



Recommendations and Implementation Plan

Rio Grande Valley Freight and Trade Transportation Plan

Final: January 28, 2021

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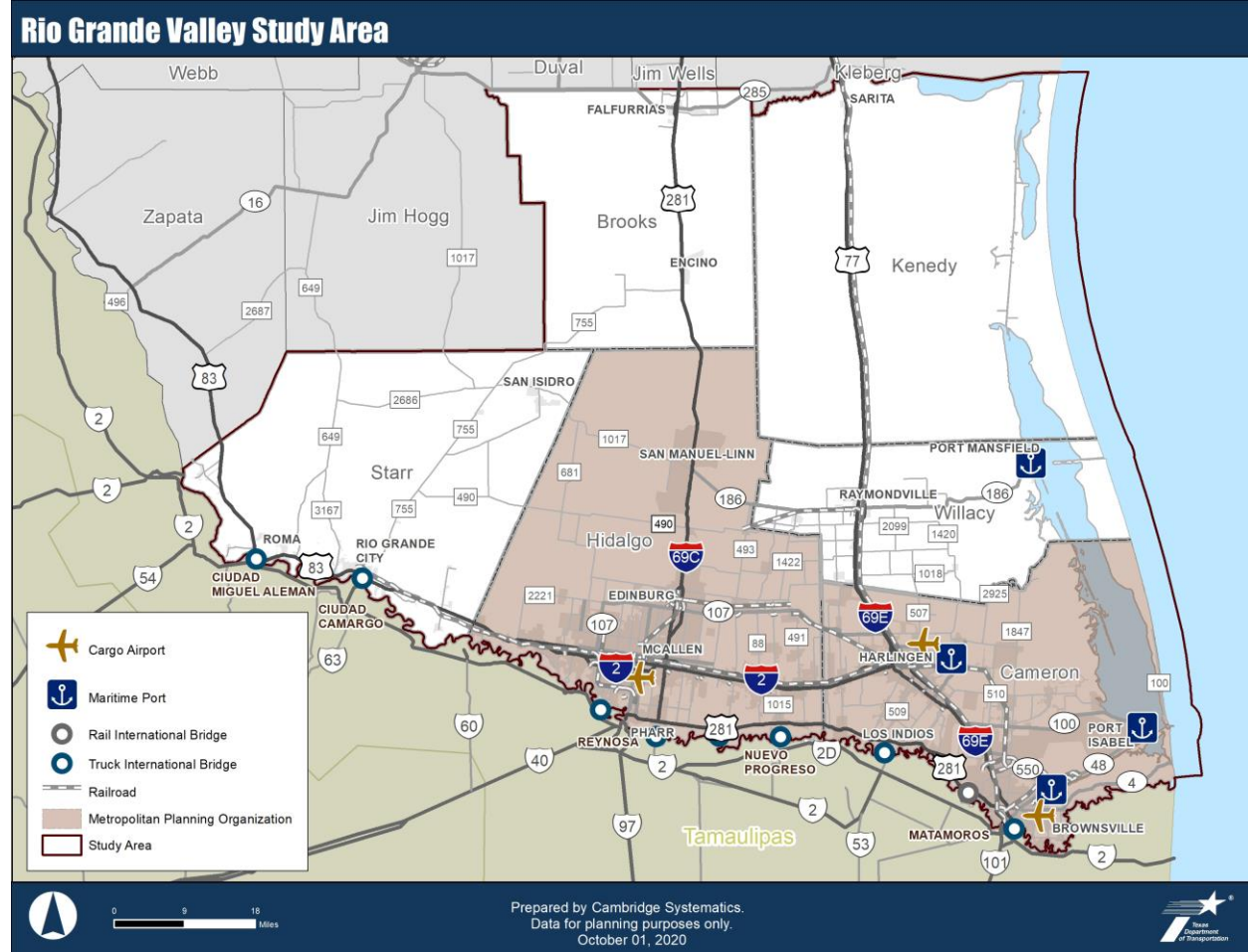
Acronyms

BTMP	Border Transportation Master Plan
CTPAT	Customs Trade Partnership Against Terrorism
EDC	Economic Development Corporation
FAST Lane	Free and Secure Trade Lane
FDA	Food and Drug Administration
FHWA	Federal Highway Administration
FTZ	Foreign Trade Zone
GIS	Geographic Information Systems
HOS	Hours of Service
IBTC	International Bridge Trade Corridor
LNG	Liquefied Natural Gas
MPO	Metropolitan Planning Organization
OS/OW	Oversize/Overweight
RGV	Rio Grande Valley
RGVMPO	RGV Metropolitan Planning Organization
RGVSC	RGV Steering Committee
TFMP	Texas Freight Mobility Plan
TPP	Transportation Planning and Programming
TSMO	Transportation Systems Management & Operations
TxDOT	Texas Department of Transportation
TxFAC	Texas Freight Advisory Committee
UP	Union Pacific
USDA	U.S. Department of Agriculture
USMCA	U.S.-Mexico-Canada Agreement
UTP	Unified Transportation Program
WA	Work Authorization

1.0 Introduction

During the development of the 2018 Texas Freight Mobility Plan (TFMP), stakeholder engagement workshops were held throughout the state, including four in the Rio Grande Valley (RGV), to discuss freight issues impacting the region and the state. During these workshops, as well as meetings of the Texas Freight Advisory Committee (TxFAC), freight movement and trade at the Texas-Mexico border were identified as significant contributors to regional, statewide, and national economic vitality. This project builds on the work started by the Texas Department of Transportation (TxDOT) with the TFMP by creating a regional freight plan covering the six counties of Brooks, Cameron, Hidalgo, Kenedy, Starr, and Willacy as shown in **Exhibit 1**. Additionally, the project complements the concurrent Texas-Mexico Border Transportation Master Plan (BTMP) which will identify transportation issues, needs, challenges, and opportunities and strategies of moving people and goods across the border, the border regions, and beyond.

Exhibit 1: Rio Grande Valley Study Area



1.1 Context of this Memorandum

TxDOT is developing a Rio Grande Valley Freight and Trade Transportation Plan (“Regional Freight and Trade Plan”). This Regional Freight and Trade Plan is critical given the importance of the RGV to freight movement in Texas and nationally. The region is linked to many strategic Texas supply chains such as manufacturing, agriculture, and energy production, particularly through international trade activity. To complete this Regional Freight and Trade Plan, the following technical tasks will be completed:

- **Task 2.1: Develop Goals and Objectives.** Develop goals and objectives for the Regional Freight and Trade Plan in alignment with existing and ongoing planning efforts and stakeholder input.
- **Task 2.2: Regional Data Collection, Inventory and Analysis.** Collect, review, and analyze plans, studies, and data relevant to the RGV region. This task culminated in a Geographic Information Systems (GIS) database that will be updated throughout plan development.
- **Task 2.3: Regional Trade and Freight Corridor and Network Identification.** Identify transportation assets to be included in the Regional Multimodal Freight and Trade Network through data analysis and stakeholder input. This task culminated in the freight network used to prioritize recommendations and ultimately to update the TFMP.
- **Task 2.4: Existing Regional Freight and Trade Needs Identification and Assessment.** Identify and assess the existing conditions, issues, and trends related to freight and trade movement in the region. This task culminated in a needs assessment identifying the types and locations of high priority needs in the region and form the basis for implementation recommendations.
- **Task 2.5: Regional Trade and Freight Commodity Flow Profile.** Describe current freight and trade movements in the region using commodity flow and border crossing data. This task, in combination with Task 2.6, will culminate in a commodity flow and forecast summary.
- **Task 2.6: Regional Trade and Freight Forecasting.** Forecast commodity flows and freight movements for 2030, 2040, and 2050 and estimate the impact of freight growth on the transportation network. This task, in combination with Task 2.5, will culminate in a commodity flow and forecast summary.
- **Task 2.7: Regional Trade, Freight, and Economic Analysis.** Document the importance of the RGV’s freight and trade movements to the regional, state, and national economy by quantifying jobs, income, gross regional product, and tax revenue related to freight and trade activities. This task will culminate in a summary of economic importance and fact sheets.

- **Task 2.8: Regional Land Use and Community Impacts.** Assess current and planned land use for industrial, commercial, and residential uses as it relates to the freight transportation network. This task will culminate in a summary of land uses, potential economic development opportunities, and environmental justice concerns.
- **Task 2.9: Regional Project Identification and Prioritization.** Identify transportation strategies to improve freight and trade movement in the region and prioritize projects based on the needs assessment completed in Task 2.4. This task will culminate in a prioritized list of strategies to include projects, programs, and policies. *This task is the subject of this memorandum.*
- **Task 2.10: Regional Recommendations and Investment Plan.** Refine recommendations based on the strategy identification and prioritization conducted in Task 2.9. This task will culminate in a Freight Investment Plan for the RGV. *This task is the subject of this memorandum.*
- **Task 2.11: Implementation and Action Plan.** Develop an implementation and action plan describing responsible parties, timeframes, and funding options for the recommendations identified in Task 2.10. *This task is the subject of this memorandum.*
- **Task 2.12: Final Plan Documents.** Develop a final Regional Freight and Trade Plan and Executive Summary consolidating the technical and stakeholder engagement tasks completed throughout this project.

1.2 Organization of this Memorandum

This memorandum documents the projects, recommendations and implementation plan to improve freight and trade in the RGV. This plan includes a financially unconstrained list of infrastructure projects, including funded and unfunded projects in TxDOT's Unified Transportation Program (UTP) and longer range projects that are not yet included in transportation funding plans from TxDOT or the MPO. Each of the eight recommendations has several specific strategies identified to advance that recommendation. The implementation plan then identifies steps TxDOT and its partners should take in the short and medium term. The remainder of this memorandum is organized into the following sections:

- Section 2.0: Measuring Success
- Section 3.0: Freight and Trade Transportation Projects
- Section 4.0: Freight and Trade Transportation Recommendations
- Section 5.0: Implementation Plan
- Section 6.0: Next Steps

2.0 Measuring Success

The strategies recommended in this memorandum should advance the regional freight goals adopted by the RGV Steering Committee and align with other established statewide and regional transportation goals. Existing goals and performance measures were reviewed to identify overlapping goal areas and potential performance measures, and are included in Appendix A. Goals for this Regional Freight and Trade Plan were established based on the 2018 TFMP goals and stakeholder input (**Exhibit 2**).

Exhibit 2: Regional Freight and Trade Plan Goals

State Goal Area	Rio Grande Valley Freight and Trade Transportation Plan Goals
Safety	Improve the safety of the Rio Grande Valley region’s multimodal freight system which includes highways, railroads, maritime ports, POEs, airports, and pipelines.
Economic Competitiveness	Enhance the economic competitiveness, productivity, and development in the Rio Grande Valley and beyond by ensuring the region’s freight transportation network is robust enough to support cross-border trade and freight intensive industries.
Mobility and Reliability	Enhance mobility and improve system efficiency and performance on the Rio Grande Valley transportation system by expanding capacity and addressing freight bottlenecks.
Connectivity	Improve local, regional, and cross-border highway connectivity as well as connectivity between freight modes within the Rio Grande Valley.
Sustainable Funding	Identify sustainable funding sources for the Rio Grande Valley’s freight and trade transportation system.
Stewardship	Manage environmental and state agency resources responsibly, and foster accountability and transparency in decision-making.
Customer Service	Encourage local ownership of and coordination in the development of the Regional Freight Plan by engaging public and private sector stakeholders in transparent dialogue and establishing consistent strategies and recommendations.
Asset Preservation	Maintain and preserve the Rio Grande Valley’s transportation infrastructure that supports multimodal and cross-border movement of freight.

TxDOT has established 2028 statewide targets for many, but not all, of its performance measures. At the regional level, TxDOT and its partners should verify whether the performance measures shown in **Exhibit 3** are reasonable based on recent performance, projected funding, and desired outcomes. If no specific targets are set, TxDOT and its partners should track data trends for the RGV to monitor progress and identify concerns.

Exhibit 3: Regional Freight and Trade Plan Goals and Statewide Performance Measures

RGV Goal Area(s)	Measure	TxDOT Adopted 2028 Target
Safety	Decrease in commercial vehicle crash fatality rate per mile of travel	10 percent reduction 2018 - 2028* (all vehicle rate not comparable to truck rate)
	Decrease in total commercial vehicle crash rate per mile of travel	No target published
Economic Competitiveness	Decrease truck travel time reliability index	No target published
Mobility, Reliability, and Connectivity	Decrease in urban congestion index	4 percent reduction 2017 - 2028* (1.25 to 1.20)
	Decrease rural reliability index	2 percent reduction 2017 - 2028* (1.14 to 1.12)
	Decrease annual delay per person	No target published
Sustainable Funding	Increase direct transportation spending as a percent of agency spending	No target published
Stewardship and Customer Service	Percentage of highway projects completed on time	4 percent improvement 2019 - 2028 (62.7% to 65%)
	Percentage of highway projects completed on budget	8 percent improvement 2019 - 2028 (79.0% to 85%)
Asset Preservation	Increase percent of lane miles in good or better condition	2 percent improvement 2019 - 2028 (88 to 90)
	Increase average bridge condition score	1 percent improvement 2019 - 2028 (89 to 90)

Source: TxDOT Performance Dashboard, <http://www.dot.state.tx.us/dashboard/optimize-system-performance.htm>.

*Target values were set based on all vehicle activity.

3.0 Freight and Trade Transportation Projects

Project strategies to improve freight and trade in the Rio Grande Valley were identified in partnership with the TxDOT Transportation Planning and Programming (TPP) Division, the TxDOT Pharr District, the RGVMPPO, and the RGVSC. Projects from various sources were limited to those likely to impact freight transportation, removing projects such as active transportation improvements, landscaping, and routine pavement maintenance activities. The remaining freight projects were grouped into five categories:

- **Safety:** safety countermeasures such as addition of guardrails or a traffic signal;
- **Alternate Routes:** new construction;
- **Asset Management:** bridge and pavement rehabilitation;
- **Mobility and Reliability:** capacity or operational improvements to an existing facility; and
- **Maritime or Port-of-Entry Facilities:** projects at maritime ports or international bridges to improve their operations.

Safety is TxDOT's top priority and is a factor in every project. For example, a mobility-related project will likely also improve safety at that location due to application of current best practices. Additionally, private infrastructure providers such as railroads plan and construct projects independently; this document does not include a comprehensive list of infrastructure projects under consideration by private sector providers. Finally, the BTMP presents long-range projects (through 2050 and in some cases beyond) related to the movement of people and goods across the Texas-Mexico border.

The project identification and prioritization discussed in this memorandum results in the Rio Grande Valley Freight Investment Plan, a 10-year list of projects to improve freight transportation. Projects in the Freight Investment Plan are planned to begin between 2020 and 2030 and may or may not be fully funded.

3.1 *Projects in the 2021 Unified Transportation Program*

The Unified Transportation Program (UTP) is TxDOT's 10-year funding program for transportation projects and is adopted annually before the end of each fiscal year, typically in August. A project is included in the UTP if TxDOT plans to use one or more of certain funding categories and the project is anticipated to begin within 10 years. Inclusion in the UTP is not a guarantee of funding in the future, and not all projects have dedicated funding identified. This analysis uses three funding statuses:

- **Fully Funded:** authorized funding for the project equals or exceeds the estimated cost,
- **Partially Funded:** authorized funding for the project is less than the estimated cost, and
- **Unfunded:** no dedicated funding has been authorized for the project. In the UTP, these projects appear with “Develop Authority” as the only funding category.

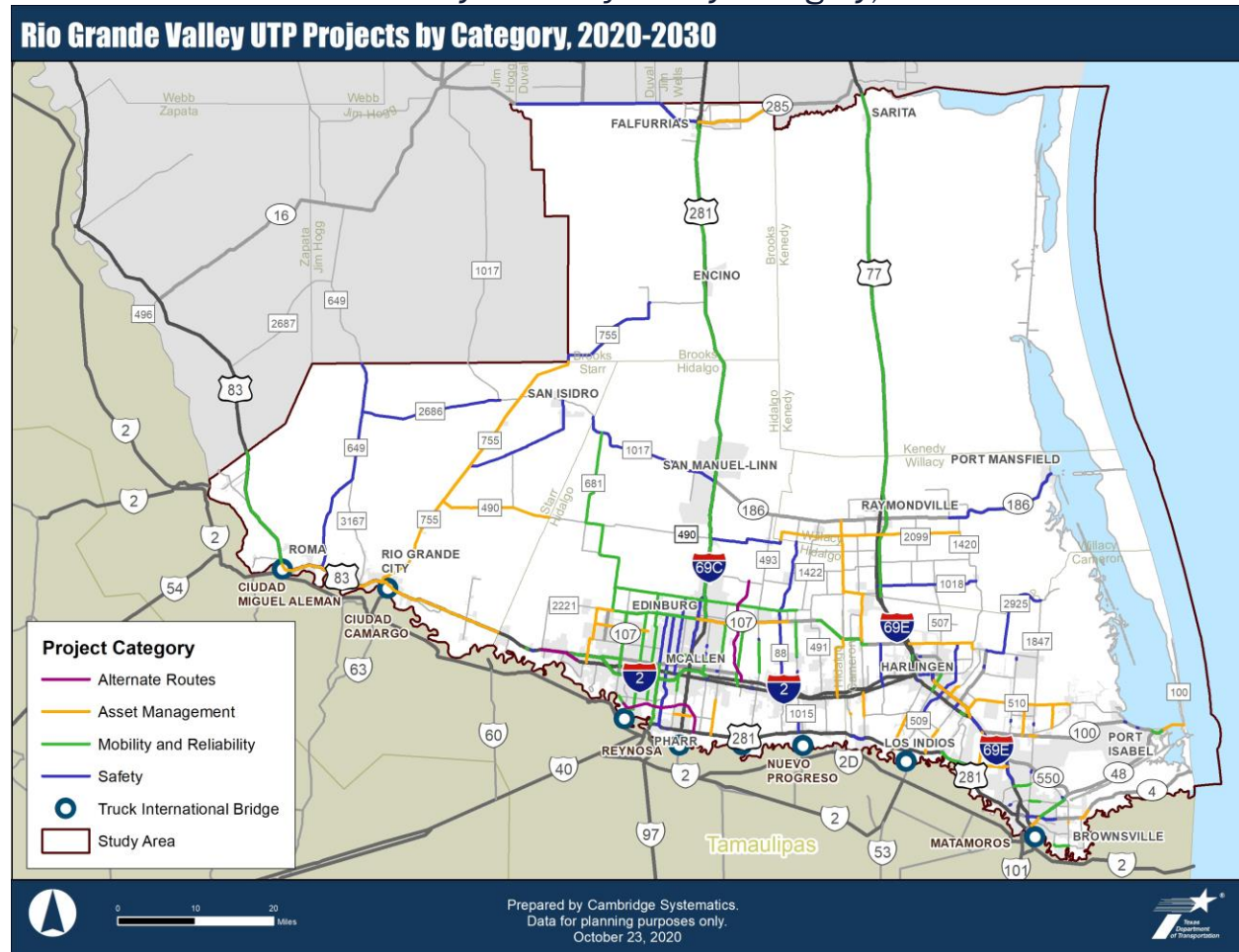
Of the 248 projects in the RGV study area identified from the 2021 UTP, 40 percent are safety projects, 28 percent are mobility and reliability projects, and 20 percent are asset management projects. Alternate route projects and port facilities projects are both 6 percent of projects or less. By cost, mobility and reliability projects make up more than half of the total project cost, and alternate routes projects comprise nearly 30 percent of cost. In total, RGV freight projects in the UTP are estimated to cost \$3.6 billion (**Exhibit 4**). **Exhibit 5** displays the project locations. Additional maps by category are shown in **Appendix B**.

Exhibit 4: UTP Projects on the Rio Grande Valley Multimodal Freight Network by Project Type, 2020-2030

Project Category	No. of Projects	Percent of Projects	Total Cost (Millions \$)	Percent of Total Cost
Alternate Routes	15	6.0%	\$1,094.0	30.4%
Asset Management	51	20.6%	\$246.6	6.9%
Mobility and Reliability	70	28.2%	\$1,931.3	53.7%
Port-of-Entry	10	4.0%	\$169.1	4.7%
Maritime Port	2	0.8%	\$8.2	0.2%
Safety	100	40.3%	\$150.5	4.2%
Total	248	100.0%	\$3,599.6	100.0%

Source: 2021 Unified Transportation Program, analysis by Cambridge Systematics, Inc.

Exhibit 5: Rio Grande Valley UTP Projects by Category, 2020-2030



Source: 2021 Unified Transportation Program, analysis by Cambridge Systematics, Inc.

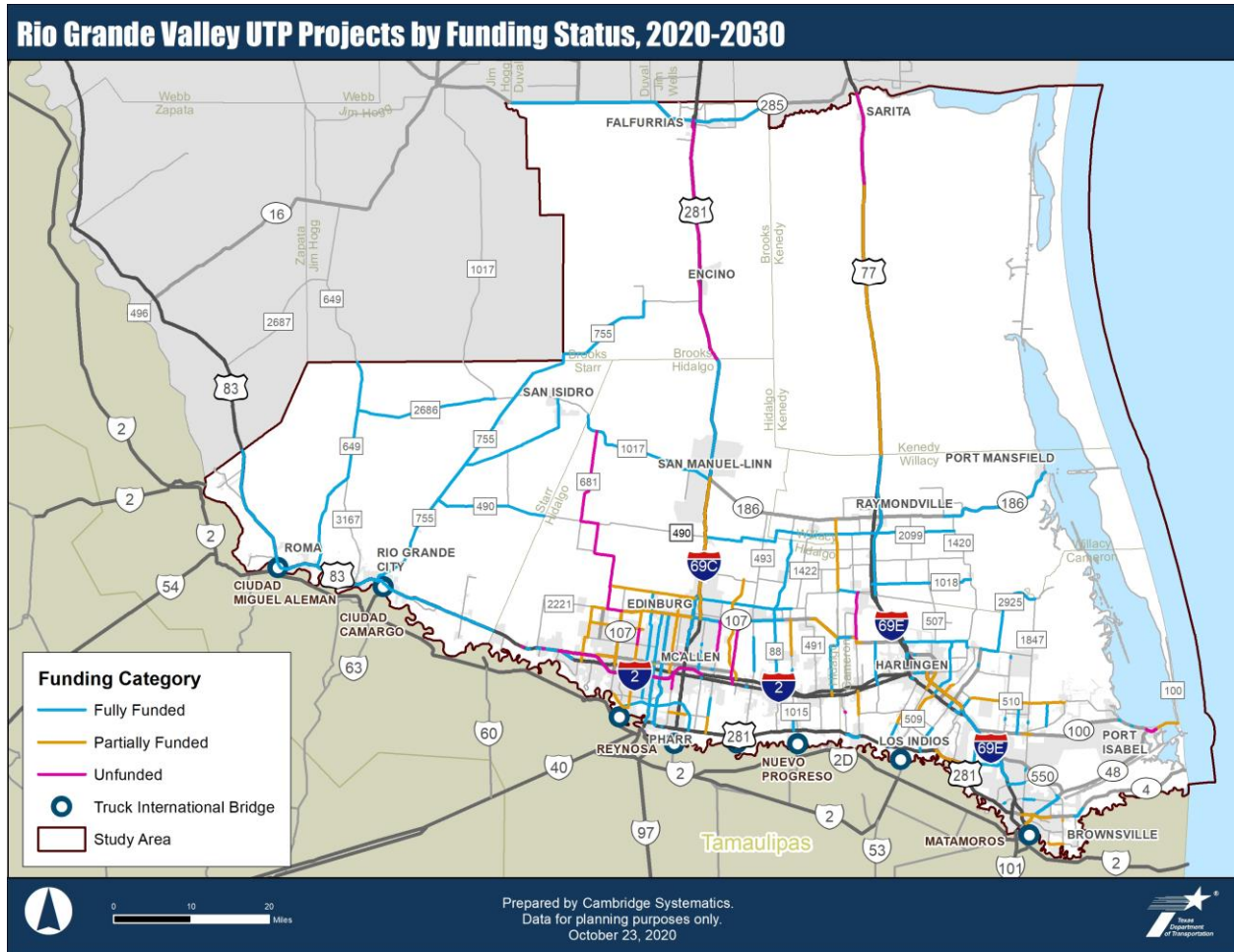
Most of the RGV projects identified from the UTP are fully funded (150 of 248, or 60 percent), and the UTP authorizes nearly \$1.2 billion in funding for these projects. Approximately 24 percent of projects are partially funded with more than \$1.1 billion identified in the UTP and a \$600 million funding gap. Ten percent of projects are unfunded (**Exhibit 6**). Together, the funding gaps of partially funded and unfunded projects sum to \$1.3 billion, or more than one-third the total estimated cost of RGV freight projects in the UTP. **Exhibit 7** displays the location of fully funded, partially funded, and unfunded freight projects in the UTP.

Exhibit 6: UTP Projects on the Rio Grande Valley Multimodal Freight Network by Funding Status, 2020-2030

Project Category	Fully Funded		Partially Funded			Unfunded	
	No. of Projects	Authorized Funding (Millions \$)	No. of Projects	Authorized Funding (Millions \$)	Funding Gap (Millions \$)	No. of Projects	Funding Gap (Millions \$)
Alternate Routes	3	\$398.3	9	\$314.6	\$183.8	3	\$215.2
Asset Preservation	28	\$109.0	19	\$45.1	\$62.7	4	\$37.9
Mobility and Reliability	21	\$451.6	32	\$689.2	\$302.5	17	\$488.1
Port-of-Entry	3	\$43.7	7	\$93.0			
Maritime Port	2	\$8.2	0	\$0.0	\$40.4	0	\$0.0
Safety	93	\$142.5	7	\$15.9	\$2.9	0	\$0.0
Total	150	\$1,153.3	74	\$1,157.7	\$602.1	24	\$741.2

Source: 2021 Unified Transportation Program, analysis by Cambridge Systematics, Inc. Note: Some fully funded projects have authorized amounts that exceed the estimated project cost. Summing authorized cost and funding gaps exceeds \$3.9 billion.

Exhibit 7: Rio Grande Valley UTP Projects by Funding Status, 2020-2030



3.2 TxDOT Pharr District Projects

The TxDOT Pharr District maintains a long-range plan for major projects in the RGV. The projects included in this plan were compared to the 2021 UTP to identify projects that are not already included in the UTP. Only five projects, four on US 83 and one on the future International Bridge Trade Corridor, are anticipated to begin between 2020 and 2030 and are not in the 2021 UTP (**Exhibit 8**). However, the four projects on US 83 are located in Zapata County, outside of the study area. Additionally, 16 projects in the Pharr District are planned for years beyond 2030. **Exhibit 10** displays the corridors included in the district's long-range plan.

Exhibit 8: Summary of Pharr District Projects Not in the UTP, 2020-2030

Project Category	No. of Projects	Percent of Total	Total Cost (millions \$)	Percent of Total Cost
Alternate Routes	1	20%	\$125.0	66.3%
Asset Preservation	-	-	-	-
Mobility and Reliability	4*	80%	\$63.5*	33.7%
Port Facilities	-	-	-	-
Safety	-	-	-	-
Total	5	100%	\$188.5	100%

Source: Texas Department of Transportation, Pharr District, 2020.

*Four projects on US 83 are located in Zapata County, outside of the study area.

3.3 Projects from the Border Transportation Master Plan

The BTMP project team collected additional projects from local plans and stakeholders, including both near-term, planned projects and long-term, proposed projects. Planned projects between 2020 and 2030 were compared to the UTP and Pharr District projects to determine if any additional relevant freight projects were planned. Five additional projects were identified and are summarized in **Exhibit 9**.

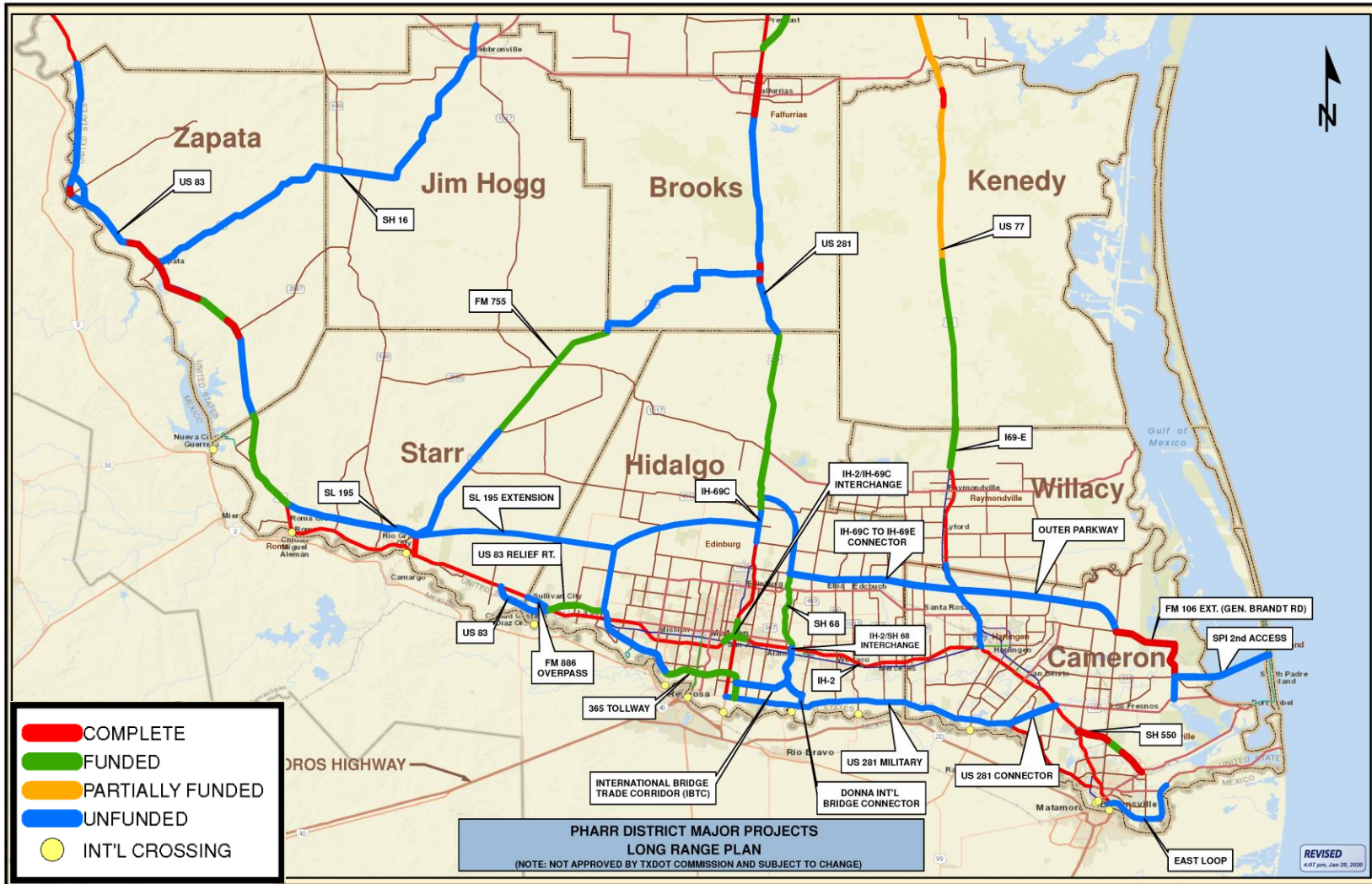
Exhibit 9: Summary of Local Projects from the Border Transportation Master Plan, 2020-2030

Project Category	No. of Projects	Percent of Total	Total Cost (millions \$)	Percent of Total Cost
Alternate Routes	3	-	\$230.8	-
Asset Preservation	-	-	-	-
Mobility and Reliability	2	-	\$21.4	-
Port Facilities	-	-	-	-
Safety	-	-	-	-
Total	5	100%	\$252.3	100%

Source: Texas Department of Transportation, Pharr District, 2020.

*Four projects on US 83 are located in Zapata County, outside of the study area.

Exhibit 10: Pharr District Major Projects Long Range Plan



3.4 Strategic Projects

In the context of this Regional Freight and Trade Plan, strategic projects are major, long-term projects beyond TxDOT's current transportation plans that have the ability to transform freight movement in the RGV. These projects will not necessarily be planned or constructed by TxDOT, and they may not be funded by any entity at this time. The following strategic projects were identified through the RGVSC and input from other stakeholders through interviews and transportation forums:

- I-69 Improvements and Designation,¹
- International Bridge Improvements,
- Additional Maritime Port Capabilities, and
- Construction of a Rail Intermodal Facility.

3.4.1 I-69 Improvements and Designation

TxDOT currently has a program of projects to upgrade a series of U.S. and state highways to interstate standards and designate the corridor as I-69. In the RGV, segments of I-69C (US 281), I-69E (US 77), and I-169 (SH 550) have already received designation. Other segments are in various stages of development, from nearing construction to long-term planning. The I-69 corridor will provide a continuous interstate corridor along the Gulf Coast between the RGV and Texarkana once complete.

3.4.2 International Bridge Improvements

The RGV has six international bridges that currently serve bidirectional, loaded truck traffic. Two additional bridges, Anzalduas and Donna International Bridges, currently only serve southbound empty trucks. Improvements to these bridges and authorization for bidirectional truck traffic could provide additional capacity and resiliency for the RGV. Additionally, throughput improvements at all bridges are continuously underway to improve operations at each individual bridge.

3.4.3 Additional Maritime Port Capabilities

The RGVSC discussed several maritime improvements during meetings and follow-up interviews. The deepening of the Port of Brownsville to accommodate liquified natural gas (LNG) plant shipping requirements is a major opportunity to open the port up not only to LNG traffic, but to large container ships as well. The Port of Brownsville currently has very limited container operations, and one service route to and from Florida was recently restored after several years of inactivity. The Port of Harlingen is also exploring containerized cargo service, including containerized agriculture. These improvements to the RGV's largest ports will

¹ Several segments of the I-69 Corridor program are under construction or development. More information about TxDOT's statewide designation program is available at <https://www.dot.state.tx.us/drivenbytexas/index.htm>.

provide more shipping options for customers and potentially reduce regional truck trips between Houston and the RGV.

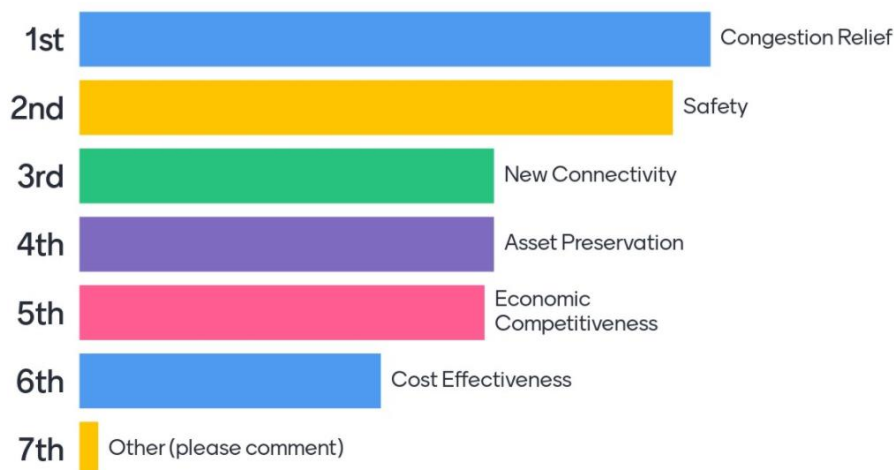
3.4.4 Construction of a Rail Intermodal Facility

There are currently no intermodal ramps in the RGV. Union Pacific (UP) operates a paper ramp in Donna where cargo is trucked from the Donna facility to UP's intermodal ramp in San Antonio. While this provides indirect access to rail intermodal service, stakeholders identified an interest in expanding shipping options and capabilities through local intermodal facilities.

3.5 Prioritizing Projects

The projects identified in 3.1 through 3.3 were consolidated into a master list and prioritized for inclusion in the Rio Grande Valley Freight Investment Plan, the ten-year list of freight projects in the RGV. Prioritization was based on stakeholder input. The RGVSC provided input during its September 2020 meeting on how the Regional Freight and Trade Plan's goals should inform project prioritization. Mobility (or congestion relief) and safety were the top ranked goals, while new connectivity, asset preservation, and economic competitiveness were identified as a second important tier (**Exhibit 11**).

Exhibit 11: RGVSC Input on Most Important Goals for Prioritizing Projects



This input was aligned with the data analysis conducted during development of and described in the Needs Assessment to create a single combined freight needs score of high, medium, or low. Per stakeholder input, the selected needs assessment topics were weighted as follows:

- Safety, including Truck Parking – 25 percent,
- Mobility and Reliability – 25 percent,
- Connectivity – 20 percent,
- Asset Management – 15 percent, and
- Oversize/Overweight Corridors – 15 percent.

For example, if a segment was rated as having a high mobility and reliability need, a medium safety need, and low need in the other areas, its combined score would be calculated as shown in **Exhibit 12**. Combined scores were categorized into high, medium, and low groups. High priority locations were those with a combined score over 2.2, medium priority locations were those with a combined score between 1.7 and 2.2, and low priority locations scored below 1.7. In this example, this segment would be given a medium priority. Then, projects associated with this segment receive the same priority.

Exhibit 12: RGVSC Input on Most Important Goals for Prioritizing Projects

Needs Assessment Result	Segment Score	Weighting	Weighted Score
Safety	Medium (2 points)	0.25	2 * 0.25 = 0.5
Mobility and Reliability	High (3 points)	0.25	3 * 0.25 = 0.75
Connectivity	Low (1 point)	0.20	1 * 0.20 = 0.20
Asset Management	Low (1 point)	0.15	1 * 0.15 = 0.15
Oversize/Overweight	Low (1 point)	0.15	1 * 0.15 = 0.15
Total	N/A	1.00	1.75

None of these factors singularly influence economic competitiveness; however, taken together, these five topics represent the priorities stakeholders discussed to achieve a safe, efficient, and competitive environment. While a single roadway project may address multiple need types (e.g., mobility and safety), truck parking needs likely require more targeted solutions to add parking capacity or improve information about parking availability and should also be analyzed separately.

This prioritization of needs as high, medium, and low only applies to the freight analysis completed in this Regional Freight and Trade Plan. Projects given a low freight priority may still fulfill a high priority need for other modes or other goals TxDOT and its partners strive to address. The resulting combined needs score was then used to assign a priority to freight

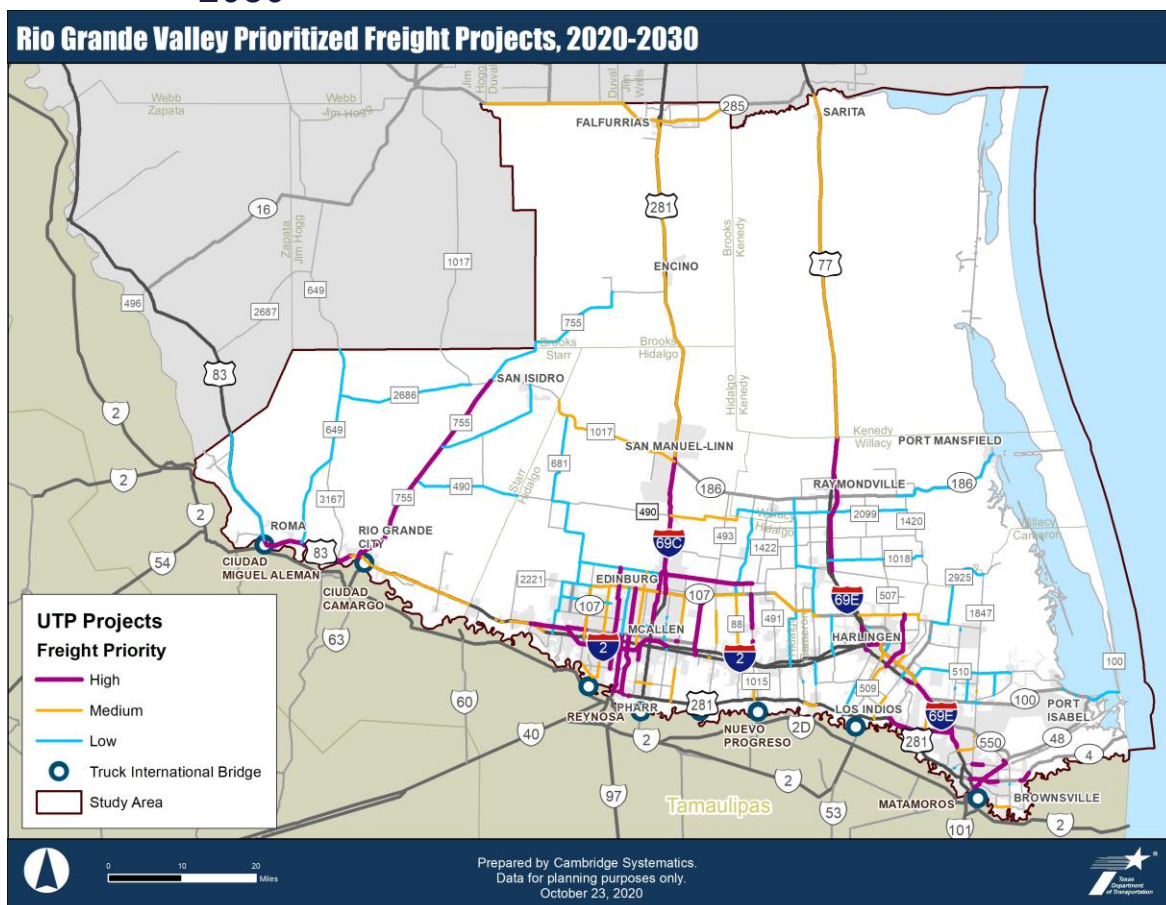
projects in the RGV, as summarized in **Exhibit 13** and displayed in **Exhibit 14**. More than 60 percent of high priority and low priority projects are fully funded, and the medium priority projects included a larger share of unfunded projects.

Exhibit 13: Rio Grande Valley Freight Projects by Priority

Funding Status	High Priority		Medium Priority		Low Priority	
	No. of Projects	Percent of Projects	No. of Projects	Percent of Projects	No. of Projects	Percent of Projects
Fully Funded	57	60%	34	49%	59	66%
Partially Funded	27	28%	24	35%	23	26%
Unfunded	11	12%	11	16%	8	9%
Total	95	100%	69	100%	90	100%

Source: 2021 Unified Transportation Program, analysis by Cambridge Systematics, Inc.

Exhibit 14: Rio Grande Valley Prioritized Freight Projects, 2020-2030



Note: If a project or its control section covers multiple segments from the needs assessment, the maximum needs value was used.

Exhibit 15 summarizes funding at each priority level in terms of funding amounts rather than projects. Nearly 70 percent of high priority project costs are funded, leaving a gap of \$252.9 million to complete funding for partially funded high priority projects and \$35.4 million to complete unfunded high priority projects. The funding gap for medium priority projects is \$812.9 million, leaving two-thirds of costs unfunded. An additional investment of \$164.2 million is required to fully fund partially funded medium priority projects, and an additional \$648.7 million is needed to fund medium priority projects with no current funding. The majority of low priority project costs are funded (nearly 70 percent). The funding gap for low priority projects is \$320.0 million, with \$185.7 million needed to fund partially funded low priority projects and \$134.3 million to fund unfunded low priority projects.

Exhibit 15: Freight Investment Plan Funding and Funding Gap by Priority

	High Priority		Medium Priority		Low Priority	
Funding Status	Funding Gap (Millions \$)	Percent of Cost Unfunded	Funding Gap (Millions \$)	Percent of Cost Unfunded	Funding Gap (Millions \$)	Percent of Cost Unfunded
Fully Funded	\$0.0	0%	\$0.0	0%	\$0.0	0%
Partially Funded	\$252.2	31%	\$164.2	35%	\$185.7	40%
Unfunded	\$335.4	100%	\$648.7	100%	\$134.3	100%
Total	\$587.7	33%	\$812.9	67%	\$320.0	32%

Source: 2021 Unified Transportation Program, analysis by Cambridge Systematics, Inc.

TxDOT should update the RGV Freight Investment Plan as well as the implementation schedule shown in **Exhibit 16** annually to ensure that freight priorities continue to receive funding and are executed in the next 10 years. In order to fund all the high freight priority projects, existing funds may need to be repurposed from low and medium freight priority projects. Other options include identifying new revenue sources from TxDOT, federal sources, regional planning partners, and the private sector. There may be additional opportunities for TxDOT to use the freight priorities to help refocus existing funds and incorporate freight considerations into future funding decisions to ensure that all high priority freight projects are fully funded.

Exhibit 16: Implementation Schedule for the RGV Freight Investment Plan

Let Year	No. of Projects	Total Cost (Millions \$)
2020	96	\$170.77
2021	17	\$325.62
2022	19	\$158.82
2023	36	\$509.93
2024	27	\$1,069.16
2025	22	\$938.00
2026	24	\$316.39
2027	2	\$31.39
2029	1	\$10.95
2030	10	\$445.87
Total	254	\$3,976.88

Source: 2021 Unified Transportation Program, analysis by Cambridge Systematics, Inc.

4.0 Freight and Trade Transportation Recommendations

The recommendations and strategies presented in this memorandum were initially identified through stakeholder interviews, discussion during meetings of the RGVSC, and findings of the needs assessment conducted during development of this Regional Freight and Trade Plan. The project team vetted a list of approximately 30 draft strategies with stakeholders through four freight and trade transportation forums (held August 10-11, 2020) and a meeting of the RGVSC (September 1, 2020). Following these meetings, the project team sought additional input from the TxDOT International Trade Branch and the TxDOT Pharr District to ensure alignment with ongoing efforts and priorities and to determine likely lead and supporting organizations. The process resulted in the 8 recommendations and 35 strategies described in the following sections and summarized in **Exhibit 17**.

Exhibit 17: Recommendations and Number of Supporting Strategies

Recommendation	Project Strategies	Program Strategies	Policy Strategies	Operational Strategies
Complete Infrastructure Projects Supporting Freight and Trade	4 TxDOT-Led	1 TxDOT-Led	-	-
Continue Collaboration with Binational Regional Stakeholders	-	1 TxDOT-Led 2 TxDOT-Supported	-	-
Enhance Operations and Resiliency of the International Bridge Network	-	2 TxDOT-Supported	1 TxDOT-Led	-
Implement Technology Strategies to Improve Freight Operations	-	-	-	5 TxDOT-Led
Improve Freight Mobility on Local Roadways	-	1 TxDOT-Led 1 TxDOT-Supported	-	2 TxDOT-Supported
Improve Regional Data Collection	-	4 TxDOT-Led	1 TxDOT-Supported	-
Increase Access to Safe Truck Parking	1 TxDOT-Led	2 TxDOT-Led	1 TxDOT-Led	1 TxDOT-Led
Integrate Freight Considerations into All Stages of Transportation and Land Use Planning	-	1 TxDOT-Led	2 TxDOT-Led 2 TxDOT-Supported	-
Total	5 TxDOT-Led	10 TxDOT-Led 5 TxDOT-Supported	4 TxDOT-Led 3 TxDOT-Supported	6 TxDOT-Led 2 TxDOT-Supported

4.1 Complete Infrastructure Projects Supporting Freight and Trade

The TxDOT Pharr District and the RGVMPPO have developed programs of projects to advance mobility, safety, and economic competitiveness in the RGV. Additionally, stakeholders have identified longer-term strategic projects to improve freight movement in the RGV. **Exhibit 18** lists the goal areas addressed by completing infrastructure projects supporting freight and trade.

Exhibit 18: Goal Areas Addressed by Completing Infrastructure Projects Supporting Freight and Trade

Safety	Economic Competitiveness	Mobility and Reliability	Connectivity
✓	✓	✓	✓
Sustainable Funding	Stewardship	Customer Service	Asset Preservation
✓	✓	✓	✓

Exhibit 19 lists five strategies related to project implementation and is followed by a summary for each. Each of these strategies are described below, and **Section 3.0** of this memorandum describes RGV freight infrastructure projects in more detail.

Exhibit 19: Strategies Supporting Complete Infrastructure Projects Supporting Freight and Trade

Strategy	Strategy Type	Key Stakeholders
Track, fund, and complete the freight projects identified in the 2021 Unified Transportation Program and local plans.	TxDOT-Led Project	TxDOT; MPO; local partners
Advance long-range corridor plans.	TxDOT-Led Project	TxDOT; MPO; local partners
Build support and identify potential funding sources for strategic projects.	TxDOT-Led Project	TxDOT; MPO; local partners
Support projects identified in the BTMP.	TxDOT-Led Project	TxDOT; MPO; local partners
Explore opportunities to expand freight rail capacity while avoiding negative impacts to public safety and congestion.	TxDOT-Led Program	TxDOT; railroads; local partners

TxDOT-Led Project Strategy 1: Track, fund, and complete the freight projects identified in the 2021 Unified Transportation Program.

The 2021 Unified Transportation Program (UTP) is TxDOT’s 10-year funding program for infrastructure projects. While the UTP identifies funding sources for certain infrastructure projects, the UTP is adopted annually, and funding allocation can be adjusted in future years. TxDOT and its partners should regularly track and advocate for freight projects to ensure that freight priorities in the RGV are funded and completed. The attached Freight Investment Plan (**Appendix C**) will provide the basis to track and publish freight priority projects in order to garner support from the public, districts and divisions within TxDOT, the

RGVMPO, and the Texas Transportation Commission. These projects are summarized in **Section 3.1** and prioritized in **Section 3.5**.

TxDOT-Led Project Strategy 2: Advance long-range corridor plans.

The TxDOT Pharr District has developed a long-range plan that extends beyond the UTP and includes input from regional mobility authorities (RMAs) and the RGVMPO. Projects in the long-range plan include UTP projects and non-UTP projects. Non-UTP projects could be scheduled beyond the 10-year period of the UTP, they could be funded by sources other than those included in the UTP, or they could have no funding currently identified. There are three phases of inclusion in the UTP based on a project’s expected effectiveness at meeting an identified need, development status, and funding: plan authority, develop authority, and construction authority.² TxDOT and its partners should advance these projects through the UTP process to ensure a continuous pipeline of freight projects and to promote cohesive corridor development. These projects are discussed in **Section 3.2**.

TxDOT-Led Project Strategy 3: Build support and identify potential funding sources for strategic projects.

In addition to programmed and planned projects, several long-range, unplanned projects were identified through stakeholder engagement. These projects will be referred to as “strategic projects” in the Regional Freight and Trade Plan and include major, long-term projects that could significantly influence the movement of freight in the RGV. TxDOT and its partners should build support for these projects to identify funding and advance project planning. These projects are described in **Section 3.4**.

TxDOT-Led Project Strategy 4: Support projects identified in the BTMP.

The BTMP will include a list of programs, policies, and projects to improve transportation at the Texas-Mexico border. The recommendations in the Regional Freight and Trade Plan were developed in close coordination with the BTMP team. However, the BTMP identified additional projects in Mexico and in other regions of Texas that will impact the RGV. TxDOT and its partners should support the implementation of the BTMP and development of its projects.

TxDOT-Led Program Strategy 1: Explore opportunities to expand freight rail capacity while avoiding negative impacts to public safety and congestion.

Freight rail transportation can provide a safe, cost effective way to move large volumes of bulk commodities into and out of the RGV. Traditionally, rail is the mode of choice for transporting steel, pipe, heavy equipment, agricultural goods, and construction materials over longer distances. These commodities are also commonly shipped to and from the RGV’s maritime ports, and increased rail transportation could alleviate truck traffic to and from the ports and to domestic and international markets. While no specific upcoming rail

² More information on each stage is included in the 2021 UTP: <https://ftp.txdot.gov/pub/txdot/tpp/utp/2021-utp.pdf>

projects were identified for the RGV, TxDOT and local partners should foster relationships with railroads to periodically discuss challenges and opportunities related to rail transportation as the region grows.

4.2 Continue Collaboration with Binational Regional Stakeholders

Infrastructure users, operators, and regulators all bring different perspectives about the current challenges related to freight movement, and cross-sector, cross-industry collaboration is necessary to identify and implement new opportunities for improvement. Advancing the recommendations in this memorandum and continually improving freight and trade in the RGV will require input and participation from federal, state, and local partners in the public sector as well as private sector users of the freight system. In the RGV, this collaboration extends to partners in Mexico, especially related to international bridge operation and information dissemination to roadway users. **Exhibit 20** lists the main goals advanced by this recommendation. However, it is expected that strong partnerships in the public and private sector will ultimately support all goal areas. **Exhibit 21** lists the strategies identified to advance this recommendation.

Exhibit 20: Goal Areas Addressed by Continuing Collaboration with Binational Regional Stakeholders

Safety	Economic Competitiveness	Mobility and Reliability	Connectivity
✓	✓	✓	✓
Sustainable Funding	Stewardship	Customer Service	Asset Preservation
	✓	✓	

Exhibit 21: Strategies Supporting Continue Collaboration with Binational Regional Stakeholders

Strategy	Strategy Type	Key Stakeholders
Establish a Rio Grande Valley Freight Advisory Committee with public and private sector stakeholders.	TxDOT-Supported Program	MPO; TxDOT
Convene a biennial regional freight and trade transportation summit.	TxDOT-Supported Program	MPO; TxDOT; local partners
Develop a freight transportation public education and awareness program and share the road campaign.	TxDOT-Led Program	TxDOT; local partners

TxDOT-Supported Program Strategy 1: Establish a Rio Grande Valley Freight Advisory Committee with public and private sector stakeholders.

The RGVMPPO should adopt the RGVSC as a new Freight Advisory Committee (FAC) and this body should continue to meet regularly to support TxDOT and the MPO as they strive to continuously improve freight transportation. As a new FAC for the RGVMPPO, members would continue to provide input on infrastructure and institutional priorities and constraints.

TxDOT-Supported Program Strategy 2: Convene a biennial regional freight and trade transportation summit.

Regional stakeholders should foster collaboration and broaden the coalition of advocates for freight transportation through periodic transportation summits. A biennial freight and trade transportation summit will maintain visibility on freight and trade issues and garner support for implementation of the Regional Freight and Trade Plan as well as TxDOT's Border Transportation Master Plan. Building on the FAC, engagement in the summit should be broadened to include additional decision-makers from the public and private sectors.

TxDOT-Led Program Strategy 2: Develop a freight transportation public education and awareness program and share the road campaign.

The freight and trade community understands that freight activity is not only an important part of the regional and state economies, it is also critical for maintaining quality of life through the delivery of food, medicine, construction materials, and other essential items to build our communities. However, the traveling public does not always understand the infrastructure and operating needs related to freight, and may even perceive freight operations as a nuisance. TxDOT should improve perception and safety of interactions with freight vehicles through a public awareness campaign, including statewide messaging and more tailored regional messages.

4.3 Enhance Operations and Resiliency of the International Bridge Network

International trade is critical to the regional economy of the RGV and to Texas as a whole. Throughout interviews, meetings of the RGVSC, and transportation forums, stakeholders commented that international trade is tied to nearly every aspect of freight transportation in the RGV, from warehousing and cold storage near the U.S.-Mexico border, to fuel exports traveling through the Ports of Brownsville and Harlingen, to rail shipments across the West Rail Bridge, to automotive components arriving through Valley International Airport. Additionally, the strategies proposed in the Regional Freight and Trade Plan are closely tied to the strategies identified by TxDOT for its BTMP, and TxDOT staff for both Plans met regularly to ensure alignment with regional and statewide objectives.

Not only does international trade drive the economy, it also dictates the manner and time that freight moves. For example, truck drivers plan trips according to the operating hours of

U.S. and Mexican customs agencies, and they park in the RGV while waiting for customs paperwork to clear before proceeding southbound across international bridges. Inspections by multiple agencies at international bridges ensure the safety and security of the community, state, and nation, but they can also cause costly delays. In the case of produce, inspection delays can directly translate to decreased product quality, and all shippers experience increased operating costs when crossing times increase. A required crew change on the West Rail Bridge at the international border impacts rail transportation as well. Combined, these delays often have a negative impact on driver behavior and add up to lost productivity, increased shipping costs, and ultimately increased costs passed on to consumers.

Exhibit 22 identifies the goal areas addressed by enhancing operations and resiliency of the international bridge network. Improving bridge operations improves economic competitiveness, mobility and reliability, and asset preservation by ensuring that bridges are optimally used according to their infrastructure and location. Additionally, this recommendation advances customer service by meeting a critical community need and advances sustainable funding by supporting infrastructure that is funded by user fees.

Exhibit 22: Goal Areas Addressed by Enhancing Operations and Resiliency of the International Bridge Network

Safety	Economic Competitiveness	Mobility and Reliability	Connectivity
✓	✓	✓	✓
Sustainable Funding	Stewardship	Customer Service	Asset Preservation
✓		✓	✓

Many entities have a role in improving operations at international bridges, and input from stakeholders indicates that bridge operators, the RGVMPPO, and TxDOT continuously work to improve infrastructure at, to, and from international bridges. The strategies listed in **Exhibit 23** build on improvements planned by infrastructure owners to optimize the RGV network as a whole. Additionally, several infrastructure projects identified promote connectivity between international bridges, most notably the International Bridge Trade Corridor (IBTC) connecting the region's ports-of-entry.

Exhibit 23: Strategies Supporting Enhance Operations and Resiliency of the International Bridge Network

Strategy	Strategy Type	Key Stakeholders
Develop regional resiliency plan to enhance network redundancy, expand transportation alternatives, and improve connectivity between border crossings and between designated corridors.	TxDOT-Led Policy	TxDOT; bridge operators; MPO; local partners
Increase capacity for specialized inspections through training, staffing, or technology.	TxDOT-Supported Program	Customs and Border Protection (CBP); U.S. Department of Agriculture (USDA); U.S. Food and Drug Administration (FDA); bridge operators; Federal Motor Carrier Safety Administration (FMCSA); Texas Department of Public Safety (TxDPS)
Increase utilization of the Free and Secure Trade (FAST) Lanes program by supporting improvements at international bridges and increasing enrollment.	TxDOT-Supported Program	Bridge operators; local partners; CBP

TxDOT-Led Policy Strategy 1: Develop regional resiliency plan to enhance network redundancy, expand transportation alternatives, and improve connectivity between border crossings and between designated corridors.

Individual bridge operators have emergency response plans to implement in case of a bridge closure. However, increased planning, coordination, and information dissemination will improve the flow of freight and trade through the RGV by establishing a more cohesive network of options for drivers. TxDOT and its partners should develop a regional resiliency plan that includes plans, signage, and information systems to direct traffic in the event of a bridge closure or slow down. This plan should also include additional connectivity required to promote a resilient system.

TxDOT-Supported Program Strategy 3: Increase capacity for specialized inspections through training, staffing, or technology.

Lack of specialized inspection staff (e.g., entomologists for produce inspections) was identified by stakeholders as a cause of delay at international bridges, especially for produce and other products that require inspection by the U.S. Food and Drug Administration (FDA) or the U.S. Department of Agriculture (USDA). Training programs in collaboration with the University of Texas Rio Grande Valley campus aim to increase the number of entomologists in the region. Staff increases, staff training, and the ability to

conduct digital or remote screening are dependent on participation of federal agencies. However, local partners have a role in continuing to advocate for capacity building in this area.

TxDOT-Supported Program Strategy 4: Increase utilization of the Free and Secure Trade (FAST) Lanes program by supporting improvements at international bridges and increasing enrollment.

Free and Secure Trade (FAST) lanes provide an expedited inspection process for shippers, receivers, and carriers that participate in the Customs Trade Partnership Against Terrorism (CTPAT) program, and increasing the volume of truck traffic utilizing these lanes would improve the efficiency of the system overall. Three bridges currently operate FAST lanes: Veterans International Bridge, Free Trade Bridge at Los Indios, and Pharr International Bridge. Several approaches are recommended to increase utilization of this option:

- Ensure trucks can access FAST lanes directly, rather than waiting in the queue with all commercial traffic,
- Increase enrollment of shippers, receivers, and manufacturers, and
- Provide FAST lanes at additional international bridges.

4.4 Implement Technology Strategies to Improve Freight Operations

Transportation technology is evolving rapidly, and TxDOT is currently developing a Freight Network Technology and Operations Plan (FNTOP) to prepare for implementation of many strategies. Mobility, safety, operations, and asset management all stand to be improved by leveraging technology solutions. Improved operations also lead to lower emissions and better network satisfaction from freight and passenger users (**Exhibit 24**).

Exhibit 24: Goal Areas Addressed by Implementing Technology Strategies to Improve Freight Operations

Safety	Economic Competitiveness	Mobility and Reliability	Connectivity
✓	✓	✓	
Sustainable Funding	Stewardship	Customer Service	Asset Preservation
	✓	✓	✓

The strategies listed in **Exhibit 25** and described below were developed in collaboration with the FNTOP recommendations based on the needs communicated during stakeholder input and identified during the needs assessment.

Exhibit 25: Strategies Supporting Implement Technology Strategies to Improve Freight Operations

Strategy	Strategy Type	Key Stakeholders
Establish a Binational Regional Traffic Management Center and deploy dynamic message signs on the highway freight network.	TxDOT-Led Operational	TxDOT; TxDPS; U.S. CBP Servicio de Administración Tributaria (SAT); Mexico Secretaría de Comunicaciones y Transportes (SCT); local partners, including cities and states in Mexico
Deploy advance warning systems on critical highway routes and at safety hotspots.	TxDOT-Led Operational	TxDOT; local partners
Implement statewide guidance on Smart Work Zones to identify and deploy appropriate ITS solutions on the RGVHFN.	TxDOT-Led Operational	TxDOT
Deploy freight-specific ITS on critical freight routes.	TxDOT-Led Operational	TxDOT; local partners
Establish automated vehicle readiness program, including both technology components and traditional maintenance activities.	TxDOT-Led Operational	TxDOT

TxDOT-Led Operational Strategy 1: Establish a Binational Regional Traffic Management Center and deploy dynamic message signs on the highway freight network.

Traffic Management Centers (TMCs) serve as hubs for traffic monitoring, data collection, information dissemination, and collaboration between regional partners. In the RGV, these partners include Mexican infrastructure operators and a binational traveling public. The RGV currently has some traffic monitoring support from the San Antonio TMC, and the Pharr District operates a small monitoring system. Development of a regional TMC will enable swifter response to traffic incidents and better communication with the traveling public about closures, alternate routes, and conditions. Additionally, a statewide Traffic Operations Center is proposed in the FNTOP that would connect TMCs in Texas and improve data sharing. Preparing for integration into this system will improve domestic travel.

TxDOT-Led Operational Strategy 2: Deploy advance warning systems on critical highway routes and at safety hotspots.

Preserving an infrastructure’s lifespan is critical for maintaining safety and mobility along the highway network throughout Texas. In some instances, a freight vehicle may be operating outside of desirable parameters (e.g., too fast, too big, too heavy) without awareness of an upcoming potential hazard, such as a low overpass, a sharp curve, or a blind intersection. Lack of awareness of these hazards can result in crashes or other safety

issues as well as the costs associated with damaged infrastructure (e.g., bridge strike repairs). TxDOT and its local partners should install advanced warning systems at strategic locations along the highway freight network, including for over-height, overweight, overspeed, blocked rail crossings, and turning/stopped vehicles. Locations with a high-incidence of truck-related crashes or critical infrastructure (bridges, etc.) should be prioritized.

TxDOT-Led Operational Strategy 3: Implement statewide guidance on Smart Work Zones to identify and deploy appropriate ITS solutions on the highway freight network.

TxDOT's Smart Work Zone (SWZ) guide and go/no-go decision tool include six SWZ tools that the Pharr District can apply to improve mobility and safety in work zones: queue detection, speed monitoring, construction equipment alerts, travel time display, incident detection and surveillance, and over-height vehicle warning. Implementing these tools will improve freight safety and mobility as the region upgrades its infrastructure.

TxDOT-Led Operational Strategy 4: Deploy freight-specific ITS on critical freight routes.

Critical freight routes connecting to international bridges, intermodal facilities, warehousing, and industrial land uses can better serve freight traffic through deployment of freight-specific ITS. Truck priority signals detect approaching or queuing trucks and adjust signal phases to facilitate truck movement. Similarly, green-time extension prolongs the green period to ensure that vehicles clear the intersection safely. Dynamic message signs and other freight traveler information systems disseminate travel times to international bridges, parking locations or availability, or other route information.

TxDOT-Led Operational Strategy 5: Establish automated vehicle readiness program, including both technology components and traditional maintenance activities.

Automated vehicle technology is predominantly being tested and deployed by the private sector with support from public sector partners, and several of TxDOT's Divisions are involved in preparation for wider adoption of autonomous and connected vehicles. At the regional level, the TxDOT Pharr District, the RGVMPPO, and local infrastructure operators can prepare for automated and connected vehicles by ensuring that enabling infrastructure such as fiber is installed as projects are completed. Additionally, automated vehicles operate best when markings and signage are clear and when infrastructure is in good condition. TxDOT should collaborate with fleet operators to determine where autonomous vehicles are likely to operate in the RGV and ensure infrastructure is prepared.

4.5 Improve Freight Mobility on Local Roadways

Locally and regionally significant roadways in the RGV connect warehouses, manufacturers, maritime ports, and international bridges to major U.S. and Interstate Highways. These connections are critical for economic competitiveness and mobility; however, local thoroughfares may not be designed for freight vehicles and often result in potential conflicts between freight and passenger traffic. During transportation forums, stakeholders identified signal timing and wayfinding as two specific barriers to freight mobility on local roadways. Additionally, lack of connectivity between major highways in the RGV results in freight traffic utilizing city and county roads to access destinations or to travel between corridors.

Improving freight mobility on local roadways will reduce delay, reduce wear on local streets caused by trucks starting and stopping, and improve safety. Additionally, local infrastructure providers can encourage truck drivers to utilize designated routes by providing a better driver experience on these routes, resulting in less conflict between freight and passenger traffic. The goal areas addressed by this recommendation are shown in **Exhibit 26**. Strategies to improve mobility on local roadways are shown in **Exhibit 27**.

Exhibit 26: Goal Areas Addressed by Improving Freight Mobility on Local Roadways

Safety	Economic Competitiveness	Mobility and Reliability	Connectivity
✓	✓	✓	✓
Sustainable Funding	Stewardship	Customer Service	Asset Preservation
			✓

Exhibit 27: Strategies Supporting Improve Freight Mobility on Local Roadways

Strategy	Strategy Type	Key Stakeholders
Conduct traffic signal timing studies for urban arterials on the highway freight network.	TxDOT-Supported Operational	Local partners; TxDOT
Increase signage and wayfinding on the highway freight network, ensuring placement allows trucks time to maneuver.	TxDOT-Supported Operational	Local partners; TxDOT
Improve safety and mobility at at-grade highway-rail crossings through grade separations and by addressing humped crossings.	TxDOT-Led Program	TxDOT; local partners; railroads
Develop regional multimodal thoroughfare plans for the RGV MPO area.	TxDOT-Supported Program	MPO; local partners

TxDOT-Supported Operational Strategy 1: Conduct traffic signal timing studies for urban arterials on the highway freight network.

Signal timing studies and improvements are inexpensive relative to construction projects and can yield significant returns on investment. Cities with a population over 50,000 manage their own signal infrastructure, and in the RGV these cities are Brownsville, Edinburg, Harlingen, McAllen, Mission, and Pharr. TxDOT can support local efforts by providing study support and by coordinating TxDOT-managed signals with city-managed signals.

TxDOT-Supported Operational Strategy 2: Improve safety and mobility at at-grade highway-rail crossings through grade separations and by addressing humped crossings.

At-grade highway-rail crossings can cause delay on the highway network, lower operating speeds on the rail network, and introduce a potential collision point. TxDOT should determine the most beneficial locations for grade separation or crossing closures, particularly along the short line railroads that run east-west through the RGV which have numerous at-grade highway-rail crossings along the I-2/US 83 corridor.

TxDOT-Led Program Strategy 3: Increase signage and wayfinding on the highway freight network, ensuring placement allows trucks time to maneuver.

Stakeholders observed that wayfinding to common freight destinations could be improved, and that signage should be placed far enough in advance to allow truck drivers to change lanes if needed. This strategy is already implemented on the RGV’s major highways in

accordance with federal and state Manuals on Uniform Traffic Control Devices. TxDOT and local partners should identify locations that would benefit from additional signage in partnership with the private sector, particularly in rural areas and near international bridges.

TxDOT-Supported Program Strategy 5: Develop regional multimodal thoroughfare plans for the new RGVMP0 area.

The RGVMP0 formed in October 2019 following the combination of three MPOs in the RGV. The merger presents an opportunity for more comprehensive planning in all areas of transportation, including the creation of a combined multimodal thoroughfare plan to include freight considerations.

4.6 Improve Regional Data Collection

During development of the Regional Freight and Trade Plan, data availability was frequently discussed with members of the RGVSC and interview participants. Several data shortcomings related to critical freight activity in the RGV were identified during these conversations, particularly related to international bridge conditions and vehicle size and weight. Additionally, the passage of the U.S.-Mexico-Canada Agreement (USMCA) was identified as a source of uncertainty in freight forecasting. Improving regional data collection will help TxDOT and its partners quantify and communicate needs in order to secure funding and will enable better decision making (**Exhibit 28**). **Exhibit 29** identifies specific strategies to implement in the RGV.

Exhibit 28: Goal Areas Addressed by Improving Regional Data Collection

Safety	Economic Competitiveness	Mobility and Reliability	Connectivity
✓		✓	
Sustainable Funding	Stewardship	Customer Service	Asset Preservation
✓	✓	✓	

Exhibit 29: Strategies Supporting Improve Regional Data Collection

Strategy	Strategy Type	Key Stakeholders
Develop a freight data program to collect and share information.	TxDOT-Led Program	TxDOT; MPO; local partners
Expand and maintain weigh-in-motion and automated vehicle classification/count systems.	TxDOT-Led Program	TxDOT
Expand commercial vehicle border crossing data collection and reporting to include northbound and southbound border crossing and wait times at all international bridges.	TxDOT-Led Program	TxDOT
Track changes in freight movement due to USMCA implementation and update regional forecasts to reflect new patterns.	TxDOT-Led Program	TxDOT
Integrate reporting of annual and locally-issued OW/OW permits into existing TxDMV reporting program.	TxDOT-Supported Program	TxDMV; local permit issuers; TxDOT

TxDOT-Led Program Strategy 4: Develop a freight data program to collect and share information.

TxDOT and its partners can improve decision making and support transportation investments by collecting and sharing freight data. TxDOT should establish a freight data program to facilitate collection and sharing of information between transportation providers and users of the freight system, statewide and in the RGV, including topics such as vehicle counts and classifications, size and weight data, truck parking capacity and utilization, travel times, and crash hotspots. The development of a regional TMC and implementation of technology strategies would also provide data collection and collaboration opportunities.

TxDOT-Led Program Strategy 5: Expand and maintain weigh-in-motion and automated vehicle classification/ count systems.

Expanding vehicle data collection on the highway freight network will position TxDOT and its partners to advocate for funding and plan for asset maintenance. Strategic placement of weigh-in-motion (WIM) devices can also protect assets and enable fee collection by weight. For example, in an interview with an international bridge operator, WIM application at international bridges was identified as an opportunity to automatically weigh, permit, and charge overweight vehicles. On the TxDOT roadway system, WIM is active at only one location in the RGV study area: I-69C/US 281 north of San Manuel-Linn. While several other districts have little or no WIM infrastructure the Pharr District has significant overweight traffic that warrants more sophisticated tracking of vehicle weights. There are 14 active vehicle classification/count locations in the RGV and 7 inactive locations. TxDOT and local partners should determine whether these locations meet the current regional data needs for

tracking transportation patterns in the RGV. Additionally, TxDOT should implement the findings of the TxDOT WIM and Vehicle Classification Strategic Plan (under development).

TxDOT-Led Program Strategy 6: Expand commercial vehicle border crossing data collection and reporting to include northbound and southbound border crossing and wait times at all international bridges.

Border wait time, the time between arriving at the end of the queue and arriving at the inspection station, is available for all RGV international bridges in the northbound direction. The Texas A&M Transportation Institute (TTI) publishes real-time and historical information for northbound crossing time, the time between arriving at the end of the queue and departing the inspection station, for two bridges in the RGV: Veterans International Bridge and Pharr International Bridge. Stakeholders commented that crossing time more accurately describes the performance of international bridges and the experience of carriers and would be helpful to track at all bridges. Additionally, data on southbound travel times would also provide a more holistic picture of international bridge performance.

TxDOT-Led Program Strategy 7: Track changes in freight movement due to USMCA implementation and update regional forecasts to reflect new patterns.

Most currently available commodity forecasts were developed prior to the passage of the USMCA, including those utilized in the development of the Regional Freight and Trade Plan. TxDOT and its partners should monitor how trade patterns evolve as provisions of the USMCA are implemented to ensure that existing and planned infrastructure will continue to meet the freight and trade needs of the RGV.

TxDOT-Supported Policy Strategy 1: Integrate reporting of locally-issued oversize/overweight (OS/OW) permits into existing TxDMV reporting program.

Single-trip OS/OW permits issued by the Texas Department of Motor Vehicles (TxDMV) were analyzed by TTI during the development of the Regional Freight and Trade Plan. However, TxDMV also issues annual permits for certain types of carriers that are not captured in this database. Additionally, permits issued by Hidalgo County RMA, the Port of Brownsville, and the Port of Harlingen are not included in this database. Creating a centralized reporting structure would enable TxDOT and its partners to better plan for OS/OW traffic in the RGV. TxDOT should also coordinate with TxDMV to assess the feasibility of additional reporting guidelines for operators using annual permits to aid in the collection of volume and routing data for OS/OW loads.

4.7 Increase Access to Safe Truck Parking

Lack of authorized or designated truck parking locations in the RGV, particularly near the Texas-Mexico border, results in truck drivers parked on shoulders, on ramps, and roadside

as they wait to reach a customer or to proceed southbound on an international bridge, or while they take required hours-of-service breaks. These conditions were identified during stakeholder interviews, transportation forums, and meetings of the RGVSC. Near industrial areas, maritime ports, and international bridges, trucks may only need a safe and secure place to park for a few hours or less. In Brooks and Kenedy, trucks regularly park outside of TxDOT rest areas. Stakeholders indicated that these drivers are more likely to be completing long-haul trips than those parked near the Texas-Mexico border, observing that drivers nearer the border have often recently picked up or dropped off a load. Long-haul drivers are more likely than regional drivers to need parking for eight or more hours to meet state and federal requirements and to operate safely.

Improving these conditions will not only improve safety and operations within the freight and transportation industries; the traveling public will benefit from better visibility if trucks are able to park in a designated location. The goal areas addressed by this recommendation are shown in **Exhibit 30**. **Exhibit 31** lists strategies to increase access to safe truck parking in the RGV, and each of these strategies is discussed in more detail in the following sections. TxDOT is currently undertaking a pilot deployment of Truck Parking Availability Systems (TPAS) on the I-10 corridor in collaboration with New Mexico, Arizona, and California. Additionally, the 2020 Statewide Truck Parking Study conducted by TxDOT has extensive documentation of truck parking challenges and strategies for addressing truck parking needs. TxDOT intends to implement this study through more detailed analysis of individual corridors and feasibility of various strategies along them.

Exhibit 30: Goal Areas Addressed by Increasing Access to Safe Truck Parking

Safety	Economic Competitiveness	Mobility and Reliability	Connectivity
✓	✓	✓	
Sustainable Funding	Stewardship	Customer Service	Asset Preservation
		✓	✓

Exhibit 31: Strategies Supporting Increase Access to Safe Truck Parking

Strategy	Strategy Type	Key Stakeholders
Collaborate with truck stop operators to develop new or expand existing truck parking, especially near international bridges.	TxDOT-Led Program	TxDOT; POEs; local partners; truck stop operators
Collaborate with regional stakeholders to encourage truck parking at non-TxDOT public facilities and private commercial and industrial sites.	TxDOT-Led Program	TxDOT; Cities; Counties;
Include designated parking for oversize vehicles in locations with frequent oversize loads.	TxDOT-Led Policy	TxDOT; local parking providers
Deploy Truck Parking Availability System on the RGVHFN.	TxDOT-Led Operational	TxDOT
Construct additional truck parking in coordination the Statewide Truck Parking Study implementation.	TxDOT-Led Projects	TxDOT; local partners

TxDOT-Led Program Strategy 8: Collaborate with truck stop operators to develop new or expand existing truck parking, especially near international bridges.

Privately-owned truck stops currently comprise 91 percent of truck parking capacity in the RGV and 96 percent in Texas. In locations where demand is high, such as near industrial land uses and international bridges, the private sector may be well-suited to provide additional capacity because truck volumes may be high enough to yield a return-on-investment.

TxDOT-Led Program Strategy 9: Collaborate with regional stakeholders to encourage truck parking at non-TxDOT public facilities and private commercial and industrial sites.

TxDOT’s 2020 Statewide Truck Parking Study identified an opportunity to utilize locations not specifically designated for truck parking to increase parking capacity. This strategy involves private and public-sector partners allowing truck parking routinely or periodically in order to support the freight and trade community and to reduce negative impacts of unauthorized parking on the traveling public. Establishing relationships and agreements with local land owners can be particularly effective to provide emergency parking in the event of a temporary bridge closure, weather event, or other unexpected disruption of freight movement.

TxDOT-Led Policy Strategy 2: Include designated parking for oversize vehicles in locations with frequent oversize loads.

The RGV experiences more oversize and overweight vehicle traffic than many other parts of the state due to the maritime and international ports of entry and proximity to specialized manufacturing (e.g., wind blades and components). Parking for oversize loads can pose a unique challenge due to ingress/egress into parking facilities, available spaces, and available space size. Identifying specific locations to provide oversize parking spaces, whether at existing parking facilities or new locations, would support these industries and improve public safety.

TxDOT-Led Operational Strategy 6: Deploy Truck Parking Availability System on highway freight network.

The Truck Parking Availability System (TPAS) is an ITS application to assist truck drivers in locating available parking spaces in real-time. This allows for informed decisions about where to park based on their needs and federal hours-of-service (HOS) requirements. The TPAS strategy includes monitoring real-time parking availability at strategic truck parking areas and publishing parking availability data for freight industry use. TxDOT and its partners should instrument parking locations to detect available spaces and establish systems to display real-time availability on roadside signs and through applications or websites.

TxDOT-Led Project Strategy 5: Construct additional truck parking in coordination with the Statewide Truck Parking Study implementation.

TxDOT is implementing its Statewide Truck Parking Study, including study of corridors and feasibility of constructing additional TxDOT-owned truck parking locations. TxDOT should coordinate internally and externally to advance potential locations in the RGV as they are identified.

4.8 Integrate Freight Considerations into All Stages of Transportation and Land Use Planning

Today, population centers and centers of freight or industrial activity are both concentrated near the I-69 and I-2 corridors, and geographic constraints – the U.S.-Mexico border to the south and the Gulf of Mexico to the east – limit the directions the RGV can grow. Current challenges identified by stakeholders and data analysis include trucks parked outside of designated areas, at-grade highway-rail crossings near entrances to residential communities, concerns over environmental impacts of industrial uses (specifically new LNG plants), and truck traffic on local thoroughfares. Proactive incorporation of freight transportation needs into land use decisions, project development, site design, infrastructure design, and operations plans can prevent conflicts between freight and passenger transportation, improve economic competitiveness, and increase quality of life. For example, TxDOT identified the need to establish an improved policy on bridge vertical clearance to support freight and has implemented a minimum vertical clearance of 18.5

feet on the THFN. **Exhibit 32** lists the goals address by this recommendation, and **Exhibit 33** lists proposed strategies to advance this recommendation.

Exhibit 32: Goal Areas Addressed by Integrating Freight Considerations into Transportation and Land Use Planning

Safety	Economic Competitiveness	Mobility and Reliability	Connectivity
✓	✓	✓	✓
Sustainable Funding	Stewardship	Customer Service	Asset Preservation
✓	✓	✓	✓

Exhibit 33: Strategies to Advance Integrating Freight Considerations

Strategy	Strategy Type	Key Stakeholders
Integrate freight considerations into the project development process.	TxDOT-Led Policy	TxDOT; MPO; RMAs; local partners
Develop truck traffic impact analysis guidelines to include truck parking/queuing impact and inspection locations in urban and rural areas.	TxDOT-Led Policy	TxDOT; MPO; RMAs; local partners; CBP
Integrate freight considerations into land use decisions to mitigate conflicts between residential, commercial, and industrial uses.	TxDOT-Supported Policy	Local partners; Economic Development Corporations (EDCs); RMAs
Develop a regional Transportation Systems Management and Operations (TSM&O) program to include freight considerations and commercial vehicle incident management.	TxDOT-Led Program	TxDOT; MPO; local partners
Seek sustainable funding for transportation improvements in the Rio Grande Valley.	TxDOT-Supported Policy	RMAs; POEs; maritime ports; MPO

TxDOT-Led Policy Strategy 3: Integrate freight considerations into the project development process.

TxDOT is developing Freight Infrastructure Design Considerations that will augment existing design standards to reflect the specific needs of freight vehicles. The topics addressed in these considerations include pavement design, roadway and shoulder widths, turning radii, acceleration lanes, and other design features. TxDOT and its partners should apply these considerations to projects on the highway freight network where feasible and as early in the project development process as possible. For example, the volume and types of truck traffic likely to use the roadway should be considered during feasibility studies, right-of-way acquisition, and other early planning phases.

TxDOT-Led Policy Strategy 4: Develop truck traffic impact analysis guidelines to include truck parking/queuing impact and inspection locations in urban and rural areas.

Cities and counties commonly have policies or guidelines in place to evaluate the potential traffic impacts of large development projects. Often, these guidelines do not include important freight related impacts including, but not limited to, truck parking, truck queuing, and truck operations and inspection locations. By identifying the truck traffic needs before a project is constructed, design changes or mitigation strategies can be incorporated to address the potential impacts and help meet truck traffic needs. TxDOT should play a lead role in developing guidance or sharing best practices with local communities.

TxDOT-Supported Policy Strategy 2: Integrate freight considerations into land use decisions to mitigate conflicts between residential, commercial, and industrial uses.

Freight supportive land use guidelines can assist municipalities in integrating freight movement considerations into land use planning. Specifically, guidelines should lead to improved freight mobility to make businesses more competitive and improve the overall economic health of the RGV. TxDOT should work with local officials to develop or share comprehensive land use guidelines focused on mitigating the potential conflicts between freight intensive land uses, the region's transportation system, and local communities. Cities, counties, EDCs, and other local partners should use these guidelines when planning future land use and developing sites.

TxDOT-Led Program Strategy 10: Incorporate freight considerations into the Pharr District's Transportation Systems Management and Operations (TSMO) Program Plan.

TxDOT is developing TSMO program plans for each TxDOT district. These plans identify steps TxDOT and its partners can take to improve collaboration, business processes, organizational structure, deployment or integration of technology systems, performance measurement, and culture related to operation of the transportation network. Specifically, steps should result in better traffic incident management, signal management, work zones, planned special events, and response to weather events. TxDOT and local partners should ensure that freight considerations are integrated into the Pharr District's TSMO Plan and that freight stakeholders are engaged in its implementation.

TxDOT-Supported Policy Strategy 3: Seek sustainable funding for transportation improvements in the RGV.

TxDOT funds projects using federal, state, and local sources, and it organizes this funding into 12 categories. Additionally, local transportation improvements are funded by taxes and bonds through local governments. However, funding for transportation and other public projects is limited, and is likely to become more constrained without action. Identifying

sustainable sources of revenue is critical. Several entities in the RGV already use a fee or toll mechanism to fund the continued operation of their facilities, including the Cameron County RMA, Hidalgo County RMA, maritime ports, and international bridges. Infrastructure operators, local governments, and the RGVMPO should seek additional mechanisms to invest in the RGV freight transportation network.

4.9 Summary of Strategies by Type

Exhibit 34 summarizes the 35 recommendations identified in this section, organized by policy, program, operational, and project strategies and TxDOT's role as a lead or supporting agency for each. TxDOT's involvement in strategies includes roles for Divisions in the TxDOT central office and for the Pharr District. Some strategies are best led at the local level, while others are better coordinated by a Division conducting relevant statewide work. TxDOT should continue collaboration between the Divisions and Districts to facilitate implementation of these strategies.

Exhibit 34: Summary of Recommended Strategies by Type

Project Strategies TxDOT-Led (All)

1. Track, fund, and complete the freight projects identified in the 2021 Unified Transportation Program.
2. Advance long-range corridor plans.
3. Build support and identify potential funding sources for strategic projects.
4. Support projects identified in the BTMP.
5. Construct additional truck parking in coordination the Statewide Truck Parking Study implementation.

Program Strategies

TxDOT-Led	TxDOT-Supported
<ol style="list-style-type: none"> 1. Explore opportunities to expand freight rail capacity while avoiding negative impacts to public safety and congestion. 2. Develop a freight transportation public education and awareness program and share the road campaign. 3. Improve safety and mobility at at-grade highway-rail crossings through grade separations and by addressing humped crossings. 4. Develop a freight data program to collect and share information. 5. Expand and maintain weigh-in-motion and automated vehicle classification/count systems. 6. Expand commercial vehicle border crossing data collection and reporting to include northbound and southbound border crossing and wait times at all international bridges. 7. Track changes in freight movement due to USMCA implementation and update regional forecasts to reflect new patterns. 8. Collaborate with truck stop operators to develop new or expand existing truck parking, especially near international bridges. 9. Collaborate with regional stakeholders to encourage truck parking at non-TxDOT public facilities and private commercial and industrial sites. 10. Develop a regional Transportation Systems Management and Operations (TSM&O) program to include freight considerations and commercial vehicle incident management. 	<ol style="list-style-type: none"> 1. Establish a Rio Grande Valley Freight Advisory Committee with public and private sector stakeholders. 2. Convene a biennial regional freight and trade transportation summit. 3. Increase capacity for specialized inspections through training, staffing, or technology. 4. Increase utilization of the Free and Secure Trade (FAST) Lanes program by supporting improvements at international bridges and increasing enrollment. 5. Develop regional multimodal thoroughfare plans for the RGVMPPO area.

Policy Strategies

TxDOT-Led	TxDOT-Supported
<ol style="list-style-type: none"> 1. Develop regional resiliency plan to enhance network redundancy, expand transportation alternatives, and improve connectivity between border crossings and between designated corridors. 2. Include designated parking for oversize vehicles in locations with frequent oversize loads. 3. Integrate freight considerations into the project development process. 4. Develop truck traffic impact analysis guidelines to include truck parking/queuing impact and inspection locations in urban and rural areas. 	<ol style="list-style-type: none"> 1. Integrate reporting of annual and locally-issued OW/OW permits into existing TxDMV reporting program. 2. Integrate freight considerations into land use decisions to mitigate conflicts between residential, commercial, and industrial uses. 3. Seek sustainable funding for transportation improvements in the Rio Grande Valley.

Continued on next page.

Exhibit 34: Summary of Recommended Strategies by Type, continued

Operational Strategies	
TxDOT-Led	TxDOT-Supported
<ol style="list-style-type: none"> 1. Establish a Binational Regional Traffic Management Center and deploy dynamic message signs on the RGVHFN. 2. Deploy advance warning systems on critical highway routes and at safety hotspots. 3. Implement statewide guidance on Smart Work Zones to identify and deploy appropriate ITS solutions on the RGVHFN. 4. Deploy freight-specific ITS on critical freight routes. 5. Establish automated vehicle readiness program, including both technology components and traditional maintenance activities. 6. Deploy Truck Parking Availability System on the RGVHFN. 	<ol style="list-style-type: none"> 1. Conduct traffic signal timing studies for urban arterials on the RGVHFN. 2. Increase signage and wayfinding on the RGVHFN, ensuring placement allows trucks time to maneuver.

5.0 Implementation Plan

This implementation plan identifies actions that TxDOT and its partners can take in the short and medium terms to advance the recommendations and strategies identified in this memorandum. These actions were developed by the project team based on data analysis and stakeholder input and were vetted by the RGVSC during its November 2020 meeting. Short-term actions are those which could be completed within 12-18 months, and medium-term actions should be initiated within 12 months and completed within 5 years. These timeframes were selected to create momentum towards implementation immediately following adoption of the Regional Freight and Trade Plan while still documenting the critical actions that require more time to complete.

5.1 Implementing Project Strategies

The short- and medium-term project actions shown in **Exhibit 35** should be taken to advance the eight program recommendations and their five supporting project strategies.

Exhibit 35: Actions to Implement Project Strategies

Actions to Implement Project Strategies	
Short-Term (Complete within 12 to 18 Months)	Medium-Term (Complete within 5 Years)
Action 1: TxDOT and the RGVMPPO Freight Advisory Committee should develop a framework for monitoring the development and implementation of priority freight	<p>Action 1: TxDOT and the RGVMPPO should monitor progress towards implementation of priority freight projects and report implementation progress to the RGVMPPO Freight Advisory Committee.</p> <p>Action 2: TxDOT should undertake a Rio Grande Valley Freight</p>

projects included in the Rio Grande Valley Freight Investment Plan.

Rail Infrastructure Assessment to identify opportunities to build freight rail capacity while avoiding negative impacts to public safety and congestion at rail-highway crossings.

5.2 Implementing Policy Strategies

The short- and medium-term policy actions shown in **Exhibit 36** should be taken to advance the eight program recommendations and their seven supporting policy strategies.

Exhibit 36: Actions to Implement Policy Strategies

Actions to Implement Policy Strategies	
Short-Term (Complete within 12 to 18 Months)	Medium-Term (Complete within 5 Years)
<p>Action 1: TxDOT should integrate the freight infrastructure design considerations currently under development into the Rio Grande Valley project development process for future infrastructure improvements.</p> <p>Action 2: TxDOT should coordinate with local planners to assess the feasibility of integrating freight and truck considerations into traffic impact analyses for industrial and commercial developments.</p> <p>Action 3: TxDOT should meet with TxDMV, local permit issuers, and users of OS/OW permits to exchange ideas on collecting, submitting, and sharing additional data for multi-use permits to aid in transportation network maintenance, construction, and investment planning.</p> <p>Action 4: TxDOT should convene a meeting of bridge operators and federal agencies to identify opportunities to address resiliency through a coordinated regional plan.</p> <p>Action 5: TxDOT should develop and adopt a policy requiring OS/OW parking at public facilities when feasible.</p>	<p>Action 1: TxDOT should develop freight and trade transportation investment funding guidelines that explore innovative funding and financing to include local, state, federal, and private sector funding opportunities.</p> <p>Action 2: TxDOT should develop and share freight land use considerations and mitigation factors related to freight and trade with local leaders. The considerations could be developed in cooperation with the RGVMPPO through input from its boards and technical and policy committees.</p>

5.3 Implementing Program Strategies

The short- and medium-term program actions shown in **Exhibit 37** should be taken to advance the 8 program recommendations and their 16 supporting program strategies.

Exhibit 37: Actions to Implement Program Strategies

Actions to Implement Program Strategies	
Short-Term (Complete within 12 to 18 Months)	Medium-Term (Complete within 5 Years)
<p>Action 1: TxDOT should support the formation of the Rio Grande Valley Freight Advisory Committee and provide ongoing regional freight planning support, including as part of statewide freight planning efforts and through participation on the RGVMPPO policy and technical committees.</p> <p>Action 2: TxDOT should address freight data collection in the Rio Grande Valley by improving WIM and vehicle classification device coverage in the region. This includes repairing or replacing malfunctioning equipment and deploying additional equipment in locations identified in the TxDOT WIM and Vehicle Classification Strategic Plan (under development).</p> <p>Action 3: TxDOT should use the findings from the Regional Freight and Trade Plan to develop public outreach materials for use at regional, statewide, and national levels.</p> <p>Action 4: TxDOT and regional freight stakeholders should participate in the development and implementation of the Pharr District TSMO Program Plan.</p> <p>Action 5: TxDOT should work with the RGVMPPO, the Rio Grande Valley Freight Advisory Committee, local leaders, and private sector transportation stakeholders to convene a planning session for the first biennial Rio Grande Valley Freight and Trade Transportation Summit.</p> <p>Action 6: TxDOT should work with local partners to determine locations where static or dynamic signage would improve traffic flow, particularly for accessing maritime ports or international bridges.</p> <p>Action 7: TxDOT should convene a working group of research organizations, international bridge operators, and data providers to discuss the feasibility of providing bidirectional border crossing times for commercial vehicles at all Rio Grande Valley international bridges where applicable.</p> <p>Action 8: TxDOT should establish a framework to track changes in freight and trade movement following implementation of the USMCA.</p> <p>Action 9: TxDOT should work with international bridge operators to identify opportunities and challenges associated with increasing utilization of FAST Lanes at international bridges.</p> <p>Action 10: TxDOT should convene a meeting with existing truck stop operators and regional stakeholders owning facilities with significant surface parking availability to exchange ideas and information on expanding safe truck parking along the RGVHFN.</p>	<p>Action 1: TxDOT should develop a comprehensive freight data collection, repository, and reporting program that includes formulated rules, agreements, and guidelines for obtaining, sharing, and using public and private sector data sources.</p> <p>Action 2: TxDOT should undertake a Rio Grande Valley Freight Rail Infrastructure Assessment to identify opportunities to build freight rail capacity while avoiding negative impacts to public safety and congestion at rail-highway crossings.</p> <p>Action 3: TxDOT should provide planning support for conducting regional multimodal thoroughfare plans conducted by local organizations, such as the RGVMPPO or the Rio Grande Valley's RMAs.</p> <p>Action 4: TxDOT and regional stakeholders should convene biennial Rio Grande Valley Freight and Trade Transportation Summits to facilitate an ongoing dialogue, information exchange, and Rio Grande Valley Freight and Trade Transportation Plan implementation in the region.</p> <p>Action 5: TxDOT should monitor changing freight flows following implementation of the USMCA.</p> <p>Action 6: TxDOT should develop standards of readiness for connected and automated vehicle (CAV) deployment, such as lane marking maintenance, smart signage, and 4D digital mapping of the network, and implement these standards at priority locations.</p> <p>Action 7: TxDOT should convene a working group including federal agencies and international bridge operators to discuss opportunities to increase capacity for specialized inspections at international bridges.</p>

5.4 Implementing Operational Strategies

The short- and medium-term operational actions shown in **Exhibit 38** should be taken to advance the eight program recommendations and their eight supporting operational strategies.

Exhibit 38: Actions to Implement Operational Strategies

Operational Strategies	
TxDOT-Led	TxDOT-Supported
<p>Establish a Binational Regional Traffic Management Center and deploy dynamic message signs on the RGVHFN.</p> <p>Deploy advance warning systems on critical highway routes and at safety hotspots.</p> <p>Implement statewide guidance on Smart Work Zones to identify and deploy appropriate ITS solutions on the RGVHFN.</p> <p>Deploy freight-specific ITS on critical freight routes.</p> <p>Establish automated vehicle readiness program, including both technology components and traditional maintenance activities.</p> <p>Deploy Truck Parking Availability System on the RGVHFN.</p>	<p>Conduct traffic signal timing studies for urban arterials on the RGVHFN.</p> <p>Increase signage and wayfinding on the RGVHFN, ensuring placement allows trucks time to maneuver.</p>

6.0 Next Steps

The recommendations, strategies, and implementation steps outlined in this memorandum will inform the final chapters of the Regional Freight and Trade Plan and are the basis for plan implementation moving forward. Within these recommendation and strategies, three critical first steps were identified to maintain momentum.

- **Continued and Broadened Collaboration** – The RGVSC will evolve to serve as the RGVMPPO’s Freight Advisory Committee. Continued participation from the public and private sector participants will be critical to plan implementation. Additionally, increased participation from partners at federal agencies and Mexican counterparts at multiple levels will be essential to success.
- **Early Implementation Steps** – As TxDOT, the RGVMPPO, and other partners implement the recommendations, strategies, and action steps, early implementation actions can maintain momentum from plan development. Steps such as developing a tracking framework and assigning more detailed roles for short-term actions will provide TxDOT and its partners with a clear path to implementation.
- **Rio Grande Valley Freight Investment Plan** – The projects in the Rio Grande Valley Freight Investment Plan cost \$4.0 billion over the next ten years. However, \$1.7 billion of project costs are unfunded, and inclusion in funding programs such as the UTP does not guarantee funding. High priority freight projects should be tracked to ensure funding, and their importance should be communicated to decision-makers. The TxDOT Pharr District will continue to develop projects for inclusion in the UTP, and additional projects under development by local partners also need continued monitoring and promotion.

These initial steps are the most crucial to continuing momentum from the development of the Regional Freight and Trade Plan and maintain a safe, competitive, and efficient freight and trade transportation network in the RGV.

Implementation of this plan will occur through many cooperating partners. TxDOT will continue to engage stakeholders statewide through the TxFAC as well as the Border Trade Advisory Committee. You can get involved at the local level through the TxDOT Pharr District, the RGVMPPO, and the RGV Freight Advisory Committee.

Appendix A: Established Performance Measures

TxDOT establishes performance measures and targets through a rigorous process culminating in adoption by the Texas Transportation Commission. These measures are established to ensure that TxDOT's investment decisions are unbiased and advance the state's goals. Under the Texas Transportation Plan 2050 (TTP 2050), adopted on August 27, 2020, these goals are:

- Promote Safety,
- Optimize System Performance: Movement of People and Goods,
- Focus on the Customer: Communicate Effectively,
- Preserve our Assets,
- Deliver the Right Projects, and
- Foster Stewardship: Protect and Preserve the Human and Natural Environment.

The performance measures set during TTP 2050 are summarized in **Exhibit 39**.

Exhibit 39: TTP 2050 Performance Measures

Goal Area	Measure	Sub-Measurement Areas
Promote Safety	Annual Fatalities and Fatality Rate	Fatalities Fatality Rate
	Annual Serious Injuries and Serious Injury Rate	Serious Injuries Injury Rate
	Fatality Emphasis Areas (Number of Deaths)	Run off the road Distracted driving Driving under the influence (DUI) Intersections Pedalcyclist Pedestrian
	Employee Injury Rate	N/A
Optimize System Performance	Congestion and Reliability Indexes	Urban congestion Urban reliability Rural reliability Truck reliability
	Vehicle Miles Traveled	N/A
	Annual Delay Per Person	N/A
Focus on the Customer	Percentage of Customer Complaint Cases Closed on Time	N/A

Goal Area	Measure	Sub-Measurement Areas
	Customer Complaint Case Type (Top 5)	N/A
	Average TxTag Call Wait Time	N/A
	Average TxTag Call Handle Time	N/A
Preserve our Assets	Percentage of Lane Miles in Good or Better Condition	Statewide (All Highway Types) National Highway System (NHS) interstate (IH) NHS non-IH Non-NHS Energy Sector (defined by county)
	Bridge Condition Score	Statewide (All Highway Types) National Highway System (NHS) interstate (IH) NHS non-IH Non-NHS
Deliver the Right Projects	Percentage of Highway Infrastructure Contracts Completed On Time	N/A
	Percentage of Highway Infrastructure Contracts Completed On Budget	N/A
Foster Stewardship	Disadvantaged Business Enterprises (DBE) Attainment	N/A
	Historically Underutilized Businesses (HUB) Attainment	Building construction Special trade construction Professional services Other services Commodities Heavy construction
	Direct Transportation Funding	N/A

Source: Texas Transportation Plan 2050, 2020. TxDOT Performance Dashboard, 2020.

Additionally, the RGVMPPO sets performance measures in accordance with federal requirements in the Fixing America’s Surface Transportation (FAST) Act. These performance measures must address seven federal goal areas: safety, infrastructure condition, congestion reduction, system reliability, freight movement and economic vitality, environmental sustainability, and reduced project delivery delays. The performance measures associated with these goals are shown in **Exhibit 40**.

Exhibit 40: RGV MPO Performance Measures

National Goal	Measure(s)
Safety	Fatalities: number of fatalities; rate of fatalities per 100 million Vehicle Miles Traveled (VMT); number of non-motorized fatalities
	Injuries: number of serious injuries; rate of serious injuries per 100 million VMT; number of non-motorized serious injuries
	Transit: total number of reportable fatalities and rate per total vehicle revenue miles by mode
	Transit: total number of reportable injuries and rate per total vehicle revenue miles by mode
Infrastructure Condition	Transit: total number of reportable events and rate per total vehicle revenue miles by mode
	Percentage of pavements of the Interstate System in good condition
	Percentage of pavements of the Interstate System in poor condition
	Percentage of pavements of the non-interstate NHS in good condition
	Percentage of pavements of the non-interstate NHS in poor condition
	Percentage of NHS bridges classified as in good condition
	Percentage of NHS bridges classified as in poor condition
	Transit % revenue vehicles (by type) that exceed useful life benchmark (ULB)
Transit % non-revenue service vehicles (by type) that exceed ULB	
Congestion Reduction	Transit % facilities (by group) rated less than 3.0 on Transit Economic Requirements Model (TERM) scale
	No required measures for small MPOs and/or areas in attainment for air quality
System Reliability	Percentage of person-miles traveled on the Interstate that are reliable
	Percentage of person-miles traveled on the non- Interstate NHS that are reliable
	Transit: mean distance between major mechanical failures by mode
Freight Movement & Economic Vitality	Truck Travel Time Reliability Index (TTTRI)
Environmental Sustainability	No required measures for small MPOs and/or areas in attainment for air quality
Reduced Project Delivery Delays	No established performance measures

Source: Rio Grande Valley Metropolitan Transportation Plan, 2020.

Finally, the 2018 TFMP proposed 38 potential performance measures across eight goal areas and a ninth set of performance measures to track technology implementation. These measures are shown in **Exhibit 41**.

Exhibit 41: TFMP Performance Measures

Safety Performance Measures	
<ul style="list-style-type: none"> ▪ Truck-related crashes per truck-miles traveled on the Texas Highway Freight Network ▪ Percent of all fatal motor vehicle crashes involving trucks on the Texas Highway Freight Network ▪ Number of rail-related crashes ▪ Number of at-grade highway/rail crossing closures or grade separations 	<ul style="list-style-type: none"> ▪ Truck-related fatalities per truck-miles traveled on the Texas Highway Freight Network ▪ Number of injuries and fatalities from rail-related crashes ▪ Number of crashes at at-grade highway/rail crossings
Asset Preservation and Utilization Performance Measures	
<ul style="list-style-type: none"> ▪ Percent of pavement lane-miles in good repair on the Texas Highway Freight Network ▪ Number of load restricted bridges on the Texas Highway Freight Network 	<ul style="list-style-type: none"> ▪ Percent of bridges with vertical clearance less than 16.5 feet on the Texas Highway Freight Network ▪ Percent of bridges in poor condition on the Texas Highway Freight Network
Multimodal Connectivity Performance Measures	
<ul style="list-style-type: none"> ▪ Number of airport cargo-access issues addressed ▪ Number of port-access issues addressed 	<ul style="list-style-type: none"> ▪ Volume of international cross-border freight moved by rail ▪ Percent of intermodal connectors in fair or better pavement condition
Mobility and Reliability Performance Measures	
<ul style="list-style-type: none"> ▪ Annual hours of truck delay on the Texas Highway Freight Network ▪ Number of projects addressing freight bottlenecks on the Texas Highway Freight Network annually ▪ Reduction in average wait times at international commercial border crossings 	<ul style="list-style-type: none"> ▪ Truck Travel Time Reliability index on the Texas Highway Freight Network ▪ Percent of lane-miles at a level-of-service D or higher on the Texas Highway Freight Network ▪ Incident clearance time on the Texas Highway Freight Network

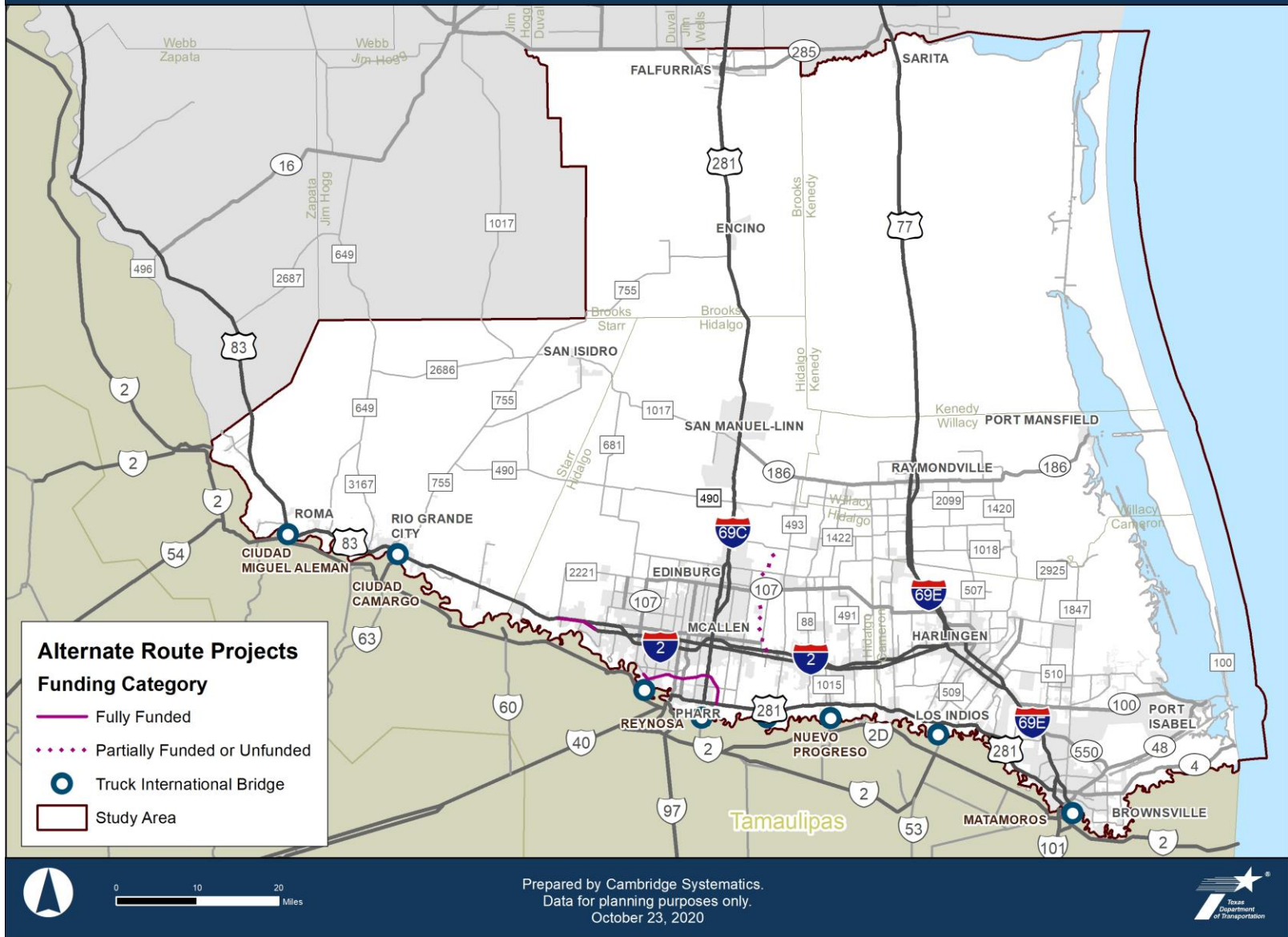
Exhibit 41: TFMP Performance Measures, continued

Customer Service Performance Measures	
<ul style="list-style-type: none"> ▪ Completion of annual freight project prioritization ▪ Number of workshops/meetings held with non-TxDOT agencies responsible for freight system investment 	<ul style="list-style-type: none"> ▪ Completion of annual update of educational materials related to freight by TxDOT ▪ Percent completion of annual meetings with each TxDOT district and department
Stewardship Performance Measures	
<ul style="list-style-type: none"> ▪ Percent of design projects on the Texas Highway Freight Network delivered on time and within budget 	<ul style="list-style-type: none"> ▪ Percent of construction projects completed on the Texas Highway Freight Network delivered on time and within budget
Sustainable Funding Performance Measures	
<ul style="list-style-type: none"> ▪ Amount of net new funding made available for freight projects ▪ Percent of annual state and federal revenue projections met ▪ Number of public private partnerships for freight investments 	<ul style="list-style-type: none"> ▪ Percent of transportation budget invested on the Texas Multimodal Freight Network annually ▪ Percent of freight funding spent
Economic Competitiveness Performance Measures	
<ul style="list-style-type: none"> ▪ Percent growth in freight export value ▪ Percent of national employment in strategic freight supply chain industries 	<ul style="list-style-type: none"> ▪ Percent of GSP in strategic freight supply chain industries
Technology Performance Measures	
<ul style="list-style-type: none"> ▪ Number of dynamic messaging signs – hard wired/permanent and temporary ▪ Percent of weigh stations on Texas Highway Freight Network with Weigh in Motion (WIM) 	<ul style="list-style-type: none"> ▪ Percent of Texas Highway Freight Network covered by ITS technologies

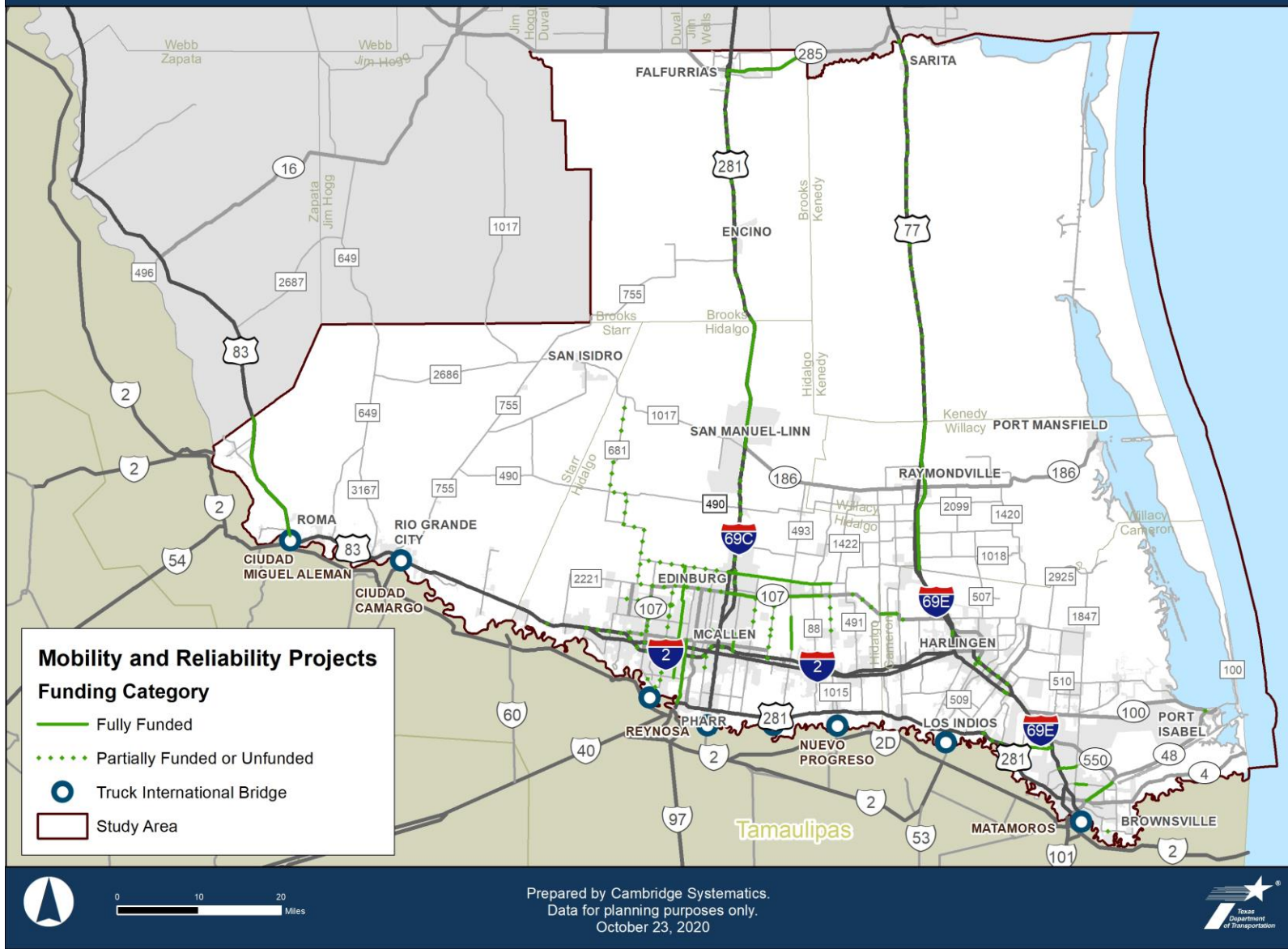
Appendix B: Project Maps by Category and Funding Status

The maps beginning on the following page display project location by category and funding status.

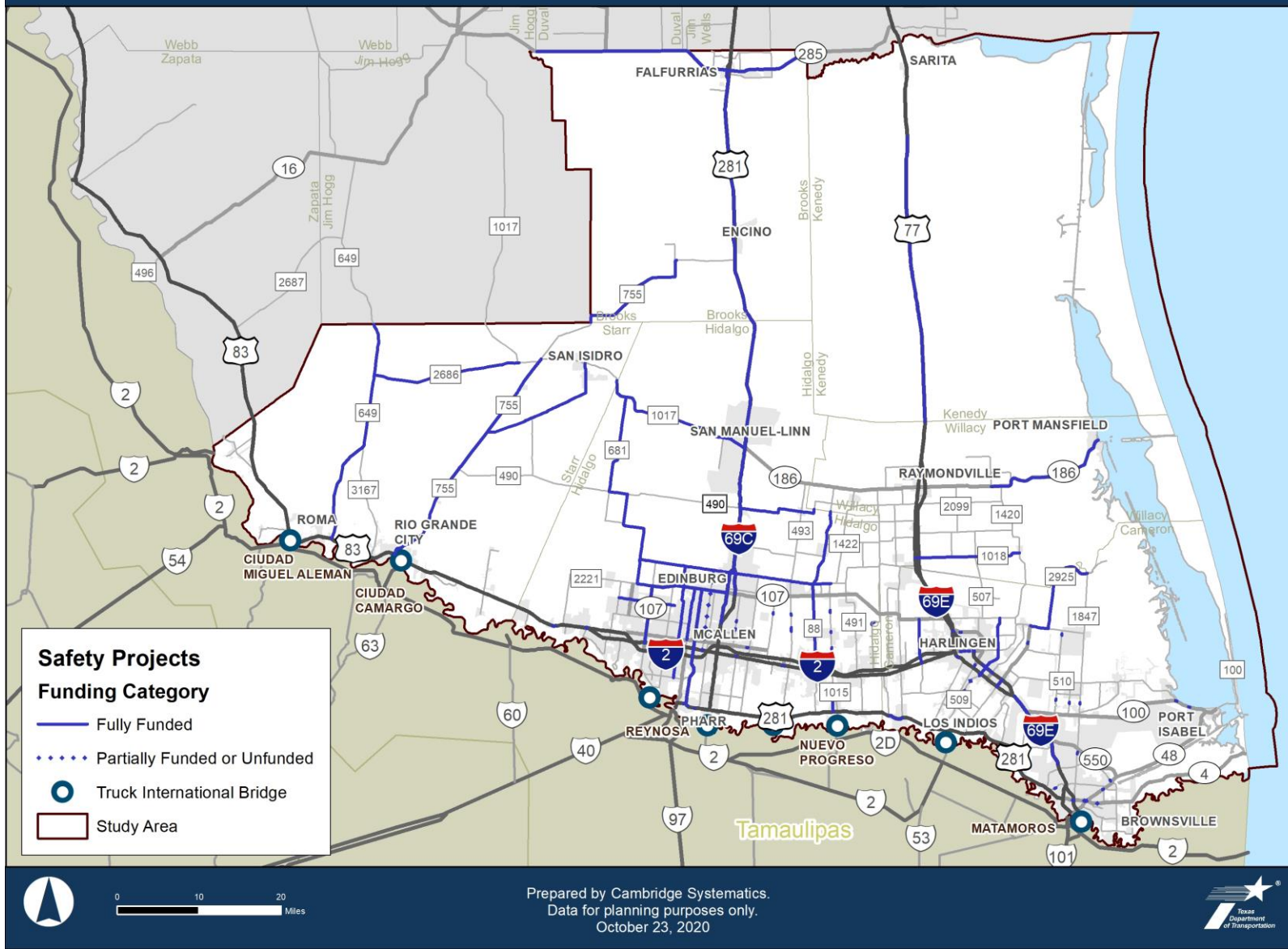
Rio Grande Valley UTP Projects by Funding Status, 2020-2030



Rio Grande Valley UTP Projects by Funding Status, 2020-2030



Rio Grande Valley UTP Projects by Funding Status, 2020-2030



Appendix C: Freight Investment Plan Projects (Attachment)

The spreadsheet attached to this memorandum lists the high, medium, and low freight priority freight projects in the RGV.