

CHAPTER 5: FREIGHT



Introduction

The Laredo regional economy relies significantly on the freight transportation system due to its special geographic location and socioeconomic and development characteristics. The North American Free Trade Agreement (NAFTA), which has resulted in increased trade with Mexico, has created a strong demand for trucking, warehousing, and support service industries in the 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 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 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 freight flows by mode, and issues and challenges faced by the freight industry.

Congressional High Priority Corridors

Congress has designated a total of 80 corridor High Priority Corridors (HPCs) in the country, and three of these (HPC 23, HPC 20 and HPC 38) travel through the Laredo region. These corridors, shown in Figure 5-1, connect the international markets of Canada, the U.S., and Mexico.

Figure 5-1: Congressional High Priority Corridors



These corridors will play an important role in the burgeoning international trade market. In fact, two of these corridors, IH-35 and U.S. 59 are the two high-priority corridors for TxDOT’s Corridor Program, additional discussion about which can be found in Chapter 7.

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 region are highway and rail. Figure 5-2 shows the major freight transportation infrastructure, including both network and facilities, in the Laredo region.

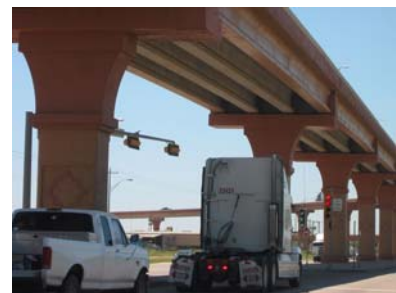


Figure 5-2: Freight Transportation Infrastructure



Highway Network

Laredo is the busiest truck freight gateway in Texas, and truck transportation is the most important goods movement mode serving the area. The value of cargo moved by truck represents about 80% of total cargo moved in the Laredo region.

Designated Truck Routes

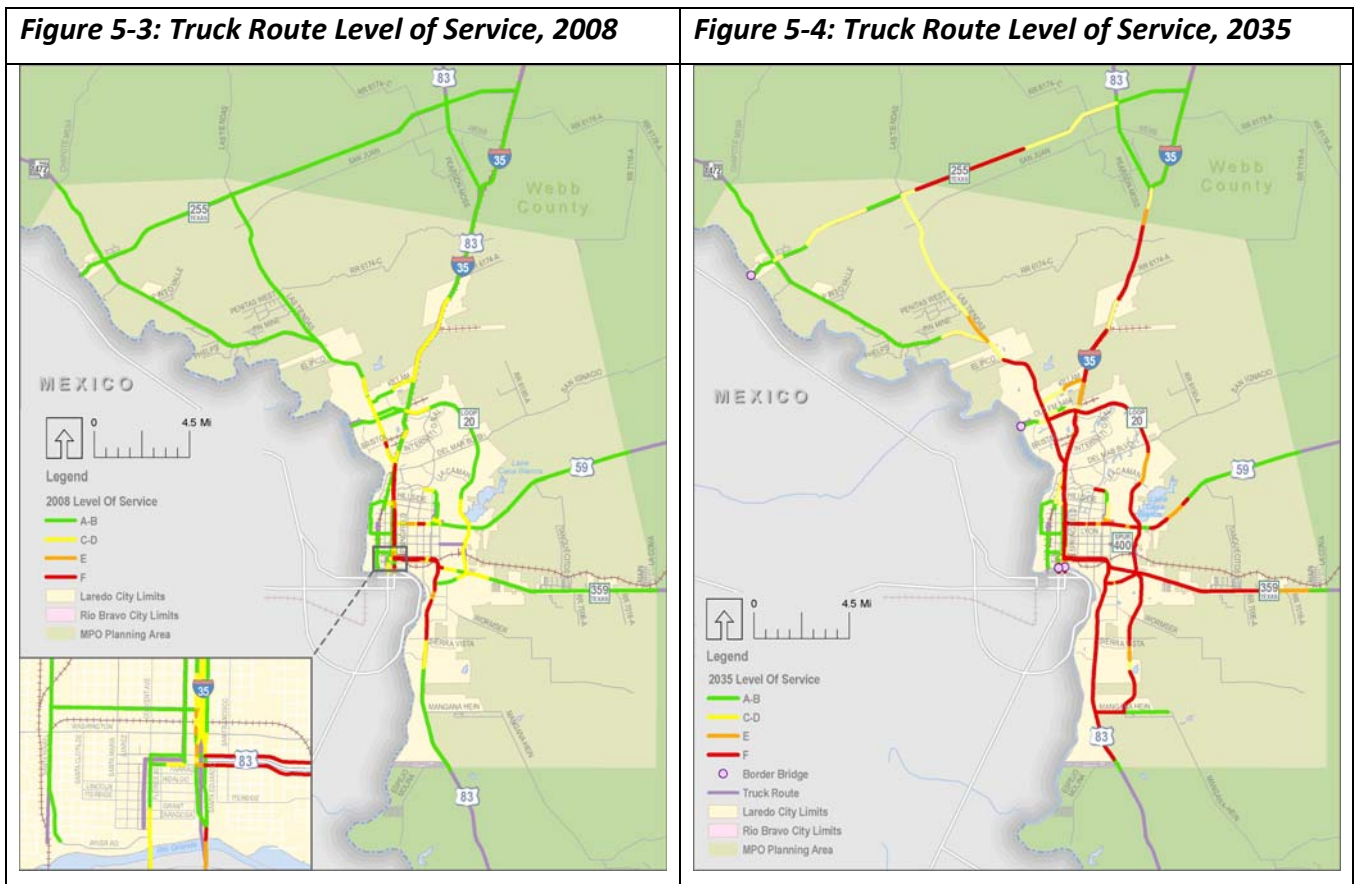
The Laredo region has designated truck routes which separate commercial traffic from non-commercial traffic. These truck routes consist of major transportation corridors and major arterials, as well as some local streets that provide access and connections to intermodal and



industrial facilities within the region. The primary truck routes that provide for the movement of goods are:

- Interstate 35:
- U.S. Highways: U.S. 59 and U.S. 83
- State Highways/Loops: SH 359 and Loop 20
- Farm-to-Market (FM) roads: FM 1472 and FM3368, and
- Major arterials: McPherson Road, Del Mar Boulevard, Clark Boulevard, Arkansas Avenue, and Santa Maria Avenue.

Figures 5-3 and 5-4 show the level of service (LOS) for the truck routes in the Laredo region for 2008 and 2035. In 2008, certain segments of IH-35, U.S. 83, and U.S. 59 are considered to be over capacity. If there were no highway capacity expansion, beyond what is committed in the current TIP, by 2035 the congestion would spread out into the whole metropolitan planning area.



Railroad Network

Laredo is one of seven rail ports of entry on the U.S.-Mexico international border and is the largest rail freight gateway in the U.S. Laredo’s freight rail service is provided by two U.S. carriers: Union Pacific (UP) Railroad and the Kansas City Southern Railway (KCS).

UP is a Class I railroad and operates the most extensive rail network in not only Texas, but also the U.S. Within Laredo, UP has 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 other located north of the International Railroad Bridge yard, between Zaragosa and Moctezuma Streets. UP operates between 10 and 12 trains per day through Laredo. By the year 2020, this number is projected to increase to 20 trains per day.



KCS is a Class I railroad operating in the central United States. It also owns and indirectly operates Kansas City Southern de México (KCSM) in the central and northeastern states of México. The main KCS rail yard is located about two miles east of Loop 20 and has a capacity of 1,375-cars. KCS currently operates six to seven trains per day.



On the Mexican side of the border, 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. According to the KCS *Feasibility Study for Proposed International Rail Bridge*, the Sanchez yard has recently been improved, doubling its capacity to 40 trains per day.



International Border Bridges

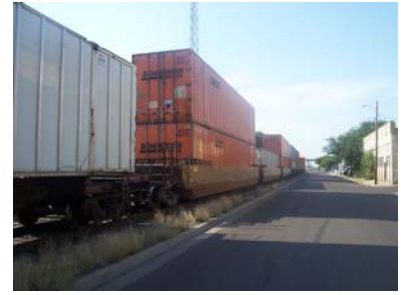
Laredo has five international bridges serving the border crossings between the U.S. and Mexico. Only three of these bridges, the Colombia-Solidarity Bridge, the World Trade Bridge, and the Laredo International Railway Bridge, allow commercial traffic. The other two international bridges (i.e., Juarez-Lincoln International Bridge, Gateway to the Americas Bridge) are for passenger usage only. Additional information regarding these bridges can be found in the previous chapter.

The Texas Mexican Railway International Bridge is currently owned by KCS, which purchased Tex-Mex and KCSM. It is a single track bridge, and both UP and KCS share operation of it. According to the *Presidential Permit Application for KCS East Loop Bypass*, the rail bridge is expected to exceed its capacity of 40 trains per day by or before 2020. It should be noted that this prediction is based on no substantive changes in trans-border security measures in the interim. More stringent screening and inspections could substantially decrease the total capacity.

In anticipation of increasing rail traffic, the Webb County Rural Rail District, KCS, and UP are contemplating new international rail bridges as part of their long-range planning efforts. See Figures 5-15 and 5-16 at the end of this chapter for their proposed locations.

Mexican Multimodal Corridor

In an ongoing study sponsored by the Mexican Secretariat of Communications and Transportation, the Lázaro Cárdenas – San Luis Potosí – Monterrey – San Antonio Corridor has been identified as a high priority trade corridor that will provide Mexico with a master plan to develop a multimodal transportation network of key corridors that meets the requirements of a world class multimodal transport system, and that furthers the goal of Mexico becoming a prominent participant in world trade.



Corridor 6, which is shown in Figure 5-5, begins at the port city of Lázaro Cárdenas, and ends in the San Antonio, Texas. The Mexican portion of this corridor ends at the city of Nuevo Laredo, just before the U.S.-Mexico international border. It is approximately 953 miles from the port to the border. This corridor is connected by a KSCM rail line, and links the port of Lázaro Cárdenas to Monterrey and the U.S. market via Laredo.

Figure 5-5: Lázaro Cárdenas – San Luis Potosí – Monterrey – San Antonio Corridor



Source: Mexico Multimodal Master Plan

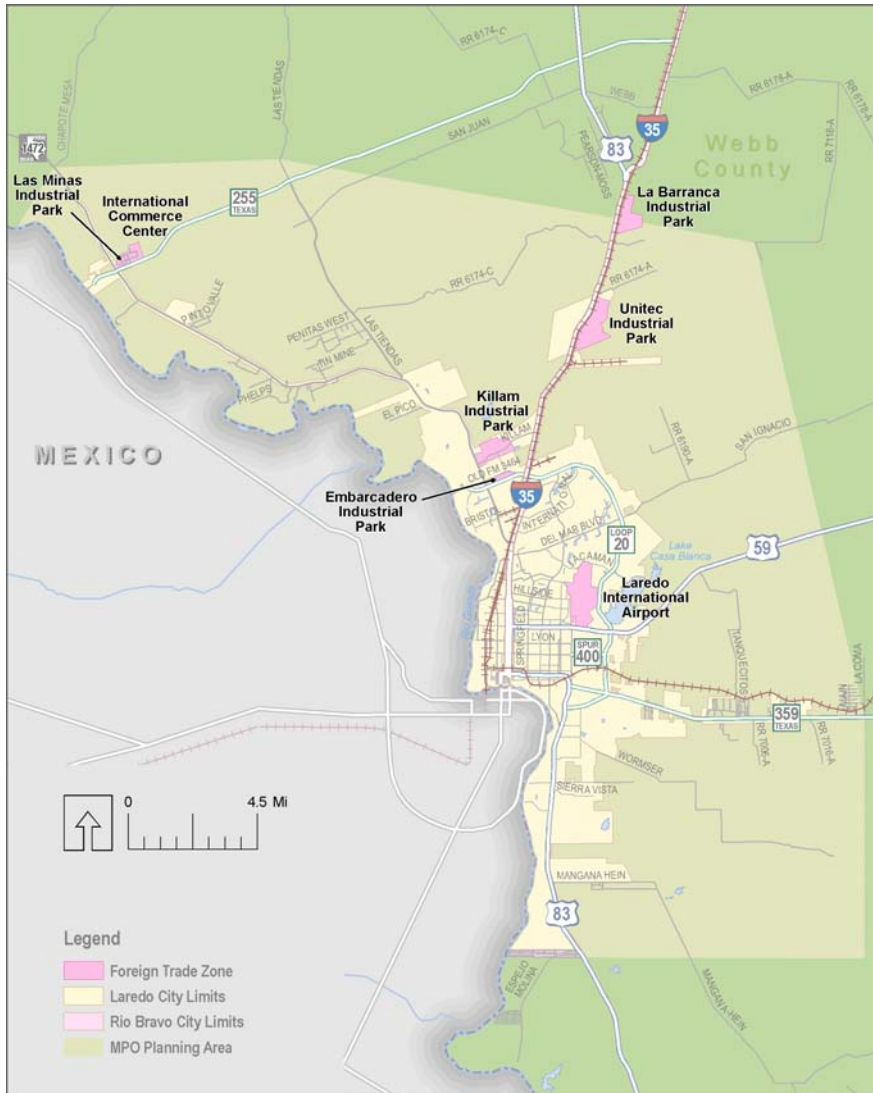
This route connects important industrial cities in the NAFTA corridor, including Querétaro, San Luis Potosí, Saltillo, and Monterrey. The MPO will continue to monitor the developments of this corridor and coordinate as necessary with federal and state entities on both side of the border.

Foreign Trade Zones

Laredo has seven active Foreign Trade Zone (FTZ 94) sites, which are shown in Figure 5-6. These zones are located in the Laredo International Airport and at various industrial parks.

An FTZ is a location where domestic and foreign merchandise are brought for the purpose of storage, manufacturing, accessibility, exhibition, manufacturing or other operations, free from customs duties until the goods leave the zone and enter the U.S. for domestic use. According to the Laredo Development Foundation, the FTZ sites located in Laredo cover nearly 5,000 acres, which includes warehouses, assembly space, and other facilities. Freight forwarding, custom brokerage, and other manufacturing companies can utilize the FTZ sites in Laredo and reduce operating costs for their businesses.

Figure 5-6: Foreign Trade Zones



Source: Laredo Development Foundation

Air Freight Facilities

Air freight in Laredo is served by the Laredo International Airport (LRD), which has dedicated air freight facilities. LRD is located approximately three miles from the center of the city, and six miles from the international border. The airport has direct access to U.S. 59 and Loop 20. Foreign Trade Zone 94 is also located at the airport.



LRD currently has three runways, 579,000 square feet of storage space, and 20 air cargo operators, including Federal Express, Emery Worldwide, BAX Global, American International, Northstar, Rhoades, and Ferreteria. Table 5-1 presents existing hanger and air cargo facilities in the airport.

Table 5-1: 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

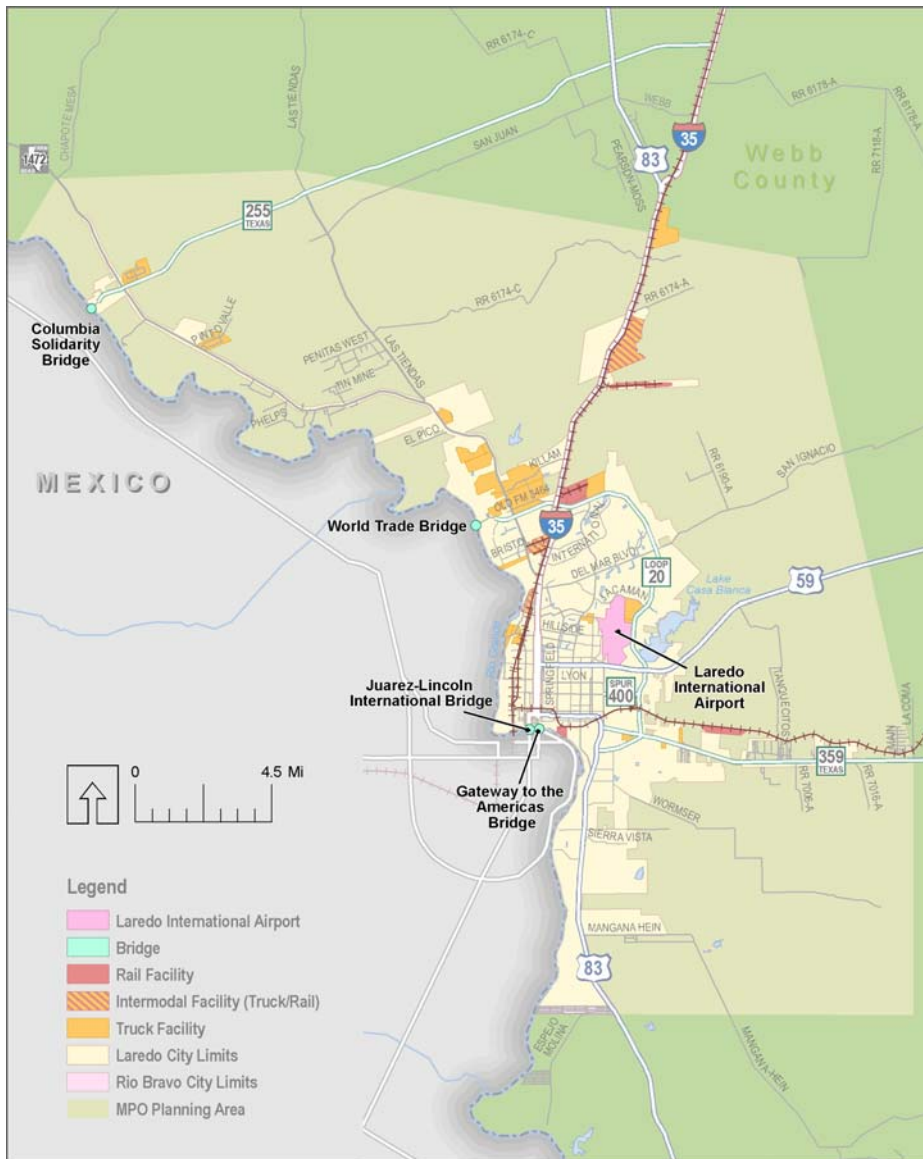
Source: Laredo International Airport

According to the *Airport Master Plan Update*, the existing air cargo apron and building space will be expanded in order to accommodate growing air cargo activities. The recommended air cargo expansion plan includes a total of 720,000 square feet of air cargo building space, 246,000 square feet of aircraft parking yard, 82,100 square feet of truck docking area, and 55,000 square feet of fuel farm or non-aviation commercial activities.

Industrial Facilities

Industrial facilities in the Laredo region are the nerve centers for freight traffic in the Laredo region. These facilities serve as the origins and destinations of the majority of commercial traffic. Through zoning and other regulations, the city of Laredo has steered the development of these facilities away from residential areas and have tried to isolate their impacts to a handful of clusters around the region. No doubt, the location of future facilities will impact the freight movement throughout the region. Strategic investments in the transportation infrastructure near and around these industrial facilities will help support this critical piece to the local and national economy. Figure 5-7 shows the location of regional industrial facilities.

Figure 5- 7: Regional Industrial Facilities



Goods Movement

Value of Trade

Data from the Texas Center for Border and Economic and Enterprise Development indicates that the Port of Laredo accumulated \$116 billion worth of U.S./Mexico trade in 2008. Comparatively, this amount far exceeded the amount of other ports along the Texas/Mexico border. Table 5-2 shows the total amount of U.S./Mexico trade dollars by port of entry in Texas for 2004 and 2008. Laredo’s nearest competitor, El Paso, accumulated about \$48 billion worth of trade in 2008, less than half as much as Laredo.

Table 5-2: U.S./Mexico Total Trade Dollars by Port of Entry in Texas

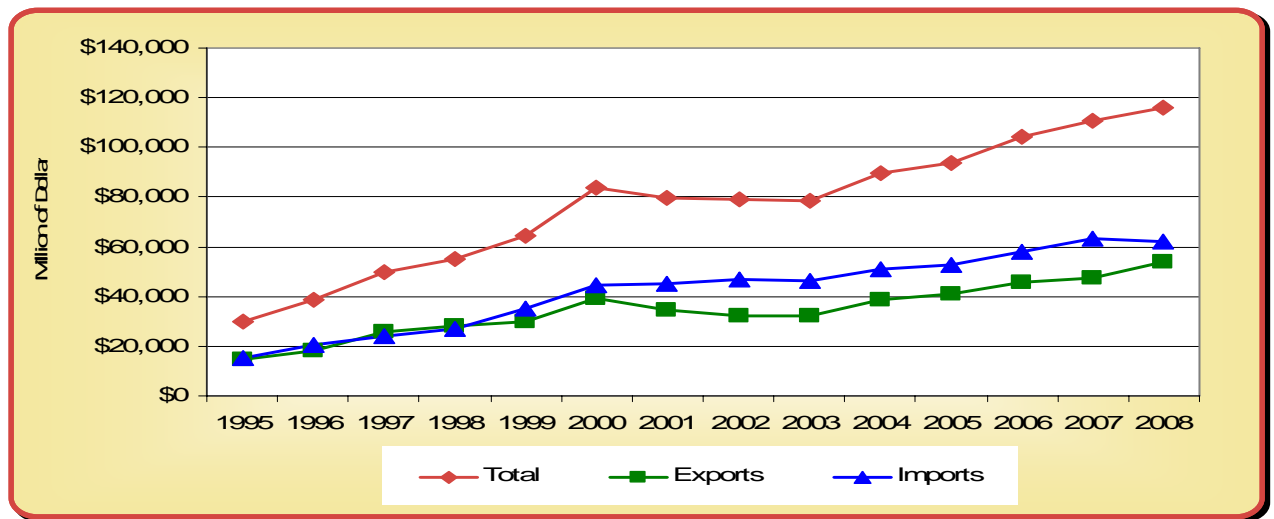
Port of Entry	2004	2008	% Change
Laredo	\$89,682,667,340	\$116,055,113,393	29.4%
El Paso	\$42,898,696,624	\$48,202,525,711	12.4%
Hidalgo	\$15,877,243,660	\$22,214,482,264	39.9%
Eagle Pass	\$6,875,116,445	\$12,829,924,018	86.6%
Brownsville-Cameron	\$10,761,096,851	\$12,697,276,534	18.0%
Del Rio	\$2,797,360,229	\$2,821,222,542	0.9%
Presidio	\$409,543,159	\$548,180,107	33.9%
Rio Grande City	\$220,992,652	\$441,030,596	99.6%
Progreso	\$142,610,696	\$394,767,150	176.8%
Roma	\$79,755,879	\$183,316,125	129.8%
Fabens	\$32,432,624	\$26,082,253	-19.6%

Source: Texas Center for Border and Economic and Enterprise Development

Historical Freight Flows

Figure 5-8 shows that U.S.-Mexico trade value through the port of Laredo has steadily increased over the last decade, with an annual growth rate of 5.6%.

Figure 5-8: U.S.-Mexico Trade Value, Through Port of Laredo

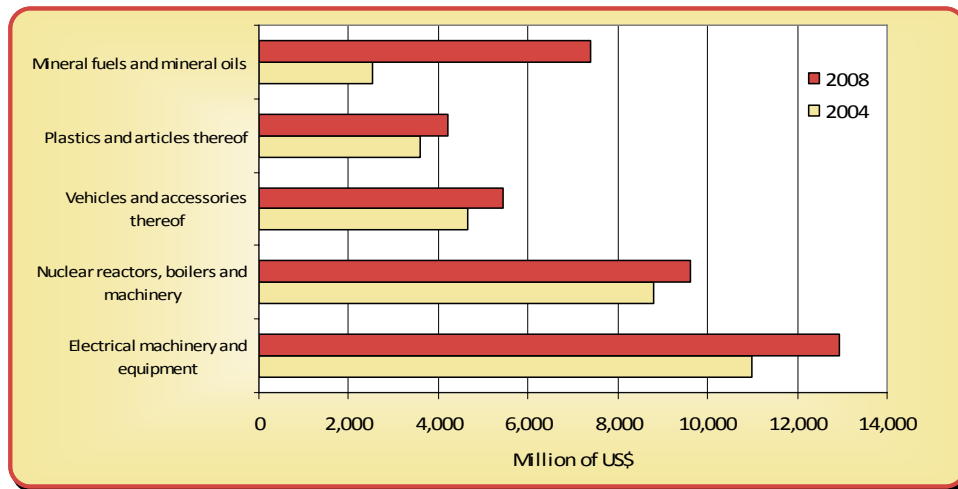


Source: Bureau of Transportation Statistics. North American Transborder Data

Freight Commodities

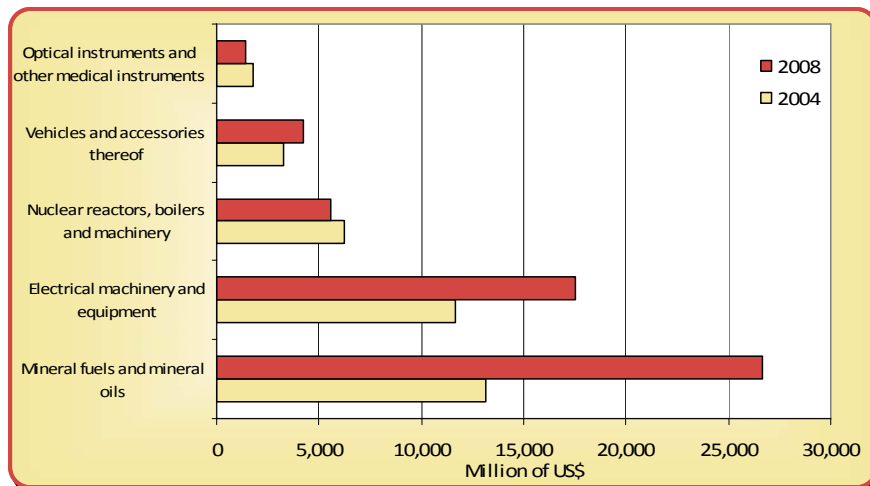
Figures 5-9 and 5-10 show the top five export and import commodities that move through the port of Laredo. The top five export commodities include electrical machinery and equipment, mineral fuels and oils, nuclear reactors, boilers and machinery, vehicles and accessories thereof, plastics and articles thereof. These commodities represented approximately two-thirds of the value of all exports. The top five import commodities included electrical machinery and equipment, mineral fuels and oils, nuclear reactors, boilers and machinery, vehicles and accessories thereof, and optional and other medical instruments. These commodities accounted for just over three-quarters of the value of all imports.

Figure 5-9: Top Export Commodities



Source: Bureau of Transportation Statistics. North American Transborder Data

Figure 5-10: Top Import Commodities



Source: Bureau of Transportation Statistics. North American Transborder Data

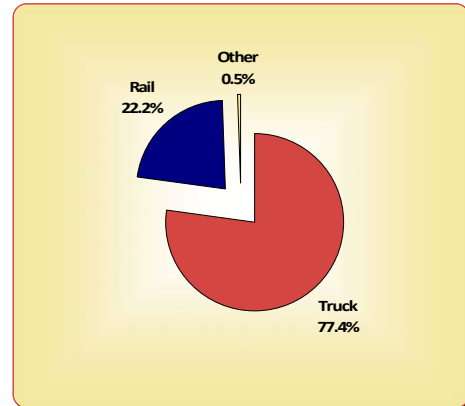
Freight Modes

While all modes play a role in moving freight into and out of the Laredo region, trucks carry the lion's share of the load. Figure 5-11 shows the percentages of total value that truck, rail, air, and other modes transport across the border.

Trucks carried over three-quarters of the total value of all freight transported between U.S. and Mexico via the Port of Laredo in 2008. According to Texas A&M International University's border crossing data, around three million trucks crossed the port of Laredo in 2008.

Rail carries most of the remaining freight across the border. According to the Bureau of Transportation Statistics, 3,921 trains passed through the Port of Laredo in 2008, making Laredo the busiest crossing for trains along the U.S.-Mexico border.

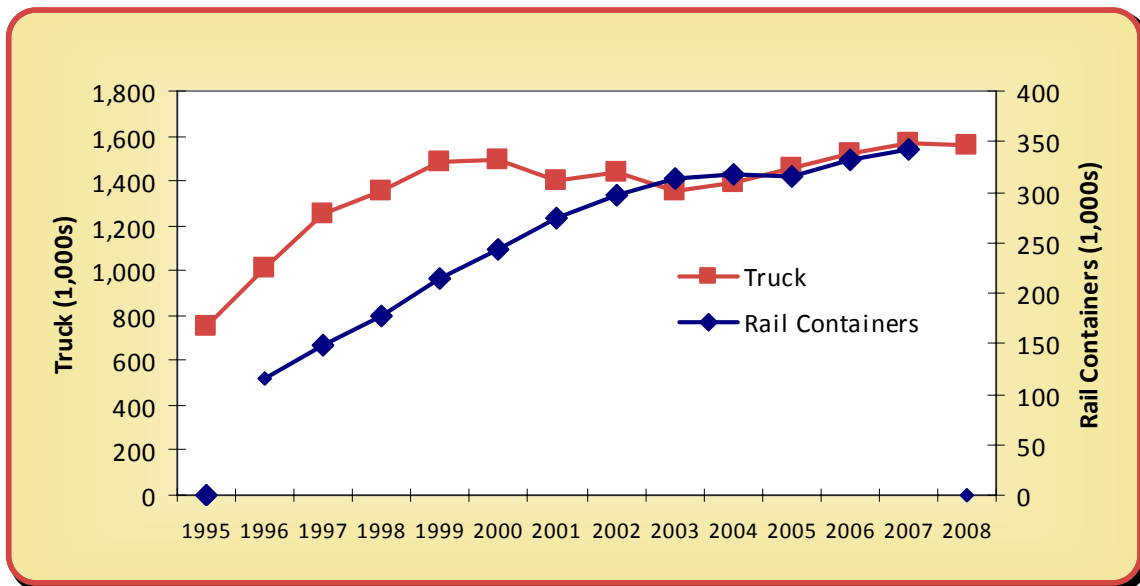
Figure 5-11: Import and Export Goods Value by Mode, 2008



Source: Bureau of Transportation Statistics. North American Transborder Data

According to the Bureau of Transportation Statistics Border Crossing database, the truck and rail traffic coming from Mexico through the port of Laredo rose sharply immediately following the passage of NAFTA in 1994. After the year 2000, however, growth has continued, albeit at a slower, but steady pace.

Figure 5-12: Northbound Truck/Rail Crossings, 1995 - 2008



Source: Bureau of Transportation Statistics. Border Crossing/ Entry Database

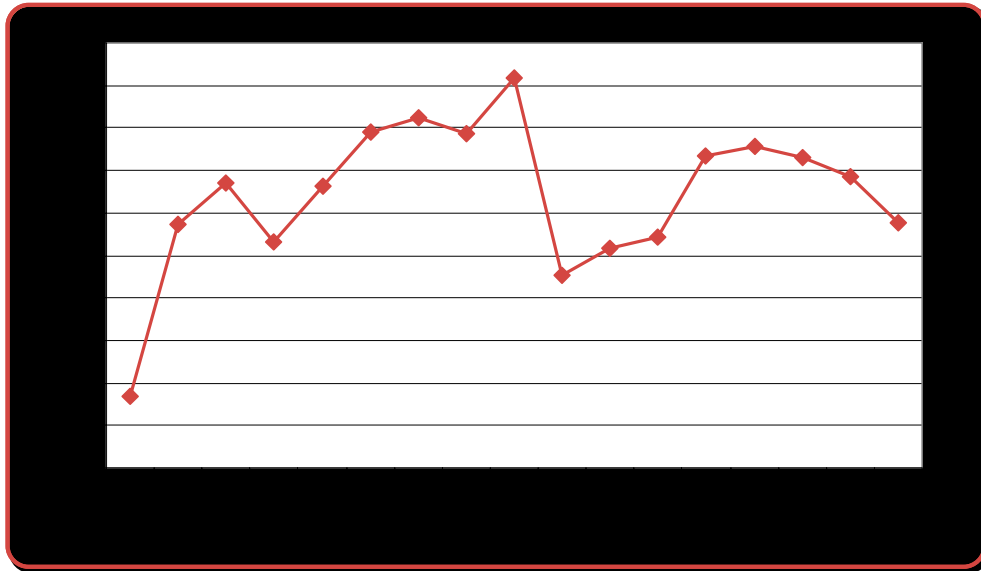
Air Freight

In the Laredo 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. According to the *Laredo International Airport*

Master Plan, Emery Worldwide, BAX Global, FedEx, and UPS currently serve LRD on a scheduled basis, while non-scheduled operators include Ameristar, Express One, and U.S.A Jet.

Figure 5-13 presents the historical air cargo activities in LRD since 1992. According to the information provided by LRD, the air cargo business at LRD, about 90% of the air cargo business is related to the automobile industry.

Figure 5-13: Total Air Cargo at LRD, 1992 - 2008



Source: Laredo International Airport

The *LRD Master Plan* forecasts that growth in air freight between 2010 and 2025 will be between 7.2% and 11% annually. The higher growth scenario is based on an assumption that the air cargo market will become more diverse, while the lower growth scenario assumes that the air cargo at LRD will remain predominately be from the automobile industry.

Based on the air cargo growth forecast, the plan indicates that the existing air cargo facilities currently located on the southwest side of the airport are fully developed, and will have deficiencies starting in 2010; therefore, a new air cargo area should be identified for improvements.

The City of Laredo and LRD are working together for approval to locate an external operation of Mexican Customs, Immigration, and Agriculture at the Laredo International Airport for the purpose of pre-clearing passenger and cargo bound for Mexico. Laredo is expected to become the first city in the U.S. to provide Mexican Customs service if the application gets approved. With this will come a marked increase in air freight traffic at the airport.

Trading Partners

According to the FHWA’s Freight Analysis Framework 2 database, Laredo’s top five domestic trading partners include locations in California, Michigan, and other parts of Texas. Table 5-3 shows the value of the amount traded with these regions along with forecasted growth rates.

Table 5-3: Top Trading Partners in the U.S. (Million of Dollars)

State	Region	Annual Trade Value (millions)		Annual Growth Rate (2002-2010)
		2002	2010	
Michigan	Detroit-Watton-Flint	\$9,378	\$9,951	0.66%
	Grand Rapids-Wyoming-Holland	\$5,693	\$5,653	-0.08%
California	Los Angeles-Long Beach-Riverside	\$3,173	\$4,122	2.95%
Texas	Houston-Baytown-Huntsville	\$2,632	\$10,572	16.71%
	Dallas-Fort Worth	\$2,565	\$2,889	1.33%

Source: Federal Highway Administration. Freight Analysis Framework 2.

According to the *Mexico Multimodal Master Plan*, over the period from 2006 and 2020, Webb County’s top five trading partners in Mexico include the states of Distrito Federal, Nuevo Leon, Coahuila Jalisco, and Mexico. Figure 5-4 shows the trade volume in metric tons for 2006 and 2020 between Webb County and these states.

Table 5-4: Top Trading Partners in Mexico (Metric Tons)

Mexican State	Annual Trade Volume (metric tons)		Annual Growth Rate (2006-2020)
	2006	2020	
Mexico	10,986,259	17,638,495	3.21%
Distrito Federal	8,746,100	14,265,970	3.32%
Nuevo Leon	8,035,574	11,898,804	2.65%
Coahuila	4,922,765	8,058,522	3.34%
Jalisco	3,246,836	4,181,175	1.70%

Source: Mexico Multimodal Master Plan

Future Freight Demand

Looking into the future, the Laredo region will continue to deliver more goods between U.S. and Mexico. According to the freight projection from the Freight Analysis Framework 2 database, the U.S.-Mexico trade value from the port of Laredo for all modes will increase by 29% in the short term (2010-2015) and 285% in the long term (2016-2035). Table 5-5 presents the annual growth rates of trade value by mode.

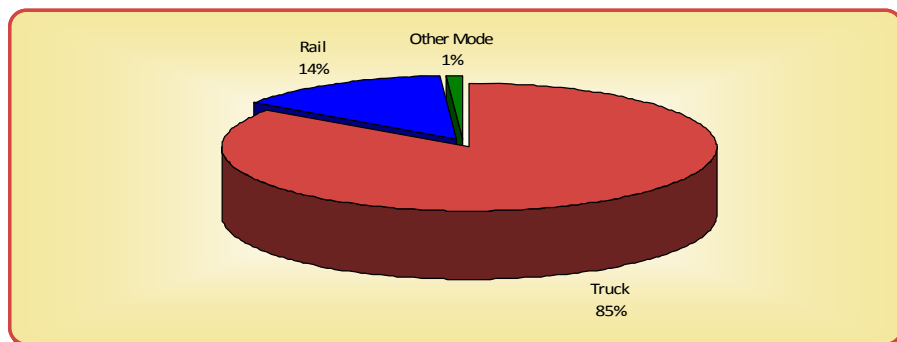
Table 5-5: Projected Trade Value Growth by Mode

Mode	Short Term (2010-2015)		Long Term (2016-2035)	
	Total	Annual	Total	Annual
Truck	31.7%	5.7%	339%	6.1%
Rail	19.2%	3.6%	121%	3.2%
Other	27.2%	4.9%	277%	5.5%
All Modes	28.6%	5.2%	284%	5.5%

Source: Federal Highway Administration. Freight Analysis Framework 2.

Figure 5-14 presents the trade value share by mode in 2035. Truck and rail will still be the dominant modes in the freight transportation. All modes are projected to grow, but truck will do so at a greater rate as it will carry an increasing share of future freight shipments.

Figure 5-14: Projected Trade Value Share by Mode, 2035



Source: Federal Highway Administration. Freight Analysis Framework 2.

Issues and Challenges

There are a number of freight movement issues in the Laredo region that need to be addressed. These challenges include capacity constraints, border crossing wait times, air pollution, and security.

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

TxDOT has long recognized these challenges and serious planning efforts are underway. While the Trans-Texas Corridor concept has been formally abandoned, the state is recrafting its approach to solving these challenges. The broad and bold strokes of the

Trans-Texas Corridor have been replaced with more focused, regionally based planning initiatives. While the congestion issues along the Interstate 35 and US 59 (Interstate 69) corridors are not solely caused by freight movement, rail and truck transportation along these corridors will continue to grow at a pace most likely higher than passenger transportation. Therefore, the state has assembled stakeholders throughout these corridors, including representatives from the freight community, to seek ways to address transportation issues in these important trade corridors.



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. According to the *Texas DOT NAFTA Study*, the average wait-time for northbound commercial vehicles crossing at the World Trade Bridge is about 45 minutes. In contrast a non-delayed border crossing should normally take only 10 minutes.

Air pollution in the region is caused by the significant volume of heavy truck traffic, either traveling on the highways or idling at border crossing and traffic lights. According to the *2001 North American Trade and Transportation Corridors: Environmental Impacts and Mitigation Strategies* study, CO and CO₂ will be the most rapidly growing emissions in the Laredo region. It is estimated that by 2020, these emissions will be three and four times their levels in 1999.



Security measures implemented after 9/11 has increased the cost of doing business between the U.S. and Mexico border. Increased wait times affect overall regional productivity, and the increased projected freight volume will only make matters worse. It has been estimated that the total economic impact to the region resulting from lost productivity is between \$2.0 billion and \$2.5 billion annually.



As will be described in more detail in the following chapter, the Department of Homeland Security's Customs and Border Protection has instituted several programs to increase the security and efficiency of cross-border commercial vehicle movements, including:

- The Free and Secure Trade (FAST) program;
- The Customs Trade Partnership Against Terrorism (C-TPAT);
- The Automated Commercial Environment (ACE).

After 9/11, the CBP launched these programs to encourage business in the supply chain to increase security. While these programs have been generally successful in keeping our nation secure, they are not free from shortcomings. For example, there is one FAST lane on the World Trade Bridge, but, according to the *Texas DOT NAFTA Study*, only 6 to 7 percent

of the total commercial vehicles that cross the bridge use the FAST lane. The major reason is that, in order to use the FAST Lane, the international importer, manufacturer, carrier, and driver must all be C-TPAT certified, which includes a detailed review and approval from CBP of the entire manufacturing and shipping supply chain. Therefore, from the private sector perspective, these programs are expensive to implement.

Table 5-6 lists potential strategies regarding the freight infrastructure capacity and air pollutions issues. Strategies for the safety and security issues are discussed in Chapter 6.

Table 5-6: Freight Infrastructure Performance Strategies

Operational Improvements	Capacity Enhancement
Providing real-time information on incidents, weather, congestion, and other traffic conditions	Creating truck-only lane facilities
Creating routing restrictions for heavy loads	Widening access roads to rail intermodal yards
Improving management of truck and container traffic at terminals	Constructing grade separated railroad crossings
Adjusting street traffic signals near freight terminals	Improving landside access to airports
Managing curb space for freight deliveries	Reconfiguring terminals
Establishing dedicated truck routes	Air Pollution Mitigation
Creating emergency management and incident response systems for truck routes	Reducing empty freight mileage
Demand Management	Reducing border delays
Tolls, Value/Congestion pricing	Using alternative fuels
Peak and off-peak delivery for freight	Using longer combination vehicles

Laredo Freight Plan

For roadway based freight movements, projects that will assist in the movement of freight are included in Chapter 7 – Roadway Plan. For rail, the Rural Rail District, the Union Pacific, and the Kansas City Southern Railroad are pursuing a long-range rail relocation projects. However, during the public outreach efforts for the development of this MTP, citizens and other stakeholders rejected the idea of encircling the city with railroad tracks. Therefore, it is likely that only one of these two projects will actually be constructed. The MPO will continue to work with its planning partners on these two long-range proposals. The two projects are listed in Table 5-7 and shown in Figures 5-15 and 5-16.

Table 5-7: Freight Projects (See Figures 5-15 and 5-16)

ID	Railroad	Limits	Project Descriptions
Railroad Projects			
F-01	Prop. Railroad (north) and bridge	South side of Laredo Colombia International Bridge to IH 35 Mile Marker 24	Construct new railroad and bridge (22.4 miles)
F-02	Prop. KCS Railroad (east)	Mexico Border to UP Railyard	Construct new railroad (29.0 miles)

Figure 5-15: Proposed Rural Rail District Rail Project

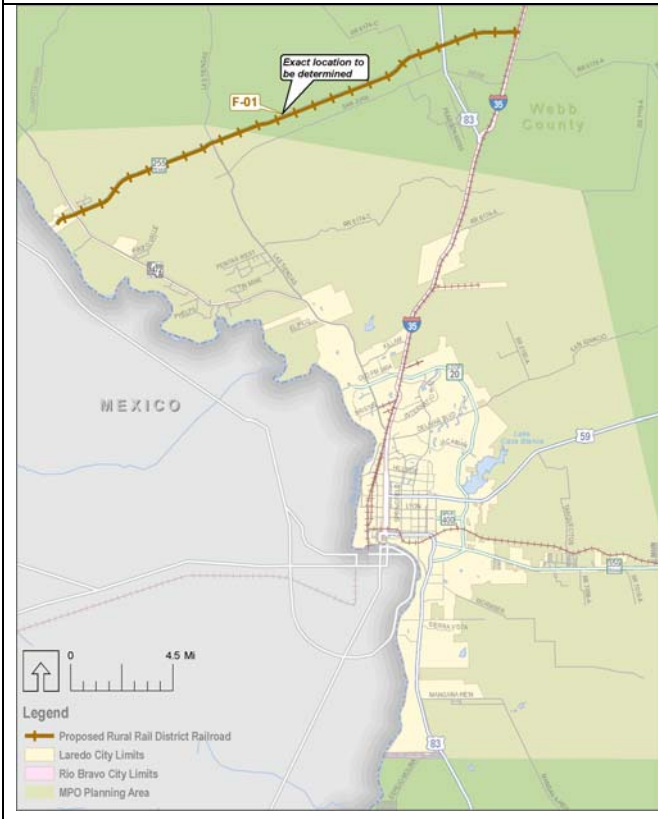


Figure 5-16: Proposed KCS Rail Project

