

Texas-Mexico Border Region Connectivity Plan

Port-to-Port Connectivity Plan Technical
Memos

Preface

Disclaimer on Regional Definitions

The West, Central, and South border regions referenced in this report each encompass portions of multiple TxDOT districts. These regions were not defined according to district boundaries but instead reflect functional relationships among key origins and destinations within approximately 100 miles of the Texas-Mexico border. Each region represents a cluster of border-crossing activity hubs that are interconnected by shared supply chains and primary freight corridors.

This regional structure was developed to support the assessment of region-to-region connectivity. It emphasizes how well current corridors align with actual freight movement and helps identify capacity limitations or connectivity gaps that may not be apparent when using administrative boundaries alone.

Contents

- Crossing-to-Crossing Connectivity 1**
 - Introduction 1
 - Texas’ International Border Crossings..... 1
 - Crossing the Texas-Mexico Border..... 2
 - Border Crossing Process for Northbound Commercial Vehicles 3
 - Border Crossing Process for Southbound Commercial Vehicles 4
 - Border Crossing Closures 4
 - Alternative Crossing Analysis..... 6
 - Local Population Catchment..... 6
 - Diversion Routes, Wait Times, and Volumes 9
 - Crossing-to-Crossing Key Route Speeds (U.S.) 13
 - Concluding Remarks..... 15
 - Supplement A – Modes Processed at Texas-Mexico Border Crossings..... 18
 - Supplement B –Texas-Mexico Northbound Border Crossings (2022) 20
 - Supplement C – Crossing-to-Crossing Connectivity 24
- Case Studies for Alternative Routes During International Bridge Closures93**
 - Objective 94
 - Del Rio International Bridge Closure 95
 - Pharr-Reynosa International Bridge Closure 111
 - Bridge of the Americas Closure 119
- Crossing-to-Maritime Port Connectivity 126**
 - Introduction 127
 - Maritime Ports in Texas 127
 - Texas Deep Port Characteristics..... 129
 - Maritime Ports in Mexico 134
 - Port-to-Border Crossing Corridors 139
 - Port-to-Maritime Port Challenges and Recommendations..... 141
 - The Central Region..... 147
 - The South Region 154
 - Future Trends..... 160

Texas-Mexico Border Region Connectivity Plan

Crossing-to-Crossing Connectivity

Introduction

International border crossing and transportation infrastructure and operations at the Texas-Mexico border are essential for trade, economic growth, regional development, and border communities. Efficient transportation is vital for maintaining the competitiveness of both countries and ensuring the prosperity of the border region. It also plays a key role in addressing various social, environmental, and security considerations.

Border crossings are on occasion closed due to infrastructure/technological, inclement weather, natural disasters, personnel, political, or security reasons. To support continuity and resilience in the movement of people and goods across the border, connectivity between crossings is an important consideration for the Texas Department of Transportation (TxDOT).

The 2021 Texas-Mexico Border Transportation Master Plan (BTMP) recommended that regional connectivity studies are conducted to “assess connectivity issues and challenges between existing border crossings” and “from border crossings to Texas and Mexico seaports”.

To facilitate the advancement of the BTMP, the Texas Department of Transportation (TxDOT) initiated this study to identify:

- the level of redundancy of the connections among the border crossings (i.e., how will traffic be diverted in the event of a border crossing closure to ensure minimum disruption), and
- potential needs (e.g., bottlenecks, network gaps, safety, congestion, land use incompatibility, etc.) on the corridors connecting the crossings.

This report documents the scale and suitability of connecting infrastructure between crossings to support local and regional movement of people and goods in the event of an international bridge closure.

Texas’ International Border Crossings

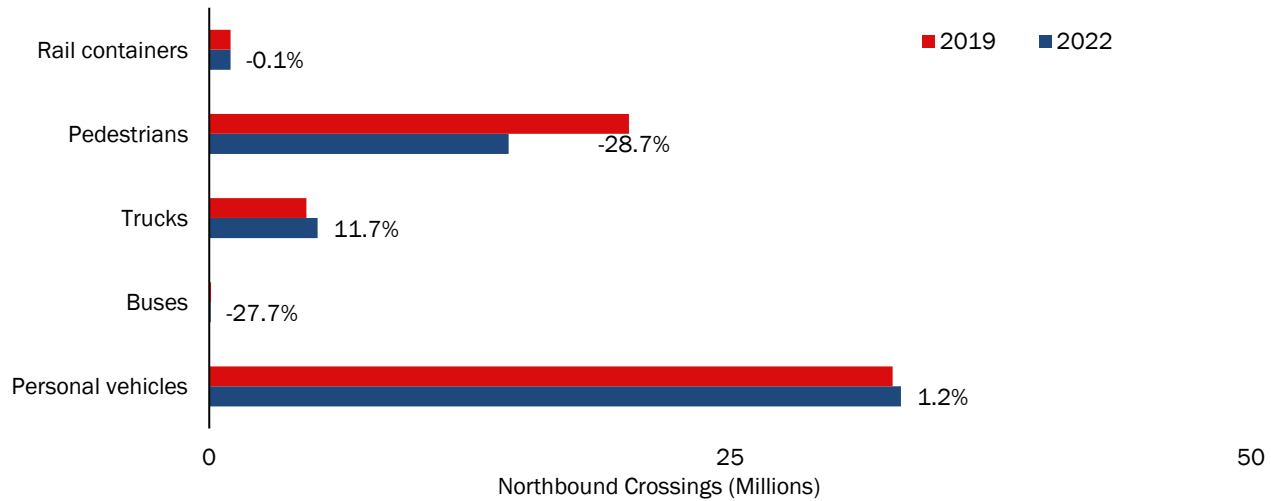
There are 35 international border crossings on the Texas- Mexico border and one in New Mexico of which:

- 28 crossings process personal vehicles (POVs);
- 18 crossings process busses;
- 15 crossings process personal vehicles;
- 22 crossings process pedestrians;
- 6 crossings process rail.

In 2022, 38 million POVs, 14 million pedestrians, and more than five million trucks were processed at the Texas-Mexico border crossing from Mexico into Texas (northbound).

Figure 1 shows a modest increase in northbound POV crossings at the Texas-Mexico border in 2022 compared to 2019, while northbound pedestrian and bus crossings have reduced by around 28 percent. Northbound rail freight containers have remained constant, while northbound truck crossings have increased 12 percent; from 4.7 million trucks in 2019 to 5.2 million in 2022.

Figure 1. Texas' Ports and Major Commodities Handled



Supplement A provides the modes processed at each of the international crossings along the Texas-Mexico border. Supplement B provides the northbound POV, truck, rail car, train, bus, and pedestrian crossings in 2022.

Crossing the Texas-Mexico Border

With the implementation of the North American Free Trade Agreement (NAFTA), the relationship between the U.S./Texas' and Mexico's industries has evolved from buyers and sellers of raw materials to sophisticated and integrated binational supply chain partners. Industries capitalize on their competitive advantage so that intermediate products cross the border several times as value is added on both sides of the border; lowering overall production costs. Since NAFTA, U.S. merchandise trade with Mexico increased 699 percent and Texas merchandise trade with Mexico increased 738 percent (i.e., between 1994 and 2023). Trade with Mexico is anticipated to continue to increase given more stringent rules of origin for goods (such as automotive parts) prescribed by the U.S.-Mexico-Canada Agreement (USMCA), several major shifts in U.S.'s and Mexico's domestic policy, and the post-COVID regionalization of supply chains that have accelerated nearshoring trends. It is therefore important to understand how trade is processed, and commercial vehicles cross the Texas-Mexico border, as well as the impact of any natural or human-made disruptions to the border crossing process.

Border Crossing Process for Northbound Commercial Vehicles

The process for a truck crossing from Mexico into the U.S. starts at the shipper's warehouse (or maquila near the border) from where the products are shipped. Typically, a drayage truck transports the goods from the maquila or a warehouse/depot (at the border if the product arrived from an inland origin). A U.S. customs broker files an electronic manifest (e-Manifest) with Customs and Border Protection's (CBP) Automated Commercial Environment (ACE) system prior to the estimated time of arrival at the international crossing. The e-Manifest enables CBP to prescreen the shipper, carrier, driver, conveyance, equipment, and shipment information before the truck arrives at the border. The U.S. customs broker is not tied to a specific POE and can dispatch imports to cross into the U.S. at any POE. Duties and taxes on merchandise can be paid within 30 days of crossing the border.

CBP's ACE system allows for manifests to be filed weeks or at least two hours in advance. Average processing time is less than 30 seconds.

When the drayage truck arrives at the international crossing, the driver enters the Mexican export lot¹ with the required documentation where the National Customs Agency of Mexico (ANAM) verifies the documentation and conducts random inspections of drayage cargo (consisting of a hands-on inspection of outbound cargo) prior to its export to the U.S. Cargo that is not randomly selected proceeds to an exit gate. The documentation requirements are minimal. Forms are typically signed and sent electronically.

The drayage truck driver pays a toll fee to cross the international bridge.²

Once the driver crosses the bridge, the driver can pass through CBP primary inspection or be directed to secondary inspection. CBP focuses on risk management, which requires commercial vehicles to undergo multiple and varied types of import security and trade enforcement reviews.

Once cleared by CBP, safety checks are conducted by the Federal Motor Carrier Safety Administration and DPS (Texas Border Safety Inspection Facility). DPS inspects both the drayage truck and trailer to ensure compliance with Texas motor vehicle safety standards and regulations.

After being cleared by all agencies, the drayage truck delivers the products to a warehouse in the commercial zone. U.S. long-haul carriers collect the products and transport them to their final U.S. destination.

¹ In El Paso, some maquilas hire private security firms that inspect the trucks (at K9 units) on the Mexican side prior to entering the Mexican export lot to verify that the shipment is not contaminated.

² The exception is BOTA in El Paso, which does not charge a toll fee.

Border Crossing Process for Southbound Commercial Vehicles

According to CBP, international coordination regarding bridge closures has deteriorated since establishment of ANAM.

The process for a truck crossing from the U.S. into Mexico requires a number of inspections. The process starts at a warehouse near the border from where the products are shipped. The Mexican customs broker must unload, inspect, count, and classify each item at the warehouse to estimate taxes due before the shipment can be presented to the National Customs Agency of Mexico (ANAM). Once the taxes are estimated, the Mexican customs broker will inform the importer by 6:00 am of the taxes due. The broker will prepare the required documentation (e.g., pedimento in paper and electronic format) and provide to the accounting department of the importer. The accounting department will review the taxes due and determine when stock is required. If they approve the duties and stock is needed, the accounting department will send the required information to their bank. The bank will sign the pedimento and provide a check to the Mexican customs broker for the payment of the duties. The Mexican broker will send the required import documents (e.g., both paper and electronic forms) to the Mexican customs agency and pay the required import duties. The Mexican agency signs the pedimento. The process is typically completed by the afternoon (e.g., 3:00 to 4:00 pm). The importer will call the drayage company to pick up the products to be moved from the United States to Mexico. The required process to pay duties in advance of a truck crossing the border causes a peak in southbound movements in the late afternoon/early evening hours. When issuing a Customs Broker License to a Mexican customs broker, the Mexican Federal Government assigns the broker to a specific POE (primary) and three additional POEs for dispatching imports to cross into Mexico. Mexican customs brokers therefore enter into joint ventures with other brokers to allow them to dispatch loads at other POEs.

Mexican customs (ANAM) use a red light/green light system (i.e., a red light indicates that a randomly selected loaded truck is selected for secondary inspection). After leaving Mexican customs, the truck driver usually drives to a final destination close to the border area (e.g., a maquila) 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.

Border Crossing Closures

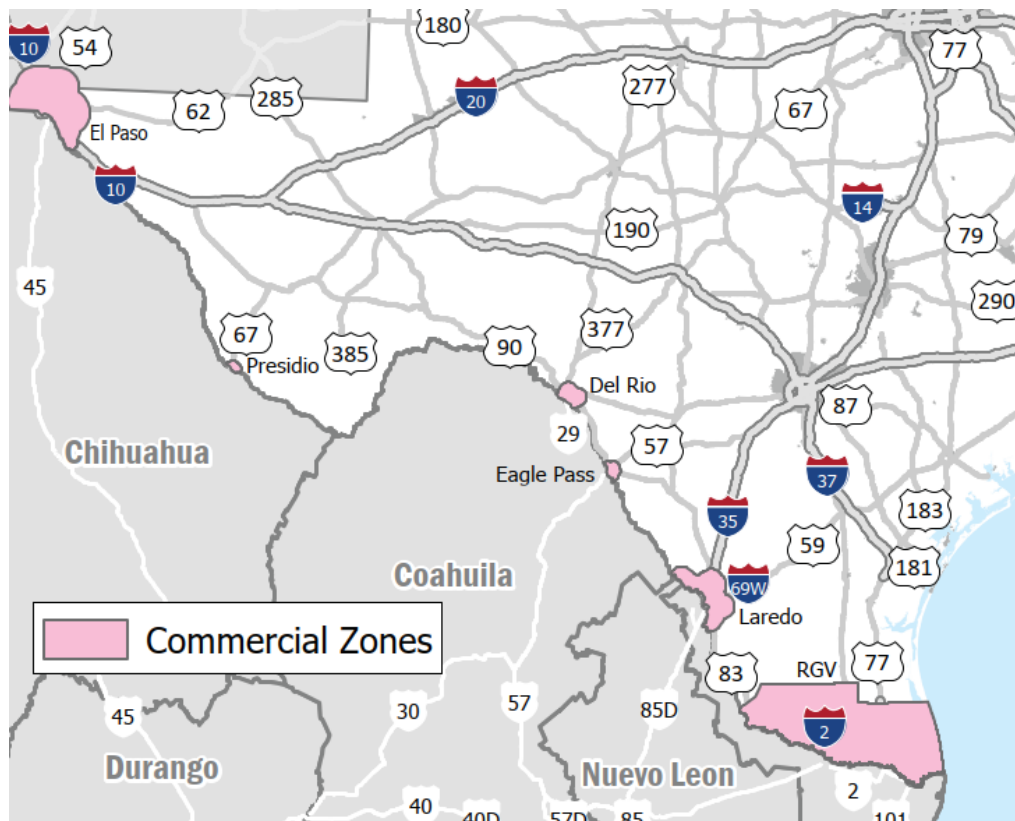
According to CBP Laredo, bridge closures are infrequent occurrences and may be attributable to decisions by the Texas Governor/Department of Public Safety (DPS) or in some cases for unspecified reasons at the Mexican side³ of the border. In the event of the ACE system going offline, CBP will continue operations using physical documentation, allowing 'conditional release' with a bond, and the broker paying the duties within 30 days. Shipments may, however, need to be held nearby (within city limits) for inspection by other agencies (e.g., such as the Federal Drug Administration). The CBP expects a basic manifest cover page (e-manifest), otherwise the carrier will be moved to the back of the line.

³ When Mexico closes a bridge, the U.S. will maintain a skeleton team on stand-by.

In the event of a bridge closure, a carrier can divert and enter at any port by getting their broker to complete a "Report of Diversion" (CBP Form 26). Furthermore, a recent update to ACE allows for CBP 'flex-users'. This update allows CBP officers to login and process the traffic that was diverted from the closed crossing at an alternative crossing as if they were at the closed crossing. In such instances, CBP typically dedicate one lane to the diverted traffic, with lane signage directing traffic from the closed crossing to the correct lane at the alternative crossing. CBP mentioned that their method of notification of a bridge closure is an email to a large industry distribution list.

According to one of the customs brokers interviewed, the typical response for a drayage company is to wait when a crossing closes for a short period (e.g., a few hours). For longer closures, the broker can modify the POE on the pedimento or the e-Manifest; a process which only takes five minutes. According to the customs broker, diverting to an alternative crossing in the event of a bridge closure complicates logistics. Drayage companies are typically contracted independently from the long-haul company. If a shipment is diverted to an alternative crossing, it may require the negotiation of a different contract with the transportation companies. The designation of commercial zones in the border region (see **Figure 2**) also prevents Mexican domiciled trucks to operate beyond these zones. For example, the commercial zone in Del Rio extends six miles beyond the city limit boundaries and the commercial zone in Eagle Pass extends four miles beyond the city limit boundaries. Mexican-domiciled trucks are therefore prevented from using US 277 to operate between Del Rio and Eagle Pass in the event of a Del Rio or Eagle Pass bridge closure.

Figure 2. Texas' Commercial Zones Along Texas-Mexico Border⁴



⁴ [NAFTA Permits | TxDmv.gov](http://NAFTA.Permits.TxDmv.gov)

Alternative Crossing Analysis

TxDOT conducted two analyses in relation to potential alternative crossings in the event of a closure:

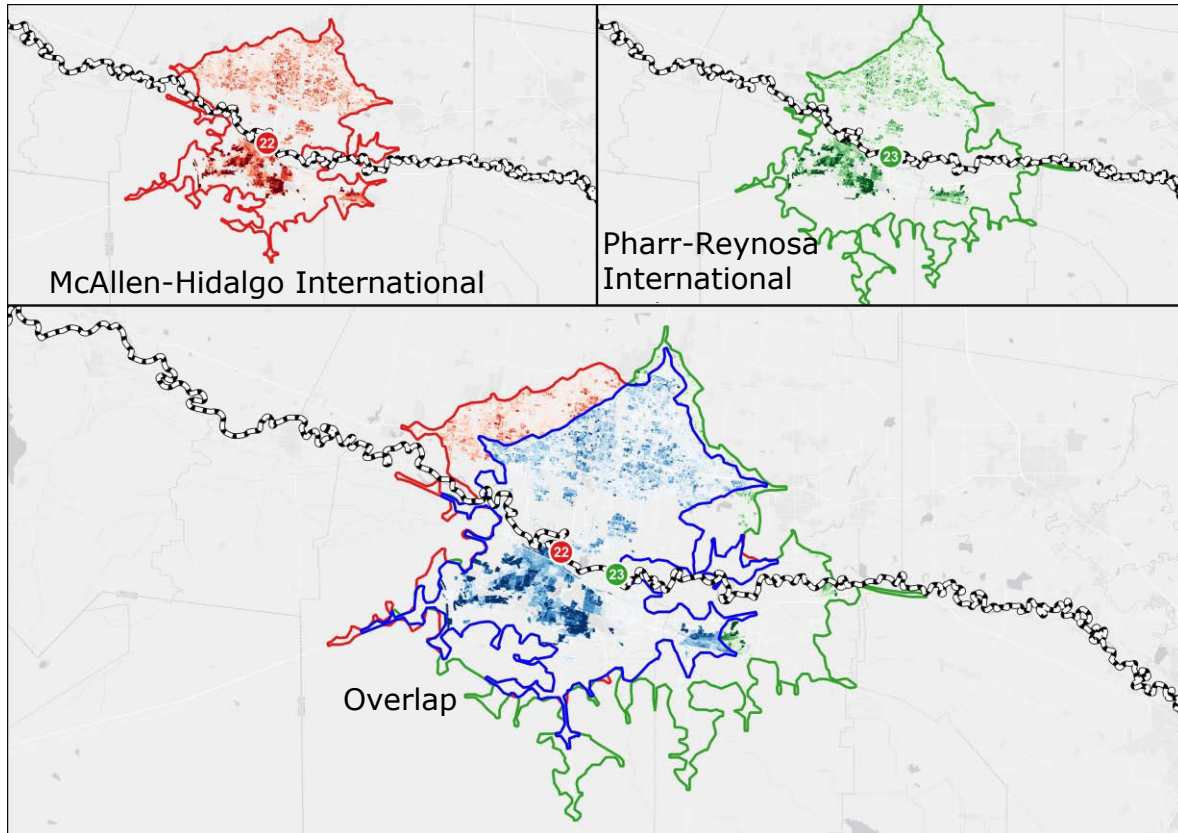
- an estimate of the local population served by one or more adjacent crossings and
- identification of infrastructure and travel times to alternative crossings which process the same modes.

The methodology for each of the analyses are described in more detail in the following sections.

Local Population Catchment

The population catchment analysis explores the total population that can be reached from either side of the border within a 30-minute drive-time. The drive time is calculated from the OpenRoute service API isochrones⁵, with the 2020 population estimated from the Global Human Settlement density maps⁶. An example of the overlap between the McAllen-Hidalgo International and the Pharr-Reynosa International Bridges can be seen in **Figure 3**.

Figure 3. Adjacent crossing copulation coverage analysis example (McAllen)



The population that can be captured within a 30-minute drive from the McAllen-Hidalgo International Bridge is 1.41 million people, and the population that can be captured at the Pharr-Reynosa International Bridge is 1.39 million. The population that overlaps between the two crossings is a

5 Openrouteservice API, <https://openrouteservice.org/> (retrieved March 2023)

6 2020 Global Human Settlement Layer. European Commission. <https://ghsl.jrc.ec.europa.eu/about.php> (retrieved March 2023)

measure of how well an alternative crossing serves the population currently served by a crossing in the event of a closure. For the example given, 1.28 million people can be served in the area of overlap, which means 91 percent of the population can be captured by the McAllen-Hidalgo International Bridge, and 93 percent of the population can be captured by the Pharr-Reynosa International Bridge.

The higher the percentage, the more resilient the accessibility is during a closure event – a score of 0 percent means that in the event of a closure, none of the demand within a 30-minute drive of the crossing could be served by an adjacent bridge, and a score of 100 percent means that all the demand can be served.

Table 1. Example 30-min Population Catchment/Overlap Analysis (McAllen)

Crossing	Catchment (millions)	Overlapped Catchment (millions)	Proportion Covered by Adjacent Bridge
McAllen-Hidalgo International Bridge	1.41	1.28	91%
Pharr-Reynosa International Bridge	1.39		93%

This exercise was completed for all combinations of international crossings as summarized in Table 2.

It is interesting to note that if the Santa Teresa International Bridge closed, 99 percent of the local population currently served at this location could be served by the Paso del Norte Bridge. But conversely, only 39 percent of the local Paso del Norte population could be served by the Santa Teresa International Bridge (see the top-left corner of Table 2). The “maximum coverage” column at the far right of Table 2 indicates the highest proportion of population served by any of the alternatives to a given international crossing.

Table 2. 30-min Population Catchment Overlap Analysis (All International Crossings)

If ↓ crossing is closed	% pop. covered by → adjacent bridge	New Mexico - Santa Teresa	Paso del Norte Bridge	Good Neighbor Bridge	Bridge of the Americas	Ysleta Bridge	Tornillo-Guadalupe	El Porvenir	Ojinaga International	Lake Amistad Dam Crossing	Del Rio International Bridge	Eagle Pass International Bridge	Camino International	Columbia Solidarity Bridge	World Trade Bridge	Gateway to the Americas	Juárez-Lincoln Bridge	Lake Falcon Dam Crossing	Miguel Alemán International	Starr-Camargo Bridge	Los Ebanos Ferry	Anzalduas International	Hidalgo International	Pharr-Reynosa International	Donna-Rio Bravo	Progreso International	Free Trade International	Brownsville & Matamoros Gateway	International Bridge	Veterans International Bridge at Los	Boquillas	Max coverage	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
New Mexico -	1		99%	97%	96%	91%																										99%	
Paso del Norte	2	39%		82%	98%	97%	4%	0%																									98%
Good Neighbor	3	46%	98%		99%	97%	3%																										99%
Bridge of the	4	38%	98%	83%		98%	4%	0%																									98%
Ysleta Bridge	5	35%	95%	79%	96%		5%	0%																									96%
Tornillo-Guadalupe	6		72%	41%	70%	92%		7%																									92%
Fort Hancock-El	7		0%		0%	31%	89%																										89%
Presidio-Ojinaga	8																																0%
Lake Amistad Dam	9									100%																							100%
Del Rio	10										96%																						96%
Eagle Pass	11																																99%
Camino	12												100%																				100%
Columbia Solidarity	13														99%	99%	99%																99%
World Trade Bridge	14														41%		98%	100%															100%
Gateway to the	15														41%	98%		100%															100%
Juárez-Lincoln	16														40%	98%	98%																98%
Lake Falcon Dam	17																		89%	82%													89%
Roma-Ciudad	18																	50%		95%	27%												95%
Starr-Camarqo	19																		37%	77%		42%	11%	1%									77%
Los Ebanos Ferry	20																			8%	15%		83%	67%	38%	0%	0%						83%
Anzalduas	21																				1%	16%		88%	82%	51%	25%	0%					88%
McAllen-Hidalgo	22																				0%	14%	95%		91%	57%	28%	0%					95%
Pharr-Reynosa	23																					8%	91%	93%		64%	34%	1%					93%
Donna-Rio Bravo	24																					0%	77%	79%	87%		59%	5%	0%				87%
Progreso	25																					0%	54%	56%	67%	87%		15%	1%	1%	2%		87%
Free Trade	26																						0%	1%	6%	16%	34%		48%	53%	56%		56%
Brownsville &	27																								0%	1%	20%		100%	100%			100%
Gateway	28																									1%	22%	97%		100%			100%
Veterans	29																									1%	22%	96%	99%				99%
Boquillas	30																																0%

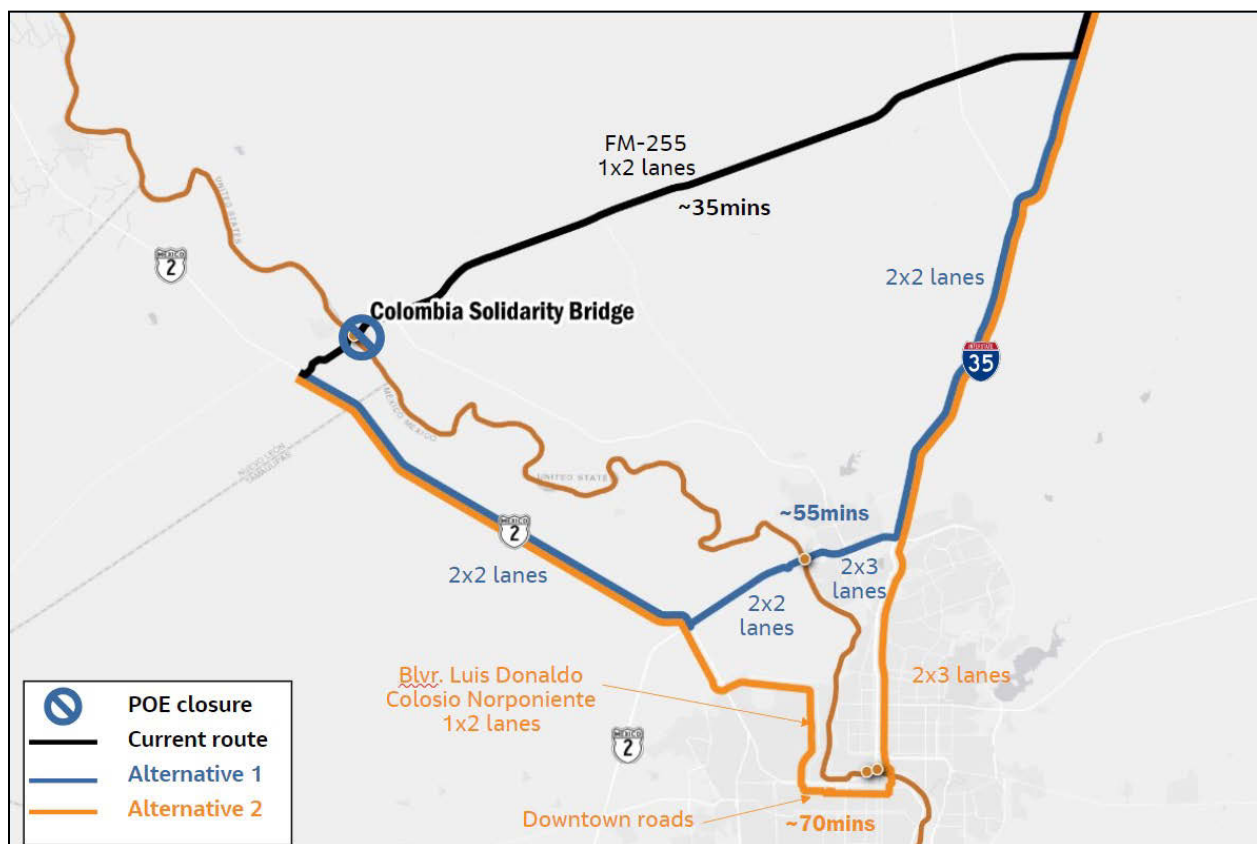
Diversion Routes, Wait Times, and Volumes

For each of the international crossings, a qualitative assessment was made regarding the most viable potential alternative international crossing in the event of a closure. The process involved:

- identifying the nearest alternative that can process either POVs/buses or commercial vehicles;
- identifying the potential routes and the current characteristics of key stretches of the route (in terms of number of lanes and whether a divided or undivided highway); and
- identifying the total number of processing lanes for POVs/buses and commercial vehicles and the typical average wait-times throughout the day.

An example is provided for the Colombia Solidarity Bridge in Laredo. If the Colombia Solidarity Bridge closes, POVs would need to be diverted to the Gateway to the Americas or Juarez Lincoln Bridge and commercial vehicles would need to be diverted to the World Trade Bridge (see **Figure 4**). These bridges are 20 and 15 miles to the south-east, respectively.

Figure 4. Route Options to World Trade, Gateway to the Americas, and Juarez-Lincoln International Bridges



There are generally low wait times of up to 20 minutes at the Colombia Solidarity Bridge for POVs (see Error! Reference source not found. 5) and slightly longer wait times of up to 30 minutes at the Gateway to the Americas Bridge (see **Figure 6**).

Figure 5. POV Delay and Number of Processing Lanes at Colombia Solidarity Bridge (June 2024)

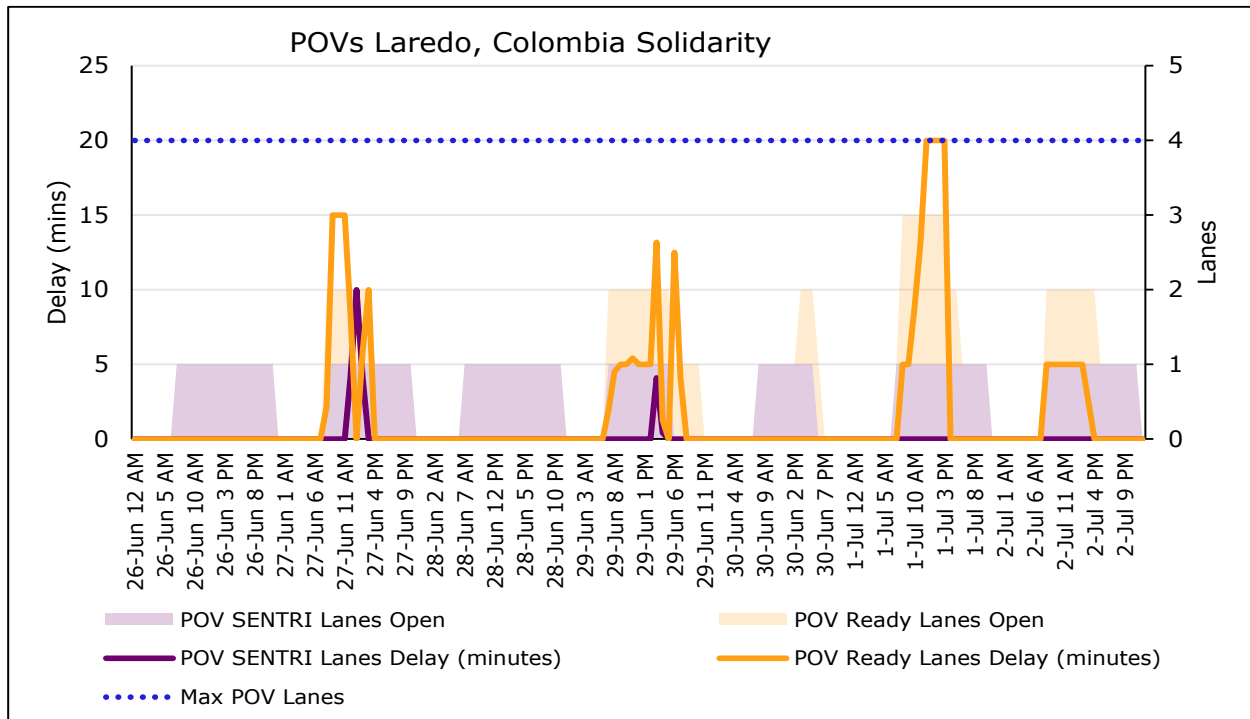
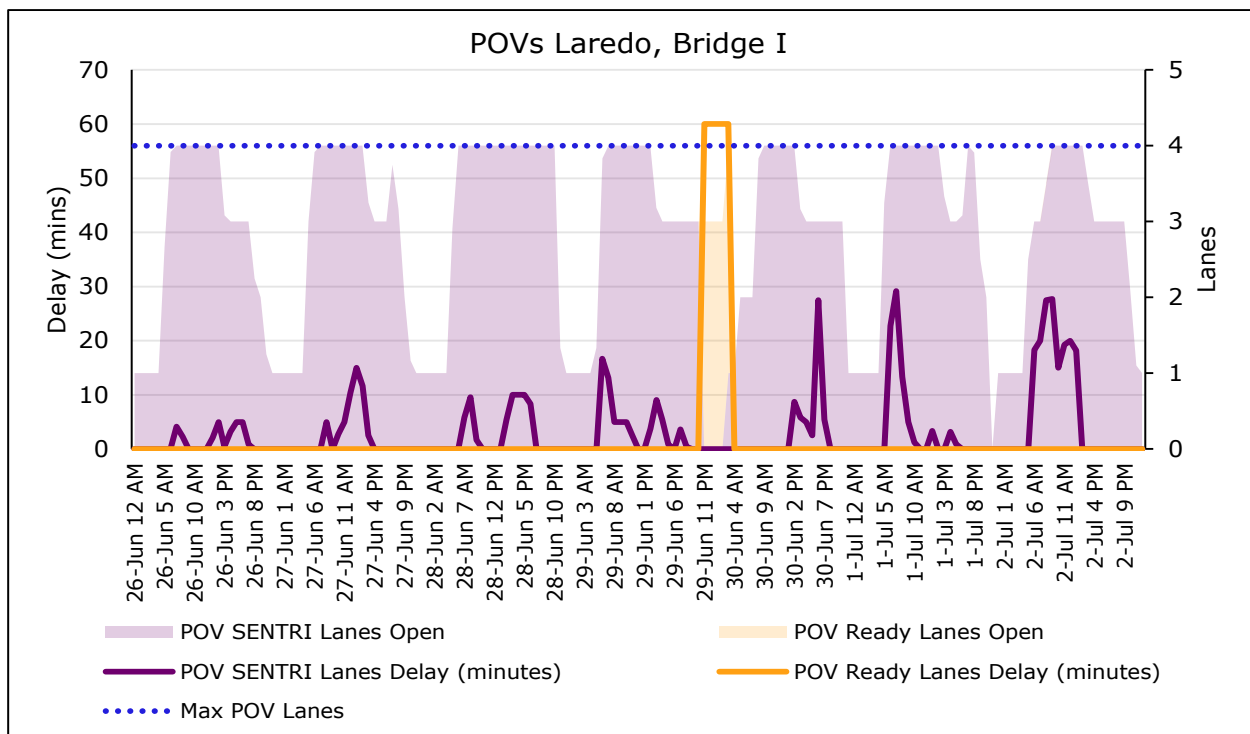
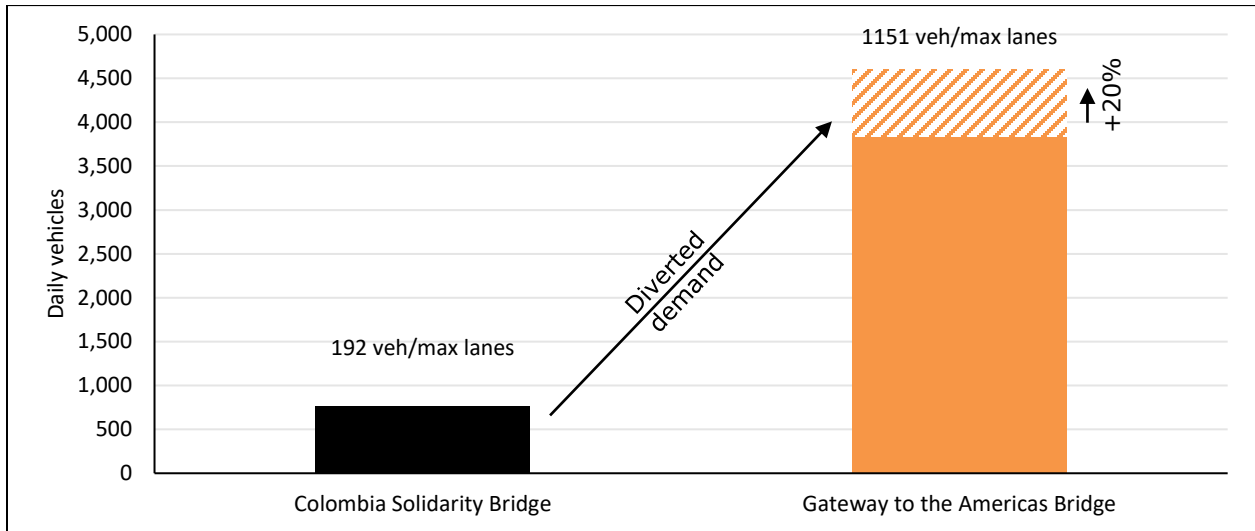


Figure 6. POV Delay and Number of Processing Lanes at Gateway to the Americas Bridge (June 2024)



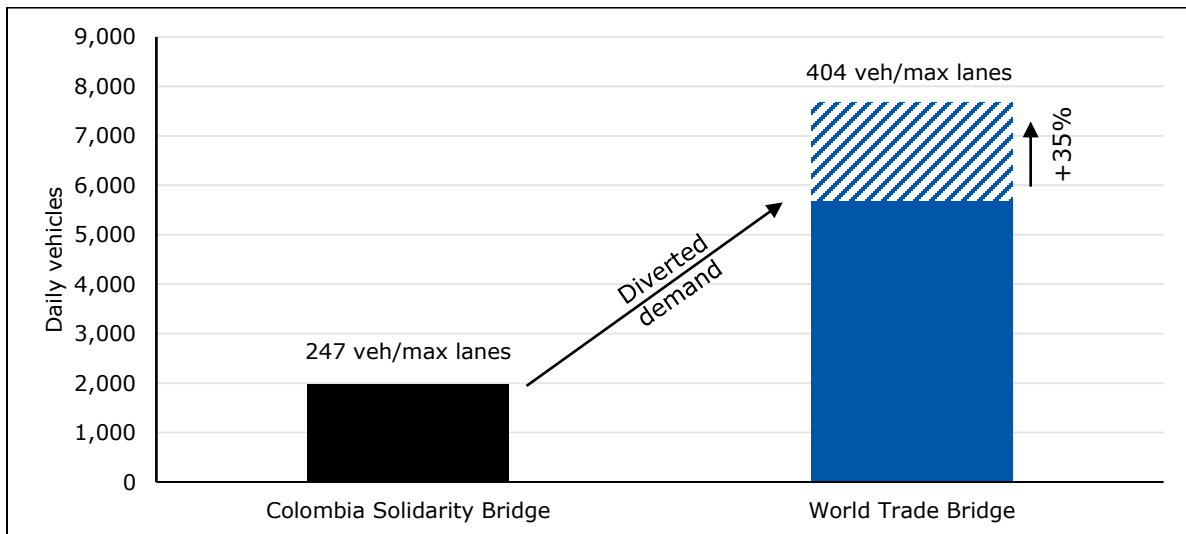
If the Colombia Solidarity Bridge closes, POVs at the Gateway to the Americas Bridge would increase by 20 percent (see **Figure 7**). Typically, the maximum number of lanes (i.e., four) is open during the peaks at the Gateways to the Americas Bridge, therefore additional delays would be expected for POVs.

Figure 7. Potential POV Throughput if Colombia Solidarity Bridge Closes



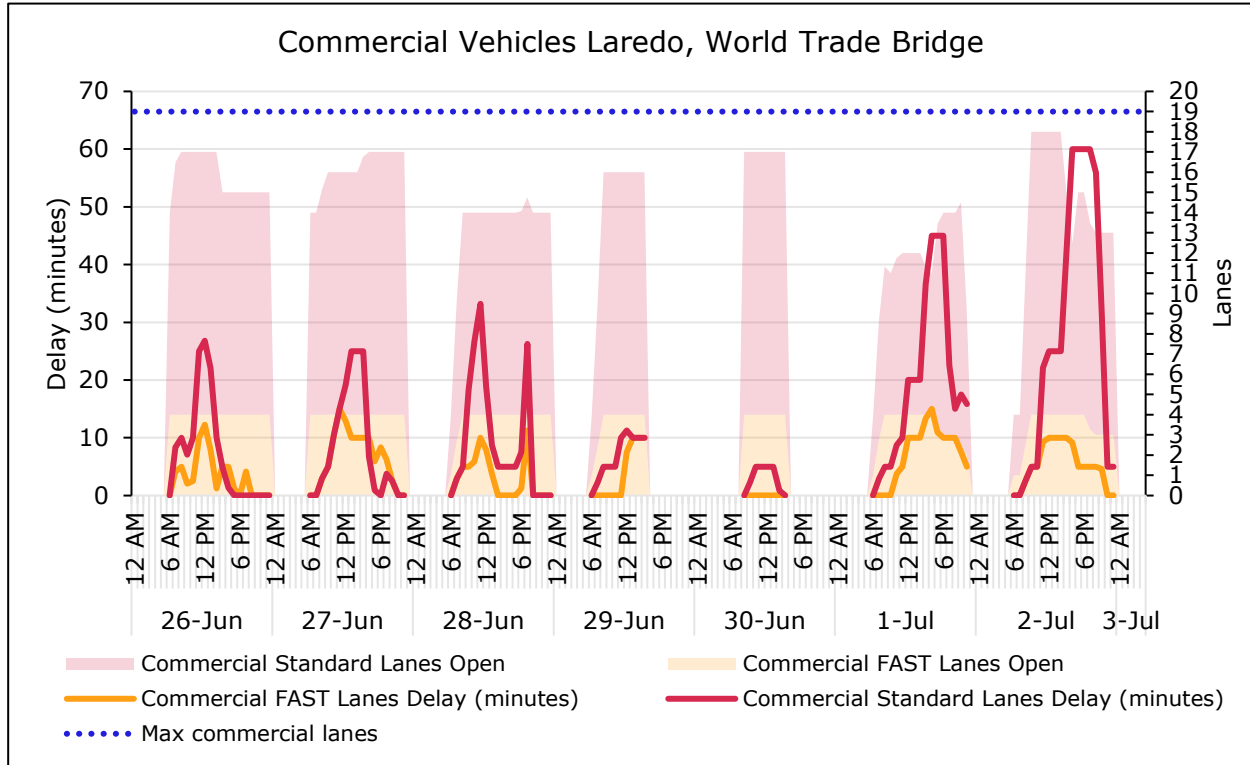
Diverting commercial traffic to the World Trade Bridge would increase the commercial vehicle traffic by 35 percent at the World Trade Bridge (see **Figure 8**).

Figure 8. Potential Commercial Vehicle Throughput if Colombia Solidarity Bridge Closes



CBP generally operates less than 17 of the 19 processing lanes available (see **Figure 9**). Full operation of all 19 lanes would mitigate the 35 percent increase in commercial vehicles, but delays of more than an hour at the standard lanes are expected during peak times.

Figure 9. Commercial Vehicle Delay and Number of Processing Lanes at World Trade Bridge (June 2024)



Similar analysis for all closure events has been undertaken and are provided in Supplement C.

Crossing-to-Crossing Key Route Speeds (U.S.)

INRIX Roadway Analytics was queried to provide a summary of travel speeds along the key routes connecting the international crossings on the U.S. side. Most areas of slowdown and bottlenecks are in the urban areas of El Paso, Laredo, and parts of the Rio Grande Valley. As examples:

- **Figure 10** shows the congestion experienced on the key routes linking Santa Teresa to Presidio. **Figure 11** shows the congestion experienced on the key routes linking the Presidio to Laredo.
- **Figure 12** shows the congestion experienced on the key routes linking Laredo to Brownsville.

Figure 10. Santa Teresa to Presidio Speeds

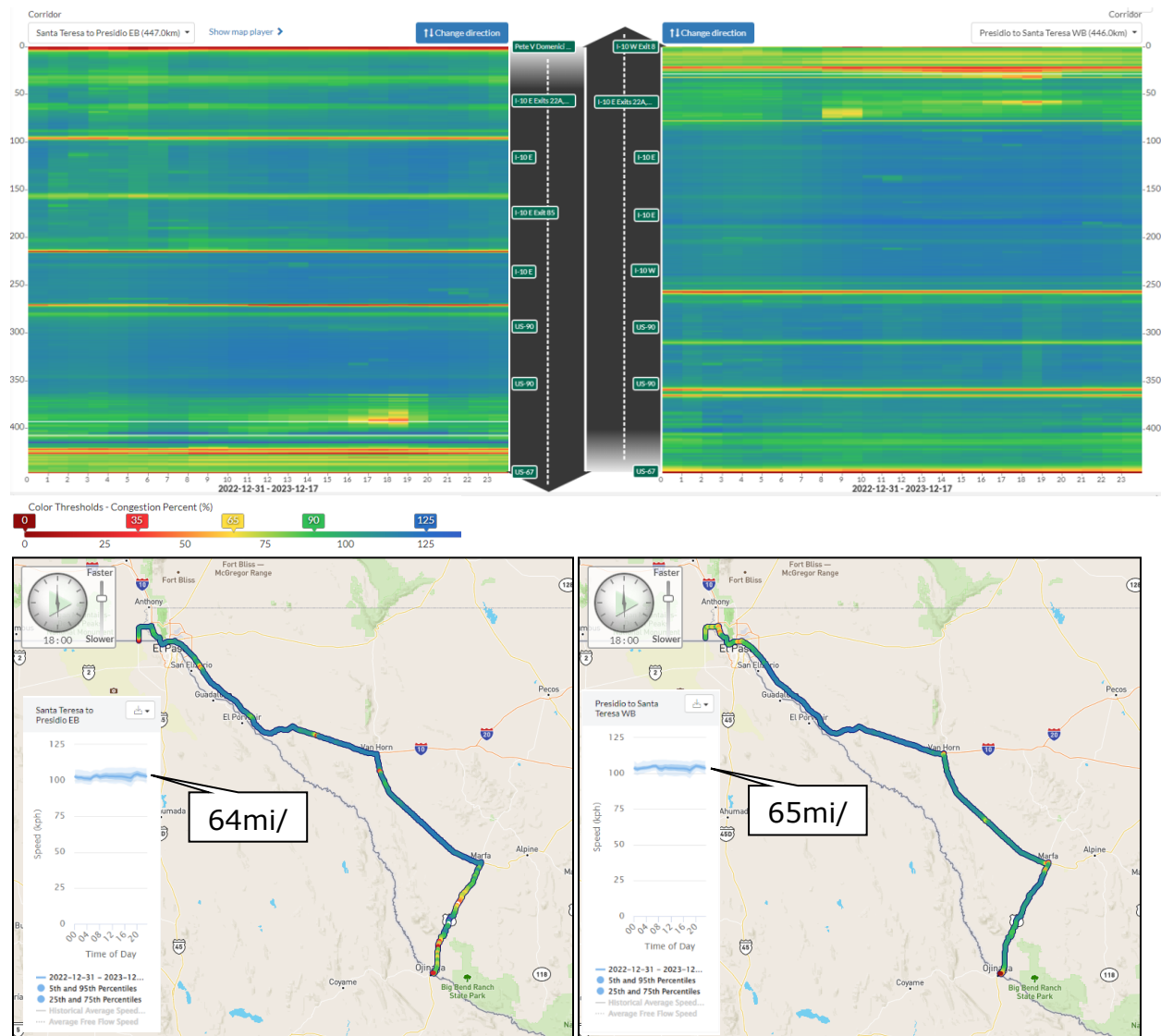


Figure 11. Presidio to Laredo Speeds

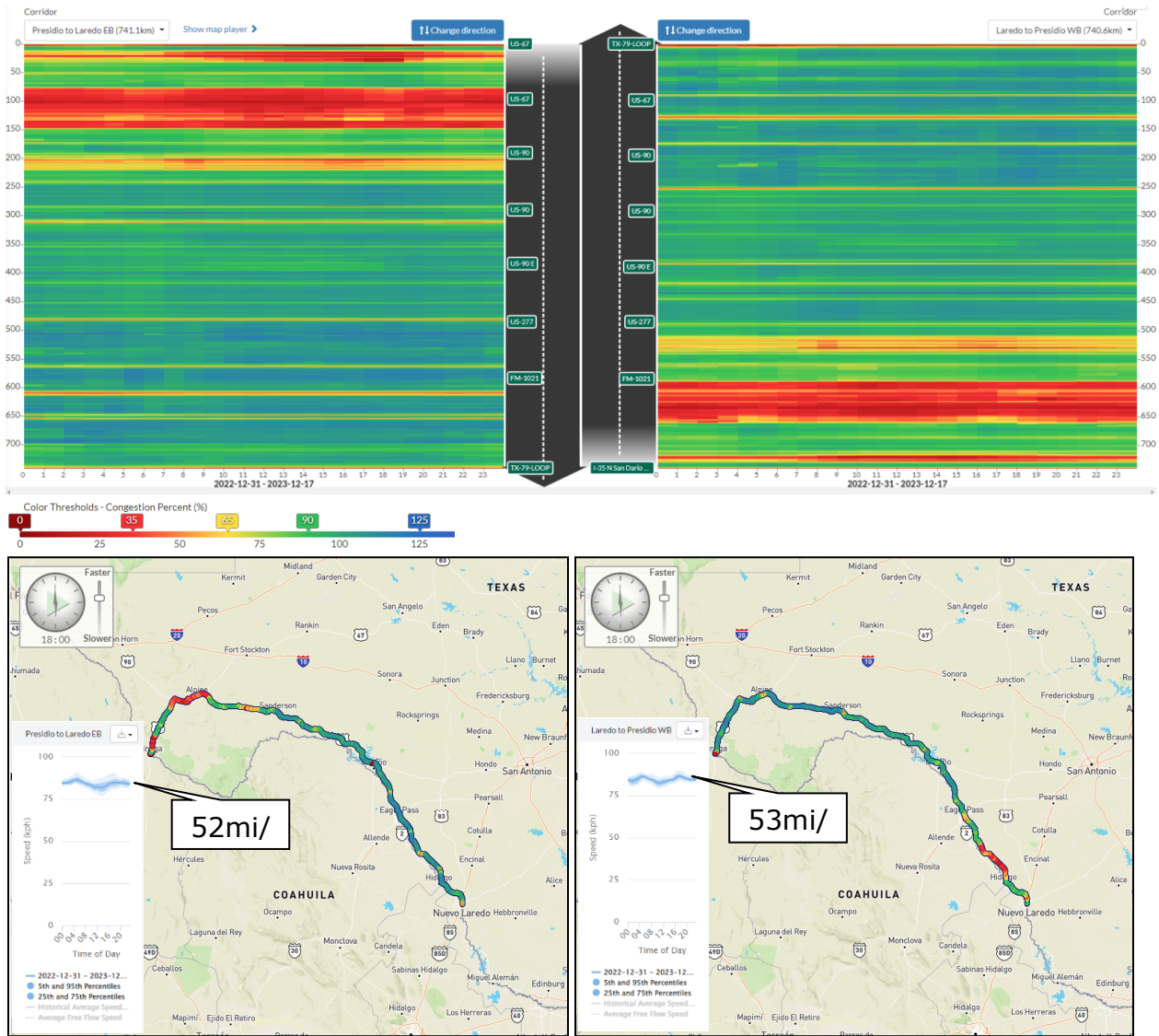
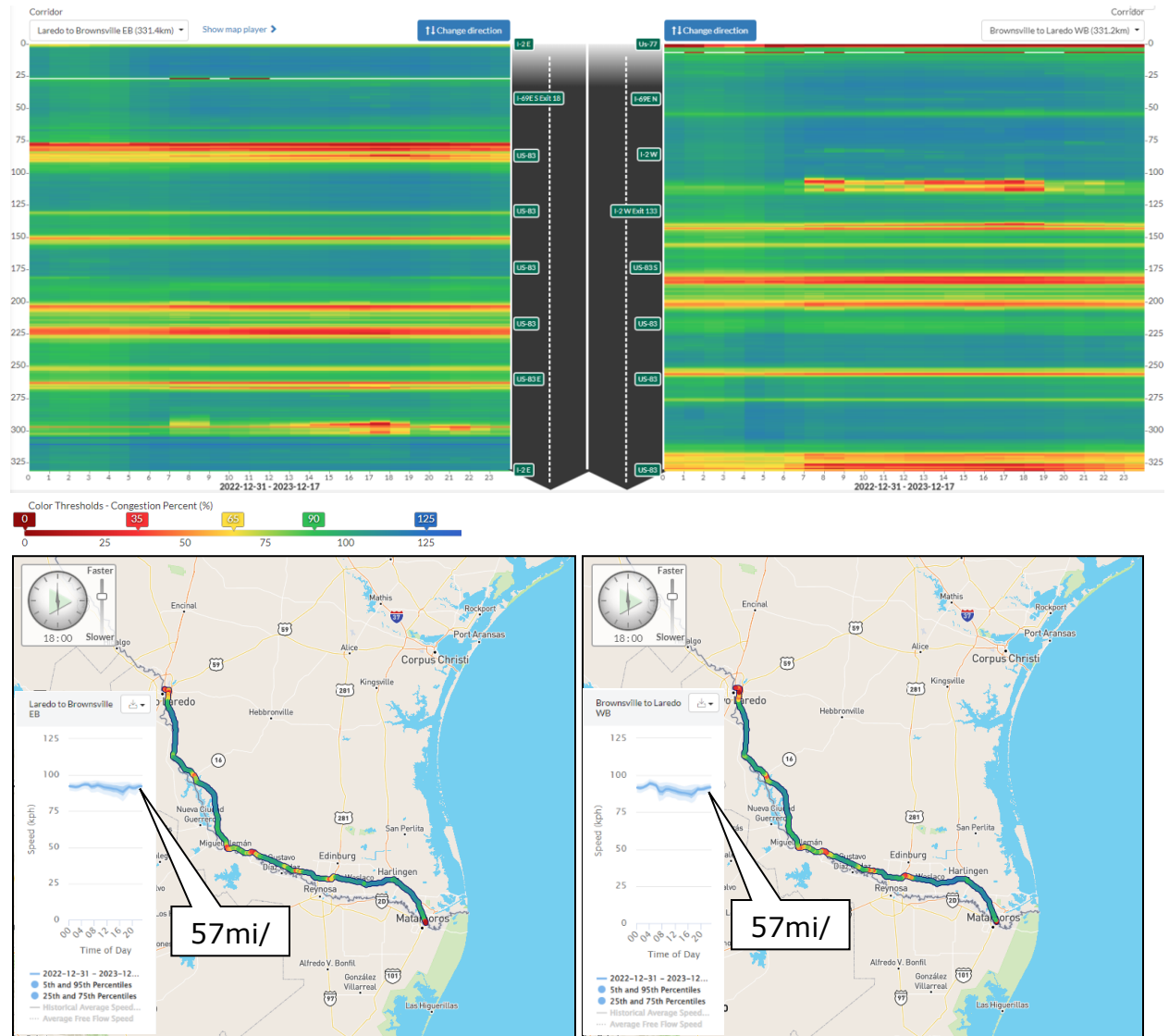


Figure 12. Laredo to Brownsville Speeds



Concluding Remarks

Table 3 provides a summary of the port-to-port connectivity indicators calculated. The indicators are defined as follows:

- **Maximum distance to nearest alternative.** The distance to the nearest viable alternative crossing (i.e., the longer of the U.S. or Mexican travel distance is taken).
- **Minimum lanes to nearest alternative.** The minimum number of two-way lanes to the nearest viable alternative crossing.
- **Ratio of alternative/current maximum processing lanes.** The number of processing lanes available at the alternative crossing divided by the number of lanes at the closed crossing. For example, a ratio of <1 means there are fewer lanes available at the alternative crossing.
- **Population catchment score.** The population catchment is the total population that can reach a crossing from either side of the border within a 30-minute drive-time. The population that overlaps between a crossing and a specified alternative crossing is a measure of how well the alternative crossing serves the population served by the closed crossing. The higher the percentage, the more resilient the accessibility is during a closure event – a score of 0 percent means that in the event of a closure, none of the demand within a 30-minute drive of the crossing could be served by an adjacent bridge, and a score of 100 percent means that all the demand can be served.

From

Table 3, it is evident that:

- The Presidio Ojinaga International Bridge has the lowest resiliency score due to the lack of nearby alternatives.
- The second longest detour for commercial vehicles would be between the Del Rio International Bridge and the Camino Real International Bridge. There are single lane roads connecting the two crossings. Furthermore, the Camino Real International Bridge has a single commercial vehicle processing lane.
- The Veterans International Bridge at Los Tomates is connected to the Free Trade International Bridge via the single lane US-281.
- Resiliency is reduced because of an imbalance in the number of commercial vehicle processing lanes at adjacent crossings:
 - At the World Trade Bridge in Laredo, the alternative Colombia Solidarity Bridge offers less than half the processing lanes.
 - The Progreso International Bridge (one lane) is the nearest alternative for the Pharr International Bridge (seven lanes) and the Free Trade International Bridge (four lanes).
 - There are four POV lanes available at the Gateway to the Americas Bridge versus 15 at the Juárez-Lincoln Bridge.
- About half of the local population within a 30-minute drive of the Free Trade International Bridge (including, Harlingen and San Benito) can be served by the adjacent crossings.












































Table 3. Port-to-port connectivity indicators




































ID	Name	Max distance to closest alternative (miles)		Min lanes to closest alternative		Ratio of alternative/current max processing lanes		Population catchment score
		POVs	CMVs	POVs	CMVs	POVs	CMVs	
1	Santa Teresa International Bridge	21.5	24.6	4	4	3.0	2.0	99%
2/3	Paso del Norte / Good Neighbor Bridges	4.9	-	4	-	0.9	-	98%
4	Bridge of the Americas	12.2	12.2	6	6	0.9	1.3	98%
5	Ysleta Bridge	14.9	14.9	4	4	1.4	0.8	96%
6	Marcelino Serna Bridge	23.7	22.8	2	4	0.5	4.0	92%
7	Fort Hancock El Porvenir Bridge	23.7	-	2	-	2.0	-	89%
8	Presidio Ojinaga International Bridge	370	370	2	2	2.5	4.0	0%
10	Del Rio International Bridge	15.3	59.5	2	2	0.2	0.5	96%
11	Eagle Pass International Bridge	1.9	-	2	-	1.4	-	99%
12	Camino Real International Bridge	1.9	59.5	2	2	0.7	2.0	100%
13	Colombia Solidarity Bridge	24.5	18.8	2	4	1.0	2.4	99%
14	World Trade Bridge	-	18.8	-	4	-	0.4	100%
15	Gateway to the Americas Bridge	1	-	2	-	3.8	-	100%
16	Juárez Lincoln Bridge	1	-	2	-	0.3	-	98%
18	Roma Ciudad Miguel Alemán International Bridge	18.7	18.7	2	2	0.8	2.0	95%
19	Starr Camargo Bridge	18.7	18.7	2	2	1.3	0.5	77%
21	Anzalduas International Bridge	12.7	-	4	-	2.0	-	88%
22	McAllen Hidalgo International Bridge	7.7	-	4	-	0.5	-	95%
23	Pharr International Bridge	7.7	20.8	4	2	2.0	0.1	93%
24	Donna Rio Bravo International Bridge	14.9	-	4	-	1.3	-	87%
25	Progreso International Bridge	14.9	17.9	4	2	0.8	4.0	87%
26	Free Trade International Bridge	17.9	17.9	2	2	1.3	0.3	56%
27	Brownsville and Matamoros Express Bridge	1.3	-	4	-	1.3	-	100%
28	Gateway International Bridge	1.3	-	4	-	0.8	-	100%
29	Veterans International Bridge at Los Tomates	4.4	25.8	4	2	1.3	1.0	99%

Supplement A – Modes Processed at Texas-Mexico Border Crossings

Table 4 provides the modes processed at each of the international crossings along the Texas-Mexico border.

Table 4. Modes Processed at Texas-Mexico International Crossings

International Crossing	Modes Processed				
BNSF Railroad Bridge					
Paso del Norte Bridge					
Good Neighbor Bridge					
Union Pacific Railroad Bridge					
Bridge of the Americas					
Ysleta Bridge					
Marcelino Serna Bridge					
Fort Hancock Bridge					
Presidio-Ojinaga International Bridge					
South Orient Railroad Bridge*					
Boquillas					
Lake Amistad Crossing					
Del Rio International Bridge					
Eagle Pass International Bridge					
Camino Real International Bridge					
Eagle Pass Railroad Bridge					
Colombia Solidarity Bridge					
World Trade Bridge					
Laredo Railroad Bridge					
Gateway to the Americas Bridge					

International Crossing	Modes Processed				
Juarez Lincoln International Bridge					
Lake Falcon Dam International Crossing					
Roma-Ciudad Miguel Aleman International Bridge					
Starr Camargo Bridge					
Los Ebanos Ferry					
Anzalduas International Bridge					
McAllen Hidalgo International Bridge					
Pharr Reynosa International Bridge					
Donna Rio Bravo International Bridge					
Progreso International Bridge					
Free Trade International Bridge					
Brownsville West Rail Bridge					
Brownsville Matamoros International Bridge					
Gateway International Bridge					
Veterans International Bridge at Los Tomates					

*The South Orient Railroad Bridge is not active at this time.

Supplement B –Texas-Mexico Northbound Border Crossings (2022)

The baseline crossing data were obtained via the Texas Department of Transportation (TxDOT) from Customs and Border Protection (CBP) for three years. Figures 13 to 18 show the latest year of data (i.e., 2022) for northbound POV, truck, rail cars, trains, buses, and pedestrians, respectively.

Figure 13. Northbound Passenger Only Vehicle Crossings (2022)

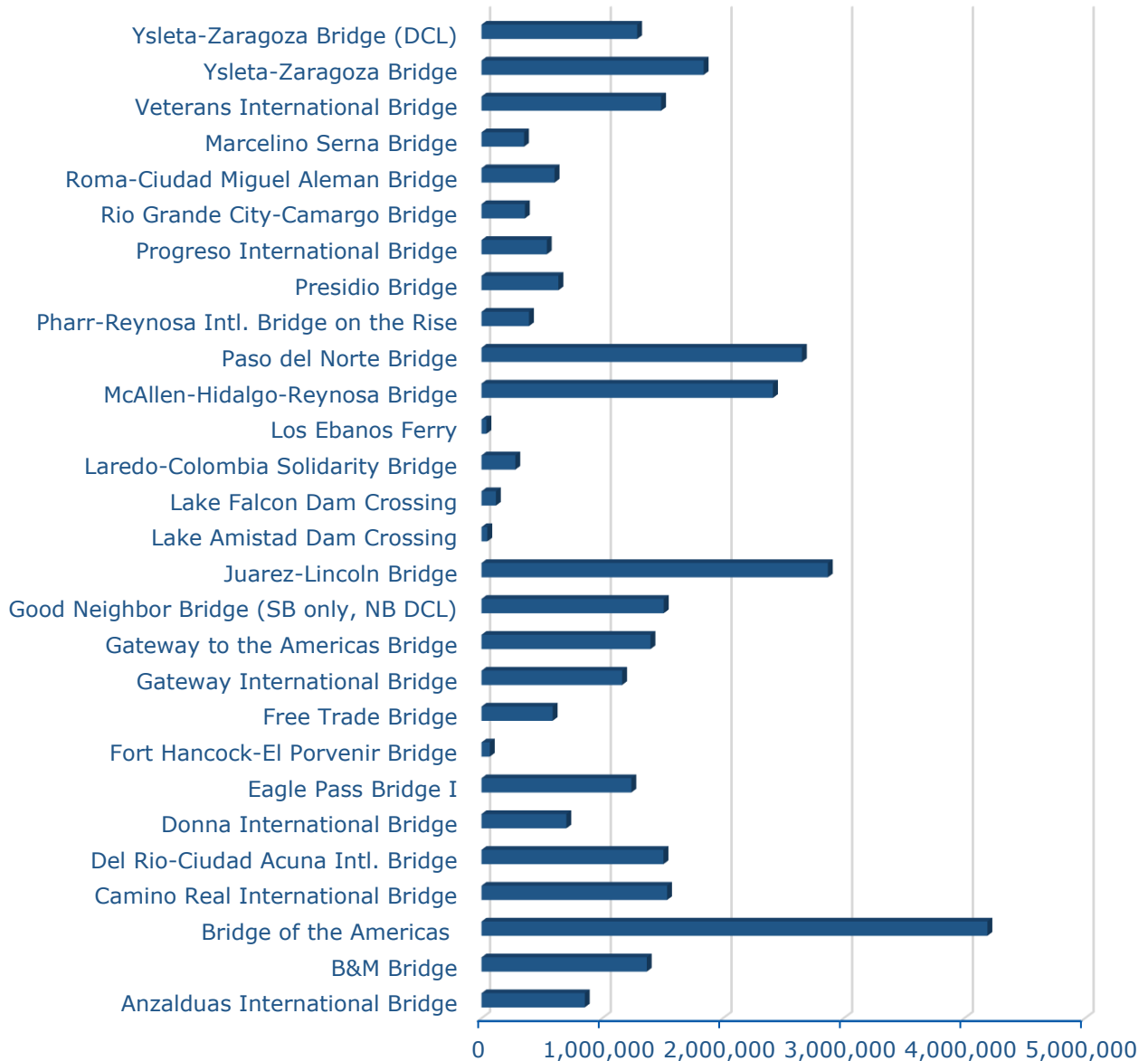


Figure 14. Northbound Truck Crossings (2022)

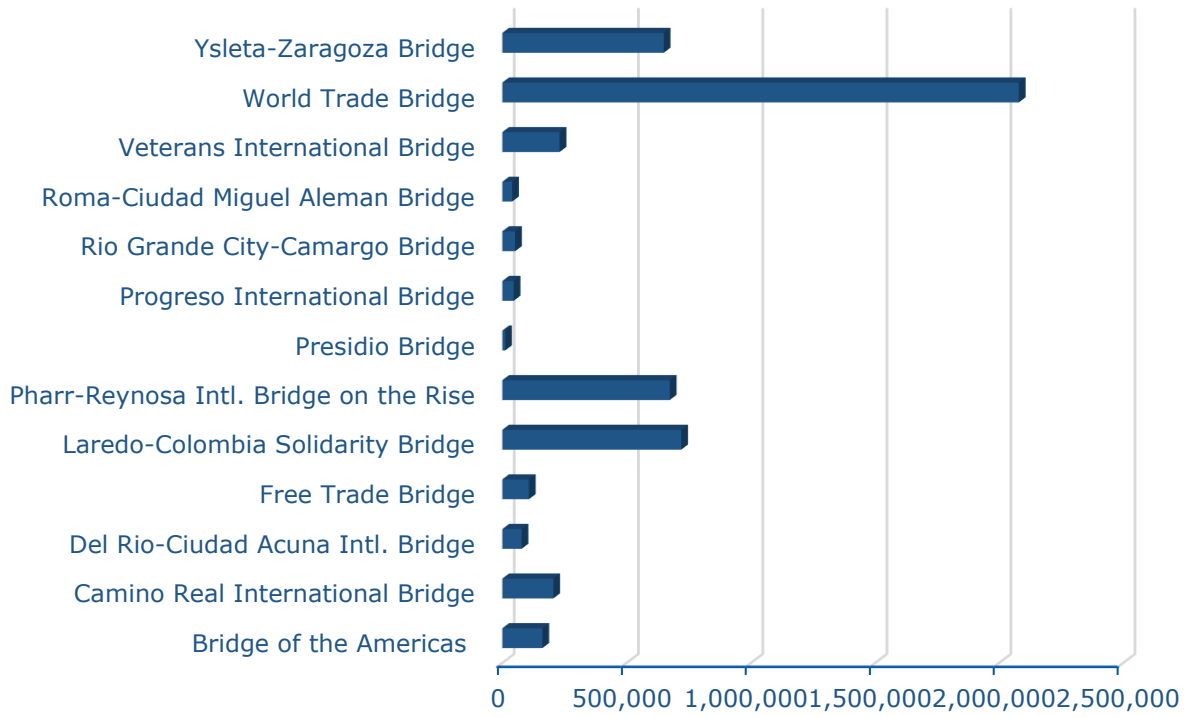


Figure 15. Northbound Rail Car Crossings (2022)

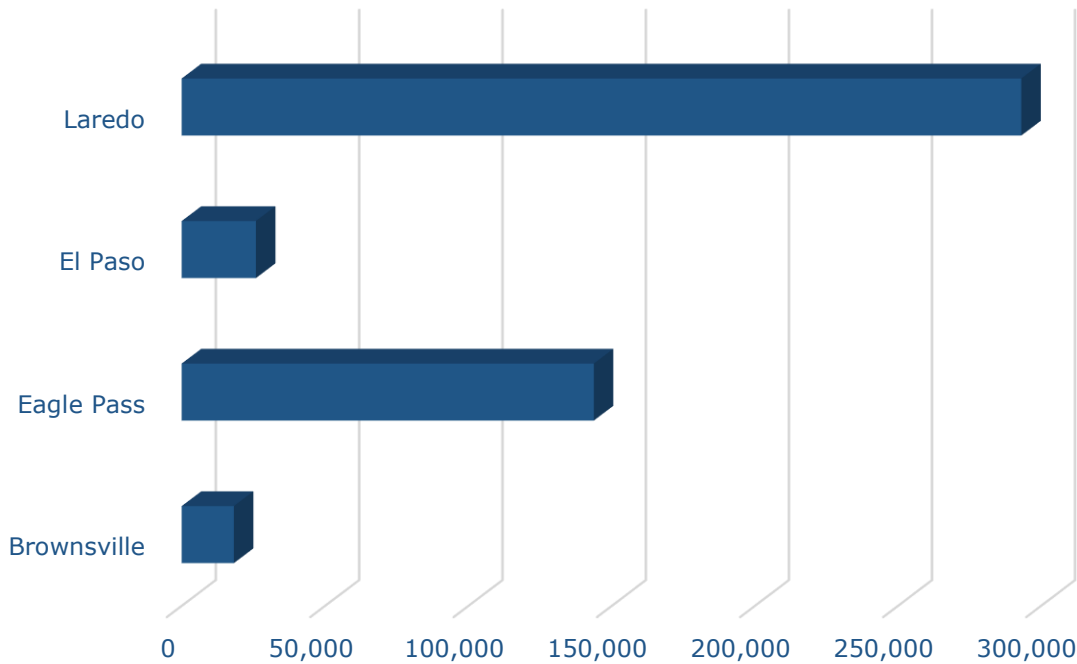


Figure 16. Northbound Train Crossings (2022)

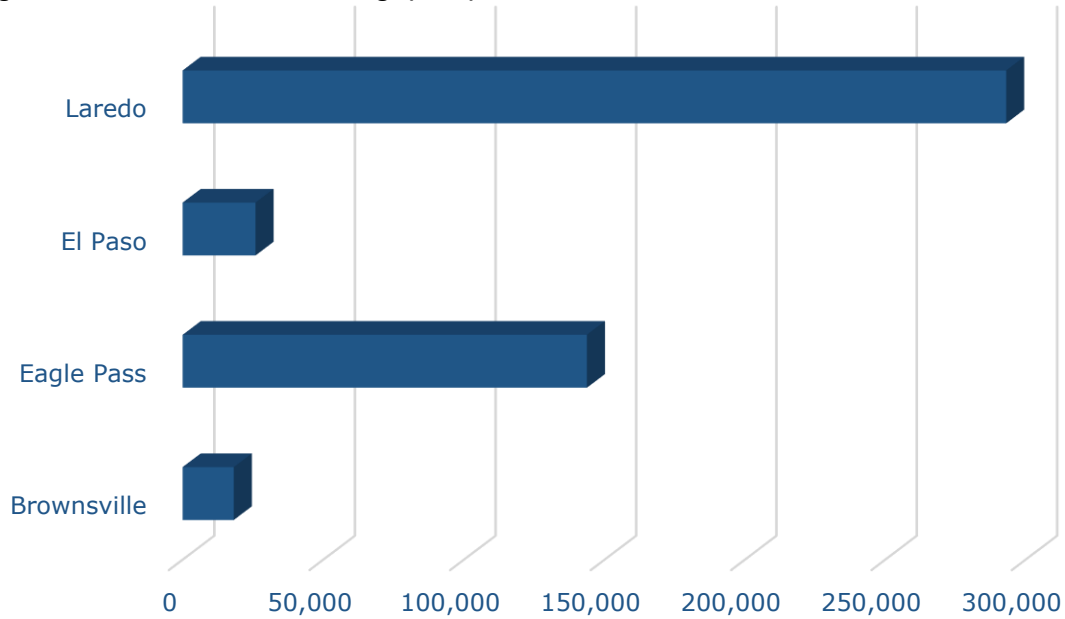


Figure 17. Northbound Bus Crossings (2022)

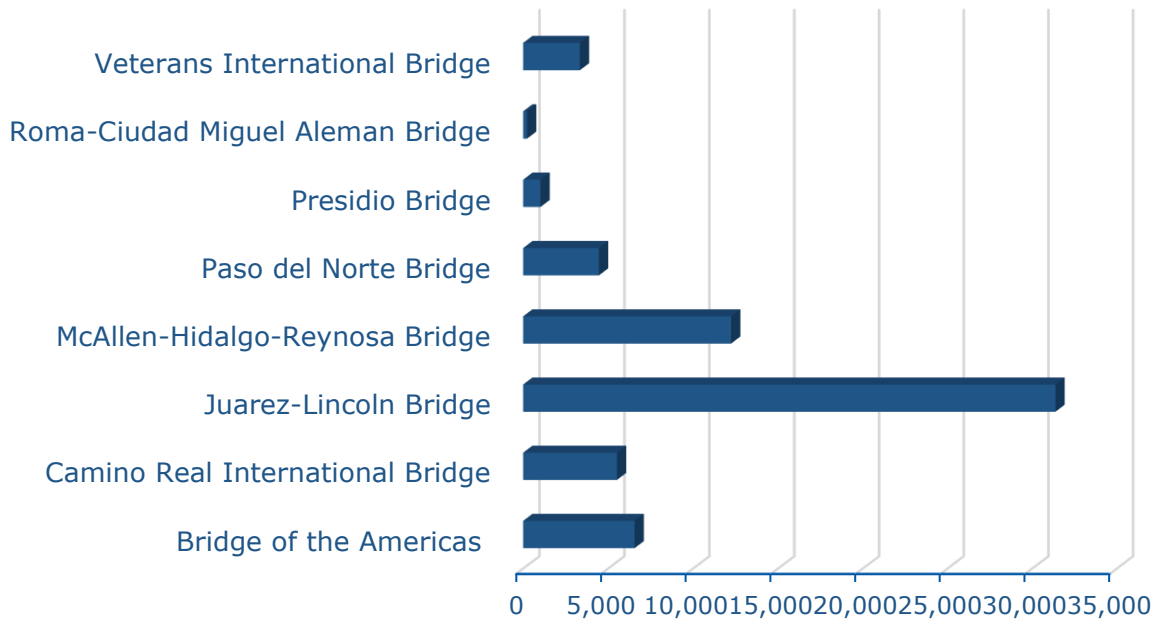
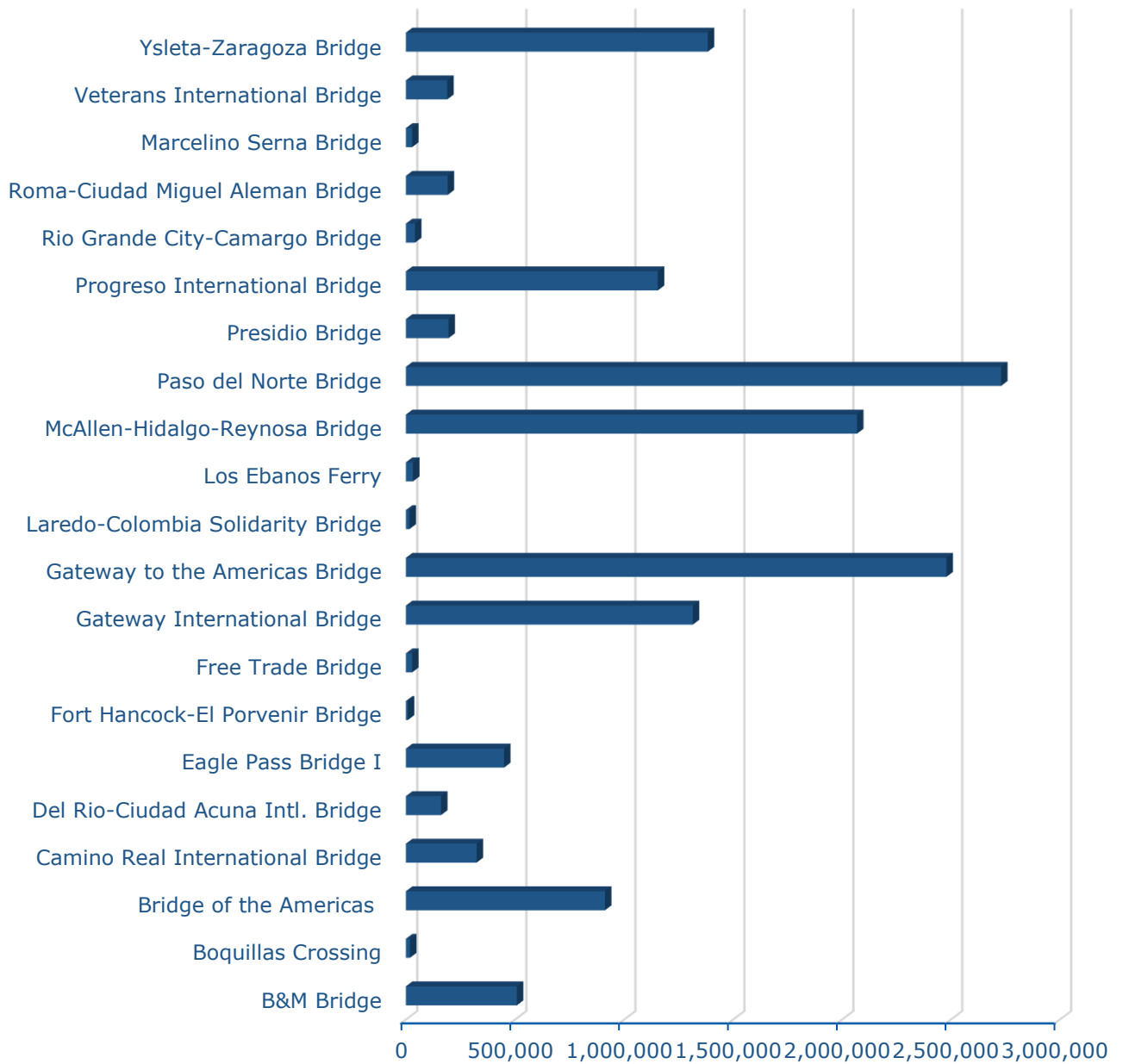


Figure 14. Northbound Pedestrian Crossings (2022)



Supplement C – Crossing-to-Crossing Connectivity

Santa Teresa Crossing Closure

- Santa Teresa International Bridge is predominantly served by MEX-2 (Mexico) and I-10 (U.S.)
- The nearest facility that can process commercial vehicles is Bridge of the Americas
- POVs can be diverted to Paso del Norte Bridge/ Good Neighbor Bridge. However, these are served by congested downtown El Paso roads
- Traffic can be diverted at the I-10/Aircraft Road interchange in the U.S. or along Carretera Anapra-San Geronimo just south of the crossing in Mexico

Figure 19. Santa Teresa



Santa Teresa Crossing – Diversion Capacity

Figure 20. Santa Teresa Crossing Closures – Diversion Capacity Assessment for Private

- Paso del Norte Bridge (12 lanes) or Bridge of the Americas (14 lanes) provide the most potential diversion capacity and lower daily veh/max lanes

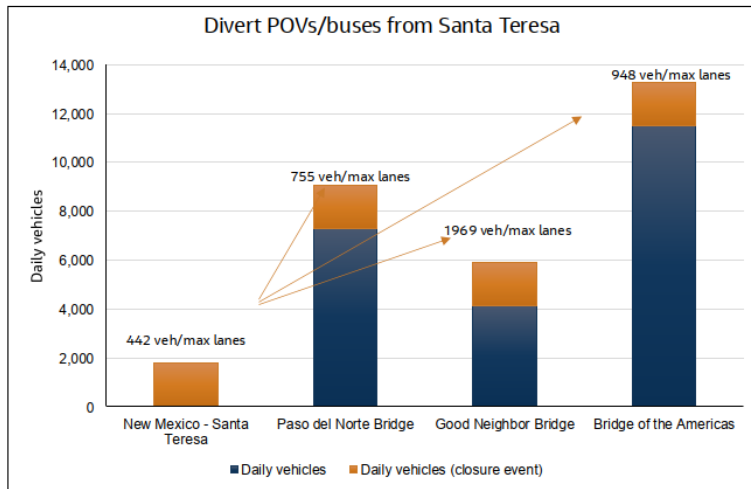


Figure 21. Santa Teresa Crossing Closures – Diversion Capacity Assessment for Commercial Vehicles

- Diverting Santa Teresa commercial traffic to Bridge of the Americas (6 lanes) would result in added 142 daily veh/max lanes

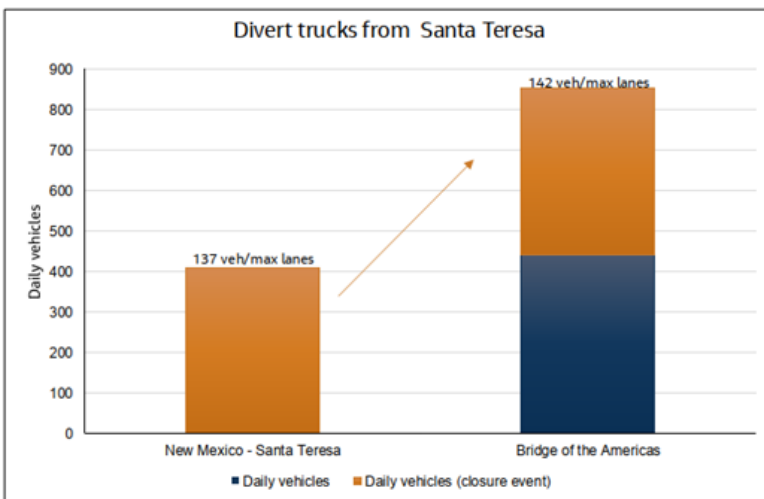


Figure 22. Santa Teresa Crossing Closures – Wait Times and Lanes in Operation for Private Owned Vehicles

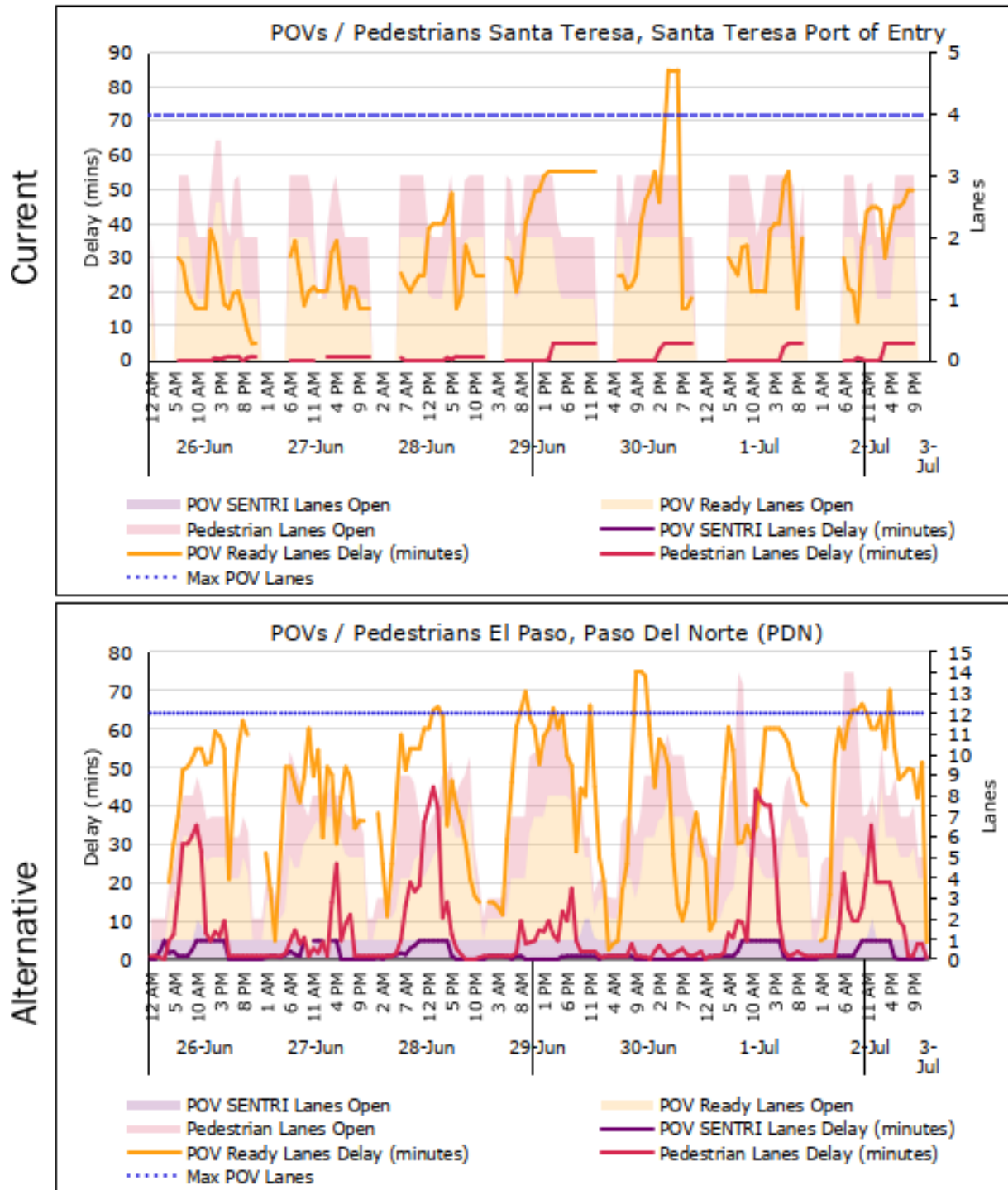
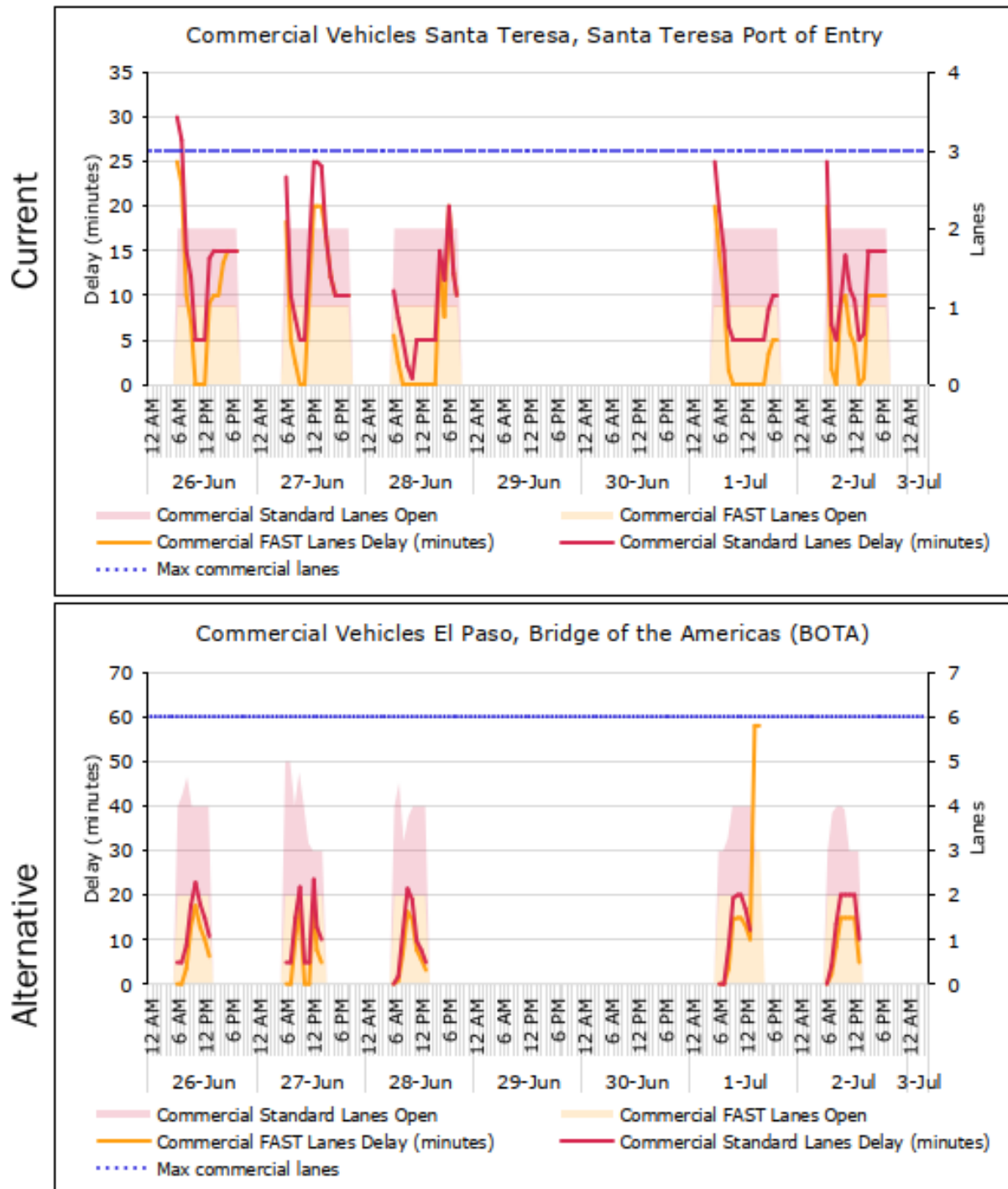


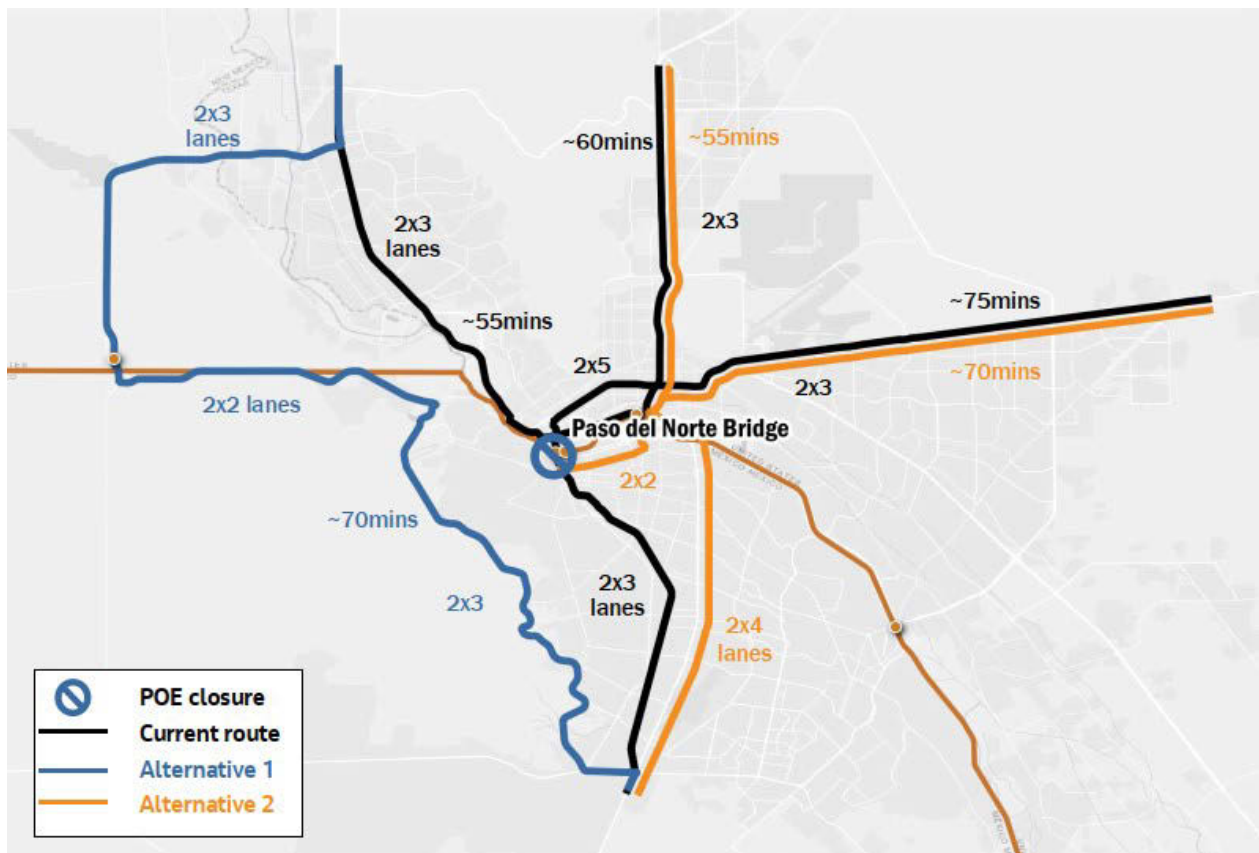
Figure 23. Santa Teresa Crossing Closures – Wait Times and Lanes in Operation for Commercial Vehicles



Paso Del Norte Crossing Closure

- Paso del Norte/Good Neighbor Bridges are served by El Paso and Juarez downtown streets (U.S. and Mexico) and MEX-45 (Mexico)
- Shorter distance urban traffic can be diverted to the Bridge of the Americas along Calle Ing. David Herrera Jordan. Longer-distance MEX-45 traffic destined for the I-10 corridor can be diverted along the Perif. Cam. Real to the Santa Teresa Crossing
- Diversion of all traffic at Paso del Norte/Good Neighbor Bridges to the Bridge of the Americas would result in a 31 percent increase in POV demand which would likely be problematic during the PM peak where average wait times are currently over 40 minutes
- Inter-urban northbound traffic can be diverted to either MEX-45 or Perif. Cam. Real at the Blvd Independencia. Southbound traffic from I-10 can be diverted at the I-10/Aircraft Road interchange. US-54 and US-62 traffic can be directed to Bridge of the Americas at I-10

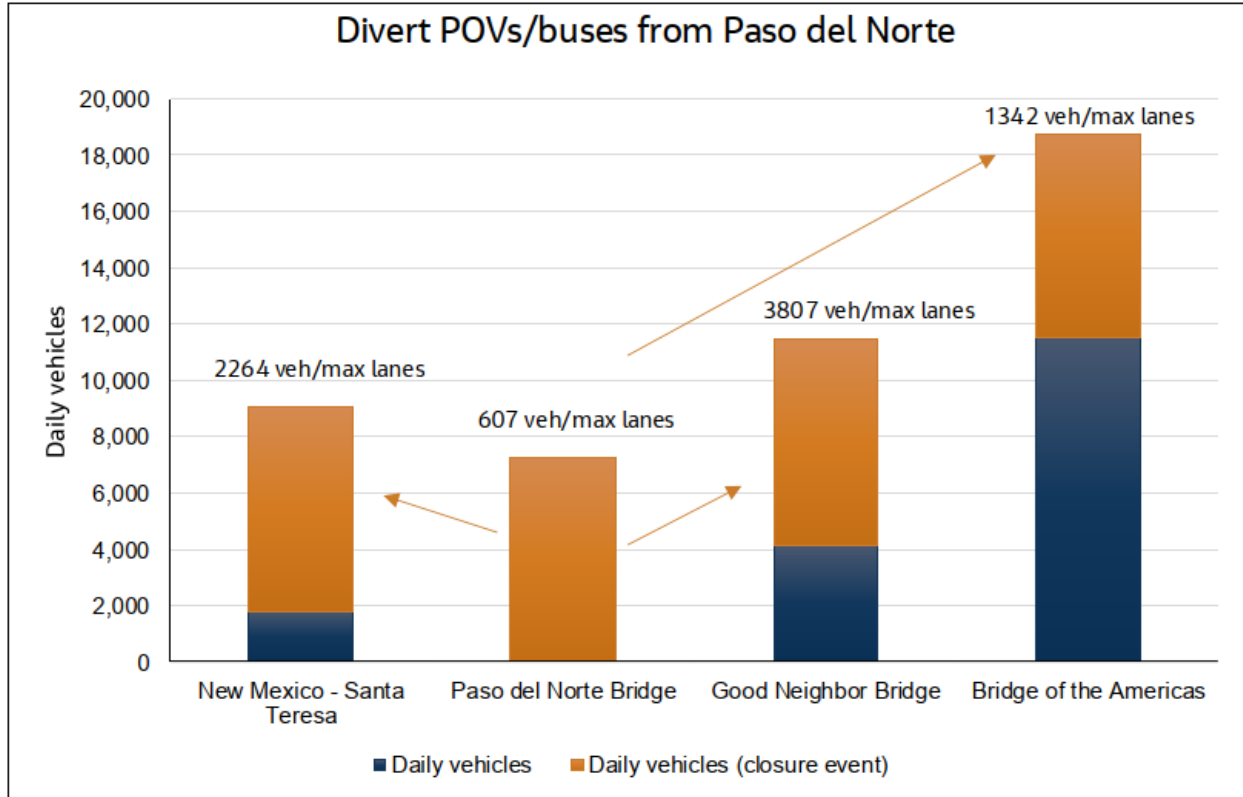
Figure 24. Paso Del Norte



Paso Del Norte – Diversion Capacity

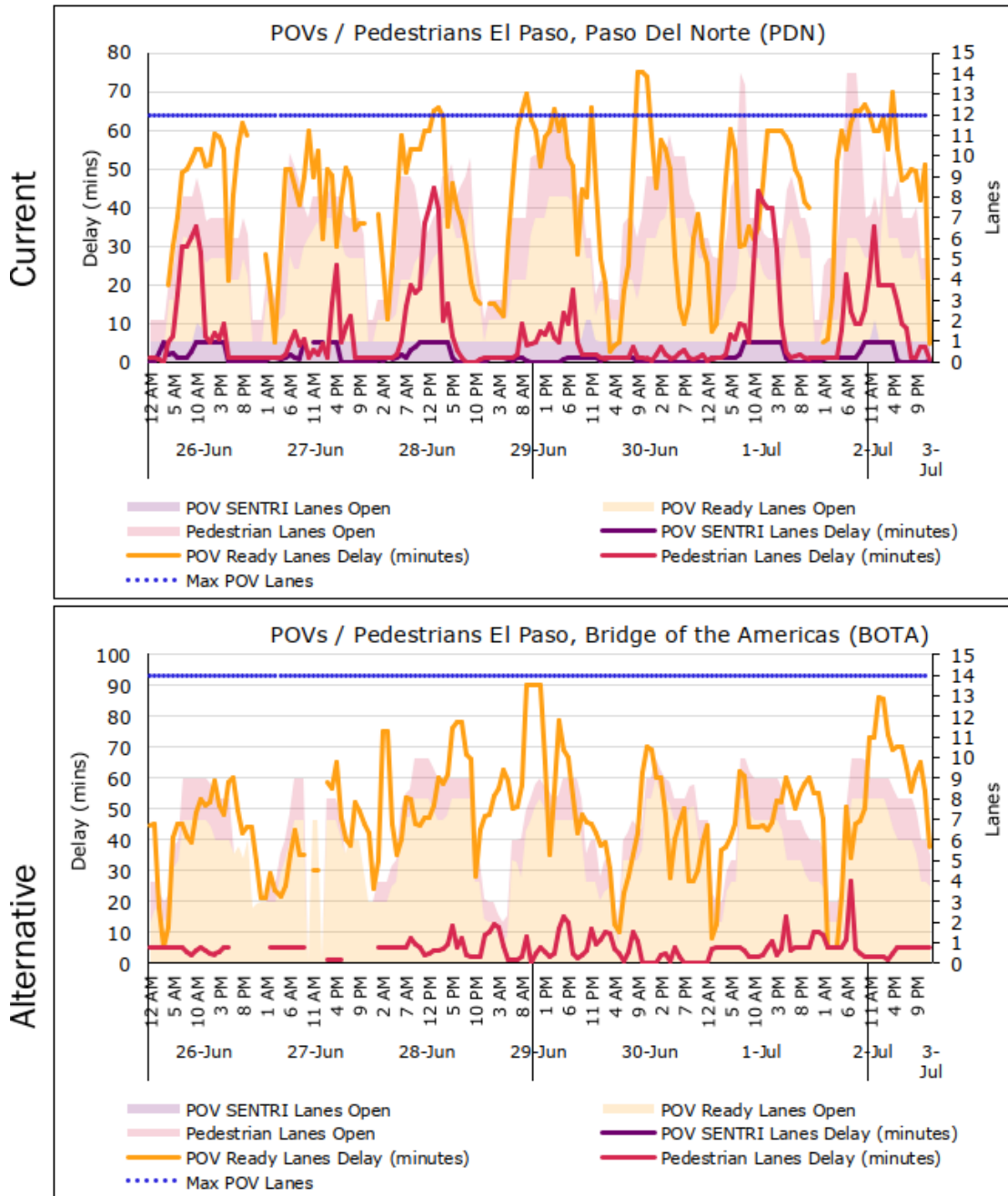
Privately Owned Vehicles: Should Paso del Norte close, Bridge of the Americas (14 lanes) provides the most potential diversion capacity and lower daily vehicle/max lanes.

Figure 25. Paso Del Norte Crossing Closures – Diversion Capacity Assessment for Privately Owned Vehicles



Paso Del Norte - Wait Times and Lanes in Operation

Figure 26. Paso Del Norte Crossing Closures – Wait Times and Lanes in Operation for Privately Owned Vehicles

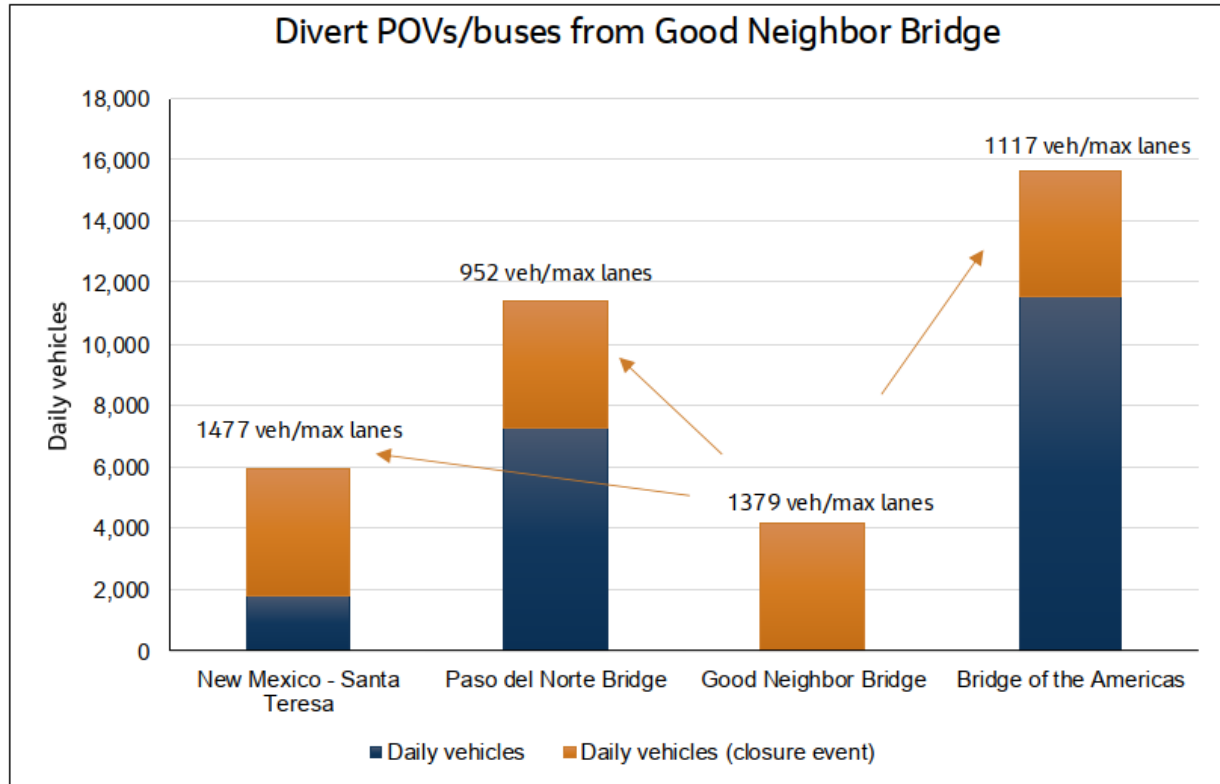


Good Neighbor Bridge Closure

Diversion Capacity Assessment

Privately Owned Vehicles: Should Good Neighbor Bridge close, Paso del Norte Bridge (12 lanes) provides the most potential diversion capacity and lower daily vehicle/max lanes.

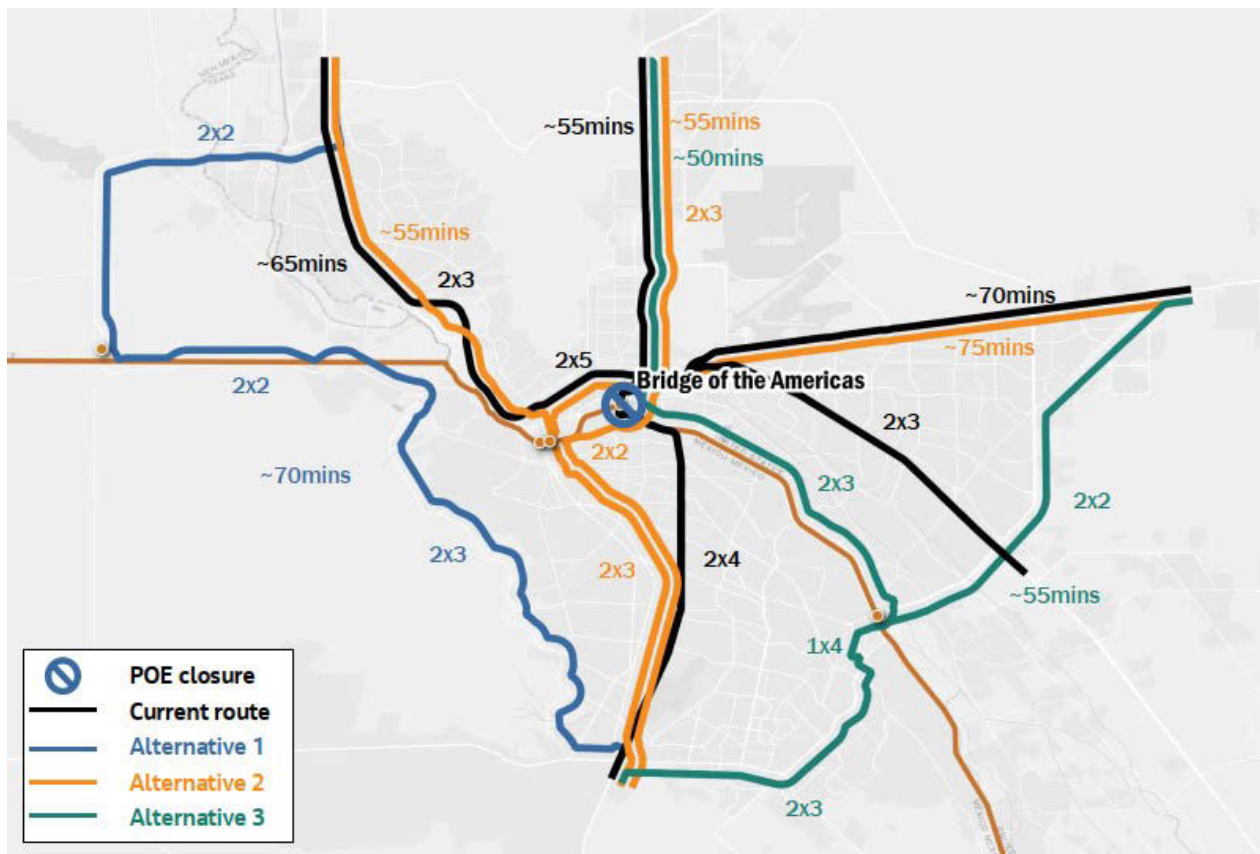
Figure 27. Good Neighbor Bridge Crossing Closures – Diversion Capacity Assessment for Privately Owned Vehicles



Bridge of The Americas Closure

- Bridge of the Americas is an important crossing in the Ciudad Juarez/El Paso region
- Truck traffic would need to be diverted to either the Santa Teresa crossing if destined to the I-10 corridor or to the Ysleta Bridge if heading towards the US-54 or US-62 corridors. POV traffic can be diverted to any of the Paso del Norte/Good Neighbor/Santa Teresa/Ysleta Bridges
- Diversion of all POV traffic at Bridge of the Americas to the Paso del Norte/Good Neighbor Bridges would result in a **325 percent increase in POV demand**. Diversion to the Ysleta Bridge would result in a **208 percent increase in POV demand**
- Diversion of all truck traffic at Bridge of the Americas to Santa Teresa would result in a **108 percent increase in demand**. Diversion to the Ysleta Bridge would result in a **25 percent increase in truck demand**

Figure 28. Bridge of The Americas



Bridge of the Americas - Wait Times and Lanes in Operation

Figure 29. Bridge of The Americas Crossing Closures – Wait Times and Lanes in Operation

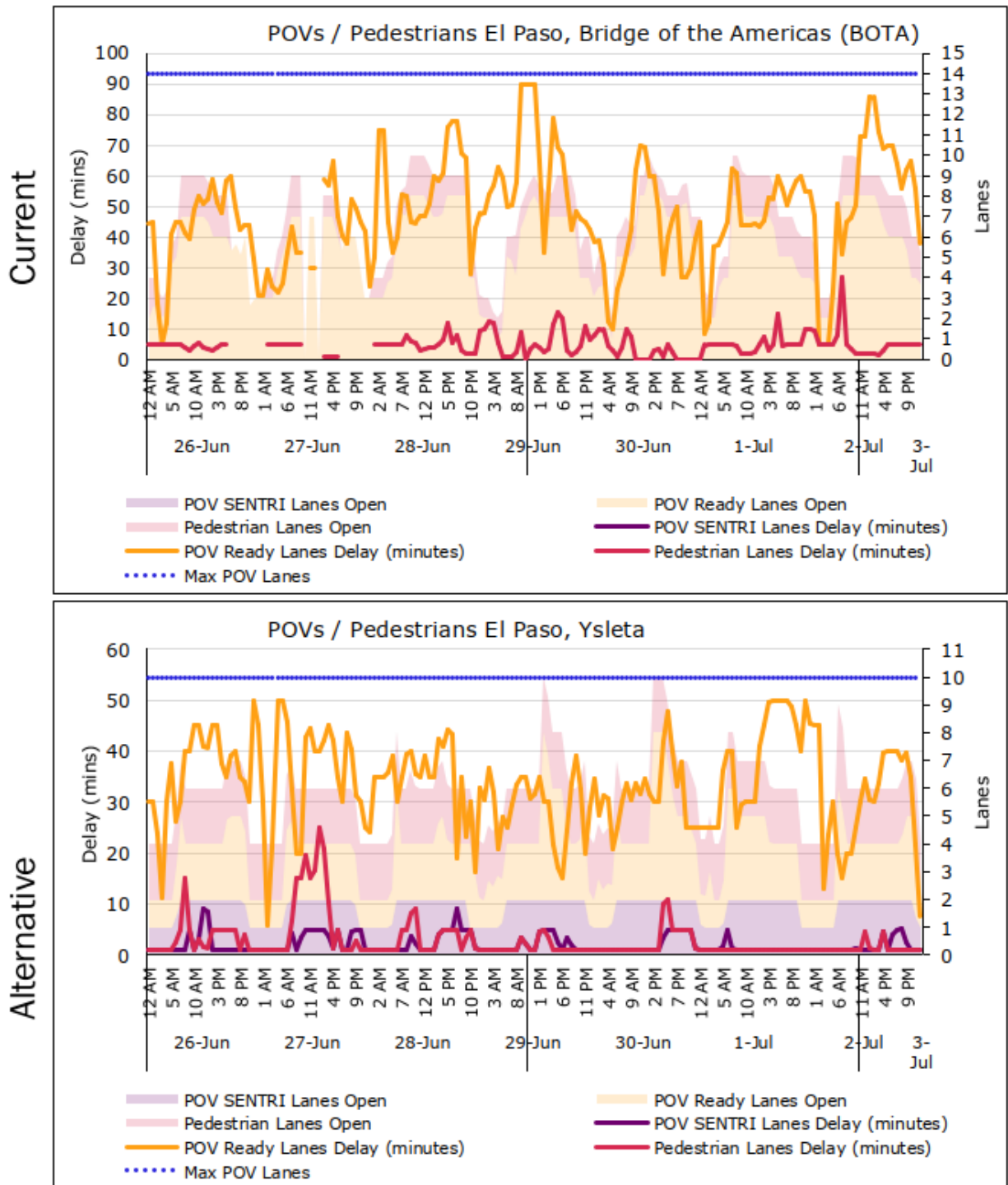
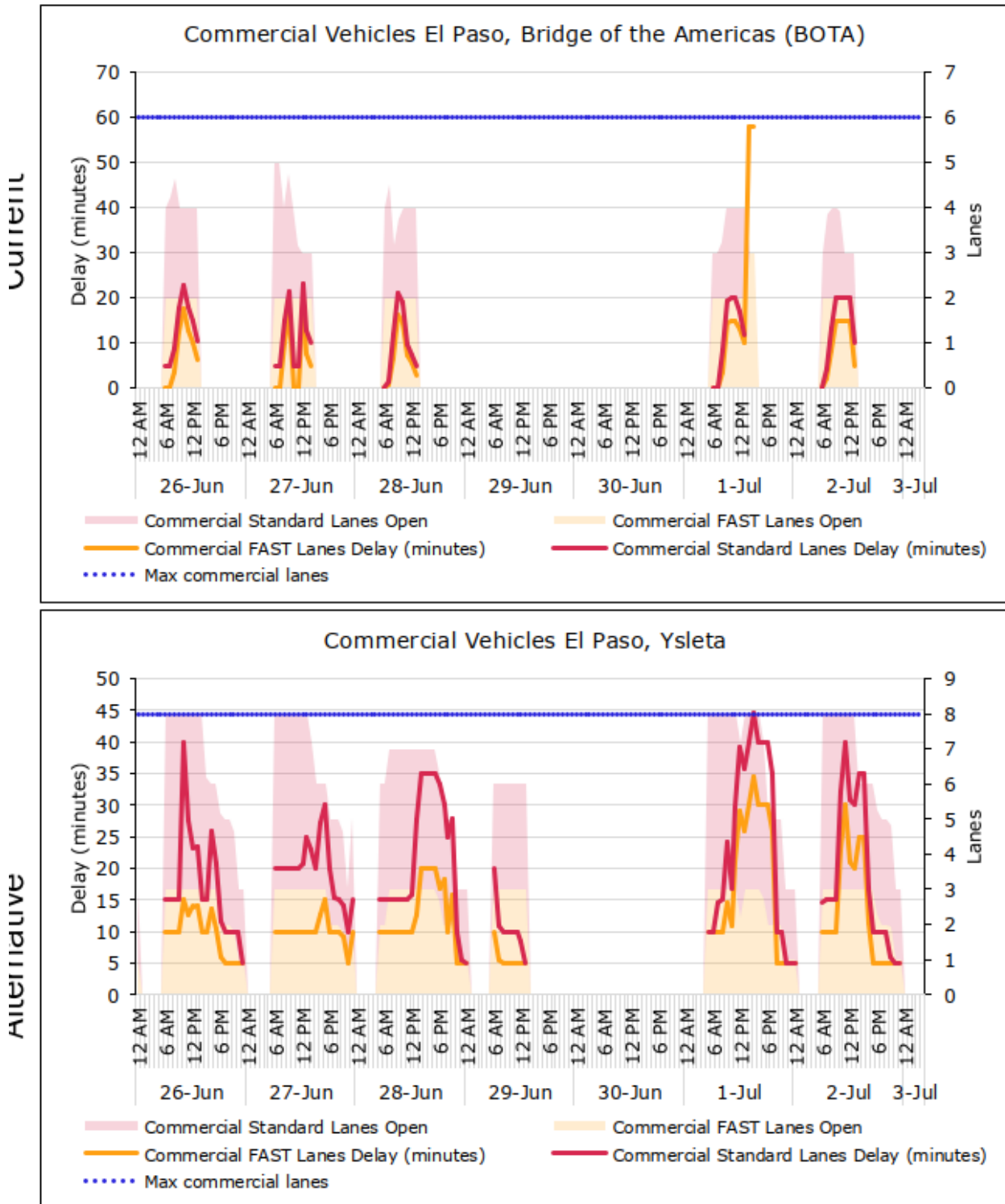


Figure 30. Bridge of the Americas Crossing Closures – Wait Times and Lanes in Operation for Commercial Vehicles



Bridge of the Americas - Diversion Capacity Assessment

Figure 31. Bridge of The Americas Crossing Closures – Diversion Capacity Assessment for Commercial Vehicles

- Should Bridge of the Americas close, both Santa Teresa (3 lanes) and Ysleta Bridge (8 lanes) provide sufficient capacity for commercial vehicles

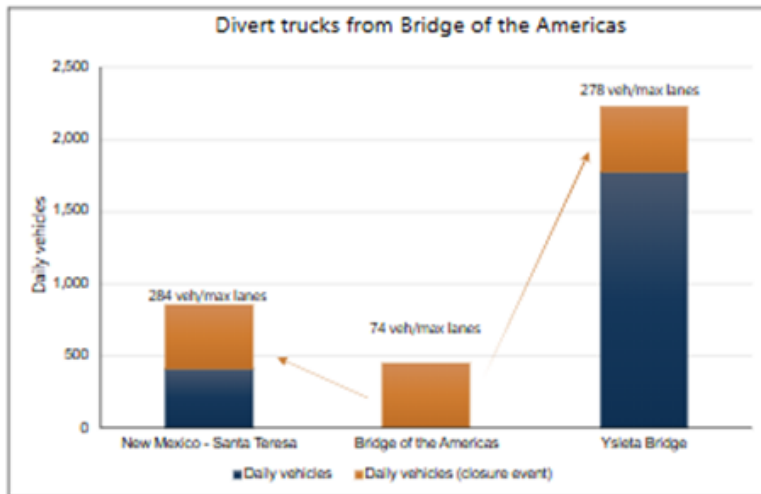
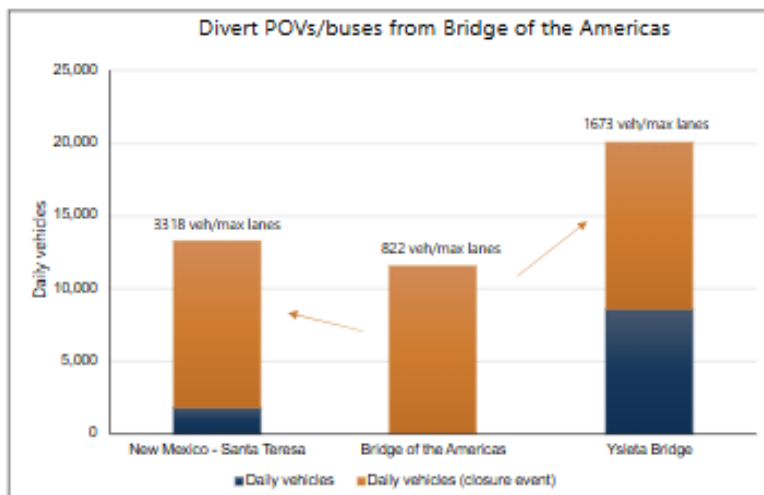


Figure 32. Bridge of The Americas Crossing Closures – Diversion Capacity Assessment for Privately Owned Vehicles

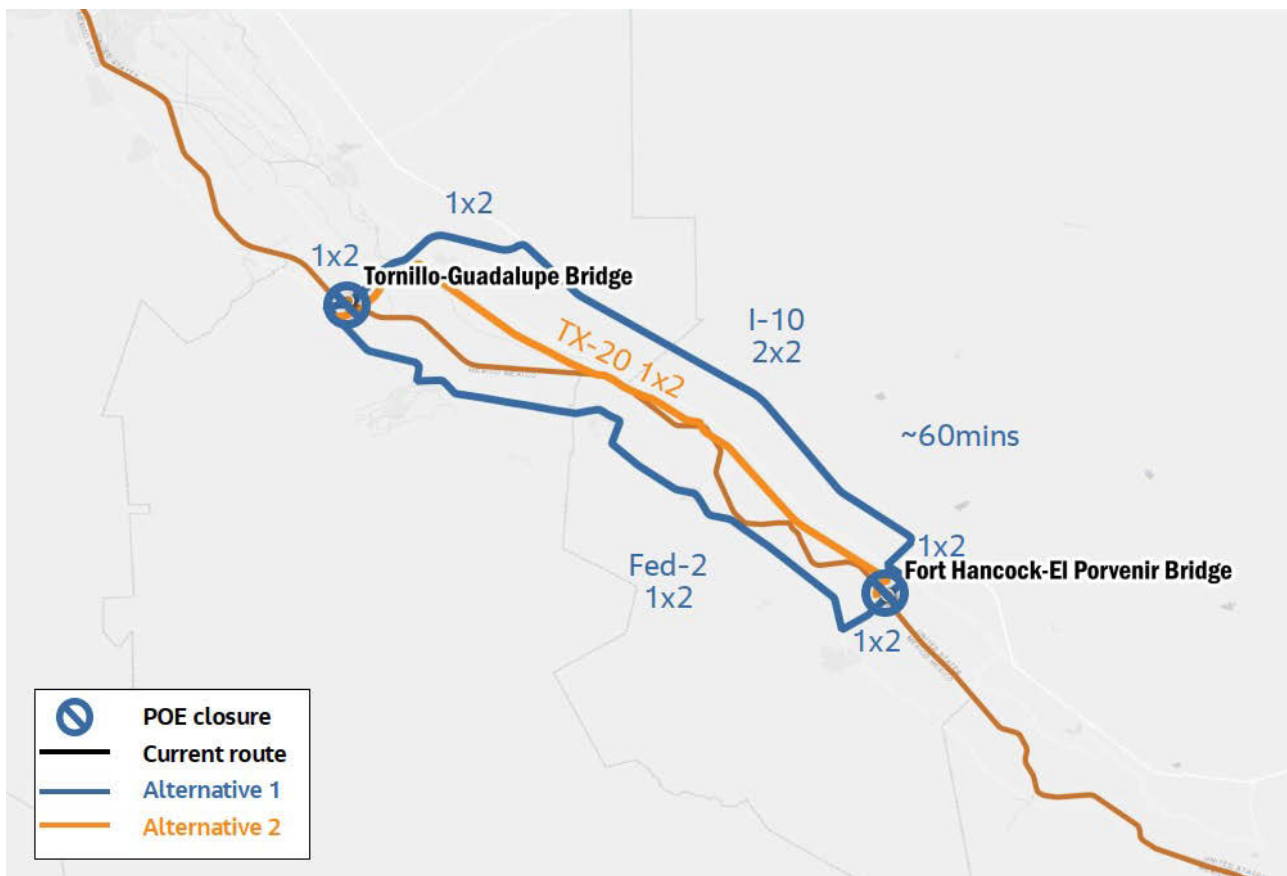
- Should Bridge of the Americas close, Ysleta Bridge (12 lanes) provides the most potential diversion capacity and lower daily veh/max lanes for POVs/buses



Marcelino Serna Bridge / Fort Hancock-El Porvenir Bridge Closure

- Marcelino Serna (formerly Tornillo-Guadalupe) Bridge and Fort Hancock-El Porvenir Bridge are around 20 miles apart. Neither crossing processes commercial vehicles
- Both provide each other with a viable alternative during a closure event
- Marcelino Serna Bridge carries approximately 10 times more traffic than Fort Hancock-El Porvenir Bridge
- Marcelino Serna Bridge has wait times as high as 18 minutes following early morning opening at 6:00 am and 13 minutes before closing at midnight
- The MEX-2 provides connectivity along the southern side of the border, and north of the border both I-10 and TX-20 provide connectivity
- Diversion from one crossing to another would increase from around 20 minutes to around 1hr round-trip (to get back to a similar local destination)

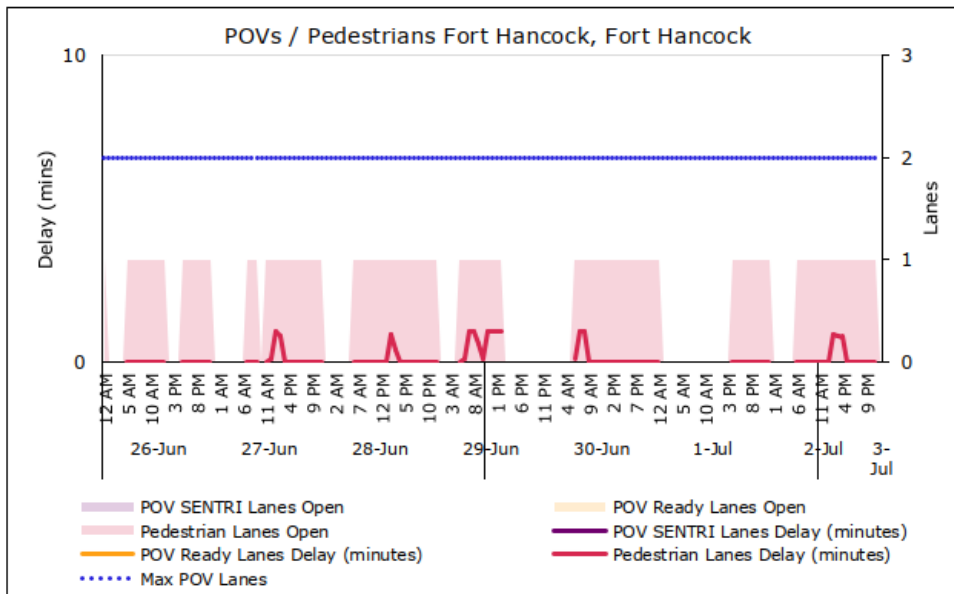
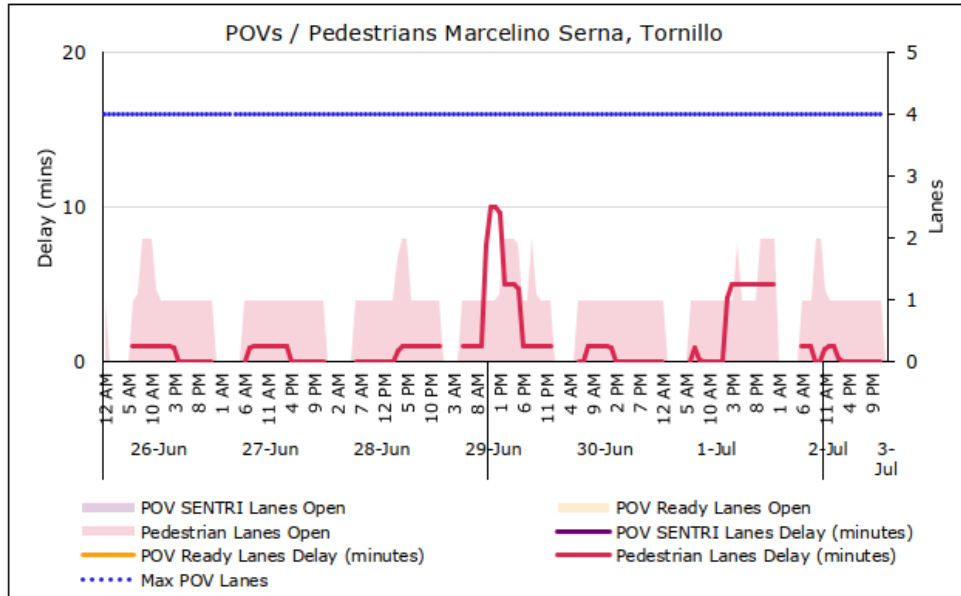
Figure 33. Marcelino Serna Bridge / Fort Hancock-El Porvenir Bridge



Marcelino Serna Bridge / Fort Hancock-El Porvenir Bridge - Wait Times and Lanes in Operation

Figure 34. Marcelino Serna Bridge / Fort Hancock-El Porvenir Bridge Crossing Closures – Wait Times and Lanes in Operation for Privately Owned Vehicles

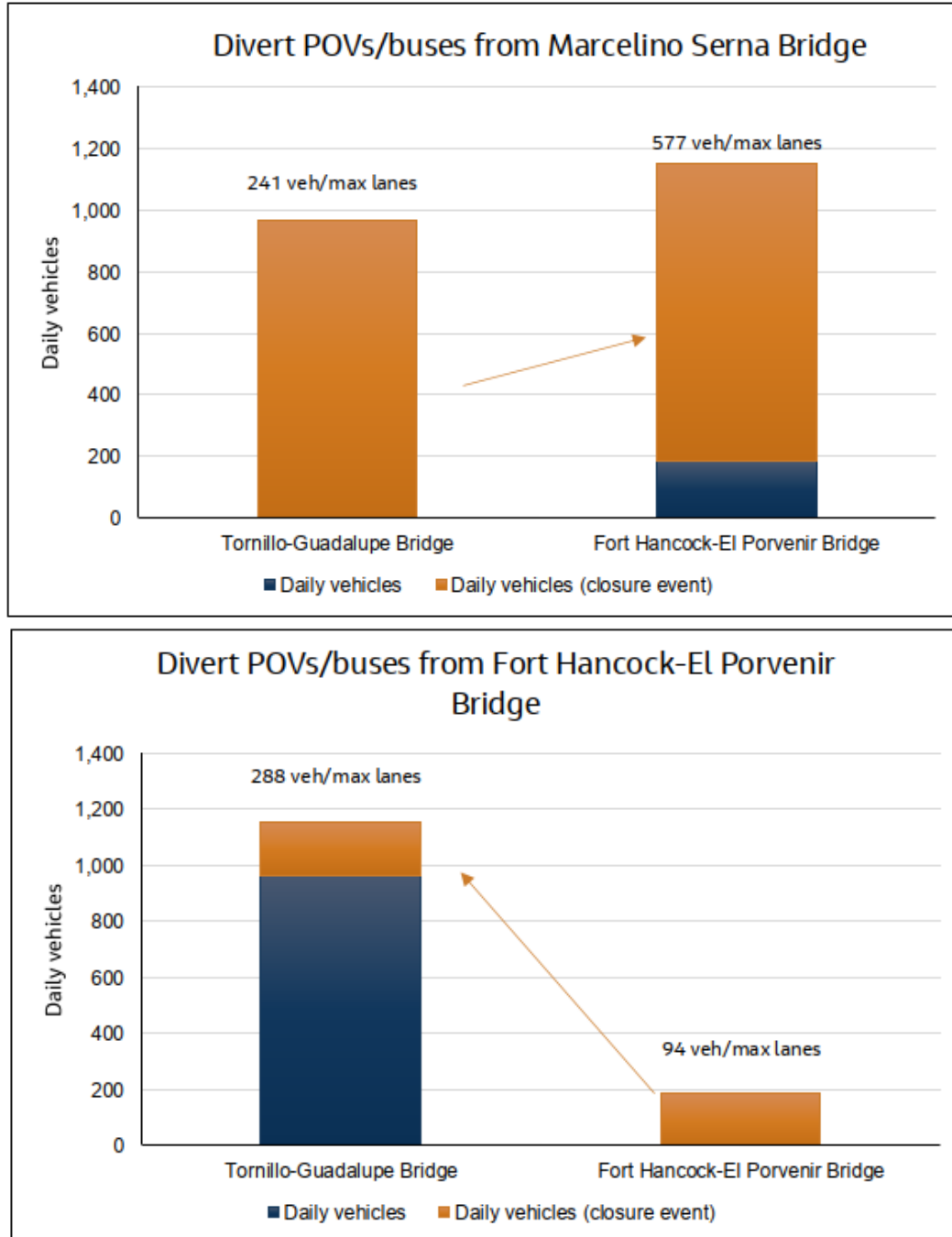
Privately Owned Vehicles



Marcelino Serna Bridge / Fort Hancock-El Porvenir- Diversion Capacity Assessment

The bridges provide sufficient capacity to process POV/bus demand in the event of a closure.

Figure 35. Marcelino Serna Bridge / Fort Hancock-El Porvenir – Diversion Capacity Assessment for Privately Owned Vehicles

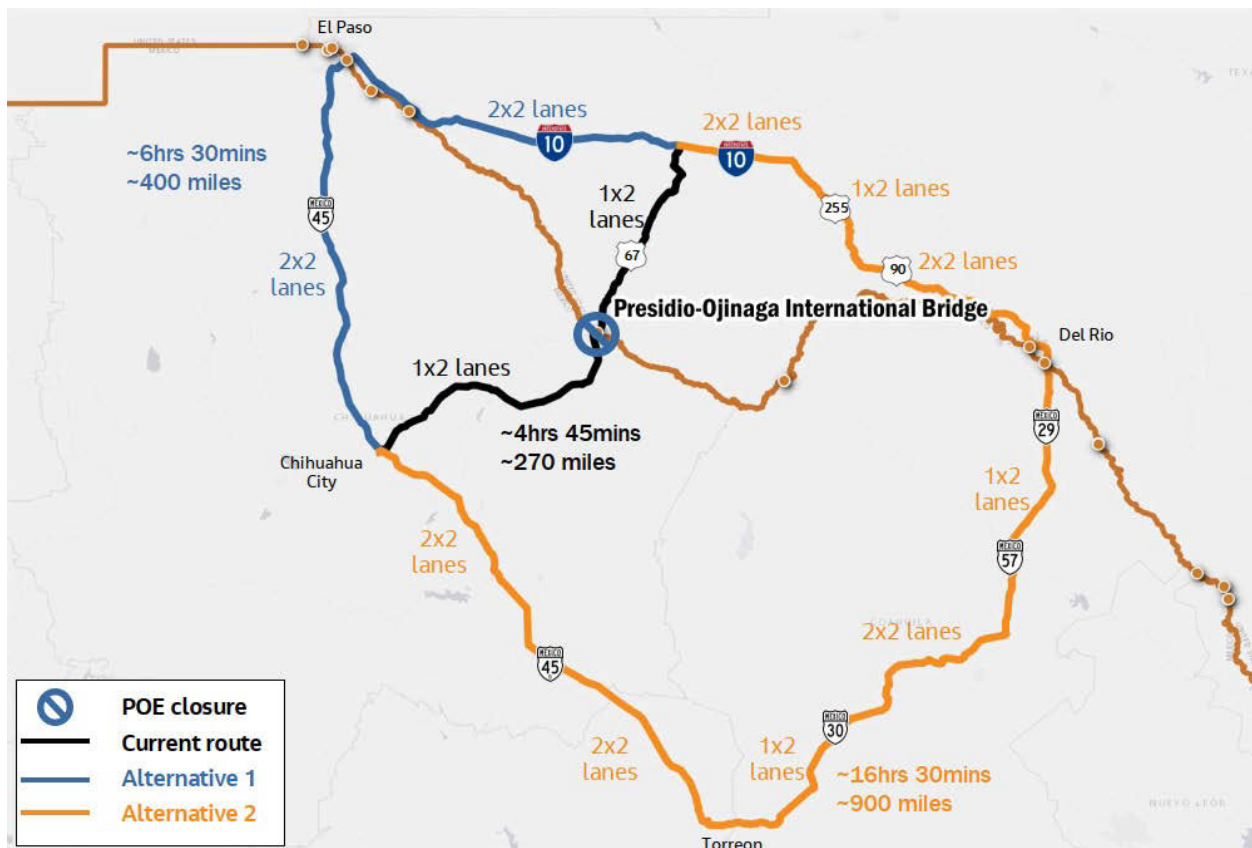


Presidio-Ojinaga International Bridge Closure

Table 5. Presidio-Ojinaga International Bridge Closures

	Ysleta	Del Rio International
Distance from Presidio-Ojinaga	<ul style="list-style-type: none"> • 180 miles to the west 	<ul style="list-style-type: none"> • >200 miles to the east
Wait times at the bridge	<ul style="list-style-type: none"> • up to 30 minutes 	<ul style="list-style-type: none"> • up to 40 minutes
During closure of Presidio-Ojinaga	<ul style="list-style-type: none"> • POVs would increase by 20 percent • Truck traffic would increase by two percent 	<ul style="list-style-type: none"> • POVs would increase by 42 percent • Truck traffic would increase by 15 percent

Figure 36. Presidio-Ojinaga International Bridge



Presidio-Ojinaga International Bridge - Wait Times and Lanes in Operation

Figure 37. Presidio-Ojinaga International Bridge Crossing Closures – Wait Times and Lanes in Operation for Privately Owned Vehicles

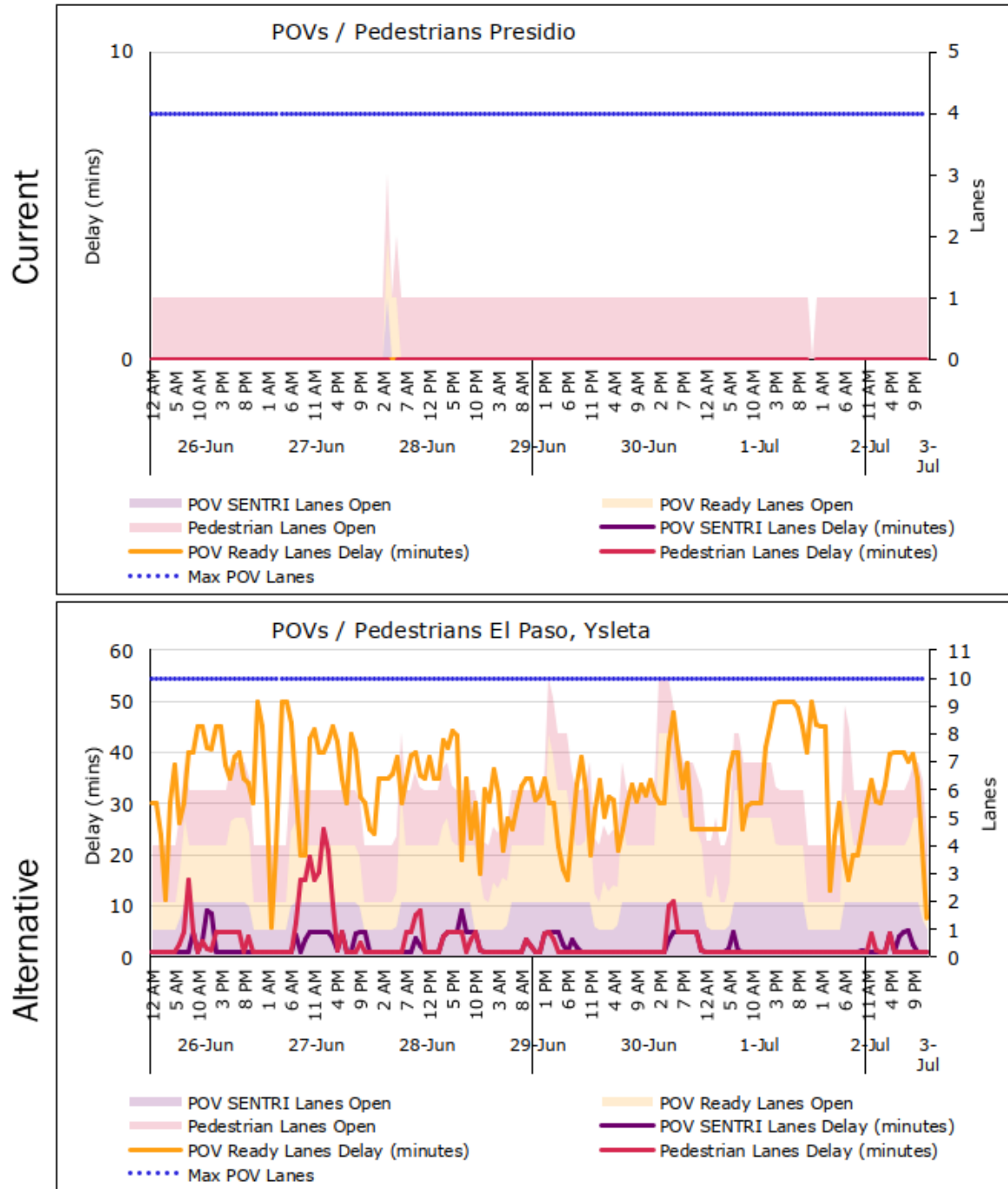
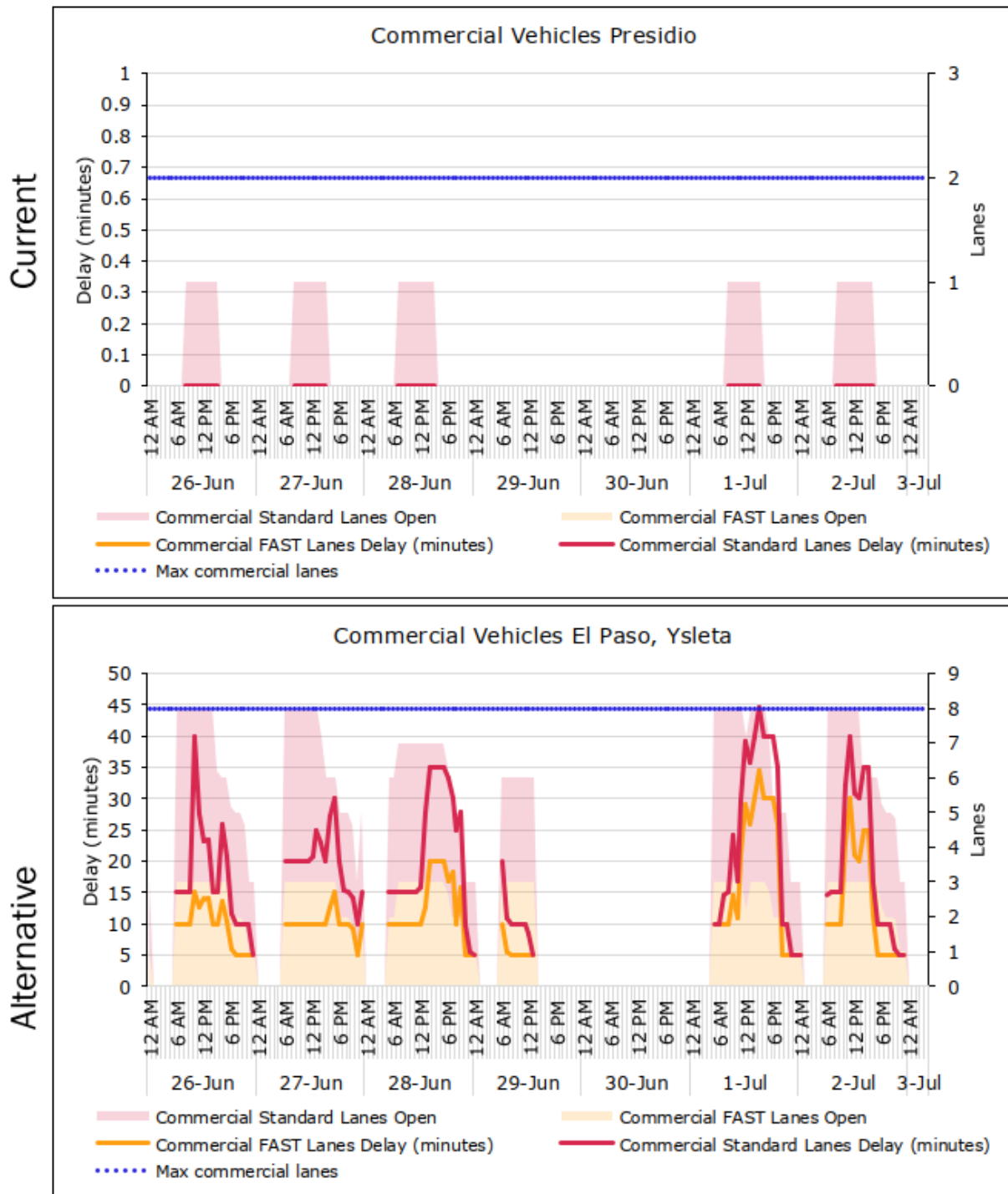


Figure 38. Presidio-Ojinaga International Bridge Crossing Closures – Wait Times and Lanes in Operation for Commercial Vehicles



Presidio-Ojinaga International Bridge- Diversion Capacity Assessment

Figure 39. Presidio-Ojinaga International Bridge – Diversion Capacity Assessment for Privately Owned Vehicles

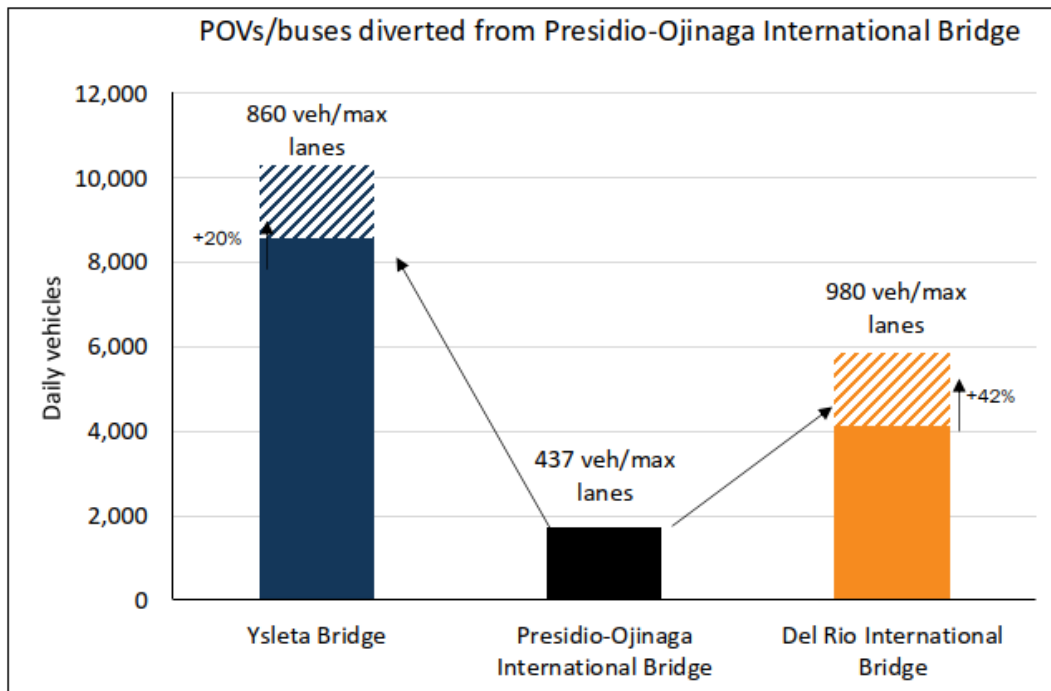
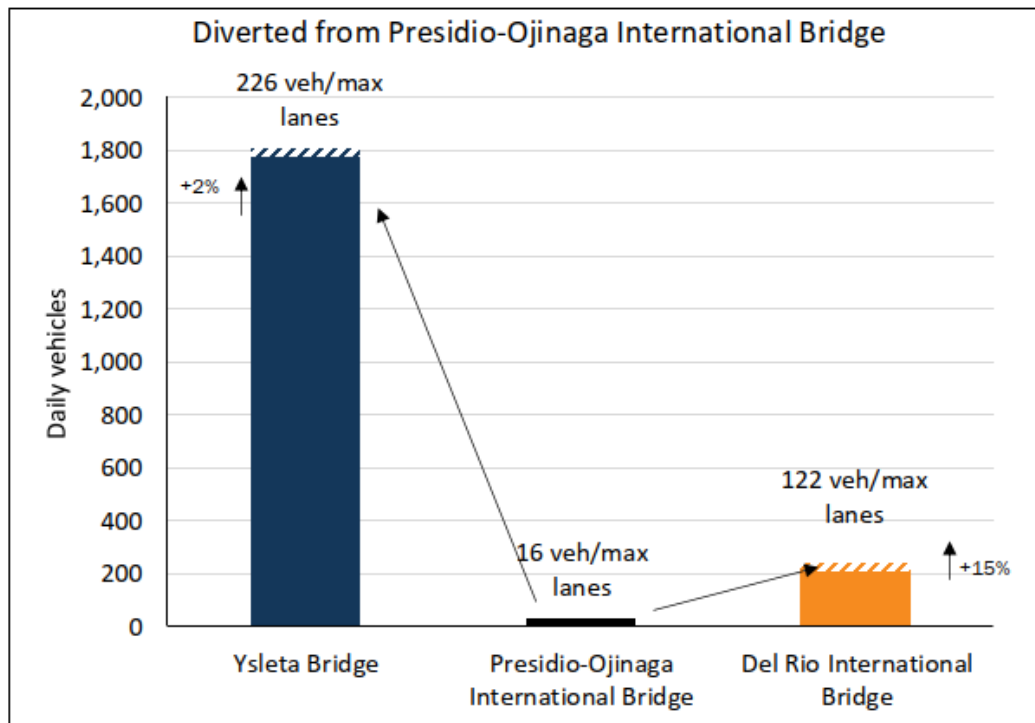


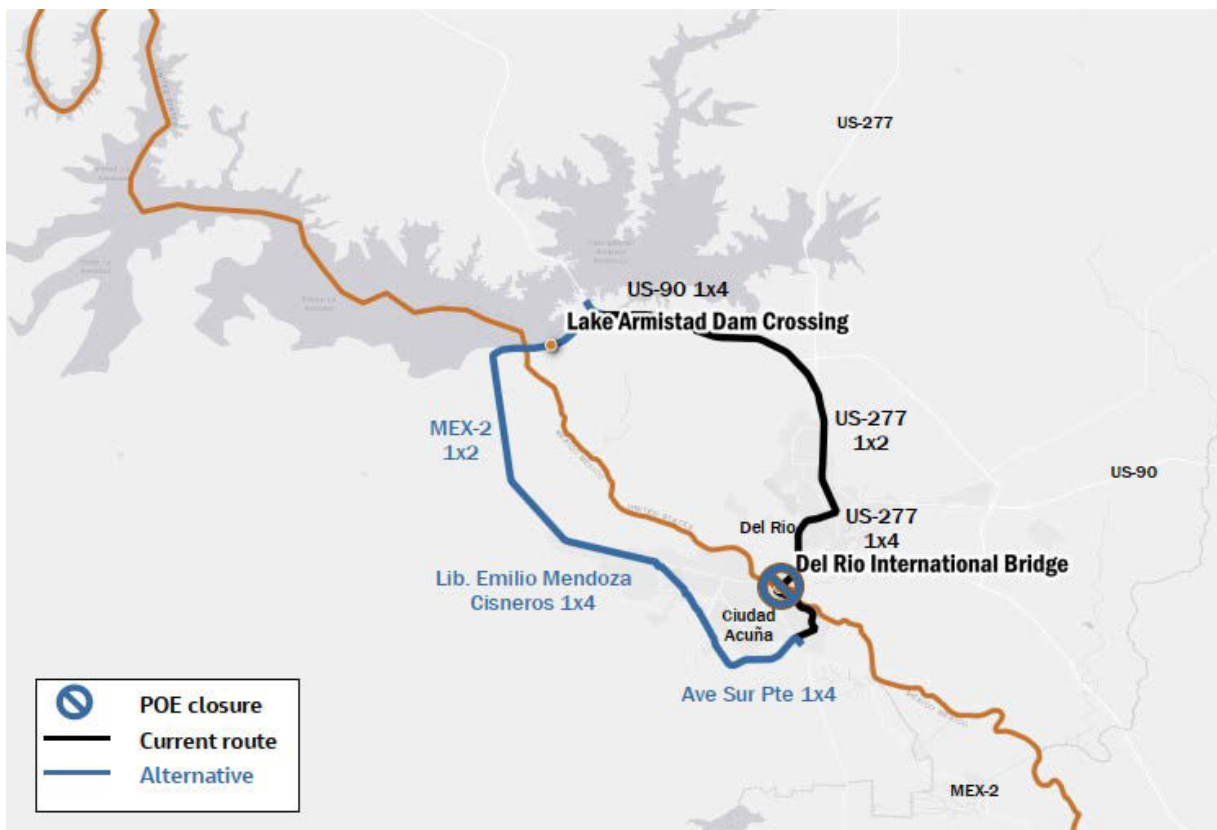
Figure 40. Presidio-Ojinaga International Bridge – Diversion Capacity Assessment for Commercial Vehicles



Del Rio International Bridge Closure

- Lake Amistad Dam crossing processes a relatively low volume compared to Del Rio International Bridge, and largely provides an alternative from US-90 in the north to the northern side of Ciudad Acuña
- Lake Amistad Dam crossing does not process commercial traffic
- POV crossing times at Del Rio International Bridge are up to 38 minutes
- Diversion of Lake Amistad traffic to the Del Rio International Bridge would result in a 3 percent increase in traffic
- Diverting traffic from Del Rio International Bridge to Lake Amistad would increase traffic by over 30 times
- The local journey between Del Rio/ Ciudad Acuña would increase from around 15 minutes to around 50 minutes via Lake Amistad Dam crossing (and vice-versa)

Figure 41. Del Rio International Bridge



Del Rio International Bridge- Wait Times and Lanes in Operation

Figure 42. Del Rio International Bridge Crossing Closures – Wait Times and Lanes in Operation for Privately Owned Vehicles

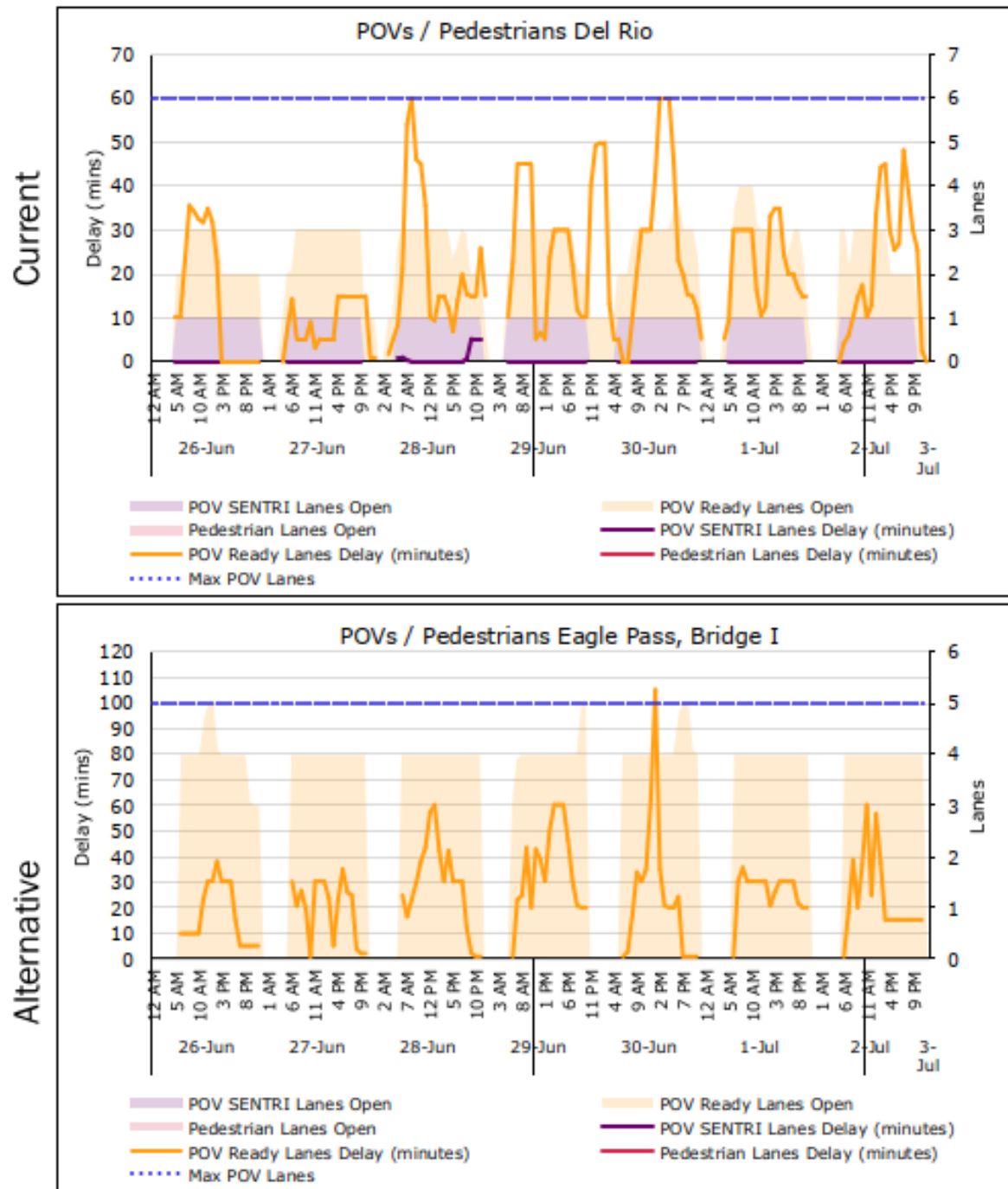
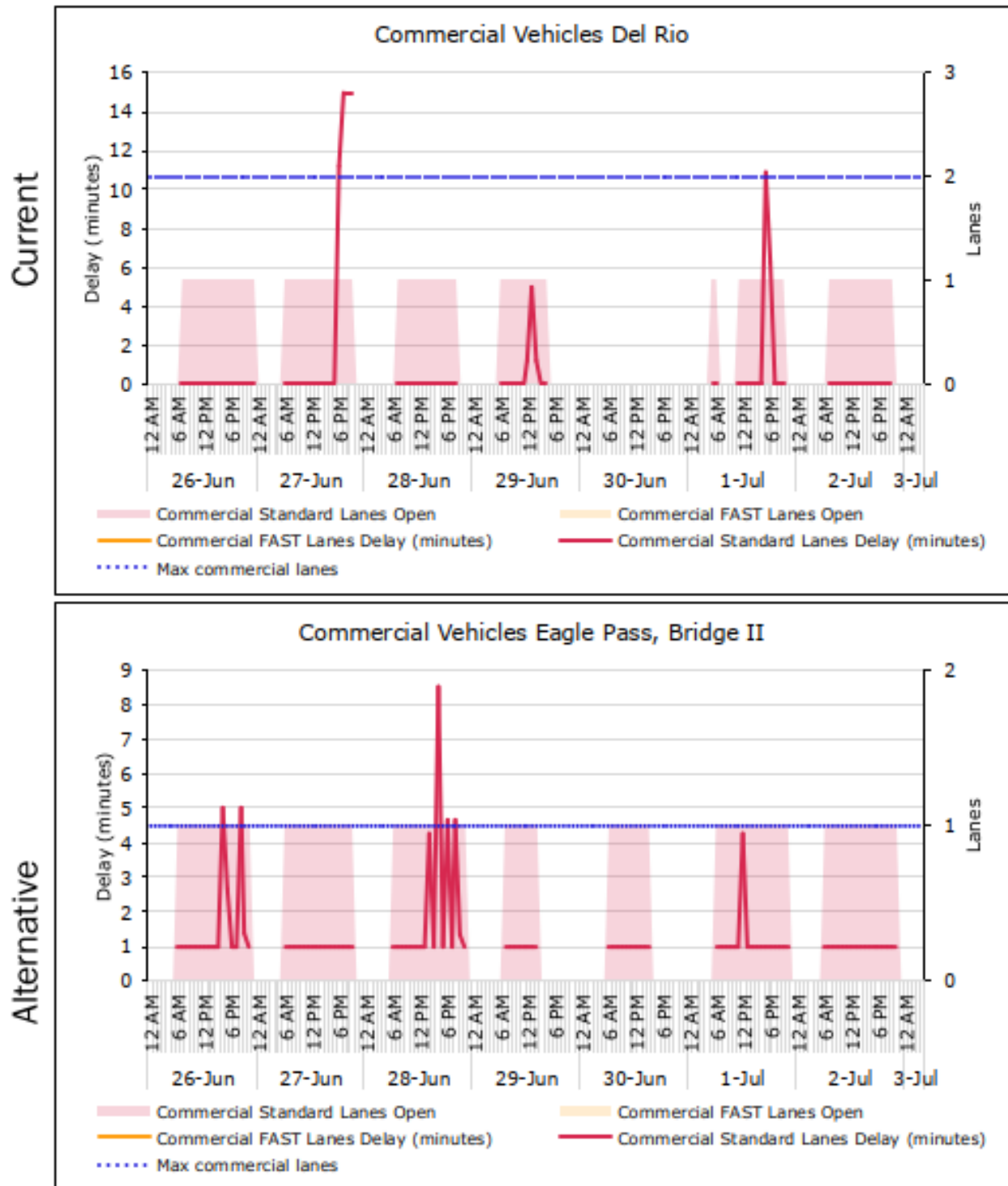


Figure 43. Del Rio International Bridge Crossing Closures – Wait Times and Lanes in Operation for Commercial Vehicles



Del Rio International Bridge- Diversion Capacity Assessment

Figure 44. Del Rio International Bridge – Diversion Capacity Assessment for Privately Owned Vehicles

- The single lane Lake Amistad Dam crossing is insufficient to process the Del Rio International Bridge POV/bus demand
- Camino Real International Bridge could potentially process the POV/bus demand in the event of a closure

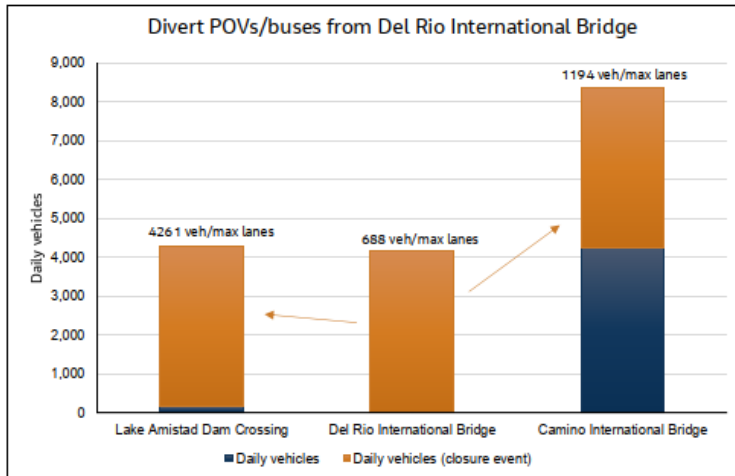
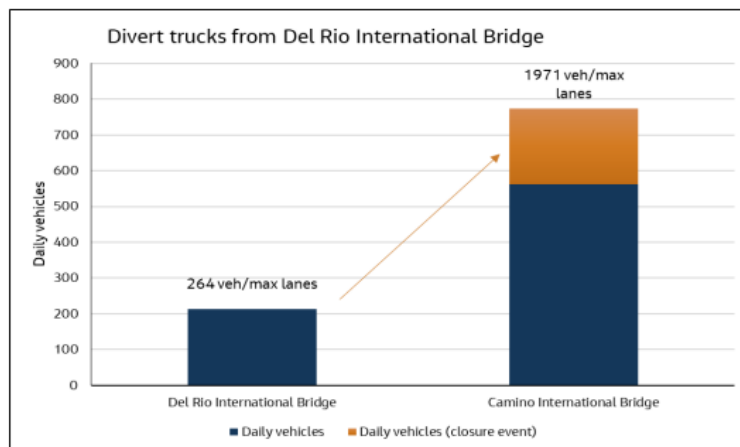


Figure 45. Del Rio International Bridge – Diversion Capacity Assessment for Commercial Vehicles

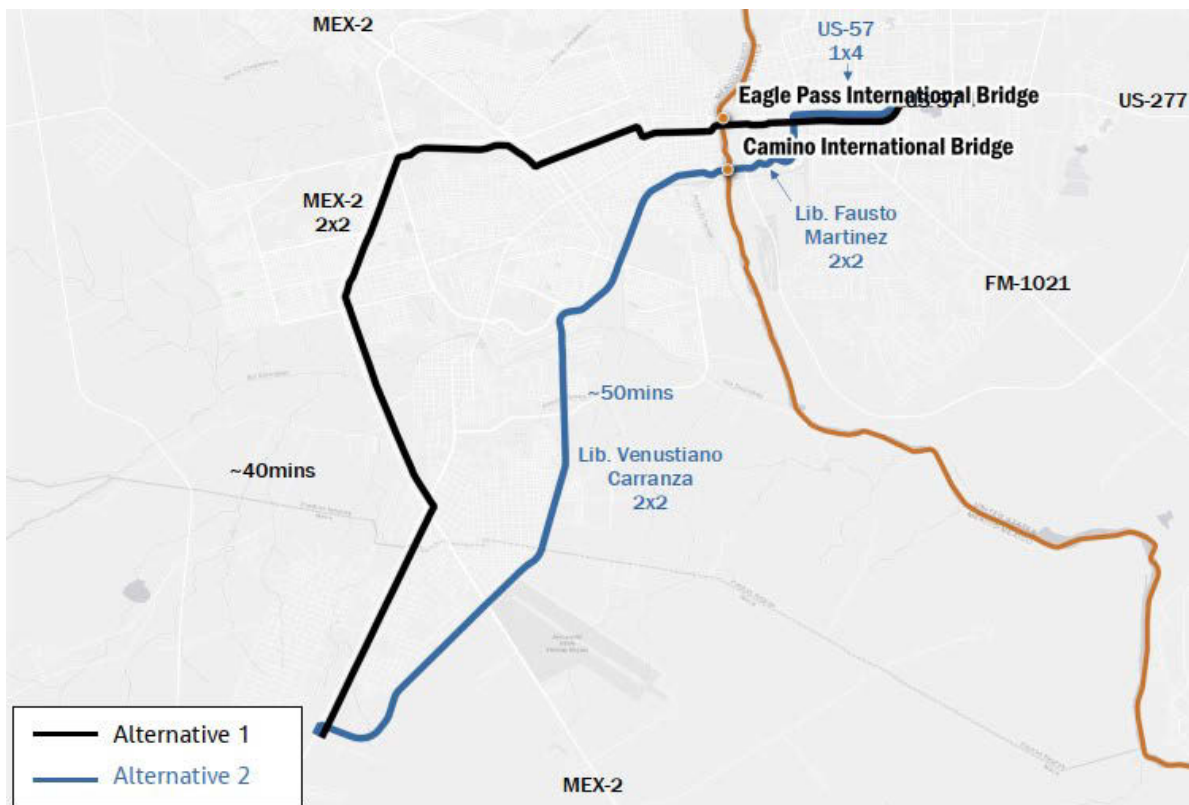
- The Camino Real International Bridge only has a single lane to process commercial traffic, however current delays are typically less than 5 minutes/vehicle



Eagle Pass International Bridge Closure

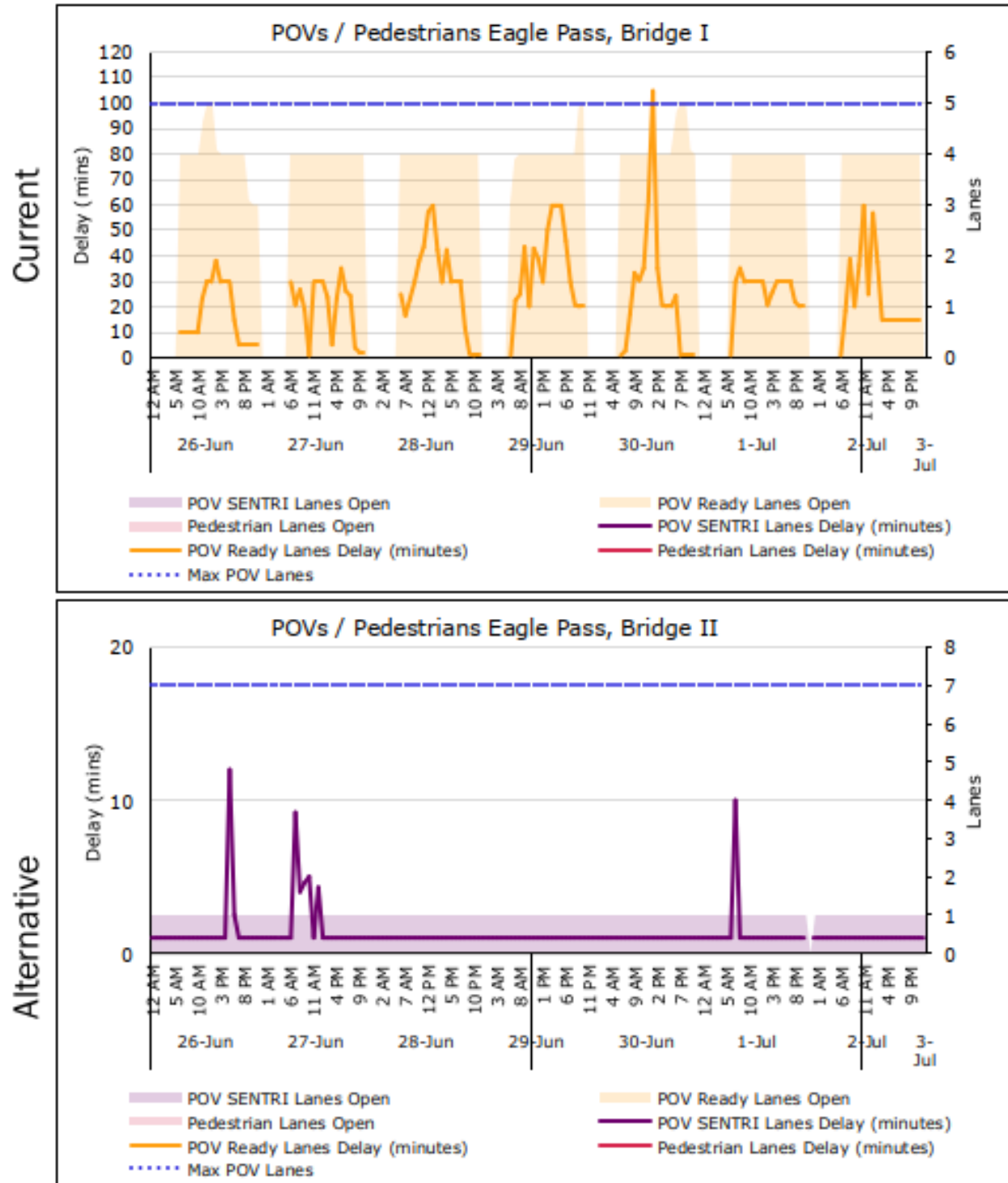
- There are two crossings between Piedras Negras in Mexico and Eagle Pass in the U.S.
- **Eagle Pass International Bridge** (POV only) can be accessed from MEX-2 or MEX-57 in Mexico and feed into US-57 and US-277 in the U.S. (Alternative 1)
- Camino Real International Bridge is half a mile south of the Eagle Pass International Bridge, and can be accessed via Lib. Venustiano Carranza in Mexico before connecting to US-57 in the U.S. (Alternative 2)
- Generally, no delays are observed for POVs at **Eagle Pass International Bridge**. Commercial vehicles are not permitted. Wait times at the Camino Real International Bridge are typically up to 34 minutes for POVs

Figure 46. Eagle Pass International Bridge



Eagle Pass- Wait Times and Lanes in Operation

Figure 47. Eagle Pass International Bridge Crossing Closures – Wait Times and Lanes in Operation for Privately Owned Vehicles



Eagle Pass- Diversion Capacity Assessment

Figure 49. Eagle Pass International Bridge – Diversion Capacity Assessment for Privately Owned Vehicles

- Should the Eagle Pass International Bridge close, the Camino Real International Bridge (7 lanes) provide sufficient capacity for POVs/buses
- Should the Camino Real International Bridge close, the Eagle Pass International Bridge (5 lanes) provide sufficient capacity for POVs/buses

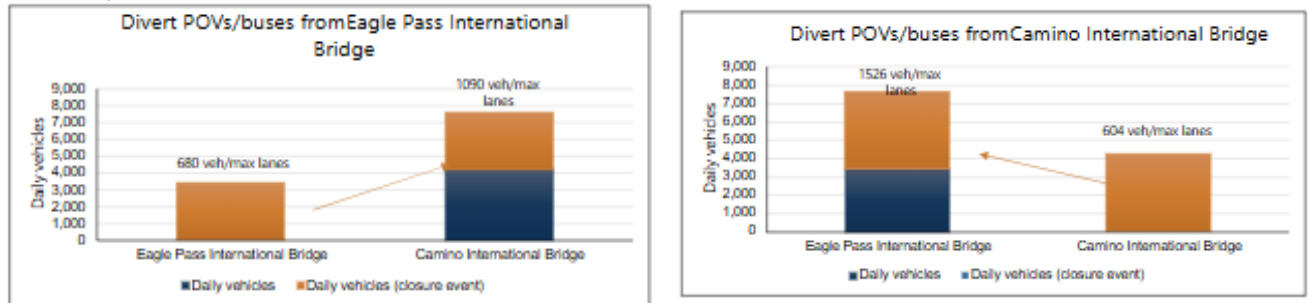
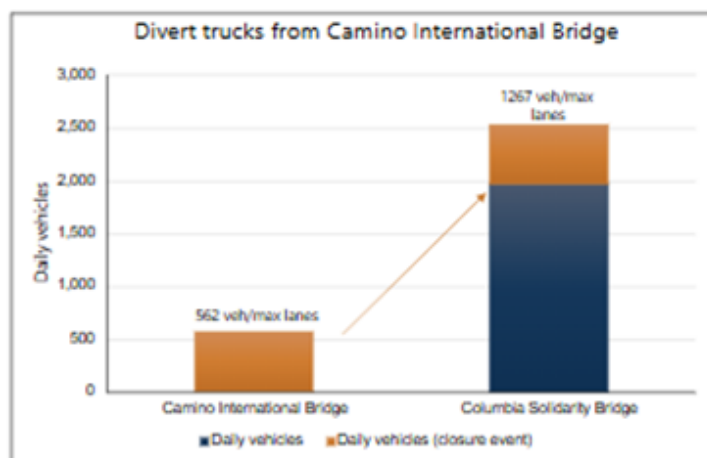


Figure 50. Eagle Pass International Bridge – Diversion Capacity Assessment for Commercial Vehicles

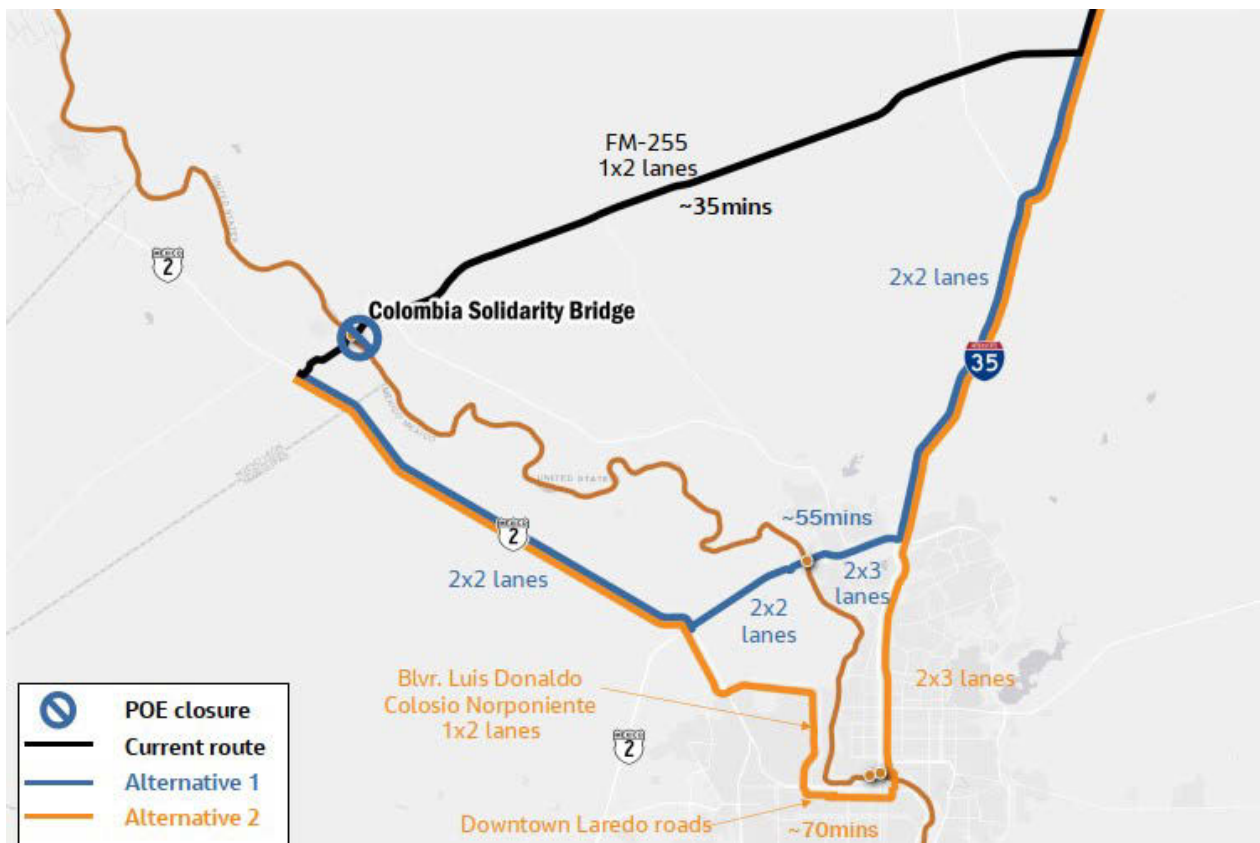
- Whilst the Lake Amistad Dam crossing does not process truck traffic, the single-lane Lake Amistad Dam crossing has sufficient capacity to process commercial traffic
- Alternatively, the Camino Real International Bridge would also have sufficient capacity to process the commercial traffic



Columbia Solidarity Bridge Closure

- The World Trade Bridge is the primary alternative crossing for commercial vehicles in the Laredo region
- POVs must divert further to the Gateway to the Americas Bridge
- The Columbia Solidarity Bridge has similar wait times (up to 32 minutes) as the World Trade Bridge. Typically, busiest mid-afternoon
- Diverting commercial vehicles to the World Trade Bridge would increase demand by around 35 percent
- Diverting POVs to the Gateway to the Americas Bridge would increase demand by around 20 percent

Figure 51. Columbia Solidarity Bridge



Columbia Solidarity Bridge- Wait Times and Lanes in Operation

Figure 52. Colombia Solidarity Bridge Crossing Closures – Wait Times and Lanes in Operation for Privately Owned Vehicles

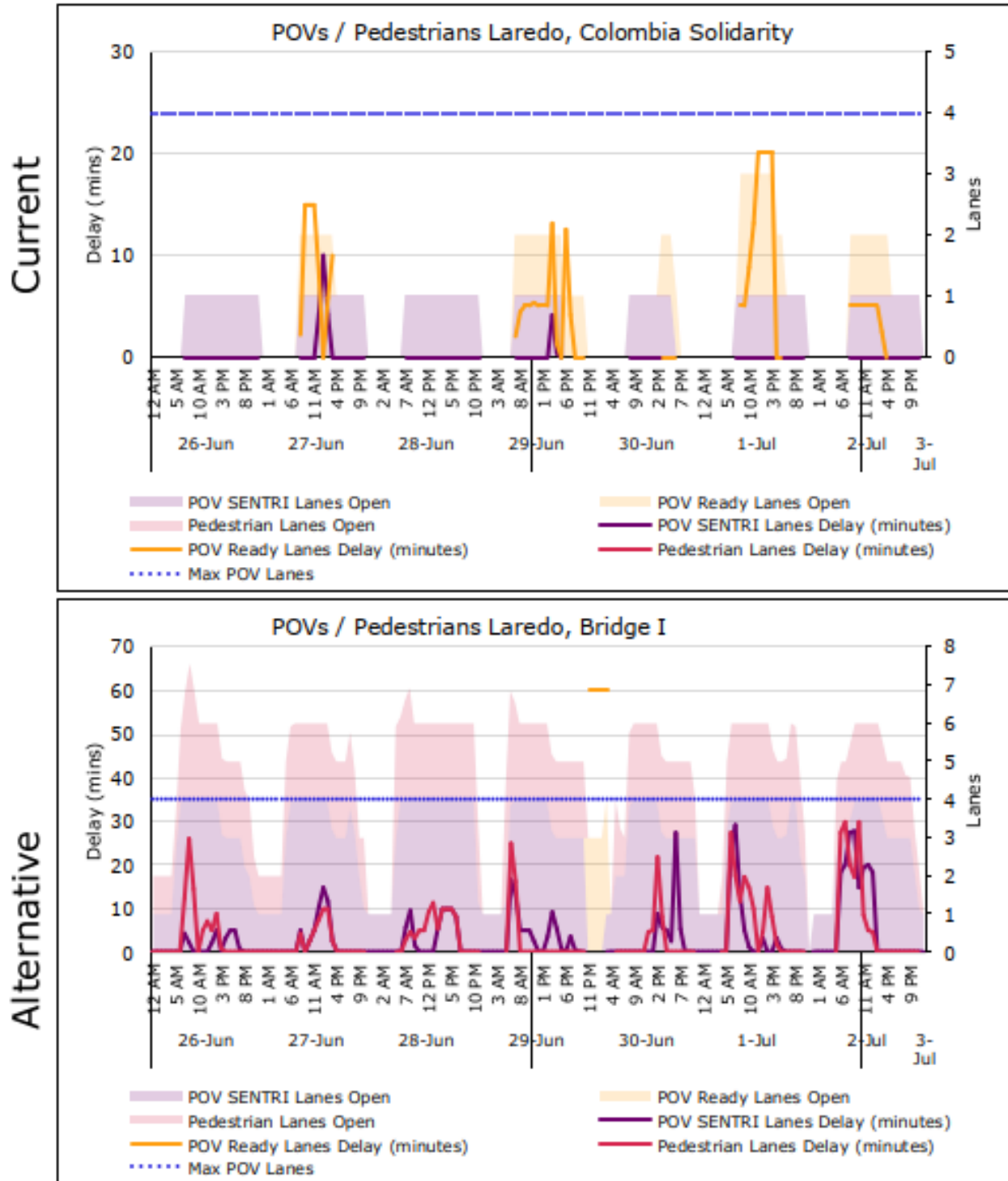
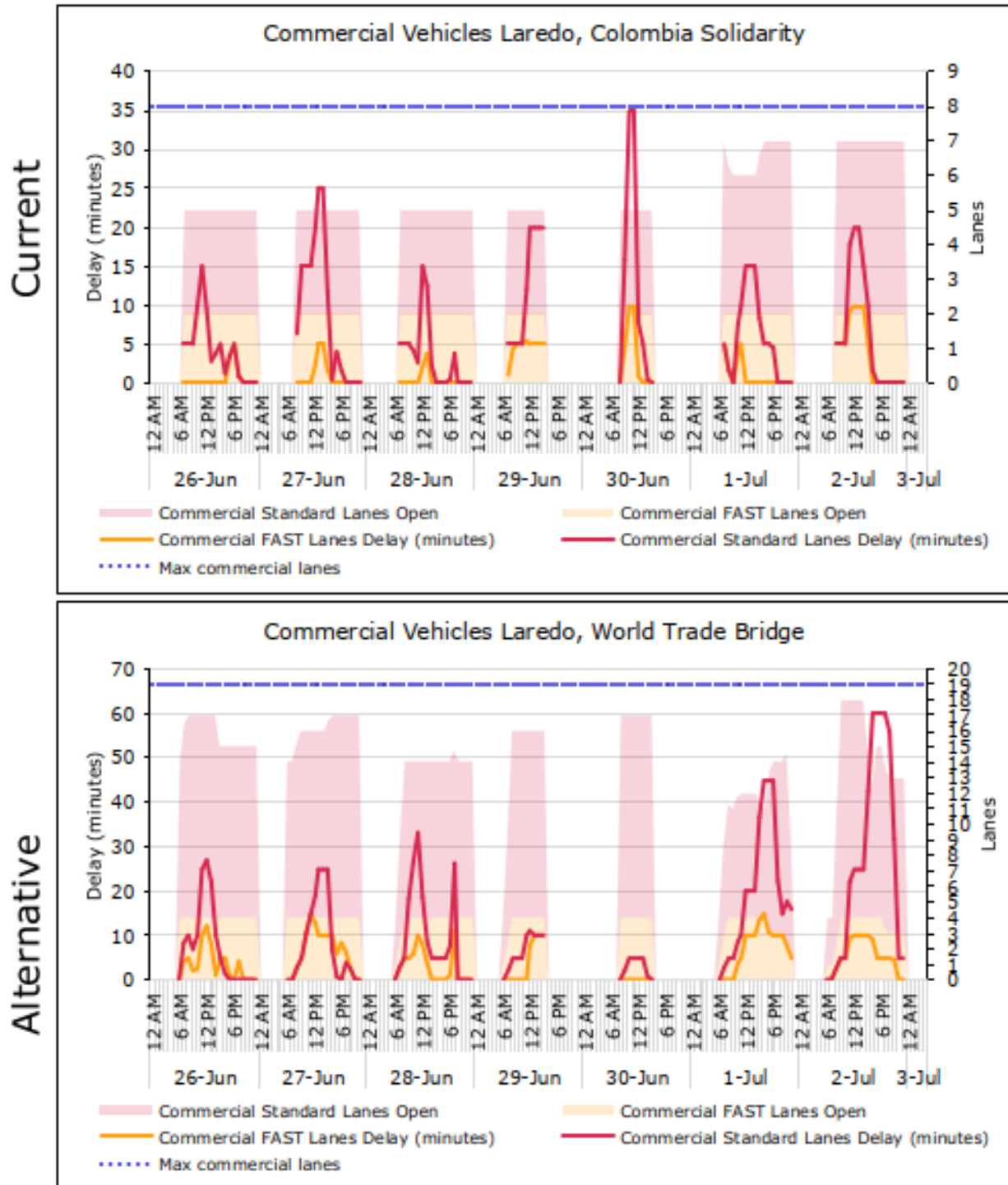


Figure 53. Colombia Solidarity Bridge Crossing Closures – Wait Times and Lanes in Operation for Commercial Vehicles



Columbia Solidarity Bridge- Diversion Capacity Assessment

Figure 54. Columbia Solidarity Bridge – Diversion Capacity Assessment for Privately Owned Vehicles

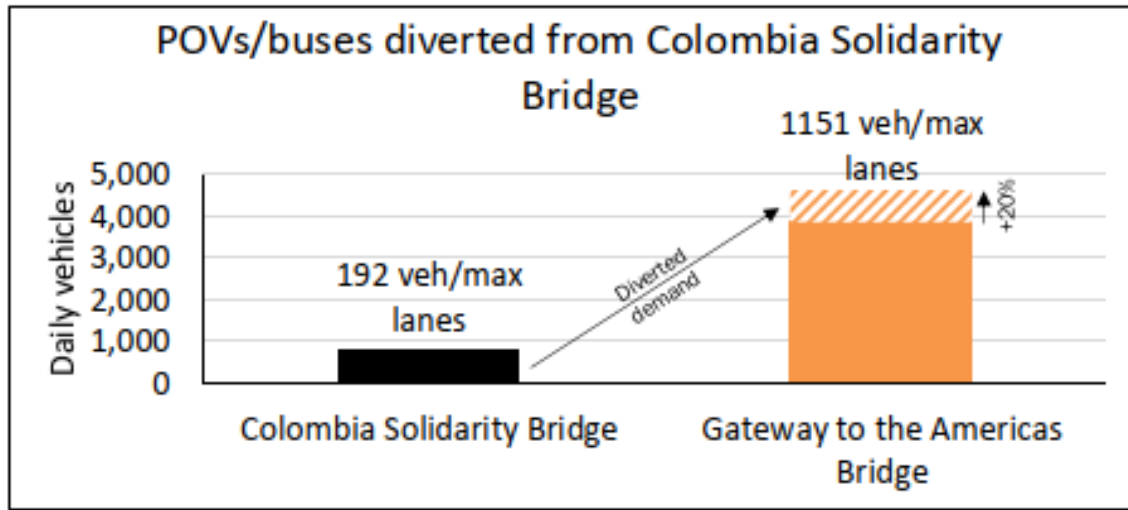
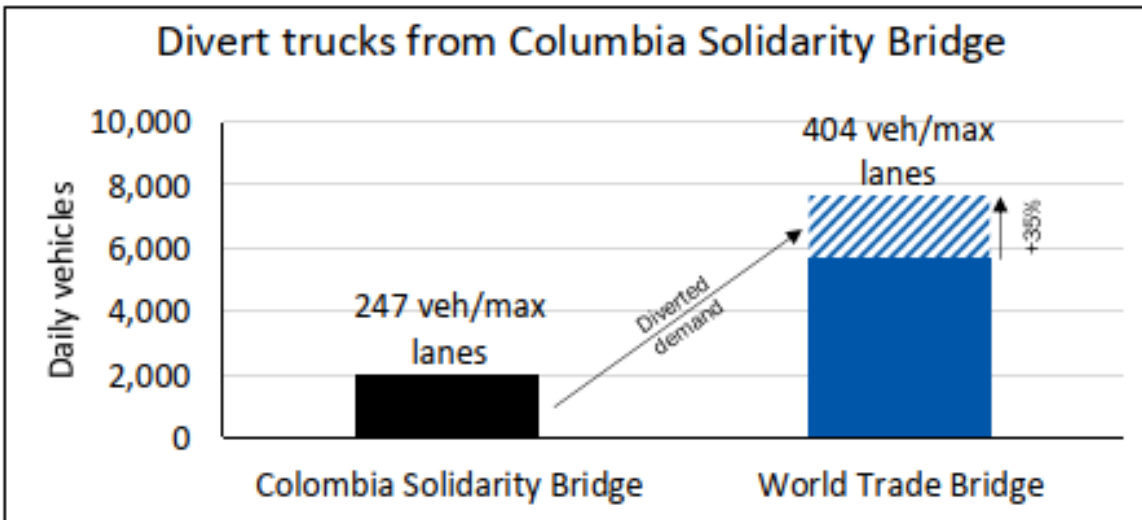


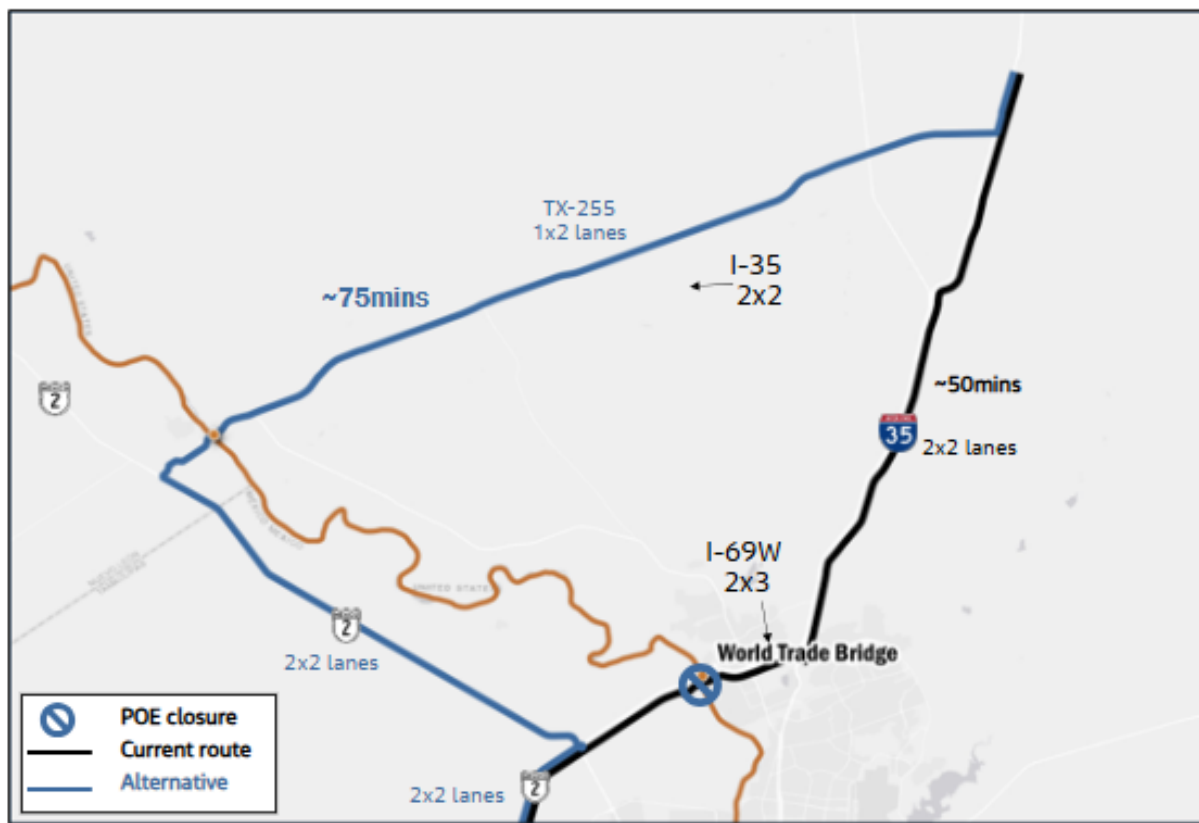
Figure 55. Columbia Solidarity Bridge – Diversion Capacity Assessment for Commercial Vehicles



World Trade Bridge Closure

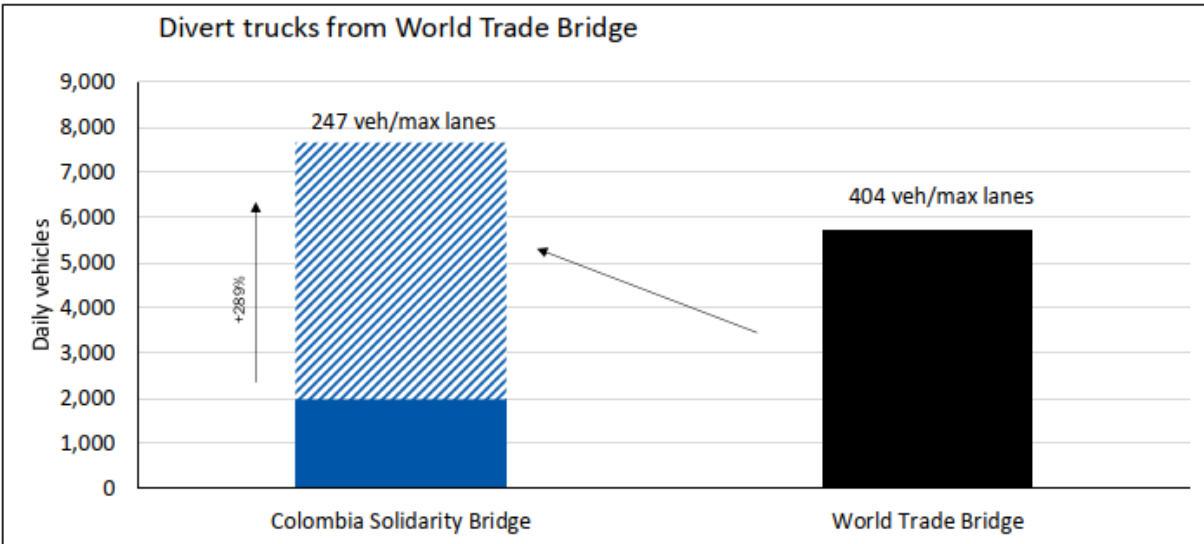
- The World Trade Bridge is the primary crossing for commercial vehicles in Laredo; particularly for longer distance traffic to and from Monterrey
- The only viable alternative for commercial traffic is the Colombia Solidarity Bridge which can be accessed via MEX-2 and TX-255 to access I-35
- The Colombia Solidarity Bridge has similar wait times (up to 32 minutes) as the World Trade Bridge. Typically, it is busiest during the mid-afternoon
- Diverting the World Trade Bridge commercial traffic to the Colombia Solidarity Bridge would increase demand by 289 percent

Figure 56. World Trade Bridge



World Trade Bridge- Diversion Capacity Assessment

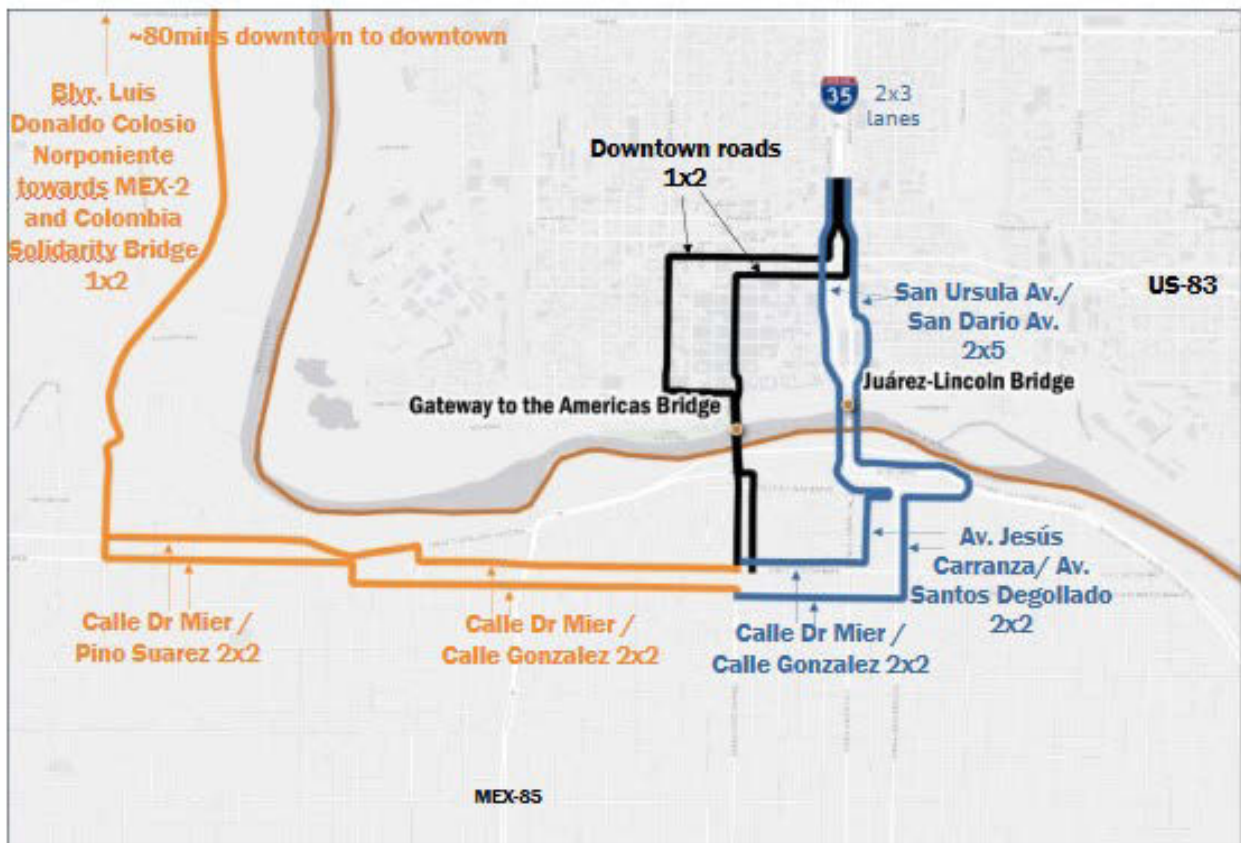
Figure 58. World Trade Bridge – Diversion Capacity Assessment for Commercial Vehicles



Gateway to the Americas Bridge / Juarez-Lincoln Bridge Closures

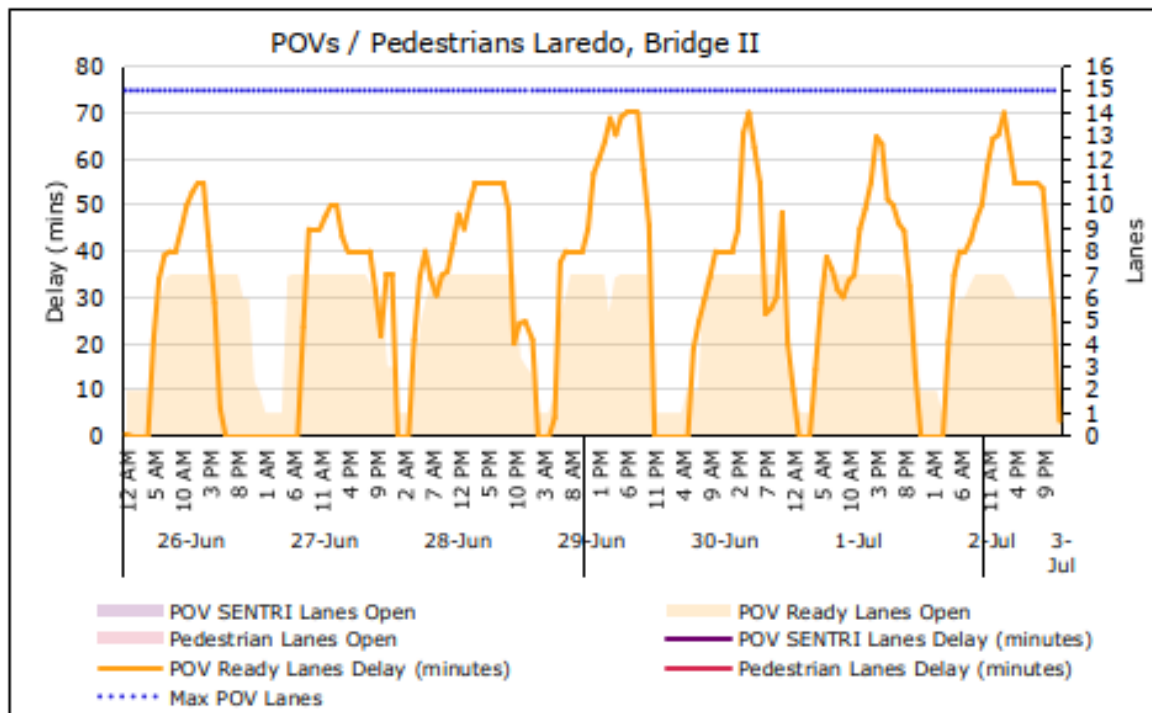
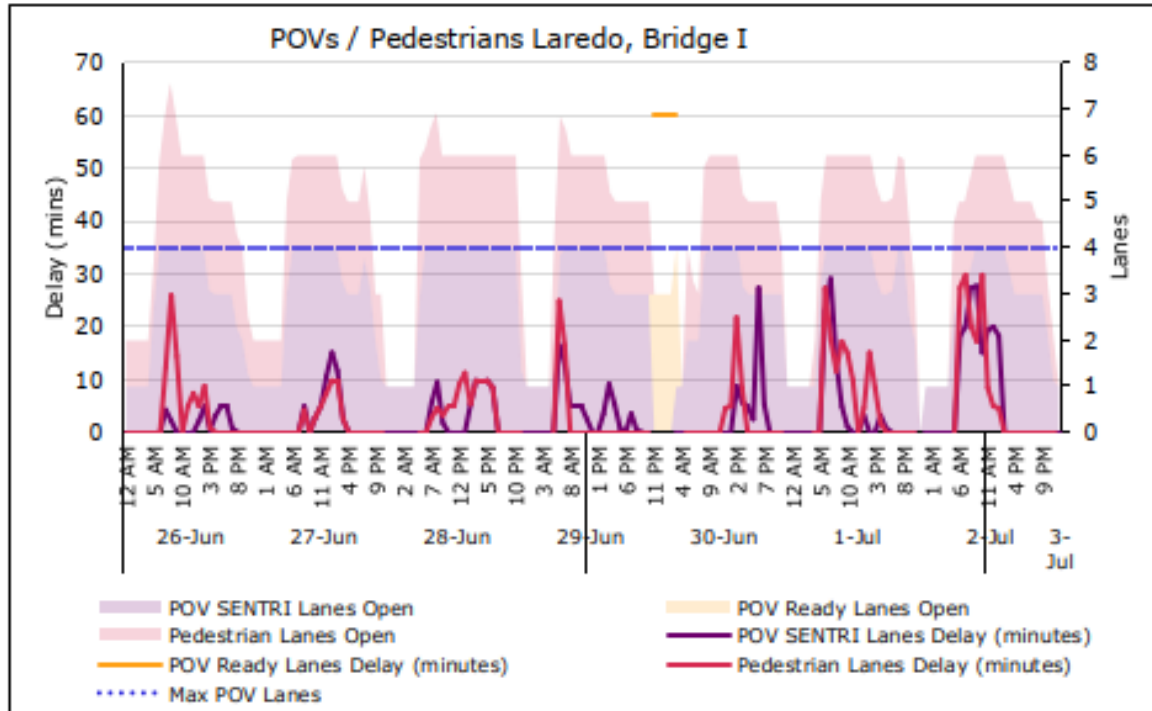
- There is no commercial traffic on the Gateway to the Americas Bridge or Juarez-Lincoln Bridge. These bridges are around 500 yards apart, with the only other alternative for POV traffic being the Colombia Solidarity Bridge, which is around 20 miles north-west
- There is generally no wait time at the Gateway to the Americas Bridge, however POV wait times at Juarez-Lincoln Bridge and Colombia Solidarity Bridge are up to 50 minutes
- Should the Gateway to the Americas Bridge close, traffic at the Juarez-Lincoln Bridge **would increase by 48 percent** or traffic at the Colombia Solidarity Bridge **would increase by 500 percent**
- Should the Juarez-Lincoln Bridge close, traffic at the Gateway to the Americas Bridge **would increase by 207 percent** or traffic at the Colombia Solidarity Bridge **would increase by over 10 times**
- Both crossings downtown provide comparable travel times to each other. The next closest alternative to POVs is the Colombia Solidarity Bridge which would require around an 80-minute round journey

Figure 59. Gateway to the Americas Bridge / Juarez-Lincoln Bridge



Gateway to Americas Bridge/Juarez-Lincoln Bridges- Wait Times and Lanes in Operation

Figure 60. Gateway to the Americas Bridge / Juarez-Lincoln Bridge Crossing Closures – Wait Times and Lanes in Operation for Privately Owned Vehicles



Gateway to Americas Bridge/Juarez-Lincoln Bridges- Diversion Capacity Assessment

- Gateway to the Americas Bridge only has four POV/bus lanes, whereas the Juárez-Lincoln Bridge has 15 lanes. Closure of the former (left chart) will likely be operationally acceptable. However, closure of the Juárez-Lincoln Bridge (right chart) will likely exceed the capacity of the crossing
- The Colombia Solidarity Bridge may provide some relief should demand be split amongst the two alternative crossings

Figure 61. Gateway to Americas Bridge/Juarez-Lincoln Bridges – Diversion Capacity Assessment for Privately Owned Vehicles

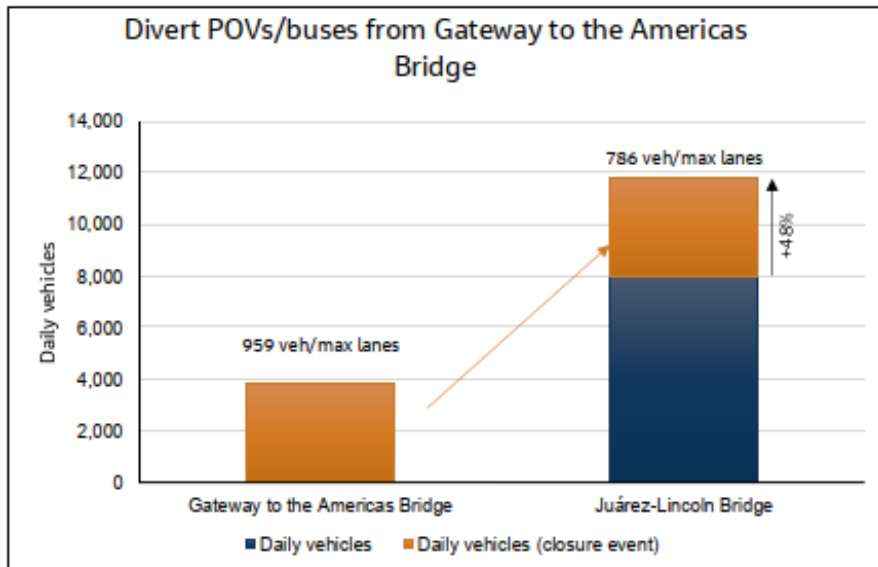
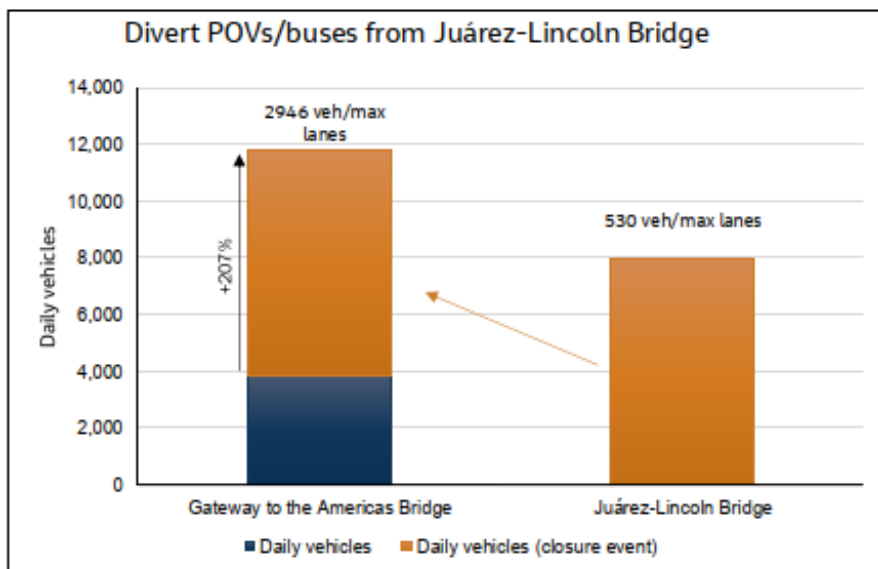


Figure 62. Gateway to Americas Bridge/Juarez-Lincoln Bridges – Diversion Capacity Assessment for Commercial Vehicles

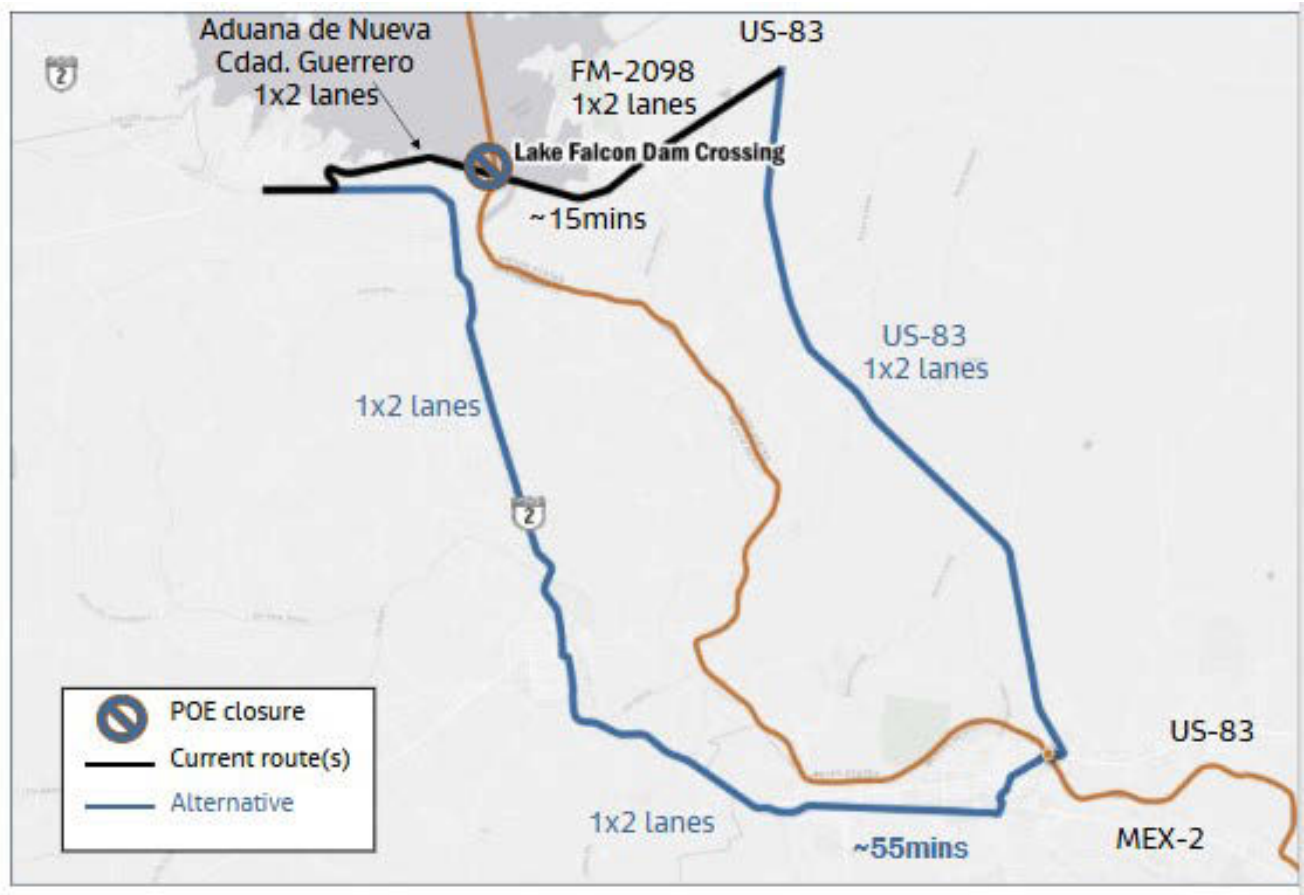
Commercial Motor Vehicles



Lake Falcon Dam Crossing Closures

- The Lake Falcon Dam crossing processes a relatively low volume of POVs and no commercial vehicles. The crossing serves the town of Nueva Ciudad Guerrero in Mexico, connecting to US-83 in the U.S.
- Should the Lake Falcon Dam crossing close, the nearest alternative is the Roma-Ciudad Miguel Alemán International Bridge, approximately 21 miles to the south-west
- Wait times at the Roma-Ciudad Miguel Alemán International Bridge are up to 15 minutes
- Should the Lake Falcon Dam crossing close, traffic at the Roma-Ciudad Miguel Alemán International Bridge **would increase by 20 percent**

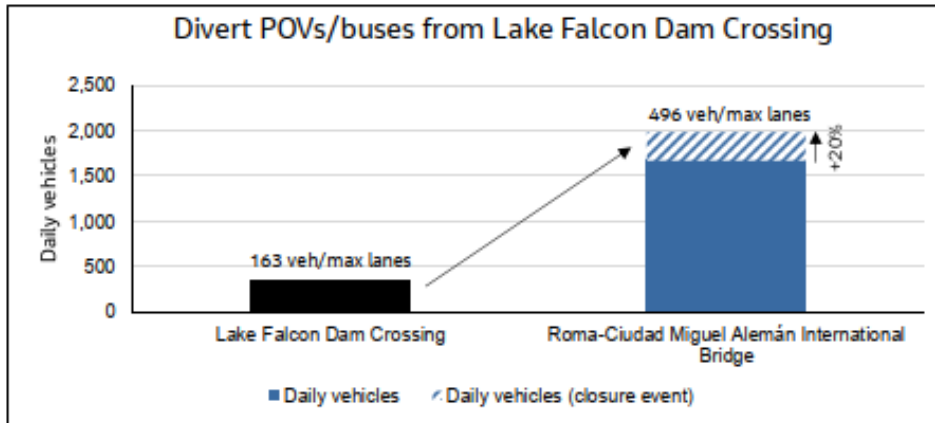
Figure 63. Lake Falcon Dam Crossing



Lake Falcon Dam Crossing- Diversion Capacity Assessment

Figure 64. Lake Falcon Dam Crossing Closures – Wait Times and Lanes in Operation for Privately Owned Vehicles

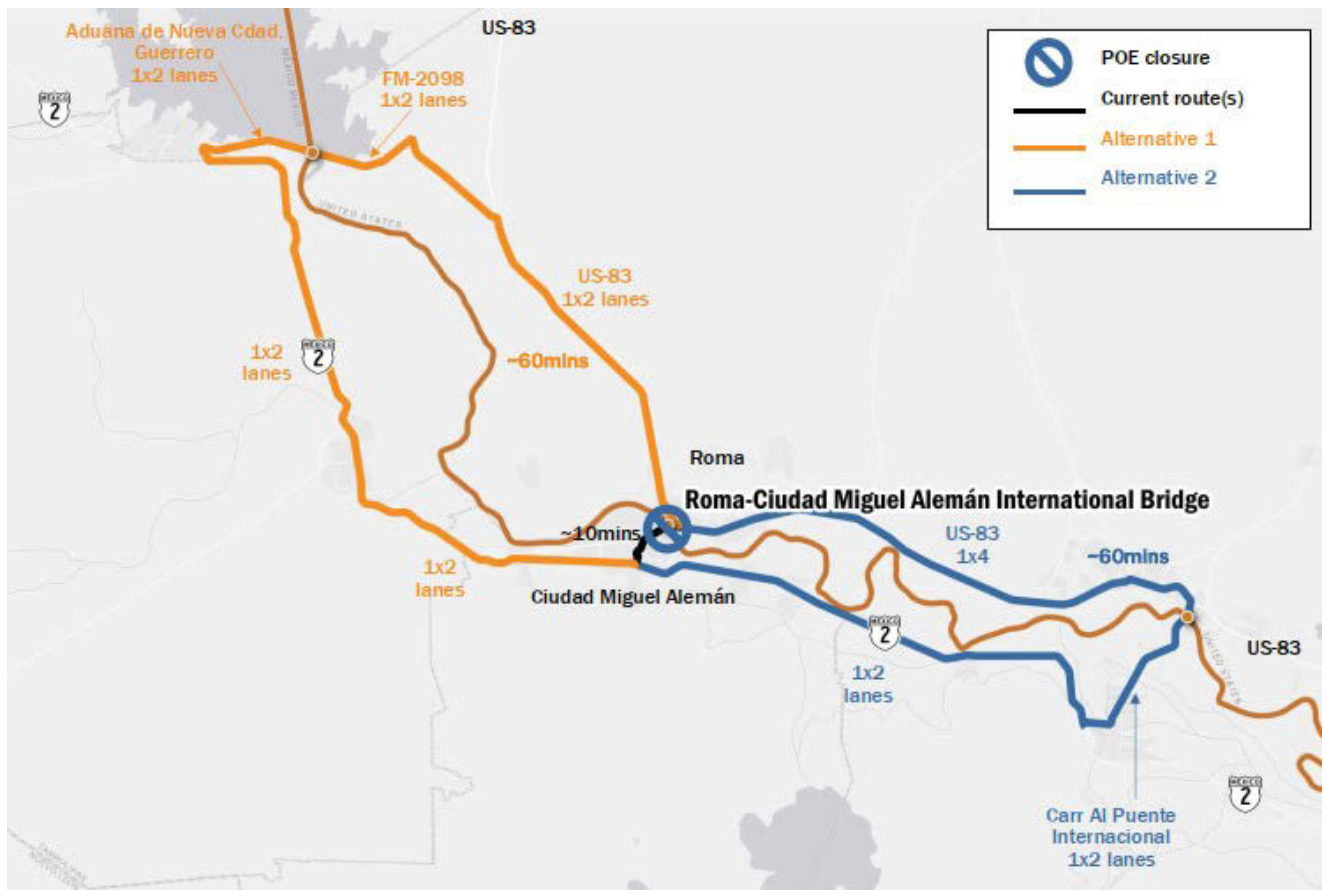
Privately Owned Vehicles



Roma-Ciudad Miguel Aleman International Bridge Closure

- The Roma-Ciudad Miguel Alemán International Bridge processes both POV and commercial vehicle traffic between the towns of Ciudad Miguel Alemán in Mexico and Roma in the U.S.
- Should the Roma-Ciudad Miguel Alemán International Bridge close, the two alternatives are the Lake Falcon Dam crossing, approximately 21 miles to the north-west (POV only) or the Starr-Camargo Bridge, approximately 18 miles to the south-east (POVs and commercial vehicles)
- Wait times at the Starr-Camargo Bridge are up to 17 minutes for POVs and around 10 minutes for commercial vehicles
- Should the Roma-Ciudad Miguel Alemán International Bridge close and POV traffic be diverted to the Lake Falcon Dam crossing, demand **would increase by 508 percent**
- Should the traffic be diverted to the Starr-Camargo Bridge, **POV traffic would increase by 169 percent and commercial vehicle traffic would increase by 77 percent**

Figure 65. Roma-Ciudad Miguel Aleman International Bridge



Roma-Ciudad Miguel Aleman International Bridge- Diversion Capacity Assessment

Figure 66. Roma-Ciudad Miguel Aleman International Bridge – Diversion Capacity Assessment for Privately Owned Vehicles

- Should the Roma-Ciudad Miguel Alemán International Bridge close, the Lake Falcon Dam crossing has up to two lanes available, and the Starr-Camargo Bridge has up to three lanes available

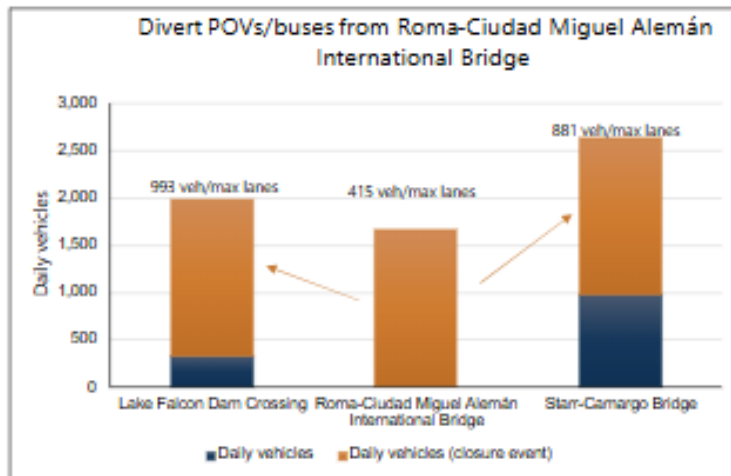
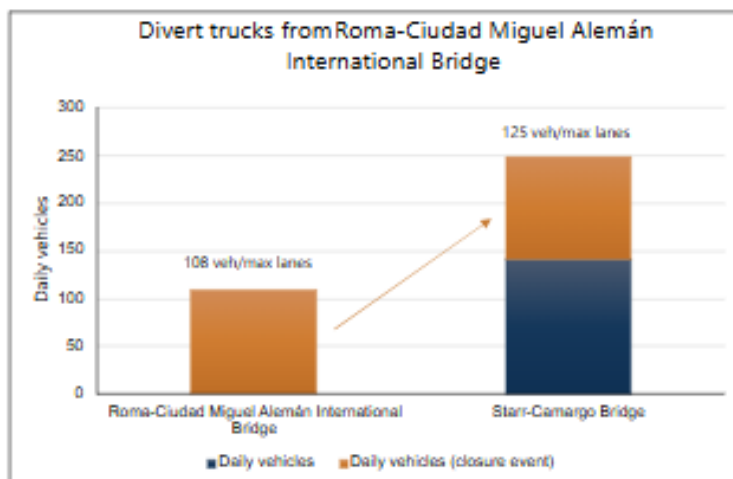


Figure 67. Roma-Ciudad Miguel Aleman International Bridge – Diversion Capacity Assessment for Privately Owned Vehicles

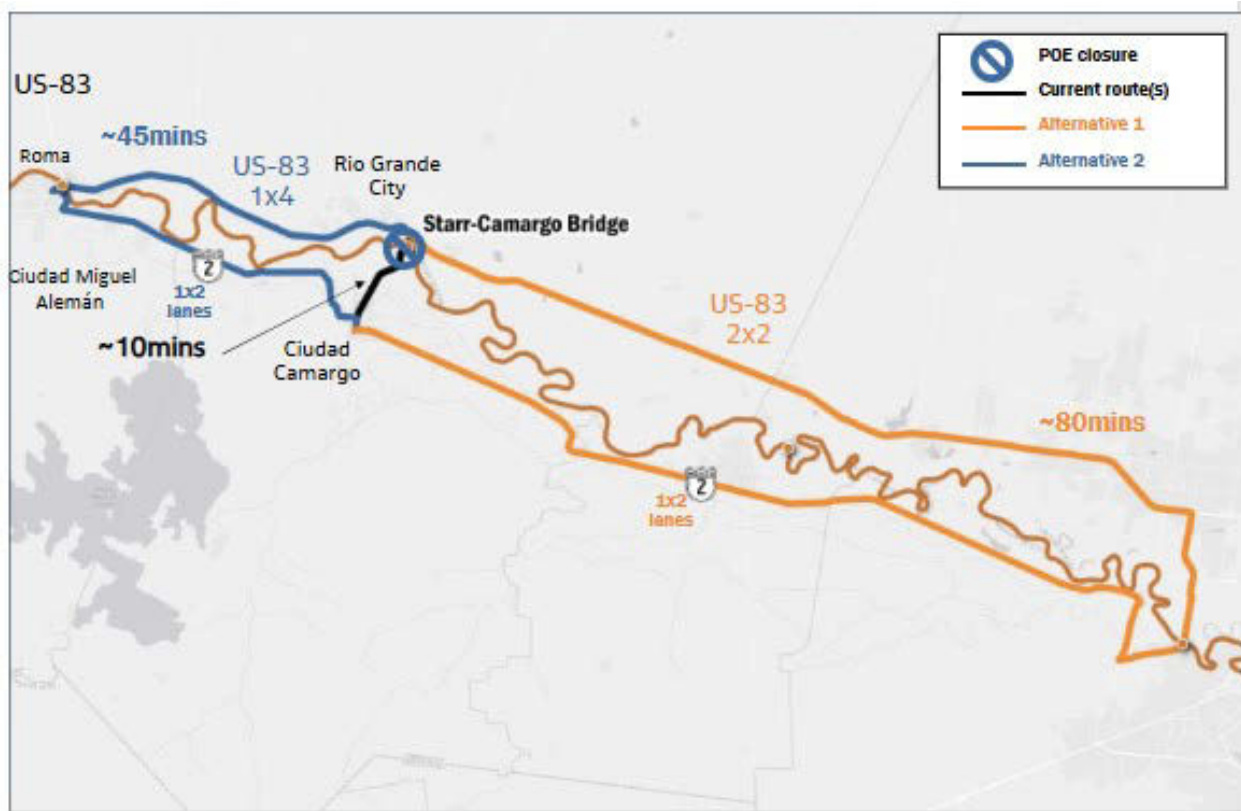
- The Starr-Camargo Bridge is the only viable alternative for commercial vehicles to the Roma-Ciudad Miguel Alemán International Bridge and has up to two processing lanes available



Starr-Camargo Bridge Closure

- The Starr-Camargo Bridge processes both POV and commercial vehicle traffic between the towns of Ciudad Camargo in Mexico and Rio Grande City in the U.S.
- Should the Starr-Camargo Bridge close, the two alternatives are the Roma-Ciudad Miguel Alemán International Bridge, approximately 18 miles to the north-west or the Los Ebanos Ferry, approximately 23 miles to the south-east (POVs only)
- Wait times at the Roma-Ciudad Miguel Alemán International Bridge are up to 15 minutes for POVs and around 10 minutes for commercial vehicles
- Should the Starr-Camargo Bridge close and traffic be diverted to the Roma-Ciudad Miguel Alemán International Bridge, POV traffic **would increase by 59 percent and commercial traffic would increase by 130 percent**
- Should the POV traffic be diverted to the Los Ebanos Ferry, **POV traffic would increase by almost 15 times**

Figure 68. Starr-Camargo Bridge



Starr-Camargo Bridge- Diversion Capacity Assessment

Figure 69. Starr-Camargo Bridge – Diversion Capacity Assessment for Privately Owned Vehicles

- Should the Starr-Camargo Bridge close, the Roma-Ciudad Miguel Alemán International Bridge has up to four lanes available, and the Los Ebanos Ferry has one lane available

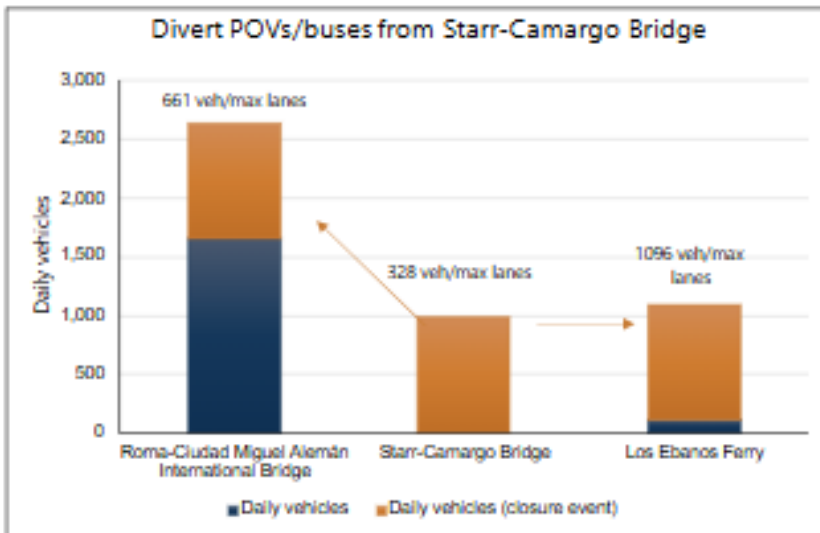
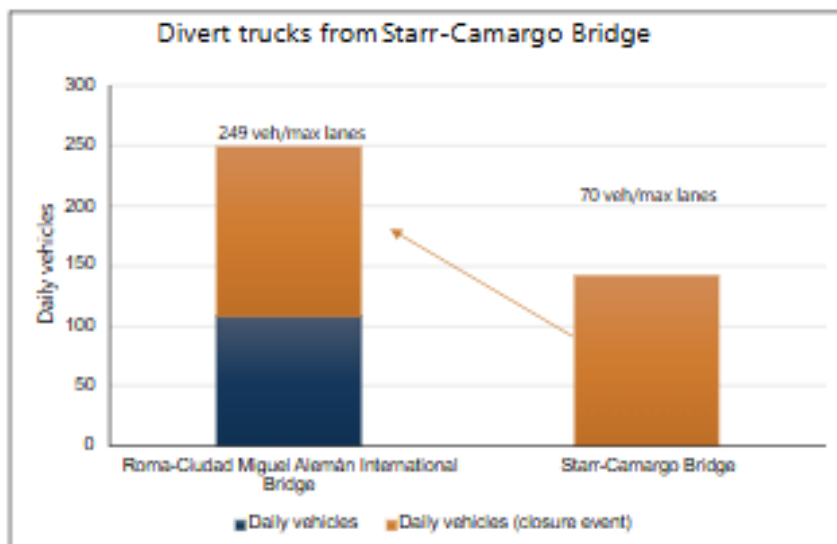


Figure 70. Starr-Camargo Bridge – Diversion Capacity Assessment for Commercial Vehicles

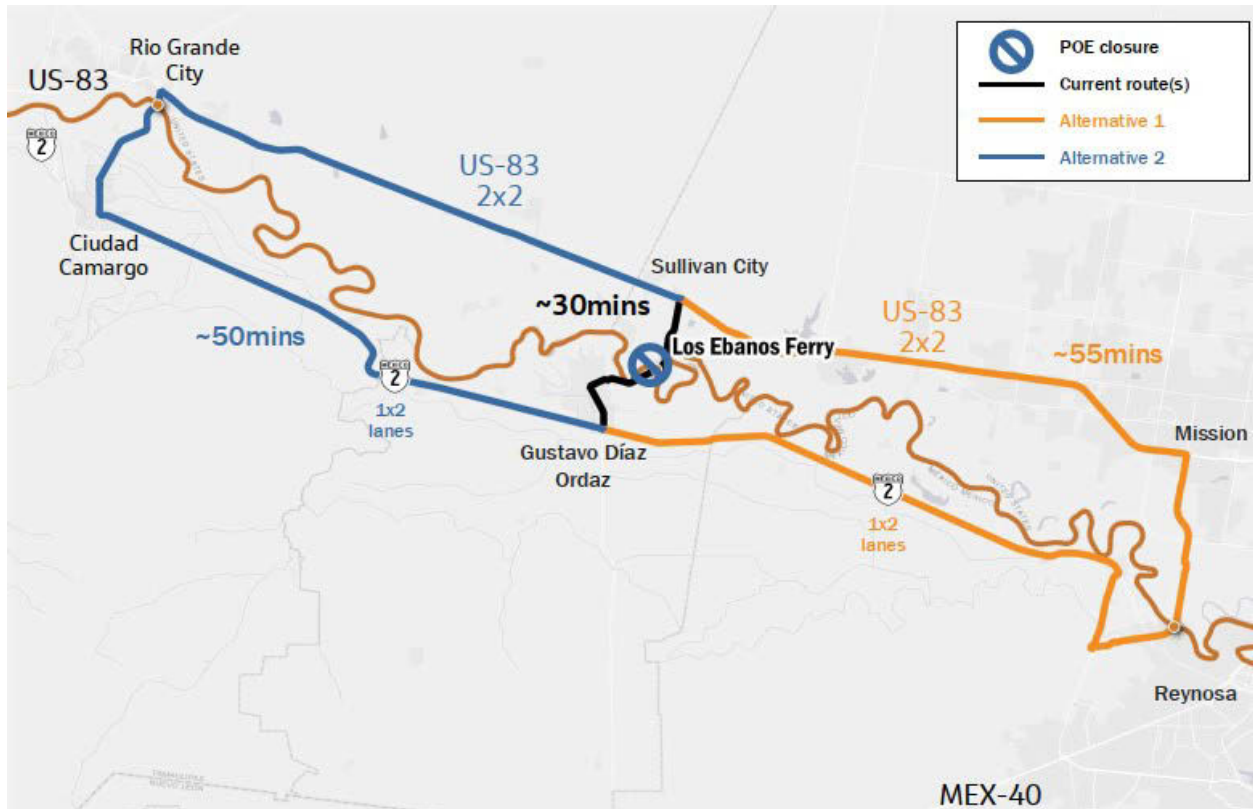
- The Roma-Ciudad Miguel Alemán International Bridge is the only viable alternative for commercial vehicles and has one processing lane



Los Ebanos Ferry Closure

- The Los Ebanos Ferry processes POV traffic between the towns of Gustavo Díaz Ordaz in Mexico and Sullivan City in the U.S.
- Should the Los Ebanos Ferry close, the two alternatives are the Starr-Camargo Bridge, approximately 23 miles to the north-west or the Anzalduas International Bridge, approximately 24 miles to the south-east (POVs only)
- Wait times at the Starr-Camargo Bridge are up to 15 minutes
- Should the Los Ebanos Ferry close and traffic be diverted to the Starr-Camargo Bridge, POV traffic **would increase by 11 percent**
- Should the POV traffic be diverted to the Anzalduas International Bridge, **POV traffic would increase by 3 percent**

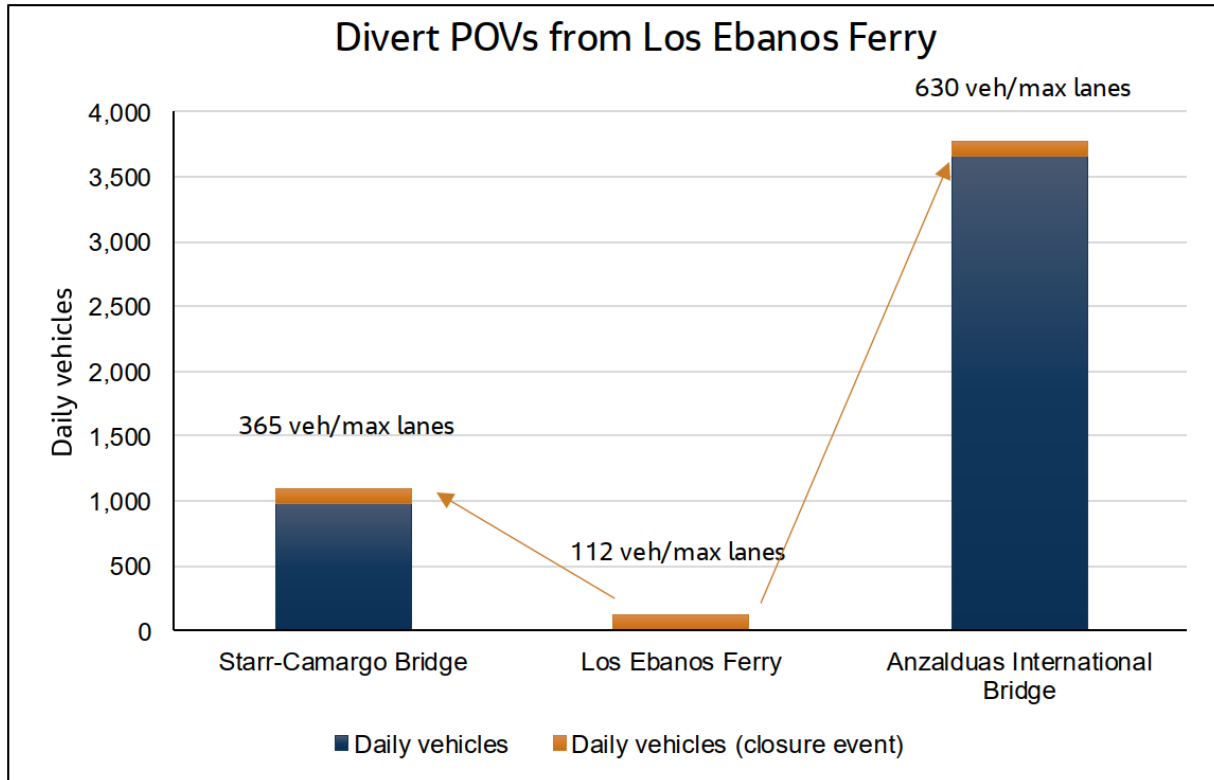
Figure 71. Los Ebanos Ferry



Los Ebanos Ferry- Diversion Capacity Assessment

Privately Owned Vehicles: POVs could be diverted to either the Starr-Camargo Bridge or the Anzalduas International Bridge, and would have a negligible impact to demand

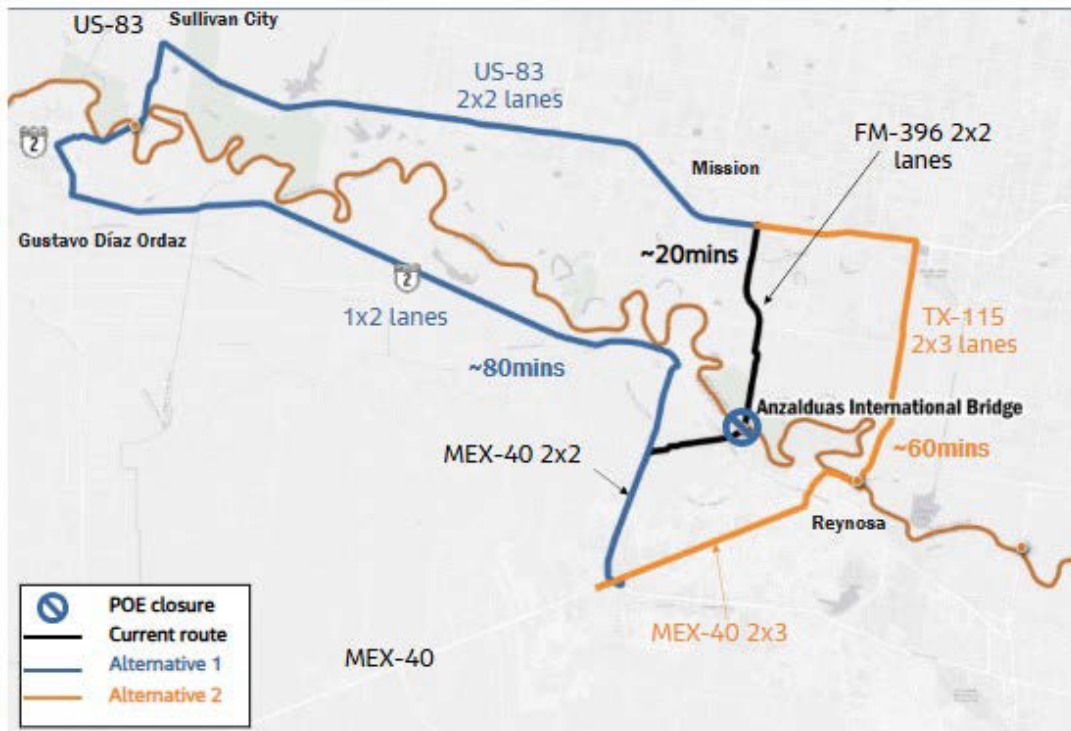
Figure 72. Los Ebanos Ferry – Diversion Capacity Assessment for Privately Owned Vehicles



Anzalduas International Bridge Closure

- The Anzalduas International Bridge processes POV traffic from west of Reynosa and from the direction of Monterrey /MEX-40 in Mexico towards Mission in the U.S.
- Should the Anzalduas International Bridge close, the two alternatives are the Los Ebanos Ferry, approximately 24 miles to the north-west or the McAllen-Hidalgo International Bridge, approximately three miles to the south-east (POVs only)
- Wait times at the McAllen-Hidalgo International Bridge are up to 45 minutes
- Should the Anzalduas International Bridge close and traffic be diverted to the Los Ebanos Ferry, POV traffic **would increase by 33 times**
- Should the POV traffic be diverted to the McAllen-Hidalgo International Bridge, **POV traffic would increase by 55 percent**

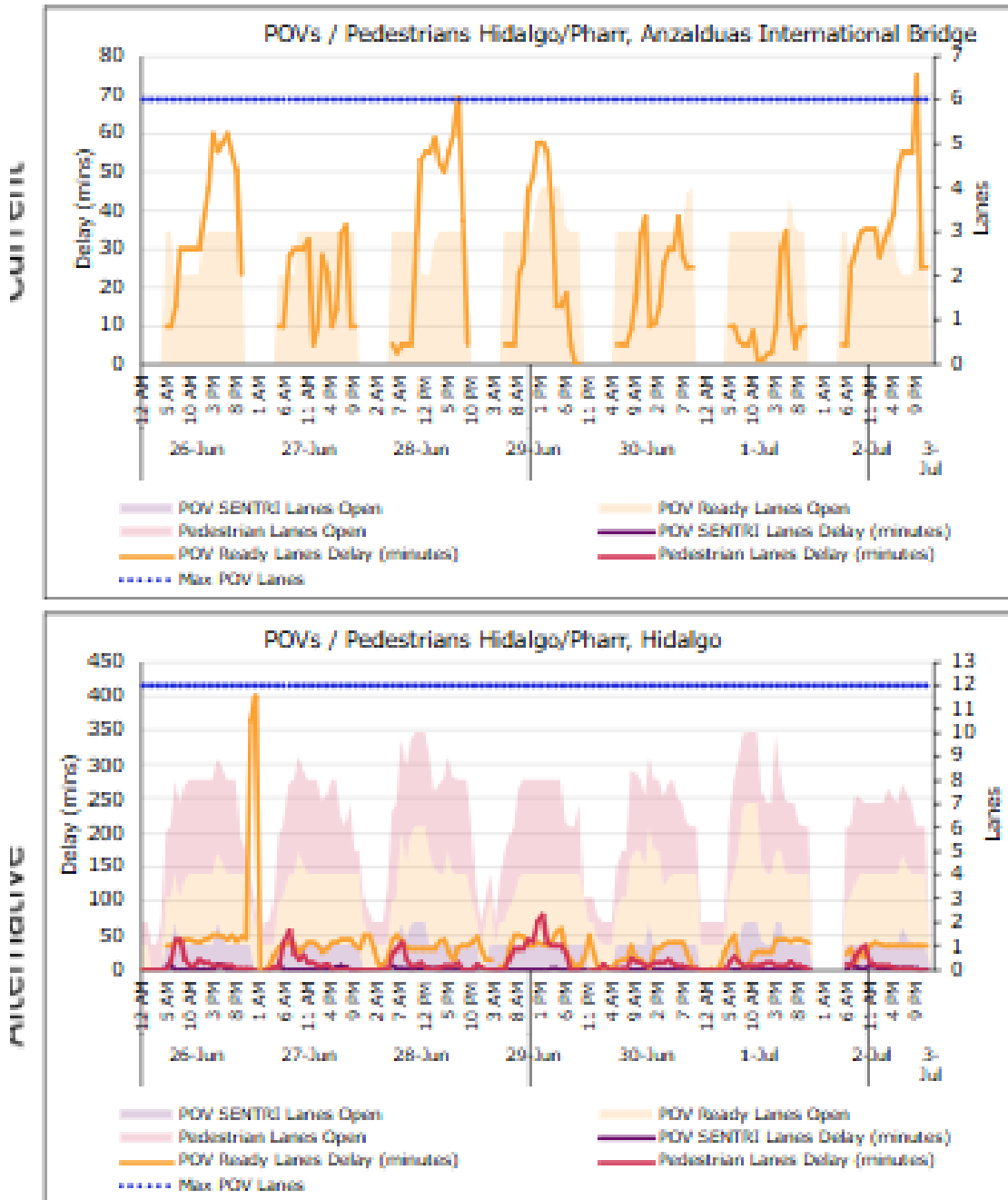
Figure 73. Anzalduas International Bridge



Anzalduas International Bridge- Wait Times and Lanes in Operation

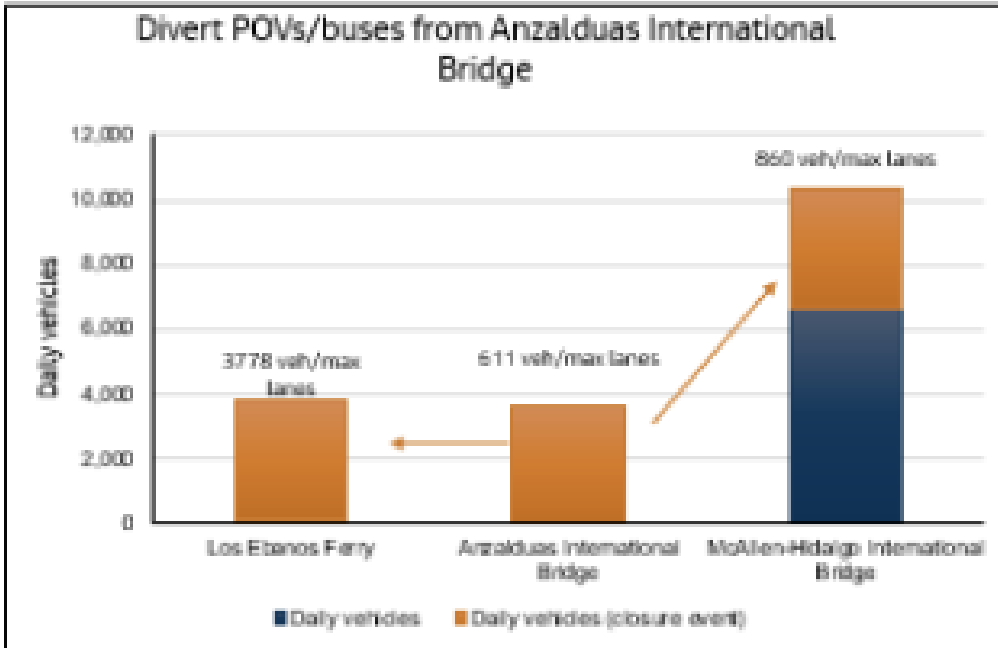
Figure 74. Anzalduas International Bridge Crossing Closures – Wait Times and Lanes in Operation for Privately Owned Vehicles

Privately Owned Vehicles



Anzalduas International Bridge- Diversion Capacity Assessment

Figure 75. Anzalduas International Bridge – Diversion Capacity Assessment for Privately Owned Vehicles

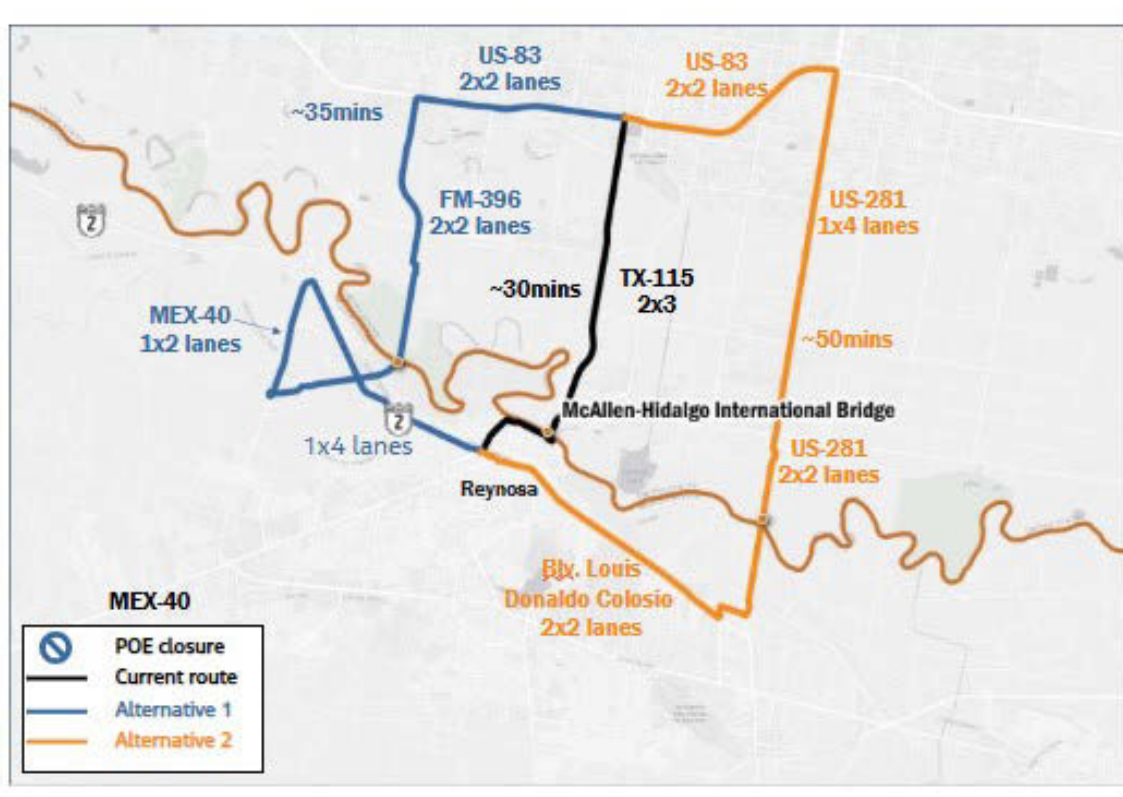


- In the event of a closure of the Anzalduas International Bridge, the McAllen-Hidalgo International Bridge (12 lanes) would be more sustainable than diversion to the Los Ebanos Ferry.

McAllen-Hidalgo International Bridge Closure

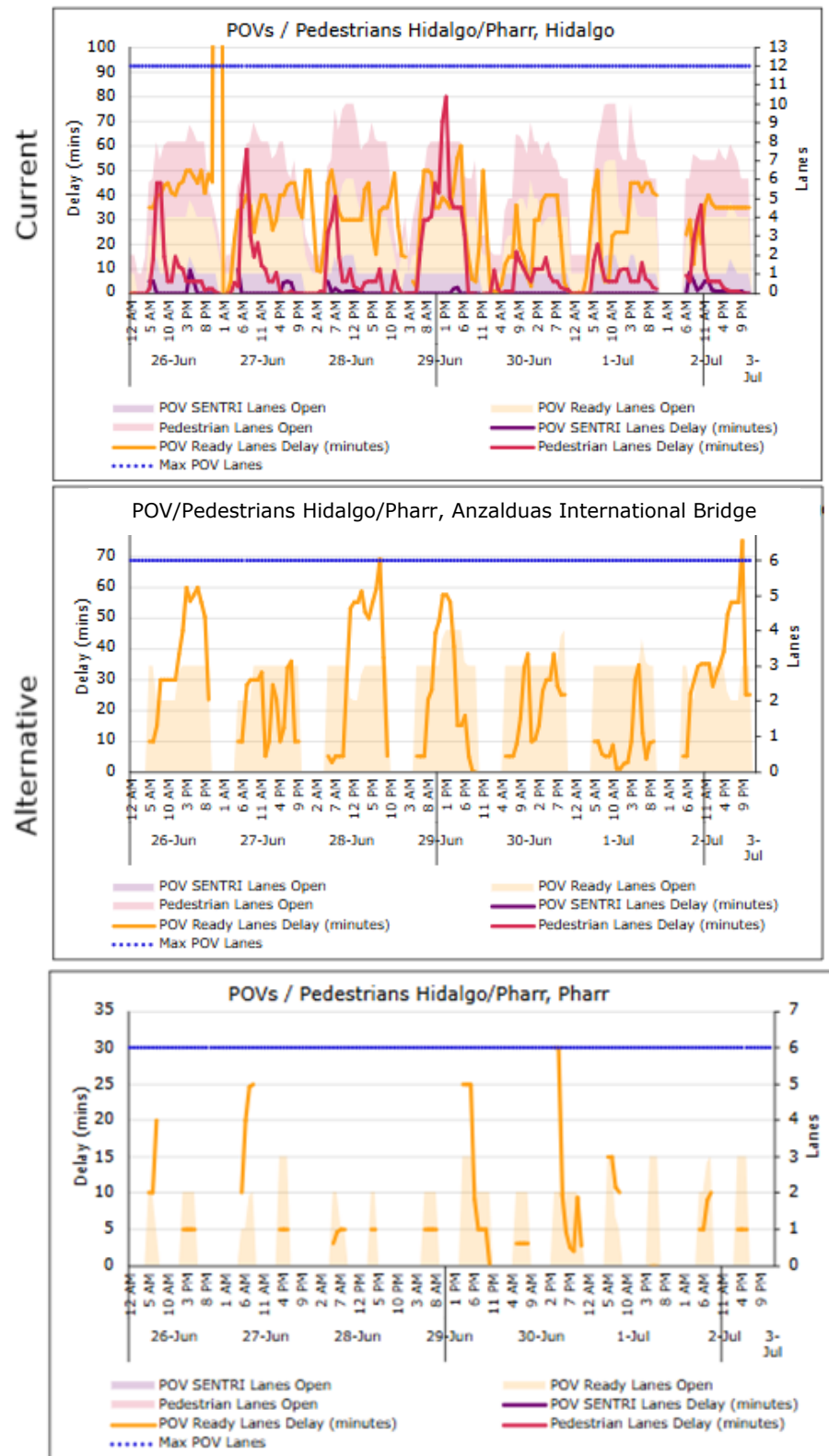
- The McAllen-Hidalgo International Bridge processes POV traffic from Reynosa in Mexico to Hidalgo and McAllen in the U.S.
- Should the McAllen-Hidalgo International Bridge close, the two alternatives are the Anzalduas International Bridge, approximately three miles to the north-west (POVs only) or the Pharr-Reynosa International Bridge, approximately five miles to the south-east
- Wait times at the Anzalduas International Bridge are up to 45 minutes, and at the Pharr-Reynosa International Bridge are up to 28 minutes
- Should the McAllen-Hidalgo International Bridge close and traffic be diverted to the Anzalduas International Bridge, POV traffic **would increase by 180 percent**
- Should the POV traffic be diverted to the Pharr-Reynosa International Bridge, **POV traffic would increase by over six times**

Figure 76. McAllen-Hidalgo International Bridge



McAllen-Hidalgo International Bridge- Wait Times and Lanes in Operation

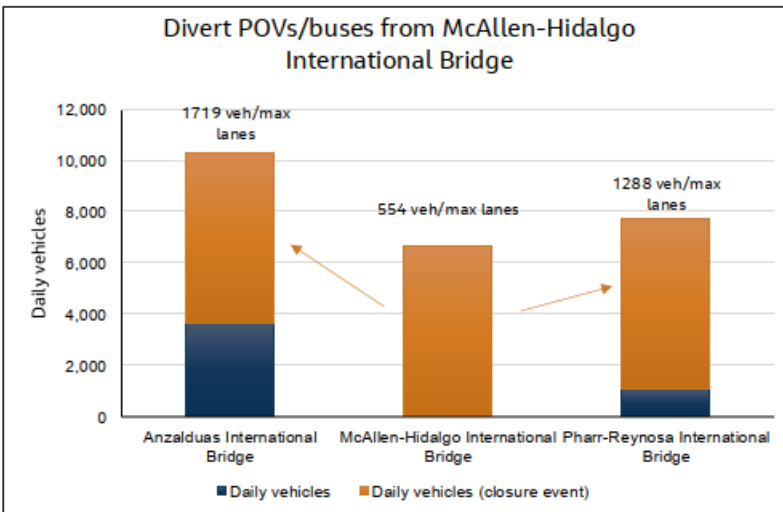
Figure 77. McAllen-Hidalgo International Bridge Crossing Closures – Wait Times and Lanes in Operation for Privately Owned Vehicles



McAllen-Hidalgo International Bridge- Diversion Capacity Assessment

Figure 78. Anzalduas International Bridge – Diversion Capacity Assessment for Privately Owned Vehicles

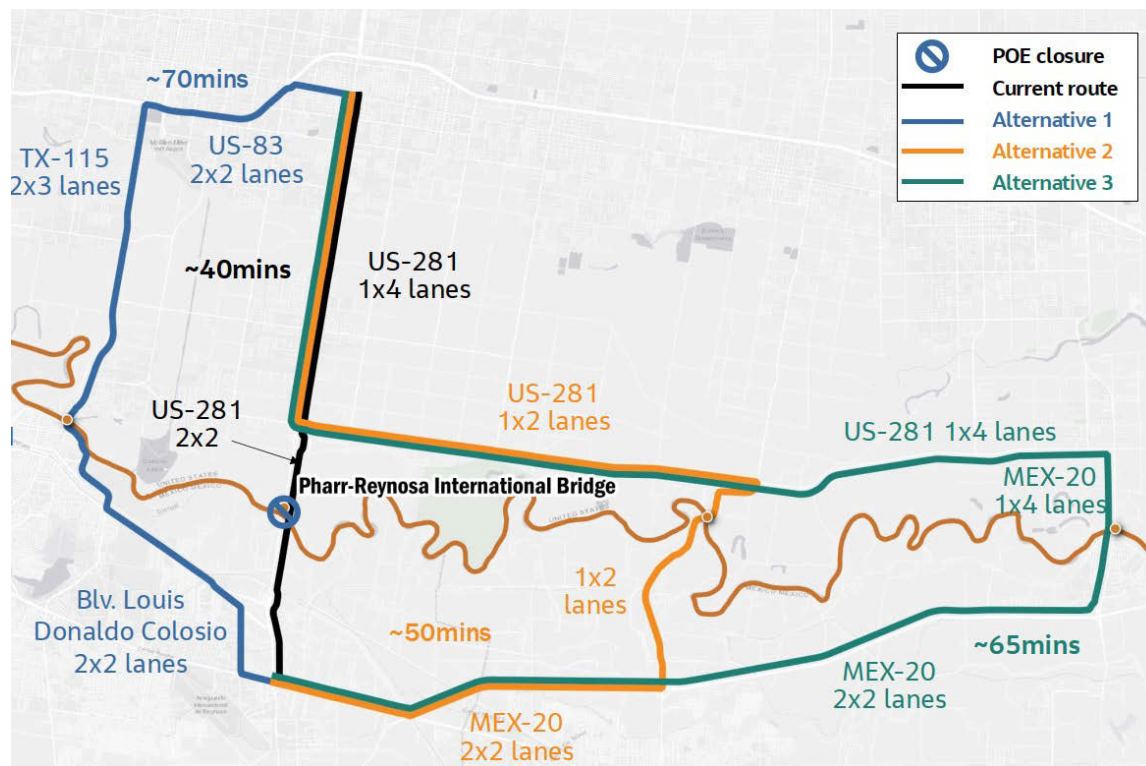
- In the event of a closure of the McAllen-Hidalgo International Bridge, both the Anzalduas and Pharr-Reynosa International Bridges have a maximum of six lanes each to provide sufficient capacity for diversion



Pharr-Reynosa International Bridge Closure

- The Pharr-Reynosa International Bridge processes POV and commercial vehicle traffic from east Reynosa and Rio Bravo in Mexico to Pharr, McAllen, and Edinburg in the U.S.
- Should the Pharr-Reynosa International Bridge close, two alternatives for POV traffic are the McAllen-Hidalgo International Bridge, approximately five miles to the north-west (POVs only) or the Donna-Rio Bravo International Bridge, approximately eight miles to the south-east (POVs only). For commercial vehicle traffic, the closest alternative is the Progreso International Bridge approximately 16 miles east
- POV wait times at the McAllen-Hidalgo International Bridge are up to 45 minutes, and at the Donna-Rio Bravo International Bridge are up to 36 minutes. For commercial vehicles the wait times at Progreso International Bridge are up to 33 minutes
- Should the Pharr-Reynosa International Bridge close and traffic be diverted to the McAllen-Hidalgo International Bridge, POV traffic **would increase by 16 percent**. Should the POV traffic be diverted to the Donna-Rio Bravo International Bridge, **POV traffic would increase by 56 percent**
- Should the commercial vehicle traffic be diverted to the Progreso International Bridge, **demand would increase by almost 15 times**

Figure 79. Pharr-Reynosa International Bridge



Pharr-Reynosa International Bridge – Wait Times and Lanes in Operation

Figure 80. Pharr-Reynosa International Bridge Crossing Closures – Wait Times and Lanes in Operation for Privately Owned Vehicles

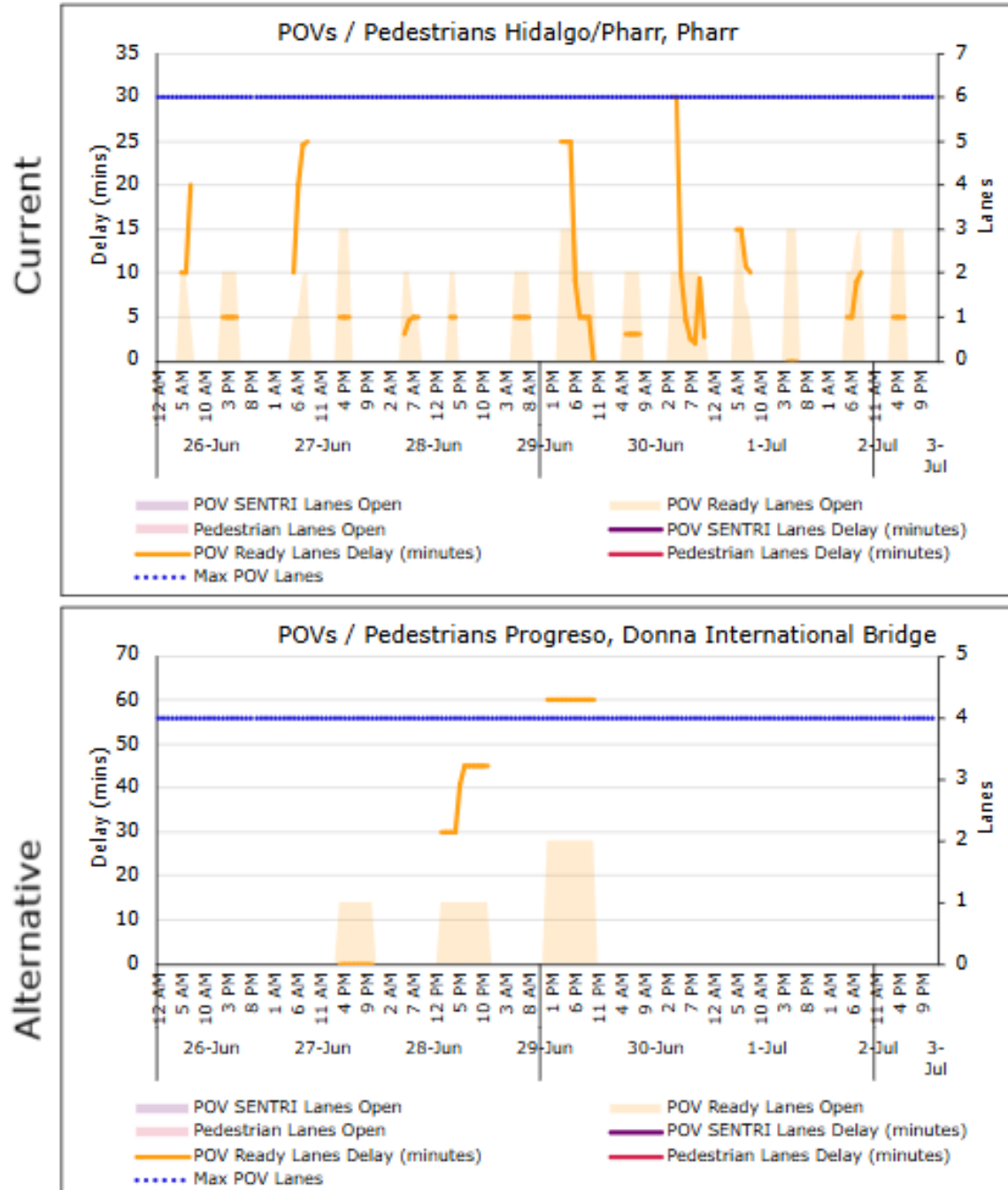
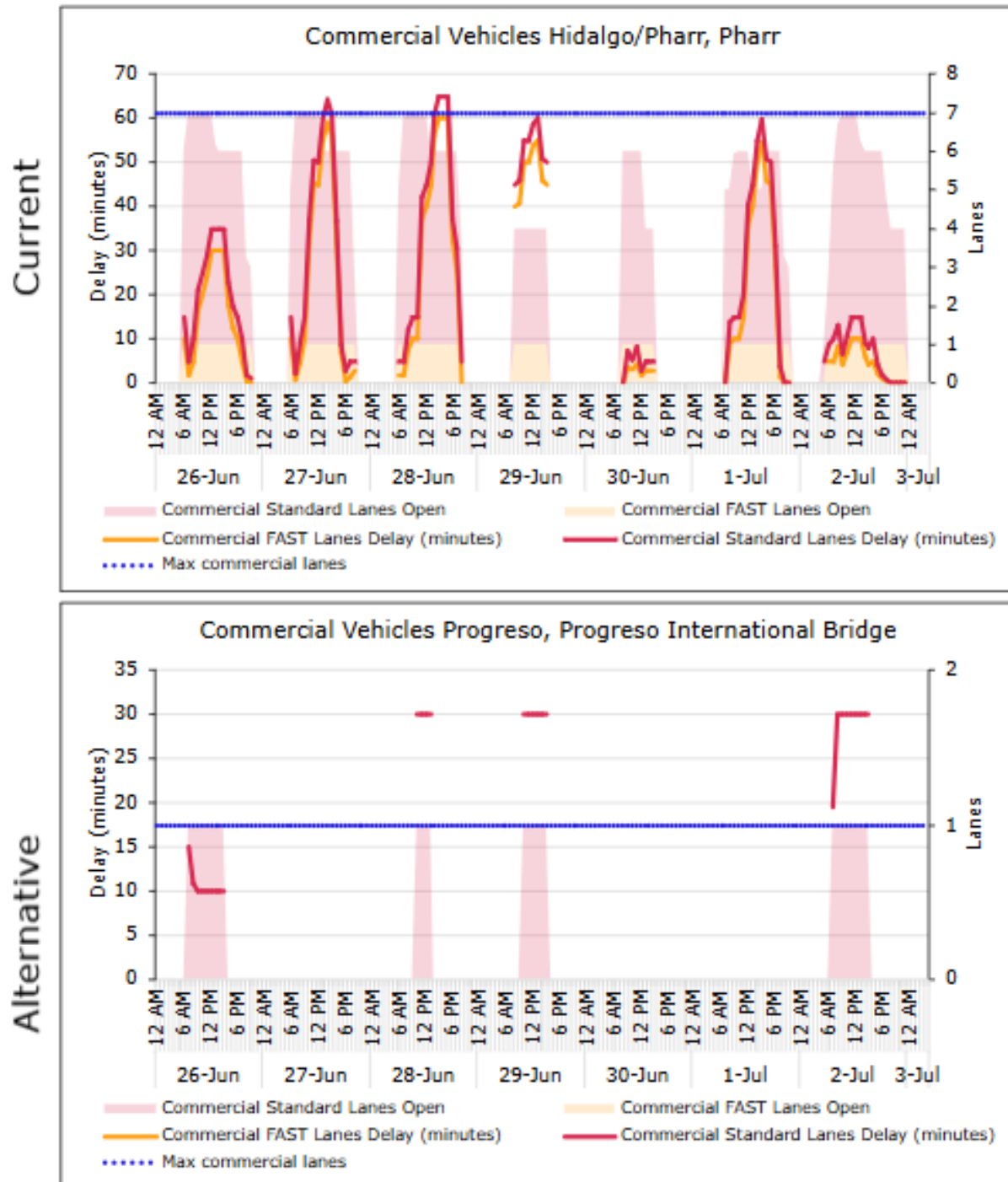


Figure 81. Pharr-Reynosa International Bridge Crossing Closures – Wait Times and Lanes in Operation for Commercial Vehicles



Pharr-Reynosa International Bridge – Wait Times and Lanes in Operation

Figure 82. Pharr-Reynosa International Bridge – Diversion Capacity Assessment for Privately Owned Vehicles

- In the event of a closure of Pharr-Reynosa International Bridge, the adjacent McAllen-Hidalgo International Bridge provides up to 12 lanes to process the diverted POV/bus demand

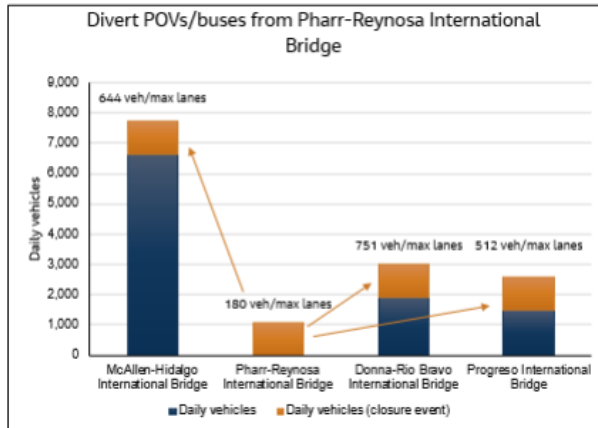
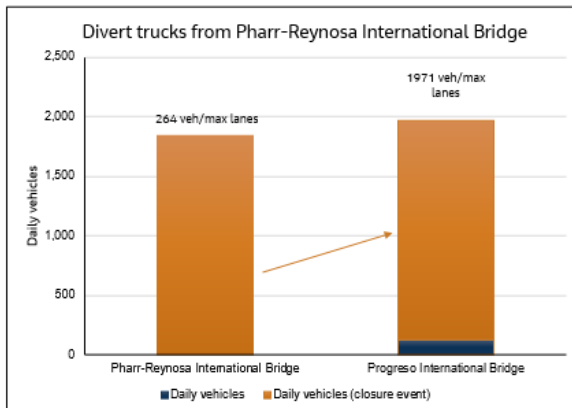


Figure 83. Pharr-Reynosa International Bridge – Diversion Capacity Assessment for Commercial Vehicles

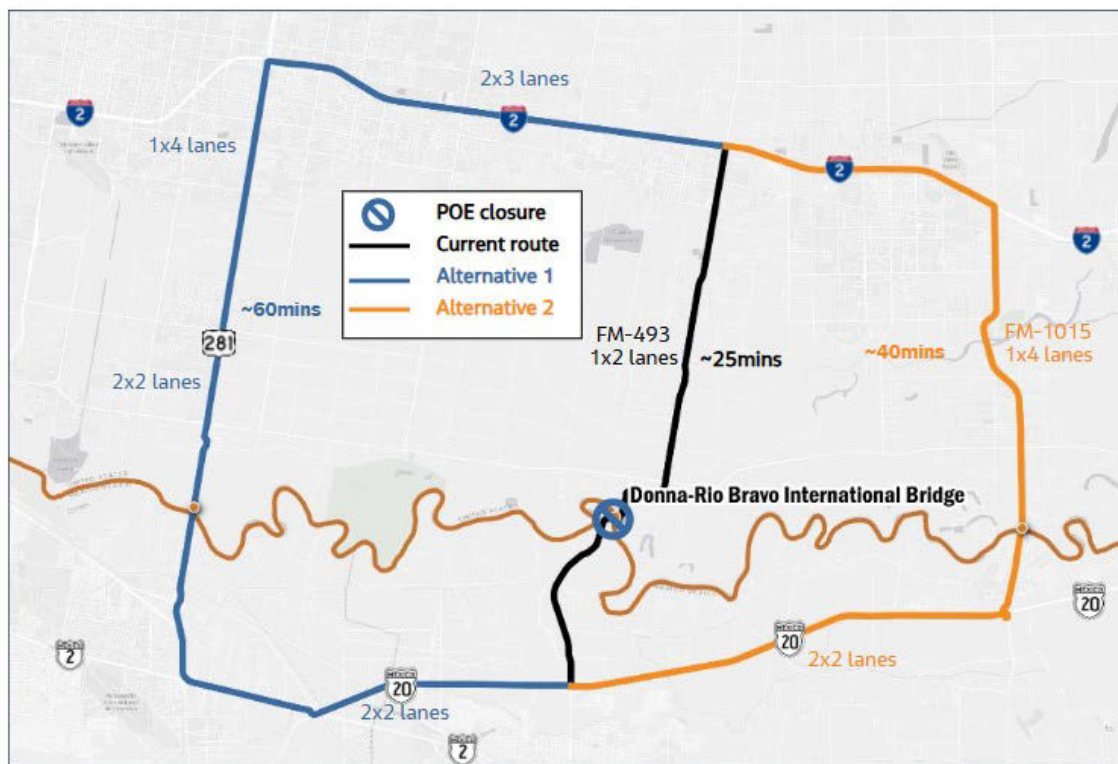
- The Pharr-Reynosa International Bridge carries a relatively high volume of commercial vehicles. The nearby Progreso International Bridge carries a lower volume, but only has a single commercial processing lane



Donna-Rio Bravo International Bridge Closure

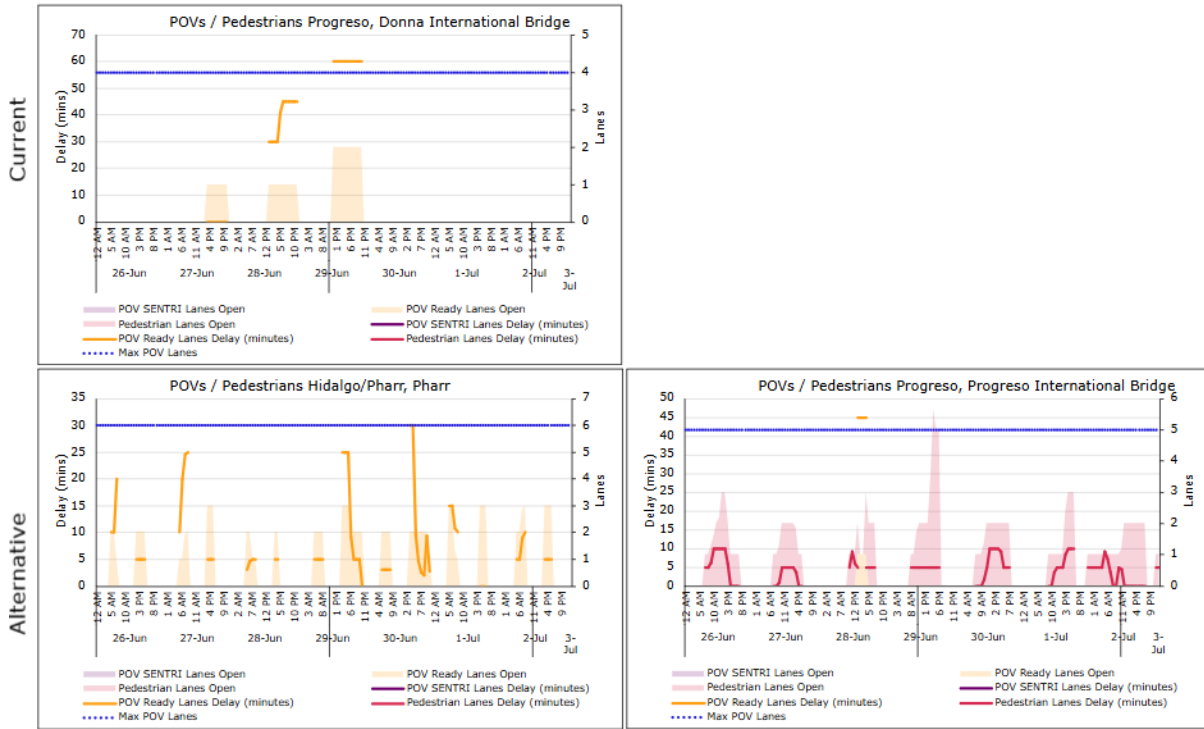
- The Donna-Rio Bravo International Bridge only processes POV traffic
- The two alternatives are the Pharr-Reynosa International Bridge, approximately eight miles to the west or the Progreso International Bridge, approximately eight miles to the east
- POV wait times at the Pharr-Reynosa International Bridge and at the Progreso International Bridge are up to 30 minutes
- Should the Donna-Rio Bravo International Bridge close and traffic be diverted to the Pharr-Reynosa International Bridge, POV traffic **would increase by 179 percent**. Should the POV traffic be diverted to the Progreso International Bridge, **POV traffic would increase by 130 percent**

Figure 84. Donna-Rio Bravo International Bridge



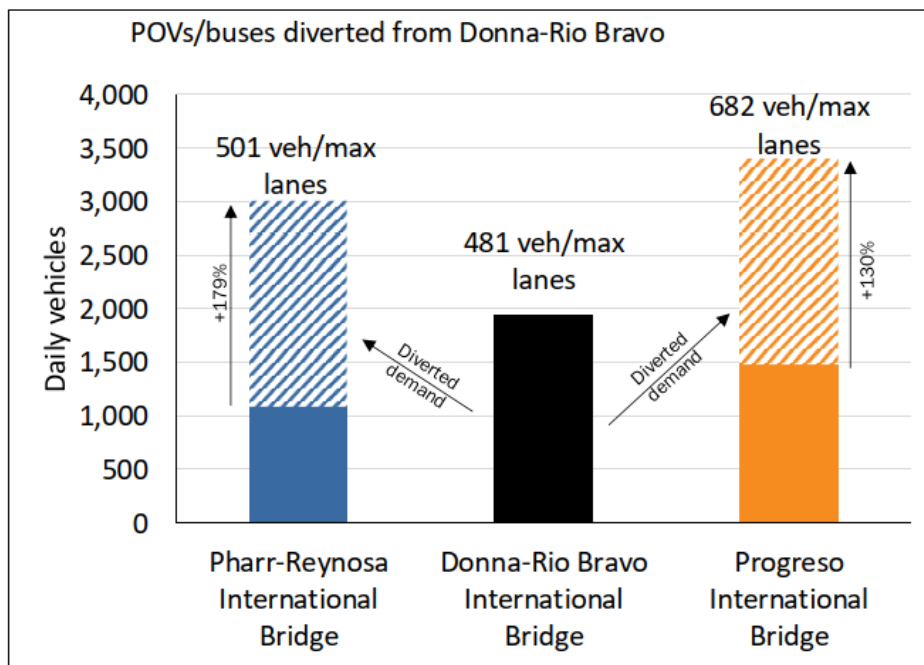
Donna-Rio Bravo International Bridge – Wait Times and Lanes in Operation

Figure 85. Donna-Rio Bravo International Bridge Crossing Closures – Wait Times and Lanes in Operation for Privately Owned Vehicles



Donna-Rio Bravo International Bridge – Diversion Capacity Assessment

Figure 86. Donna-Rio Bravo International Bridge – Diversion Capacity Assessment for Privately Owned Vehicles



Progreso International Bridge Closure

- The Progreso International Bridge processes POV traffic from Nuevo Progreso in Mexico to Progreso in the U.S.
- Should the Progreso International Bridge close, two alternatives are the Donna-Rio Bravo International Bridge, approximately eight miles to the west or the Free Trade International Bridge, approximately 14 miles to the east
- POV wait times at the Donna-Rio Bravo International Bridge are up to 36 minutes, and at the Free Trade International Bridge are up to 28 minutes for POVs and six minutes for commercial vehicles
- Should the Progreso International Bridge close and traffic be diverted to the Donna-Rio Bravo International Bridge, POV traffic **would increase by 77 percent**. Should traffic be diverted to the Free Trade International Bridge, **POV traffic would increase by 92 percent and commercial vehicle traffic would increase by 43 percent**

Figure 87. Progreso International Bridge

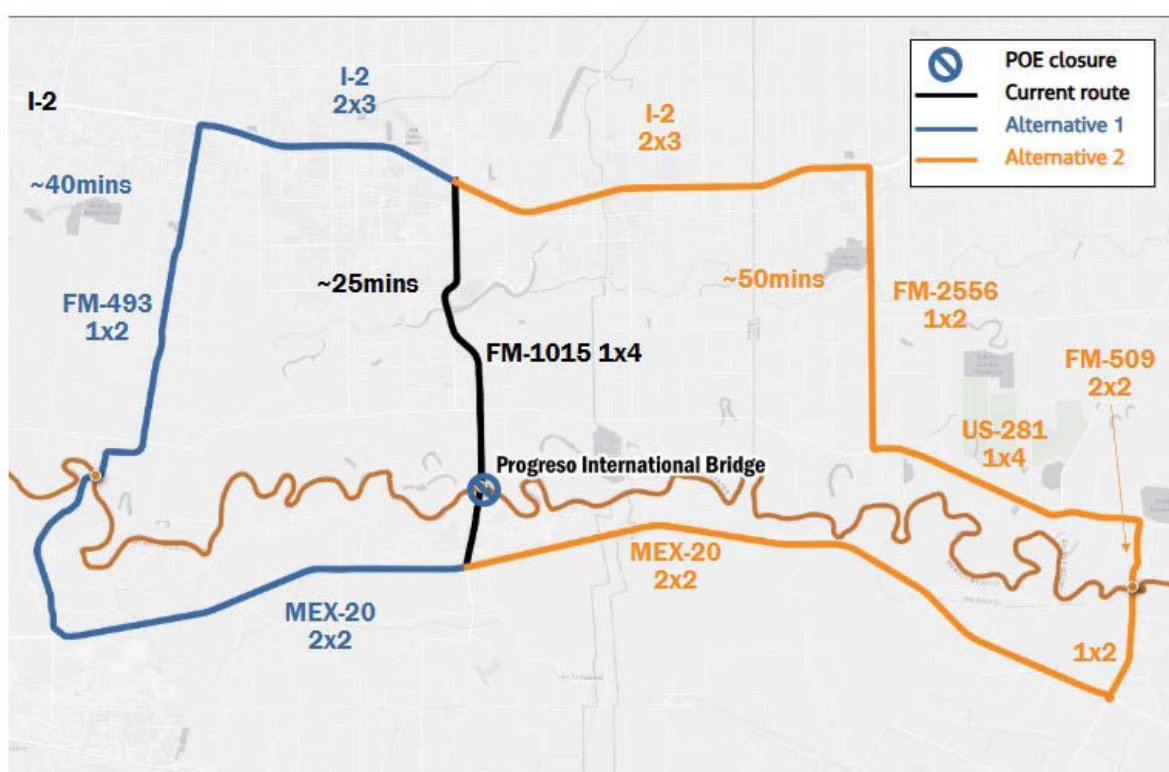
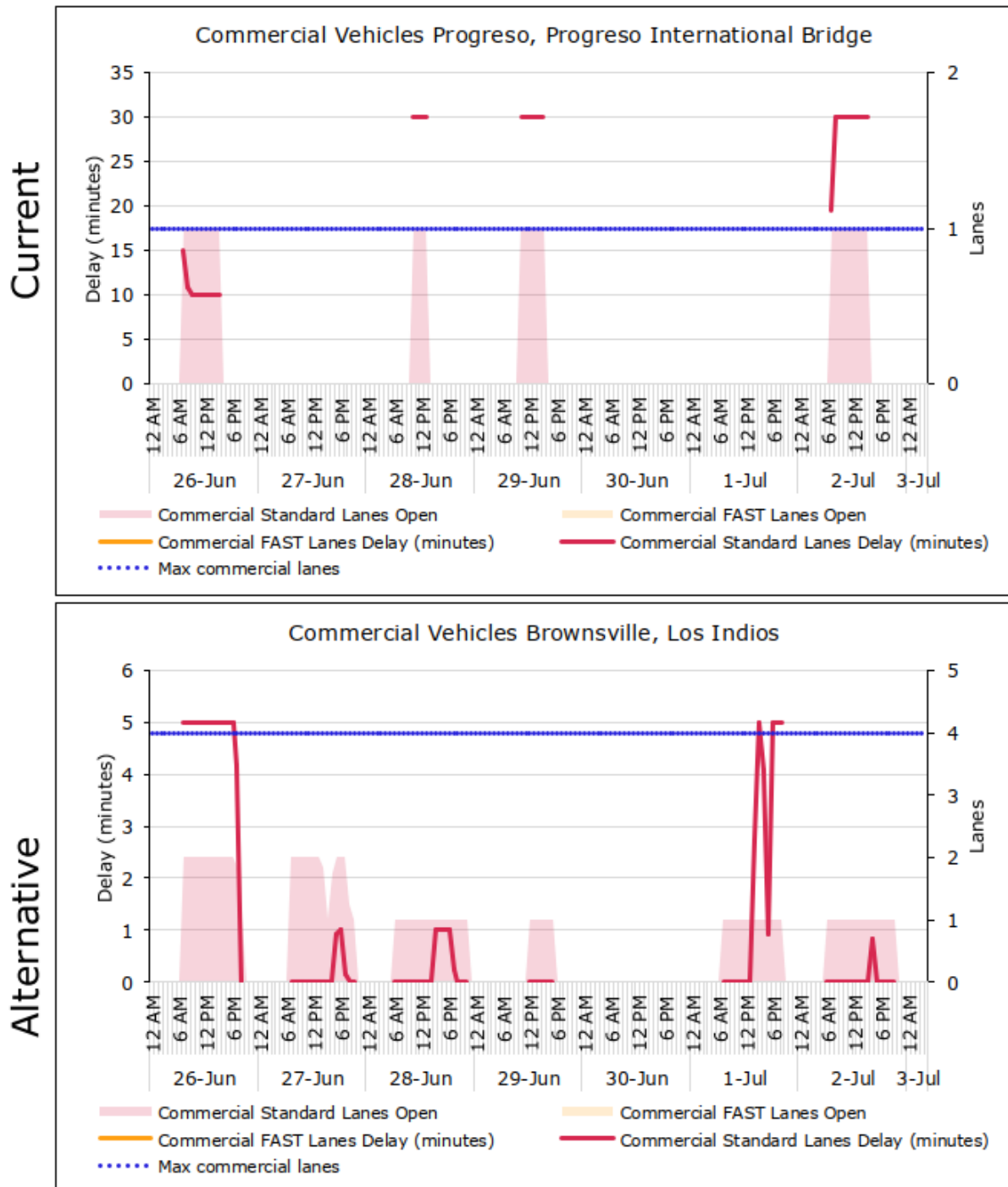


Figure 89. Progreso Bravo International Bridge Crossing Closures – Wait Times and Lanes in Operation for Commercial Vehicles

Commercial Motor Vehicles



Progreso International Bridge - Diversion Capacity Assessment

Figure 90. Progreso International Bridge – Diversion Capacity Assessment for Privately Owned Vehicles

- The Free Trade International Bridge has two lanes for commercial vehicles, which would provide sufficient capacity to process the diverted commercial traffic in the event that Progreso International Bridge closes

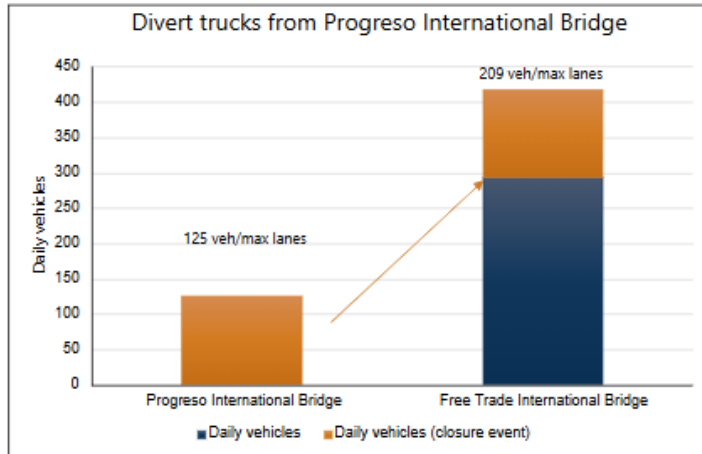
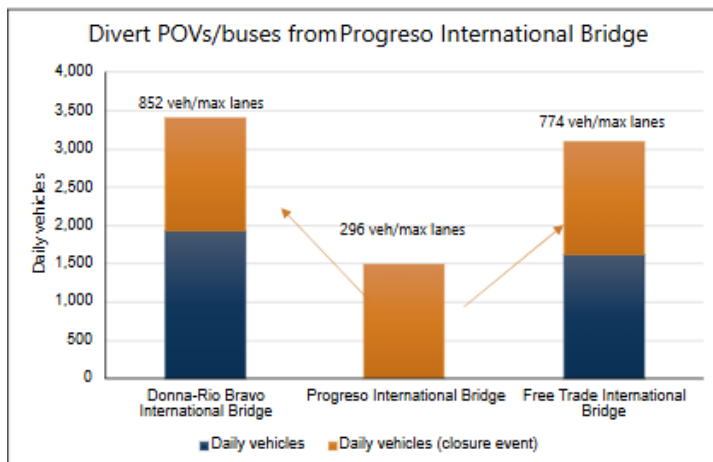


Figure 91. Progreso International Bridge – Diversion Capacity Assessment for Privately Owned Vehicles

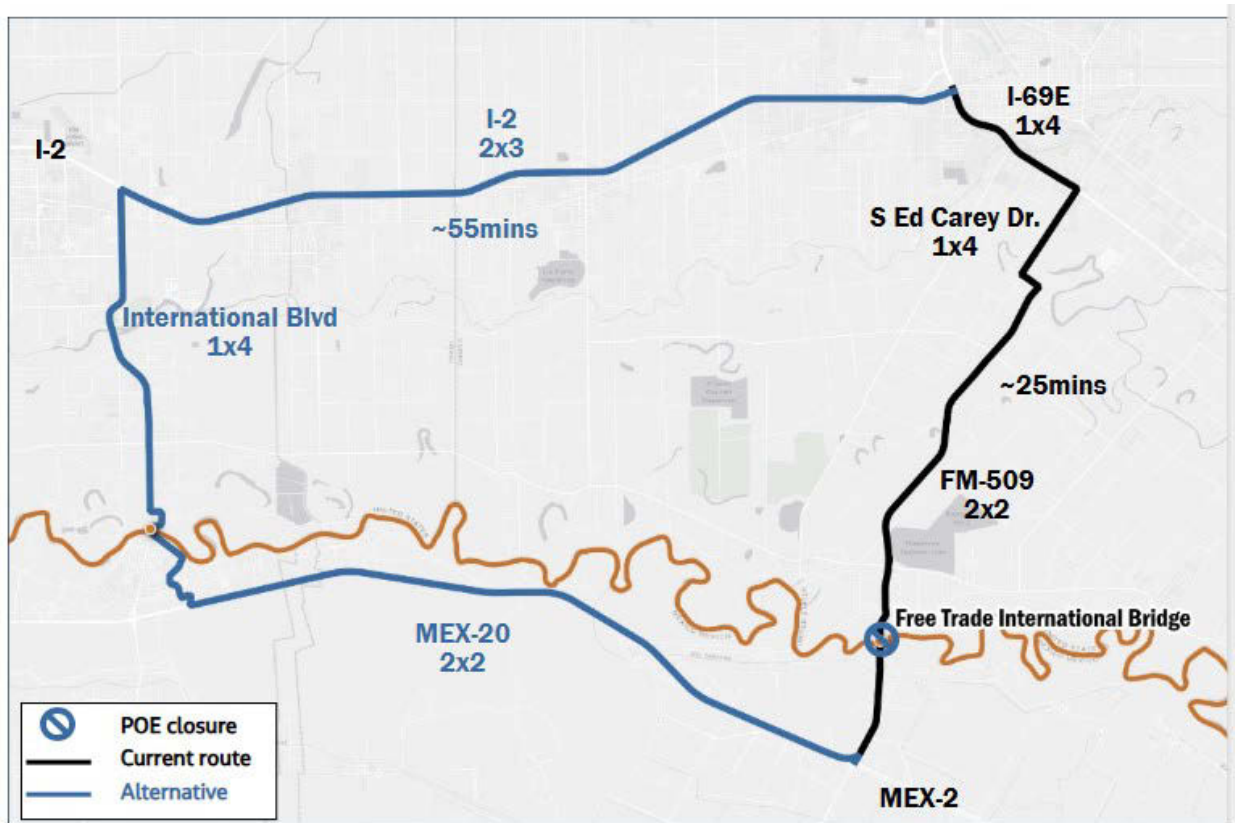
- The Donna-Rio Bravo International Bridge and the Free Trade International Bridge each has four lanes for POVs/buses, which would provide sufficient capacity to process diverted POV traffic in the event that Progreso International Bridge closes



Free Trade International Bridge Closure

- The Free Trade International Bridge processes traffic from Ramirez/El Control in Mexico to Harlingen/San Benito in the U.S.
- Should the Free Trade International Bridge close, the nearby alternative is the Progreso International Bridge, approximately 14 miles to the west
- POV wait times at the Progreso International Bridge are up to 36 minutes, and commercial vehicle wait times are up to 33 minutes
- Should the Free Trade International Bridge close and traffic be diverted to the Progreso International Bridge, POV traffic **would increase by 109 percent** and commercial vehicle traffic **would increase by 235 percent**

Figure 92. Free Trade International Bridge



Free Trade International Bridge – Wait Times and Lanes in Operation

Figure 93. Free Trade International Bridge Crossing Closures – Wait Times and Lanes in Operation for Privately Owned Vehicles

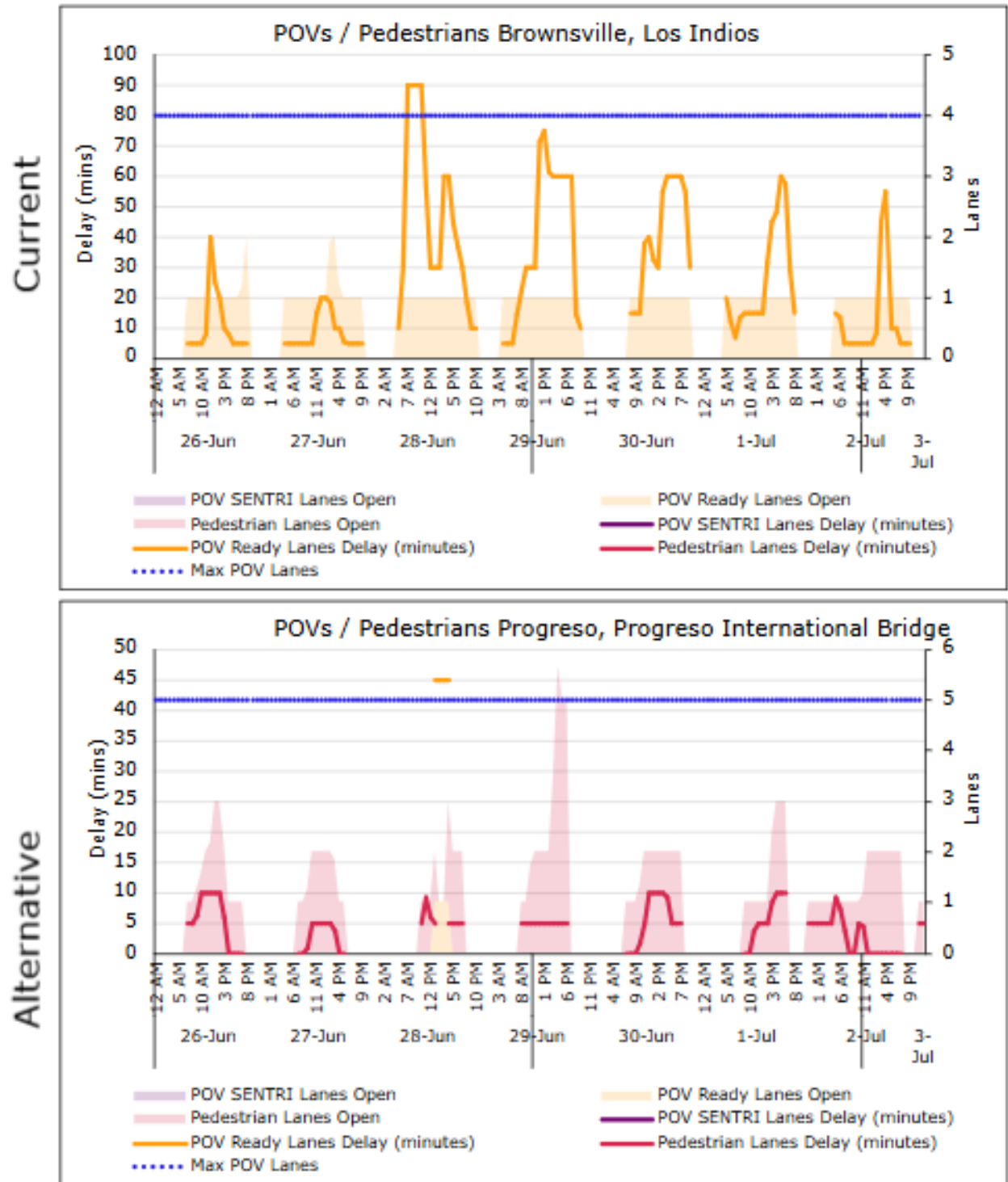
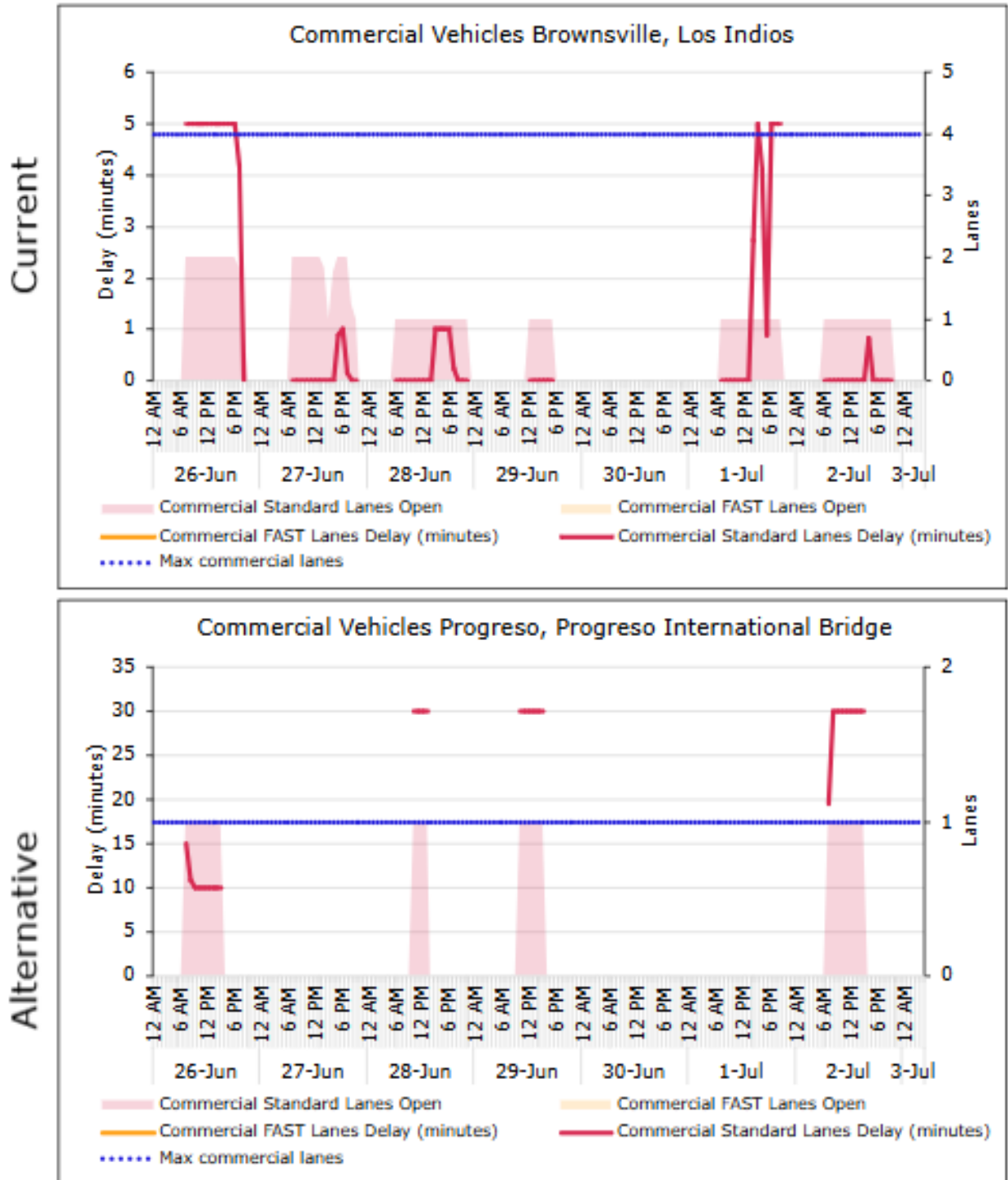


Figure 94. Free Trade International Bridge Crossing Closures – Wait Times and Lanes in Operation for Commercial Vehicles



Free Trade International Bridge - Diversion Capacity Assessment

Figure 95. Free Trade International Bridge – Diversion Capacity Assessment for Privately Owned Vehicles

- The Progreso International Bridge has five lanes for POVs/buses, which would provide sufficient capacity to process diverted traffic in the event that Free Trade International Bridge closes

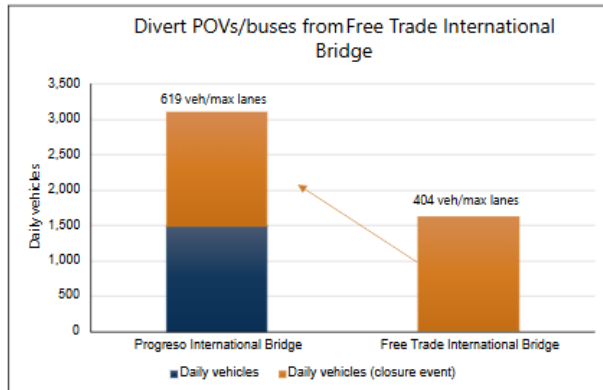
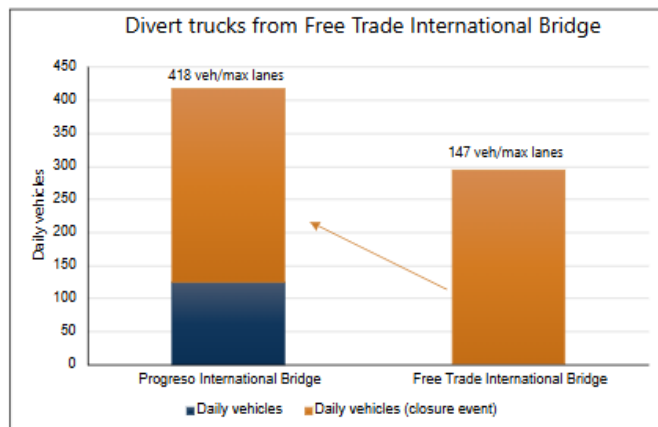


Figure 96. Free Trade International Bridge – Diversion Capacity Assessment for Commercial Vehicles

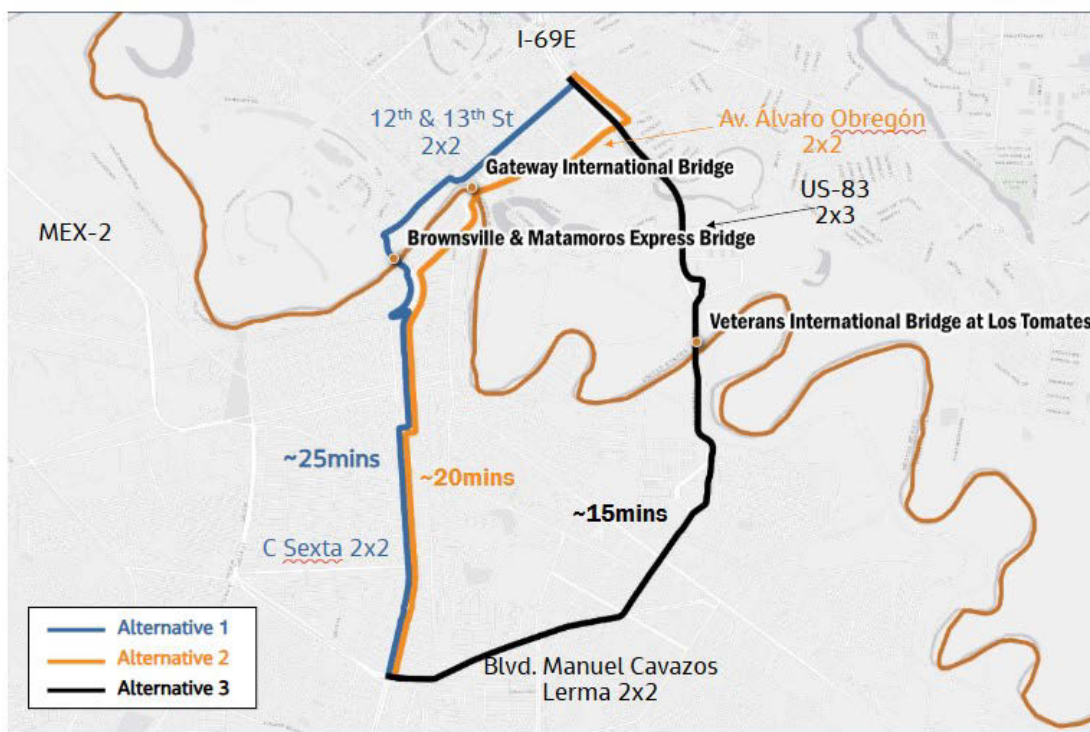
- The Progreso International Bridge has one lane and would likely provide sufficient capacity to process the commercial traffic in the event that Free Trade International Bridge closes



Brownsville Bridges Closures

- The Brownsville & Matamoros Express Bridge, the Gateway International Bridge and the **Veterans International Bridge** process POV traffic between Matamoros in Mexico and Brownsville in the US. Only the **Veterans International Bridge** processes commercial vehicles
- POV wait times are similar at all three bridges, up to 80 minutes during the afternoon peak period
- Should the Brownsville & Matamoros Express Bridge close and traffic be diverted to the Gateway International Bridge, POV traffic **would increase by 118 percent**.
- Should the traffic be diverted to the **Veterans International Bridge**, **POV traffic would increase by 92 percent**
- Should the Gateway International Bridge close and traffic be diverted to the Brownsville & Matamoros Express Bridge, POV traffic **would increase by 85 percent**. Should the traffic be diverted to the **Veterans International Bridge**, **POV traffic would increase by 109 percent**
- For commercial vehicles the closest alternative is the Free Trade International Bridge some 20 miles to the west. Diversion of the commercial vehicles would **increase the Free Trade International Bridge traffic by 215 percent**

Figure 97. Brownsville Bridges



Brownsville Bridges – Wait Times and Lanes in Operation

Figure 98. Brownsville Bridges Crossing Closures – Wait Times and Lanes in Operation for Privately Owned Vehicles

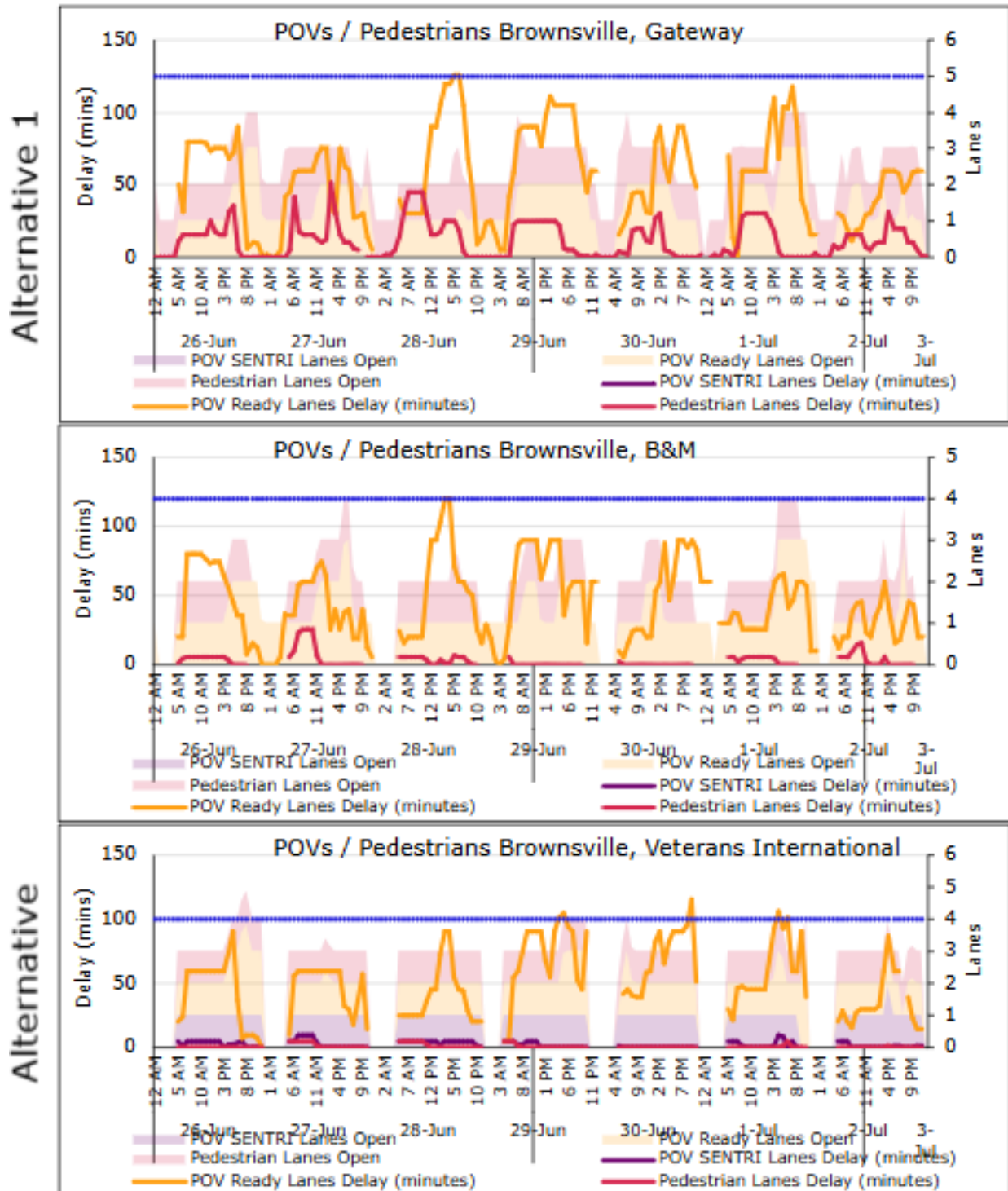
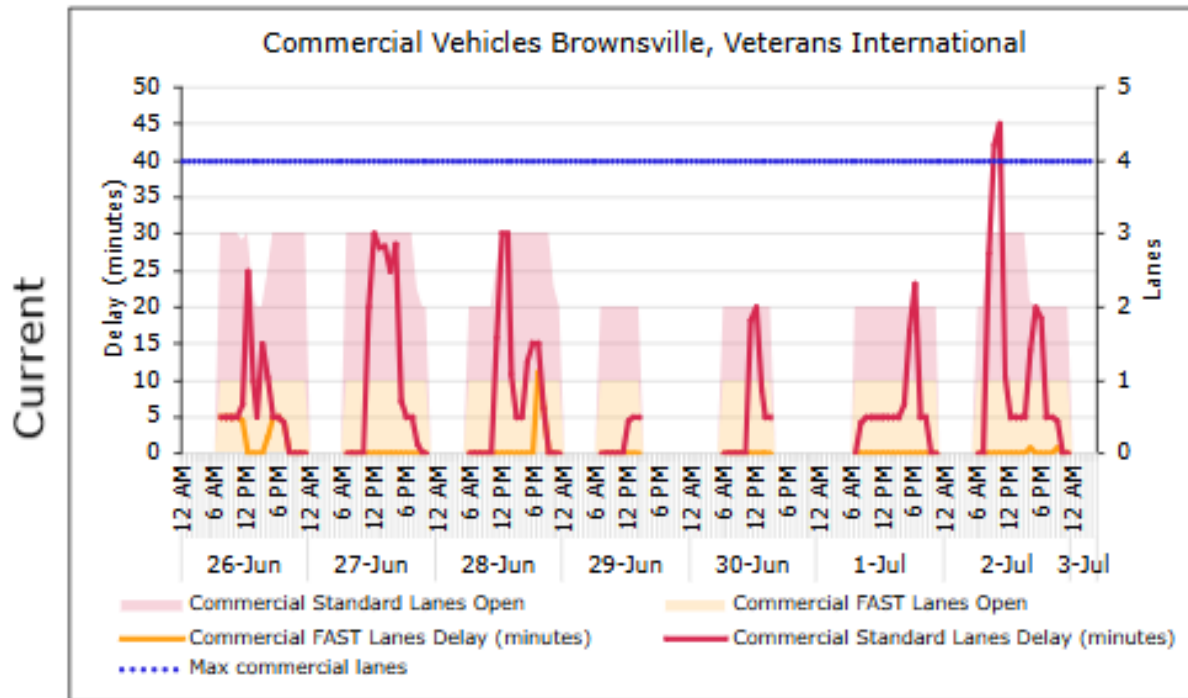


Figure 99. Brownsville Bridges Crossing Closures – Wait Times and Lanes in Operation for Commercial Vehicles



Brownsville Bridges - Diversion Capacity Assessment

Figure 100. Free Trade International Bridge – Diversion Capacity Assessment for Privately Owned Vehicles

- Each of the three crossings in Brownsville have a similar number of lanes for processing POV/bus traffic (4-5 lanes each)
- All combinations of local closure/diversion return similar levels of daily throughput per lane, with the most viable option during a closure being to divert some demand to both alternative crossings

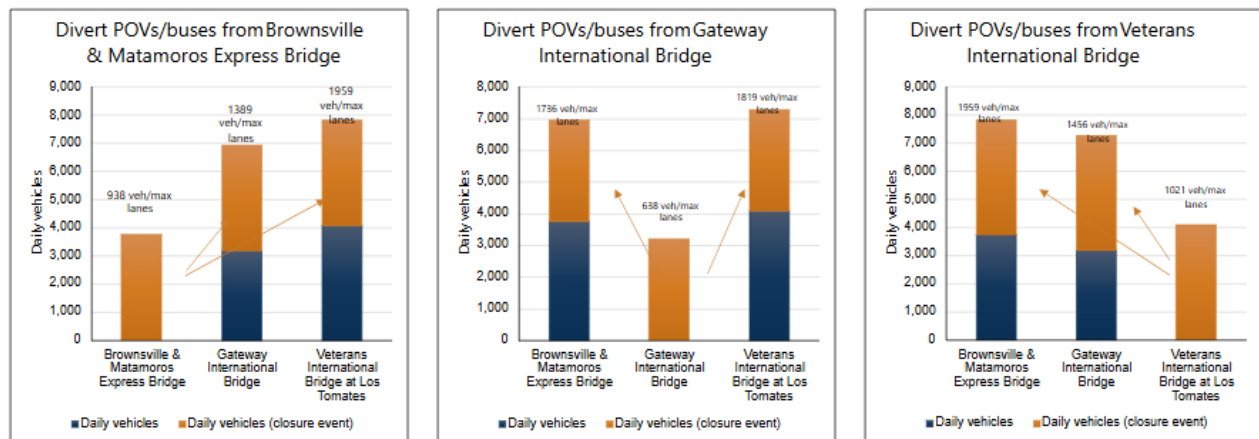
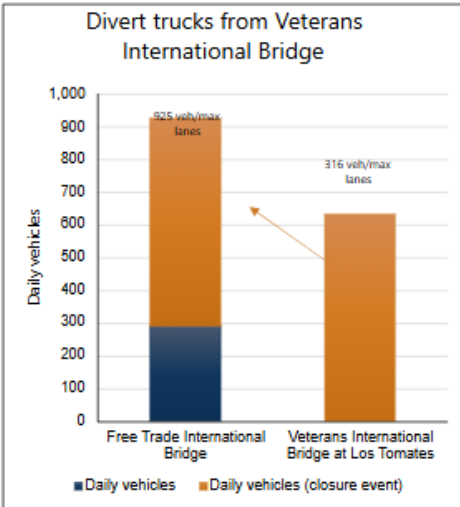


Figure 101. Free Trade International Bridge – Diversion Capacity Assessment for Commercial Vehicles

- The alternative to the Veterans International Bridge is the Free Trade International Bridge some 20 miles west, which only has one lane for processing commercial vehicles, which would almost triple the throughput



Texas-Mexico Border Region Connectivity Plan

Case Studies for Alternative Routes During International
Bridge Closures

Objective

The objective of this study was to analyze detours for privately owned vehicles (POVs) and cargo during international bridge closures. For this study, the Del Rio International Bridge (Del Rio/Eagle Pass Region), Pharr-Reynosa International Bridge (Pharr Region), and the Bridge of the Americas (El Paso Region) were analyzed. All three bridges process significant truck traffic. The study was performed using the online mobility platform, StreetLight Data. StreetLight Data uses a combination of data sources to visualize trends and patterns for origin-destination analyses and trip information including trip length, speed, vehicle type etc. StreetLight's *Top Routes and Trips to or From Pre-Set Geography* analyses were used to visualize diversions during the international bridge closures.

International Bridge Closure Summary

1. **Del Rio International Bridge:** This bridge was closed in 2021 from September 16 (evening) to September 25, due to a migrant crisis. Traffic was diverted to the Eagle Pass International Bridge (only POVs) and Camino Real International Bridge (POVs and cargo).
2. **Pharr-Reynosa International Bridge:** A protest and blockade were organized by truck drivers in Mexico at the Pharr-Reynosa International Bridge from 11th April 2022 to 13th April 2022, after increased southbound inspections. Located in the Pharr/McAllen area, the Anzalduas International Bridge (southbound empties), Pharr-Reynosa International Bridge, Progreso International Bridge, and Free Trade International Bridge process truck traffic.
3. **Bridge of the Americas:** Located in the El Paso Region, the Bridge of the Americas was closed from 18 September 2023 to 10 October 2023 for cargo, due to a surge in migrants. Alternative crossings were the Santa Teresa, Ysleta-Zaragoza, and Marcelino-Serna (previously Tornillo-Guadalupe) International Bridges.

Methodology

StreetLight Data provides several analysis types to visualize traffic data based on the scenario. To look at diversions during bridge closures, the first step was to determine where trips are originating and are destined in the U.S., and subsequently which roadways carry a higher share of traffic to the international bridges. Typical patterns were then compared with patterns during the closure period. The following methodology was developed to understand the diversions:

1. **StreetLight Trips to or From Pre-Set Geography Analysis:** This analysis type highlights the census block groups from where southbound trips to Mexico originate, and where northbound trips from Mexico into the U.S. are destined.
2. **StreetLight Top Routes Analysis:** This analysis type highlights the top routes taken to a bridge, or from a bridge.
3. **Comparing StreetLight Data Analyses with the Land Use Patterns and Texas Freight Network:** Comparing StreetLight Data analyses with the land use patterns and the freight network helps explain why certain routes were chosen over others and sheds light on the decision (i.e., safety, convenience and/or reducing wait times experienced at international bridges).

4. **Network Performance:** This analysis type shows the traffic volume on a chosen roadway segment. This analysis was used to compare the volumes before, during and after the closure, for the closed bridge, as well as the bridges where the traffic was diverted. *StreetLight Data chooses the entire segment to display the volume. For the international bridges, the volume is shown for the entire segment—thus, in most situations, the volume near the International Bridges/parking/processing areas is included. Therefore, it may not match the northbound/southbound crossings recorded by CBP (US Customs & Border Patrol). This analysis is performed for all vehicles and does not provide metrics separately for trucks. Since the Bridge of Americas was only closed for truck traffic, this analysis was not conducted for the Bridge of Americas case study.*

Each bridge case study is contextual, which is why there is an emphasis on understanding the origins and destinations, and patterns near the international bridges.

Note: StreetLight Data captures trips based on when the device is moving: 'trips' start/end when the device is idle.

Del Rio International Bridge Closure

17 September 2021 to 25 September 2021

The Del Rio International Bridge processes POV traffic 24 hours on all days and cargo from Monday to Saturday. The truck traffic percentage is 5%, and the major roadways to the Bridge are US 90 East, US 90 North, and US 277 South. The bridge was closed for around nine days after thousands of migrants set up camp under the bridge. Traffic was re-routed to Eagle Pass, which has two international bridges, nearly 60 miles south of Del Rio. The majority commodity groups processed at the Del Rio International Bridge are electric machinery, transportation equipment, metals, plastics/rubbers, and other miscellaneous products⁷.

Origin Destination Analysis

Southbound Trips

Figure 102 Figure depicts top origins for southbound trips to Mexico using the Del Rio International Bridge. Significant southbound traffic to Mexico via the Del Rio International Bridge originates from within 5 miles of the bridge. These trips come from Frontera Road west of the Bridge, where several manufacturing, logistics, and import-export companies are located, and trucking companies and parking areas. Del Rio's main street, Veterans Boulevard (dotted with grocery and furniture stores, along with repair shops and restaurants), generates significant southbound traffic as well. The Val Verde Regional Medical Center is a major node for trips to and from Del Rio and stands out as a zone generating southbound trips. Specifically for trucks, the areas along Frontera Road west of the Bridge, trucking and service shops along US 57, and downtown Del Rio are major origins (see **Figure 103**). In this analysis, industrial areas in Eagle Pass, which have truck parking, manufacturing and logistics

⁷ Pg 31, Border District Trade Transportation Report, 2024

companies, also generate a small number of truck trips using the Del Rio International Bridge. This could point towards the preference of using US 277 to cross at Del Rio instead of Eagle Pass due to wait times or safety/convenience, for trucks crossing into Mexico and destined for Ciudad Acuña.

Northbound Trips

Northbound trips depict a similar pattern. Most POV trip destinations in Del Rio are near the Bridge, in residential areas, and along Veterans Boulevard. Several northbound trips are also made to the Val Verde Regional Medical Center.

Figure 102. Top Origins (Census Blocks) for Southbound Trips through Del Rio International Bridge (All Vehicles)

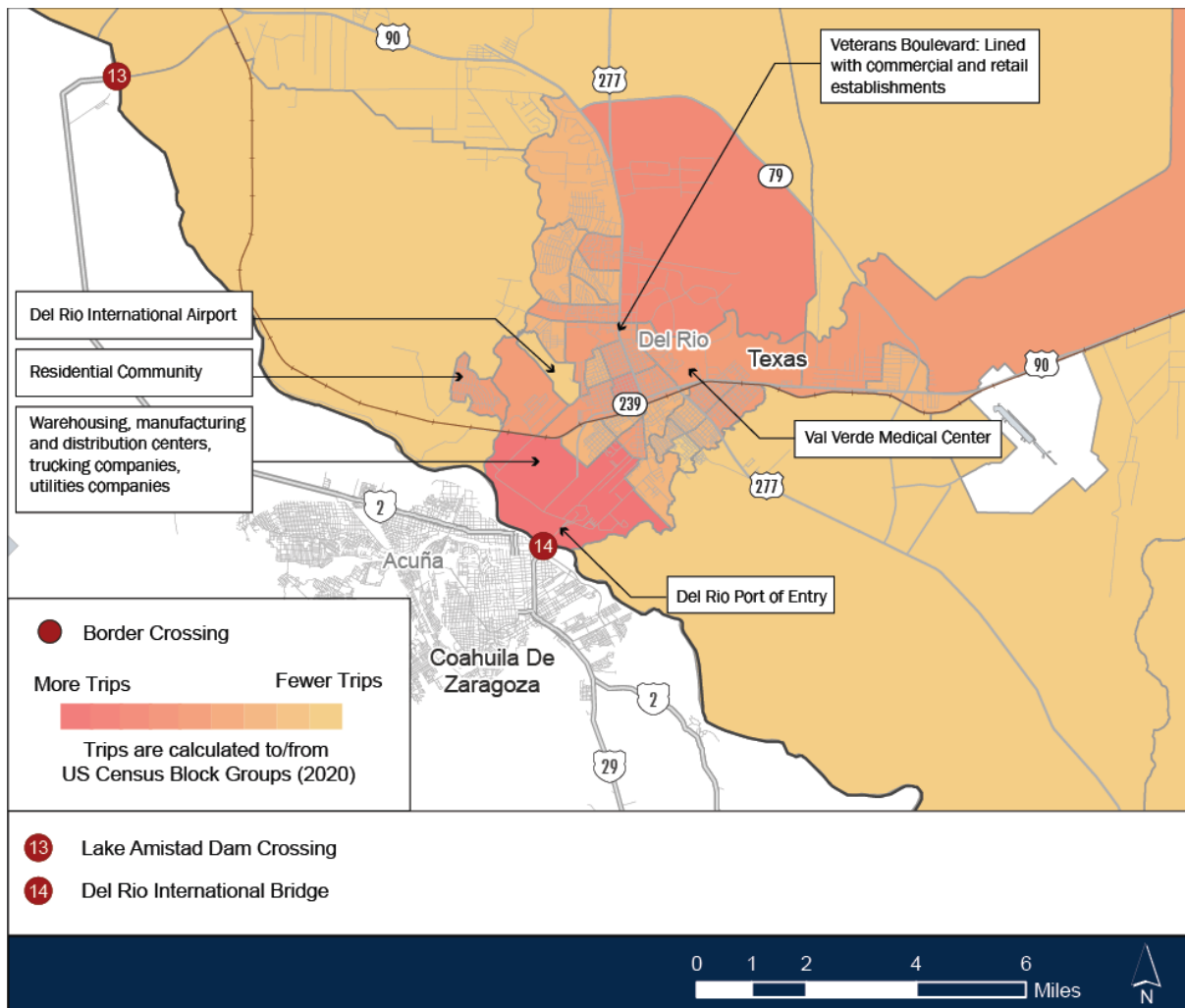


Figure 103. Top Origins (Census Blocks) for Southbound Trips through Del Rio International Bridge (Trucks)

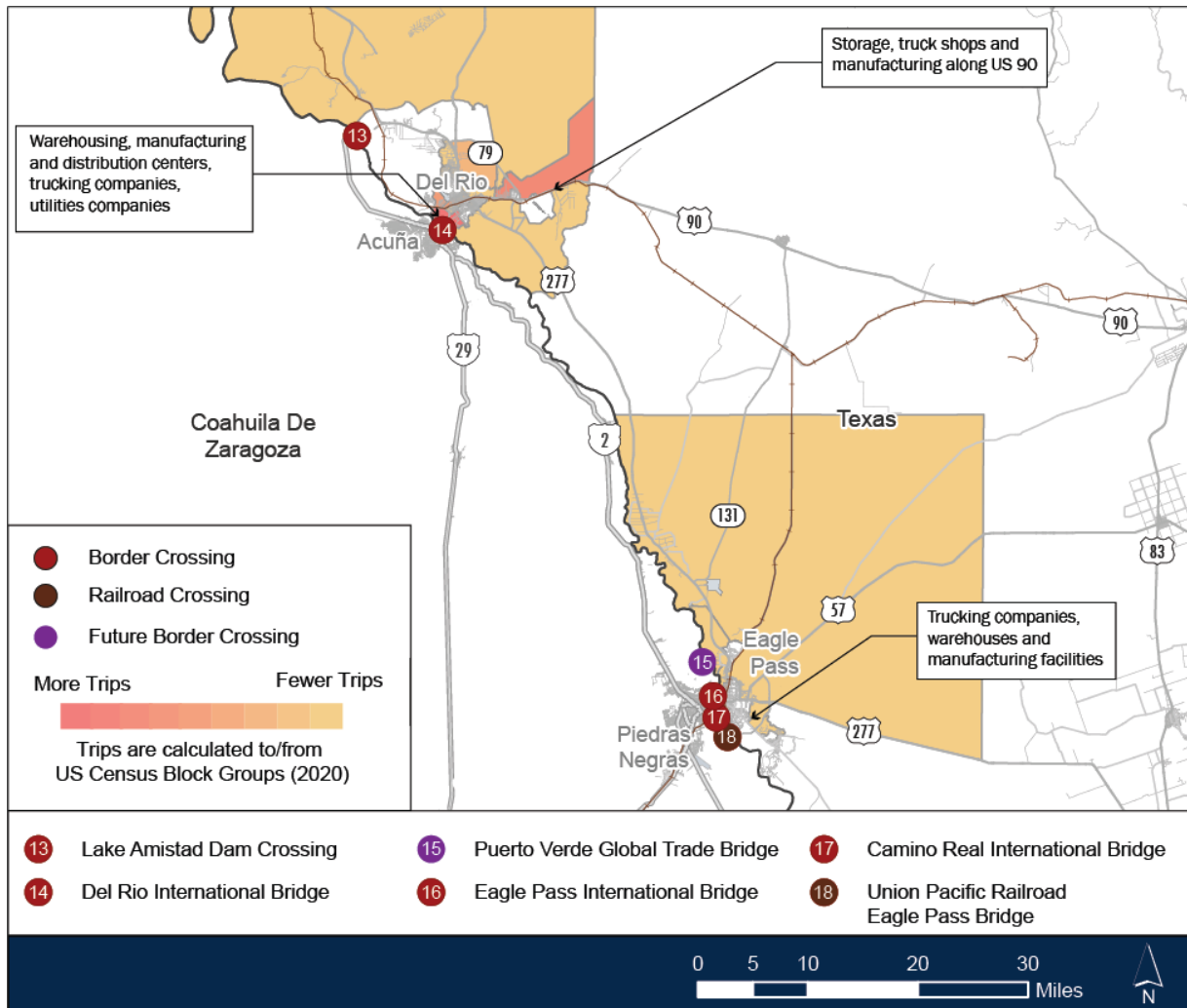


Figure 104 shows the top census block groups that are destinations for northbound trips. 82% of the trips have destinations within five miles of the Bridge. **Figure 105** shows the top destinations for northbound truck traffic. A small share of northbound truck traffic destined for Eagle Pass uses US 277.

Figure 104. Top Destinations (Census Blocks) for Northbound Trips through Del Rio International Bridge (All Vehicles)

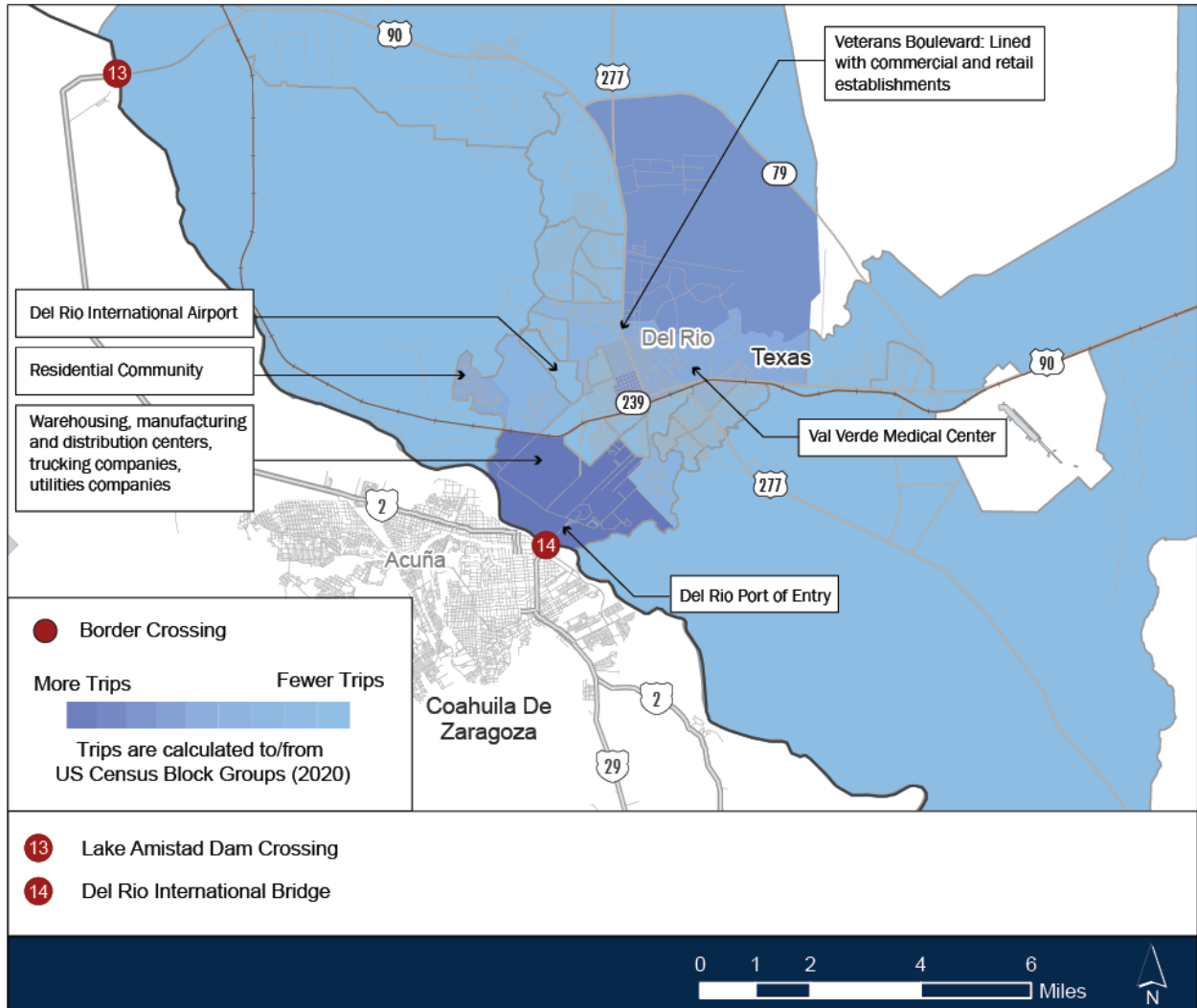
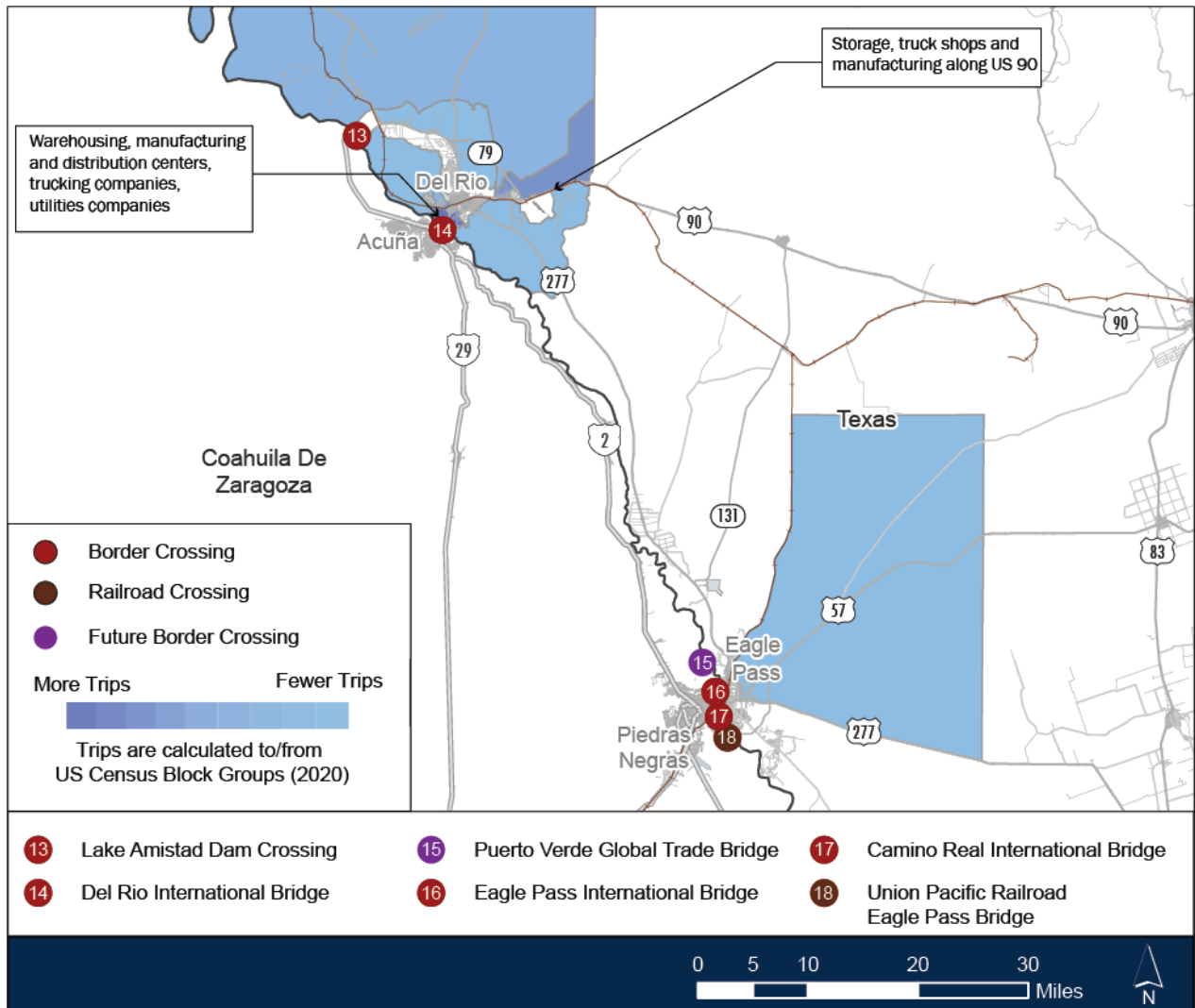


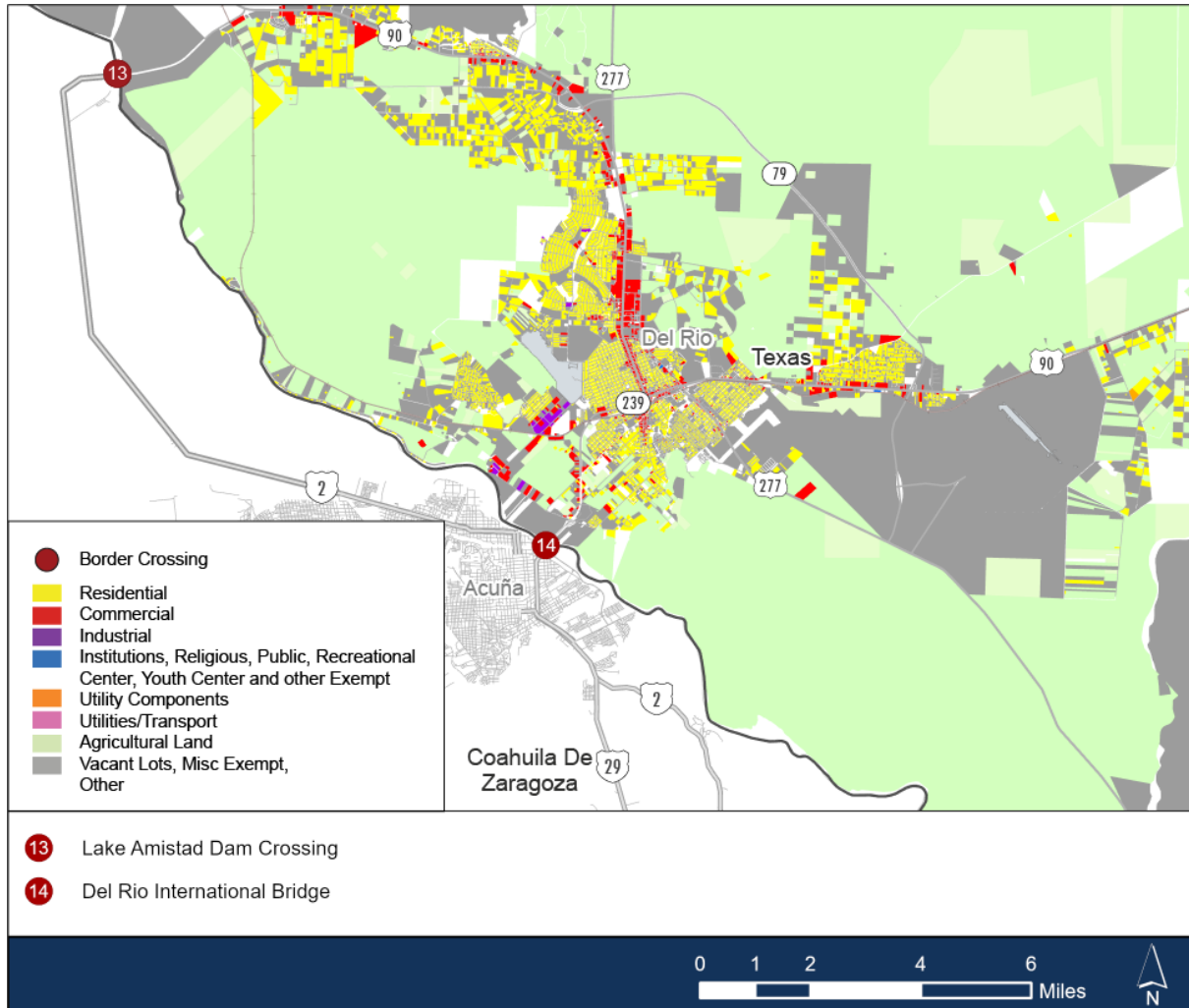
Figure 105. Top Destinations (Census Blocks) for Northbound Trips through Del Rio International Bridge (Trucks)



Top Routes Analysis with Land Use

Figure 106 shows the land use parcels in Del Rio with the Texas freight network overlaid on top. US 90 and US 277 are flanked by commercial parcels, several of which are origins for southbound trips and first destinations for northbound trips from the Del Rio bridge. Frontera Road, west of the Bridge, provides access to several large industrial and commercial parcels.

Figure 106. Del Rio Land Use Map with Texas Freight Network



Typical Top Routes 2021 – Del Rio

US 90 and US 277 are the major highways carrying traffic to and from the Del Rio International Bridge. **Figure 107** shows the results of the *Top Routes to Zone* analysis from StreetLight Data, depicting the roadways that are most used by traffic crossing at the Bridge. Apart from the major highways, several roadways in Del Rio are used by traffic from the manufacturing, retail, residential and industrial areas to the Bridge. **Figure 108** shows the northbound traffic from Mexico. Several northbound trips are made to downtown Del Rio to areas with retail, commercial, and public establishments.

Figure 107. Southbound Top Routes to Del Rio International Bridge - 2021

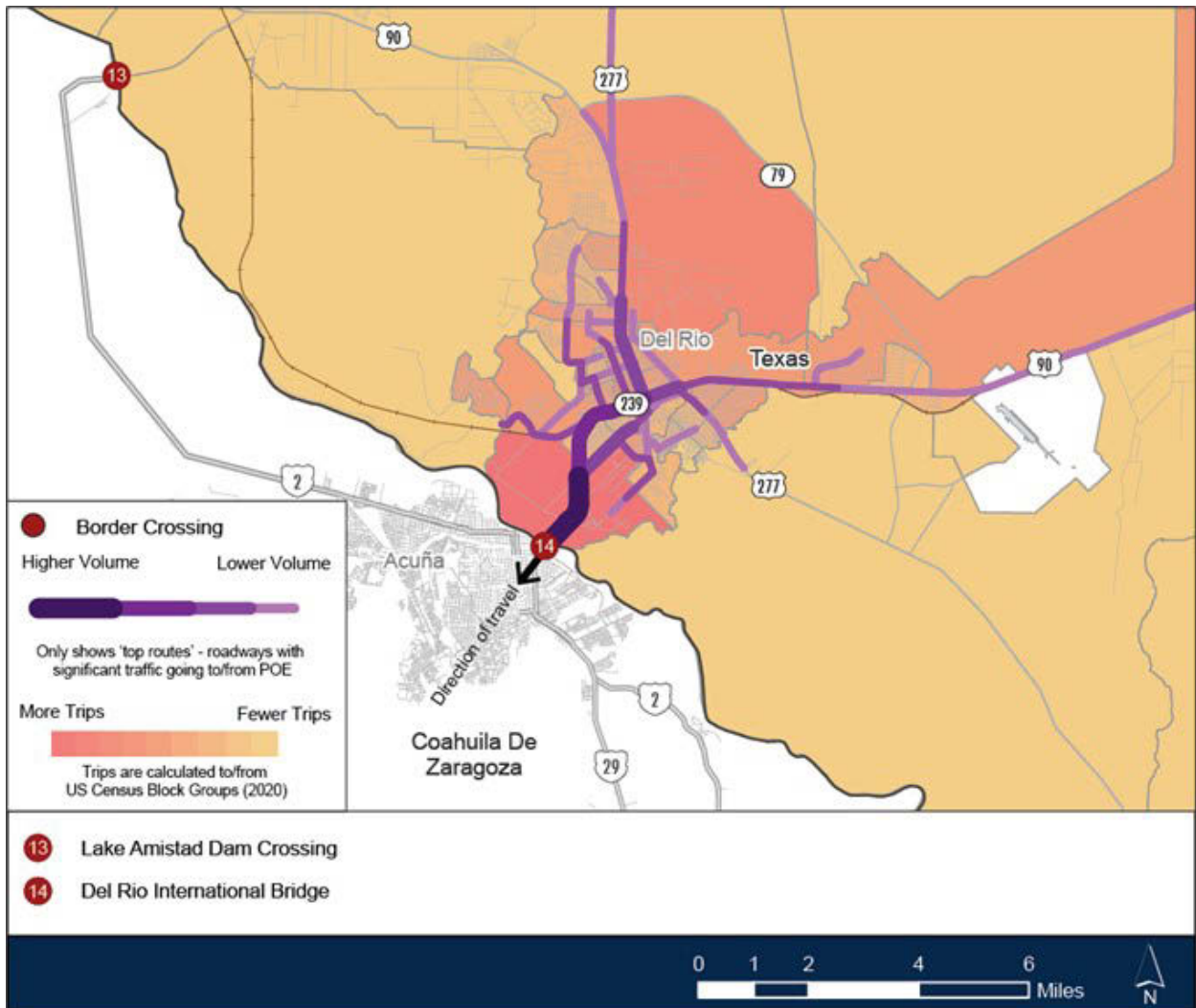


Figure 108. Northbound Top Routes from Del Rio International Bridge – 2021

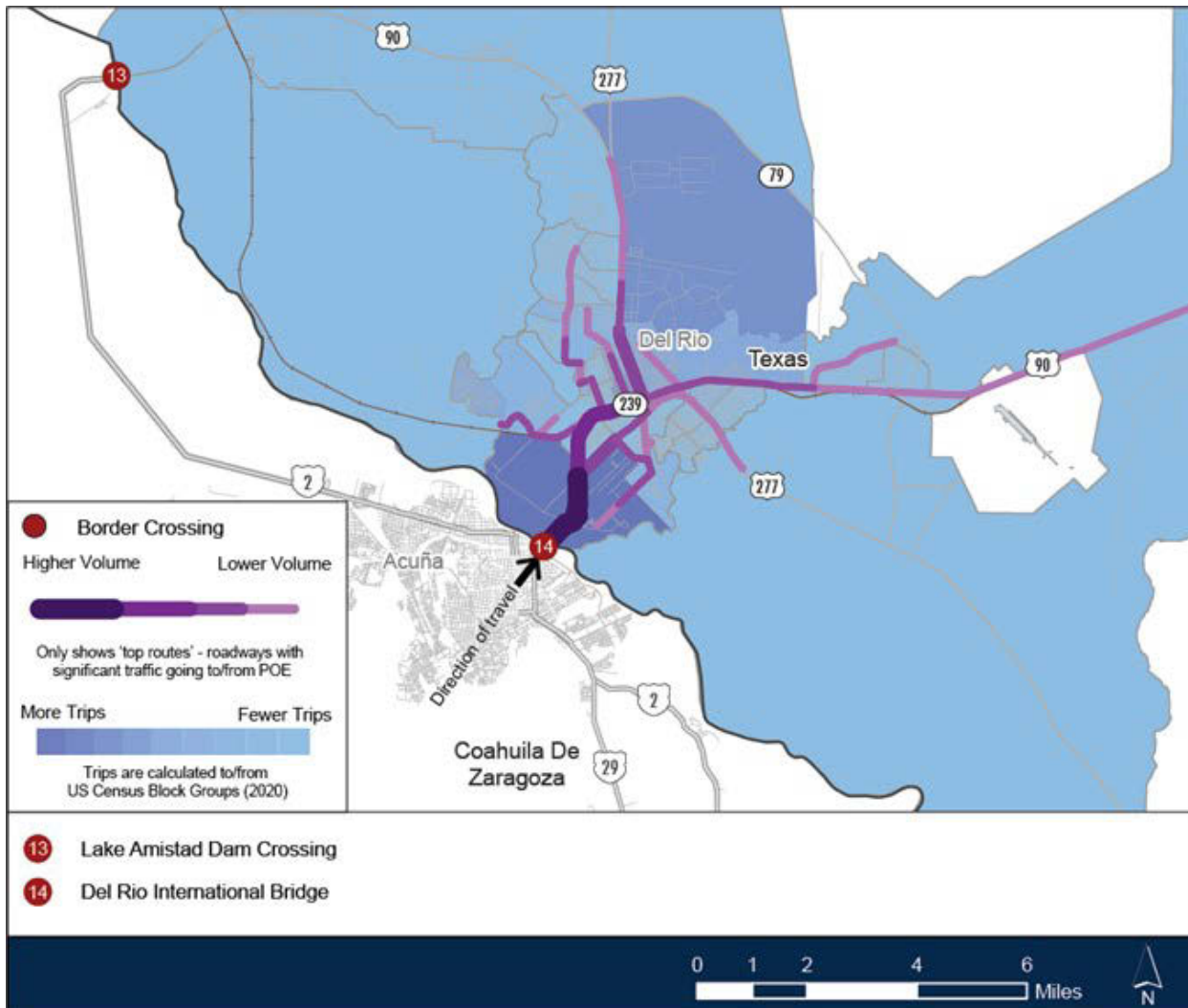


Figure 109 and **Figure 110** shows the southbound and northbound top routes for trucks, respectively. US 277 is the top route in these figures, differing from the routes for all vehicles in the figures shown previously. The origins/destinations for this route are the industrial/commercial areas in Eagle Pass where several truck rental, service and logistics companies are located. While Camino Real International Bridge in Eagle Pass processes truck traffic to and from Mexico, some truck traffic, with an origin/destination in Ciudad Acuña in Mexico, may prefer to use US 277 to cross at Del Rio, instead of MX 2 on the Mexican side.

Figure 109. Southbound Truck Top Routes to Del Rio International Bridge - 2021

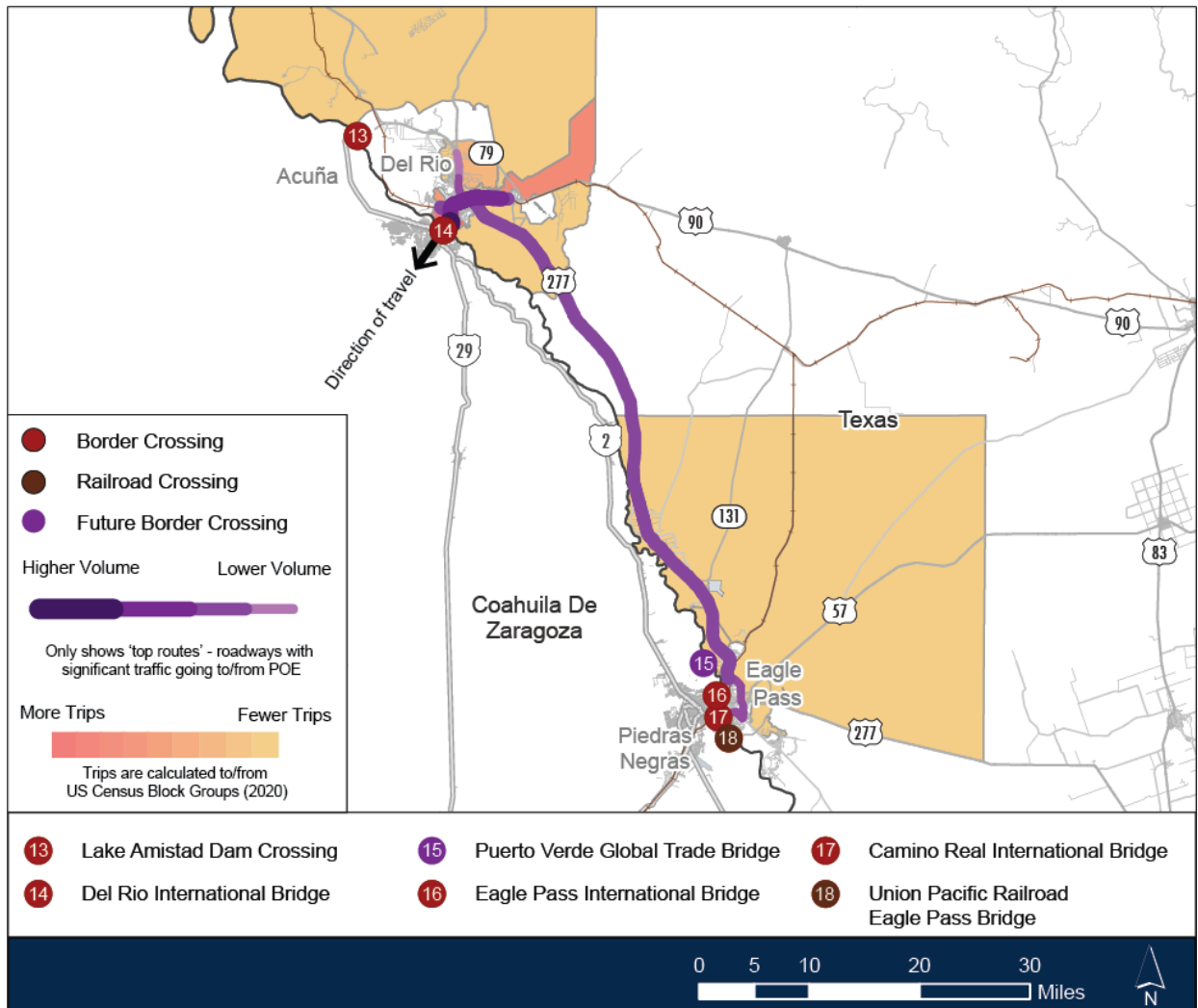
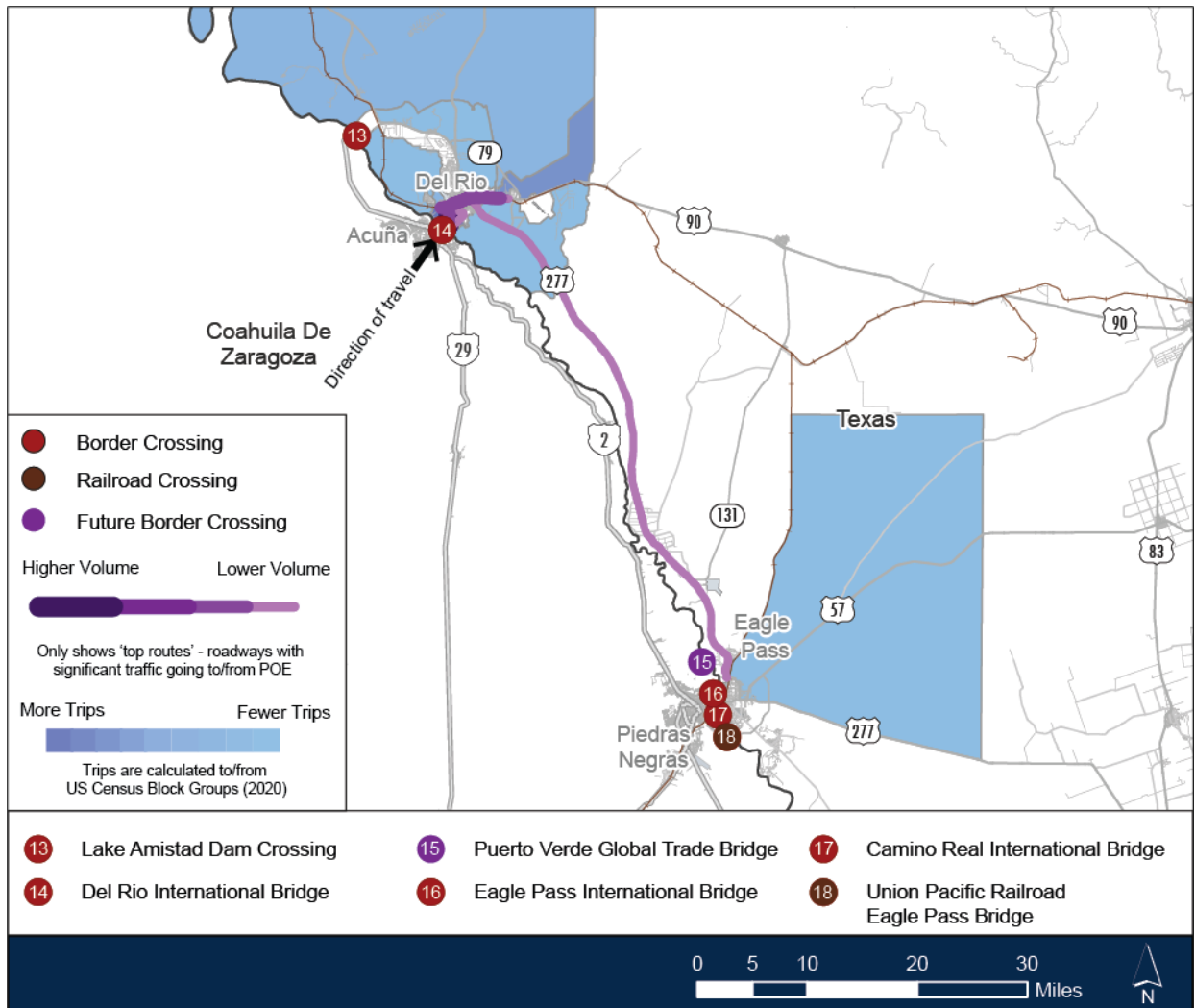


Figure 110. Northbound Truck Top Routes from Del Rio International Bridge - 2021



Traffic Diversion to Eagle Pass during Del Rio Bridge Closure

To see the changing traffic patterns during the closure period, the typical top routes to and from the Eagle Pass bridges were compared to the top routes during the closure period. At Eagle Pass, there are two international bridges: Eagle Pass International Bridge (International Bridge I) which processes POV traffic and Camino Real International Bridge (International Bridge II) which processes POV and truck traffic. **Figure 111** shows the southbound typical routes for the Eagle Pass bridges in 2021. US 57 brings traffic from San Antonio, while US 277 East and North bring traffic from Eagle Pass itself and surrounding areas.

Figure 112 shows the southbound traffic patterns during the closure period. Traffic diverted to Eagle Pass from Del Rio used US 277 to travel to Eagle Pass. For northbound traffic, **Figure 113** shows the typical top routes and **Figure 114** shows the top routes during the closure period. Since the Del Rio bridge was closed, POV traffic may have chosen to utilize necessary amenities in Eagle Pass instead, which could be why roadways within Eagle Pass show up as top routes in **Figure 115**.

For southbound truck traffic, US 277 was already a typical top route use to cross into Mexico from Eagle Pass. During the closure period, truck traffic from industrial/commercial areas in Del Rio used US 277 to reach Eagle Pass. This can be seen in the comparison between **Figure 116** and **Figure 117**, where West Gibbs Street/Spur 239 becomes a top route. **Figure 118** and **Figure 119** show the comparison between typical 2021 northbound truck traffic and closure period truck traffic. During the closure period, trucks used US 277 to go to Del Rio destinations, with West Gibbs Street and North Bedell Avenue standing out as major routes.

Figure 111. Southbound Top Routes to Eagle Pass 2021 - All Vehicles

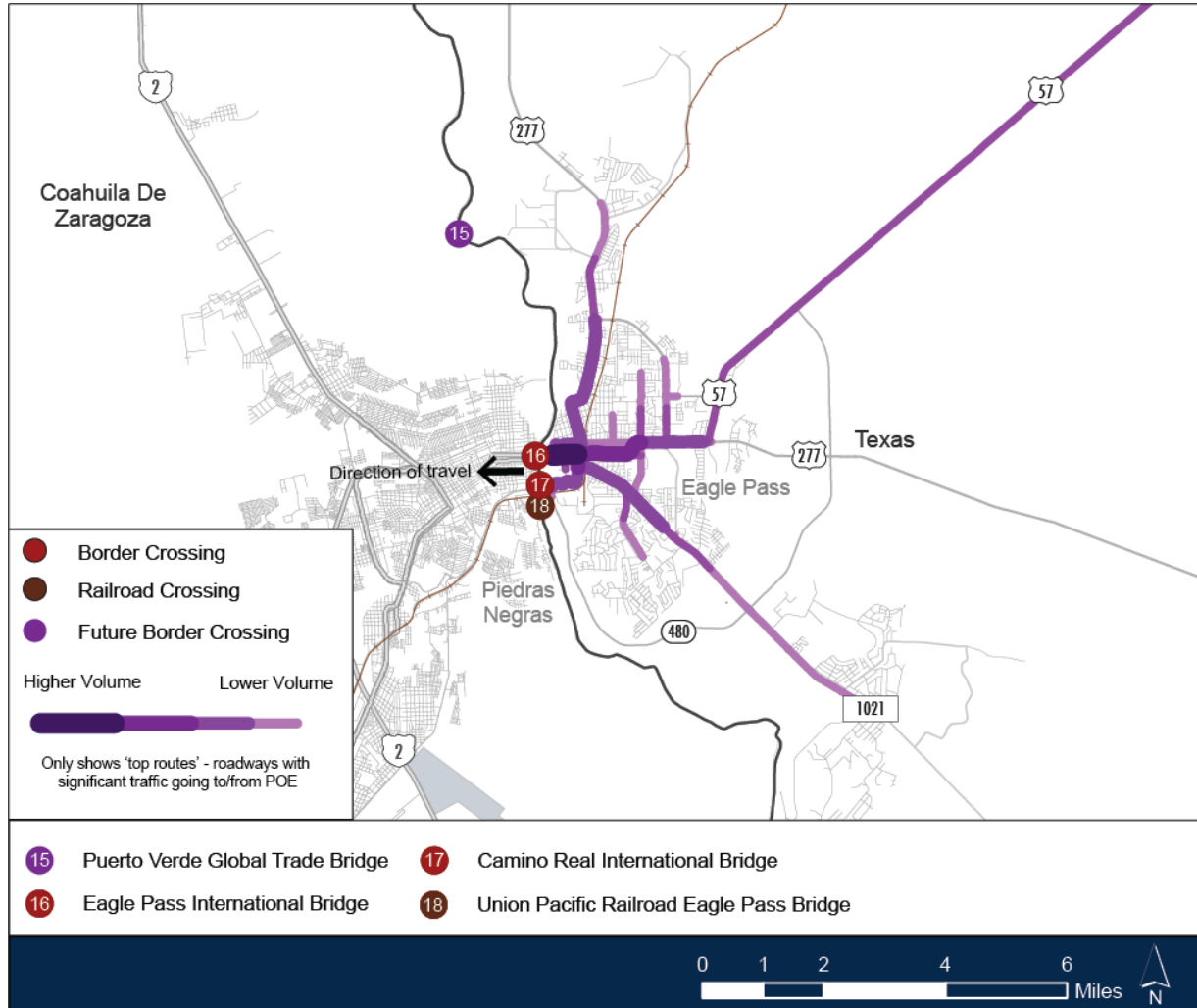


Figure 112. Southbound Top Routes to Eagle Pass CLOSURE PERIOD - All Vehicles

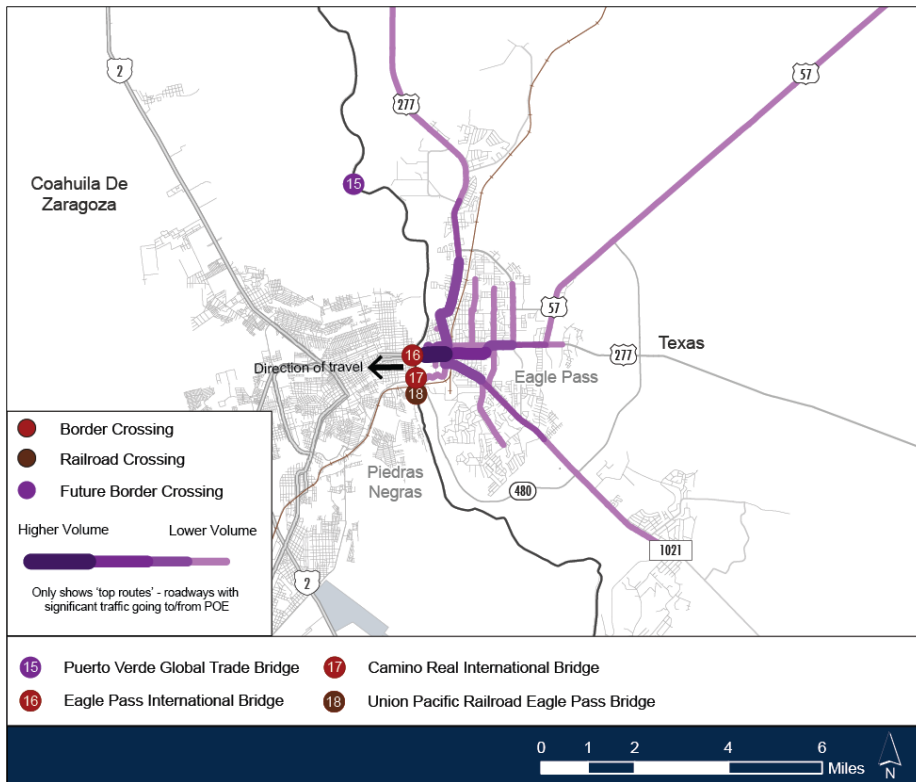


Figure 113. Northbound Top Routes from Eagle Pass 2021 - All Vehicles

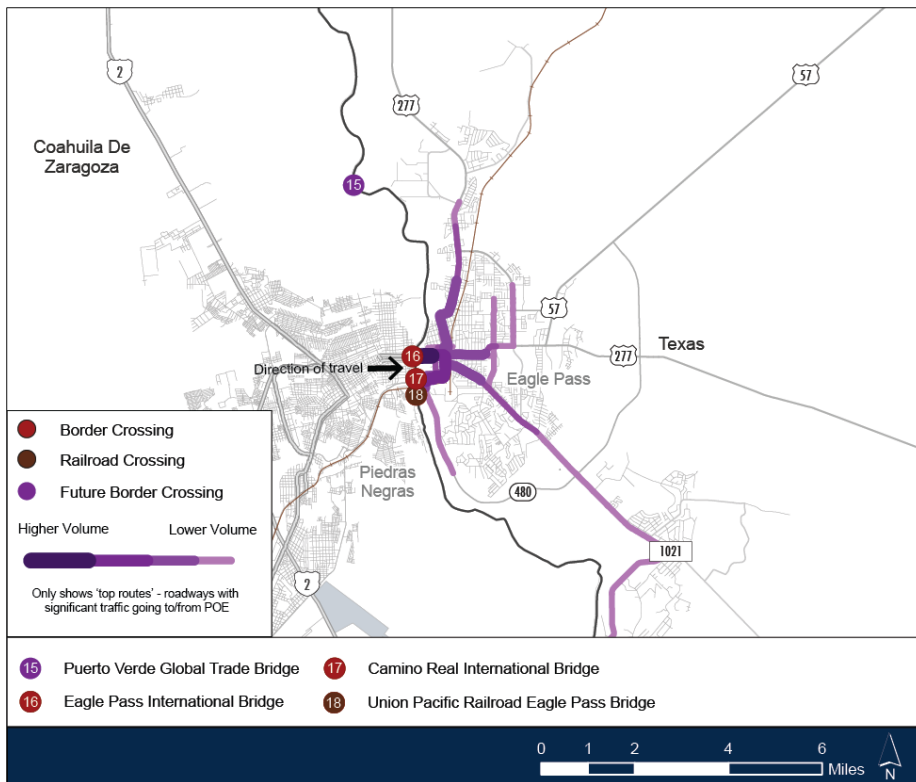


Figure 114. Northbound Top Routes from Eagle Pass CLOSURE PERIOD - All Vehicles

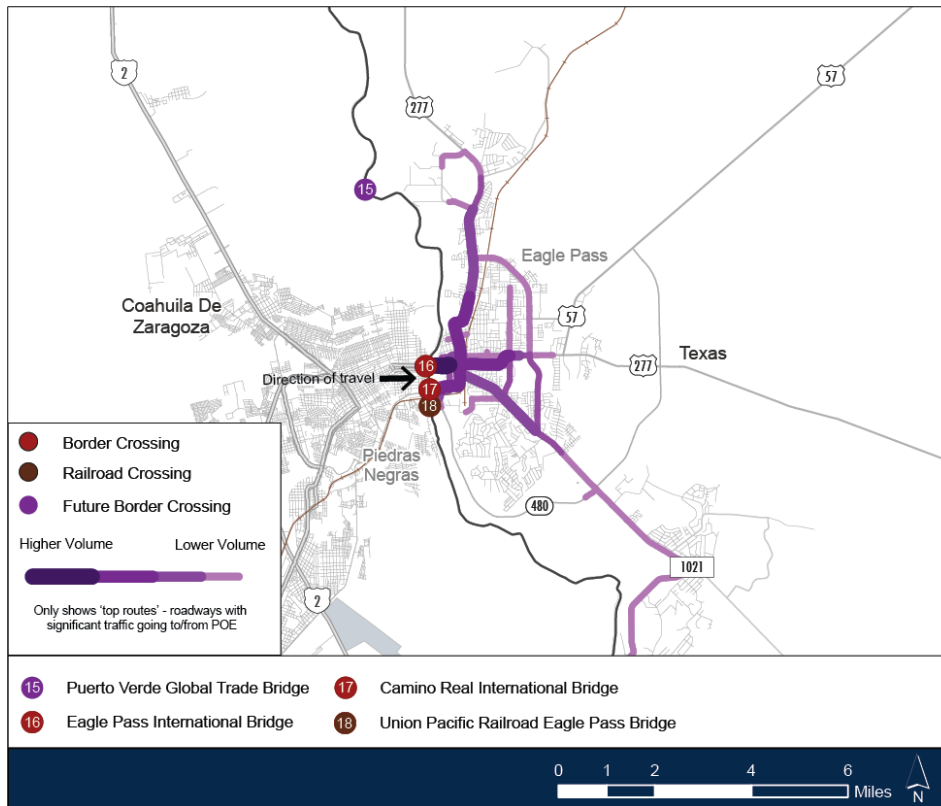


Figure 115. Southbound Top Routes 2021 – Trucks

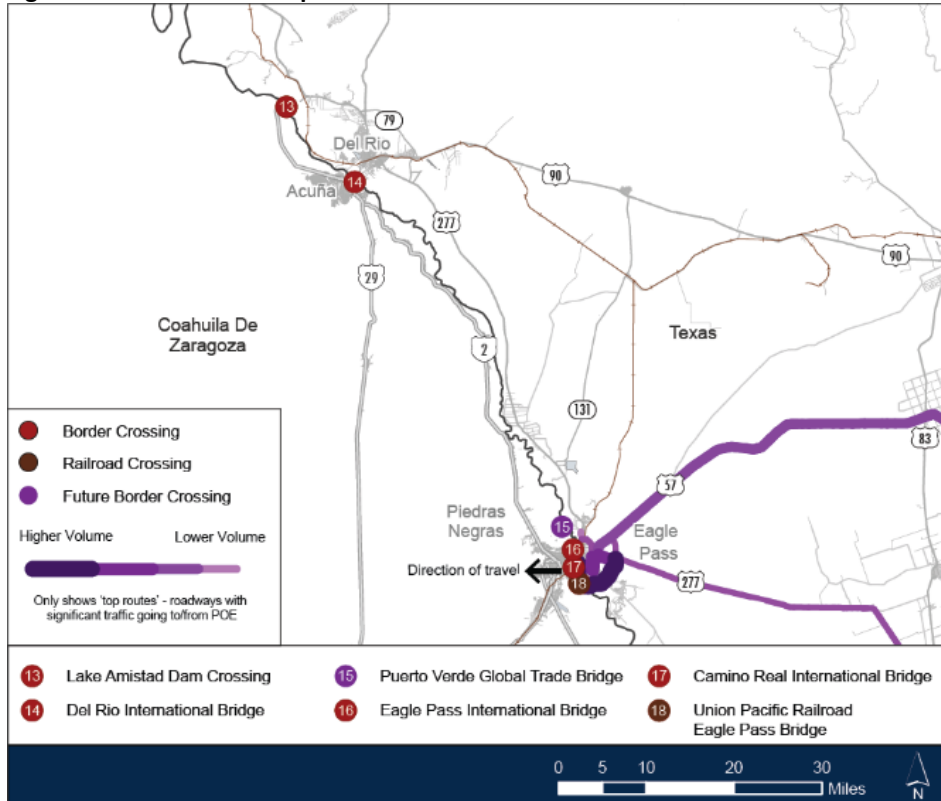


Figure 116. Southbound Top Routes CLOSURE PERIOD – Trucks

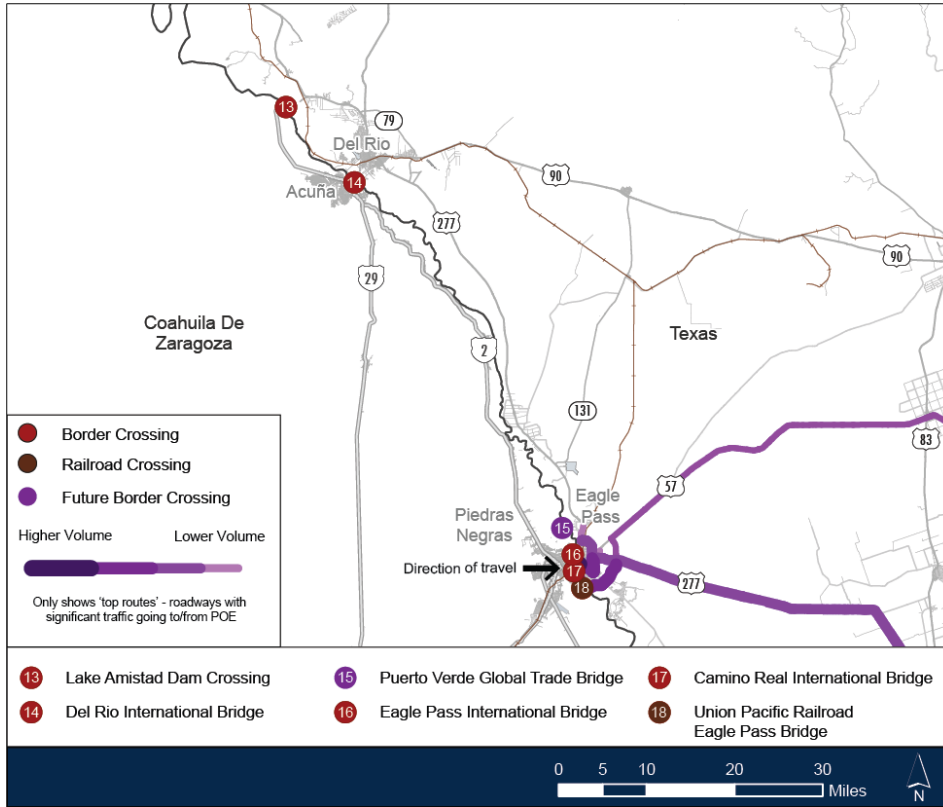


Figure 117. Northbound Top Routes 2021 – Trucks

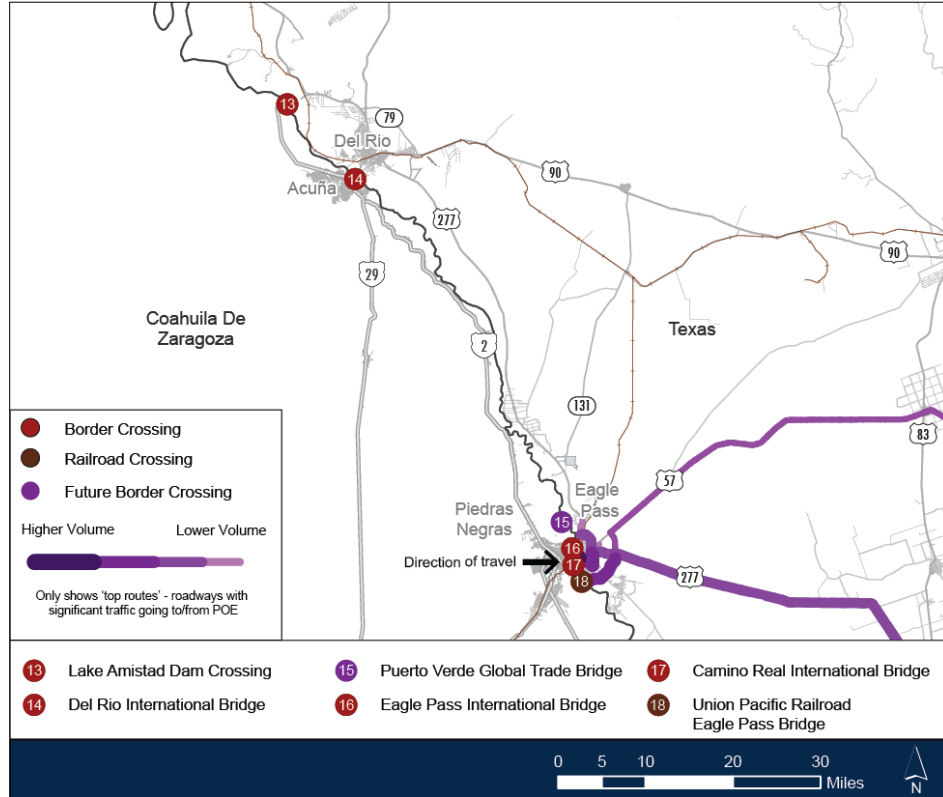


Figure 118. Northbound Top Routes CLOSURE PERIOD – Trucks

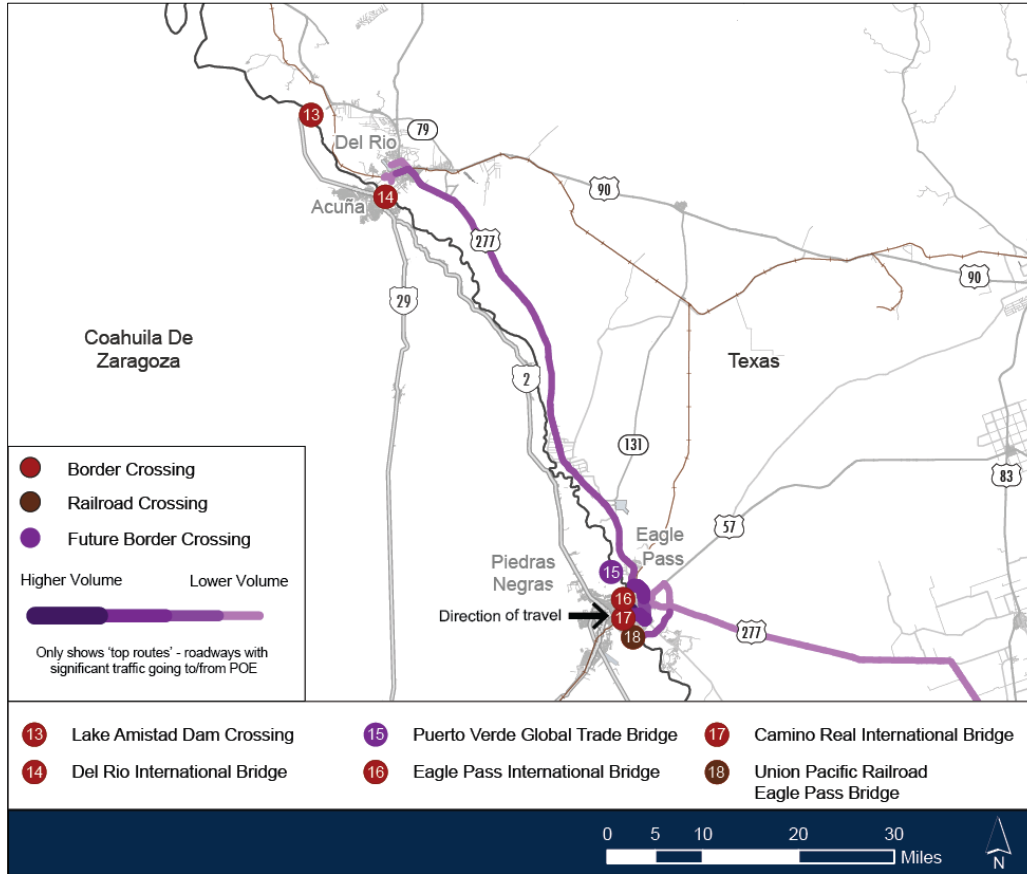
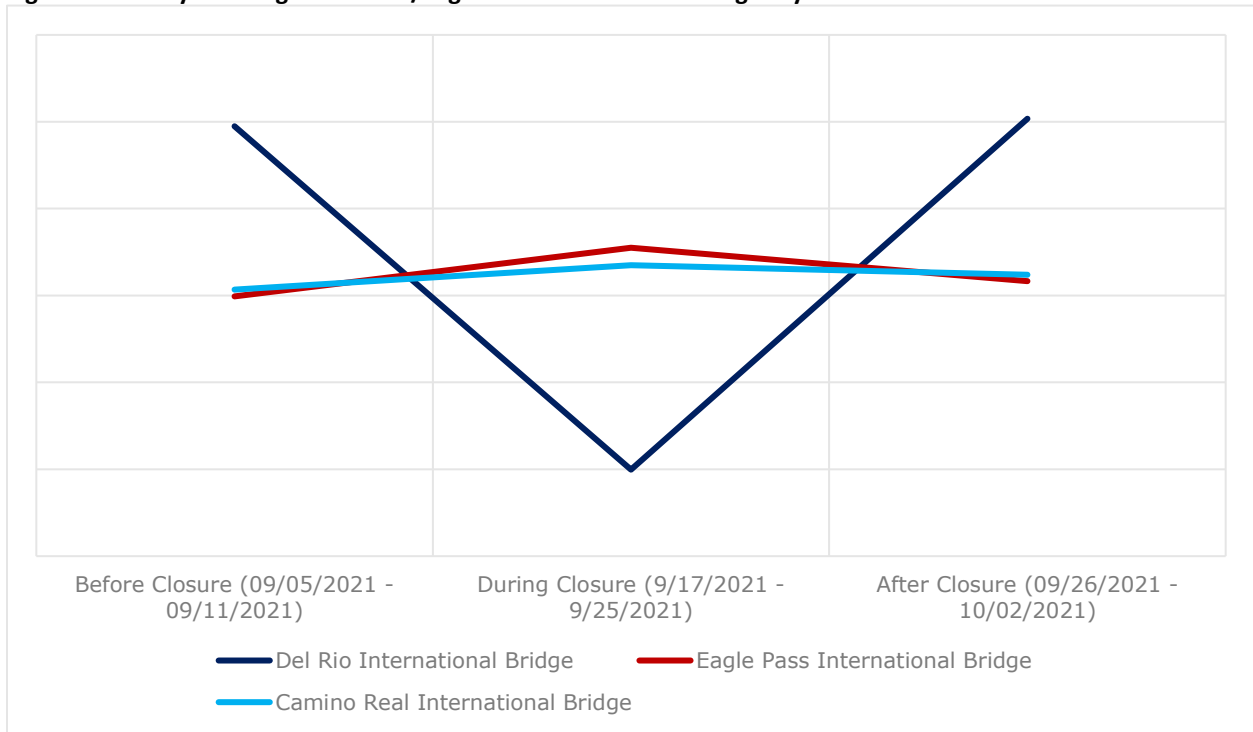


Figure 18 shows the results of the Network Performance analysis, which calculates the volume for a roadway segment. The roadway segment for the bridge closest to the border was selected. During the closure period, there was an increase in the traffic at the two Eagle Pass Bridges. However, according to this analysis, the overall crossing volumes at these bridges decreased during the closure period; potentially indicating that a large number of trips were not made.

Note: The volume at the Del Rio International Bridge roadway is not zero during the closure period since the analysis segment extends up to the Bridge and StreetLight Data may be capturing other activity near the Bridge.

Figure 119. Daily Crossings at Del Rio/Eagle Pass International Bridges by Time Period



Summary

The Del Rio International Bridge closure led to southbound traffic being diverted to Eagle. The following is the traffic patterns observed during the closure period:

- Southbound POV traffic was diverted to Eagle Pass International Bridge using US 277. Southbound truck traffic was also diverted to Eagle Pass (Camino Real International Bridge) using US 277. An increase in volume on US 277 is observed during this period.
- Northbound POV traffic crossed into the US using the Eagle Pass International Bridge. Not many trips were made to Del Rio, with amenities in Eagle Pass likely being utilized instead (retail and commercial).
- Northbound truck traffic crossed into the US using the Camino Real International Bridge. Truck traffic used US 277 to go to destinations in Del Rio.

Pharr-Reynosa International Bridge Closure

11 April 2022 to 13 April 2022

The Pharr-Reynosa International Bridge is in the Texas Department of Transportation's (TxDOT's) Pharr District. It processes POVs and cargo, with truck traffic amounting to 63% of the total traffic. The bridge is open seven days, with some timing restrictions on cargo crossings. On 11 April 2022, a protest was organized by truck drivers because of increased inspections. The blockade lasted three days. The overall number of crossings reduced, and some critical cargo crossed using nearby bridges. A significant portion of the trade linked to this Bridge is produce/perishable. The major roadways used by trucks are I-69C, I-2 East and West, and US 281.

Origin Destination Analysis

Southbound Trips

Trade crossing at the Pharr-Reynosa International Bridge is mainly linked to the following industries: non-metallic minerals, petroleum or coal products, farm and food products, and waste/scrap materials. Most of the traffic that crosses at this Bridge is truck traffic. **Figure 120** shows the top origins for southbound truck trips. These trips start from several commercial/industrial zones near the Pharr-Reynosa International Bridge or Hidalgo bridges, where import-export facilities and cold storage facilities are located (e.g., fruits and fresh produce). The Valley International Airport in Harlingen is a major airport for air cargo. The McAllen-Miller International Airport is along I-2 West in McAllen. A small number of trips originate from the airport facilities. Major highways that serve the Pharr-Reynosa International Bridge are I-69C, I-2 East and West, and US 281. Several freight generators are located along I-2 East (between I-69C and I-69E) and in Edinburgh, McAllen, and Pharr⁸.

Northbound Trips

Figure 121 shows the top destinations for northbound truck traffic. 84% of the trips' first destination is within three miles of the Bridge. These trips are destined for the logistics, manufacturing, import-export, and cold storage facilities along South Cage Boulevard (US 281 North) and Military Highway (US 281 East and West). This overlaps with the clusters of freight generators located in this area.

⁸ Pg 5, Pharr District Profile, Texas Freight Mobility Plan 2018

Figure 120. Top Origins (Census Blocks) for Southbound Trips through Pharr-Reynosa International Bridge - Trucks

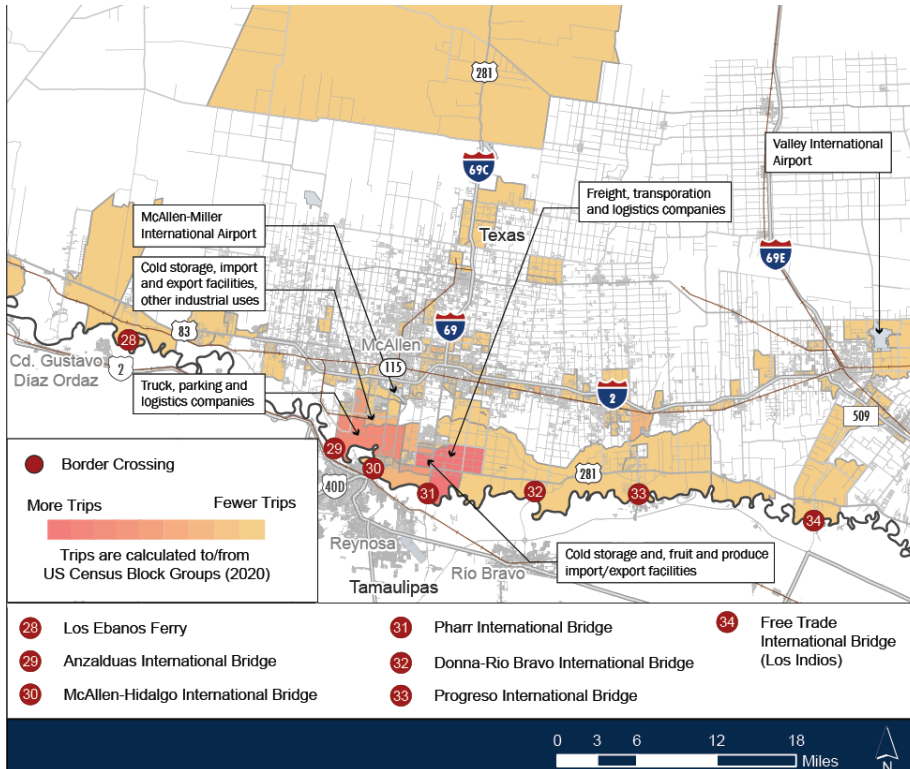
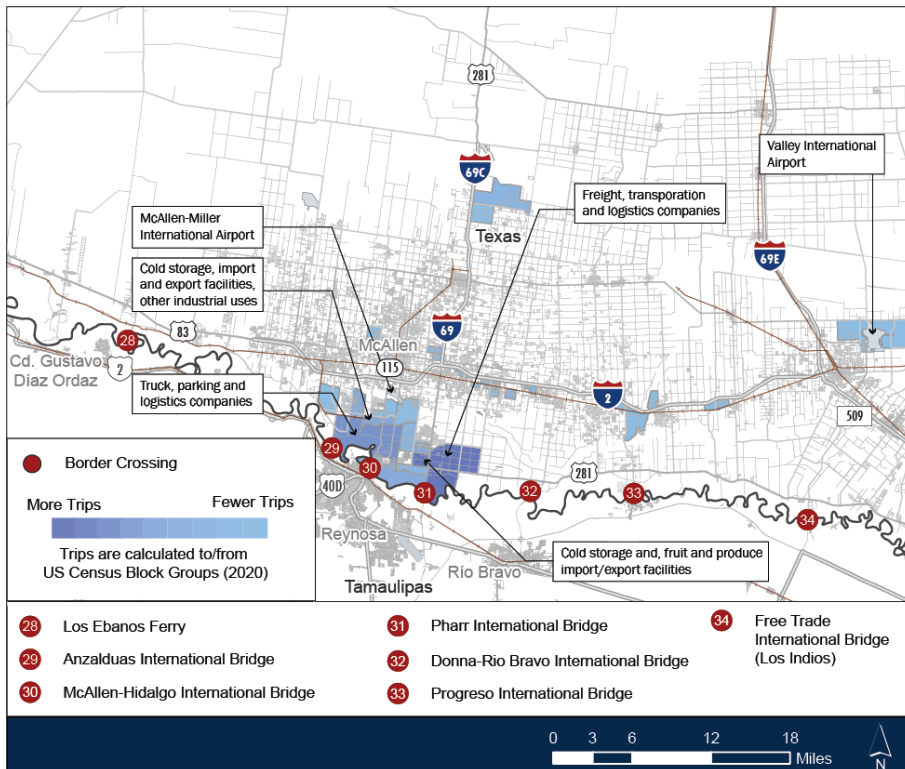


Figure 121. Top Destinations (Census Blocks) for Northbound Trips through Pharr-Reynosa International Bridge – Trucks



Top Routes Analysis with Land Use

Cross-border import-export trade using the Pharr-Reynosa International Bridge largely originates in/are destined for parcels along US 281 North, East and West, within a five-mile radius of the Bridge. I-69C and I-2 are two major interstates that bring traffic to and from the Pharr-Reynosa International Bridge. There are five other international bridges in this region: Anzalduas International Bridge (processing southbound empty trucks), McAllen-Hidalgo International Bridge, Donna Rio Bravo International Bridge, Progreso International Bridge (processing truck traffic), and Free Trade/Los Indios International Bridge. The Texas freight network can be seen overlaid with the land use for Pharr/McAllen in **Figure 122**. According to the Texas Freight Mobility Plan’s Pharr Profile, there are several freight generators in McAllen/Pharr/Edinburgh, thus the freight network in these areas is extensive.⁹

Figure 122. Pharr-McAllen Land Use Map with Texas Freight Network



Typical Top Routes 2021 – Pharr

Southbound truck traffic to Pharr-Reynosa International Bridge uses US 281, I-2 East, and I-2 West. The StreetLight Data top routes analysis in **Figure 123** shows the major roadways for truck traffic. Northbound traffic is shown in **Figure 124**. From the top destinations figure and the northbound top routes figure, it can be seen that most northbound trips' first destination is within 2-3 miles of the Bridge (where several import-export, logistics, and storage facilities are located).

Traffic Diversion during Pharr-Reynosa International Bridge Closure

Due to increased inspections which led to miles long queues in Reynosa (Mexico), truck drivers organized a blockade at the Pharr-Reynosa International Bridge, resulting in the closure of the Bridge for three days (i.e., from 11 April 2022 to 13 April 2022). During this blockade, the overall cross-border truck traffic in this region seemed to have reduced. The comparison between southbound traffic patterns during a typical day in 2022 versus during the closure period, for the nearby bridges processing cargo, can be seen in **Figure 125** and **Figure 126**, respectively. Normal traffic patterns in 2022 show that Anzalduas International Bridge process most of the southbound truck traffic to Mexico. I-2 and US 281 were the major highways that carried the traffic to Anzalduas. Most of this traffic likely came from the areas within McAllen/Pharr that are major freight generators. In comparison to the truck volume at Anzalduas, there were fewer crossings at the Progreso and Free Trade International Bridges, which is why the top routes to those bridges are not apparent in the StreetLight Data analysis. However, during the closure period, the Progreso International Bridge saw a significant share of southbound crossings, even though the Anzalduas International Bridge still had the higher share. The Free Trade International Bridge had the smallest share of southbound crossings. Only critical cargo from the Valley International Airport may have used it to cross.

Figure 127 and **Figure 128** show the northbound truck traffic patterns during a typical day in 2022 and the closure period, respectively. The Anzalduas International Bridge does not process northbound trucks. The Free Trade International Bridge processed more northbound trucks compared to the Progreso International Bridge. During the typical period, northbound truck traffic from the Progreso and Free Trade International Bridges goes onto US 281 towards I-2/Pharr/McAllen destinations, and onto Spur 509 to I69 East and West. During the closure period, nearly all the truck traffic that crossed northbound in this region, crossed at the Free Trade International Bridge. Since overall traffic crossings reduced due to the blockade, critical cargo used this Bridge to access the airport.

Figure 125. Southbound Top Routes to Anzalduas, Progreso and Free Trade International Bridges for Trucks – 2022

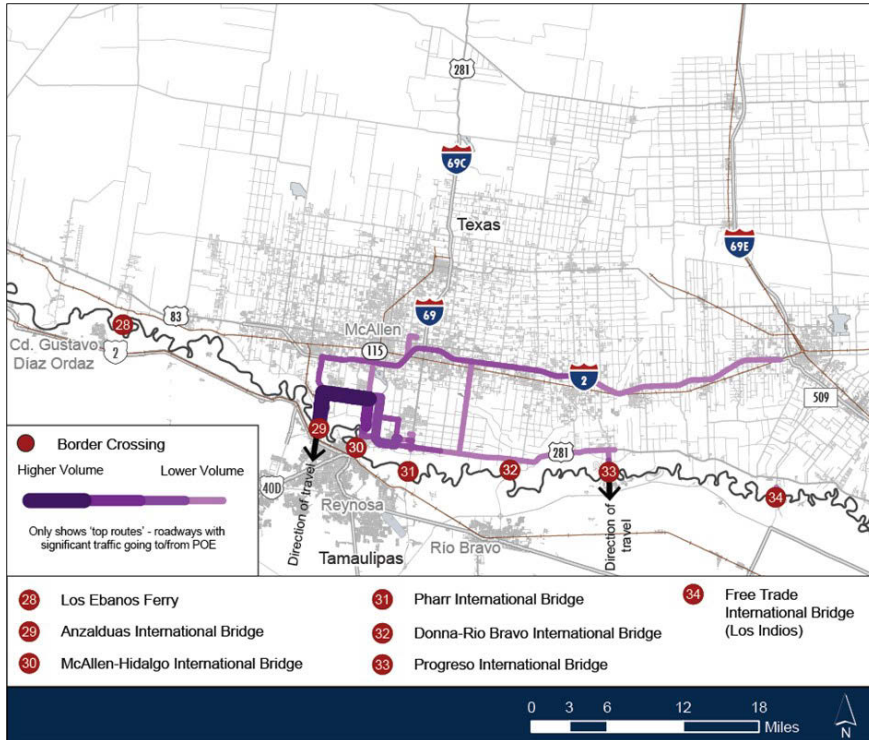
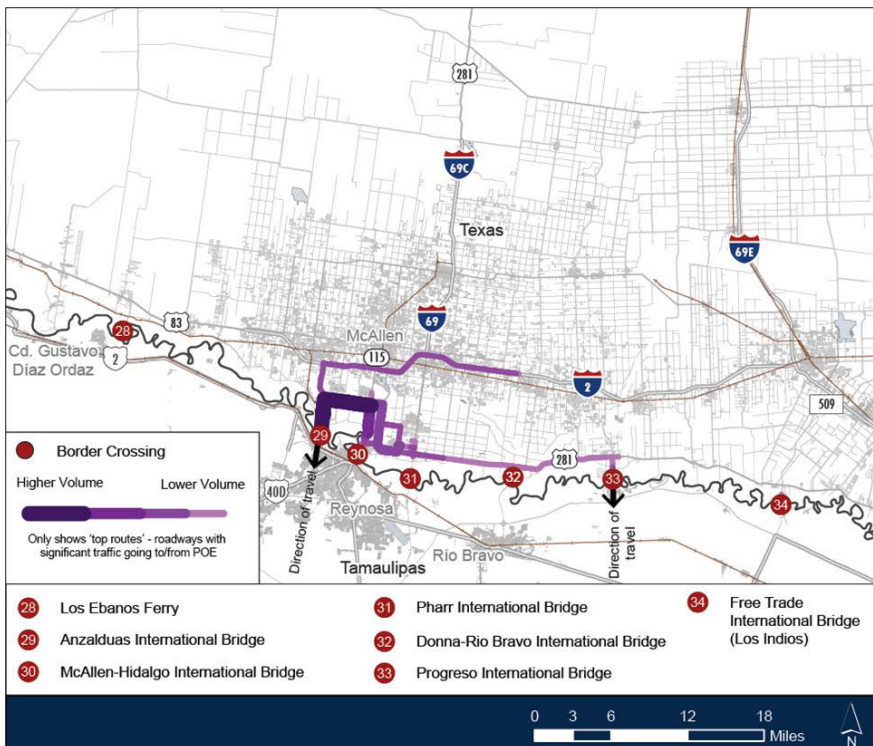


Figure 126. Southbound Top Routes to Anzalduas, Progreso and Free Trade International Bridges for Trucks –



CLOSURE PERIOD

Figure 127. Northbound Top Routes from Anzalduas, Progreso and Free Trade International Bridges for Trucks – 2022

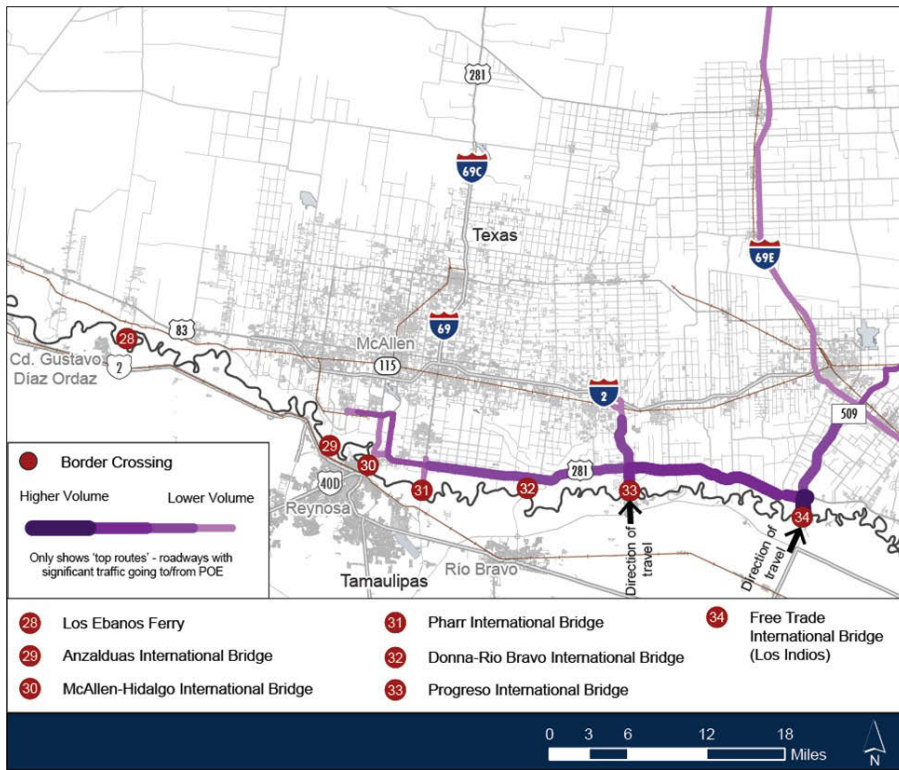
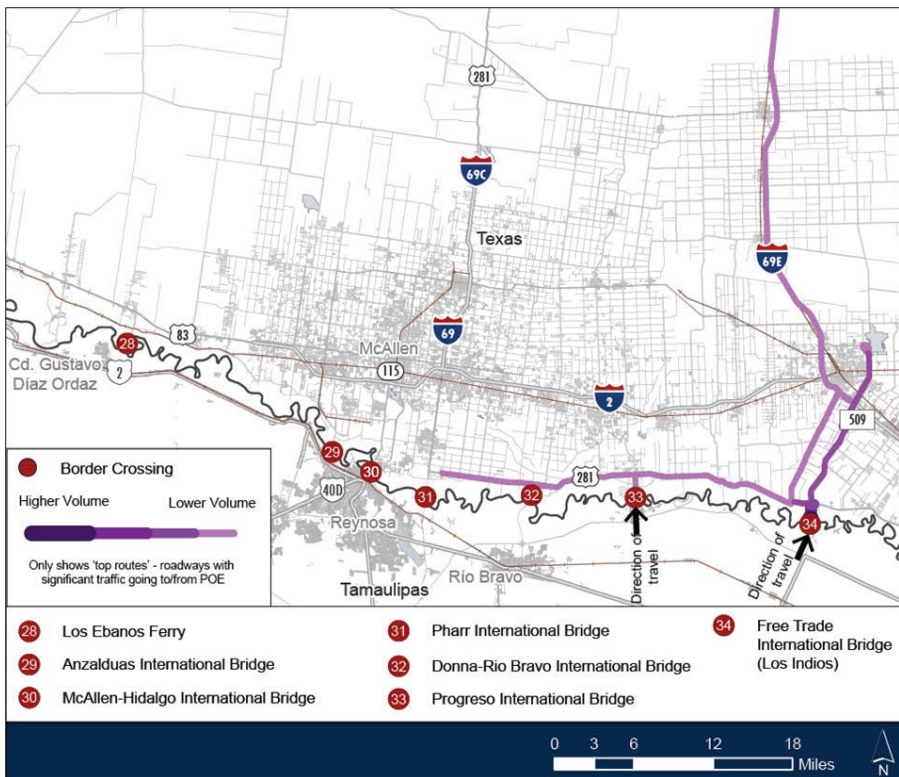


Figure 128. Northbound Top Routes from Anzalduas, Progreso and Free Trade International Bridges for Trucks –



CLOSURE PERIOD

Figure 129. Daily Crossings at Selected International Bridges in TxDOT Pharr District by Time Period

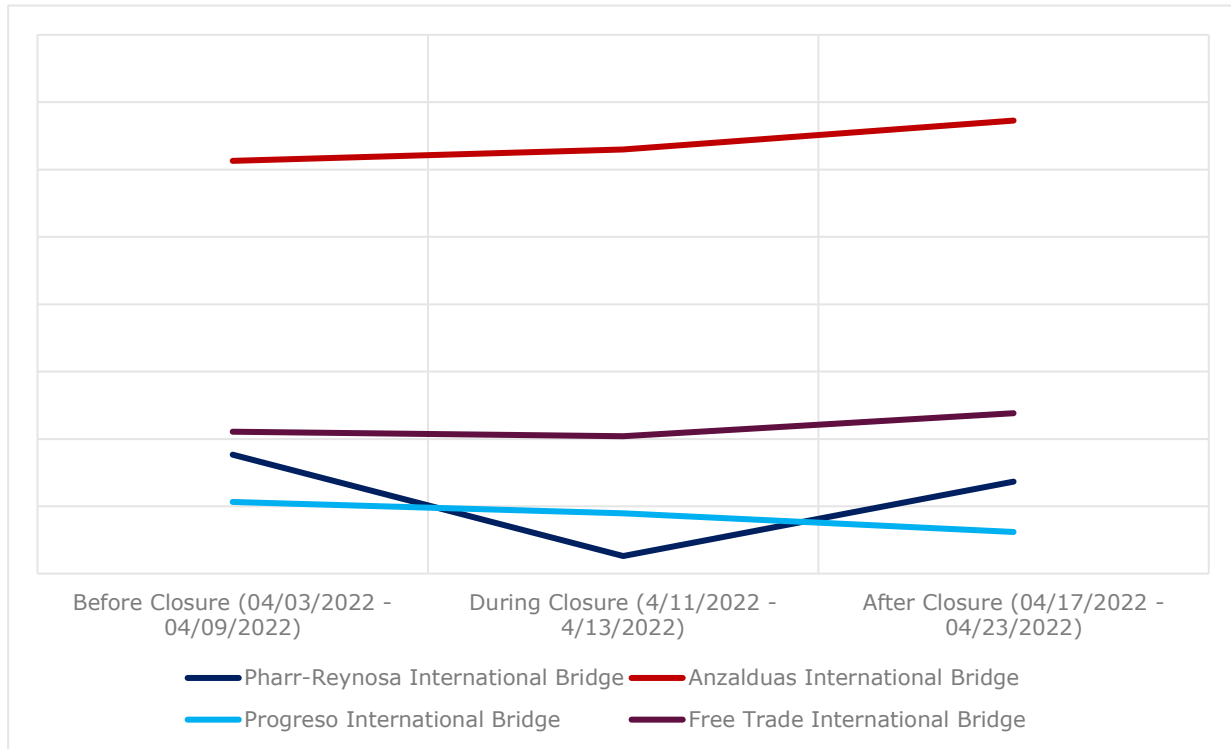


Figure 129 shows the northbound and southbound crossings at the roadway segments nearest to the bridges during the closure period, before the closure period, and after the closure period. This is calculated for all vehicles, so it includes POVs and trucks. The overall traffic volume decreased during the closure period. This figure corroborates the potential explanation that only the most important cargo would have crossed during the closure period.

Summary

The Pharr-Reynosa International Bridge closure led to an overall decrease in truck traffic in the region during the blockade. The following patterns were observed:

- Southbound truck traffic seemed to have crossed at Anzalduas International Bridge or Progreso International Bridge, depending on where it originated (McAllen/Pharr/I-2 West for Anzalduas, I-2 East and nearby areas for Progreso). Due to wait times at Anzalduas, trucks may have chosen to divert to Progreso instead. US 281 was the roadway that was used for this diversion.
- For northbound truck traffic, it is likely that only the cargo with high importance (e.g., to the Valley International Airport) crossed at the Free Trade International Bridge. For example, Spur 509 connects the Free Trade International Bridge to the airport and saw higher truck volumes.

Bridge of the Americas Closure

18 September 2023 to 10 October 2023

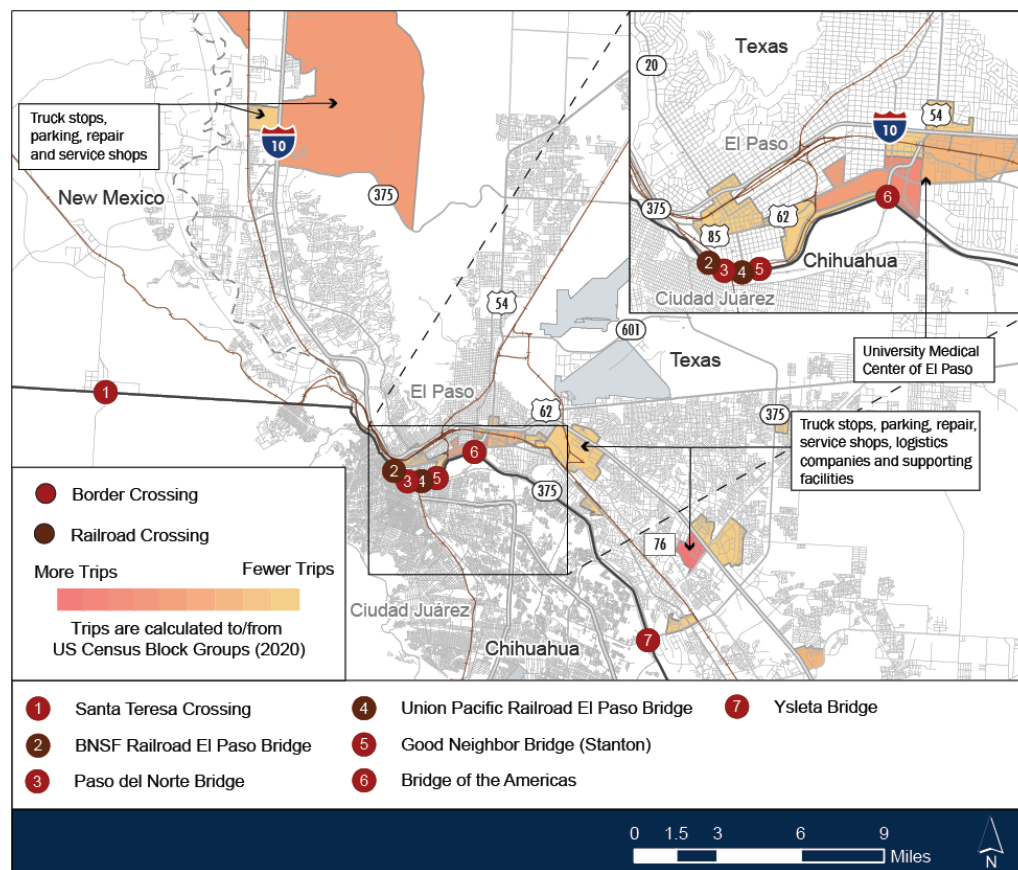
Bridge of the Americas (BOTA) is located in El Paso. The Bridge is open 24 hours, all days for POV traffic, and from Monday to Friday for cargo. The major roadways to BOTA are I-10 North, US 54, US 62, and I-10 East. The bridge was closed for cargo due to an increase in migrants. Traffic was diverted to the Ysleta-Zaragoza International Bridge, Marcelino-Serna International Bridge, and the Santa Teresa International Bridge in New Mexico.

Origin Destination Analysis

Southbound Truck Traffic

BOTA was closed for over three weeks for cargo. The origin-destination analysis shows that most origins for truck traffic going southbound via BOTA are industrial areas along I-10 East, between El Paso and Ysleta. These areas have several large manufacturing, warehousing, and logistics companies, surrounded by retail stores. **Figure 130** shows the top origins. Unlike the two previous case studies, the origins are farther from the Bridge. Truck rental, truck stops and service shops along I-10 West, near the Texas-New Mexico border are top origins for southbound trips through BOTA.

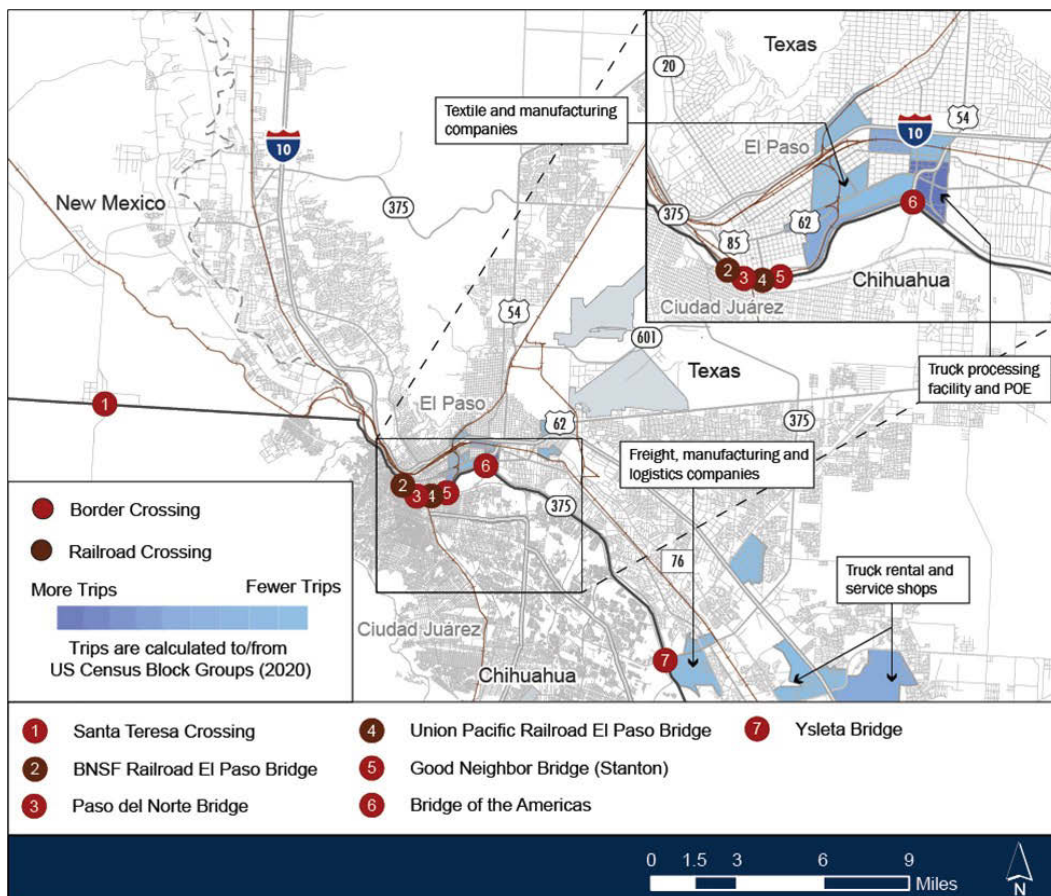
Figure 130. Top Origins (Census Blocks) for Southbound Trips through BOTA - Trucks



Northbound Truck Traffic

Figure 131 shows the top destinations for northbound truck traffic from Mexico. Most destinations are along I-10 East, with some destinations along I-10 West in New Mexico. StreetLight Data shows that a significant share of the truck traffic has a destination near the Bridge. This is due to the large truck processing facility there.

Figure 131. Top Destinations (Census Blocks) for Northbound Trips through BOTA - Trucks

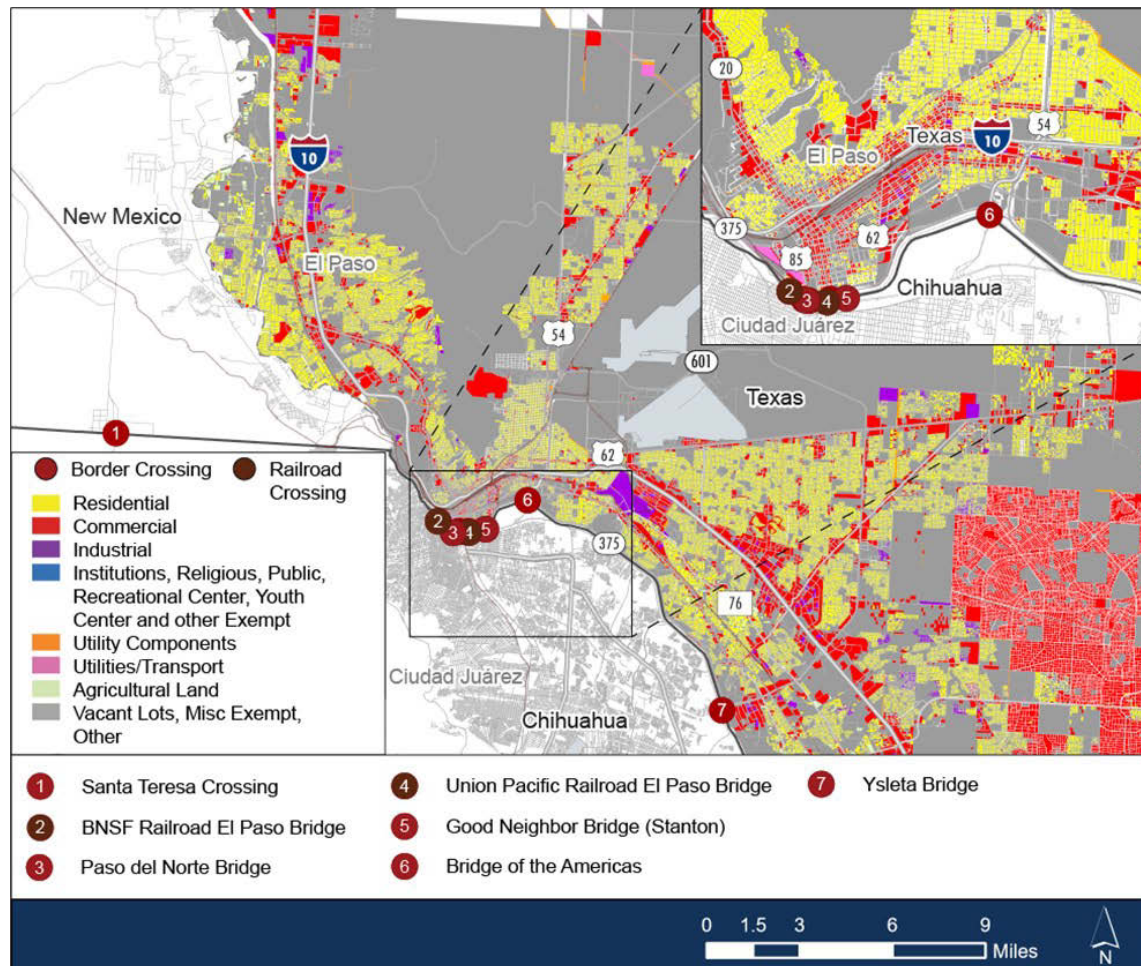


Top Routes Analysis with Land Use

BOTA and Ysleta-Zaragoza International Bridge are the crossings in El Paso which process truck traffic. The Santa Teresa International Bridge in New Mexico also processes southbound and northbound truck traffic. There are several freight generators in El Paso; largely along I-10 East and West (see **Figure 132**). The El Paso International Airport, located along US 62, carries air cargo and is the fourth largest airport in Texas by cargo tonnage. This area has dense clusters of freight generators, with the top five commodities being non-metallic minerals, food products, waste or scrap products, and

drayage¹⁰. The major highways with truck traffic can be seen in the image below, along with the clusters of commercial and industrial parcels.

Figure 132. El Paso Land Use Map with Texas Freight Network



Typical Top Routes 2022 – Bridge of the Americas

The Ysleta-Zaragoza International Bridge has the highest truck volumes in this region, followed by BOTA. **Figure 133** shows the top routes for southbound truck traffic using BOTA. I-10 East brings a high share of the traffic, which is largely being generated by industrial/commercial parcels along it. I-10 West, from New Mexico, brings significant traffic as well. Another highway with truck traffic is the TX-375 Loop. Northbound truck traffic is shown in **Figure 134**. US 54, I-10 East, and West are top routes for northbound truck traffic, with destinations at commercial/industrial areas in Ysleta, or travelling farther.

¹⁰ Pg 3, El Paso District Profile, Texas Freight Mobility Plan 2018

Traffic Diversion during Bridge of the Americas Closure

The bridge was closed for cargo from 9 September 2023 to 10 October 2023, due to an increase in the number of migrants. Truck traffic was asked to divert to the Santa Teresa, Ysleta-Zaragoza or the Marcelino Serna International Bridges. The StreetLight Data analysis did not show many trucks diverting to the Marcelino Serna International Bridge. Truck traffic was diverted to the Ysleta-Zaragoza and Santa Teresa International Bridges. However, there is a difference in the preference of routes for southbound and northbound traffic during the BOTA closure. **Figure 135** and **Figure 136** show the southbound traffic patterns during a typical day in 2023 and during the BOTA closure for the Santa Teresa and Ysleta-Zaragoza International Bridges, respectively. The comparison shows that during the closure period, southbound truck traffic to the Ysleta-Zaragoza International Bridge was significantly higher than to the Santa Teresa International Bridge, pointing towards the preference for using the Ysleta-Zaragoza International Bridge for southbound trips. Since a higher percentage of the trips originated along I-10 East, it may mean that it was closer to drive to the Ysleta-Zaragoza International Bridge to enter Mexico during the closure. However, for northbound truck traffic, the pattern was the opposite during the closure. **Figure 137** and **Figure 138** show the northbound truck traffic during a typical day in 2023 and during the closure, respectively. Northbound trips crossing at the Santa Teresa International Bridge were higher than at the Ysleta-Zaragoza International Bridge prior to the closure, but the share of northbound trips crossing at the Santa Teresa International Bridge increased further during the closure. This may be due to longer wait times to cross at the Ysleta-Zaragoza International Bridge. The convenience of the trip—safety, wait times and distance—is a factor in the diversions observed in all three bridge closure case studies.

Summary

BOTA was closed for over three weeks. Traffic was diverted to the Santa Teresa International Bridge, west of BOTA, and the Ysleta-Zaragoza International Bridge, east of BOTA. The following patterns were observed:

- Southbound truck traffic largely used the Ysleta-Zaragoza International Bridge to cross into Mexico. This could be due to the proximity of the truck trips' origins along I-10 East.
- Northbound truck traffic largely used the Santa Teresa International Bridge to cross. This could be due to the higher processing and wait times at the Ysleta-Zaragoza International Bridge or due to safer/less congested northbound routes to Santa Teresa, and subsequently to I-10 from NM-178.

Figure 133. Southbound Top Routes to BOTA for Trucks – 2023

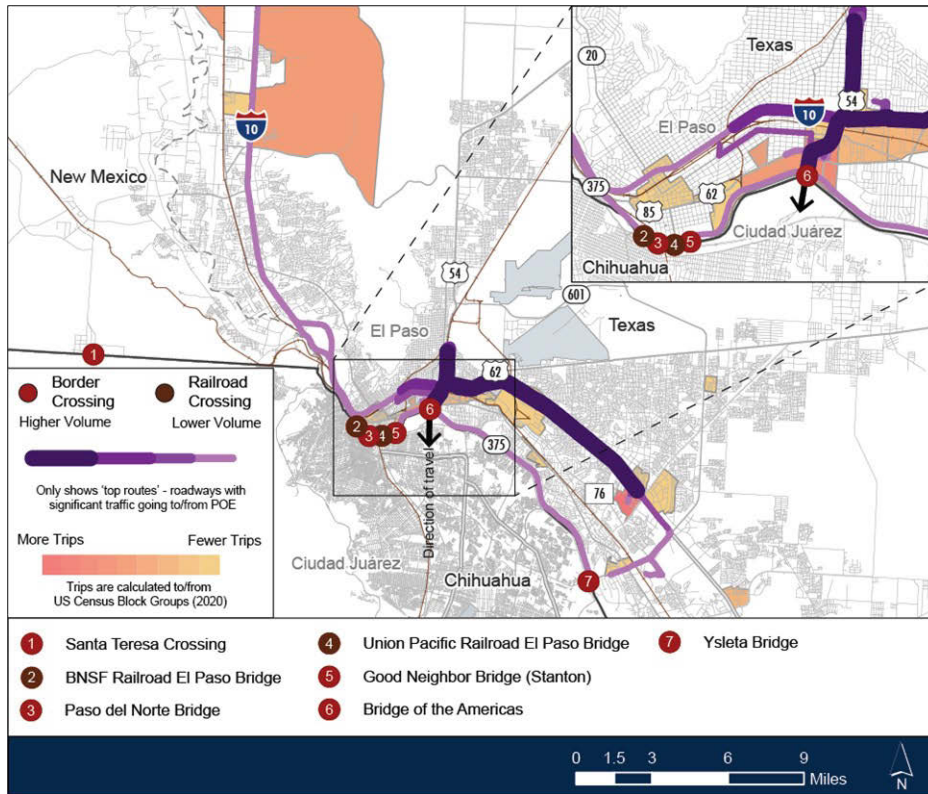


Figure 134. Northbound Top Routes from BOTA for Trucks – 2023

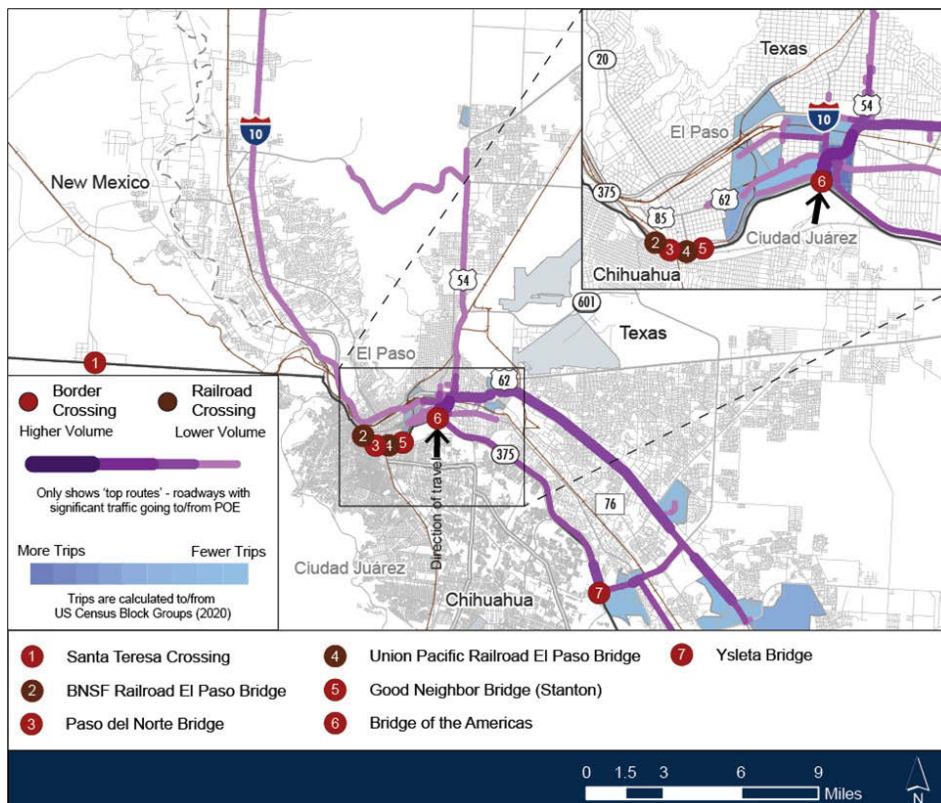


Figure 135: BOTA Southbound Truck Traffic – 2023

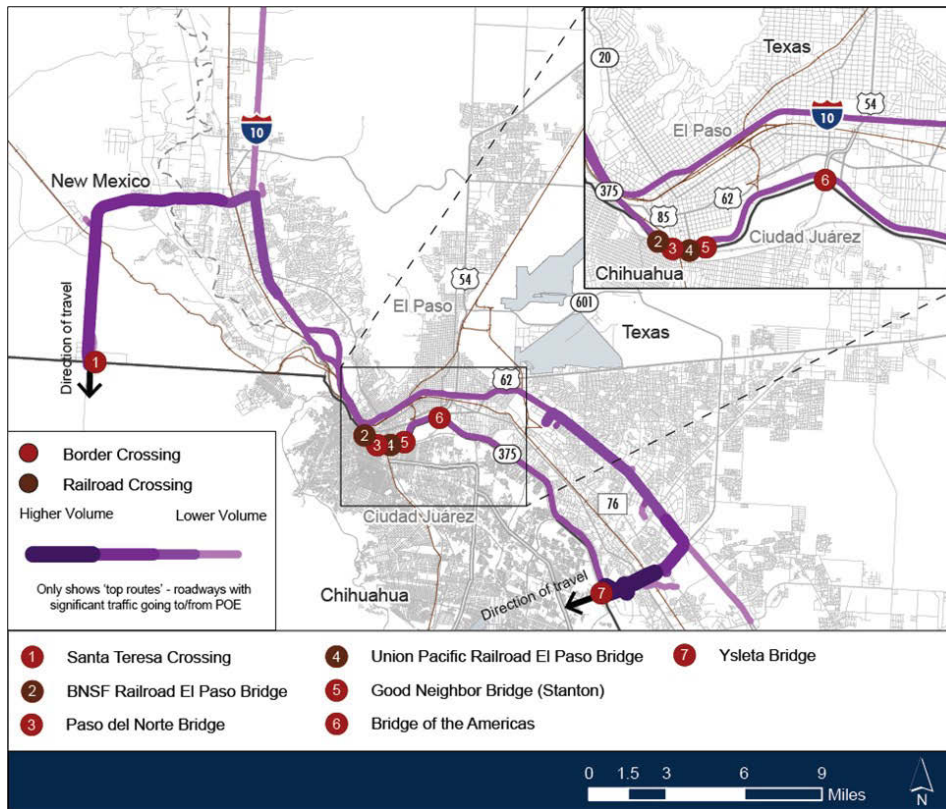


Figure 136: BOTA Southbound Truck Traffic CLOSURE PERIOD – 2023

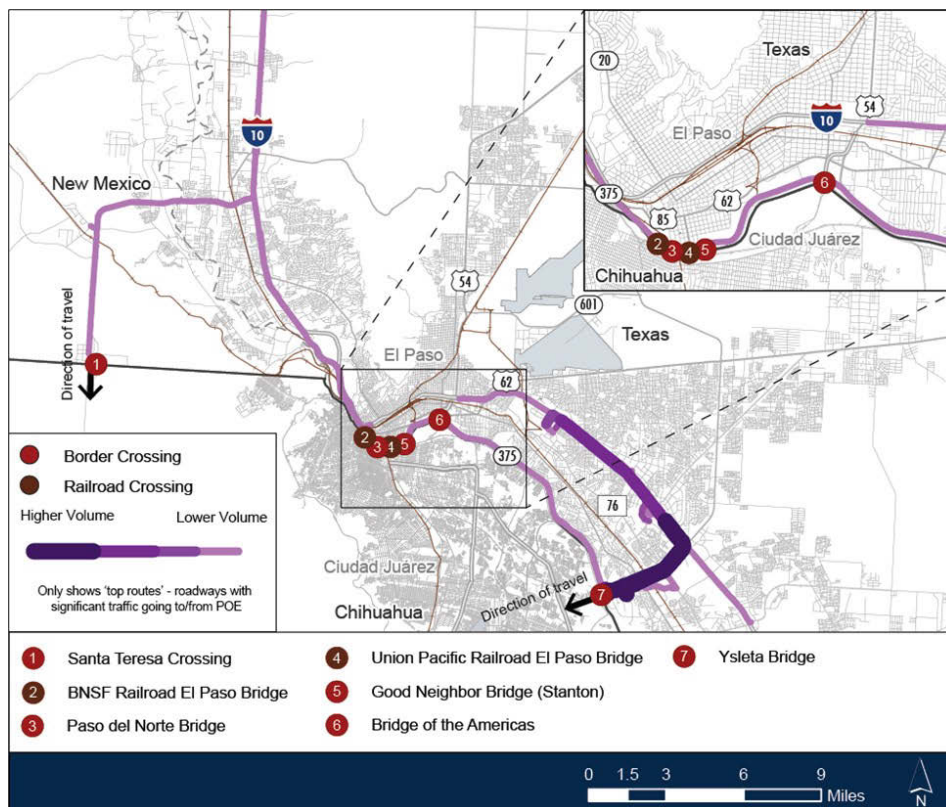


Figure 137: BOTA Northbound Truck Traffic– 2023

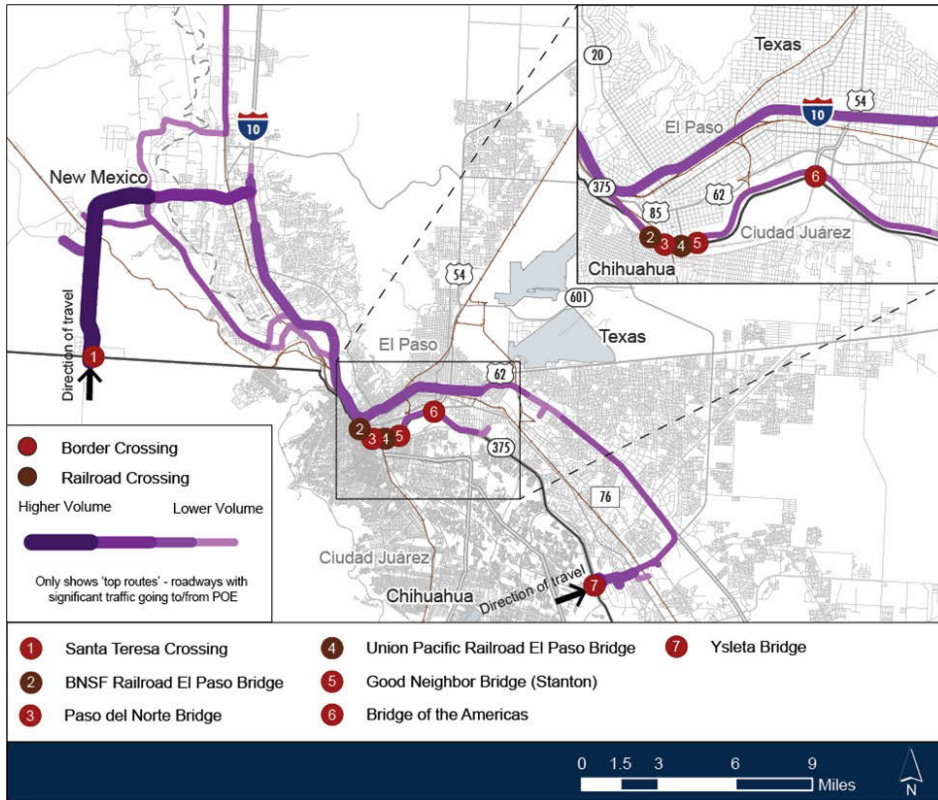
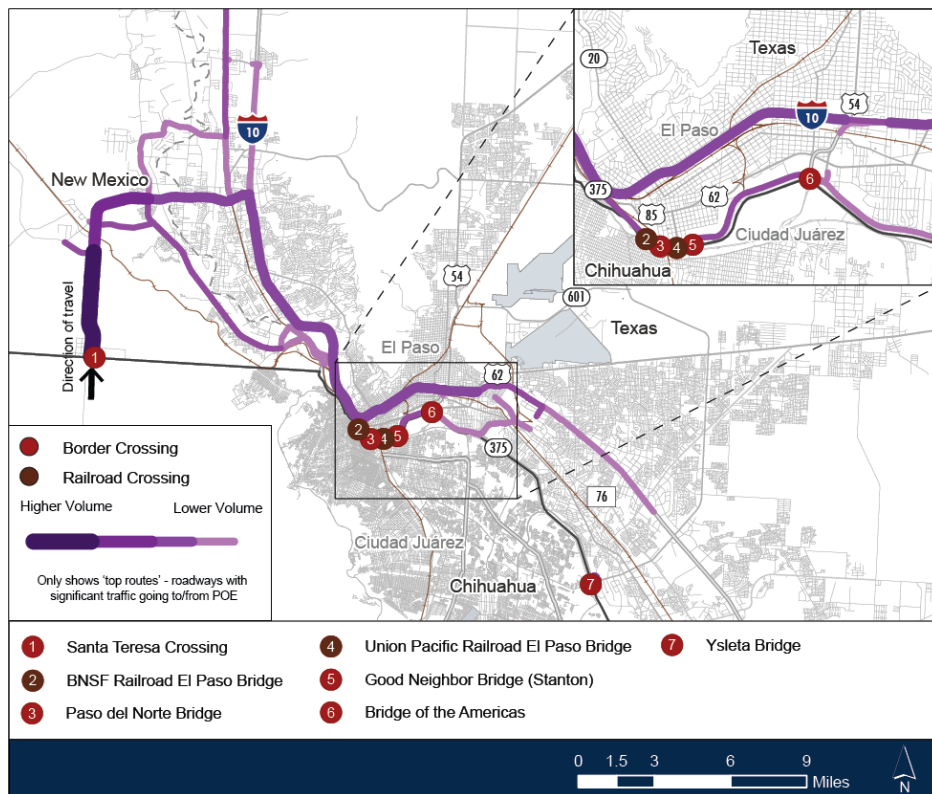


Figure 138: BOTA Northbound Truck Traffic CLOSURE PERIOD – 2023



Texas-Mexico Border Region Connectivity Plan

Crossing-to-Maritime Port Connectivity

Introduction

The 2021 Texas-Mexico Border Transportation Master Plan (BTMP) recommended that regional connectivity studies be conducted to “assess connectivity issues and challenges between existing border crossings” and “from border crossings to Texas and Mexico seaports.”

To facilitate the advancement of the BTMP, the TxDOT initiated a study to identify:

- potential needs (e.g., bottlenecks, network gaps, safety, congestion, land use incompatibility, etc.) on the corridors from the border crossings to Texas and Mexico seaports, and
- potential/proposed improvements or mitigation measures to address the identified connectivity challenges.

The first step in the analysis was to identify the major corridors that connect the border crossings to Texas’ and Mexico’s major seaport. The next step was to identify the commodities and volumes that move between Texas and Mexico’s seaports on these corridors and the international border crossings. The analysis revealed a lack of data. Information and insight were thus gained through a review of the literature, stakeholder interviews, and the insight obtained during stakeholder workshops. A tool was developed to allow stakeholders to identify the needs and proposed improvements by clicking and adding information on a GIS map. This chapter of the report summarizes the findings of the analysis.

Maritime Ports in Texas

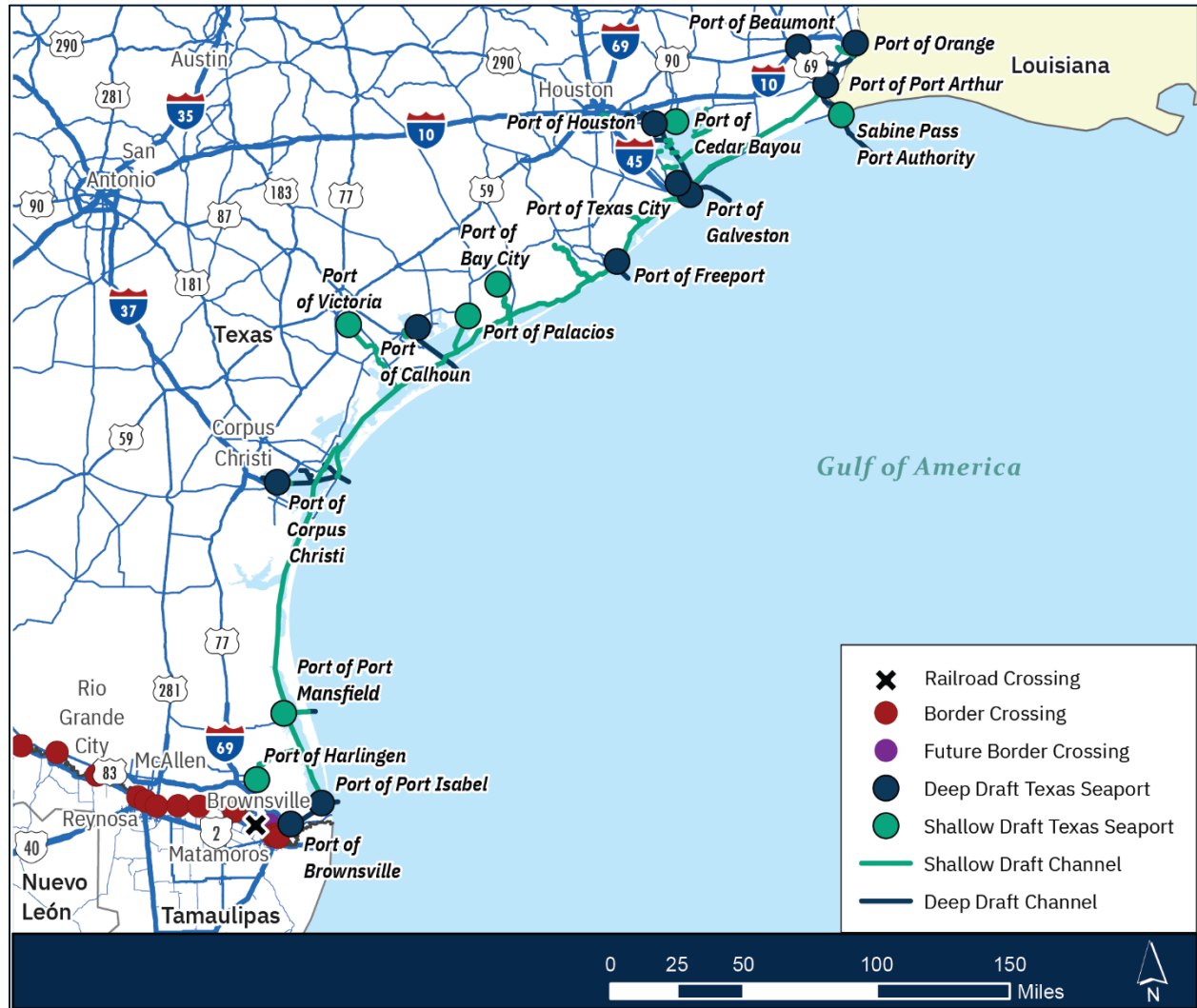
Texas maritime ports are critical in contributing to the facilitation of trade and consequently to Texas and U.S. economies. In 2023, Texas ports and marine terminals handled 746.4 million tons of cargo. The total economic value of public port and maritime cargo activity was \$713.9 billion, representing 28% of the state’s \$2.6 trillion Gross Domestic Product. Of this, \$611.7 billion was attributed to cargo moving through Texas, including the value added during export manufacturing and from enterprises using imported raw materials and intermediate goods within the state. From 2018 to 2023, combined tonnage at public and private terminals grew by 130.3 million tons, driven mainly by a 115.0-million-ton increase in petroleum and petroleum products. Other liquid bulk cargo—mostly chemical products—rose by nearly 15 million tons, while containerized cargo and miscellaneous break bulk grew by 5.6 million and 1.2 million tons, respectively. This growth supported an additional 728,741 jobs related to marine cargo activity since 2018.¹¹

The Texas maritime system includes 11 deep draft ports, 9 shallow draft ports, and the 379-mile-long Texas segment of the Gulf Intracoastal Waterway (GIWW). Ports are a vital part of the national freight network, helping farmers move their products to markets overseas and bringing raw materials to Texas manufacturers and clothes, electronics, and other consumer goods to Texans. All of the Texas ports are interconnected by the GIWW, a shallow draft channel that links intrastate barge traffic with

¹¹ The Economic Impacts of the Texas Ports on the State of Texas (2023). Available at: <https://portofbrownsville.com/wp-content/uploads/2025/01/Texas-Ports-Association-Economic-Impact-Study.pdf>

ocean-going vessels and handles both domestic and foreign trade. **Figure 139** shows the 11 deep draft and nine shallow draft Texas ports, Table 6 shows the major commodities handled by each of Texas' major deep draft ports.

Figure 139. Maritime Ports in Texas



Notes: Deep draft channels allow for the movement of large vessels supporting trade, while shallow draft channels support smaller vessels and barge activity.¹²

¹² [mission-plan-2024-2025.pdf \(txdot.gov\)](https://www.txdot.gov/mission-plan-2024-2025.pdf)

Table 6. Major Commodities Handled by Major Deep Draft Ports in Texas

Port	Crude Oil	Petroleum Products	Chemical	LNG	Agricultural Products	Containerized Cargo	Military Cargo	Steel	Vehicles	Forest Product
Houston	✓	✓	✓			✓				
Corpus Christi	✓	✓	✓	✓	✓					
Beaumont	✓	✓	✓				✓			✓
Port Arthur	✓	✓	✓				✓			
Texas City	✓	✓	✓							
Freeport		✓	✓		✓	✓				
Galveston		✓			✓	✓			✓	
Brownsville		✓			✓	✓		✓		

Texas Deep Port Characteristics

Texas ports are diverse and facilitate all economic sectors: from energy and petrochemicals to agriculture, retail, and tourism. Seven Texas ports rank in the 2020 Principal Ports in the U.S. in terms of “Tonnage of Top 50 U.S. Water Ports, Ranked by Total Tons”, according to the U.S. Army Corps of Engineers (USACE), namely Houston (1st), Corpus Christi (3rd), Beaumont (8th), Port Arthur (15th), Freeport (16th), Texas City (20th), and Galveston (46th). This section provides additional information on the major deep draft ports.¹³

¹³ 2020 Principal Ports, U.S. Army Corps of Engineers (USACE)

Port of Houston

Port of Houston owns, manages, and operates the public wharves and terminals along the Houston Ship Channel (HSC), including the nation’s largest breakbulk facility and 5th largest container operations. The HSC complex and its more than 200 public and private terminals is the nation’s largest port for waterborne tonnage. In 2023, Port Houston processed \$11.7 billion in exports to Mexico and processed \$8.5 billion in imports from Mexico.¹⁴

Port Connectivity

- ROAD:** Highway access to I-10, I-45, I-69, I-610, SH 146, SH 99, SH 225, SH 8, SH 35, SH 36, and SH 288
- RAIL:** Port Terminal Railroad Association switching railroad with connections to BNSF, CPKC, and UP
- BARGE:** 24-mile sailing distance to GIWW (M-10, M-69)
- AIR:** 7 miles to Houston William P. Hobby International Airport (HOU) airport; 25 miles to George Bush Intercontinental Airport (IAH) airport
- PIPELINE:** Connections leading to Beaumont/Port Arthur, Texas City, Freeport, and Morgan’s Point

Port of Corpus Christi

The Port of Corpus Christi is a major gateway to international and domestic maritime commerce through its deepwater access to the Gulf of America. The Port of Corpus Christi is also a strategic military port that provides waterborne resources to handle U.S. military cargo. In 2023, the Port of Corpus Christi processed \$1.1 billion in imports from Mexico.¹⁵

Port Connectivity

- ROAD:** Highway connections to US 181/SH 35, I-37, SH 361, and I-69; Access to Joe Fulton International Trade Corridor (JFC) from the inner harbor
- RAIL:** Port-owned Corpus Christi Rail Terminal switching railroad with connections to BNSF, CPKC, and UP
- BARGE:** 13-mile sailing distance to GIWW (M-10, M-69)
- AIR:** Commercial service to Corpus Christi Airport
- PIPELINE:** Connections available

¹⁴ U.S. Census Bureau (USA Trade Online). Available at: [USA Trade Online * Home](#)

¹⁵ U.S. Census Bureau (USA Trade Online). Available at: [USA Trade Online * Home](#)

Port of Beaumont

Situated on the Neches River 42 miles inland from the Gulf of America, the Port of Beaumont has been providing deep draft channel access to the Southeast Texas region for over 100 years. The port serves as the largest strategic military port in the U.S. In 2023, Port of Beaumont processed \$2.9 billion in exports to Mexico and processed \$3.0 billion in imports from Mexico.¹⁶ The Port of Beaumont, however, stated that none of the trade was moved by truck or rail across the Texas-Mexico border.

Port Connectivity

ROAD: Highway access to US 69/96, US 10, US 287, US 90, SH 82, SH 87, SH 73, and SH 105

RAIL: BNSF, CPKC, and UP

BARGE: Direct access to GIWW (M-10, M-69)

AIR: 11 miles to Jack Brooks Regional Airport (BPT)

PIPELINE: Direct connections available

Port of Port Arthur

The Port of Port Arthur serves as a multimodal transportation nexus connecting water, rail, truck and pipelines to meet the needs of domestic and international cargo. In 2023, the Port of Beaumont processed \$3.9 billion in exports to Mexico and processed \$2.2 billion in imports from Mexico.¹⁷ The Port of Port Arthur stated that shipments of eucalyptus pulp for paper and aluminum processed at the port cross the border into Mexico by rail at Laredo and Eagle Pass.

Port Connectivity

ROAD: Highway access to US 69/59, SH 82, SH 87, and SH 73

RAIL: CPKC rail connected to UP

BARGE: Direct access to GIWW (M-10, M-69)

AIR: 11 miles to BPT

PIPELINE: Direct connections available

¹⁶ U.S. Census Bureau (USA Trade Online). Available at: [USA Trade Online * Home](#)

¹⁷ U.S. Census Bureau (USA Trade Online). Available at: [USA Trade Online * Home](#)

Port of Freeport

Port Freeport is a deep-water port that processes project cargo and breakbulk, containers, heavy lift, and roll-on/off operations. The Port of Freeport ranks 6th in chemicals and 26th in containers in the U.S. and transports over 37 million tons of cargo annually. In 2023, the Port of Freeport processed \$1.5 billion in imports from Mexico.¹⁸

Port Connectivity

ROAD: Highway connections to SH 36, SH 288, SH 6, and SH 35; Ongoing SH 36 expansion from Port Freeport to Fort Bend County Line

RAIL: Connections to UP

BARGE: 30-minute sailing time to GIWW (M-10, M-69)

AIR: Commercial service to HOU and IAH

PIPELINE: Connections available

Port of Texas City

The Port of Texas City is a private, deep-water port in Galveston Bay that primarily services the petrochemical industry. As part of its mission to support maritime and rail trade for the energy industry, the Port of Texas City is called upon by tankers handling both crude and refined petroleum products, and vessels carrying other petrochemicals and dry bulk materials. In 2023, the Port of Texas City processed \$1.9 billion in exports to Mexico and processed \$595 million in imports from Mexico.¹⁹

Port Connectivity

ROAD: Highway connections to I-45, SH 3, SH 146, SH 6, and SH 197

RAIL: Texas City Terminal Railway switching railroad with connections to BNSF and UP

BARGE: 6-mile sailing distance to GIWW (M-10, M-69)

AIR: Commercial service to IAH and HOU airports

PIPELINE: Connections available

¹⁸ U.S. Census Bureau (USA Trade Online). Available at: [USA Trade Online * Home](#)

¹⁹ U.S. Census Bureau (USA Trade Online). Available at: [USA Trade Online * Home](#)

Port of Brownsville

The Port of Brownsville is the only deep-water seaport directly on the U.S.-Mexico border, servicing a wide range of industries across North America. It is the largest land-owning public port authority in the country with more than 40,000 acres. The port transships more steel to Mexico than any other U.S. port and is a major gateway for shipping refined petroleum products, green energy components, and aggregates, among other commodities.

Port Connectivity

ROAD: Highway connections to I-69 E, I-69C, I-2, SH 550, SH 48, and SH 4. The port's heavy-weight corridor connects to Veterans International Bridge at Los Tomates.

RAIL: Brownsville & Rio Grande International Railway offers on-port rail services and connection to Class 1 rail providers BNSF, CPKC, and UP

BARGE: Direct access to GIWW (M-10, M-69)

AIR: Air freight service at Brownsville/South Padre Island International Airport

PIPELINE: Access to U.S. and Mexico terminals

Port of Galveston

The Port of Galveston is a deepwater port that serves cruise and cargo industries, as well as commercial tenants. The Port of Galveston does not rely on any local tax dollars for its operations and capital improvements.

Port Connectivity

ROAD: Highway connections to SH 275, US 74, and I-45

RAIL: Connections to BNSF and UP

BARGE: Direct access to GIWW (M-10, M-69)

AIR: Commercial air service to HOU and IAH airports

PIPELINE: Connections available

Maritime Ports in Mexico

Maritime ports in Mexico serve as more than mere gateways for goods; they are crucial to Mexico's economy and its seamless integration into the global marketplace. Strategically positioned as conduits between the Atlantic and Pacific Oceans, Maritime ports in Mexico enable international trade, linking Mexico with the world's leading markets. Mexico's ports process a range of products, including manufactured products, agricultural commodities, and minerals for export, as well as raw materials, consumer goods, and advanced technology for import.

Figure 140 shows the Pacific and Gulf Coast ports in Mexico and Table 2 shows the major commodities handled by major maritime ports in Mexico.

Figure 140. Maritime Ports in Mexico

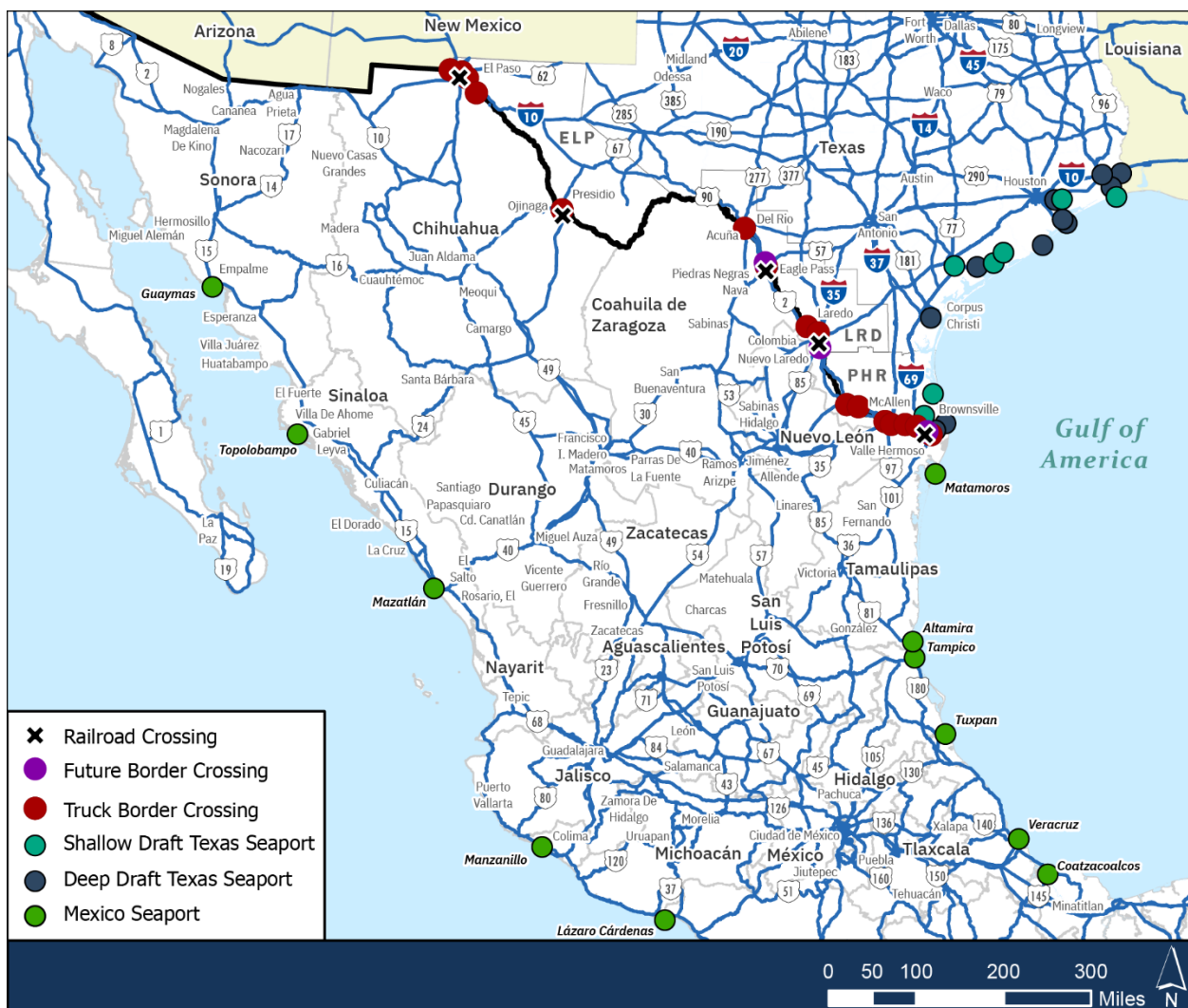


Table 2. Major Commodities Handled by Major Ports in Mexico

Port	Crude Oil	Petroleum Products	Chemical	LNG	Agricultural Products	Containerized Cargo	General Cargo	Steel	Vehicles/ Auto Parts	Forest Product
Port of Manzanillo		✓			✓	✓	✓		✓	
Port Lázaro Cárdenas						✓	✓		✓	
Port of Mazatlán					✓			✓	✓	
Port of Veracruz						✓	✓		✓	
Port of Altamira		✓	✓	✓	✓	✓		✓	✓	
Port of Guaymas			✓		✓					
Port of Tampico	✓	✓			✓		✓			
Port of Coatzacoalcos		✓			✓					✓

Port of Manzanillo

The Port of Manzanillo is one of the key ports in Mexico, strategically located on the Pacific coast. It is one of the busiest and most important ports in the country, serving as a critical gateway for international trade, particularly with Asia. The Port of Manzanillo processes cargo to and from the U.S., Canada, Guatemala, Colombia, Ecuador, Chile, Japan, China, Taiwan, Korea, Indonesia, Malaysia, Singapore, and the Philippines.

Port Connectivity

Road: Well-connected to the federal highway network facilitating efficient inland transport.

Rail: On-dock rail facilities link the port to national and international rail networks.

Air: Close to the Manzanillo (Playa de Oro) International Airport for air freight services.

Port of Lázaro Cárdenas

The Port of Lázaro Cárdenas is another important deep-water port on the Pacific Coast of Mexico. Located in the state of Michoacán, it serves as a critical gateway for international trade between Asia and the Americas.

Port Connectivity

Road: Well-connected to major highways, facilitating efficient inland transportation of goods. Safety concerns are significant for this port regarding land freight.

Rail: Direct rail links to major industrial regions in Mexico and connections to the U.S. border.

Port of Mazatlán

The Port of Mazatlán is a multi-purpose port on the Pacific Coast that specializes in commercial, tourist, and fishing and oil. The port is critical to the economy of northern Mexico (i.e., regional influence), servicing agriculture, fisheries, automobiles, and industrial goods.

Port Connectivity

Road: MEX-15, MEX-15D Mexico–Nogales, MEX-40, MEX-40D

Rail: The Pacific Railroad that interfaces with the Chihuahua Railway has daily service to Nogales, Mexicali and Guadalajara.

Air: Mazatlán Airport

Port of Veracruz

The Port of Veracruz is one of Mexico's most important and oldest ports, playing a crucial role in the country's maritime sector. Situated on the Gulf of America, this port serves as a vital gateway for both imports and exports, handling a wide range of cargo types including automotive, bulk, containerized, and general cargo.

Port Connectivity

Road: Direct access to key highways connecting to Mexico City and other major destinations.

Rail: The port is well-connected to the rail network, facilitating seamless inland transport.

Air: Closely located to General Heriberto Jara International Airport for expedited air freight and passenger movement.

Port of Altamira

The Port of Altamira is one of the largest and most significant seaports in Mexico, serving as a crucial hub for international trade. The port is part of the industrial and petrochemical corridor in the region, significantly contributing to Mexico's economy.

Port Connectivity

Road: The port is linked to the north and center of the country, to many major industrial cities such as Monterrey, Saltillo, Reynosa, Matamoros, San Luis Potosí, Guadalajara, León, Querétaro, and Mexico City.

Port of Guaymas

The Port of Guaymas is located on the northwest coast of Mexico in the state of Sonora. It is a natural deep-water port and is important to the region.

Port Connectivity

Road: Close to major highway networks enhancing road transport linkages.

Rail: Integrated rail systems that connect with the national railway network.

Port of Tampico

The Port of Tampico is an important deep-water port located on the eastern coast of Mexico in the state of Tamaulipas. It handles a diverse range of goods, from oil and petrochemical products to agricultural commodities, machinery, and consumer goods.

Port Connectivity

Road and Rail: The port is well-connected to the national road and rail network, facilitating seamless inland transport.

Port of Coatzacoalcos

The Port of Coatzacoalcos is a significant port located on the southeastern coast of Mexico in the state of Veracruz. It handles petroleum, forest, and agricultural products.

Port Connectivity

Road and Rail: Excellent connections to national road and rail networks, facilitating efficient inland transportation of goods.

Port-to-Border Crossing Corridors

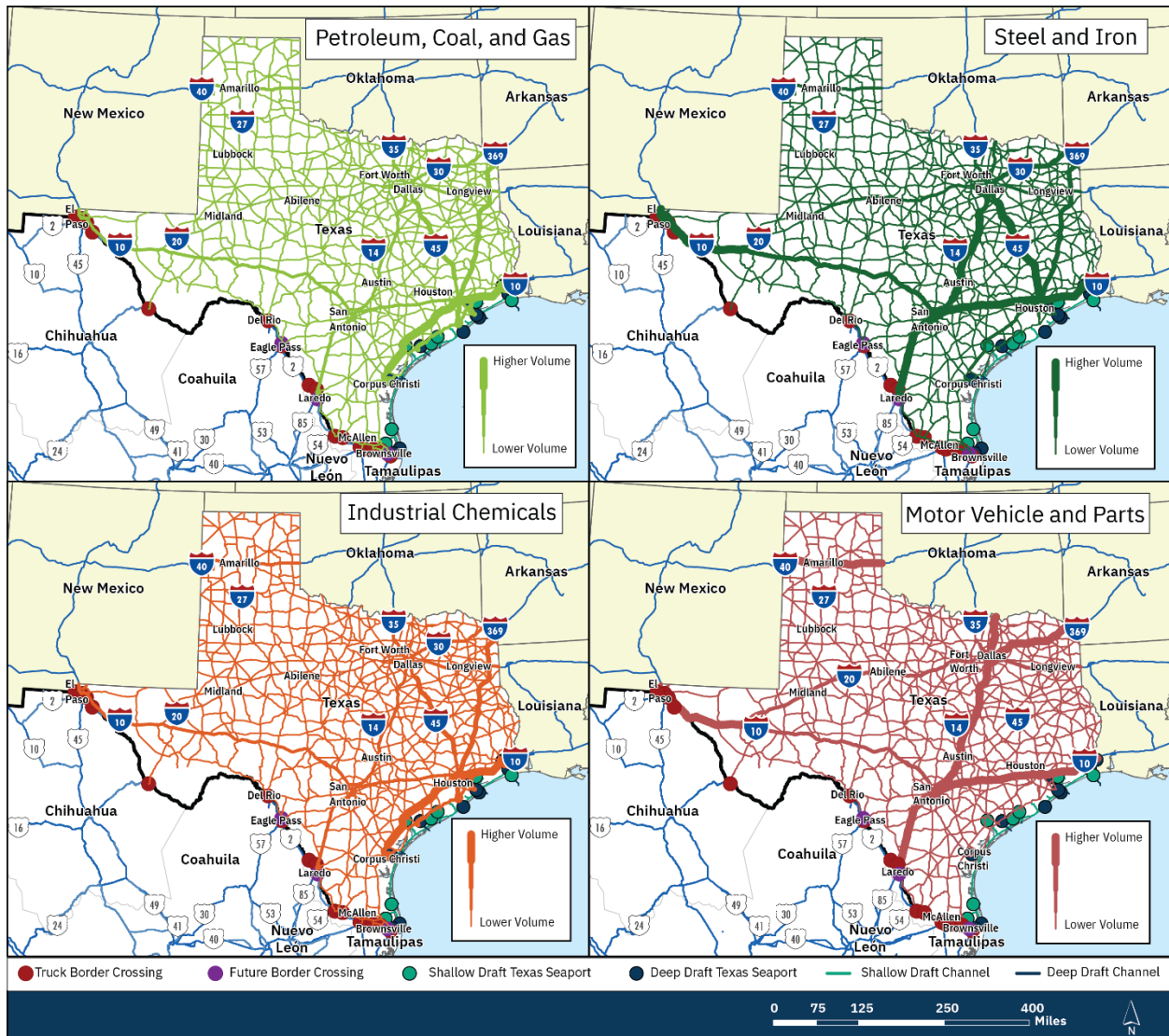
The next step in the analysis was to identify the commodity flows and the transportation corridors used to move cargo processed at major maritime ports in Texas and Mexico and that cross at the international bridges along the Texas-Mexico border into Mexico and Texas, respectively.

TxDOT used Transearch data from S&P Global and leveraged R and ArcGIS to conduct a spatial analysis and visualization of the data. Transearch combines primary shipment data obtained from many of the nation's largest rail and truck freight carriers with information from public, commercial, and proprietary sources to generate a base-year estimate of freight flows at the county level. The flow data are presented for more than 500 individual commodities and seven modes of transportation, including truck, rail, rail/highway intermodal, air, and water. Volume is the primary measurement of commodity flows and is presented in terms of annual short tons.

Since Transearch data captures the movement of all import and export traffic moving through seaports, the study could identify the U.S.-Mexico waterborne commodity movements across the Gulf of America and along the Pacific Coast aggregated at the Mexican state level.

Transearch data also captures commodity movements by mode. Using a network developed by the Oak Ridge National Laboratory, commodity flows could be assigned to highway links (see **Figure 141**). The flows displayed, however, do not represent volumes moved by truck between Texas' maritime ports and the international crossings along the Texas-Mexico border. The objective of the analysis was to identify the transportation infrastructure used, commodity distribution patterns, and commodity flows between Texas and Mexico that involved both a maritime port and a border crossing. However, this could not be achieved using the Transearch data analysis. Various stakeholders were engaged but was informed that no official database exists in the U.S. or Mexico that records commodity movements beyond the initial POE. Concern was expressed that since trade movements cannot be tracked from the initial POE through other ports and crossings, the accurate assessment of trade volumes and their use of the transportation infrastructure is severely hampered.

Figure 141. Transearch Commodity Truck Movements on Texas Highways



Port-to-Maritime Port Challenges and Recommendations

This section provides the challenges and recommendations gathered during the stakeholder interviews, workshops, and the post-workshop interviews regarding port-to-maritime port connectivity. The [Connectivity WebApp](#) provides a visual of the stakeholder identified challenges and the TxDOT projects currently being implemented by region to address the categorized challenges.

The West Region

The West Region of the Border Region Connectivity Plan encompasses two border crossing areas: El Paso and Presidio.

El Paso Border Crossings

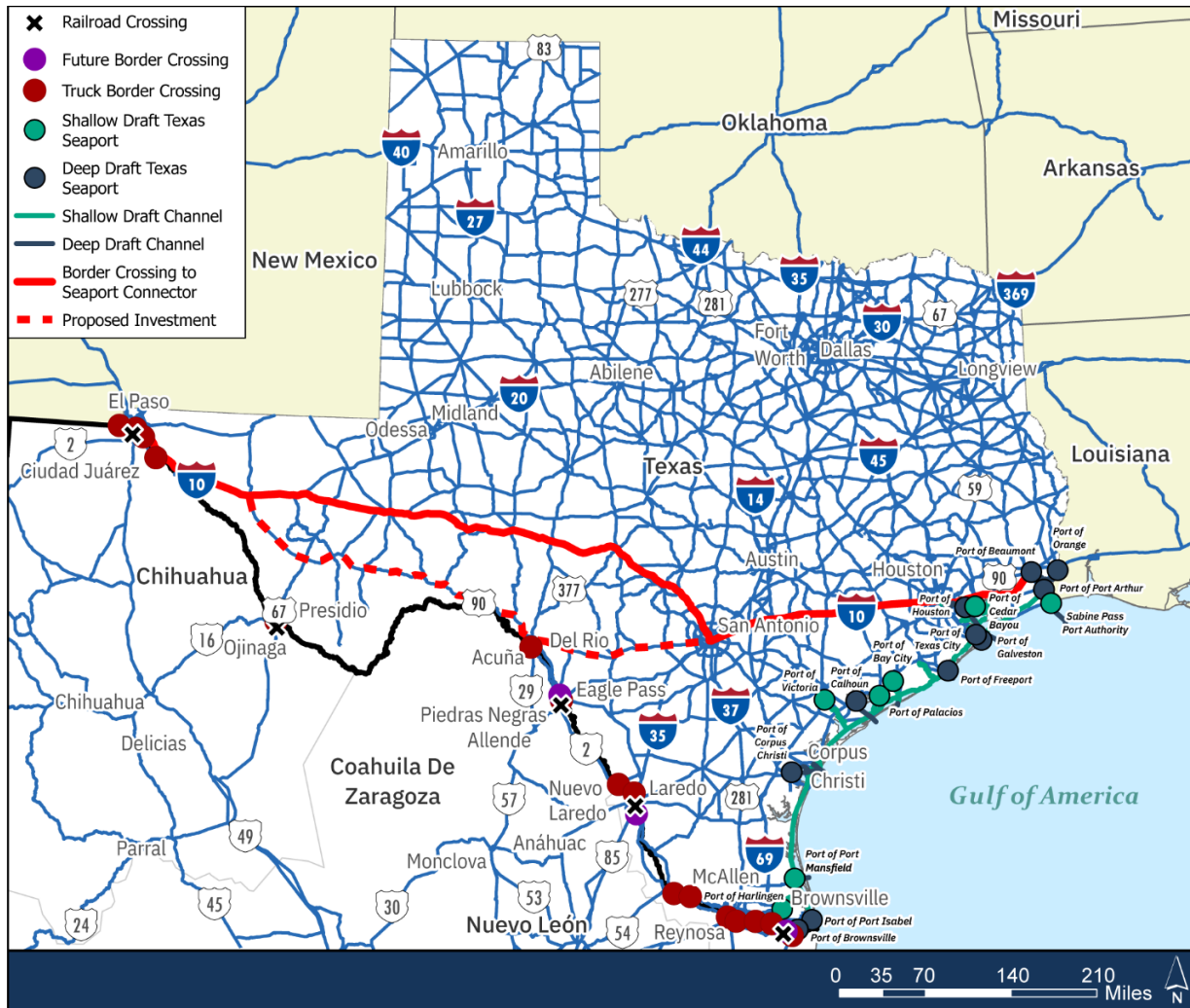
Texas

Workshop participants in October shared that Asian cargo processed at West Coast ports (specifically Los Angeles and Long Beach in California) crosses through El Paso's international bridges into Mexico. Similarly, goods and materials destined for Asia are transported from Mexico through El Paso to West Coast ports. I-10 is the major corridor used for this trade. The following commodities cross at El Paso: automotive parts, agriculture products, household goods, groceries and food, electronics, and meat.

Stakeholders emphasized the importance of I-10 as a trade corridor linking El Paso to Port Houston but mentioned that very few products from Texas seaports cross at El Paso into Mexico (see **Figure 142**). However, El Paso does see a lot of cross-dock operations. Maritime containers are also often cross-docked in port hinterlands before being distributed to the rest of the state. Arguably, some of these cross-docked cargo may cross in El Paso into Mexico, but no data are available to track these movements. Similarly, stakeholders mentioned that in-bond shipments are transported to bonded warehouses or Foreign Trade Zones (FTZs). FTZs allow manufacturers to add components/value to products, after which the finished products can cross the border. This allows manufacturers to save on duties, but these movements are similarly untracked.

Cross-docking is a strategy to reduce inventory costs by transferring freight from one mode (e.g., truck/rail) to another mode (e.g., truck/rail) at a docking facility as soon as possible.

Figure 142. Major Texas Corridors Linking El Paso Border Crossings to Maritime Ports in Texas and Proposed Investments

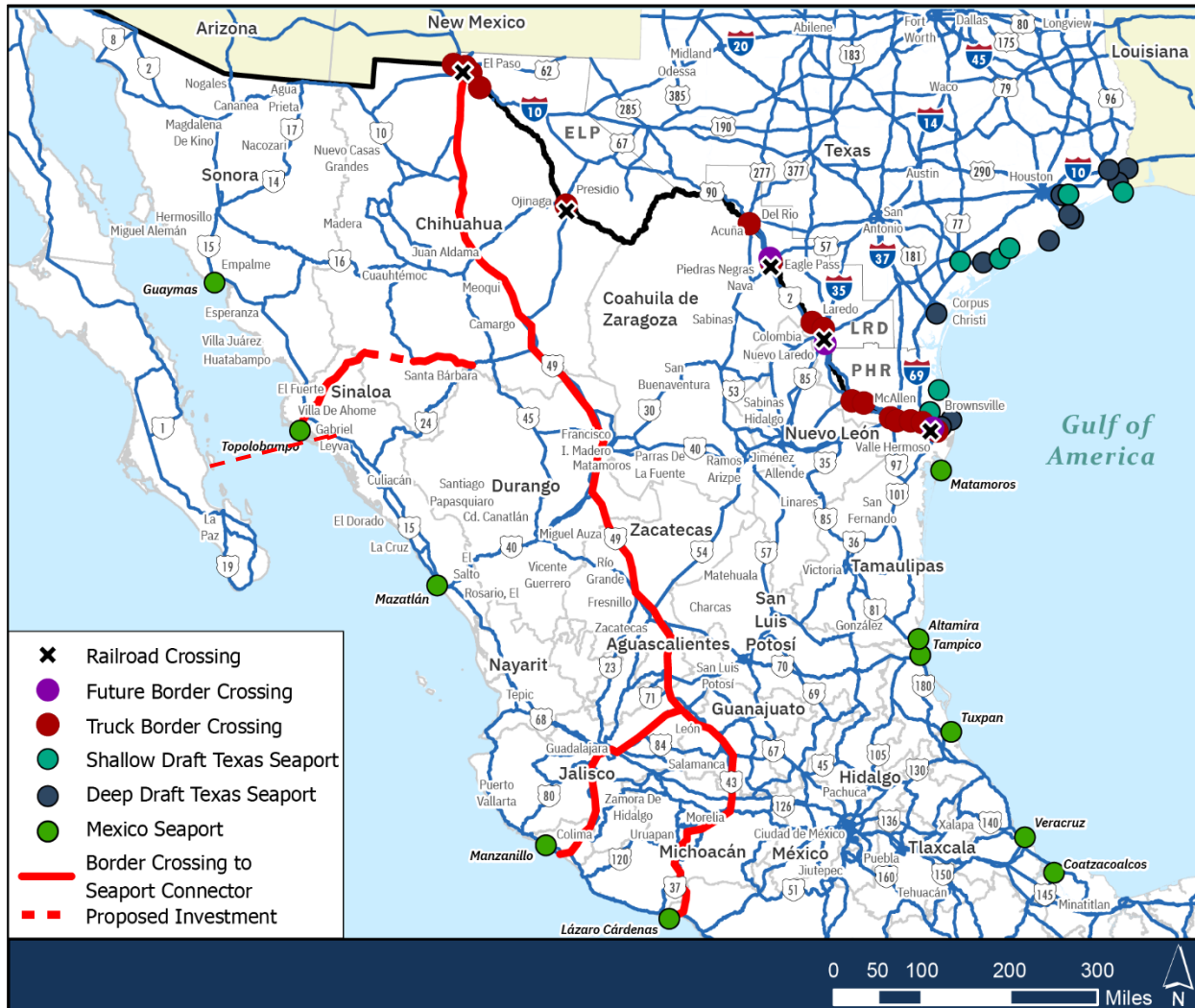


Another recommendation from the Stakeholders is to invest in alternatives to IH-10 since snowstorms/sandstorms have occurred (from Van Horn to Pecos) that required trucking companies to seek alternatives. An alternative to I-10 linking to Port Houston is US 90. The stakeholders recommended investments in US 90 as an alternative to I-10.

Mexico

Figure 143 shows the major trade corridors that link Juárez to Mexico's Pacific Coast ports. Juárez is linked to the Port of Manzanillo via MEX-45, MEX-49, and MEX-54D. Juárez is linked to the Port of Lázaro Cárdenas vis MEX-45, MEX-45D, MEX-43D, and MEX-37D.

Figure 143. Major Mexico Corridors Linking Pacific Coast Ports in Mexico to the Juárez Border Crossings and Proposed Investments



Stakeholders noted that Mexico's Pacific Coast ports, including Manzanillo and Lázaro Cárdenas, offer viable alternatives to California's ports (i.e., Los Angeles and Long Beach) for processing cargo from Asia bound for El Paso. These ports are being considered as potential future links for Texas to efficiently connect with the Pacific Coast. Currently, while Mazatlán's port primarily serves tourism, its proximity to automotive manufacturing regions presents opportunities for growth.

However, several stakeholders raised concerns about Mexican carriers facing extortion from cartels while navigating southern Mexico. Although Manzanillo remains a crucial port option, highway security issues loom large. Often compared to Silicon Valley, Manzanillo has attracted interest from Asian companies wanting to establish operations there; yet security concerns hinder their progress.

In contrast, Guadalajara has implemented aggressive anti-cartel measures, making it an attractive place for foreign investment, particularly from Chinese companies looking to set up operations in Guadalajara and Juárez. Nonetheless, Juárez's lack of direct flights to Los Angeles hampers its connectivity and coupled with Guadalajara's proximity to the U.S., is viewed as a constraint on export capabilities.

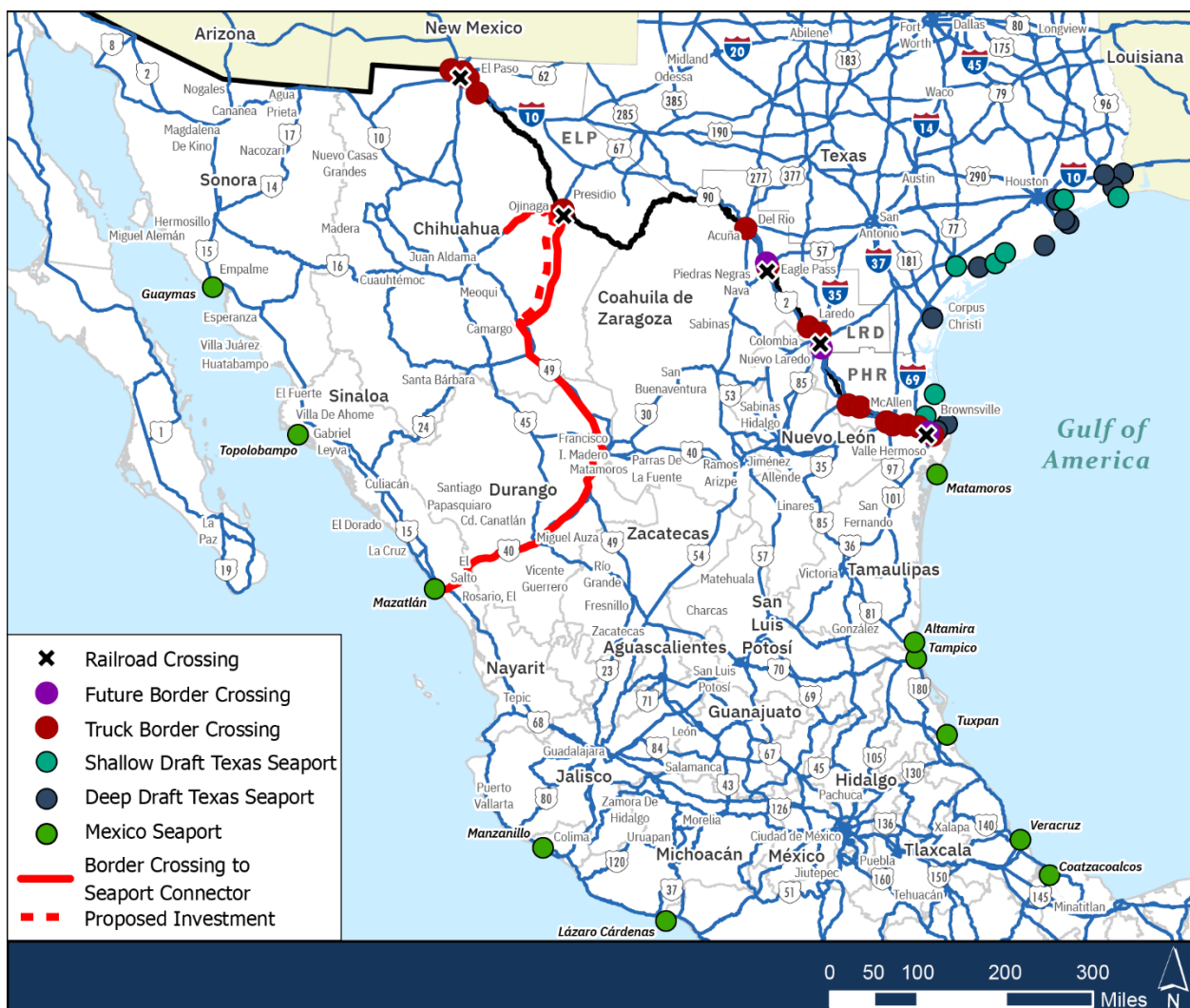
Regarding rail connectivity, the Chihuahua-Pacific rail route, known as "The Chepe," connects Chihuahua with Mazatlán/Topolobampo. Unfortunately, double-stacking rail containers on this route presents challenges due to vertical height restrictions imposed by approximately 80 rail bridges and 75 to 80 tunnels. The costly and lengthy timelines necessary to address these constraints discourage potential investors. Stakeholders also see tourism potential within the rail sector, sparking discussions about opening certain routes, like the Chihuahua-Pacific, to tourism; however, financial feasibility remains a significant hurdle.

Additionally, stakeholders emphasized the necessity for a more direct connector from Topolobampo to Guadalupe y Calvo (MEX-24 near Paral) and advocated for a bypass around Flores Magon to link MEX-10 with MEX-7. These improvements could enhance logistics and efficiency throughout the region.

October workshop participants mentioned that Ojinaga is connected to the Port of Mazatlán via MEX-40 to MEX-49 to MEX-67. This corridor is seen as secure with no recent security issues being reported. October workshop participants also confirmed the completion of MEX-30 connecting to MEX-16. Stakeholders mentioned that the investments in MEX-40 between Mazatlán and Durango have significantly improved travel times (from six hours to 2.5 hours). Stakeholders mentioned that MEX-24 provides a potential route option to link Ojinaga to the Pacific Coast, but security concerns need to be addressed.

October workshop participants reiterated their interest in connecting Topolobampo to Ojinaga by rail but acknowledged the challenges due to bridge and tunnel restrictions that prevent double-stacked rail containers.

Figure 145. Major Corridors Linking Pacific Coast Ports in Mexico to Ojinaga and Proposed Investments



Stakeholders recommended the expansion and improvement of the junction (point known as El Huérfano) to Aldamas on MEX-16 (from Ojinaga to Chihuahua). Stakeholders also mentioned that

MEX-67 from La Mula to Camargo is in very poor condition. Improved maintenance and widening of MEX-67 to Ojinaga was recommended. Similarly, investment in MEX-16 and re-classification of MEX-16 from Ojinaga to Chihuahua was proposed.

The Central Region

The Central Region of the Border Region Connectivity Plan includes the border crossings at Del Rio, Eagle Pass, and Laredo.

Del Rio/Eagle Pass Border Crossings

Texas

Figure 146 shows that US 90 and I-10 are the major trade corridors that link Del Rio to Port of Houston, and US 57 and I-10 are the major trade corridors that link Eagle Pass to Port of Houston. Similarly, US 90 and I-37 and US 57 and I-37 are the major trade corridors linking Del Rio and Eagle Pass to the Port of Corpus Christi, respectively. According to stakeholders who attended the October workshops, the major commodities crossing at Camino Real International Bridge are automotive parts and beer (e.g., Modelo). The Port of Corpus Christi is, however, considered important to Eagle Pass, because the port provides an alternative to Port of Houston and Port of Galveston for automotive products. The inland Port of Eagle Pass, which offers rail access at the U.S.-Mexico border, wants to enter a partnership with the Port of Corpus Christi to transport automotive parts through the deepwater port to access to global markets.

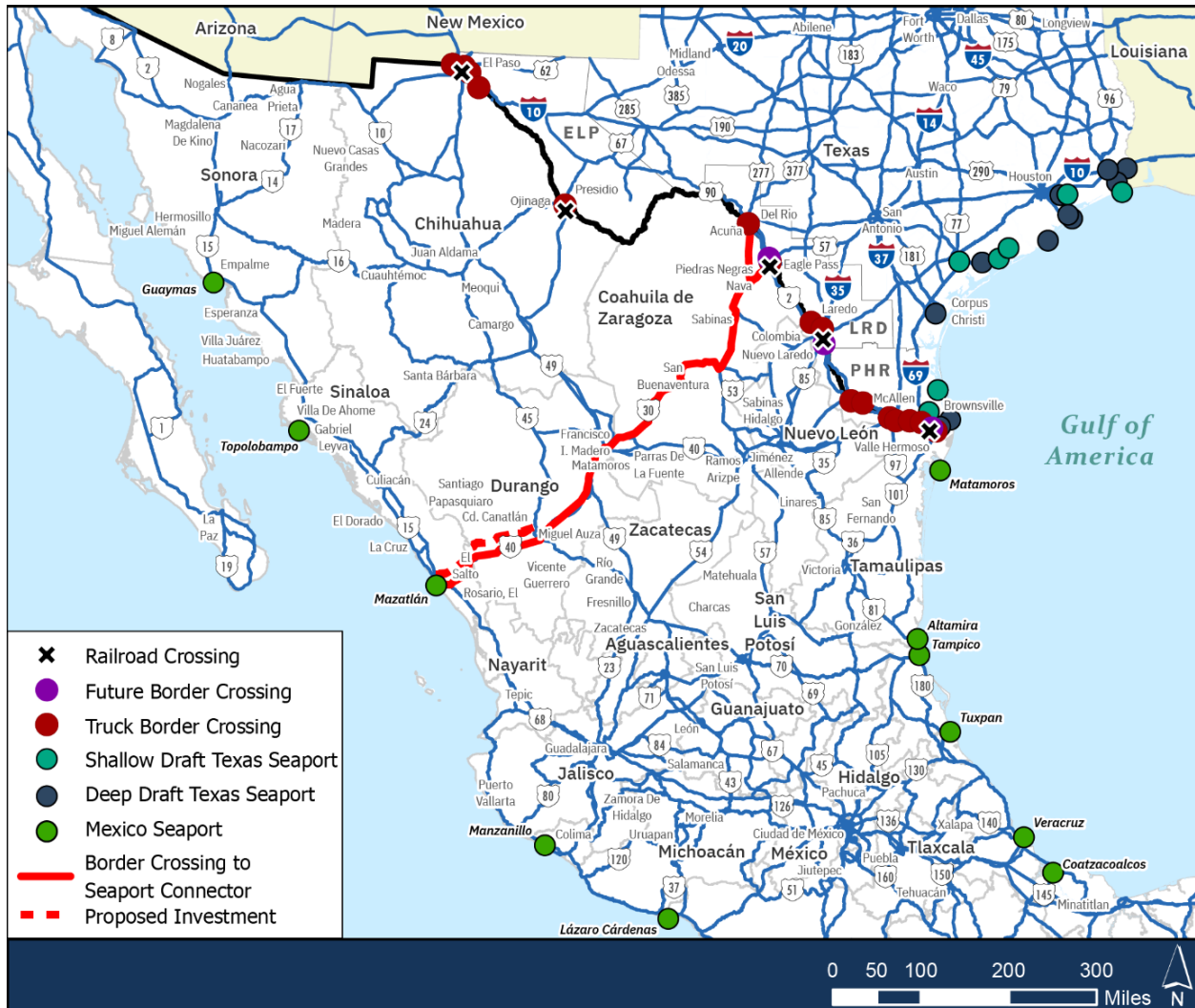
- Rivers on each side of Uvalde blocks traffic when flooded. A relief route is needed around downtown Uvalde. Uvalde is also growing (e.g., because of the airport and junior college) and presents a bottleneck for commercial traffic.

Finally, US 57 links Eagle Pass to I-10 to Port Houston. Stakeholders recommended overpasses on US 57 from Eagle Pass to San Antonio to remove traffic conflicts.

Mexico

Figure 147 shows the major trade corridors that link Del Rio and Piedras Negras to Pacific Coast ports in Mexico and the recommended investments to improve connectivity between Mexico’s Pacific Coast ports and Del Rio and Eagle Pass. Del Rio is connected to Port Mazatlán via MEX-29, MEX-57, MEX-30, and MEX-40. Eagle Pass connects to Port Mazatlán via MEX-57, MEX-30, and MEX-40.

Figure 147. Major Corridors Linking Pacific Coast Ports in Mexico to the Del Rio/Eagle Pass Border Crossings and Proposed Investments



Cargo processed at the Port of Mazatlán and transported by rail must move south towards Guadalajara, and then reroute north towards Monterrey and the Texas-Mexico border, because there is no east-west rail connection between Mazatlán and Durango. The terrain in this area is mountainous which makes the development of a future rail line connection challenging. Since importers rent ocean containers from shipping companies that need to be returned empty, a shorter rail route would allow for containers to be returned sooner, which would save on costs to importers. Stakeholders mentioned that this lack of rail connection favors the port of Manzanillo because the port already has direct access to rail lines.

October workshop participants mentioned that five companies in Eagle Pass move commodities by rail - up to 100 rail crossings/day. The proposed Puerto Verde Trade Corridor will reroute commercial vehicles and rail around the urban center of Eagle Pass and be served by the Puerto Verde's Green Eagle Railroad. The rail line will be 20 miles long (i.e., one mile on the U.S. side and 19 miles in Mexico). The U.S. side is all farmland so it is expected that it will be quick to build the rail line. The Mexican side is an existing coal mining site, and the rail line will follow the existing ROW owned by the Mexican government. In the future it is anticipated that Puerto Verde will connect to a planned port in Sinaloa (approximately 25 miles north of the Port of Mazatlán).

Laredo

Texas

Figure 148 shows that I-35 and I-10 are the major trade corridors that link Laredo to Port Houston. US 59 is an alternative route linking Laredo to Port Houston via I-10 and to the Port of Corpus Christi via I-37. A meeting with Port Houston revealed that some automotive parts are moved by truck from Port Houston and cross at Laredo and El Paso into Mexico. Furthermore, an October workshop participant mentioned that refined sugar shipments were diverted from April to October from Veracruz to Port Houston. These sugar shipments previously crossed at the Colombia Solidarity Bridge and World Trade Bridge (Laredo Bridge IV) by truck, as well as Eagle Pass by rail. Consequently, Laredo lost the business to the seaports. This case arguably demonstrates that the land border to maritime port corridors can compete with the waterborne corridors.

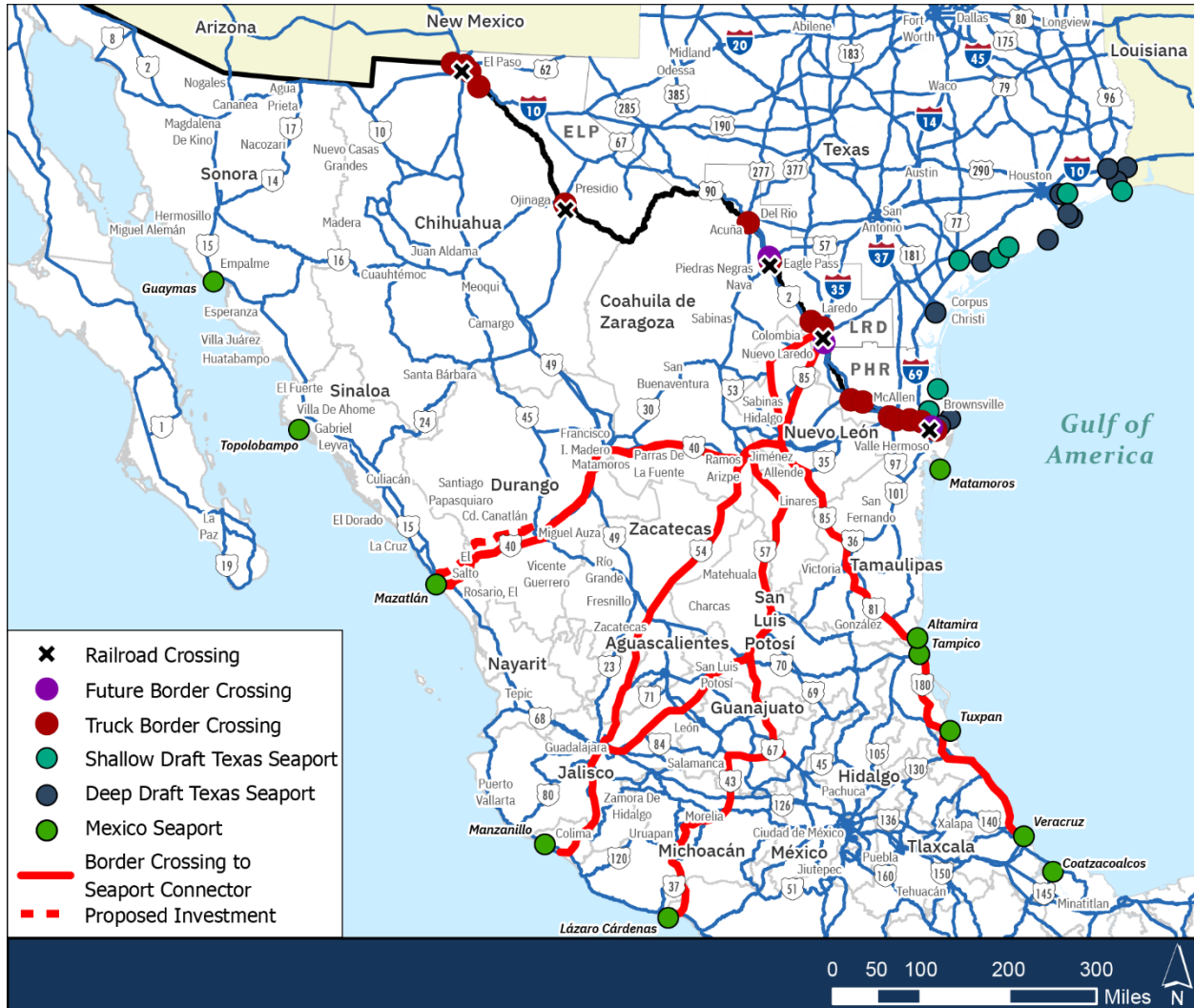
US 59 also connects Laredo to the Port of Corpus Christi (an alternative to Port Houston) via I-37. Stakeholders participating in the October workshop emphasized the need for a 4-lane divided US 59 to link Laredo to the Port of Corpus Christi. Stakeholders also recommend the expansion of SH 44 to connect the Port of Corpus to the I-69W, I-64C, US 59, and I-35. One east-west road that connects three interstates.

Finally, stakeholders recommended that ocean-going containers (53 feet) handled at Texas ports are allowed to be transported by truck into Mexico.

Mexico

Figure 149 shows that Nuevo Laredo is well connected by rail to the ports of Manzanillo and Lázaro Cárdenas. When COVID prevented ships from docking at Los Angeles/Long Beach shipments from Asia were routed through Lázaro Cárdenas to Laredo by train. It is anticipated that future strikes at California ports could cause similar delays diverted traffic to Lázaro Cárdenas. Laredo and Colombia are also well connected to Mexico's Pacific Coast Ports via Mexico's federal highway system. Specifically, MEX-85 (NL-1 in the case of Colombia) and MEX-40/MEX-40D connect Laredo to the Port of Mazatlán; MEX-85 (NL-1 in the case of Colombia) and MEX-54 and MEX-54D provide connectivity to the Port of Manzanillo, and finally MEX-37D, MEX-43D, MEX-57, and MEX-85 (NL-1 in the case of Colombia) connects to the Port of Lázaro Cárdenas. Stakeholders mentioned that both the Ports of Mazatlán and Manzanillo are receiving increasing volumes of electronics and auto parts from Asia. It was, however, unclear whether these shipments are transported through the Texas-Mexico border. Finally, Laredo and Colombia are well connected to Mexico's major Gulf Coast Ports (i.e., Veracruz, Tuxpan, Tampico, and Altamira) via MEX-180D, MEX-80, MEX-83, MEX-85 (NL-1 in the case of Colombia). October workshop participants mentioned plans to start processing 53-foot rail containers through Veracruz to eliminate the need for transloading.

Figure 149. Major Corridors Linking Pacific Coast Ports in Mexico and Gulf Coast Ports to the Nuevo Laredo/Colombia Border Crossings and Proposed Investments



Like the workshop participants in Eagle Pass, stakeholders mentioned a need for an east-west rail connection between Mazatlán and Durango. This lack of rail connection favors the Ports of Manzanillo and Lázaro Cárdenas because these ports already have direct access to rail lines.

The South Region

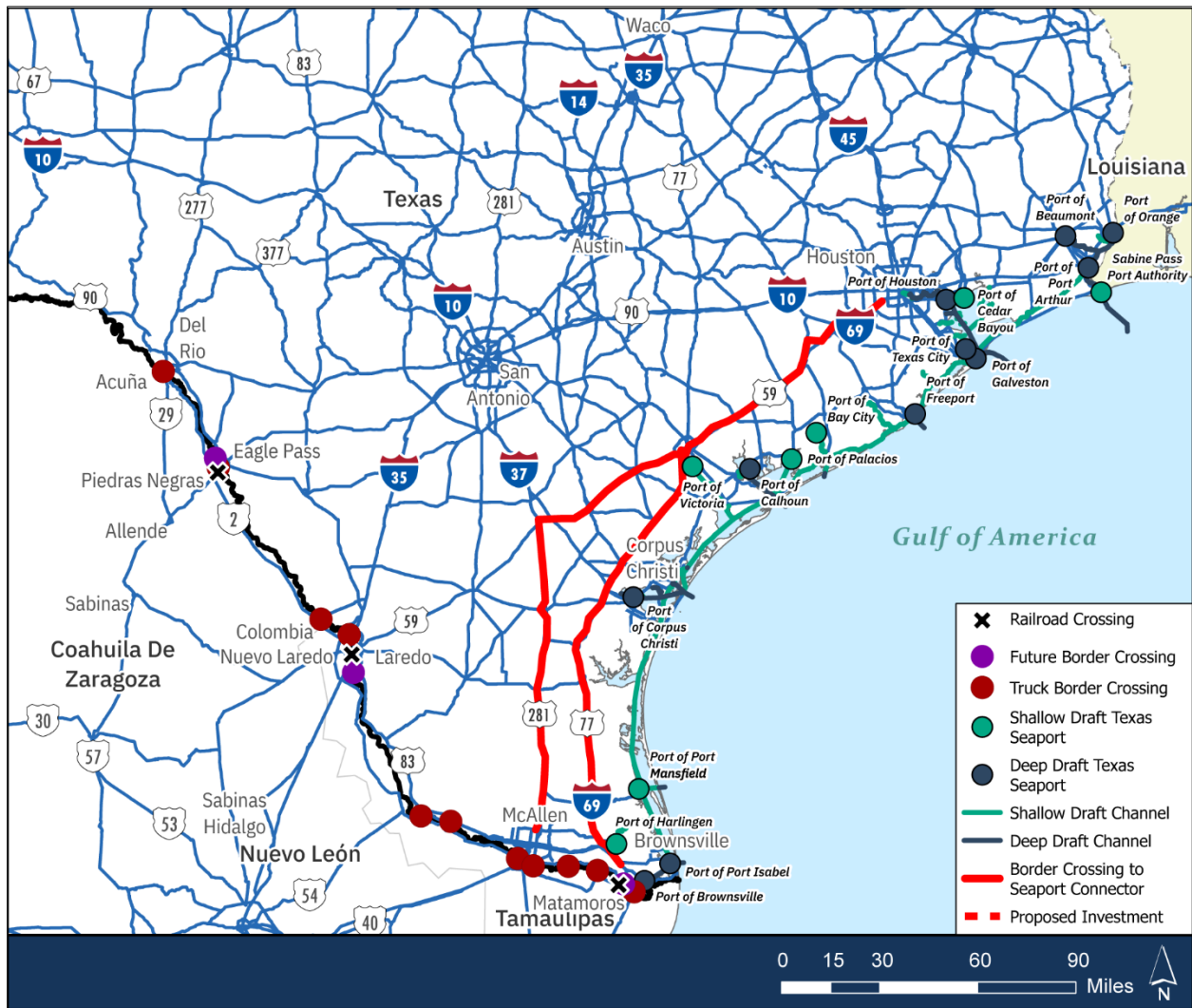
The South Region of the Border Region Connectivity Plan includes the ports of entry at Roma, Rio Grande City, Hidalgo, Pharr, Progreso, and Brownsville.

Rio Grande Valley Border Crossings

Texas

Figure 150 shows that I-2, I-69C/US 281, I-69E/US 77 and US 59 are the major trade corridors that link the Rio Grande Valley border crossings to maritime ports in Texas.

Figure 150. Major Texas Corridors Linking Rio Grande Valley Border Crossings to Maritime Ports in Texas



The Port of Brownsville and the Port of Harlingen handle a significant amount of trade that originates or is destined for Mexico. Both port authorities can issue permits for the movement of OS/OW vehicles on designated state highways.

Permits issued by the Port of Brownsville allow vehicles to travel OS/OW between the Gateway International Bridge or the Veterans International Bridge at Los Tomates and the Port of Brownsville. The Port of Brownsville issues permits to cover travel on:

- SH 48/SH 4 between the Gateway International Bridge and the entrance to the Port of Brownsville.
- US 77/US 83 and SH 48/SH 4 between the Veterans International Bridge at Los Tomates and the entrance to the Port of Brownsville.

TTI reported the southbound transport of diesel, gasoline, and fuel, mineral products, and metals from the Port of Brownsville via the Veterans International Bridge into Mexico in 2023. TTI also reported the northbound movement of plastics and rubbers, food, diesel, gasoline, and fuel from Mexico via the Veterans International Bridge to the Port of Brownsville in 2023.

Permits issued by the Port of Harlingen allow vehicles to travel OS/OW between the Free Trade International Bridge and the Port of Harlingen. Specifically, the Port of Harlingen issues permits to cover travel from:

- Port of Harlingen east entrance using FM 509, US 77 Business, and FM 1846
- Port of Harlingen west entrance using FM 509 and FM 106
- Harlingen Industrial Park south entrance using FM 509
- Harlingen Aerotropolis south entrance at Valley International Airport using FM 509

According to the Port of Harlingen, 90% of Port Harlingen's cargo is destined for Mexico

TTI reported the northbound and southbound transport of diesel and gasoline to and from the Port of Harlingen via the Free Trade International Bridge from and to Mexico in 2023.

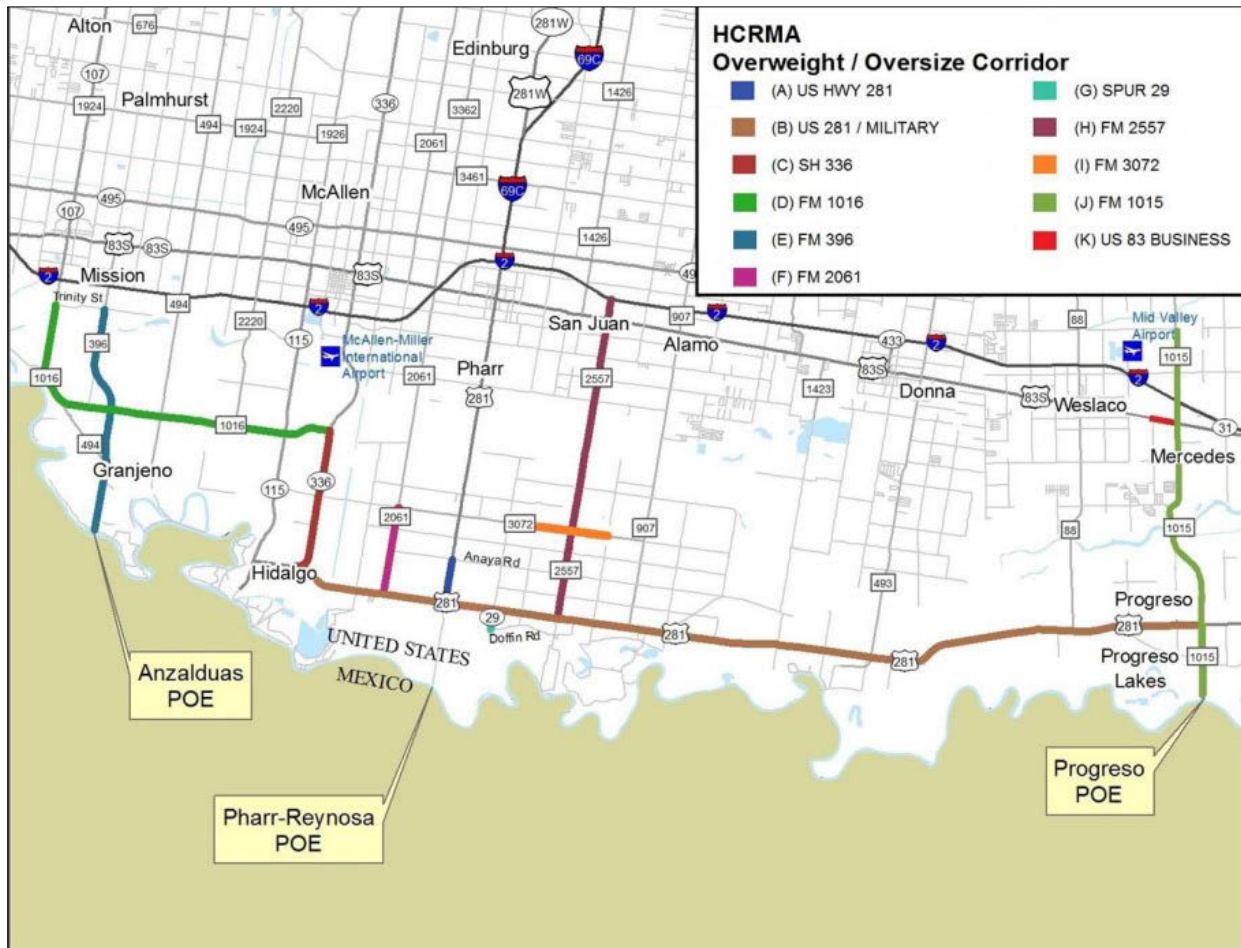
Finally, the Hidalgo County Regional Mobility Authority (HCRMA) has been issuing permits and administering the OS/OW corridors in Hidalgo County since 2014. HCRMA-issued permits cover travel on the following roads (see highlighted routes in **Figure 151**):

- US 281 between the intersection of US 281 and the Pharr International Bridge and the intersection of US 281 with SH 336
- SH-336 between the intersection of SH 336 and US 281 and the intersection of SH 336 and FM 1016
- FM 1016 between the intersection of FM 1016 and SH 336 and the intersection of FM 1016 and Trinity Road
- Trinity Road between the intersection of Trinity Road and FM 1016 and the intersection of Trinity Road and FM 396
- FM 396 between the intersection of FM 396 and Trinity Road and the intersection of FM 396 and the Anzalduas International Bridge

- FM 2061 between the intersection of FM 2061 and FM 3072 and the intersection of FM 2061 and US 281
- US 281 between the intersection of US 281 and the Pharr International Bridge and the intersection of US 281 and Spur 29
- Spur 29 between the intersection of Spur 29 and US 281 and the intersection of Spur 29 and Doffin Canal Road
- Doffin Canal Road between the intersection of Doffin Canal Road and the Pharr International Bridge and the intersection of Doffin Canal Road and Spur 29
- FM 2557 (Stewart Road) from US 281/Military Highway to I-2 (US 83) and FM 3072 (Dicker Road) from Veterans Boulevard to Cesar Chavez Road
- US 281 (Cage Boulevard) from US 281/Military Highway to Anaya Road
- US 281/Military Highway from Spur 29 to FM 1015
- FM 1015 from US 281/Military Highway to Progresso International Bridge

There are 47 miles of OS/OW corridors (which includes 12 bridges) in Hidalgo County.

Figure 151. OS/OW Corridors in Hidalgo County



Source: Hidalgo County Regional Mobility Authority (HCRMA)

Participants in the October workshops stated that project cargo moves at times from Port Houston to Altamira using US 77. Trucking companies have also used US 77 to move OW loads for Caterpillar and to move wind turbines. Specifically, wind towers from Matamoros were reported to cross daily at the Free Trade International Bridge and use US 77 to Port of Galveston and Texas City. It was estimated that 20% to 25% of the traffic on US 77 is truck traffic.

Stakeholders also stated that some truck traffic uses US 281 and US 59 to move loads from the Valley to Houston. Truck traffic on US 281 and US 59 linking the Valley to Houston is increasing every quarter. US 281/I-69C, for example, moves a lot of seasonal fruit and vegetables in November. It is, however, unclear whether these shipments are destined for a Texas maritime port. It was estimated that 30% to 35% of the traffic on US 281 is truck traffic.

Stakeholders recommended that US 77 (future I-69E) be built to interstate standards between Corpus Christi and Brownsville. Similarly, stakeholders recommended that capacity (i.e., lanes) on US 281 (future I-69C) be increased to accommodate increased port traffic. Both these recommendations will enhance connectivity between I-2 and the Port of Corpus Christi, which will open opportunities for cargo to move through Corpus Christi.

US 281/Military Highway is a heavy-weight corridor in Hidalgo County (see **Figure 151**). Stakeholders recommended that an OW Network be established, and that legislation is needed to connect the heavy-weight corridors in Cameron County (i.e., Port of Brownsville and Port of Harlingen OW corridors) with the heavy-weight corridors in Hidalgo County. Stakeholders also recommended that the permits issued by the two port authorities and HCRMA be interchangeable among these networks. Stakeholders mentioned that when SH 4 (a segment of the Port of Brownsville heavy-weight corridor) was under construction, capacity was limited to one lane for two years. OW carriers had no other options. Traffic issues are also experienced at Veterans International Bridge. Stakeholders stated that Veterans International Bridge has only one lane for southbound trucks and cars.

Mexico

Figure 152 shows that the Rio Grande Valley is well connected by highway and rail to Mexico's Pacific Coast ports of Mazatlán, Manzanillo, and Lázaro Cárdenas. Reynosa is connected to:

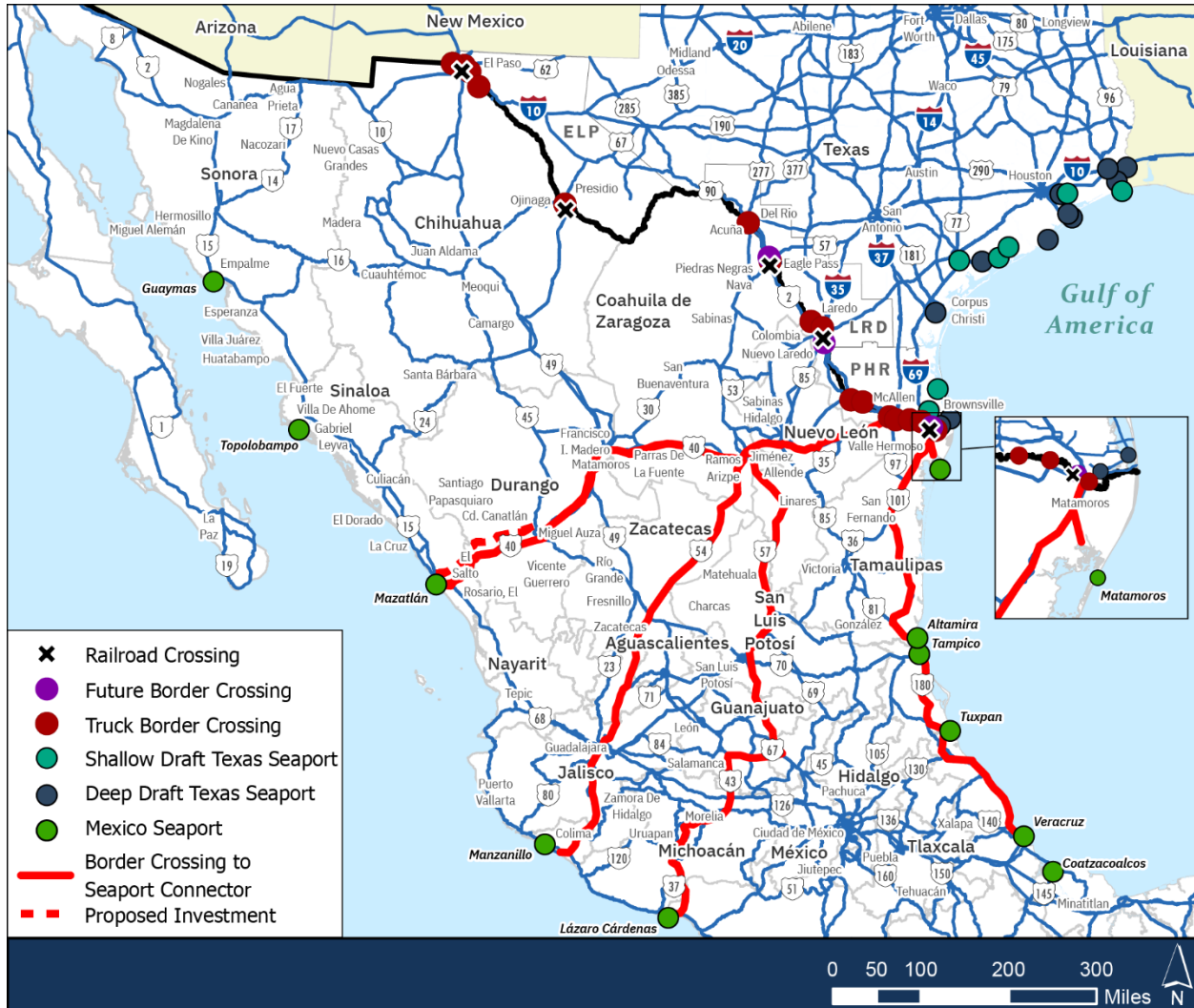
- The Port of Mazatlán via MEX-40D and MEX-40;
- The Port of Manzanillo via MEX-40D, MEX-54, MEX-80, and MEX-54D; and
- The Port of Lázaro Cárdenas via MEX-40D, MEX-35, MEX-57, MEX-43D, and MEX-37D.

Finally, Brownsville is well connected to Mexico's major Gulf Coast Ports (i.e., Veracruz, Tuxpan, Tampico, and Altamira) via MEX-180D, MEX-180, and MEX-101.

Participants in the October workshop stated that steel shipments from the Port of Brownsville destined for Monterrey use MEX-2D and MEX-40. Oil tankers use MEX-101. Northbound automotive coils from Tampico cross at Veterans International Bridge. Stakeholders mentioned security problems for trucks traffic traveling southbound on MEX-101. Northbound truck traffic is not experiencing issues because of CBP. Finally, stakeholders stated that US 281, crossing at the Pharr International Bridge, and MEX-40 is the shortest route between the Port of Corpus Christi and Torreon, Mexico. Stakeholders advocated for infrastructure investments in MEX-40 (linking to Reynosa) and MEX-101 (linking to Matamoros).

Truck drivers leave Matamoros during the day because of San Fernando cartels.

Figure 152. Major Corridors Linking Pacific Coast Ports in Mexico and Gulf Coast Ports to the Rio Grande Valley Border Crossings and Proposed Investments



Participants in the October workshop stated that MEX-54 is an important connector for the Rio Grande Valley. It connects Monterrey to Mier (and MEX-2) and from Monterrey the Federal Highway system provides connectivity to Mexico's Pacific Coast Ports. Stakeholders mentioned that MEX-54 is not shown on most maps, but it is a critical route. Stakeholders highlighted that MEX-54 reaches the border as an "alternative route" that is toll-free. Approximately 60% of the commodities transported on MEX-54 consist of produce. The remaining 40% is miscellaneous goods. Stakeholders recommended that the mayors of Ciudad Apodaca and Miguel Alemán be included in connectivity conversations.

A representative from the Port of Matamoros stated that the Port of Brownsville is currently more efficient for certain exports than the Port of Matamoros. For example, 1,200 trailers of rock only require one payment when routed through the Port of Brownsville, instead of multiple filings (e.g., 1,000 individual files) as in the case of Port Matamoros. Brownsville is therefore a better short-term option until Port Matamoros is fully operational. The Port of Matamoros representative advocated for the expansion of TAM-5 from two lanes to four lanes to connect Port Matamoros to Matamoros and Reynosa (via MEX-2/2D). TAM-5 is the only route in this area as it is a peninsula with no southbound roads, leading to a 100km stretch to the water. A bypass is needed to divert some traffic. The distance from Port Matamoros to the junction is 62 km, with an additional 20 km to reach the API. The proposed road from the junction to La Rosita is approximately 48 km. The proposed project is still in the conceptual phase, with challenges related to water and road curves that need to be addressed during planning.

According to the Port of Matamoros, 7,000 to 9,000 petrochemical trailers already use the Port Matamoros.

Route T-MEC is a proposed rail corridor from the Port of Mazatlán through Torreón to Monterrey along MEX-40. From Monterrey the route traverses Laredo (along NL-1), Tulsa, Chicago before finally connecting to Winnipeg (Canada). Stakeholders stated that there is a proposal to expand the T-MEC (“Tratado entre México, Estados Unidos y Canadá” known in English as the USMCA) to include Port Matamoros in the T-Mec corridor. Connecting Port Matamoros to the T-MEC route will facilitate the movement of goods into San Antonio via La Rosita, Matamoros. This connection would involve adding 160 km of rail line to connect with the existing infrastructure. Stakeholders mentioned that Texas would need to realign with the T-Mec route for this to be feasible, but that the proposed connector would not be ready for full operation for a few years. Linking the Port of Matamoros to Monterrey via rail will also enhance the logistics efficiency of moving steel and other imports. It was stated that the 300 km area around the Port of Matamoros shows the most potential for enhancing transportation efficiency.

Finally, October workshop participants advocated for infrastructure improvements in MEX-180 and MEX-101, as well as enhanced security to connect the Port of Altamira with Matamoros.

Future Trends

A number of trends seem to suggest that the corridors linking Texas’ and Mexico’s maritime ports and the border crossings will become increasingly important in the future. Some of the arguments include:

- A lack of investments to address congestion at Mexico’s maritime ports could divert traffic to Texas’ maritime ports that will subsequently be trucked or railed into Mexico.
- Increased congestion at California’s maritime ports might divert cargo from Asia destined to the U.S. to Mexico’s Pacific Ports that will ultimately be trucked or railed into Texas.

- Mexico's Pacific ports are an alternative to the Panama Canal that has been experiencing increasing delays due to traffic and water issues.
- Nearshoring will increase maritime shipments that will cross the Texas-Mexico border