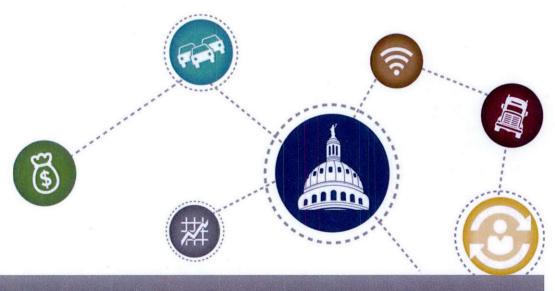
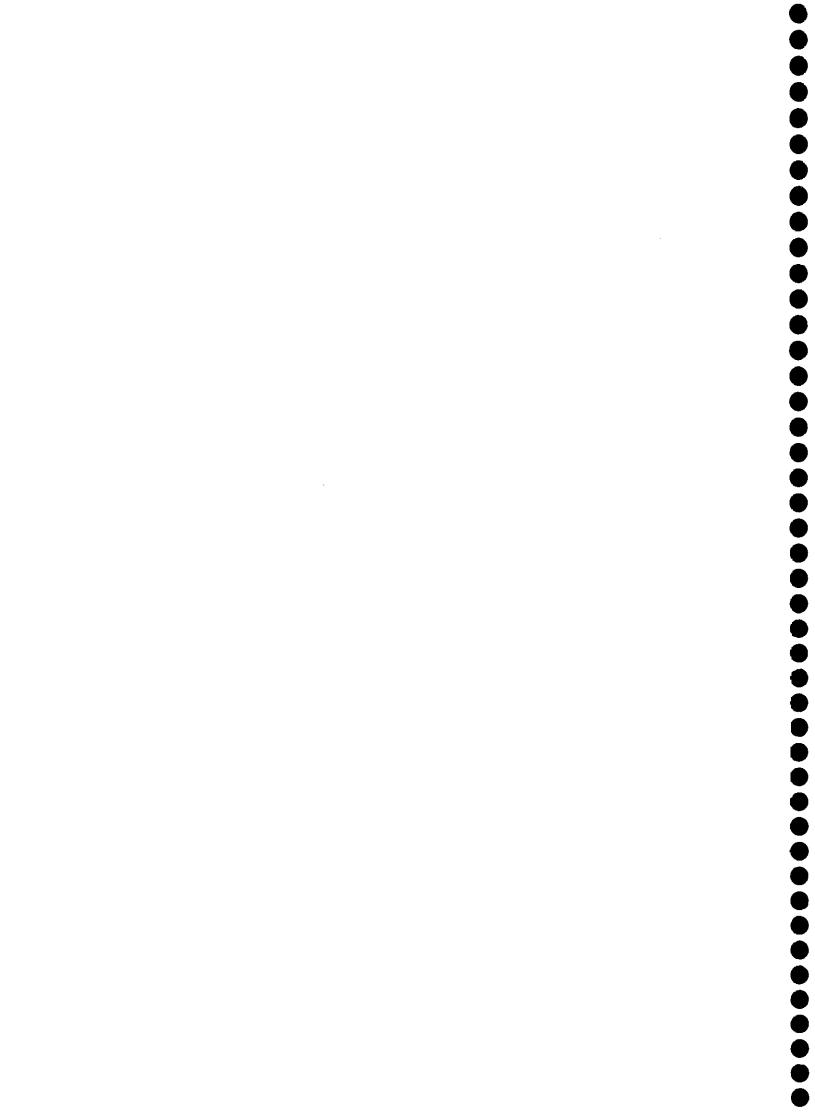


How Long Is Too Long to Cross the Border? Final Report

PRC 16-60 F



TRANSPORTATION
Policy Research center



How Long Is Too Long to Cross the Border?

Texas A&M Transportation Institute

PRC 16-60 F

February 2017

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Table of Contents

List of Figures	5
List of Tables	5
Executive Summary	6
Study Objective	6
Background	6
What We Did	6
What We Found	7
Factors Contributing to Delays	
Suggested Strategies	
Potential Metrics	
Introduction	
Study Objectives	10
Study Approach	10
El Paso Border Infrastructure	12
Hours of Operation	12
Hours of Operation for Commercial Vehicles	13
Commercial Vehicle Crossings in El Paso	13
Crossing the Texas-Mexico Border	14
Border Crossing Process for Northbound Commercial Vehicles	14
Carrier Description of Northbound Border Crossing Process	
Border Crossing Process for Southbound Commercial Vehicles	
Time to Cross in El Paso	
Average Crossing Time in 2013–2015	
Average Crossing Time in 2016	
Average Weekly Crossing Time	
Average Hourly Crossing Time	
Reasons for Border Crossing Delays	
Findings from Literature	
Public Policies and Regulations	
Gateway Operations	
Funding	
Industry Perspective	
Delay Expectations	
Industry Delay Expectations	
Current Crossing Time	
Ideal Crossing Time	
Agency Delay Expectations	
Proposed Initiatives to Reduce Border Delays in El Paso	
Initiatives Proposed by Industry	
Initiatives Proposed by Agencies	31

Possible Metrics to Monitor	33
Conclusion	34
Appendix A: Questionnaire to Guide Interviews with Carriers and Shippers	36
Appendix B: Lean Six Sigma Steering Committee Participating Members	37
Appendix C: Potential Improvement Projects	38
References	40

List of Figures

Figure 1. International Border Crossings in Texas.	12
Figure 2. Hours of Operation for Commercial Vehicles as of August 2016.	13
Figure 3. Commercial Vehicle Crossings per Year at the El Paso/Juarez Border Region	13
Figure 4. Northbound Border Crossing Process for Commercial Vehicles	15
Figure 5. Northbound Border Crossing Process for Carriers.	16
Figure 6. Southbound Border Crossing Process for Commercial Vehicles.	17
Figure 7. Ysleta POE in El Paso: Average Monthly Crossing Time (May 2013-May 2015)	18
Figure 8. BOTA POE in El Paso: Average Monthly Crossing Time (May 2013–May 2015)	19
Figure 9. Ysleta POE in El Paso: Average Weekly Crossing Time (June 2016–July 2016)	20
Figure 10. BOTA POE in El Paso: Average Weekly Crossing Time (June 2016–July 2016)	20
Figure 11. Ysleta POE in El Paso: Average Hourly Crossing Time (June 2016–July 2016)	21
Figure 12. BOTA POE in El Paso: Average Hourly Crossing Time (June 2016–July 2016)	21
Figure 13. Ysleta POE in El Paso: Average Hourly Crossing Time (June 2016–July 2016)	27
Figure 14. BOTA POE in El Paso: Average Hourly Crossing Time (June 2016–July 2016)	28
List of Tables	
Table 1. Causes of Border Delays in El Paso.	7
Table 2. Strategies to Improve Border Crossing Times	
Table 3. 2014 Exports to Mexico by MSA.	11
Table 4. Reasons for Delay in El Paso Region.	25
Table 5. Interviewees' Summary of Crossing Times	26
Table 6. Agencies' Average Inspection Processing Time.	29
Table 7. Interviewees' Proposed Initiatives.	30
Table 8. Potential Improvement Projects for the Ysleta-Zaragoza Bridge	31

Executive Summary

Study Objective

Increased trade and security measures have directly impacted border crossing times (including wait times and actual crossing times). Consequently, the ability to measure and understand delays at border crossings is important to expedite trade efficiently and securely. The central question remains: how long is too long to cross the border? This research aims to understand the causes of border crossing delays and identify meaningful metrics to measure delays.

Background

A significant part of the economy in both Mexico and the United States depends on the efficient movement of goods across the Texas-Mexico border. In 2015, the United States traded \$531 billion in goods with Mexico—\$236 billion in exports and \$295 billion in imports. In the same year, Texas traded approximately \$176.5 billion with Mexico—more than three times what Texas trades with China, the state's second largest trading partner. Each day in 2015, the United States traded more than \$1.4 billion with Mexico, and Texas traded almost \$500 million with Mexico. Increased United States—Mexico trade and security measures have, however, resulted in longer border crossing times. These delays increase the cost of transportation and trade, reducing industry competitiveness and economic development, and affect local communities.

What We Did

The study team:

- Conducted a comprehensive literature review of border crossing delay studies to understand and document the northbound and southbound border crossing processes.
- Conducted in-person and telephone interviews with nine carriers and shippers in the El Paso/Juarez region to understand industry's expectations for ideal and maximum border crossing times.
- Interviewed U.S. agencies involved in the commercial border crossing process to understand the agencies' perspective on acceptable border crossing times.
- Identified factors that contribute to border delays and potential metrics to measure
 efficiency at the border and inform state-level policy to facilitate cross-border movements
 of freight.

El Paso was used as the case example for conducting the study.

What We Found

Carriers and shippers who were interviewed reported crossing times on El Paso bridges ranging from 1.5 hours to 4 hours. Respondents said the ideal average time for a truck to cross in El Paso is 1 hour, and the average maximum crossing time is about 1.5 hours. Five out of nine of the carriers/shippers preferred a slightly longer but consistent border crossing time over a shorter but unpredictable crossing time.

Factors Contributing to Delays

Based on the information collected from the industry interviews, border delays in El Paso are mainly caused by the trade processing system being down, staffing shortages, multiple border inspections, and inadequate infrastructure (see Table 1).

Table 1. Causes of Border Delays in El Paso.

Reasons for Delay	Number of Times Mentioned
Processing system being down at U.S.	5
Customs and Border Protection (CBP)	
Staffing shortages	5
Multiple border inspections	5
Inadequate infrastructure	4
Burdensome documentation requirements	3
Staff not familiar with inspection process	1
Getting trucks back to Mexico	1
Not enough carriers with the Free and	1
Secure Trade (FAST) program	1000
Differences in holiday schedules	1

Suggested Strategies

Carriers and shippers identified a number of strategies to improve border crossing times. These strategies can be categorized as operational improvements, infrastructure investments, and administrative initiatives (see Table 2). Most of the proposed initiatives relate to operational improvements (e.g., more open toll booths and more inspection staff) and investments in existing facilities to improve efficiency (as opposed to additional/new bridge crossings).

Table 2. Strategies to Improve Border Crossing Times.

Proposed Initiatives	Number of Times Mentioned	Classification
More toll booths open	7	Operational
More inspection staff	6	Operational
Unified holidays	2	Operational
Single inspection point	1	Operational
Longer hours of operation	1	Operational
Streamlined documents	1	Operational
Permit extensions*	1	Operational
Backup system for documents	1	Operational
More inspection bays	5	Infrastructure
More lanes	5	Infrastructure
More x-ray machines	1	Infrastructure
Tracking trucks with global positioning system	1	Administrative
Certifying more companies with FAST	1	Administrative

* In some instances, import permits provide an inadequate window for maquiladoras (assembly plants) to prepare a shipment to be sent to the United States.

Potential Metrics

Industry and agency interviews revealed the need for benchmarks and technology to track and measure the efficiency of each element of the border crossing process. This will allow agencies to compare and benchmark the state of their facility and help to inform policy changes or advocate for personnel, infrastructure, and funding changes. The following potential metrics to track were offered:

- Percentage of carriers and shippers currently using the available border wait and crossing time information.
- Number of/frequency of broker corrections (and the associated time penalty incurred).
- Tracking and sharing of truck inspection information to eliminate repeat inspections.
- Truck time spent at each of the agency

Shipment tracking is a metric that both CBP and industry would like to see implemented:

- Industry can track when brokers submit their documents and the status of their documents in real time.
- CBP can identify trucks with paperwork issues before they get too far in the crossing process.

Creating a system similar to the package tracking systems used by parcel deliverers could be a tangible method for measuring the efficiency of the border crossing process.

inspections.

- Time to process paperwork.
- Southbound truck travel times.
- Number of open toll booths.
- Real-time truck volumes.
- Land-use development to predict future truck volumes.
- Truck distribution during bridge construction.
- Economic cost of border delays.

Introduction

Increased United States—Mexico trade, resulting from the implementation of the North American Free Trade Agreement (NAFTA) and increased security measures, has resulted in substantial delays at commercial vehicle border crossings. The negative impacts from these delays affect local communities, the state, and the nation. Border crossing delays increase the cost of transportation and trade and negatively impact industry competitiveness and economic development. Long queues also have a negative impact on the border environment (i.e., emissions attributable to vehicle idling). And when congestion at the border eliminates cross-border trips, toll bridge revenues decrease.

Study Objectives

The objectives of this research were to:

- Document the procedure for crossing the Texas-Mexico border and identify the underlying reasons for delays at commercial border crossings in El Paso.
- Understand the expectations for border wait times by industry and the agencies involved in cross-border movements.
- Identify measures that can be tracked to inform state-level policy aimed at facilitating
 cross-border freight movements. Efficient border crossings will reduce the cost of trade,
 making Texas more globally competitive and resulting in increased trade, direct foreign
 investment, and economic development.

Study Approach

To meet the objectives of the study, the study team reviewed the literature and analyzed data to document Texas's surface trade with Mexico, the process for crossing the Texas-Mexico border, and the factors that contribute to border delay. Texas A&M Transportation Institute (TTI) researchers developed a questionnaire (see Appendix A) to guide interviews with nine carriers and shippers in the binational region of El Paso:

- Auto Transportes Chamizal (carrier).
- Border Express (carrier).
- Dynamo Fletes (carrier).
- Fletes Sotelo (carrier).
- RGX Transportistas (carrier).
- STIL (carrier).
- BOSCH (shipper).

- Lexmark (shipper).
- Yazaki (shipper).

These carriers and shippers participate in international commerce and provided further insight into the border crossing process, border wait times (BWTs), border crossing times (BCTs), acceptable BWTs and BCTs, and metrics to measure the efficiency of the border.

Researchers also interviewed agencies involved in the commercial border crossing process on the U.S. side of the border and trade stakeholders including:

- The City of El Paso.
- U.S. Customs and Border Protection (CBP).
- The Texas Department of Public Safety (DPS).
- The Federal Highway Administration (FHWA).

The study team used El Paso as a case study since the El Paso/Ciudad Juarez region is a major manufacturing region supporting a number of binational supply chains. Specifically, some manufacturing supply chains (e.g., automobile parts) in the region require unfinished products to cross multiple times as value is added on both sides of the border during the various steps in the supply chain and before the product is ultimately finished. These binational supply chains are specifically impacted by border delays. Furthermore, the El Paso Metropolitan Statistical Area (MSA) was the second largest Texas export region to Mexico in 2014, with more than \$16.9 billion in goods exported to Mexico (Table 3).

Table 3. 2014 Exports to Mexico by MSA.

Metropolitan Statistical Area	Mexico's Rank among MSA's Trading Partners	2014 Exports
Houston-The Woodlands-Sugarland	1	\$17,404,716,555
El Paso	1	\$16,924,524,386*
Dallas-Fort Worth-Arlington	1	\$5,028,074,277
Laredo	1	\$4,950,717,784
San Antonio-New Braunfels	2	\$4,866,715,239
Beaumont-Port Arthur	1	\$2,009,545,526
Austin-Round Rock	N/A	\$522,530,554 [†]

^{*} Some of the value of export trade reported for the El Paso MSA may include exports that are produced in other regions but are shipped through El Paso. Due to the data collection method, it is not possible to determine the true origin of all goods traded, so the high values for El Paso likely reflect their point of departure, instead of their point of origin.

[†] Only data for 2013 exports to Mexico were available for the Austin-Round Rock MSA. Source: (1)

El Paso Border Infrastructure

Figure 1 shows all the international border crossings in Texas.

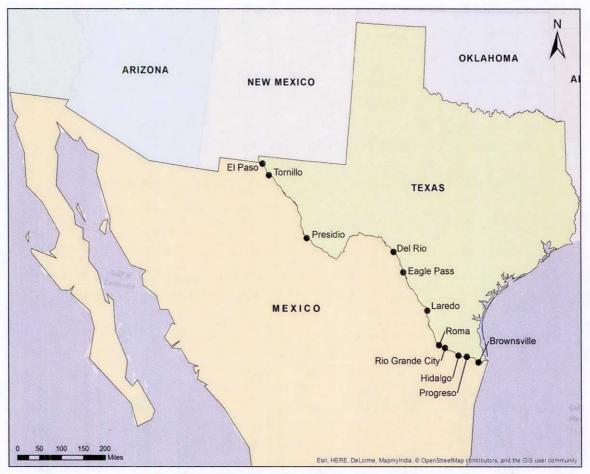


Figure 1. International Border Crossings in Texas.

The El Paso region is served by three international commercial vehicle bridges:

- Bridge of the Americas (BOTA) was constructed in the late 1990s and is located in the central area of El Paso. BOTA is the only toll-free bridge in El Paso. It has six lanes for commercial vehicles.
- The Ysleta-Zaragoza Bridge is located on the eastern limits of the city. The international bridge provides eight lanes for commercial vehicles.
- The newly constructed Guadalupe-Tornillo International Bridge is located about 30 miles east of downtown El Paso. It has three lanes to accommodate commercial and privately owned vehicles.

Hours of Operation

Each bridge has different hours of operation for commercial vehicles (shown in Figure 2). Privately owned vehicles and pedestrian traffic are processed 24 hours a day.

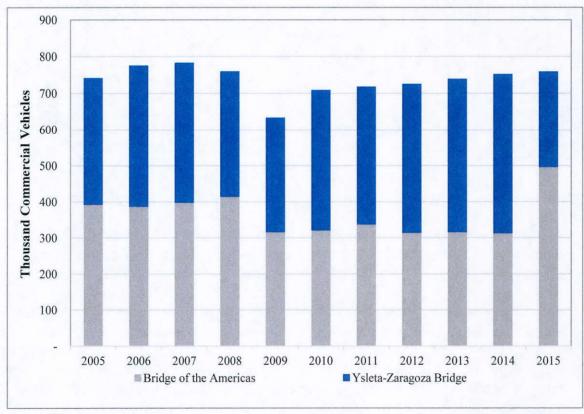
Hours of Operation for Commercial Vehicles

- Bridge of the Americas
 - o Monday through Friday, 6:00 a.m. to 7:00 p.m.
 - o Saturday, 6:00 a.m. to 2:00 p.m.
- Ysleta-Zaragoza Bridge
 - o Monday through Friday, 6:00 a.m. to 12:00 a.m.
 - o Saturday, 6:00 a.m. to 4:00 p.m.
- Guadalupe-Tornillo International Bridge
 - o Monday through Friday, 6:00 a.m. to 10:00 p.m.

Figure 2. Hours of Operation for Commercial Vehicles as of August 2016.

Commercial Vehicle Crossings in El Paso

Figure 3 shows the number of commercial vehicle crossings for the El Paso/Juarez border between 2005 and 2015. More than half a million trucks cross the El Paso/Juarez border each year. Commercial vehicle crossings reached a peak in 2007 at nearly 783,000 crossings.



Source: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, based on data from the Department of Homeland Security, U.S. Customs and Border Protection, Office of Field Operations.

Figure 3. Commercial Vehicle Crossings per Year at the El Paso/Juarez Border Region.

Crossing the Texas-Mexico Border

Transporting freight across the United States—Mexico border is a complex part of a multilateral supply chain. Mexico is anticipated to remain a key trading partner of the United States and specifically of Texas for the years to come, so it is important to understand how commercial vehicles cross the Texas-Mexico border and the associated challenges to prioritize investments and initiatives that support the safe, secure, and efficient movement of trade across the border.

Border Crossing Process for Northbound Commercial Vehicles

The northbound process for a commercial vehicle crossing the border (i.e., from Mexico to the United States) is more involved and complicated than the southbound process, with potentially more required inspections. This section provides an overview of this process.

The crossing process starts at a maquiladora (assembly plant) in Mexico with the products to be exported to the United States. After the products are ready to be shipped, the maquiladora secures a drayage or transfer truck company to move the goods from Mexico to Texas. The company collects the products at the maquiladora.

The Mexican customs broker files an electronic manifest (e-Manifest) with the CBP Automated Commercial Environment system prior to the estimated time of arrival at the port of entry (POE). The e-Manifest enables CBP to prescreen the shipper, carrier, driver, conveyance, equipment, and shipment information before the truck arrives at the border.

Once the authorized drayage or transfer truck is at the international border with the required documentation and authorized driver, the products can potentially be directed to four different inspection areas before crossing the international border (2,3):

- Mexican export lot—The Mexican customs agency (Aduanas) verifies the documentation and conducts random inspections (consisting of a hands-on inspection of outbound cargo) of drayage cargo prior to its export to the United States. Cargo that is not randomly selected proceeds to an exit gate.
- Mexican toll agency—The drayage or transfer truck pays a toll fee to cross the international bridge. The exception is BOTA in El Paso, which does not charge a toll fee.
- U.S. federal compound—CBP conducts inspections at the international bridges. CBP focuses on risk management, which requires commercial vehicles to undergo multiple and varied types of import security and trade enforcement reviews.
- Texas Border Safety Inspection Facility—DPS inspects both the transfer truck and trailer to ensure compliance with Texas motor vehicle safety standards and regulations.

After being cleared by all agencies, the drayage or transfer truck delivers the products to a warehouse in El Paso. U.S. long-haul carriers collect the products and transport them to their final destination in the United States.

Figure 4 shows the northbound border crossing process.

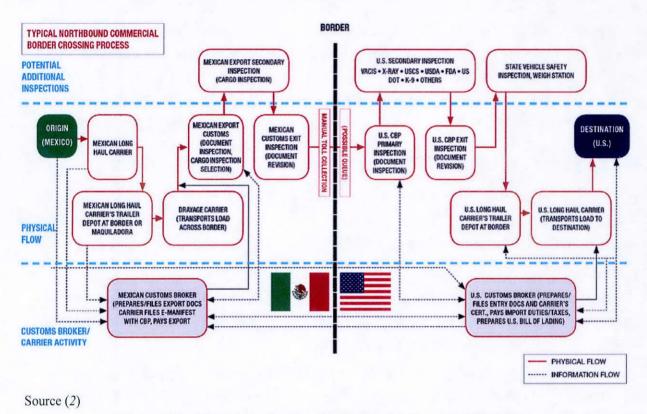


Figure 4. Northbound Border Crossing Process for Commercial Vehicles.

Figure 5 describes the northbound border crossing process from a carrier's perspective. Carriers in the Ciudad Juarez region undergo an additional security inspection to verify that the shipment is not contaminated. The truck driver stops prior to entering the Mexican export lot at a location near the international bridge called pre-inspection (pre-co). Pre-co lots are operated by a private security service hired by the maquiladoras and the carriers. The security staff, assisted by drug detection dogs, inspects the truck and clears the driver to enter the Mexican export lot.

In addition, federal border crossing commercial vehicle security programs offer an expedited clearance process for drivers, transfer trucks, and low-risk cargo. The Free and Secure Trade (FAST) program operated by U.S. CBP provides a dedicated lane aimed at expediting the screening and clearing of commercial vehicles that participate in the program. Currently, this program is offered at most of the international crossings (4). To enroll in the FAST program, the manufacturer, carrier, driver, and importer must meet the program's eligibility requirements, as well as register and be certified under the Customs-Trade Partnership Against Terrorism (C-TPAT) program.

Carrier Description of Northbound Border Crossing Process

- 1. A private security company inspects the truck and trailer.
- 2. The private security company keeps a log with the driver's license and visa information and provides the driver a badge of compliance.
- 3. The driver proceeds to the loading site.
- 4. The private security company or the maquiladora loads an ISO/PAS sealed container (i.e., seals that are given to cargo that are high-security compliant) on the trailer while the driver reports to the dispatch base. Dispatch provides the driver with information on the load type and weight.
- 5. The truck leaves the facility and reports it has left and is on its way for delivery.
- 6. The truck stops at the K9 unit on the Mexico side of the border to inspect the truck. At this pre-co point (operated by a private security service hired by the maquiladoras), the security company inspects the truck and informs the truck driver he/she can enter the Mexican export lot.
- 7. The truck driver pays the toll.
- 8. Once the truck passes Mexican customs, the driver reports in with the dispatch.
- 9. The driver reports passing CBP or reports going to secondary inspection.
- 10. When trucks are released from inspection (i.e., primary or secondary), the truck driver reports in with the dispatch.
- 11. Once cleared by CBP, the Federal Motor Carrier Safety Administration, and DPS, the driver delivers his cargo. He/she reports the delivery to the dispatch and waits for the return trip instructions.

Figure 5. Northbound Border Crossing Process Described by Carrier.

Border Crossing Process for Southbound Commercial Vehicles

The border crossing process for southbound commercial vehicles is similar to the northbound process, but the Mexican customs agency (Aduanas) conducts only one potential inspection (see Figure 6).

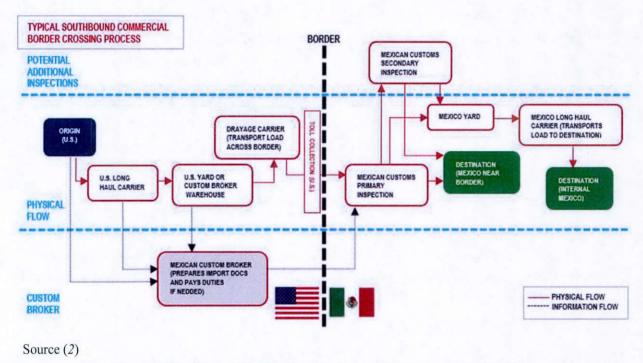


Figure 6. Southbound Border Crossing Process for Commercial Vehicles.

The process begins with a Mexican custom broker preparing and sending the required import documents (e.g., both paper and electronic forms) to the Mexican customs agency and paying the required import duties. After the products are ready to be shipped, a drayage or transfer truck move the goods from the United States to Mexico.

The Mexican customs (Aduanas) uses a red light/green light system (i.e., a red light indicates that a randomly selected loaded commercial vehicle is selected for secondary inspection). After leaving Mexican customs, the truck driver usually drives to a final destination close to the border area or drives to a Mexican yard to drop off the trailer for later pickup by a long-haul tractor bound for the interior of Mexico.

CBP has recently started to conduct physical inspections of commercial vehicles on the U.S. side, with the objective of decreasing the illegal shipments of cash and weapons into Mexico.

Time to Cross in El Paso

To quantify the BWTs and BCTs in the El Paso area, researchers used data from TTI's Border Crossing Information System (BCIS) funded by the Texas Department of Transportation (TxDOT), FHWA, and CBP (see http://bcis.tamu.edu/). The BCIS provides historical data of actual wait times and actual crossing times at seven POEs in Texas and one POE in Arizona.

Average Crossing Time in 2013–2015

Figure 7 shows the average crossing times at the Ysleta-Zaragoza Bridge, located east of El Paso. The average monthly crossing time at the Ysleta-Zaragoza Bridge was about 46 minutes in April 2015, 21 percent higher than the 38 minutes in April 2014.

In addition, BOTA, which is located in central El Paso, has seen a 74 percent increase in average monthly crossing times, from 39 minutes in April 2014 to 68 minutes in April 2015 (see Figure 8). The demand for shorter wait times and crossing times has increased as commercial border crossing delays worsen.

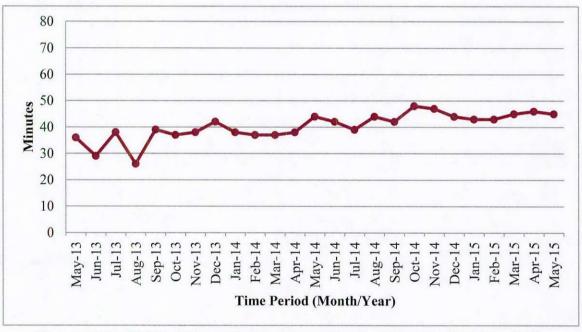


Figure 7. Ysleta POE in El Paso: Monthly Average Crossing Time (May 2013-May 2015).



Figure 8. BOTA POE in El Paso: Average Monthly Crossing Time (May 2013–May 2015).

Average Crossing Time in 2016

Average Weekly Crossing Time

In August and September 2015, TTI researchers started to collect BWT and BCT separately for the standard truck lanes and for the FAST lanes. Figure 9 and Figure 10 provide the average weekly crossing times for both international bridges for when the bridges are open (Monday-Saturday) between June 6, 2016, and July 30, 2016. As the figures show, the average weekly crossing time for both international bridges is longer around the 20th of each month.

The Ysleta-Zaragoza Bridge experienced an average weekly crossing time of 49 minutes for commercial vehicles using the standard truck lanes and an average weekly crossing time of 36 minutes for commercial vehicles enrolled in the FAST program. There appears to be a marginal difference in the average weekly crossing time between commercial vehicles using the standard truck lanes and the FAST lanes.

For BOTA, the average weekly crossing time was almost 70 minutes for commercial vehicles using the standard truck lanes and about 45 minutes for commercial vehicles enrolled in the FAST program (representing a 35 percent faster average weekly crossing time).



Figure 9. Ysleta POE in El Paso: Weekly Average Crossing Time (June 2016–July 2016).

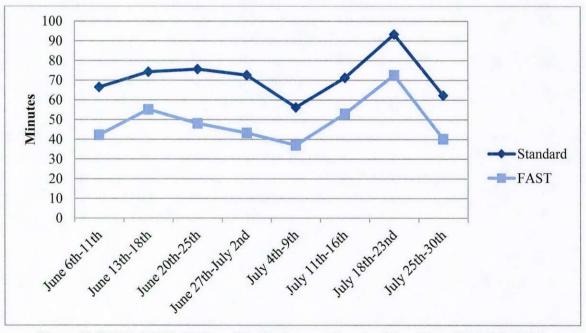


Figure 10. BOTA POE in El Paso: Weekly Average Crossing Time (June 2016–July 2016).

Average Hourly Crossing Time

Figure 11 and Figure 12 show the average hourly crossing times for the two international bridges from June 1, 2016, through July 30, 2016. BOTA is the only non-tolled bridge in El Paso. Carriers therefore send empty trucks to cross at BOTA in the morning to help reduce costs, increasing the average hourly crossing times until about noon. The Ysleta-Zaragoza Bridge shows a similar increase in the average hourly crossing times until about noon. Between noon and 9:00 p.m., the average hourly crossing time gradually decreases before it increases again as closing time nears.

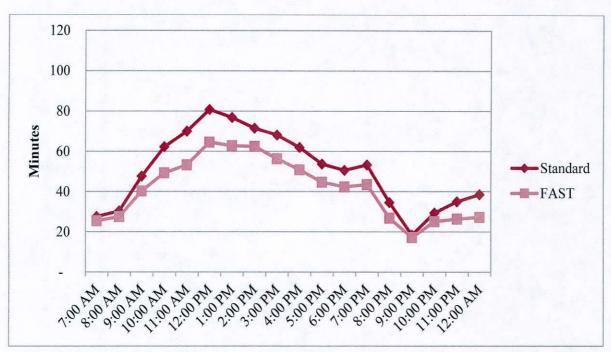


Figure 11. Ysleta POE in El Paso: Average Crossing Time by Hour of the Day (June 2016-July 2016).



Figure 12. BOTA POE in El Paso: Average Crossing Time by Hour of the Day (June 2016–July 2016).

Reasons for Border Crossing Delays

Findings from Literature

The literature documents various concerns about border transportation infrastructure and its operation on the United States–Mexico border (5,6,7,8). These concerns add costs to United States–Mexico trade and diminish the competitiveness of North American manufacturing. These concerns can be categorized as:

- Public policies and regulations.
- Gateway operations.
- Transportation system capacity and condition.
- Funding

Public Policies and Regulations

Public policy, the regulatory framework, and public agency actions are interrelated and potentially impact all aspects of trade and transportation. Specifically, freight flows from an area are often contingent on public policy. For example, NAFTA has facilitated significant trade with Mexico, with associated impacts on freight being transported across the United States—Mexico border. Similarly, Mexico's energy reform policies could impact Texas's transportation system.

Lack of Coordination

A lack of coordination between federal and state agencies, as well as between U.S. and Mexican governments, impact efficient border operations (7). For example, truck safety inspections by the U.S. Department of Transportation (USDOT) Federal Motor Carrier Safety Administration are often repeated by DPS when trucks are traveling in the commercial zone. Trucks are thus sometimes cited for the same infraction twice (9).

Truck Size and Weight Regulations

Truck size and weight regulations in the United States and Mexico differ. U.S. regulations specify a maximum gross vehicle weight (GVW) of 80,000 lb. for all truck configurations operating on the federal highway system. In Mexico, trucks operate at much higher weight limits than permitted in the United States. For example, the standard five-axle semitrailer (18-wheeler) can legally operate at a GVW of 96,800 lb. in Mexico.

One option to address the issue is to develop heavy-weight corridors that serve the international border crossing. In 1997, the 75th Texas Legislature (Texas State Senate Bill 1276) allowed TxDOT to grant the Brownsville Navigation District the authority to issue permits for the movement of oversize/overweight (OS/OW) vehicles transporting freight between the Gateway International Bridge and the Port of Brownsville. The success of this corridor has since resulted in the designation of a number of OS/OW corridors in the Lower Rio Grande Valley and Webb

County. Heavy-weight corridors allow the private sector to increase vehicle/container capacity use (specifically for cargo that weighs out before it cubes out). The heavy-weight corridor also removes the need for transloading cargo in Mexico to comply with more stringent weight regulations in the United States. This translates into significant savings to industry. TxDOT uses the revenues raised from the issued permits to maintain the designated heavy-weight corridors.

Gateway Operations

Over the years, the trucking industry, importers, exporters, and other stakeholders involved in international trade have raised concerns about the efficiency of the inspection process for commercial vehicles at the United States–Mexico border. Several international bridges have average wait times of more than 60 minutes, and more importantly, the travel time is very unreliable, with a buffer index¹ that sometimes reaches 200 percent or 300 percent.

A number of factors impact the operations at border crossings and could result in delays. These relate to both infrastructure (e.g., design of the border facilities, inadequate crossing capacity, scarce space for expansion of port inspection facilities [7], and inadequate road capacity serving the crossing) and operations (e.g., multiple border inspections [7], inadequate staffing to process vehicles² [7], burdensome documentation requirements, the number of agencies involved, and bridge operating hours³). For example, two of the three international bridges in the El Paso region are located near urban areas and have very limited empty land for infrastructure expansion. Also, on the Texas-Mexico border, the loading and shipping schedules of Mexican manufacturers near the border cause demand to exceed capacity during certain times of the day.

Although the emphasis has been on inspections and the delays experienced by northbound truck traffic, CBP has started to perform random manual inspections on the U.S. side of the border on trucks crossing into Mexico with the intent to identify illegal shipments of money and weapons. The existing border crossing facilities are not designed for southbound commercial inspection on the U.S. side of the border. Consequently, this has created congestion at the POE and the roads serving these POEs.

A buffer index measures the reliability of travel service and is expressed as a percent of average travel time. This is the extra percentage of average time that must be budgeted to cross the border. Source: Federal Highway Administration. Evaluation of Travel Time Methods to Support Mobility Performance Monitoring: FY 2001 Synthesis Report. Washington, D.C., 2001.

In 2001, FHWA conducted a crossing time study at three of the major United States—Mexico POEs and four of the United States—Canada POEs. The report summarizes for each POE the free-flow crossing time, the delay time (calculated by the difference between the average crossing time and the free-flow crossing time), a buffer time (the difference between the average crossing time and the 95th percentile crossing time), volume versus time relationships, and volume versus time versus open lanes. The results showed a correlation between delays and the numbers of booths open; the greater the number of booths open, the shorter the delay. Source: Federal Highway Administration. Evaluation of Travel Time Methods to Support Mobility Performance Monitoring: FY 2001 Synthesis Report. Washington, D.C., 2001.

The operational hours for each international bridge are different, and none of the El Paso bridges are open 24 hours a day seven day a week to process commercial vehicles.

Transportation System Capacity and Condition

The transportation system of a region—its capacity and condition—has a direct impact on international trade through service levels and costs. Inadequate capacity on local roads linking to international bridges and congestion on key NAFTA highway corridors serving the international bridges impact the flow of trade to, from, and through Texas. Inadequate road capacity near the bridges creates traffic bottlenecks. For example, BOTA has six lanes for commercial vehicles at CBP but only two lanes leading to the bridge, and one of them is used by the FAST-registered vehicles only.

Similarly, the rail system in Texas is impacted by growing metropolitan areas that cause bottlenecks, encroach on rail corridors, create conflicts at highway/rail grade crossings, and cause capacity concerns because of limited space for rail terminal expansion. The situation is even direr in the gateway communities on the border. In the El Paso area and in Laredo, the major rail terminals that serve cross-border rail are within the urban boundaries, compromising safety and the operating speed of trains.

Funding

During the past 16 years, the U.S. General Service Administration (GSA) has invested approximately \$1.8 billion from the Federal Buildings Fund in more than 20 land POEs along the northern and southern borders. CBP has, however, reported that about \$5 billion is needed to fund identified POE capital needs over the next 10 years (10). Although Congress has been reviewing POE funding, funding levels have been inadequate to cover the identified capital needs on the United States—Mexico border, amounting to between \$145 and \$150 million per year. At this rate, it will take 34 to 35 years to recapitalize the nation's POEs. This is daunting for Texas, which shares the largest border with Mexico, given that there are 34 bridges and border crossings (28 bridges serving vehicular and/or pedestrian traffic, and 6 serving freight rail) between Texas and Mexico.

To address inadequate resources in the Federal Buildings Fund for land POE projects and inspection needs, GSA and CBP have collaborated to explore alternative resources to fund high-priority land POE projects. The Donations Acceptance Program, which allows CBP to enter into partnerships for specific services and to accept certain donations, is an example of such an alternative funding initiative. CBP can accept private donations of land, property, and non-personal services (e.g., installation and deployment of equipment and technologies, and design and construction services). CBP is, however, under statutory limitations that prevent the acceptance of donations to cover operating and staffing costs (11). El Paso is, however, one of five cities that have been selected to pilot a public private partnership (PPP) with CBP for five years. In this pilot, the City of El Paso pays CBP staff overtime for staffing all lanes during peak hours in an effort to reduce wait times (12).

⁴ This translates into an investment of about \$5,625,000 per POE per year, which is 2.75 percent of the value of goods movements in Texas in 2014.

Industry Perspective

According to interviews conducted with shippers and carriers in the El Paso binational region, border delays are caused primarily by the trade processing system being down, staffing shortages, multiple border inspections, and inadequate infrastructure (see Table 4).

Table 4. Reasons for Delay in El Paso Region.

Reasons for Delay	Number of Times Mentioned
Processing system being down at CBP	5
Staffing shortages	5
Multiple border inspections	5
Inadequate infrastructure	4
Burdensome documentation requirements	3
Staff not familiar with inspection process	1
Getting trucks back to Mexico	1
Not enough carriers with the FAST program	1
Differences in holiday schedules	1

The CBP processing system being down is the most common cause for delay listed by the carriers and shippers. The consequence of the system shutting down is trucks sitting at the international bridge for most of a day.

The second reason given is a lack of personnel. Currently, only a few booths are open first thing in the morning. CBP opens more booths as the day progresses, adding capacity as the queue increases but not doing so proactively to anticipate higher demand.

Another common issue is the length of inspections and multiple inspections. The carriers/shippers describe the frustration their drivers experience when passing the USDOT inspection in one location and then failing the DPS inspection at another location. The two standards and inspection points add to the length of time trucks spend crossing the border.

CBP officers not familiar with the inspection process sending trucks for extra inspections was also mentioned as a reason for delay.

Substantial delays are also imposed as a result of differences in holiday scheduling. When the United States is observing a holiday, fewer booths are open to process trucks, increasing the wait time. When Mexico is observing a holiday, it is hard to get trucks to Mexico.

Delay Expectations

Industry Delay Expectations

Table 5 provides each shipper's/carrier's response, the bridge used, the reported time to cross the bridge, the ideal time to cross, and the maximum crossing time that is acceptable. A range of responses were documented depending on what bridge is used most often, the cargo transported, and their expectations. Although the reasons for the delay varied, all the carriers and shippers reported that long BWTs and BCTs increase their costs. The costs include, but are not limited to, paying for drivers and fuel while the trucks sit on the bridge, paying fines for not delivering cargo on time, paying to have a driver swapped out once the first driver runs out of driving hours, and the cost of having goods stuck in inventory in the United States or Mexico.

Table 5. Interviewees' Summary of Crossing Times.

Shipper/Carrier	Bridge	Reported Crossing Time*	Ideal Crossing Time*	Maximum Acceptable Crossing Time*
Carrier 1	Santa Teresa, New Mexico	90	40	80
Carrier 2	Ysleta-Zaragoza	135	60	90
Carrier 3	Ysleta-Zaragoza	240	120	120
Carrier 4	Ysleta-Zaragoza	Not given	Not given	Not given
Carrier 5	Bridge of the Americas	180	40	60
Carrier 6	Ysleta-Zaragoza	130	40	60
Shipper 1	Ysleta-Zaragoza	150	60	120
Shipper 2	Ysleta-Zaragoza	90	60	120
Shipper 3	Bridge of the Americas	120	60	60

^{*}All time values are provided in minutes.

Current Crossing Time

The carriers'/shippers' reported crossing times on the El Paso bridges ranged from 1.5 hours to 4 hours. Several of the companies reported waiting much longer to cross when the CBP processing system is down. In contrast, the reported crossing time for trucks at the Santa Teresa location (New Mexico) ranges from 0.5 hours to 1.5 hours.

Figure 13 shows that commercial vehicles using the standard truck lanes at the Ysleta-Zaragoza Bridge experience average hourly crossing times of more than 1 hour between 10:00 a.m. and 4:00 p.m., and those using the FAST commercial lanes experience average hourly crossing times of more than 1 hour between 12:00 p.m. and 2:00 p.m. The Ysleta-Zaragoza Bridge is open to commercial vehicles for 18 hours per day on weekdays. During weekdays, carriers experience average crossing times of more than an hour for 33 percent of the time that the bridge is open

when using the standard truck lanes and for 11 percent of the time that the bridge is open when using the FAST lanes.

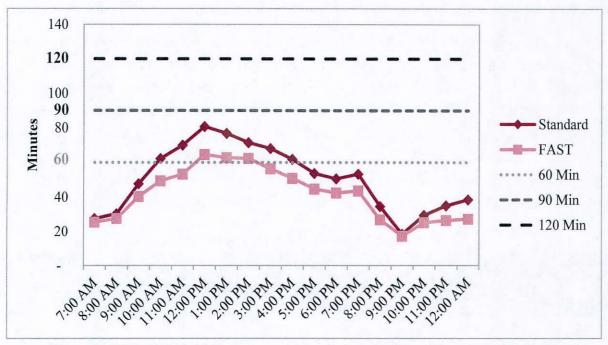


Figure 13. Ysleta POE in El Paso: Average Hourly Crossing Time (June 2016–July 2016).

Figure 14 shows that for BOTA, the average hourly crossing time for standard commercial vehicle lanes exceeds 1 hour between 10:00 a.m. and closing time. For FAST commercial vehicle lanes, the average hourly crossing time exceeds 1 hour between 11:00 a.m. and 5:00 p.m. Furthermore, BOTA experiences average hourly crossing times of more than 1.5 hours for standard commercial vehicle lanes between 12:00 p.m. and 3:00 p.m. BOTA is open to commercial vehicles for 13 hours per day during weekdays. Average hourly crossing times exceeding 1 hour are experienced 69 percent of the time the bridge is open when using the standard truck lanes and for 46 percent of the time that the bridge is open when using the FAST lanes.

Ideal Crossing Time

The average survey response when shippers and carriers were asked what the ideal crossing time would be for a truck to cross in El Paso is 1 hour, while the average maximum crossing time is nearly 1.5 hours.

Five of the nine carriers/shippers preferred a slightly longer but consistent border crossing time over a shorter but unpredictable crossing time. One of the interviewees described a successful day as a day when a truck makes four trips and an unsuccessful day as a day when the truck makes only two trips.

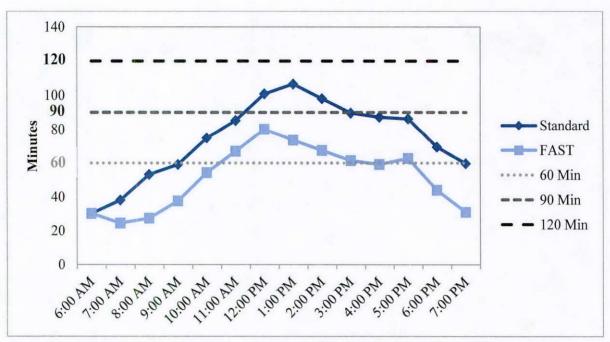


Figure 14. BOTA POE in El Paso: Average Hourly Crossing Time (June 2016-July 2016).

Agency Delay Expectations

The research team also interviewed agencies involved in the commercial border crossing process on the U.S. side of the border and trade stakeholders (e.g., the City of El Paso) to assess what is acceptable in terms of BWT and BCT, as well as other factors identified in the cross-border transportation process that contribute to delay.

Each agency provided the time needed for its inspection process to determine whether the truck, trailer, and driver are in compliance with the agency's safety standards and regulations. For example, a truck arriving at the CBP primary booth may only require an average of 3 to 4 minutes if the CBP officer does not send the truck to the secondary inspection area. If the truck is sent to secondary inspection, the truck is at the CBP secondary inspection bay for about another hour. In addition, other agencies can also send trucks for inspections inside the CBP facility, thereby increasing the time even when CBP released the truck. Lastly, the truck passes through DPS's Border Safety Inspection Facility.

Table 6 provides the average inspection times for the northbound commercial vehicle crossing process for agencies in the United States. The inspection times by the Mexican customs agency need to be added, however, to the inspection processing times listed in Table 6 to calculate the total inspection time.

Table 6. Agencies' Average Inspection Processing Time.

Agency	Inspection	Time of Inspection Process*
СВР	Primary	3 to 4
СВР	Secondary	60
LICDOT	Primary	Conducted at CBP Primary Inspection Booth
USDOT	Secondary	30
DDC/TyDOT	Primary	<1
DPS/TxDOT	Secondary	30

^{*}All time values are provided in minutes.

Proposed Initiatives to Reduce Border Delays in El Paso

The maquiladoras and inspection agencies are looking at the border crossing process from two different but not opposing perspectives. Carriers, shippers, and the inspection agencies involved have the same goal, and that is to get as many trucks across the border as efficiently and safely as possible. The agencies, however, are responsible for keeping the United States safe and ensuring adherence to U.S. law. The carriers and shippers want to cross as many trucks as possible to reduce costs and to be competitive in the global market. Just as the various agencies are not willing to compromise on safety and security, the carriers and shippers are not willing to compromise on cost efficiency.

Initiatives Proposed by Industry

Researchers asked what the carriers and shippers would like done to improve border crossing times. Figure 7 provides a list of proposed initiatives.

Table 7. Interviewees' Proposed Initiatives.

Proposed Initiatives	Number of Times Mentioned	Classification
More toll booths open	7	Operational
More inspection staff	6	Operational
Unified holidays	2	Operational
Single inspection point	1	Operational
Longer hours of operation	1	Operational
Streamlined documents	1	Operational
Permit extensions*	1	Operational
Backup system for documents	1	Operational
More inspection bays	5	Infrastructure
More lanes	5	Infrastructure
More x-ray machines	1	Infrastructure
Tracking trucks with global positioning system	1	Administrative
Certifying more companies with FAST	1	Administrative

^{*} In some instances, import permits provide an inadequate window for maquiladoras (assembly plants) to prepare a shipment to be sent to the United States.

Three categories were defined—operational improvements, infrastructure, and planning/studies. Most of the proposed initiatives related to operational improvements (e.g., more open toll booths and more inspection staff) and investments in existing facilities to improve efficiency (as opposed to additional/new bridge crossings). All interviewees want all the booths open during the bridge's hours of operation. The carriers and shippers would like agencies to double the number of trucks it can currently process. The carriers pointed out that they would like as many booths open as possible in the morning when they ship the most goods. Many of the carriers and

shippers expressed an interest in wanting all the inspections to take place at the same time in one location to speed up the process and to keep multiple agencies from inspecting the same cargo for the same thing. Specifically, they would like the federal and state safety inspections to be performed in the same place at the same time and have one approval instead of two separate inspections and approvals. The drivers are getting confused when they pass one USDOT inspection and then fail the next. According to the carriers and shippers, a combined safety inspection would make the process less confusing for the drivers and save time.

Most agency responses to the questionnaire mentioned increased infrastructure as the most effective measure to reduce border wait times. However, several of the agencies said increases in efficiency could reduce BWTs without having to build costly infrastructure. Some of the agencies want money spent on making the facilities that already exist more efficient, and others want an increase in infrastructure.

Initiatives Proposed by Agencies

The City of El Paso and a number of U.S. and Mexican agencies such as the tolling agency in Mexico (Fideicomiso de Puentes Fronterizos de Chihuahua, previously PromoFront) are currently working together on identifying projects for potential improvements at the Ysleta-Zaragoza Bridge (Appendix C lists the potential improvements).

Table 8 shows the potential improvement projects for the Ysleta-Zaragoza Bridge the Lean Six Sigma Steering Committee has identified. (Appendix B lists the committee members.)

Most of the initiatives mentioned by carriers and shippers fall into the operational improvements category, but only three of the potential improvement projects listed in Table 8 fall into this category.

Table 8. Potential Improvement Projects for the Ysleta-Zaragoza Bridge.

Description	Stakeholders Involved	Classification*
Operate both Mexican and U.S. customs on holidays on regular hours. Examine the best hours of operation.	CBP, Mexican customs, PromoFront, USDOT, City of El Paso, City of Juarez	Operational
Examine how to ramp up for peak demand at the end of the month.	PromoFront, City of Juarez, City of El Paso, DPS, El Paso Metropolitan Planning Organization (MPO), Municipal Institute of Research and Planning of Ciudad Juarez (IMIP, Spanish acronym), GSA, Secretariat of Communications and Transportation (SCT, Spanish acronym), USDOT, CBP	Operational
Conduct pre-inspection together	City of El Paso, maquiladoras,	Operational

Description	Stakeholders Involved	Classification*
with U.S. and Mexican customs.	trucking companies, brokers,	
	software companies	
Install signage, lane lines, signal	PromoFront, City of Juarez, City of	Infrastructure
lights, and visual controls to better	El Paso, maquiladoras, carriers, DPS,	
guide trucks into correct lanes.	MPO, IMIP, GSA, SCT, USDOT, CBP	
Install an additional lane to the toll	PromoFront, City of El Paso, GSA,	Infrastructure
bridge.	CBP, MPO, City of Juarez, SCT	
Improve road access into the	PromoFront, City of Juarez, IMIP, SCT	Infrastructure
system from the Mexican side.		
Improve the exit on the El Paso side	City of El Paso, FHWA, CBP, GSA,	Infrastructure
to reduce congestion.	Regional Mobility Authority (RMA),	
	USDOT, MPO	
Install electronic tolling.	PromoFront	Infrastructure
Construct a dedicated lane for	PromoFront, City of Juarez, City of	Infrastructure
certified shipments from Mexico to	El Paso, maquiladoras, carriers, DPS,	
the United States.	MPO, IMIP, GSA, SCT, USDOT, CBP	
Provide visible access to the live	K-9, Mexican customs, USDOT, DPS,	Infrastructure
condition at the port.	PromoFront, CBP, City of El Paso	
Install intelligent transportation	PromoFront, City of Juarez, City of	Infrastructure
system signage (with real wait	El Paso, maquiladoras, carriers, DPS,	12
times).	MPO, IMIP, GSA, SCT, USDOT, CBP	
The City of El Paso can serve as a	City of El Paso	Infrastructure
data host for wait time data.		
Investigate adding additional booths	City of El Paso, CBP, PromoFront,	Infrastructure
for the CBP area for the long term.	Mexican customs	
Investigate how to better	USDOT, DPS, truck drivers,	Administrative
coordinate the USDOT and DPS	maquiladoras	
inspections so that both are not		
performed unless necessary.		
Investigate technology solutions	K-9, Mexican customs, USDOT, DPS,	Administrative
that provide accurate crossing time	PromoFront, CBP, City of El Paso	
data.		
Investigate how to better	Maquiladoras, carriers, Mexican	Administrative
coordinate time slots for truck	customs, CBP, PromoFront	
arrival (pilot program).		
Quantify the economic impact of	City of El Paso, maquiladoras,	Administrative
the delayed shipment.	carriers, CBP, Mexican customs,	
	PromoFront	

 $[\]boldsymbol{*}$ TTI researchers classified the improvements.

Possible Metrics to Monitor

The industry and agency interviews revealed the need for benchmarks and technology to track and measure the efficiency of each element of the border crossing process. This will allow agencies to compare and benchmark the state of their facilities and help to inform policy changes or advocate for personnel, infrastructure, and funding changes.

Interviewees offered the following potential metrics to track:

- Percentage of carriers and shippers currently using the available BWT and BCT information.
- Number of/frequency of broker corrections (and the associated time penalty incurred).
- Tracking and sharing of truck inspection information to eliminate repeat inspections.
- Truck time spent at each of the agency inspections.
- Time to process paperwork.
- Southbound truck travel times.
- Number of open toll booths.
- Real-time truck volumes.
- Land-use development to predict future truck volumes.
- Truck distribution during bridge construction.
- Economic cost of border delays.

Shipment tracking is a metric that both CBP and industry would like to see implemented:

- Industry can track when brokers submit their documents and the status of their documents in real time.
- CBP can identify trucks with
 paperwork issues before they get
 too far in the crossing process.
 Creating a system similar to the
 package tracking systems used by
 parcel deliverers could be a tangible
 method for measuring the efficiency

of the border crossing process.

Conclusion

This document provides a detailed description of the typical procedure for commercial vehicles crossing the Texas-Mexico border. The literature review revealed that the underlying reasons for delays at the commercial border crossings in Texas can be categorized as:

- Public policies and regulations.
- Gateway operations.
- Transportation system capacity and condition.
- Funding.

Researchers contacted representatives of agencies involved in the commercial border crossing process and documented their average inspection process times. Researchers also contacted the private sector to get its perspective on the factors that cause border delays.

According to the private sector (shippers and carriers), border delays are related to factors such as:

- The trade processing system being down.
- Staffing shortages.
- Multiple border inspections.
- Inadequate infrastructure.

Proposed initiatives to address border delays were classified as:

- Operational improvements.
- Infrastructure investments.
- Administrative initiatives.

Some of the proposed initiatives include:

- More personnel.
- More inspection bays open.
- More lanes open.
- A unified holiday schedule.

Many agencies also want benchmarks and technology for measuring crossing times in a way that would accurately track border crossing efficiency. Managers could then use the benchmarks and compare them to the current state of their facilities to help them implement policy or advocate

for personnel, infrastructure, and funding changes. The study team also identified potential metrics that can be tracked to inform state-level policy aimed at facilitating the crossing movement. For instance, proposed metrics include tracking the percentage of carriers and shippers using available information related to border crossing, tracking custom broker corrections to find how often they occur and how long they take, and tracking the time to process paperwork and southbound commercial vehicle travel times.

Having a more efficient international border will allow products to get to customers on time, reducing shipping cost. Products arriving at their destinations on time would also decrease the fees charged to the carriers and shippers for late shipments or remove the need for products sitting in warehouses for extended periods of time. Transporting goods across the border reliably could also make Texas more competitive and attractive to foreign investment, thereby increasing global trade and creating more jobs.

Appendix A: Questionnaire to Guide Interviews with Carriers and Shippers



How Long is Too Long to Cross the Border Interview Guide

The Texas A&M Transportation Institute is conducting a study that will document the procedures for crossing the Texas-Mexico border, identify the major factors contributing to delays at commercial border crossings, understand the expectations for border wait times (BWTs) and border crossing times (BCTs) by industry and the agencies involve in cross-border movements, and to identify metrics that can be tracked to inform state-level policy affecting planning and operational decisions aimed at facilitating cross border freight movements. Your participation in this study will provide invaluable insight into understanding border delays and to identify appropriate metrics that can help to inform state-level policies aimed at streamlining the process of bi-national freight transport.

- Please describe the step-by-step process for crossing the Texas-Mexico border (industry only) starting at the maquila in Mexico and ending at the U.S. destination.
- 2. Which international bridge(s) do you use most often to cross into the U.S.?
- On average, how long does it take your truck/goods to cross the bridge(s)? Please specify queuing time and crossing time separately, if applicable.
- 4. What are the major factors contributing/causing delays on the Texas-Mexico border?
- How do delays (waiting and crossing time) impact your company? Please be as specific as possible.
- 6. What can be done to address border delays (waiting and crossing time)?
- 7. What would be your ideal average crossing time (include queuing and crossing time)?
- 8. What would be the benefits to your industry?
- 9. What average crossing time (include queuing and crossing time) is acceptable/reasonable?
- 10. What would you prefer: your ideal average crossing time specified in Question 7 or a reliable crossing time that is twice your average crossing time?
- Currently, Texas collects BWT and BCT. What other measures should be tracked to inform state-level policies aimed at streamlining the process of bi-national freight transport.



Appendix B: Lean Six Sigma Steering Committee Participating Members

Agency	Origin	Sector
Mexican Aduanas	Ciudad Juárez	Public
Transportistas (Sotelo and Tracso)	Ciudad Juárez	Private
Maquiladoras (MFI, Electrolux, and Toro)	Ciudad Juárez	Private
District 16 Congressional Office	El Paso	Public
City of El Paso	El Paso	Public
Desarrollo Económico de Ciudad Juárez	Ciudad Juárez	Non-profit
INDEX (maquiladoras association)	Ciudad Juárez	Private
Custom brokers (Pedraza, Inc., and BAB, Inc.)	Ciudad Juárez	Private
U.S. Customs and Border Protection	El Paso	Public
Texas Department of Public Safety	El Paso	Public
Texas Department of Transportation	El Paso	Public
Metropolitan Planning Organization	El Paso	Public
PromoFront	Ciudad Juárez	Private
Municipio de Ciudad Juárez	Ciudad Juárez	Public
Instituto Municipal de Investigación y Planeación	Ciudad Juárez	Public

Appendix C: Potential Improvement Projects

Item No.	Description	Stakeholders Involved
1	Install electronic tolling.	PromoFront
2	Install signage, lane lines, signal lights, and visual controls to better guide trucks into correct lanes.	PromoFront, City of Juarez, City of El Paso, maquiladoras, carriers, DPS, MPO, IMIP, GSA, SCT, USDOT, CBP
3	Install an additional lane to the toll bridge.	PromoFront, City of El Paso, GSA, CBP, MPO, City of Juarez, SCT
4	Improve road access into the system from the Mexican side.	PromoFront, City of Juarez, IMIP, SCT
5	Improve the exit on the El Paso side to reduce congestion.	City of El Paso, FHWA, CBP, GSA, RMA, USDOT, MPO
6	Operate both Mexican and U.S. customs on holidays on regular hours. Examine the best hours of operation.	CBP, Mexican customs, PromoFront, USDOT, City of El Paso, City of Juarez
7	Examine how to ramp up for peak demand at the end of the month.	PromoFront, City of Juarez, City of El Paso, DPS, MPO, IMIP, GSA, SCT, USDOT, CBP
8	Construct a dedicated lane for certified shipments from Mexico to the United States.	PromoFront, City of Juarez, City of El Paso, maquiladoras, carriers, DPS, MPO, IMIP, GSA, SCT, USDOT, CBP
9	Investigate how to better coordinate the USDOT and DPS inspections so that both are not performed unless necessary.	USDOT, DPS, truck drivers, maquiladoras
10	Provide visible access to the live condition at the port.	K-9, Mexican customs, USDOT, DPS, PromoFront, CBP, City of El Paso
11	Prove the tangible benefits of participating in C-TPAT.	PromoFront, City of Juarez, City of El Paso, maquiladoras, carriers, DPS, GSA, SCT, brokers, CBP
12	Conduct pre-inspection together with U.S. and Mexican custom.	City of El Paso, maquiladoras, trucking companies, brokers, software companies
13	Integrate decals for trucks.	PromoFront, CBP, Mexican customs, RMA, City of El Paso
14	Investigate technology solutions that provide accurate crossing time data.	K-9, Mexican customs, USDOT, DPS, PromoFront, CBP, City of El Paso
15	Reduce the percentage of empty trucks crossing by making it easier to connect to cargo to carry instead of dead heading empty.	Carriers, maquiladoras, brokers
16	Install intelligent transportation system signage (with real wait times).	PromoFront, City of Juarez, City of El Paso, maquiladoras, carriers, DPS, MPO, IMIP,

Item No.	Description	Stakeholders Involved
		GSA, SCT, USDOT, CBP
17	The City of El Paso can serve as a data host for wait time data.	City of El Paso
18	Put together a team to work on trusted trade to increase participation.	Mexican customs, City of El Paso, TTI, CBP, carriers, maquiladoras, PromoFront
19	Investigate adding additional booths for the CBP area for the long term.	City of El Paso, CBP, PromoFront, Mexican customs
20	Implement a push message system for participating members (i.e., text messages).	Mexican customs, City of El Paso, TTI, CBP, carriers, maquiladoras, PromoFront
21	Investigate how to better coordinate time slots for truck arrival (pilot program).	Maquiladoras, carriers, Mexican customs, CBP, PromoFront
22	Quantify the economic impact of the delayed shipment.	City of El Paso, maquiladoras, carriers, CBP, Mexican customs, PromoFront

References

- U.S. International Trade Administration, 2016. TradeStats Express State Export Data.
 Online database. http://tse.export.gov/tse/TSEReports.aspx?DATA=SED. Accessed 13 June 2016.
- 2. Villa, J. C. SR 11/Otay Mesa East Port of Entry ITS Technology Pre-deployment Strategy Phase 1. 2011.
- 3. Rajbhandari, R., J. Villa, R. Macias, and W. Tate. *Border-Wide Assessment of Intelligent Transportation System (ITS) Technology—Current and Future Concepts.* Washington, D.C., 2012.
- 4. Department of Homeland Security. *Free and Secure Trade Program—Continued Driver Eligibility*. Washington, D.C., 2012.
- 5. Bakir, N. O., and D. Pakdaman. An Analysis of Truck Cargo Security at Southwestern Borders and Potential Impacts of Cross-Border Trucking Services of Mexican Carriers on Terrorism Risk Exposure. Center for Risk and Economic Analysis of Terrorism Events, University of Southern California, 2006.
- 6. Federal Highway Administration. Evaluation of Travel Time Methods to Support Mobility Performance Monitoring: FY 2001 Synthesis Report. Washington, D.C., 2001.
- 7. United States General Accounting Office. *U.S.-Mexico Border: Better Planning, Coordination Needed to Handle Growing Commercial Traffic.* Washington, D.C., 2000.
- 8. Homeland Security Today Staff. Customs and Immigration: CBP Signs Partnership Agreements for Expanded Services. Homeland Security Today. http://www.hstoday.us/focused-topics/customs-immigration/single-article-page/cbp-signs-partnership-agreements-for-expanded-services/cdf1a0bde34c5ae44c6d871ae19d1a16.html.
- 9. Personal communication with Cameron County. November 2015.
- 10. Counihan, D., and B. A. U.S.-Mexico Joint Working Committee on Transportation Planning: JWC Meeting Minutes. Santa Fe, New Mexico, July 13–15, 2009.
- 11. U.S. Customs and Border Protection. *Alternative Funding Programs: Donations Acceptance Program*. https://www.cbp.gov/sites/default/files/assets/documents/2016-Sep/DAP_Quick%20Reference%20Guide_20160902.pdf. Accessed 2016.
- 12. Information (Powerpoint Presentation) provided by City of El Paso. February 2017.

