State of Good Repair (SGR), effective May 20, 2017. This second FHWA performance measure rule (PM2) established six performance measures:

1. Percent of Interstate pavements in good condition.
2. Percent of Interstate pavements in poor condition.
3. Percent of non-Interstate National Highway System (NHS) pavements in good condition.
4. Percent of non-Interstate NHS pavements in poor condition.
5. Percent of NHS bridges by deck area classified as in good condition.
6. Percent of NHS bridges by deck area classified as in poor condition.

Pavement Condition Measures

The pavement condition measures represent the percentage of lane-miles on the Interstate or non-Interstate NHS that are in good condition or poor condition. FHWA established five metrics to assess pavement condition: International Roughness Index (IRI), cracking percent, rutting, faulting, and Present Serviceability Rating (PSR). For each metric, a threshold is used to establish good, fair, or poor condition.

Pavement condition is assessed using these metrics and thresholds. A pavement section is in good condition if three metric ratings are good, and in poor condition if two or more metric ratings are poor. Pavement sections that are not good or poor are considered fair.

The pavement condition measures are expressed as a percentage of all applicable roads in good or poor condition. Pavement in good condition suggests that no major investment is needed. Pavement in poor condition suggests major reconstruction investment is needed due to either ride quality or a structural deficiency.

Bridge Condition Measures

The bridge condition measures represent the percentage of bridges, by deck area, on the NHS that are in good condition or poor condition. The condition of each bridge is evaluated by assessing four bridge components: deck, superstructure, substructure, and culverts. FHWA created a metric rating threshold for each component to establish good, fair, or poor condition. Every bridge on the NHS is evaluated using these component ratings. If the lowest rating of the four metrics is greater than or equal to seven, the structure is classified as good. If the lowest rating is less than or equal to four, the structure is classified as poor. If the lowest rating is five or six, it is classified as fair.

To determine the percent of bridges in good or in poor condition, the sum of total deck area of good or poor NHS bridges is divided by the total deck area of bridges on the NHS. Deck area is computed using structure length and either deck width or approach roadway width. Good condition suggests that no major investment is needed. Bridges in poor condition are safe to drive on; however, they are nearing a point where substantial reconstruction or replacement is needed.

Pavement and Bridge Targets

Pavement and bridge condition performance is assessed and reported over a four-year performance period. The first performance period began on January 1, 2018 and runs through December 31, 2021. The second four-year performance period will cover January 1, 2022, to December 31, 2025, with additional performance periods following every four years.

The PM2 rule requires states and MPOs to establish two-year and four-year performance targets for each PM2 measure. Current two-year targets represent expected pavement and bridge condition at the end of calendar year 2019, while the current four-year targets represent expected condition at the end of calendar year 2021.

States establish targets as follows:

- Percent of Interstate pavements in good and poor condition – four-year targets.
- Percent of non-Interstate NHS pavements in good and poor condition – two-year and four-year targets.
- Percent of NHS bridges by deck area in good and poor condition – two-year and four-year targets.

MPOs establish four-year targets for each measure by either agreeing to program projects that will support the statewide targets or setting quantifiable targets for the MPO's planning area that differ from the state targets.

TxDOT established current statewide two-year and four-year PM2 targets on June 21, 2018. The Laredo MPO adopted the Texas statewide PM2 targets on January 22, 2019. **Table 12-4** presents statewide baseline performance for each PM2 measure as well as the current two-year and four-year statewide targets established by TxDOT.

On or before October 1, 2020, TxDOT will provide FHWA a detailed report of pavement and bridge condition performance covering the period of January 1, 2018, to December 31, 2019.

TxDOT and the Laredo MPO will have the opportunity at that time to revisit the four-year PM2 targets.

Table 12-4: Pavement and Bridge Condition Performance Targets

Performance Measure	Baseline	2-Year 2020 Target	4-year 2022 Target
Pavement on Interstate Highway (IH)			
% in "good" condition	N/A	N/A	66.40%
% in "poor" condition	N/A	N/A	0.33%
Pavement on Non-Interstate Highway (NHS)			
% in "good" condition	54.40%	52.00%	52.33%
% in "poor" condition	13.80%	14.30%	14.30%
NHS Bridge Deck Condition			
% in "poor" condition	0.88%	0.80%	0.80%
% in "good" condition	50.63%	50.58%	50.42%

The values in **Table 12-5** display bridge performance within the Laredo MPO area from the 2018 Report on Texas Bridges.

Table 12-5: Bridge Performance in the Laredo MPO Area

Jurisdiction	Good or Better	Structurally Deficient	Functionally Obsolete	Substandard Load Only
Webb County On-System	94.01%	0.00%	5.99%	0.00%
State of Texas On-System	88.83%	0.57%	10.42%	0.18%
Webb County Off-System	94.01%	0.00%	5.99%	0.00%
State of Texas Off-System	88.83%	0.57%	10.42%	0.18%

The Laredo MPO recognizes the importance of linking goals, objectives, and investment priorities to stated performance objectives, and that establishing this link is critical to the achievement of national transportation goals and statewide and regional performance targets. As such, the 2020-2045 Laredo MTP planning process directly reflects the goals, objectives, performance measures, and targets as they are available and described in other State and public transportation plans and processes; specifically, the current statewide Texas Transportation Plan 2040 (TTP) and the Laredo MPO Transportation Improvement Program FY 2019-2022 (TIP).

To support progress towards TxDOT's statewide pavement and bridge performance targets, the 2020-2045 Laredo MTP includes investments that will maintain pavement and bridge condition performance. Investments in pavement and bridge condition could include pavement replacement and reconstruction, bridge replacement and reconstruction, new bridge and pavement capacity, and system resiliency projects that improve NHS bridge components.

The fiscally constrained 2020-2045 Laredo MTP recommends $27,580,509 of investments for pavement and bridge condition through Category 1 Preventative Maintenance and Rehabilitation and Category 6 Bridges funds allocated to the TxDOT Laredo District. The funded projects are expected to contribute toward achieving pavement and bridge condition performance targets.

Roadway System Performance Management

The FHWA published the Travel Time Reliability Final Rule (PM3), which established performance measures to evaluate the performance of the NHS and freight movement on the Interstate System, effective May 20, 2017. This performance measure rule established three roadway system performance measures applicable to the Laredo MPO:

National Highway System Performance:

1. Percent of person-miles on the Interstate system that are reliable.
2. Percent of person-miles on the non-Interstate NHS that are reliable.

Freight Movement on the Interstate:

3. Truck Travel Time Reliability Index (TTTR).

National Highway System Performance Measures

The two system performance measures assess the reliability of travel times on the Interstate or non-Interstate NHS system. The performance metric used to calculate reliability is the Level of Travel Time Reliability (LOTTR). LOTTR is defined as the ratio of longer travel times (80^{th} percentile) to a normal travel time (50^{th} percentile) over all applicable roads during four time periods (AM peak, Mid-day, PM peak, and weekends) over the hours of 6 AM to 8 PM.

The LOTTR ratio is calculated for each segment of applicable roadway, essentially comparing the segment with itself for the four time periods. A segment is deemed to be reliable if its LOTTR is less than 1.5 during all four time periods. If one or more time periods has a LOTTR of 1.5 or above, that segment is unreliable.

The measures are expressed as the percent of person-miles traveled on the Interstate or non-Interstate NHS system that are reliable, requiring several data calculations to convert from LOTTR to person-miles. Person-miles considers the number of people traveling in buses, cars, and trucks over these roadway segments. To determine total person miles traveled, the vehicle miles traveled (VMT) on each segment is multiplied by average vehicle occupancy. To calculate the percent of person miles traveled that are reliable, the sum of the number of reliable person miles traveled is divided by the sum of total person miles traveled.

Freight Movement Performance Measures

The Freight Movement performance measure assesses reliability for trucks traveling on the Interstate system. A TTTR ratio is generated by dividing the 95th percentile truck travel time by a normal travel time (50th percentile) for each segment of the Interstate system over five time periods throughout weekdays and weekends (AM peak, Mid-day, PM peak, weekend, and overnight) that cover all hours of the day. For each segment, the highest TTTR value among the five time periods is multiplied by the length of the segment. The sum of all length-weighted segments is then divided by the total length of Interstate to generate the TTTR Index.

The difference in the travel time measured and the time periods between the LOTTR and the TTTR reflect the differences between passenger vehicle travel and truck travel.

Performance Targets

Performance for the PM3 measures is assessed and reported over a four-year performance period. For the PM3 measures, the first performance period began on January 1, 2018 and will end on December 31, 2021. TxDOT reported baseline PM3 performance and targets to FHWA and will report updated performance information at the midpoint and end of the performance period. The second four-year performance period will cover January 1, 2022, to December 31, 2025, with additional performance periods following every four years. These 2-year and 4-year periods for freight are different from the periods specified for pavement and bridge condition (**Table 12-4**) because of the dates that the two performance targets were established.

The PM3 rule requires state DOTs and MPOs to establish two-year and four-year performance targets for each PM3 measure. For all targets, the current two-year and four-year targets represent expected performance at the end of calendar years 2019 and 2021, respectively.

States establish targets as follows:

- Percent of person-miles on the Interstate system that are reliable – two-year and four-year targets.
- Percent of person-miles on the non-Interstate NHS that are reliable – four-year targets.
- Truck Travel Time Reliability – two-year and four-year targets.

MPOs establish four-year targets for the System Performance and Freight Movement by establishing targets by either agreeing to programs and projects that will support the statewide targets or setting quantifiable targets for the MPO's planning area that differ from the state targets.

TxDOT enlisted the Texas Transportation Institute (TTI) to establish a statewide methodology and recommend future year travel time reliability performance targets for all MPOs within Texas. The Laredo MPO adopted the TxDOT statewide PM3 targets on January 22, 2019. **Table 12-6** presents statewide baseline performance for each PM3 measure as well as the current two-year and four-year statewide targets established by TTI for TxDOT.

TxDOT will provide FHWA on or before October 1, 2020 a detailed report of PM3 performance covering the period of January 1, 2018 to December 31, 2019. TxDOT and the Laredo MPO will have the opportunity at that time to revisit the four-year PM3 targets.

Table 12-6: Travel Time Reliability Performance Targets

Performance Measure	Baseline	2020 Target	2022 Target
Interstate Highway (IH) Level of Travel Time Reliability	79.60%	61.20%	56.60%
Non-Interstate Highway (NHS) Travel Time Reliability			55.40%
Truck Travel Time Reliability	1.5	1.7	1.79

The Laredo MPO recognizes the importance of linking goals, objectives, and investment priorities to stated performance objectives, and that establishing this link is critical to the achievement of national transportation goals and statewide and regional performance targets. As such, the 2020-2045 Laredo MTP planning process directly reflects the goals, objectives, performance measures, and targets as they are available and described in other State and public transportation plans and processes; specifically, the Texas Freight Mobility Plan, the current statewide Texas Transportation Plan 2040 (TTP), and the Laredo MPO Transportation Improvement Program FY 2019-2022 (TIP).

To support progress towards TxDOT's statewide PM3 targets, the 2020-2045 Laredo MTP devotes resources to projects that will address passenger and highway freight reliability and delay. The fiscally constrained 2020-2045 Laredo MTP recommends $553,133,894 of investments for travel time reliability improvements through Category 2 Metropolitan and Urban Area Corridor Projects and Category 4 Statewide Connectivity Corridor Projects funds allocated to the TxDOT Laredo District. The funded projects are expected to contribute toward achieving travel time reliability performance targets.

Transit Asset Management

MAP-21 and later the FAST Act mandated the Federal Transit Administration (FTA) to develop a rule establishing a strategic and systematic process of operating, maintaining, and improving public capital assets effectively through their entire life cycle. Under the Transit Asset Management (TAM) Final Rule, the FTA established four performance measures to approximate the State of Good Repair for four categories of transit capital assets (**Table 12-7**). These performance measures will help El Metro to quantify the condition of their assets and help facilitate target setting that supports local funding prioritization.

Table 12-7: Transit Asset Management Performance Measures

Asset Category	FTA established Performance Measure
Rolling Stock	Percent of revenue vehicles exceeding Useable Life Benchmark (ULB)
Facilities	Percent of facilities rated under 3.0 on the Transit Economic Requirements Model (TERM) scale
Equipment	Percent of non-revenue service vehicles exceeding ULB
Infrastructure	Percent of track segments under performance restriction (Not applicable to the Laredo MPO)

In January 2017, the Laredo MPO Policy Advisory Committee adopted the Transit Asset Management Performance Targets listed in **Table 12-8**. These performance targets are applicable to El Metro.

The Laredo MPO, TxDOT, and El Metro have signed an MOU defining roles and responsibilities related to the performance-based planning and programming process in compliance with the FAST Act.

Table 12-8: Transit Asset Management Performance Targets

Performance Measure	Performance Target
% of revenue vehicles met or exceeded useful life benchmark (ULB)	75% of vehicles should be within their ULB
% of equipment assets met or exceeded useful life benchmark (ULB)	75% of equipment should be within their ULB
% of assets/facilities with condition rating below 3.0 on FTA TERM Scale	75% of facilities rated on an FTA TERM scale of 3.0 or above

To support progress towards the TAM targets, the 2020-2045 Laredo MTP devotes resources to projects that will invest in transit assets. The fiscally constrained 2020-2045 Laredo MTP recommends $12,864,100 of investments for TAM through Category 5339 Buses and Bus Facility funds allocated to the El Metro through FTA. The funded projects are expected to contribute toward achieving the TAM targets.

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Laredo Urban Transportation Study

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