Texas-Mexico Border Transportation Master Plan

Binational Regional Steering Committee

Rio Grande Valley/Tamaulipas Region

Agenda

1. Introduction/Opening Remarks
2. Activities since Previous Meeting (June 2020)
3. Current and Future Needs Assessment (Chapter 5)
4. Identification and Evaluation of Strategies to Address Current and Future Needs (Chapter 8)
5. Future Forecasts for the Border Region (Chapter 6)
6. Next Steps and Closing Remarks

Recap of Previous BNRSC Meeting (June 2020)

- Stakeholder outreach
  - BTAC & BNRSC Round 5
- Received final input on:
  - Chapter 1: Introduction
  - Chapter 2: Goals, Objectives and Institutions
  - Chapter 4: Binational Multimodal Transportation Network Designation
- Reviewed:
  - Chapter 3: Texas-Mexico Border: Past and Present
  - Chapter 6: Future Forecasts for the Border Region
  - Chapter 7: Economic Importance of the Border

Current and Future Needs Assessment

Chapter 5

Current and Future Needs Assessment Overview

Chapter Purpose

- Summarizes current and future issues and needs of the binational and multimodal transportation system
- Sets the stage for identifying strategies and solutions

Key Messages

- Continued growth of population, trade, and travel demand has outpaced investments in borderwide infrastructure
- Policy, program, and project needs for cross-cutting themes that span across BTMP goal areas:
  - binational coordination, collaboration, and cooperation
  - integration of new technologies
  - data collection, harmonization, sharing, and analysis
  - system monitoring

Preliminary Findings

- Highest system performance needs are concentrated within the last mile of the border—congestion, safety, and infrastructure asset conditions
- Economic potential of the border is not fully realized due to inefficiencies in border crossings and multimodal transportation system planning, investments, management, and operations
- Demand on binational border crossings and multimodal transportation network outpaces funding availability for infrastructure investments

Binational and Multimodal Coordination, Collaboration, and Cooperation (5.1.1): Borderwide

- Opportunity to improve comprehensive binational coordination among existing institutional frameworks to better plan, invest, manage, and operate border crossings and multimodal transportation network

Integration of New Technologies (5.1.2): Borderwide

- Need for more consistent planning to integrate and deploy new technologies
  - Need for standardized systems, processes, capabilities, data collection
  - Opportunity to streamline permitting, inspection, and documentation procedures
  - Potential for broader use of non-invasive screening technology
  - Improvements in facilitating shared mobility modes, V2I communication, and alternative fuels
  - Strategies to decrease long waits at at-grade crossings due to precision scheduled railroading

Data Collection, Harmonization, Sharing and Analysis (5.1.3): Borderwide

- Need for comprehensive borderwide data collection strategy Including comprehensive borderwide total crossing time data, accessible southbound volumes data by mode
- Need to improve trade and personal transportation data among binational federal, state, regional, local, and private partners
  - Limited federal policies in place to share border data between the U.S. and Mexico
  - Improvements in data harmonization between different partners
  - Better applications of binational data analysis programs

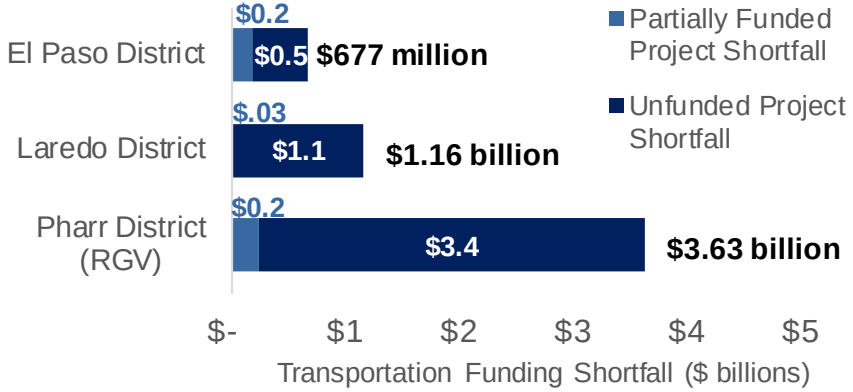
System Monitoring (5.1.4): Borderwide

- Need to develop an institutional framework for system monitoring and gaps in information on system performance for decision-making
  - The vast, complex, and regional variation in transportation infrastructure makes performance monitoring **difficult**
  - The uniqueness and dynamism of the region makes border-specific performance monitoring **important**

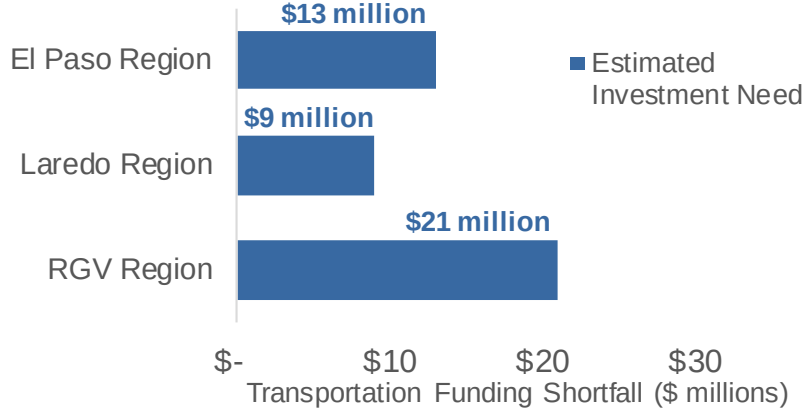
Issues and Needs by Goal: Sustainable Funding (5.2.1): Borderwide

- Demand outpaces funding available for infrastructure investments
- Need for consistent funding sources
- Need for data-driven prioritization process to allocate funding

TxDOT 2019 Border District Trade Transportation Report - Border District Funding Shortfall



GAO-19-534 Border Infrastructure, CBP data Dec. 2018 - CBP Border Facility Estimated Investment Needs



Issues and Needs by Goal: Economic Competitiveness (5.2.2): Borderwide

- Need to reduce inefficiencies to improve the economic potential of the border
  - High border wait times and delays
  - Improvements in comprehensive U.S. and Mexico policy, program, and project coordination and investment
  - Improve efficient connecting infrastructure
  - Need to make the system more responsive to potential disruptions
  - Opportunities to meet current and future demands and projected growth

Issues and Needs by Goal: Resiliency (5.2.3): Borderwide

- Need for a comprehensive binational framework for systemic processes, procedures, and investments in the case of unforeseen events
- Increased resiliency planning and enhanced network redundancy
- Recent border disruptions include:
  - 2010 Rio Grande Valley flooding
  - 2017 Laredo/Nuevo Laredo tornado
  - Hurricane Harvey (2017)
  - Migrant crisis (2019)
  - COVID-19 (current)

Issues and Needs by Goal: Stewardship (5.2.4): Borderwide

- Growing transportation demand contributes to environmental and community issues along the border
  - Different U.S. and MX vehicle emission standards and regulations
  - Need for policies to reduce vehicle idling at the border
  - Opportunities to improve the consistency of air quality monitoring
  - High reliance on traditional energy sources and low use of alternative renewable energy uses
  - Improvements in hazardous material policies and disposal sites

Issues and Needs by Goal: Customer Service (5.2.5): Borderwide

- Need for better mechanisms for binational stakeholder participation in ongoing decision-making on border planning, investments, management, and operations
  - Continued need for language translation services
  - Improved processes to identify, organize, and track customer issues and needs
  - Better procedures to track customer engagement methods
  - Challenges in convening large in-person meetings during COVID-19 pandemic

The BTMP development process brought together an unprecedented 2,400 binational stakeholders to exchange ideas about the border.

Mobility and Reliability Needs: Border Crossing Delays (5.3.1): Borderwide

- Need to address increasing border crossing delays and wait times
- **Operational Efficiency Needs**
  - More robust and coordinated management
  - Need to advance the broad adoption and integration of technologies
  - Improved demand management
  - Enhanced number of border inspection staff and hours of operation
  - Opportunities to develop additional programs for expedited lanes
  - Need for standardized systems and streamlined procedures across border crossings

Border Crossing Volume to Operational Capacity

Mode	Underutilized	Overutilized
Commercial Vehicles	1 Crossing	9 Crossings
Passenger Vehicles	0 Crossings	17 Crossings
Bike/ Pedestrians	1 Crossing	7 Crossings

Mobility and Reliability Needs: Border Crossing Delays (5.3.1) Borderwide

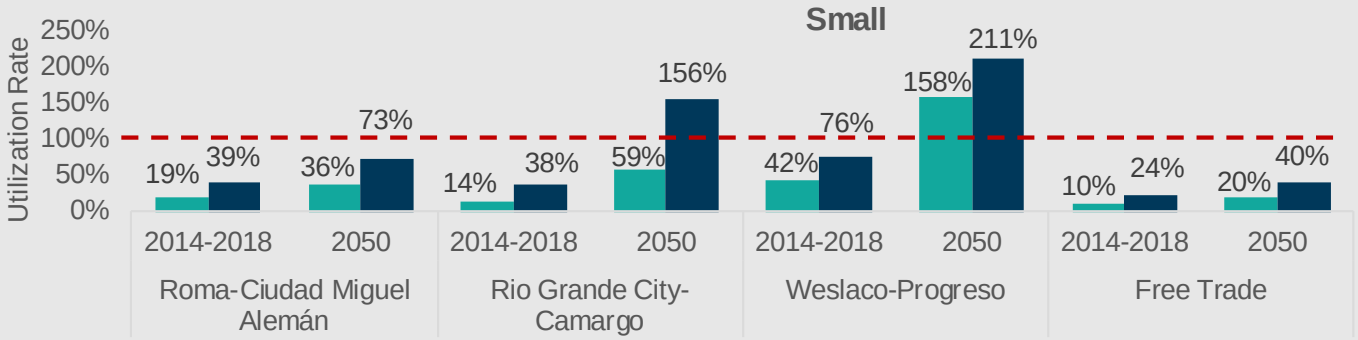
- Need to address increasing border crossing delays and wait times
- **System Capacity Needs**
  - Capacity constraints of existing border and network infrastructure
  - Overutilization of existing border crossings
  - Limited multimodal network capacity
  - Need for comprehensive performance monitoring system for preventable maintenance and continuous improvement
  - Metric-based system to allocate funding

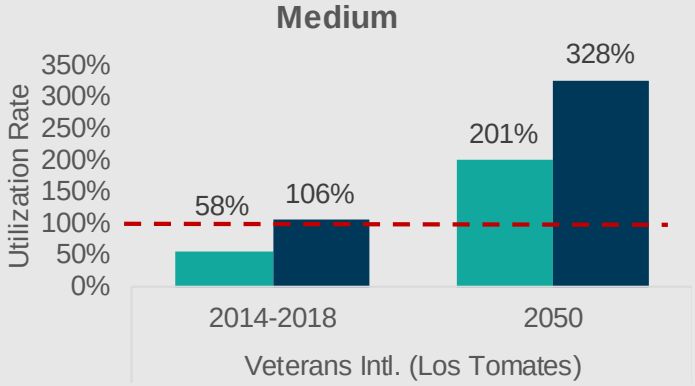
Border Crossing Volume to System Capacity

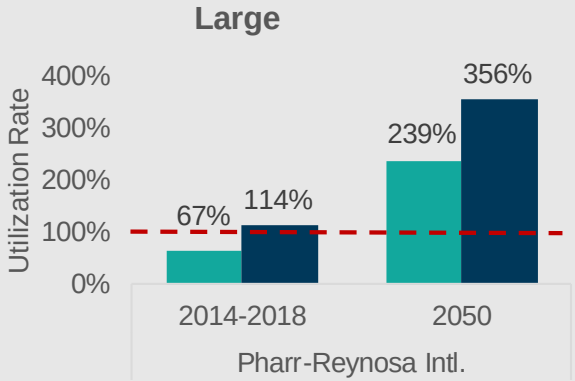
Mode	Underutilized	Overutilized
Commercial Vehicles	4 Crossings	1 Crossing
Passenger Vehicles	4 Crossings	2 Crossings
Bike/ Pedestrians	3 Crossings	0 Crossings

Mobility and Reliability Needs: Border Crossing Delays (5.3.1): Rio Grande Valley/Tamaulipas Region

Commercial Vehicle Crossings





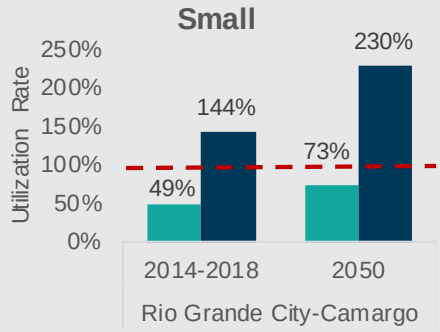


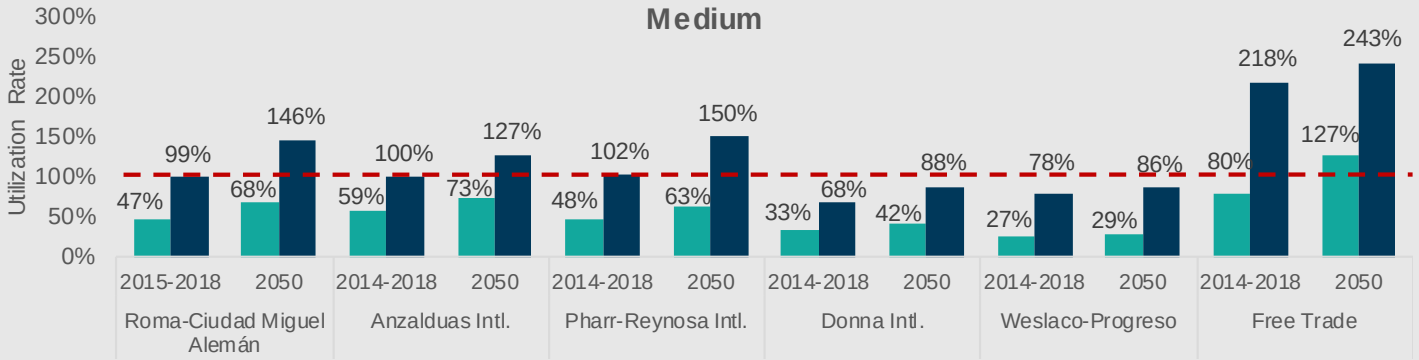
COMMERCIAL VEHICLES

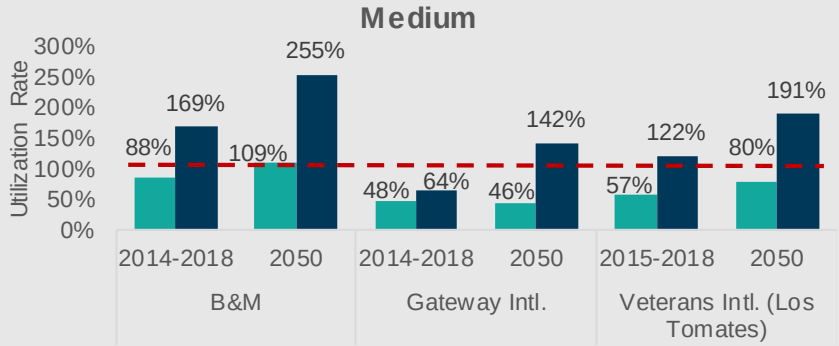
Border Crossing Sizes	Annual Northbound Volumes
SMALL	Under 75 Thousand
MEDIUM	75-500 Thousand
LARGE	500 Thousand - 1.5 Million
VERY LARGE	1.5 Million+

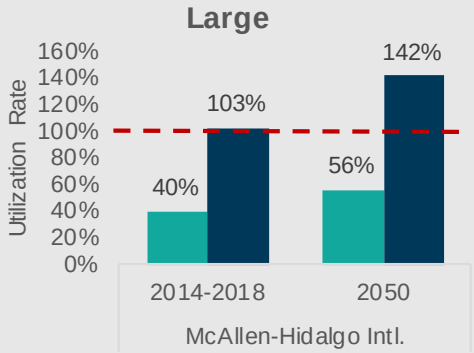
Mobility and Reliability Needs: Border Crossing Delays (5.3.1): Rio Grande Valley/Tamaulipas Region

POV Crossings









Volume-to-Total Capacity

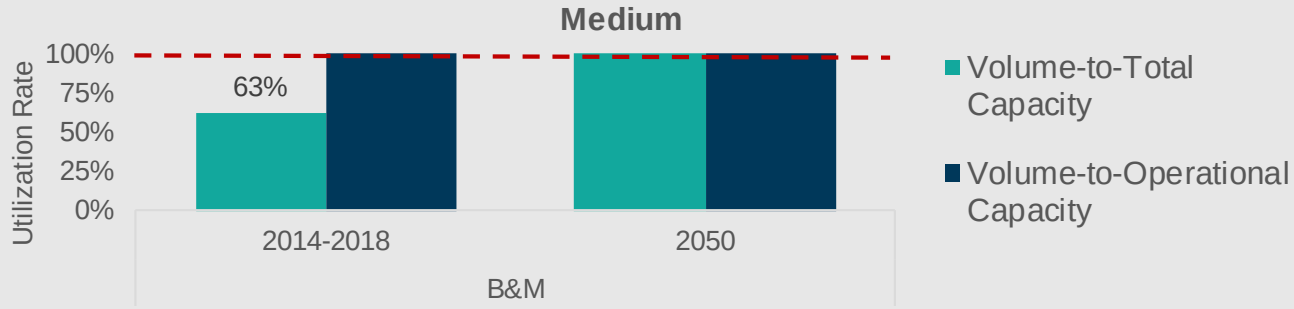
Volume-to-Operational Capacity

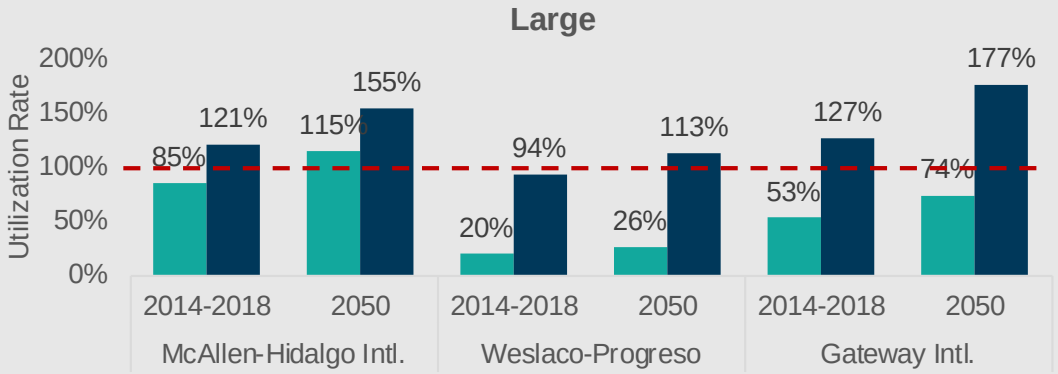
PASSENGER VEHICLES

Border Crossing Sizes	Annual Northbound Volumes
SMALL	Under 500 Thousand
MEDIUM	500 Thousand - 2 Million
LARGE	2 Million+

Mobility and Reliability Needs: Border Crossing Delays (5.3.1): Rio Grande Valley/Tamaulipas Region

Bicycle/Pedestrian Crossings





BIKE/PEDESTRIAN

Border Crossing Sizes	Annual Northbound Volumes
SMALL	Under 100 Thousand
MEDIUM	100 Thousand - 1 Million
LARGE	1 Million+

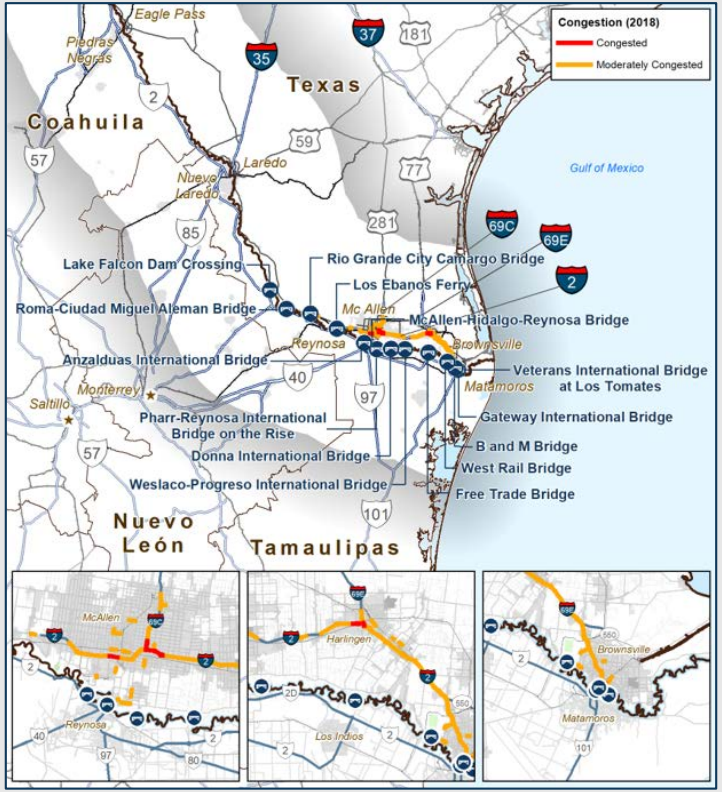
Mobility and Reliability Needs: Roadway Delays (Congestion) (5.3.2): Borderwide

- Congestion occurs due to transportation demand exceeding capacity, design issues, passenger/commercial lane conflicts, and lack of mode choices

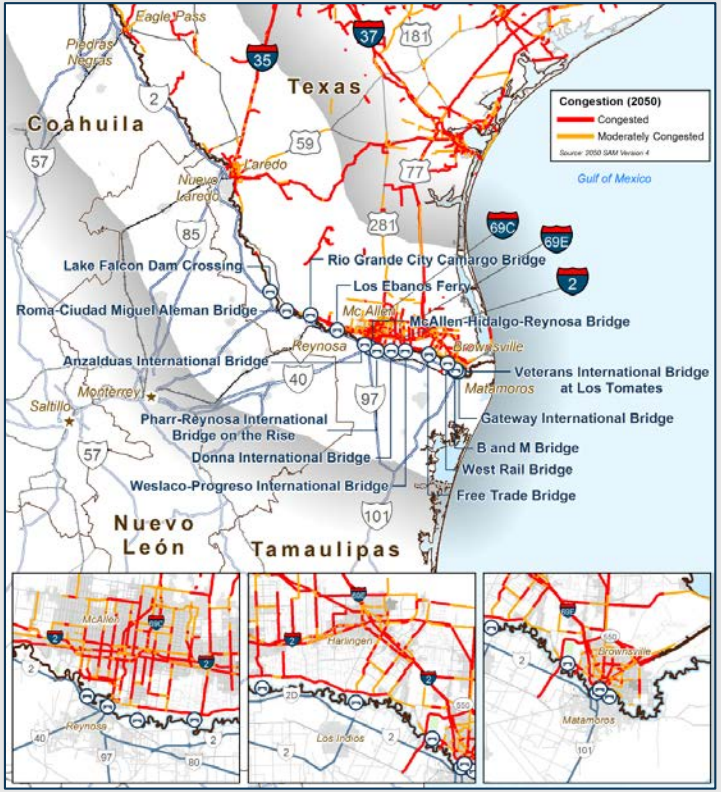
Operational Efficiency Needs	*System Capacity Needs*
▪ Improvements to outdated transportation systems and traffic control ▪ Traffic optimization strategies and technology ▪ On- and off-ramp lengths ▪ Alternative transportation choices ▪ Connectivity for OS/OW vehicles	▪ Opportunity to update roads to higher standards ▪ Lane and intersection design issues ▪ Limited lane capacity on current key roads ▪ Limited connections between corridors and crossings ▪ Highway/rail grade separations ▪ Alternative transportation choices' ▪ Truck parking capacity and staging

Mobility and Reliability Needs: Roadway Delays (Congestion) (5.3.2): Rio Grande Valley/Tamaulipas Region

RGV Region - 2018 Congestion



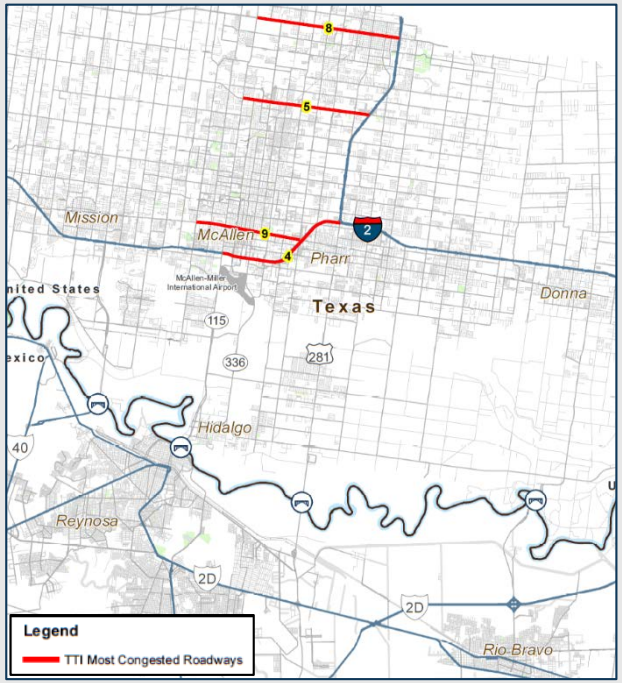
RGV Region – 2050 Congestion



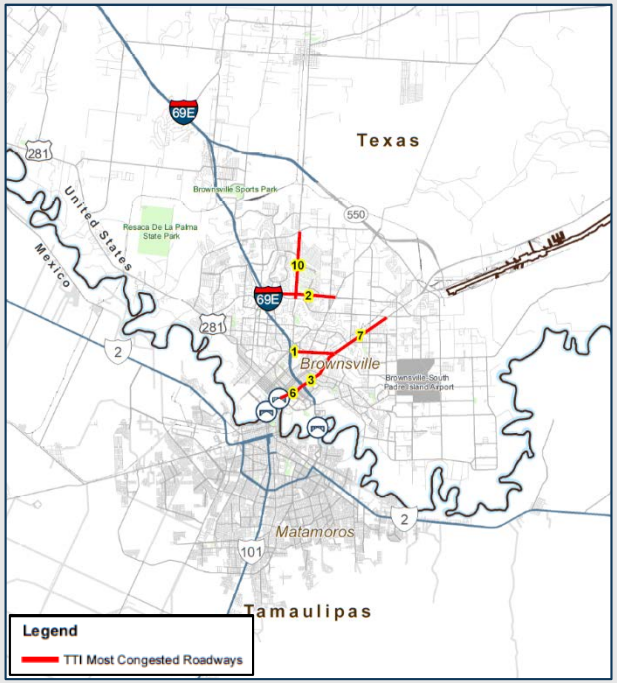
Mobility and Reliability Needs: Roadway Delays (Congestion) (5.3.2): Rio Grande Valley/Tamaulipas Region

1. Boca Chica Blvd./SH 48 (I-69E/US 83/US 77 to E. 14th St.)
2. E. Ruben M. Torres Sr. Blvd./FM 802 (I-69E/US 83/US 77 to Old Port Isabel Rd.)
3. International Blvd./SH 4 (I-69E/US 83/US 77 to Boca Chica Blvd./SH 48)
4. I-2 (US 281 to S. 23rd St.)
5. Trenton Rd. (N. 23rd St./FM 1926 to I-69C/US 281)
6. International Blvd./SH 4 (U.S.-Mexico Border to I-69E/US 83/US 77)
7. E. 14th St./SH 48 (Boca Chica Blvd./SH 48 to Jaime J. Zapata Ave.)
8. University Dr./SH 107 (N. 23rd St./FM 1926 to I-69C/US 281)
9. BU 83 (Ware Rd./FM 2220 to I-2/US 83 (Jackson Rd.)

RGV Region (Mc-Allen-Edinburg-Mission Area) - Current Top Congested Segments



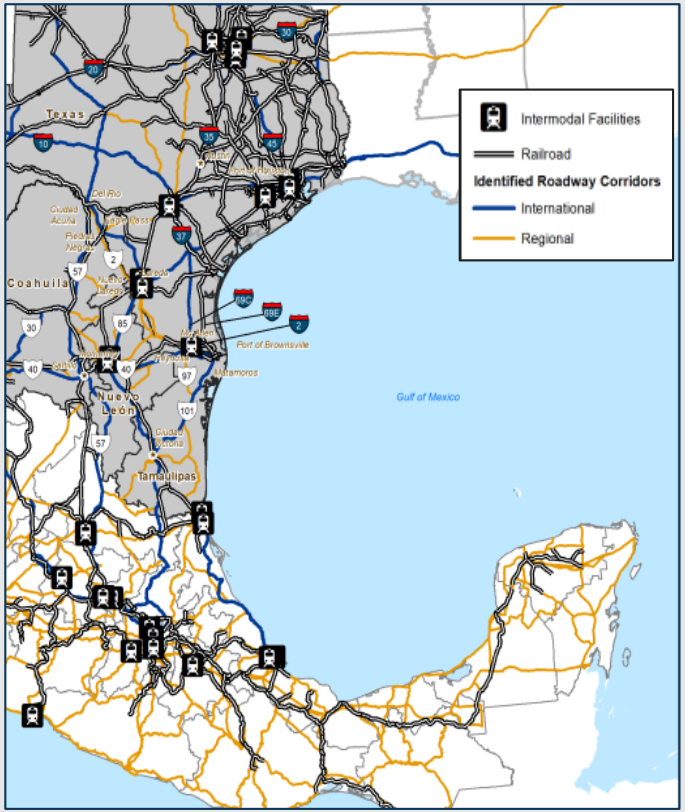
RGV Region (Brownsville-Harlingen Area - Current Top Congested Segments



Mobility and Reliability Needs: Multimodal Connectivity (5.3.3): Rio Grande Valley/Tamaulipas Region

- Improvements to congested intermodal **rail facilities** on the U.S. side of the border, especially in Brownsville
- Enhancements to limited sidewalk connectivity, and gaps between the **bike and pedestrian** network and borderwide major destinations
- Improvements to frequency of **transit service**, bus delays, wait times, and lack of transit service connectivity to bike/pedestrian crossings
- Continued **population growth** will result in a higher demand for transit connections

Rail Connectivity – LRD/RGV Regions



Mobility and Reliability Needs: Multimodal Connectivity (5.3.3): Rio Grande Valley/Tamaulipas Region

- **Truck network** upgrades to higher standards to meet the demands of increasing truck-seaport movements
- Limited wayfinding between crossings and **border region airports** and limited local connectivity between areas surrounding the **regional airports**

Seaport Connectivity – LRD/RGV Regions

Mobility and Reliability Needs: Rail Border Crossings (5.3.4): Rio Grande Valley/Tamaulipas Region

- All rail bridges that connect Texas and Mexico in the region are **single-tracked.** This prevents simultaneous two-way operations and creates bottlenecks as trains queue in both directions.
- **Brownsville West Rail Bride (UP)**
  - Congestion and overutilization of single-track rail line

NORTHBOUND RAILCAR TRENDS:

1996 – 2019:

+748,000 (305%)

from 252 thousand to 1 million railcars

2019 – 2050:

+1,600,000 (160%)

from 1 million to 2.6 million railcars

Mobility and Reliability Needs: Blocked Highway/Rail Crossings (5.3.5): Rio Grande Valley/Tamaulipas Region

- **Improvements to highway/rail grade crossings** needed
- A single **stopped train can block all highway/rail crossings** from the border to two miles north of the border
- **Brownsville's West Rail Bridge** (2015) was the first rail bridge built in a century. It relocated rail traffic away from downtown areas and eliminated 14 highway/rail crossings downtown.

BLOCKED HIGHWAY/RAIL CROSSING NEEDS

- Locomotives and railcars block at-grade streets in border region urban areas when stopping for inspection and crew change
- Class I railroads have increased train lengths as part of the paradigm shift to precision scheduled railroading

Safety and Security: Border Crossing Safety (5.4.1): Borderwide

- Opportunities to reduce safety conflicts which occur in areas where **commercial vehicles and other modes mix**
- The **number of incidents close to border crossings is growing** as roads accommodate higher traffic volumes and larger sizes of commercial trucks

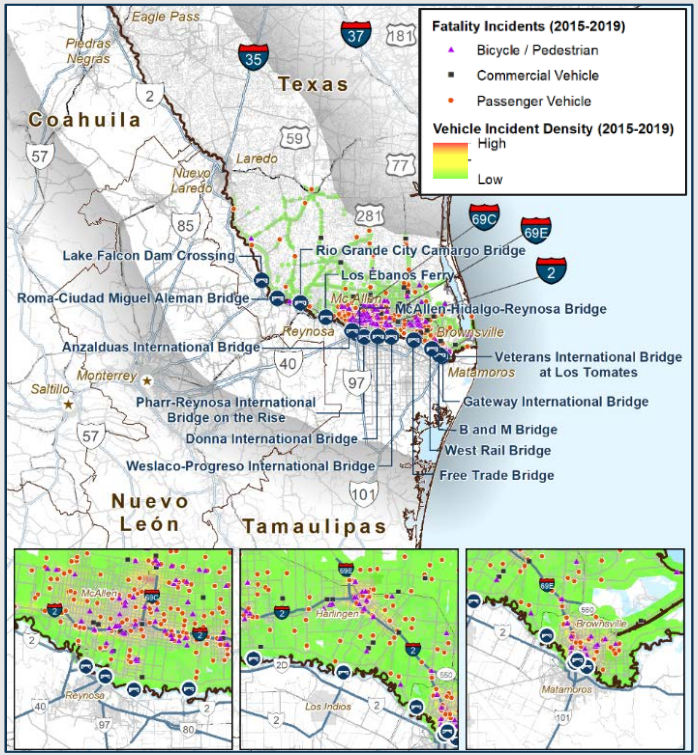
BORDER CROSSING SAFETY AND SECURITY NEEDS

- Expand number of border crossings with capability to process hazardous materials
- Improve limited pedestrian and bike infrastructure at border crossings and connecting roads
- Potential to provide separate truck lanes at crossings that process hazardous materials

Safety and Security: Roadway Safety (5.4.2): Rio Grande Valley/ Tamaulipas Region

- **Regional corridors (I-2, I-69C, I-69E), and connecting roadways)** have hot spot locations in the McAllen, Harlingen, and Brownsville downtowns.
- **Active highway/arterial harmonization on regional corridors** is needed to reduce truck/auto conflicts.
- **Higher POV crash rate** at 325 crashes per 100 million vehicle miles traveled (VMT) between 2015 and 2019. This is higher than the statewide crash rate (258 crashes).
- **Higher Commercial Vehicle crash rate** at 155 crashes per 100 million VMT between 2015 and 2019. This is higher than the statewide crash rate (145 crashes).
- **Higher bicycle/pedestrian crash percentages** at 2.6% of total crashes 1 mile from the border between 2015 and 2019, higher than the statewide crash rate (1.5%).

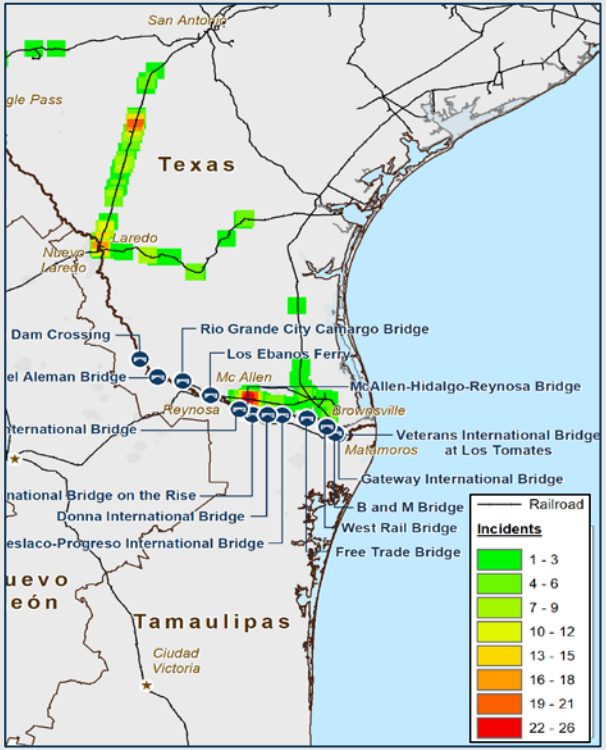
Roadway Safety – RGV Region



Safety and Security: Rail Safety (5.4.3): Rio Grande Valley/Tamaulipas Region

- A **significant number of at-grade rail crossings occur through the dense urban street network** surrounding the McAllen International Airport.

RGV Region At-Grade Rail Crossing Incidents

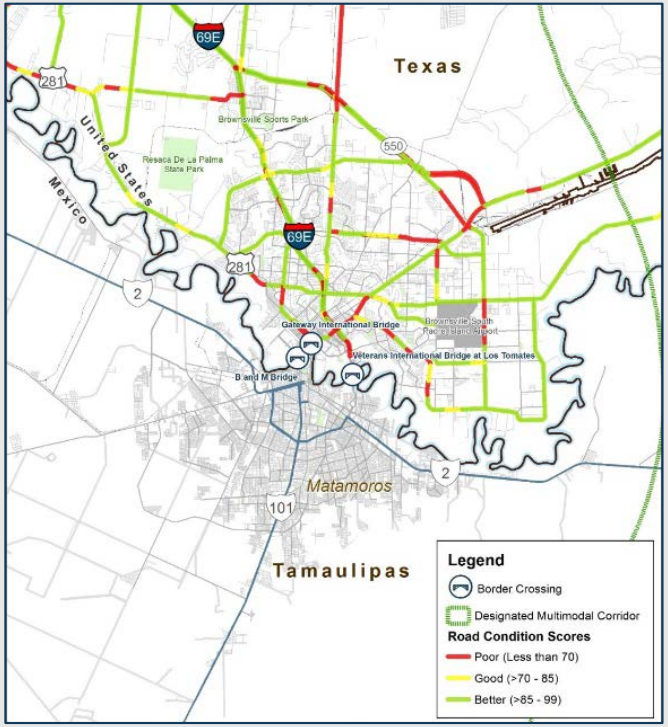


Asset Preservation: Pavement Conditions (5.5.1): Rio Grande Valley/ Tamaulipas Region

Poor pavement conditions are concentrated near border crossings and on key corridors.

- 3% of Brownsville I-69
- 10% of regional roadways
- 13% of regional roadways 1 mile from the border

Rio Grande Valley/Tamaulipas Region
Pavement Conditions



Asset Preservation: Bridge Conditions (5.5.2): Borderwide

Texas maintains the largest bridge inventory in the nation, yet has the smallest percentage of structurally deficient bridges (1.3%).

92% of Texas bridges borderwide are in good or better condition.

	Functionally Obsolete	Structurally Deficient	Good or Better	Percent Good or Better
El Paso Region	93	3	931	90.7%
Laredo Region	54	2	811	93.5%
RGV Region	0	52	670	92.8
Borderwide	147	57	2,412	92.2%

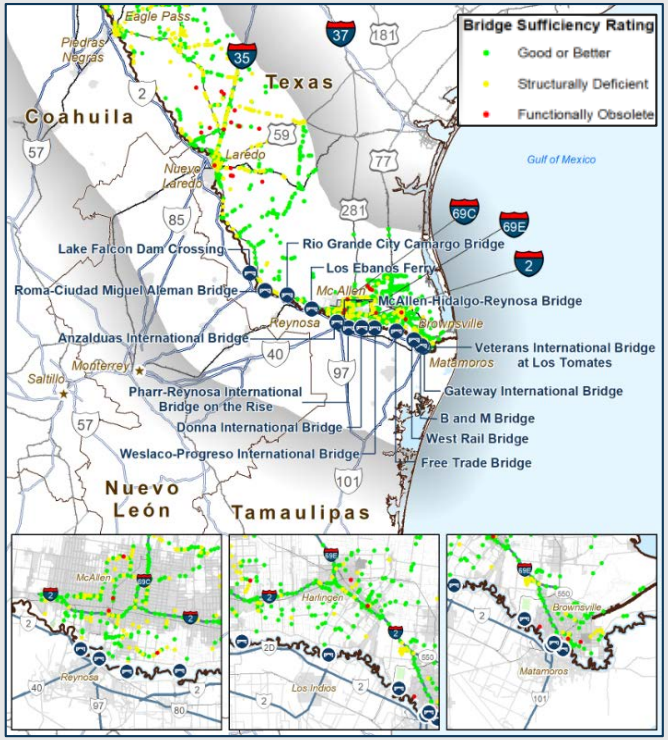
Asset Preservation: Bridge Conditions (5.5.2): Rio Grande Valley/ Tamaulipas Region

RGV Region Bridge Conditions

	Functionally Obsolete	Structurally Deficient	Good or Better	Percent Good or Better
RGV Region	0	52	670	92.8

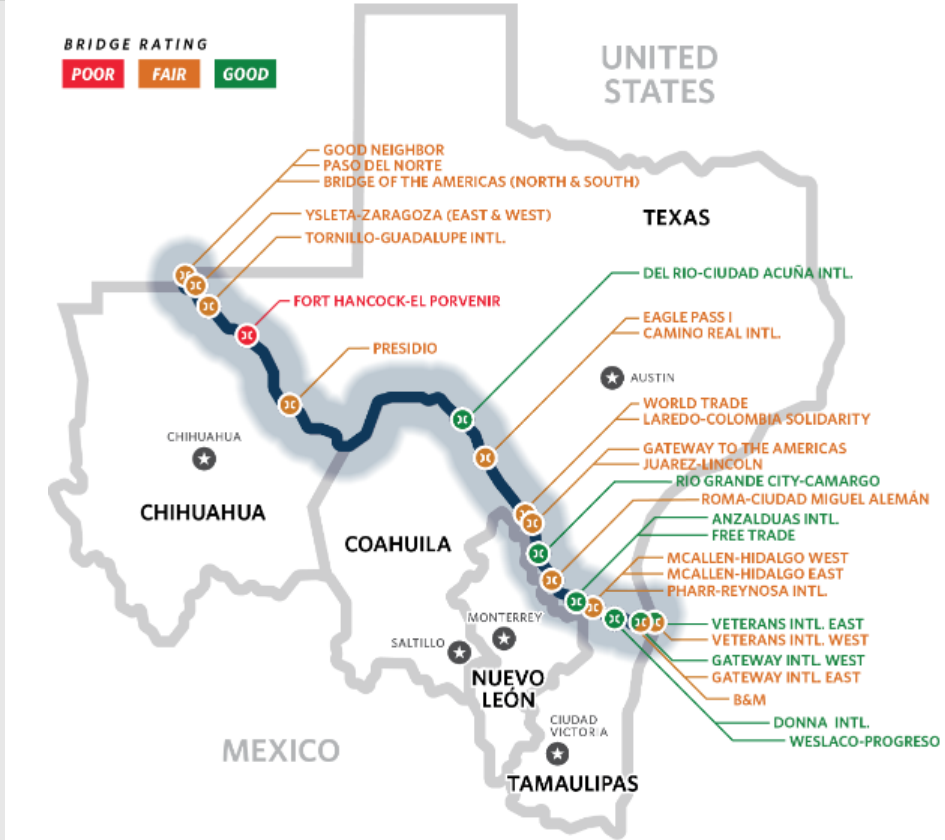
- Poorer conditions concentrated in urban areas and near border crossings
- Two bridges have low vertical clearance (under 14”)

RGV Region Bridge Conditions



Asset Preservation: Border Crossing Conditions (5.5.3): Borderwide

- Border crossings have **no consistent funding sources nor asset management programs** to ensure adequate maintenance over time
- Opportunities to improve the more than **two-thirds of border crossings are in fair condition** (and could deteriorate to poor conditions)
- **50% CBP facilities are in good condition**. Lake Falcon Damn Crossing and McAllen-Hidalgo facilities are rated in poor condition.



Asset Preservation: Rail Crossings (5.5.4): Borderwide

- Annual inspections and reports indicate whether the rail crossing is safe for current traffic and able to safely support the loadings (weight and mass)

- As of 2019, all rail crossings borderwide were in good serviceable condition

- Rail intermodal facilities also require maintenance over time to ensure they can sufficiently facilitate truck-rail movements

Survey Sample of Needs by Border Crossing

	El Paso/Santa Teresa/ Chihuahua Region								Laredo/Coahuila/Nuevo León/Tamaulipas Region								Rio Grande Valley/Tamaulipas Region												
	Santa Teresa	Paso del Norte	Good Neighbor	Bridge of the Americas	Ysleta-Zaragoza	Tornillo-Guadalupe Intl.	Fort Hancock–El Porvenir	Presidio	Lake Amistad Dam Crossing	Del Rio-Ciudad Acuña Intl.	Eagle Pass I	Camino Real Intl.	Laredo-Colombia Solidarity	World Trade	Gateway to the Americas	Juarez-Lincoln	Lake Falcon Dam Crossing	Roma-Ciudad Miguel Alemán Aleman	Rio Grande City-Camargo	Los Ebanos Ferry	Anzalduas Intl.	McAllen-Hidalgo	Pharr-Reynosa Intl.	Donna Intl.	Weslaco-Progreso	Free Trade	B & M	Gateway Intl.	Veterans Intl.
Capacity constraints of key corridors		X	X	X		X	X			X		X	X	X			X	X	X		X	X			X		X	X	X
Capacity constraints of connectors		X	X	X		X	X			X			X		X								X						
Capacity constraints of interchanges				X		X	X					X	X			X			X				X				X		
Lack of connectivity to key corridors						X							X											X	X	X			
Traffic Impacts on neighborhoods and residential areas					X					X	X	X	X		X								X				X	X	X
Lack of connectivity to key industries		X	X			X		X		X	X						X	X		X				X					

BNRSC Feedback

1. Are there any needs that we missed?

Chapter 8: Identification and Evaluation of Strategies to Address Current and Future Needs

Approach and Preliminary Analysis

Identification and Evaluation of Strategies to Address Current and Future Needs Overview

Chapter Purpose	Key Messages	Support Messages
▪ Identify key strategies that are consistent with policies, programs and projects to address current and future needs ▪ Organize the strategies in a way that assists stakeholders in linking them to identified needs in the present and future ▪ Evaluate strategies using criteria that reflects the BTMP goals	▪ There are multiple solutions to address important needs, including policies, programs, and projects ▪ Strategies for border crossings and corridors will be evaluated using similar but separate approaches ▪ Evaluation of strategies will be conducted using a regional approach	▪ Provide the framework and criteria for strategy evaluation tied to goals, mode, region and movement of people and goods

Approach Overview: Organize and Match Strategies to Goals and Needs

- Strategies will be organized in three categories:
  - **Policies:** Positions of a public entity or organization that provide an overall framework for investment or level of effort decision-making
  - **Programs:** A plan or system of actions that are repeatable across multiple platforms or locations
  - **Projects:**
    - Infrastructure: New or expanded physical capacity
    - Operational: Tools or techniques to apply to solutions
- Within each category, strategies will be further refined by whether they apply to:
  - Border crossings or corridors
  - Movement of goods or movement of people
- Many strategies suggested in this plan cross multiple goals and categories and can be used in a variety of locations

Preliminary Identification of Policies, Programs and Projects Strategies: Process Overview

Chapter 5:
Current and Future Needs Identified

List of Policies, Programs and Projects Existing Plans and Stakeholder Identified

Link Policies, Programs and Projects to Needs Identified in Chapter 5

Identify Gaps Not Addressed by Identified Policy, Program and Project Strategies

Stakeholder input on additional policies, programs and projects to address gaps

Chapter 8
Evaluate Strategies

Chapters 10 and 11:
Recommendations and Implementation Plan

Financially Unconstrained:
High, Medium, Low Tiers

Financially Constrained:
High, Medium, Low Tiers

Border region
Border crossing
Corridor
Borderwide

Recommendations (Chapter 10) & Implementation Plan (Chapter 11)
High, Medium, Low Tiers by Geography

Stakeholder input:
Timeline by short (1-5 years), mid (6-10 years) and long (11+ years)

Projects, policies, and programs by border region, border crossing, and passenger and freight modes

BNRSC Feedback

1. Are there any comments to the proposed approach and framework to identify strategies?

Preliminary Identification of Strategy Types: Performance Needs

Goal	Issue	Border Crossing Needs	Corridor Needs	Key Strategy Type
Mobility and Reliability: Operational Efficiency	Increasing border wait times and delays, roadway congestion, and blocked at-grade rail crossings	▪ Robust and coordinated border management ▪ Broad integration and adoption of technologies (including border screening technology) ▪ Demand management ▪ Additional border inspection staff ▪ Additional border hours of operation ▪ Better distribution of passenger and commercial uses compared to transportation demand	▪ Updated transportation systems ▪ Traffic optimization strategies and technology ▪ Additional on-ramp and off-ramp length ▪ Updated traffic signal control and coordination ▪ Static message signs ▪ Additional transportation choices ▪ Additional connectivity for oversized and/or overweight vehicles	Policies, Programs
Mobility and Reliability: System Capacity	Insufficient physical capacity to accommodate growing traffic volumes	▪ Additional system capacity and alignment with existing border crossings and transportation network infrastructure ▪ Additional capacity in existing border crossings ▪ Limited multimodal network capacity	▪ Roads updated to modern design standards ▪ More lane capacity on current key roads ▪ More connections between corridors and crossings ▪ Highway/rail grade separation ▪ Alternative transportation choices ▪ Additional truck parking capacity	Projects

Example: Strategies to Address Border Crossing Delays

Border Crossings – Movement of Goods

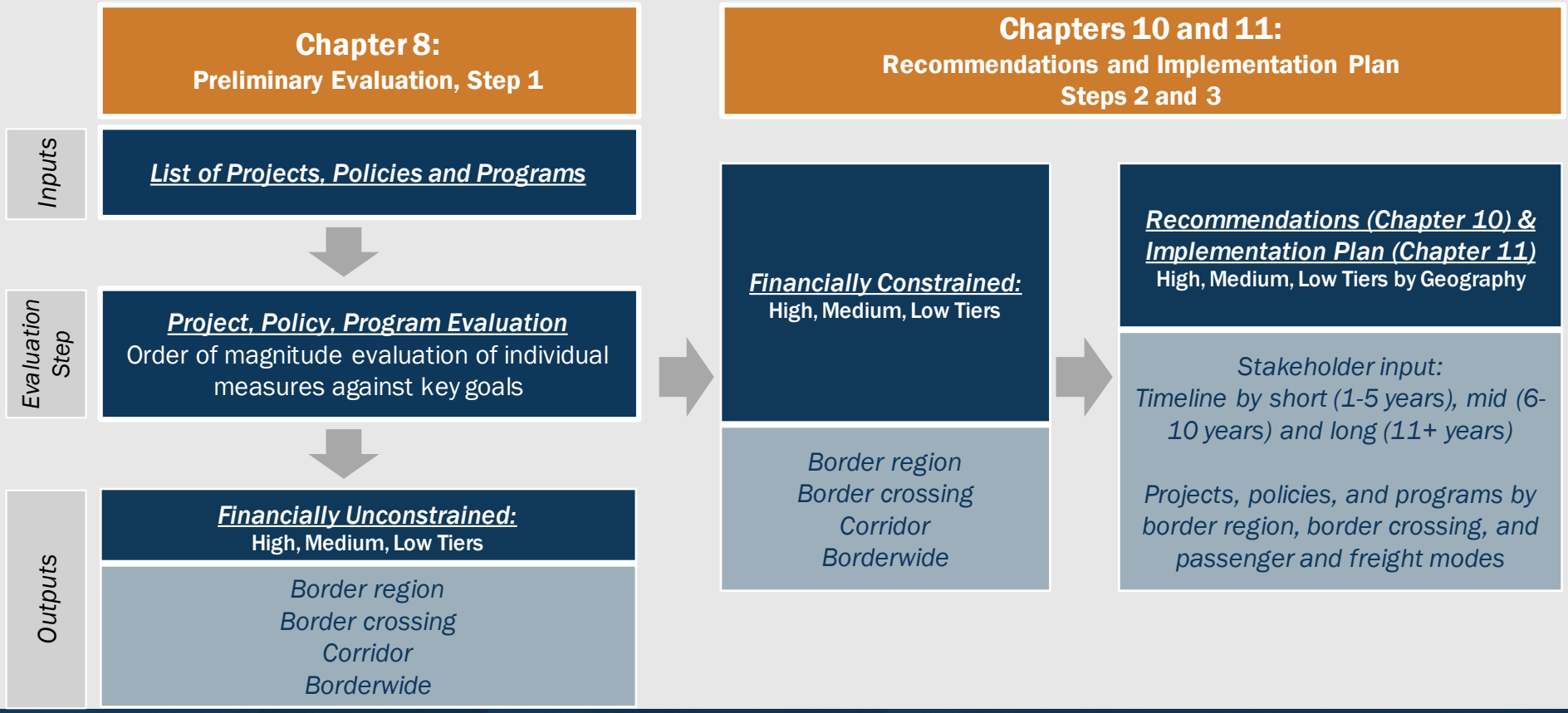
POLICY	PROGRAM	PROJECT
Issue/Need: Demand management	**Issue/Need:** Additional border hours of operation	**Issue/Need:** Better distribution of passenger and commercial uses compared to transportation demand
Strategy: Balance distribution of passenger and commercial uses based on transportation demand	**Strategy:** Truck ▪ Extended hours of operation at commercial border crossings	**Strategy:** Infrastructure ▪ *Truck* ✓ Additional lanes to existing border crossings that are over-capacity (regular and/or FAST)
Primary Goal: ▪ Mobility and Reliability: Operational Efficiency	**Primary Goal:** ▪ Mobility and Reliability: Operational Efficiency	**Primary Goal:** ▪ Mobility and Reliability: Operational Efficiency

Example: Strategies to Address Border Crossing Delays

Border Crossings – Movement of People

POLICY	PROGRAM	PROJECT
Issue/Need: Demand management	**Issue/Need:** Additional border inspection staff	**Issue/Need:** Better distribution of passenger and commercial uses compared to transportation demand
Strategy: Standardized information to users on wait times and congestion around border crossings	**Strategy:** Passenger Vehicles ▪ Additional CBP staffing	**Strategy:** Infrastructure ▪ *Passenger Vehicles* ✓ Additional lanes to existing border crossings that are over-capacity (regular and/or SENTRI)
Primary Goal: ▪ Mobility and Reliability: Operational Efficiency	**Primary Goal:** ▪ Mobility and Reliability: Operational Efficiency	**Primary Goal:** ▪ Mobility and Reliability: Operational Efficiency

Preliminary Evaluation of Policies, Programs and Projects: Process Overview



BNRSC Feedback

1. Are there any comments to the proposed approach and framework to evaluate strategies?

Preliminary Evaluation Framework: Policies, Programs, and Projects

Candidate Policy, Program, Project List	▪ Clearly-defined ▪ Previous plans and studies ▪ Stakeholder needs ▪ BTMP needs and gaps
Goals and Objectives	▪ Measures linked to goals and objectives
Policy, Program, Project Evaluation	▪ Data-driven ▪ Stakeholder input ▪ Simple and transparent process
Determine Program and Project Priorities	▪ High, medium, and low tiers ▪ Border region, border crossings, and corridors

Approach Overview: Quantitative and Qualitative Measures Linked to Goals

BTMP Goals	Example Indicators for Border Crossings	Example Indicators for Corridors
Safety and Security	Safety hotspots around border crossing	Safety hotspots in corridor; annual crashes, injuries, and fatalities per total miles traveled
Economic Competitiveness	Economic impacts of movements through border crossing; international trade value and weight through border crossing	International trade value and weight through corridor
Mobility and Reliability	Border wait times	Hours of delay
Multimodal Connectivity	Proximity to modal-transfer facilities; modal split through border crossing	Availability of modal-transfer facilities; modal split in corridor; cross-border origins and destinations
Cross-Border Resiliency	Bridge redundancy	Network redundancy; performance of hurricane evacuation routes
Asset Preservation	Asset condition – international bridges	Asset condition – pavements and bridges
Sustainable Funding	Amount of new funding made available for binational, multimodal projects	Amount of new funding made available for binational, multimodal projects
Stewardship	Community impacts and opportunities created	Community impacts and opportunities created
Customer Service	BTMP stakeholder engagement participation	BTMP stakeholder engagement participation

Approach Overview: Weights for BTMP Goals

- Proposed weights for BTMP goals developed through stakeholder input

BTMP Goals	BTAC Votes	BNRSC Votes	Stakeholder Workshop Votes	Public Meeting Votes	Weight
Safety and Security	**Top Priority: 4** Second Priority: 3	**Top Priority: 11** Second Priority: 7	**Top Priority: 21** Second Priority: 12	**Top Priority: 10**	11%
Economic Competitiveness	**Top Priority: 12** Second Priority: 12	**Top Priority: 12** Second Priority: 21	**Top Priority: 22** Second Priority: 27	**Top Priority: 11**	25%
Mobility and Reliability	**Top Priority: 14** Second Priority: 15	**Top Priority: 25** Second Priority: 20	**Top Priority: 58** Second Priority: 41	**Top Priority: 32**	37%
Multimodal Connectivity	**Top Priority: 4** Second Priority: 1	**Top Priority: 4** Second Priority: 7	**Top Priority: 6** Second Priority: 12	**Top Priority: 8**	8%
Cross-Border Resiliency	**Top Priority: 3** Second Priority: 3	**Top Priority: 8** Second Priority: 4	**Top Priority: 14** Second Priority: 13	**Top Priority: 3**	8%
Asset Preservation	**Top Priority: 0** Second Priority: 1	**Top Priority: 7** Second Priority: 8	**Top Priority: 4** Second Priority: 8	**Top Priority: 1**	4%
Sustainable Funding	**Top Priority: 3** Second Priority: 3	**Top Priority: 1** Second Priority: 1	**Top Priority: 5** Second Priority: 12	**Top Priority: 1**	5%
Stewardship	**Top Priority: 0** Second Priority: 0	**Top Priority: 0** Second Priority: 0	**Top Priority: 0** Second Priority: 1	**Top Priority: 0**	0%
Customer Service	**Top Priority: 0** Second Priority: 1	**Top Priority: 0** Second Priority: 2	**Top Priority: 3** Second Priority: 6	**Top Priority: 4**	2%

BNRSC Feedback

1. Do you have any comments to the proposed weights for the BTMP goals?

Example of Project Evaluation for Border Crossings and Corridors Using BTMP Goals

BTMP GOALS	POE A	POE B	POE C	Interstate A Widening	Interstate B Widening	Interstate C Widening
Safety and Security				✓	✓	
Economic Competitiveness		✓		✓	✓	✓
Mobility and Reliability	✓	✓	✓	✓	✓	✓
Multimodal Connectivity				✓		
Cross-Border Resiliency	✓	✓	✓			
Asset Preservation	✓	✓	✓	✓	✓	✓
Sustainable Funding						
Stewardship						
Customer Service						
TOTAL POINTS	49	74	49	85	77	66

Approach Overview: Determine Program and Project Priorities

- Thresholds for high, medium and low tiers

Tier	Threshold (Points)
High	> 70
Medium	40 – 70
Low	< 40

- Weight of top three BTMP goals equals 73 points

BNRSC Feedback

1. Do you have any comments to the proposed thresholds for the tiers?
2. Are there any comments or additional questions to the proposed approach to identify and evaluate strategies?

Future Forecasts for the Texas-Mexico Border Region

Chapter 6

Future Forecasts for the Texas-Mexico Border Region Overview

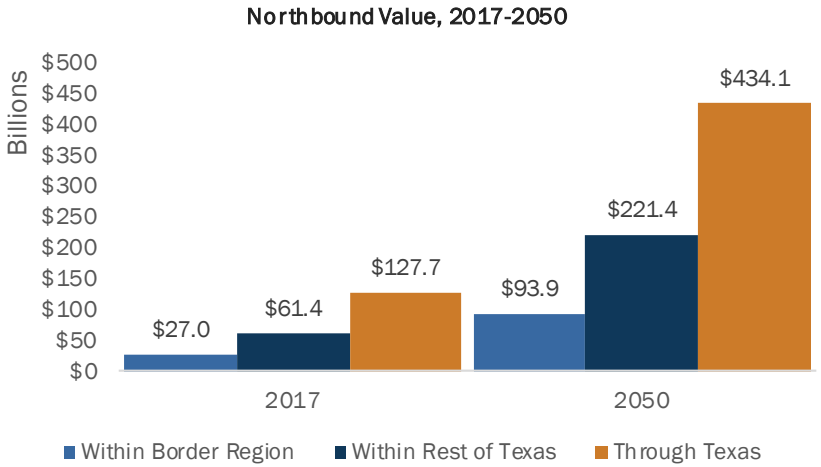
Chapter Purpose	Key Messages	Refinements
▪ Provide future forecasts to 2050 of the movements of people and goods ▪ Assess future demand for the binational transportation systems serving the Texas-Mexico border	▪ Forecast methodology accounts for historical trends and future factors ▪ Future factors include social, technical, environmental, economic, and political considerations ▪ Movement of people and goods are forecasted by mode, POE, geography ▪ Future scenarios will assess: – Employment – National economic activity (GDP) – Exchange rate – Border policies	▪ Provide information on through movements by border crossing/POE, and system impacts ▪ An additional 30 million people will cross the border – most by personal vehicle ▪ Truck and train movements almost triple – stressing border infrastructure capacity ▪ The value of trade crossing the border more than triples – making an effective border critical for the U.S. and Mexican economies

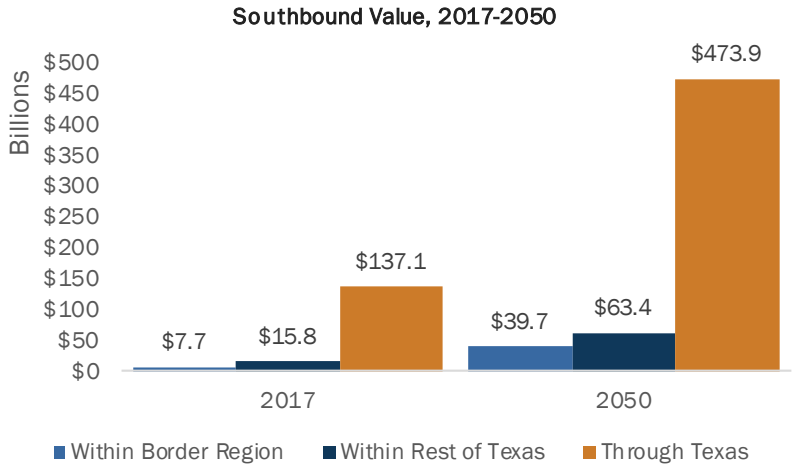
Mid-Case Forecast for Movement of Goods

- Truck, rail, air cargo, pipeline, and maritime
- By movement, tonnage, and value
- By borderwide, regional, and POE/border crossing

Forecasts of Total Trade by Value Through the Texas-Mexico Border, 2017–2050 (6.8.1)

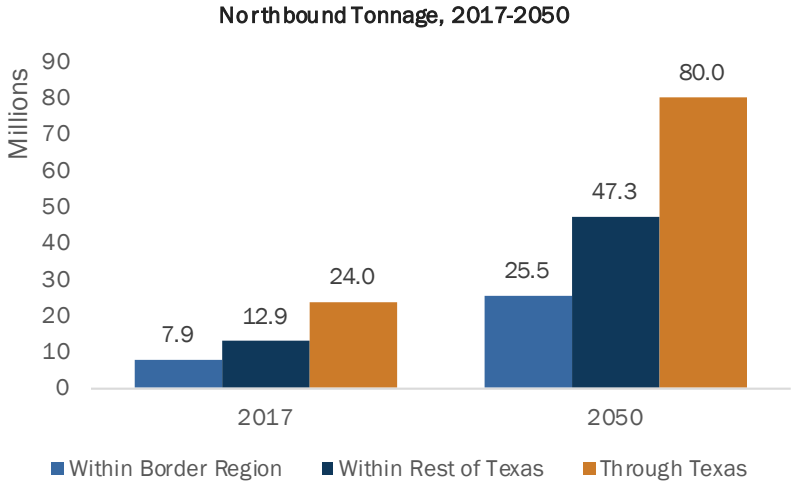
- Value of all trade **increases from $408 billion in 2017 to $1.4 trillion in 2050,** an increase of 243%
- In 2050, $434.1 billion (or 58%) of $749.4 billion in northbound trade (Mexican exports to the U.S.) is through Texas

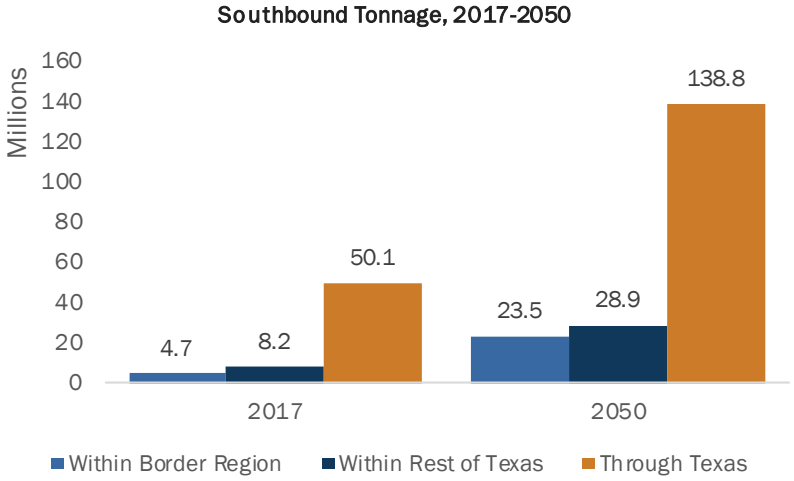




Forecasts of Total Trade by Tonnage Through the Texas-Mexico Border, 2017–2050 (6.8.1)

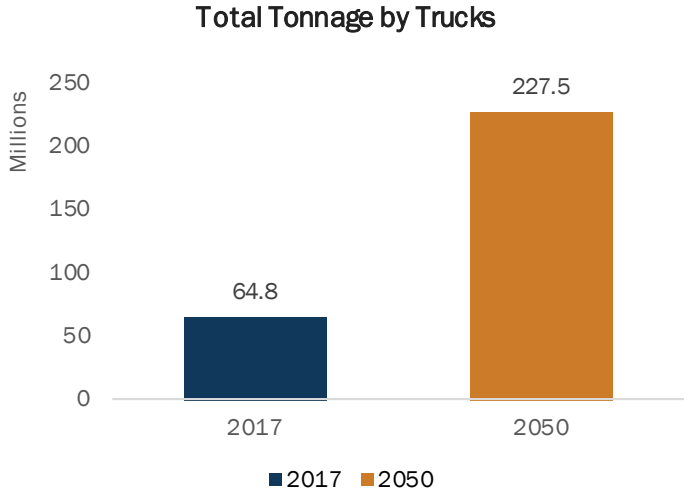
- **Total tonnage increases from 107.8 million in 2017 to 344.0 million in 2050,** an increase of 219% with faster growth in the northbound direction (241%)
- Most (more than 50% northbound and 70% southbound) of the tonnage crossing the border goes through Texas to other U.S. states

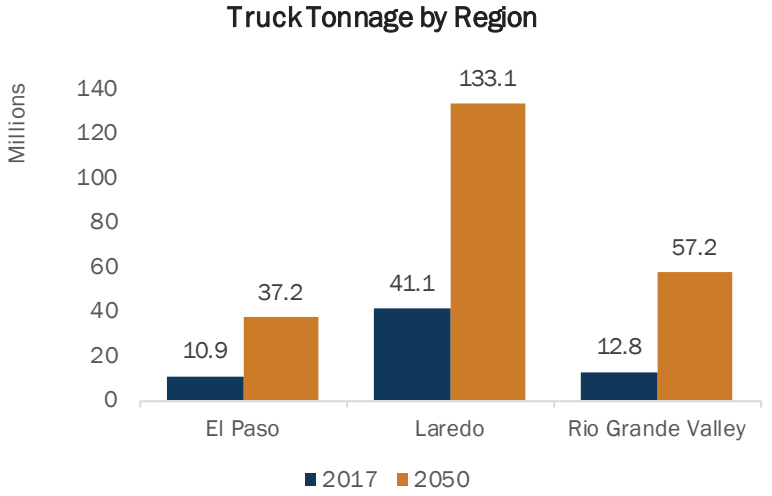




Future Movement of Goods by Tonnage Through Texas-Mexico Border: Truck (6.8.1)

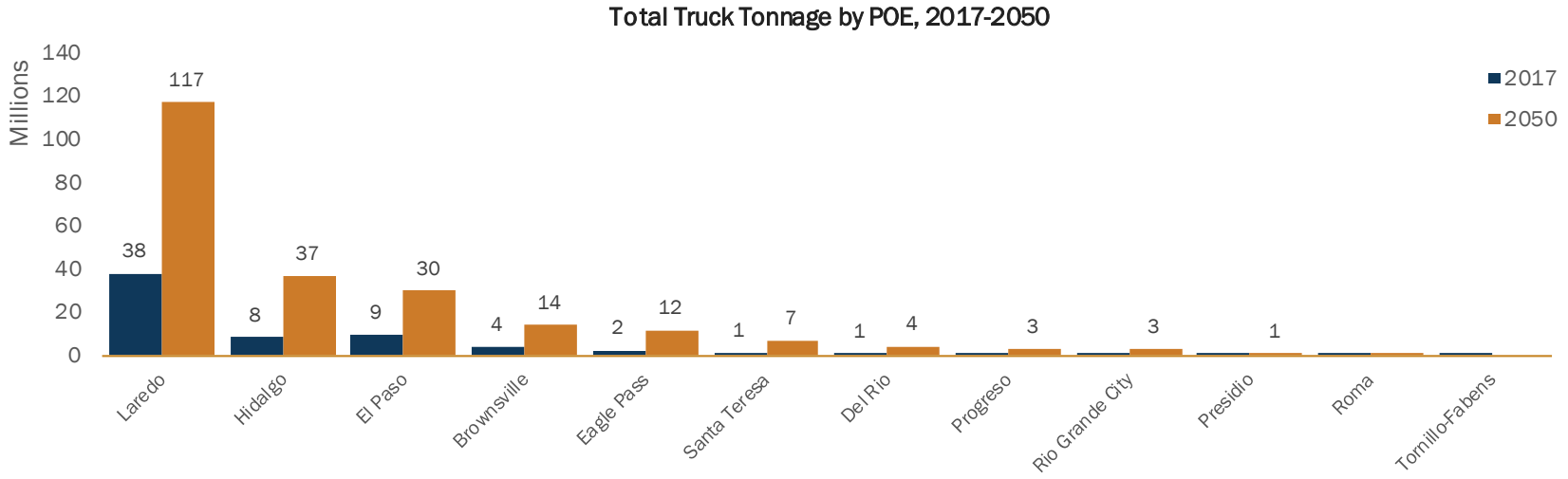
- **Tonnage moved by trucks increases from 64.8 million in 2017 to 227.5 million in 2050,** an increase of 251%
- In 2050, the Laredo/Coahuila/Nuevo León/Tamaulipas Region accounts for 133.1 million (59%) of 227.5 million tons moved by trucks (compare a 62% share in 2017)





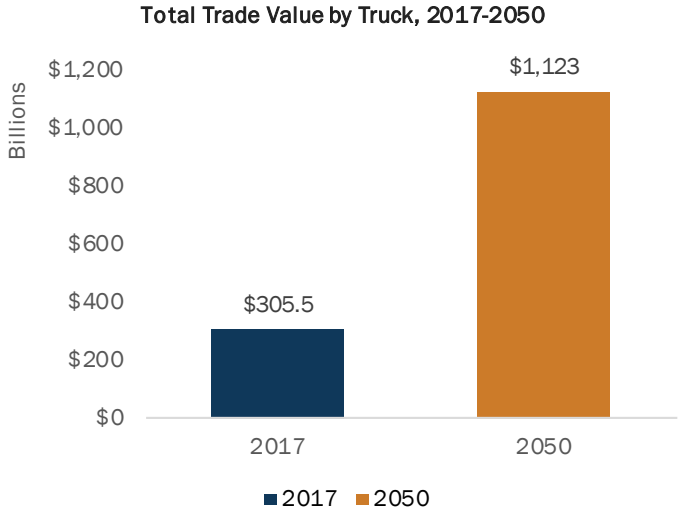
Future Movement of Goods by Tonnage Through Texas-Mexico Border: Truck (6.8.1)

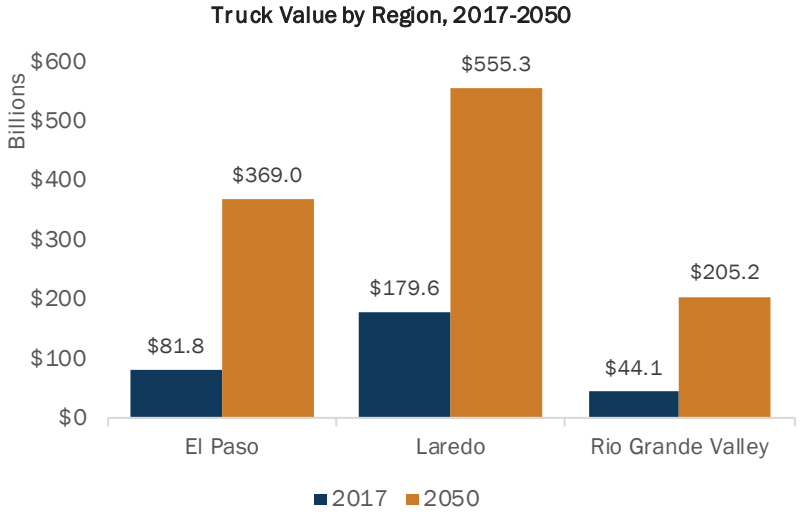
- **The Laredo POE grows from 38 million tons in 2017 to 117 million tons in 2050,** an increase of 208%
- In 2050, the Laredo POE accounts for 117 million tons (or 51%) of 227.5 million tons moved by trucks, a decline from a 59% share in 2017



Future Movement of Goods by Value Through Texas-Mexico Border: Truck (6.8.1)

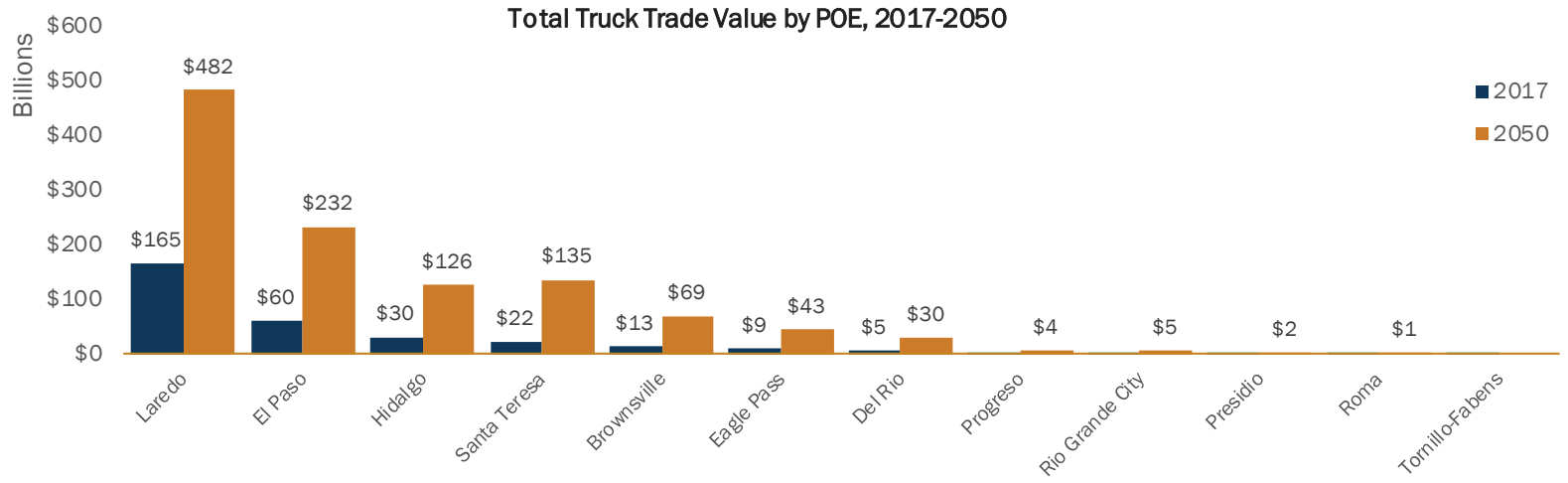
- **Value of goods moved by truck grows from $305.5 billion in 2017 to $1,123 billion in 2050,** an increase of 268% (compared to an increase of 251% for tonnage)
- In 2050, the Laredo/Coahuila/Nuevo León/Tamaulipas Region accounts for $555.3 billion (49%) of $1,123 billion moved by trucks (compared to 59% share in 2017)





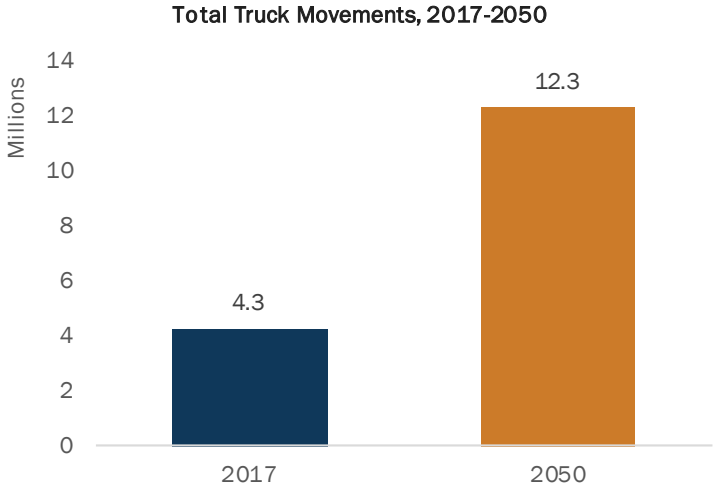
Future Movement of Goods by Value Through Texas-Mexico Border: Truck (6.8.1)

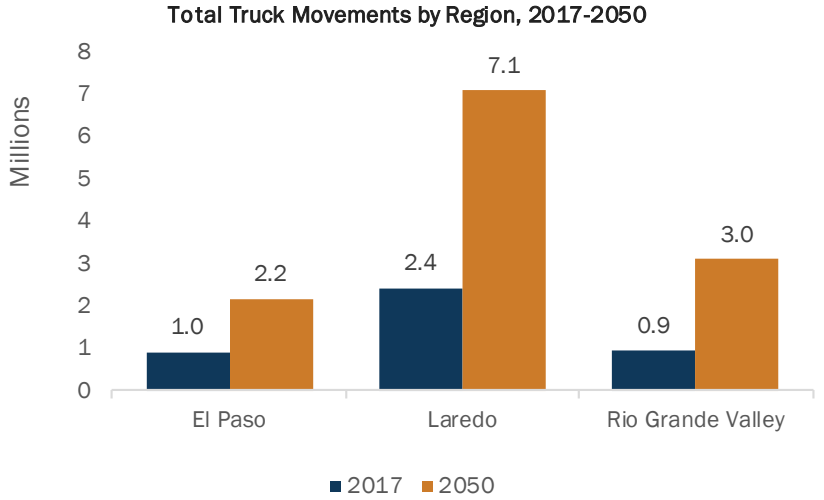
- Value of goods moved by truck through Laredo POE grows from $165 billion in 2017 to $482 billion in 2050, an increase of 192%
- **Four POEs surpass $100 billion in annual trade by truck by 2050**: Laredo, El Paso, Hidalgo, and Santa Teresa



Future Truck Movement Through Texas-Mexico Border (6.8.1)

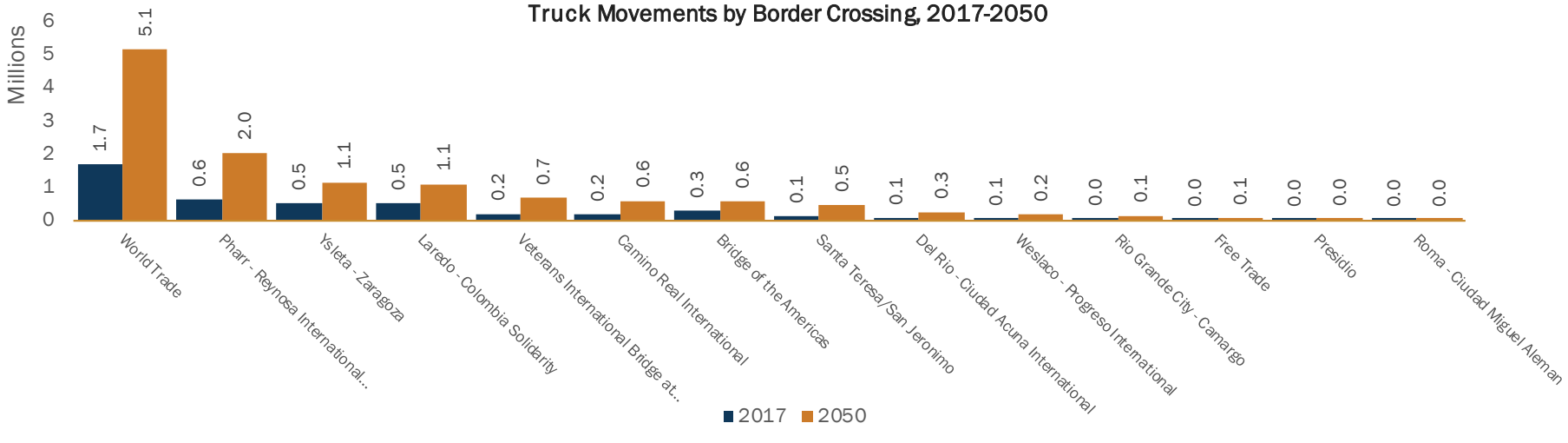
- **Truck movements grow from 4.3 million in 2017 to 12.3 million in 2050,** an increase of 186%
- In 2050, the Laredo/Coahuila/Nuevo León/Tamaulipas Region accounts for 7.1 million (58%) of 12.3 million truck movements (compared to 56% share in 2017)





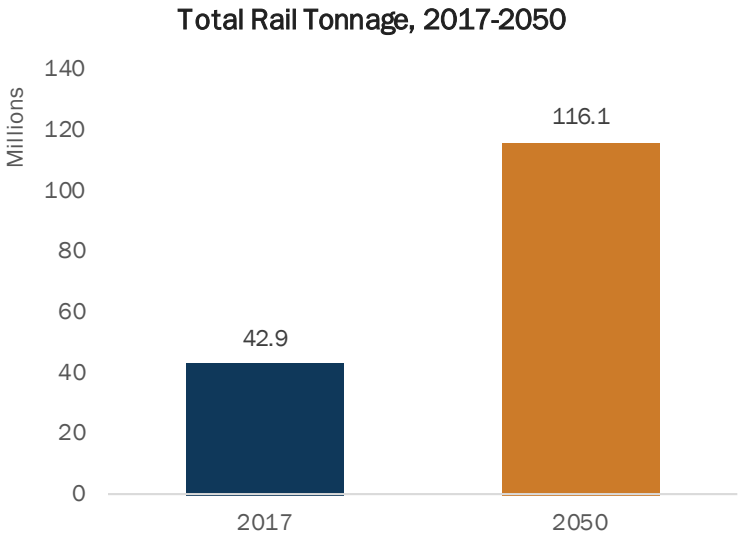
Future Truck Movement Through Texas-Mexico Border (6.8.1)

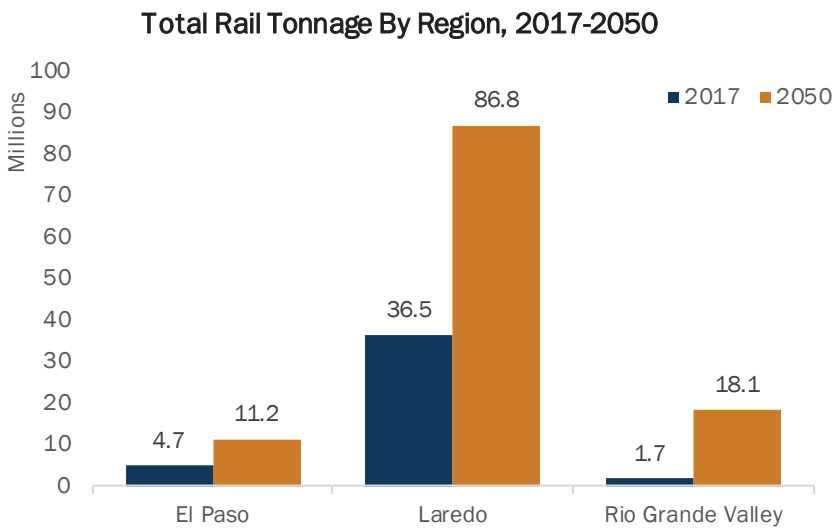
- **Truck movements through World Trade grows from 1.7 million in 2017 to 5.1 million in 2050,** an increase of 200%
- In 2050, the World Trade accounts for 5.1 million (or 41%) of 12.3 million truck movements, an increase from a 40% share in 2017



Future Rail Movement of Goods by Tonnage Through Texas-Mexico Border: Rail (6.8.1)

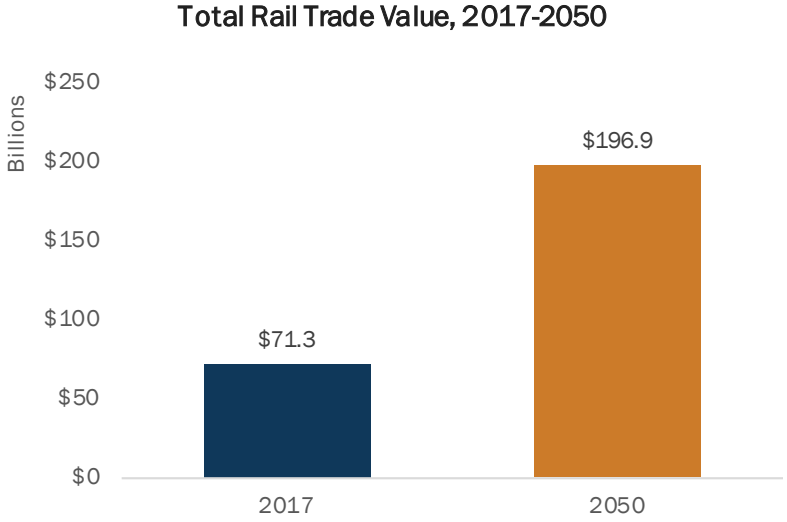
- **Rail tons increase from 42.9 million in 2017 to 116.1 million in 2050,** an increase of 171%
- In 2050, the Laredo/Coahuila/Nuevo León/Tamaulipas Region accounts for 86.8 million (75%) of 116.1 million rail tons, a decrease from an 85% share in 2017

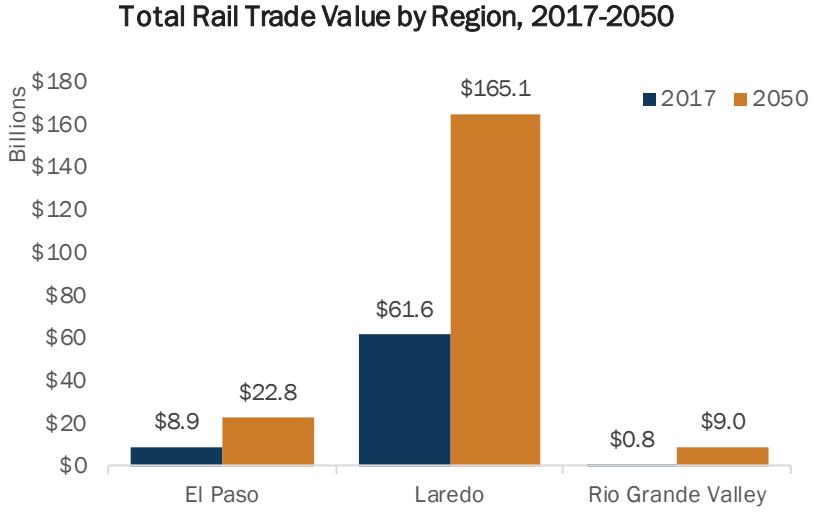




Future Movement of Goods by Value Through Texas-Mexico Border: Rail (6.8.1)

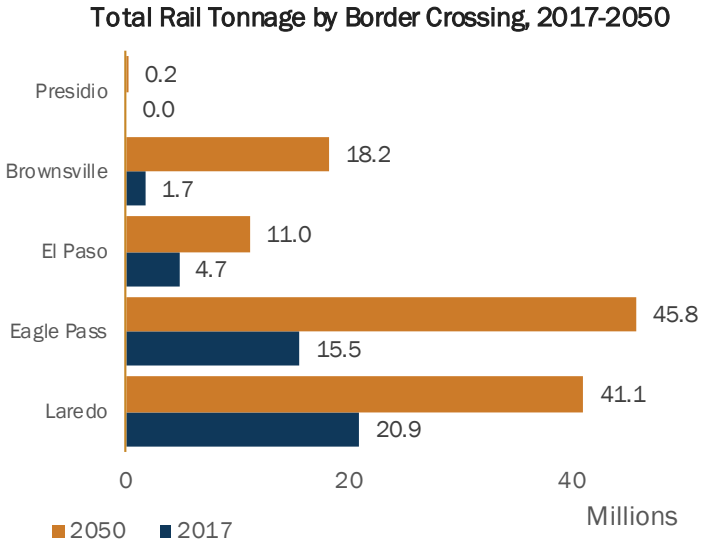
- **Value of goods moved by rail increase from $71.3 billion in 2017 to $196.9 billion in 2050**, an increase of 176%
- In 2050, the Laredo/Coahuila/Nuevo León/Tamaulipas Region accounts for $165.1 billion (84%) of $196.9 billion moved by rail, a decrease from a 86% share in 2017

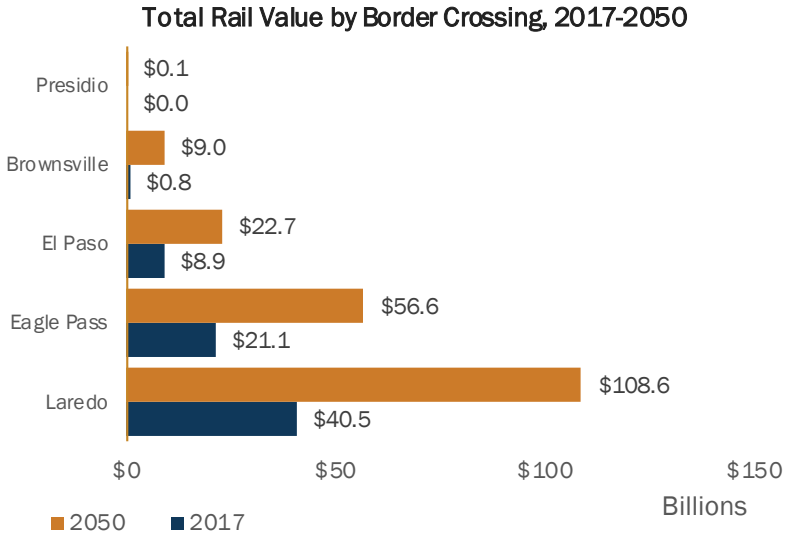




Future Movement of Goods by Rail Through Texas-Mexico Border: Rail (6.8.1)

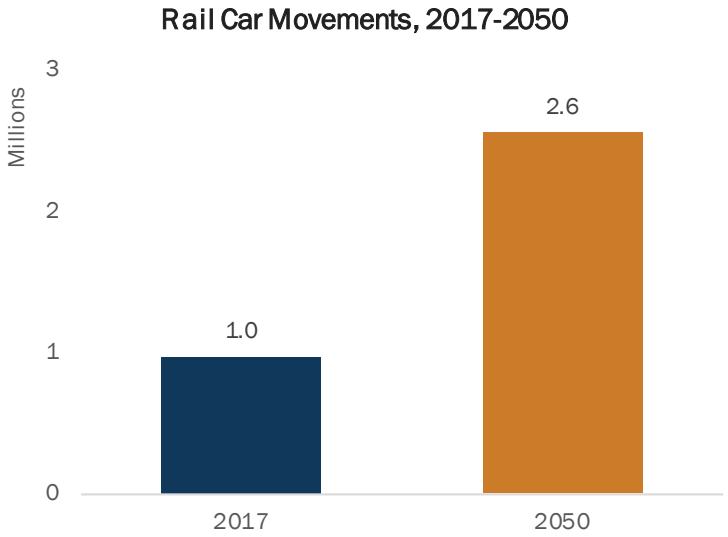
- By 2050, the **Eagle Pass Rail Bridge will move more goods by tonnage** than any other rail crossing, compared to 2017 when Laredo Rail Bridge had the most tonnage
- **Laredo Rail Bridge will move the most goods by value** at $108.6 billion in 2050

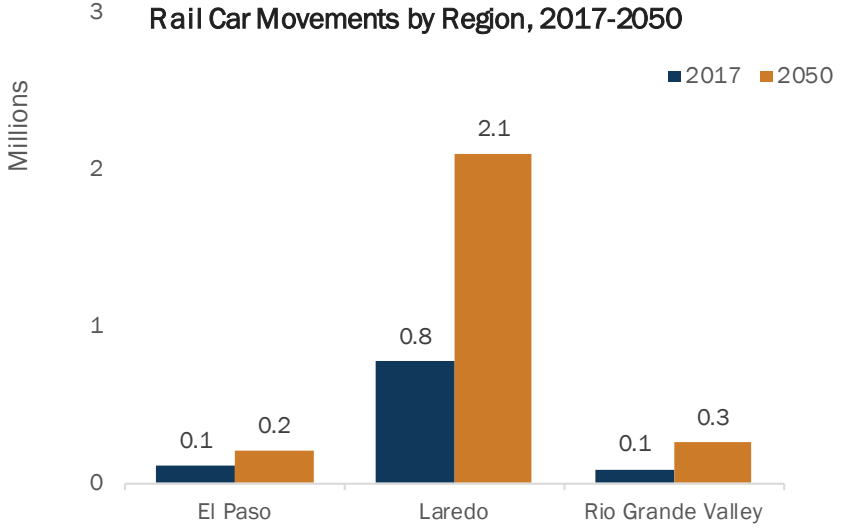




Future Movement of Goods by Rail Through Texas-Mexico Border (6.8.1)

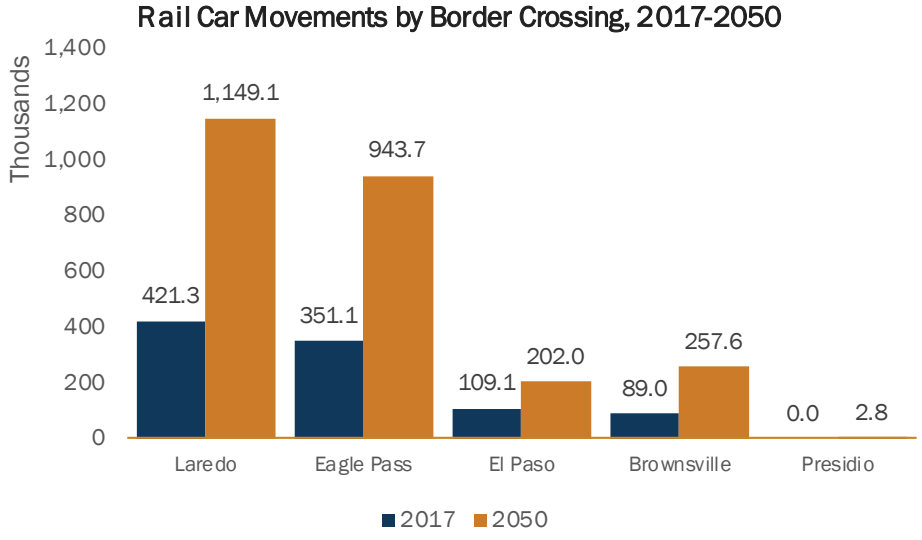
- **Railcar movements increase from 1.0 million in 2017 to 2.6 million in 2050,** an increase of 160%
- In 2050, the Laredo/Coahuila/Nuevo León/Tamaulipas Region accounts for 2.1 million (88%) of 2.6 million rail movements, an increase from a 80% share in 2017





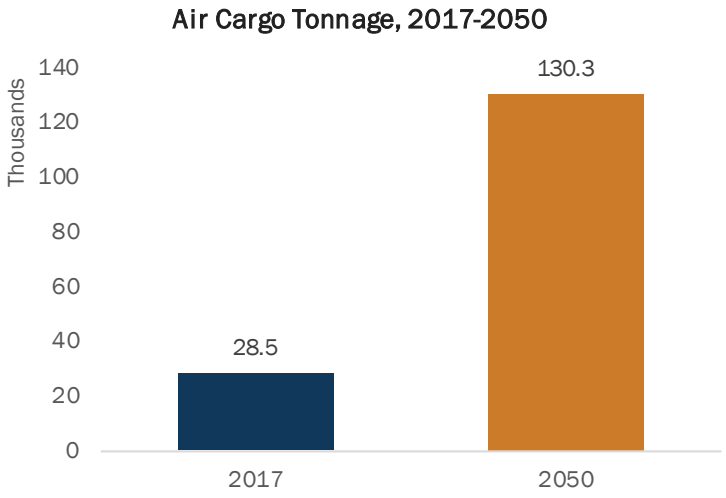
Future Movement of Goods by Rail Through Texas-Mexico Border (6.8.1)

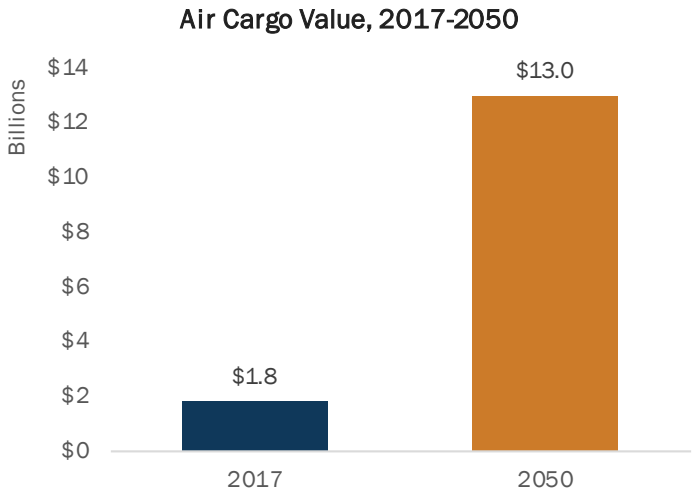
- **In 2050, the Laredo Rail Bridge accounts for 1.1 million (44%) of 2.6 million rail movements,** an increase from a 42% share in 2017
- **In 2050, the Eagle Pass Rail Bridge accounts for 0.9 million (37%) of 2.6 million rail movements,** an increase from a 36% share in 2017



Future Movement of Goods by Air Through Texas-Mexico Border (6.10.1)

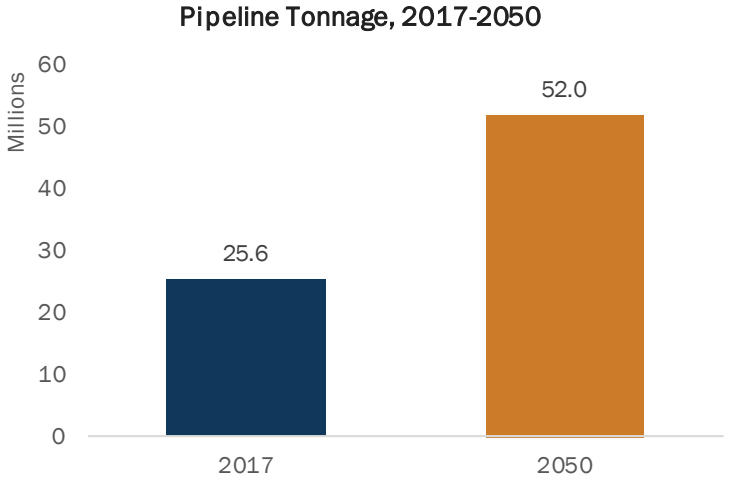
- Air cargo volumes between Texas and Mexico will grow from 28.5 thousand tons in 2017 to 130.3 thousand tons in 2050, an increase of 357%
- **Air cargo values will increase from $1.8 billion in 2017 to $13.0 billion in 2050,** an increase of 622%

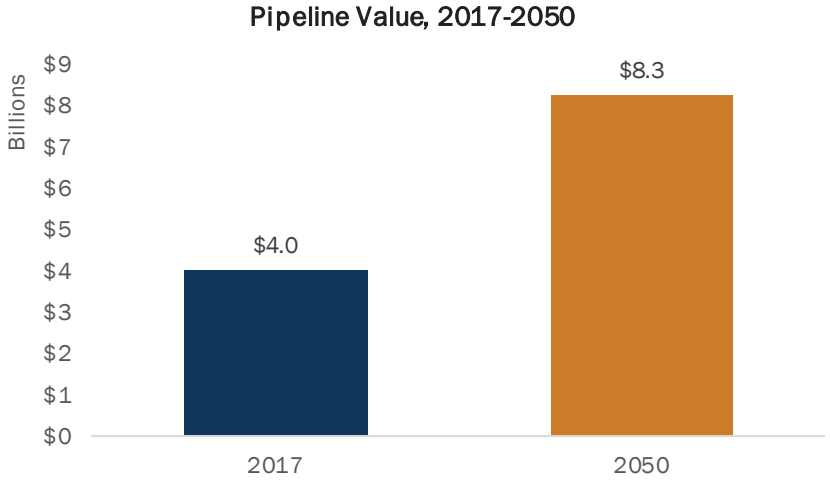




Future Movement of Goods by Pipeline Through Texas-Mexico Border (6.10.2)

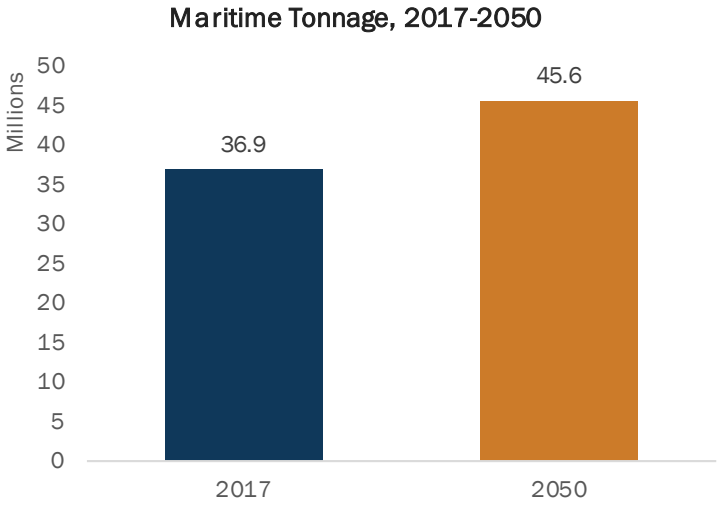
- Pipeline tonnage increases from 25.6 million in 2017 to 52.0 million in 2050, an increase of 103% (primarily southbound shipments of natural gas and petroleum products)
- The **value of goods moved by pipeline will increase from $4.0 billion in 2017 to $8.3 billion in 2050,** an increase of 108%

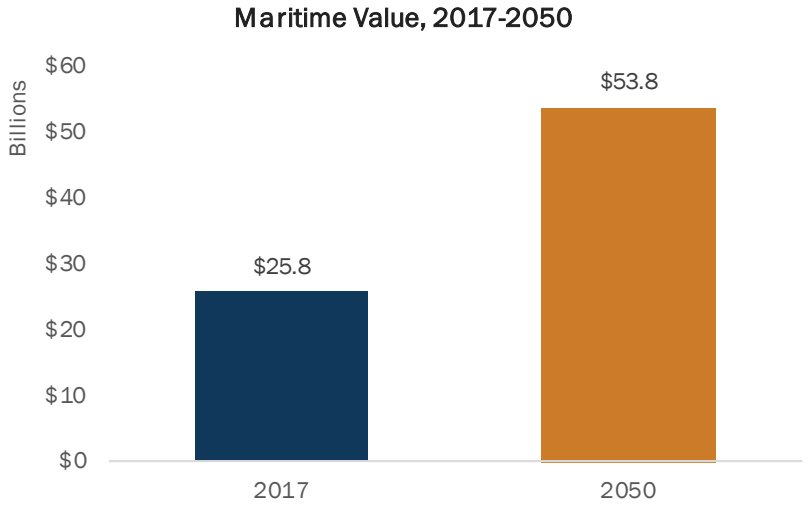




Future Movement of Goods by Maritime Through Texas-Mexico Border (6.10.3)

- Maritime tonnage will grow from 36.9 million tons in 2017 to 45.6 million tons in 2050, an increase of 24%
- **Overall value shipped by maritime will increase from $25.8 billion in 2017 to $53.8 billion in 2050,** an increase of 109%



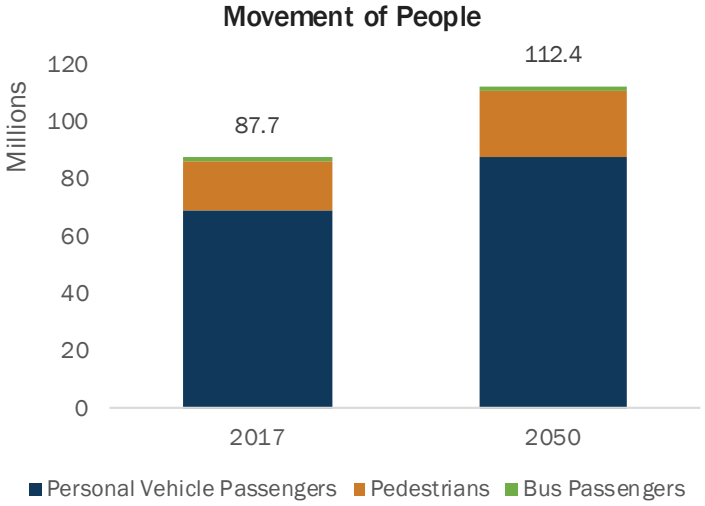


Mid-Case Forecast for Movement of People

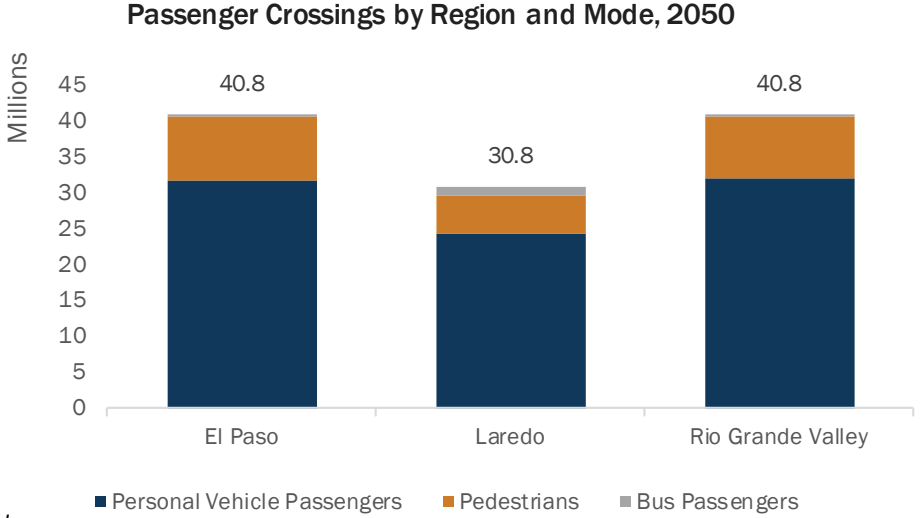
- By mode of travel
- By borderwide, regional, and border crossing

Future Movement of People Through Texas-Mexico Border (6.8.2)

- **People crossing the border increase from 87.7 million in 2017 to 112.4 million in 2050,** an increase of 28% (25 million people)
- El Paso/Santa Teresa/Chihuahua and Rio Grande Valley/Tamaulipas regions each account for 40.8 million (or 36%) of 112.4 million total crossings in 2050

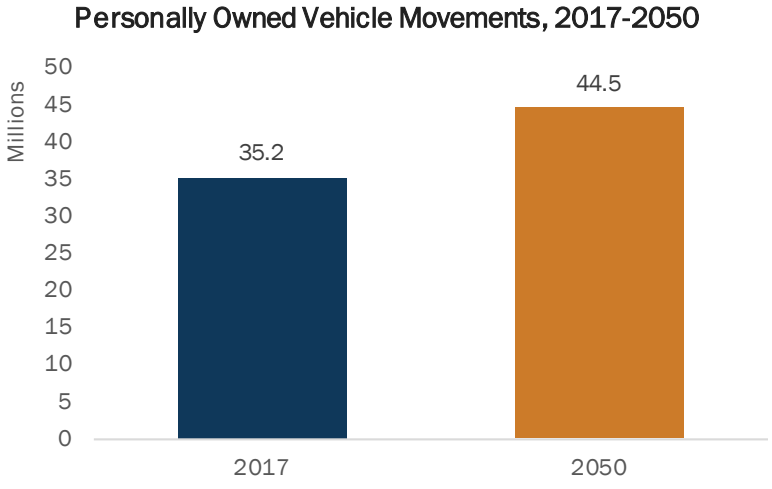


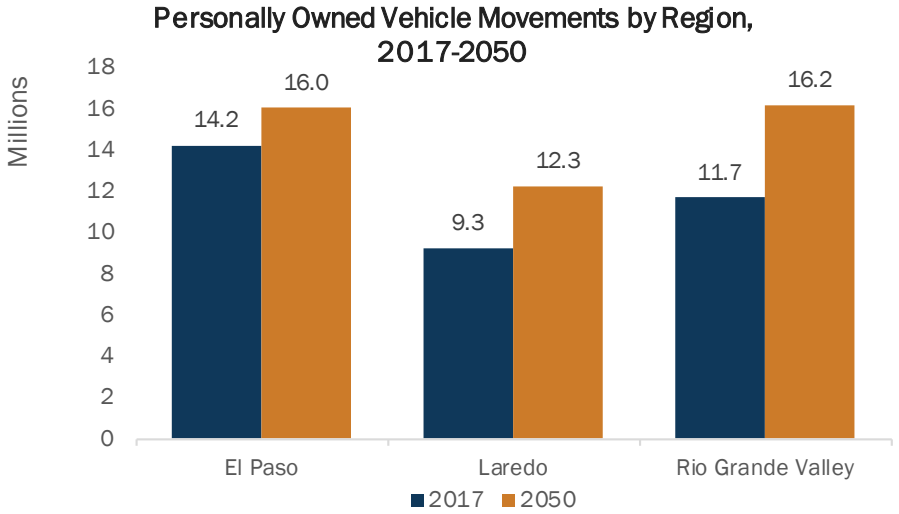
*number of people



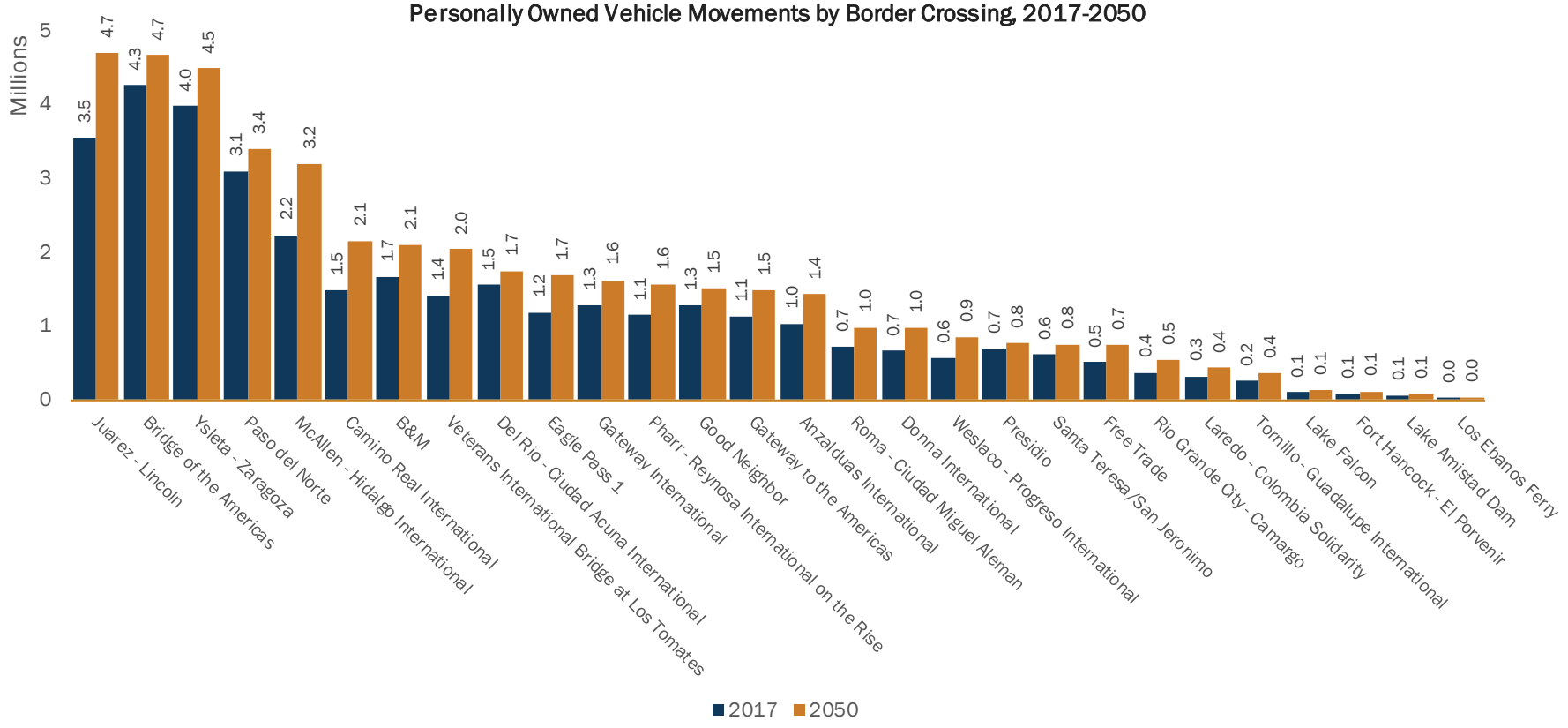
Future Movement of People Through Texas-Mexico Border: Personally Owned Vehicles (6.8.2)

- **Personally owned vehicle movements increase from 35.2 million in 2017 to 44.5 million in 2050,** an increase of 26%
- The **greatest increase (38%) is in the Rio Grande Valley/Tamaulipas Region,** which increases from 11.7 million in 2017 to 16.2 million vehicles in 2050



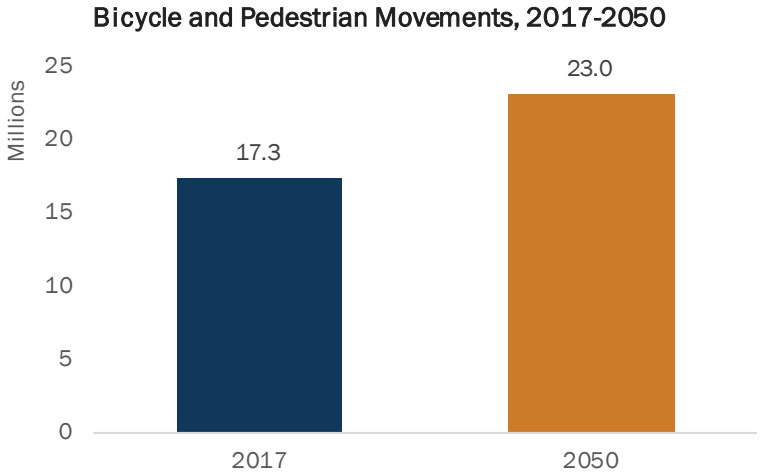


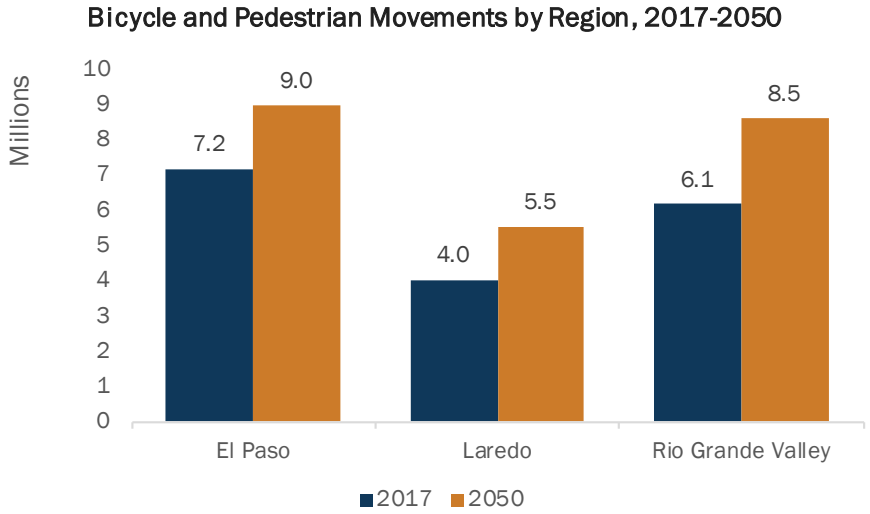
Future Movement of People Through Texas-Mexico Border: Personally Owned Vehicles (6.8.2)



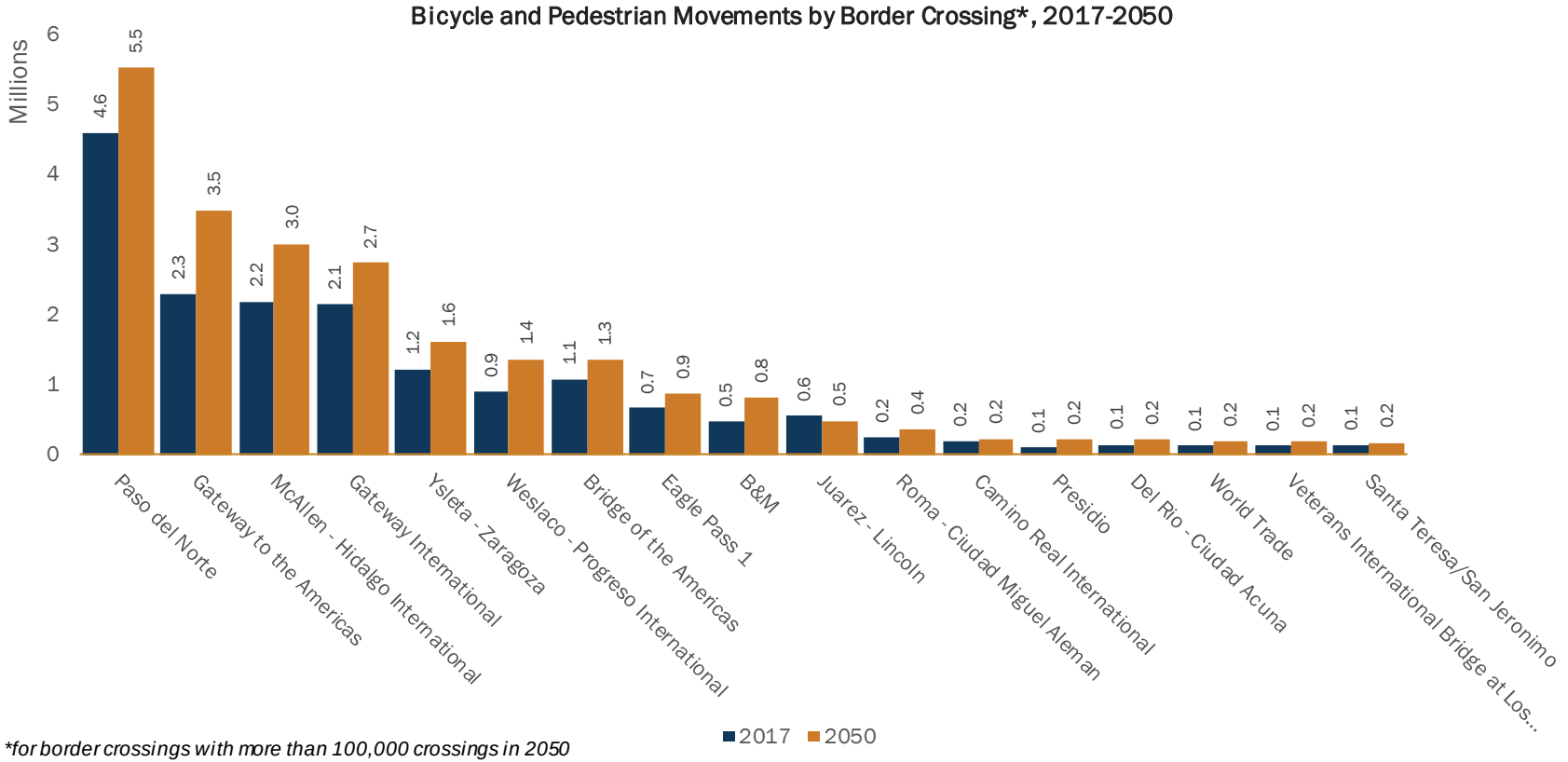
Future Movement of People Through Texas-Mexico Border: Bicycles and Pedestrians (6.8.2)

- **Bicycle and pedestrian movements increase from 17.3 million in 2017 to 23.0 million to 2050,** an increase of 33%
- The **greatest increase (39%) is in the Rio Grande Valley/Tamaulipas Region,** which increases from 6.1 million in 2017 to 8.5 million movements in 2050





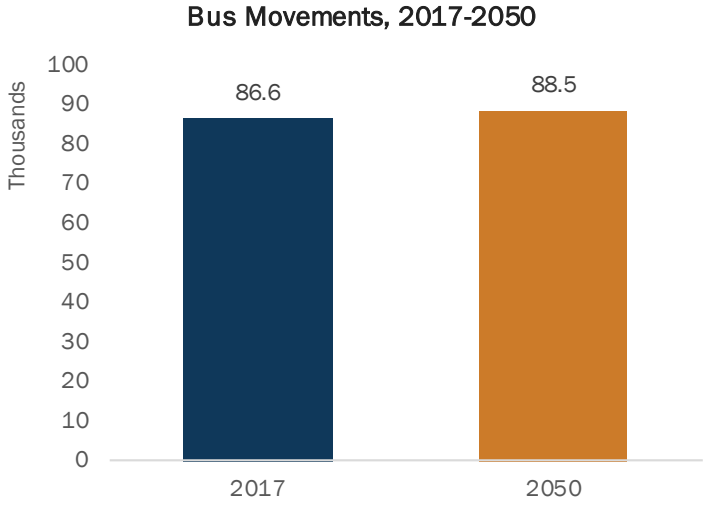
Future Movement of People Through Texas-Mexico Border: Bicycles and Pedestrians (6.8.2)

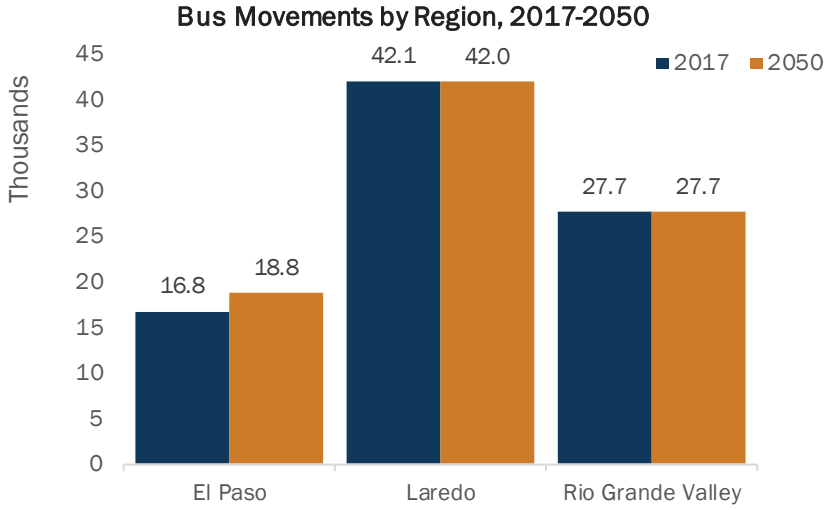


*for border crossings with more than 100,000 crossings in 2050

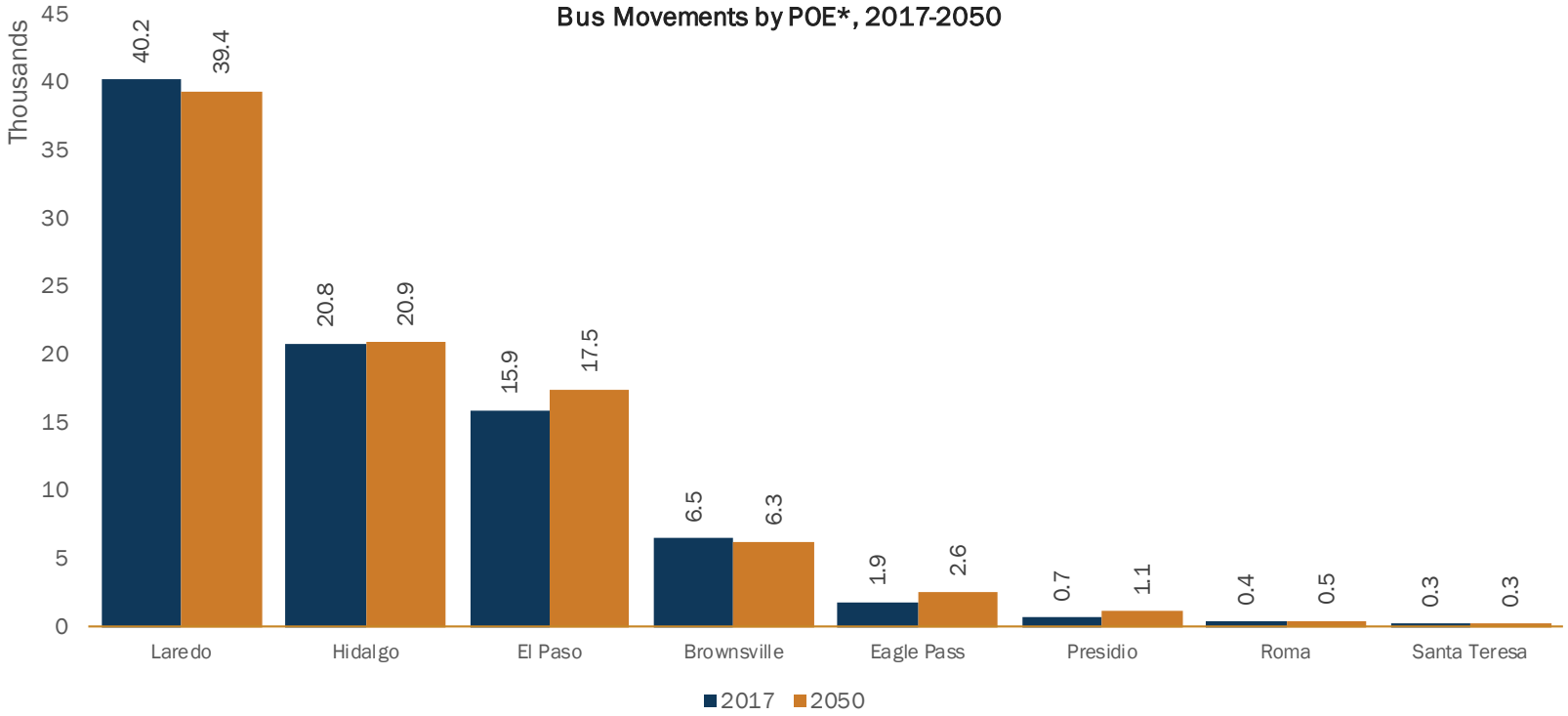
Future Movement of People Through Texas-Mexico Border: Passenger Bus (6.8.2)

- Bus movements increase from 86.6 million in 2017 to 88.5 million movements in 2050, an increase of 2.2%
- The **El Paso/Santa Teresa/Chihuahua Region will increase from 16.8 million bus movements in 2017 to 18.8 million in 2050**, an increase of 12% (unlike other regions)





Future Movement of People Through Texas-Mexico Border: Mid-Case Forecast – Passenger Bus (6.8.2)



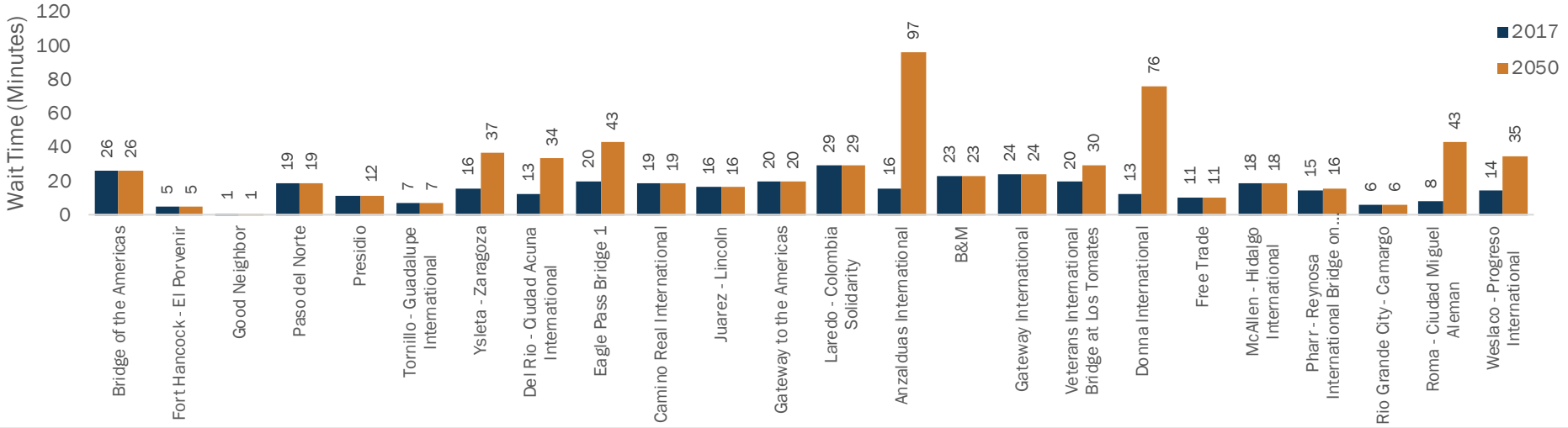
*information not available at the border crossing level

Forecast of Future System Performance

- Passenger and commercial wait times
- Vehicle miles traveled

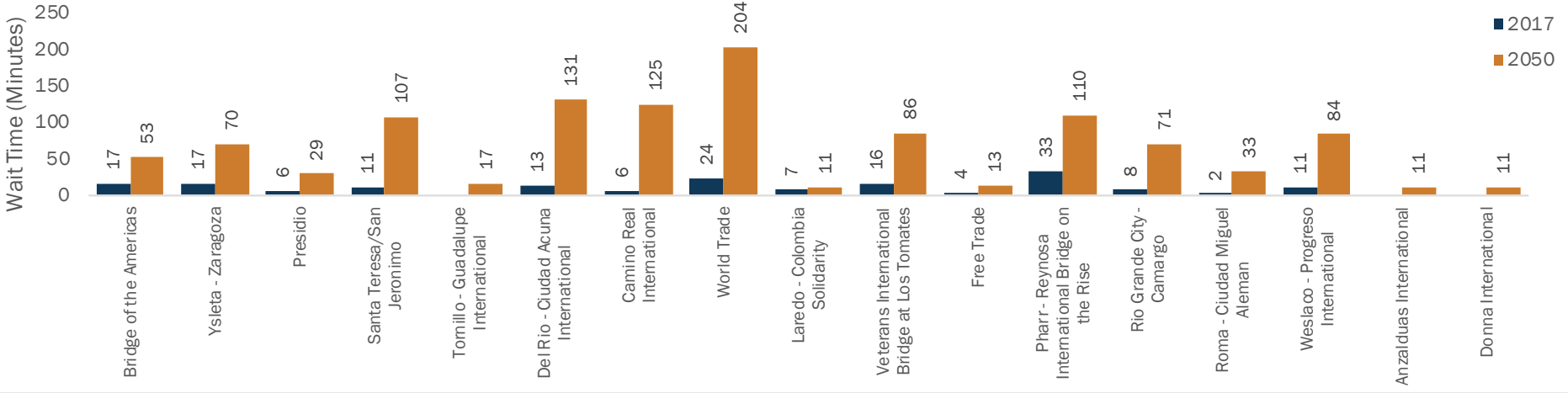
Forecast of System Performance: Passenger Wait Times (6.11.1)

- Passenger vehicle growth from 2017 to 2050 is moderate (26%), which leads to **a small escalation in wait times at most crossings**
- Wait times increase 506% from 16 minutes in 2017 to 97 minutes in 2050 at Anzalduas International and 485% from 13 minutes in 2017 to 76 minutes in 2050 at Donna International, highlighting the need for solutions to address demand



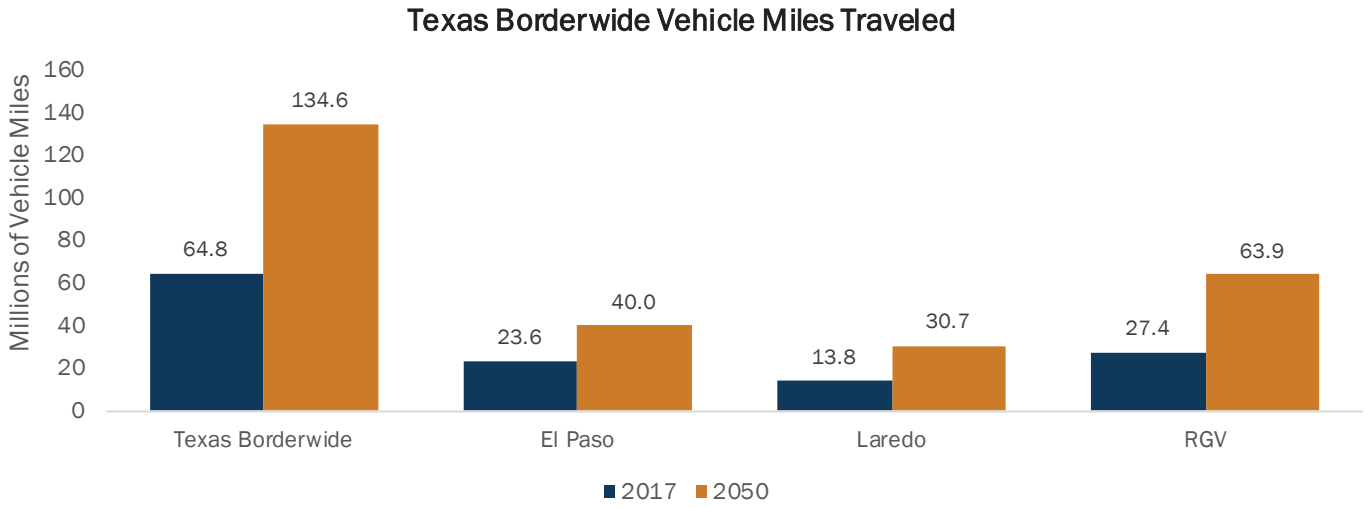
Forecast of System Performance: Commercial Wait Times (6.11.1)

- **Commercial vehicle wait times increase dramatically by 2050** for both average and 90th percentile
- For many of the larger crossings, **average wait times will be 2 to 3 hours in 2050**
- At the largest crossing, World Trade Bridge, the average wait time will increase from 24 minutes in 2017 to 204 minutes in 2050, an increase of 750%



Forecast of System Performance: Vehicle Miles Traveled (6.9.1)

- **Vehicle miles traveled in Texas border counties will grow from 64.8 million in 2017 to 134.6 million in 2050,** an increase of 108%
- Travel in the Rio Grande Valley/Tamaulipas Region will grow from 27.4 million vehicle miles in 2017 to 63.9 million in 2050, an increase of 133% (largest among regions)



Alternate Future Scenarios

- Assumptions
- Movement of people and goods

Alternate Future Scenarios for the Texas-Mexico Border (6.12)

- The mid case reflects a continuation of prevailing trends
  - 2.1% annual employment growth
  - 1.8% annual economic growth (U.S.)
  - Stable currencies
- Alternate future scenarios are based on factors affecting the movement of people and goods across the border
  - **Low case:** slower economic growth and restrictive border policies
  - **High case:** higher economic growth, facilitative border policies, and additional infrastructure

Low-Case Scenario

- Slower employment growth (1.3% per year)
- Slower national economic growth (1.6% per year)
- Peso (40% devaluation)
- Restrictive border & trade policies (-25% impact on people, -10% on goods)

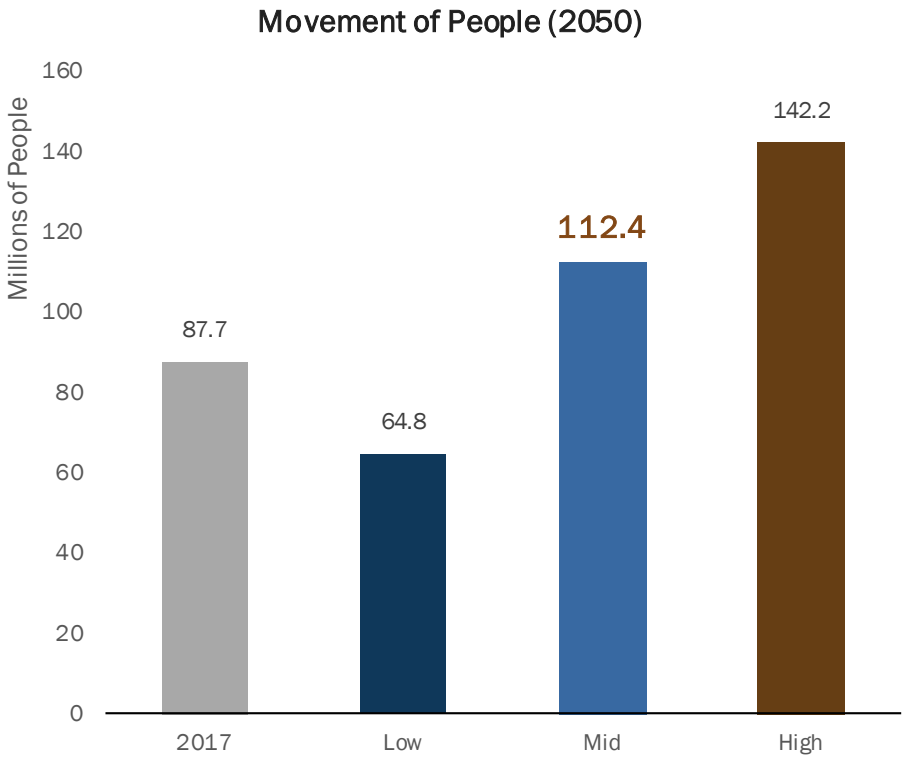
High-Case Scenario

- Additional infrastructure investments
- Faster employment growth (2.4% per year)
- Faster national economic growth (2% per year)
- Peso (20% appreciation)
- Greater trade integration (+10% impact)

Alternate Future Scenarios: Movement of People (6.12)

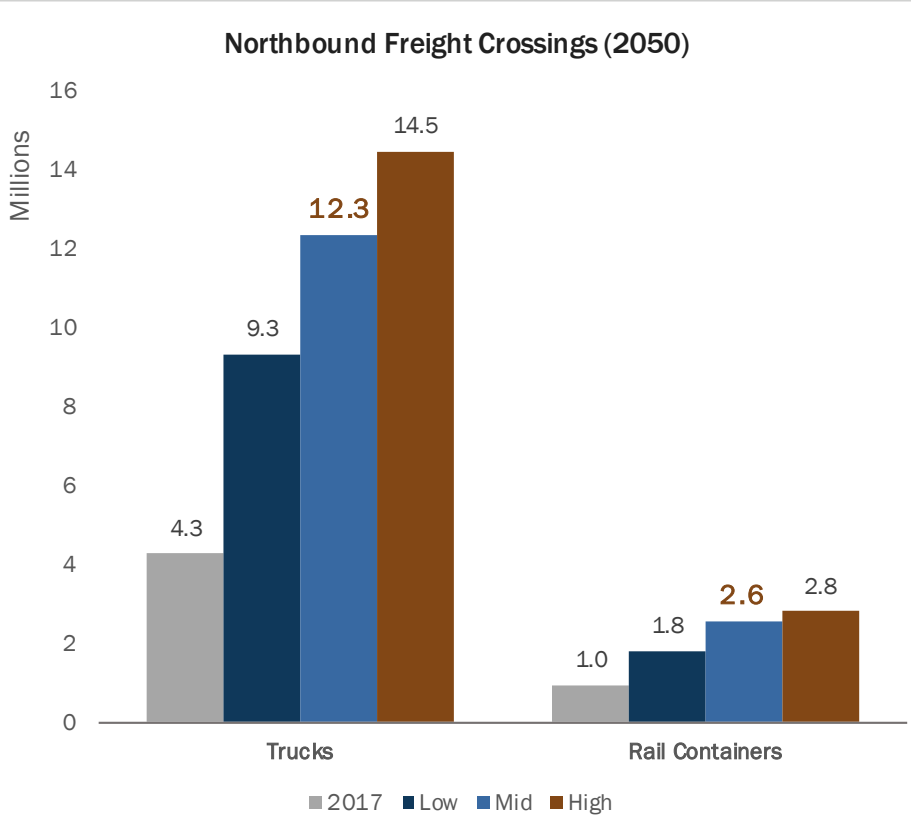
- In the low case, the movement of people is lower due to economic conditions, the exchange rate, and border policies
  - Cross-border land movements decline by more than 22 million to 2011 levels

- **In the high case, the movement of people increases by more than 50 million, straining border infrastructure**
  - Consistent with post-2011 trends



Alternate Future Scenarios: Movement of Goods (6.12)

- **Even in the low case, cross-border movement of goods doubles, which will strain border infrastructure**
  - Over the long-run, the U.S. and Mexico economies still grow, driving the demand for goods
- In the high case, trucks more than triple and rail containers nearly triple, driving the need for additional capacity
  - **With greater economic integration between the U.S. and Mexico, an efficient border is critical for the economies of both countries**



Preliminary Assessment of Future Congestion (6.11.2)

- **Border crossing capacity is anticipated to be strained** even further, in particular for the movement of goods
  - Commercial vehicles expected to grow across capacity-constrained border crossings
  - Wait times anticipated to increase significantly if no action is taken
- **North-south regional roadways providing access to border crossings are particularly affected** with limited other options to move people and goods
  - I-35 into and out of Laredo
  - I-10 in El Paso, impacting east-west connectivity with Laredo and RGV regions
  - I-69, US 59, and US 77 in RGV

What Do the Forecast Results Mean for the BTMP?

- Usage of the POEs along the Texas-Mexico border will increase, regardless of future scenario
- The mix of traffic across the border will shift towards the movement of goods
- Infrastructure improvements will be needed to accommodate future demand

BNRSC Feedback

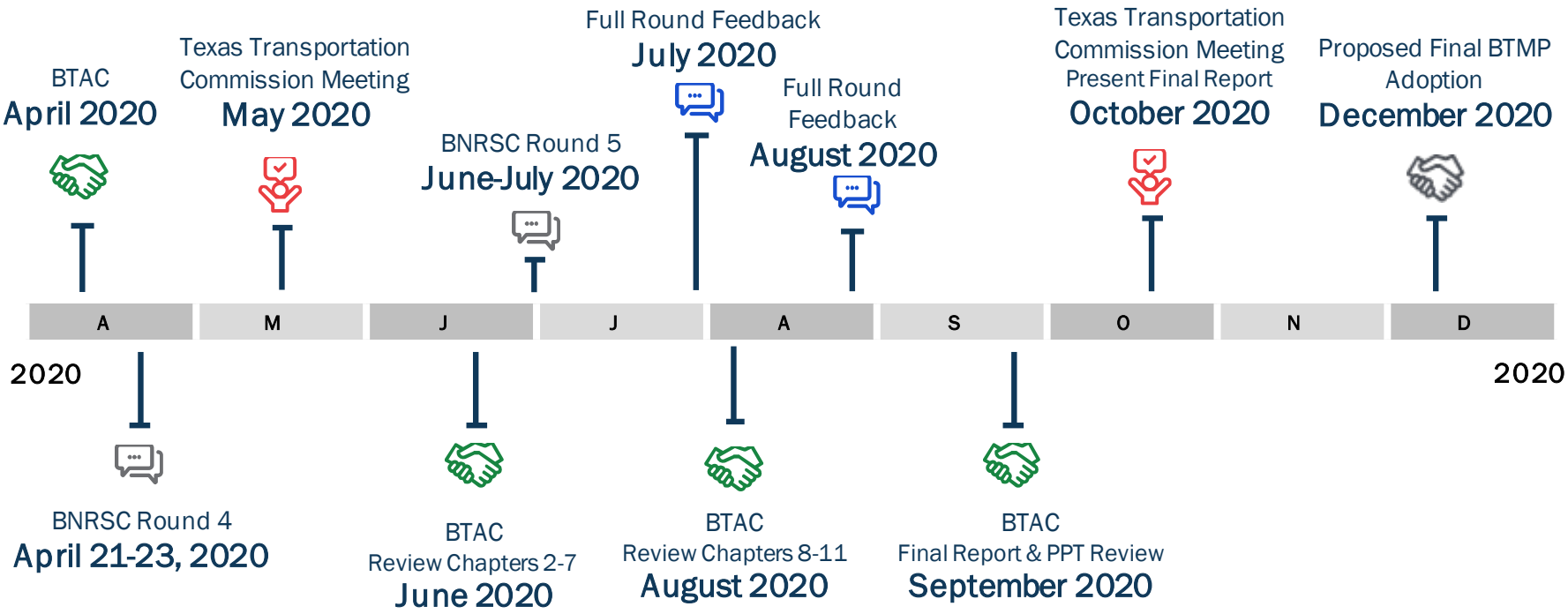
1. Have we missed anything?
2. Did we address your comments?

Study Tasks/Three Month Look-Ahead

Economic Analysis (Task 7)	Recommendations & Investment Plan (Task 8)	Implementation Plan (Task 9)	Final Report
▪ Assess economic impact of BTMP recommendations	▪ Finalize project prioritization process ▪ Draft prioritize programs & projects from existing plans and stakeholders ▪ Identify funding sources	▪ Identify methodology to create implementation plan ▪ Draft implementation plans for high-priority policies, programs & projects	▪ Draft version of final report ▪ Draft version of executive summary

Next BNRSC Meetings	Next BTAC Meeting	Next BTAC Meeting Content
August 2020	August 2020	▪ Chapter 8: Identification and Evaluation of Strategies to Address Current and Future Needs ▪ Chapter 9: Stakeholder Engagement ▪ Chapter 10: Recommendations ▪ Chapter 11: Implementation Plan

BTMP Schedule



Final Thoughts?