FORWARD 50

VISUALIZE, PLAN, IMPLEMENT

PERMIAN BASIN MPO

Metropolitan Transportation Plan

Final Report

November 2024

History of the MTP and MTP Amendments

The MPO Policy Board adopted the Forward50 MTP on November 19, 2024.

Forward50 MTP Amendments

Information to be added as amendments are approved.

Title VI Policy Statement

The Permian Basin MPO assures that no person shall, on the grounds of race, color, national origin, sex, age, disability or income status, as provided by Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987 (P.L. 100.259), and other related federal orders, directives, and guidelines, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination or retaliation under any program or activity. Additionally, per Executive Order 12898 (Environmental Justice) and subsequent United States Department of Transportation, Federal Highway Administration, and Federal Transit Administration directives, the Permian Basin MPO shall make every effort to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of the Permian Basin Metropolitan Planning Organization's programs, policies, and activities on Title VI/Environmental Justice protected populations. Furthermore, the Permian Basin MPO assures that every effort will be made to ensure nondiscrimination in all its programs and activities, whether those programs or activities are federally funded or not. In the event that the Permian Basin MPO distributes federal aid funds to another entity, the MPO will include Title VI language in all written agreements. The Title VI Coordinator, Akyra Hamilton, is responsible for carrying out the activities documented in the Permian Basin MPO's Title VI/Environmental Justice Program.

Acknowledgements

The Permian Basin MPO thanks the many participants who offered their time and input in the development of the **Forward50 Metropolitan Transportation Plan (MTP)**. The Forward50 MTP reflects the collaborative efforts of the public, stakeholders, local staff and officials, the Texas Department of Transportation, and the Federal Highway Administration (FHWA). The efforts of everyone are greatly appreciated. The Forward50 MTP was developed in collaboration with the following entities:

Permian Basin MPO Policy Board

MIKE GARDNER – CHAIRMAN
Ector County Commissioner

JACK LADD, JR - VICE-CHAIRMAN
Midland City Councilman

TERRY JOHNSON
Midland County Judge

STEVE THOMPSON
Odessa City Councilman

BRYAN COX
Martin County Judge

KAYLEEN HAMILTON
MOUTD (EZ-Rider) General Manager

ERIC LYKINS, P.E.
TxDOT - Odessa District Engineer

Permian Basin MPO Technical Advisory Committee

Voting Members

CAMERON WALKER, AICP
Executive Director, Permian Basin MPO

ROBERT ORNELAS, P.E.
Director of TP&D, TxDOT Odessa District

CHAD WINDHAM, P.E.
Director of Operations, TxDOT Odessa District

ANDREW AVIS
Director of Public Works and Flood Plains Manager, Midland County

JEFFREY AVERY
Director of Public Works, Ector County

TAHA SAKRANI, P.E.
Associate Traffic Engineer, Engineering Services, City of Midland

BOBBY WOJCIECHOWSKI
Capital Improvement Manager, City of Midland

JOE TUCKER, P.E.
Public Works, City Of Odessa

Table of Contents

Chapter 4: Roadway Projects and Priorities

Chapter 5: Multimodal Framework

Chapter 6: Financial Plan

Chapter 7: Performance-Based Planning

Chapter 8: Congestion Management Process

Appendices

This space intentionally left blank.

ES

Executive Summary

FORWARD 50

METROPOLITAN TRANSPORTATION PLAN

Introduction

Transportation planning is a cooperative process designed to foster involvement by all users of the system. Businesses, community groups, environmental organizations, the traveling public, and freight operators, all benefit through a proactive public participation process.

In urbanized areas, the transportation planning process is conducted by a Metropolitan Planning Organization in cooperation with the State Department of Transportation and transit providers. In rural areas, transportation planning processes are carried out by the state in cooperation with local officials in non-metropolitan areas. FTA and FHWA jointly administer the federally required transportation planning processes in metropolitan areas, as set forth in Federal law.

The Permian Basin Metropolitan Planning Organization (PBMPO) was formed in early 1965 as approved by the Governor of Texas. Over the decades the boundary has changed but the membership of the agency has largely remained the same. In 2015 a portion of Martin County was added with a voting representative, and the Midland Odessa Urban Transit District (MOUTD) became a voting member in late 2014. Currently there are seven member agencies representing the cities of Midland and Odessa, Martin, Ector and Midland counties, the Texas Department of Transportation, and the MOUTD.

The Forward50 MTP

The Permian Basin MPO is pleased to deliver the Forward50 Metropolitan Transportation Plan (MTP), a regional transportation plan covering the period 2025-2050. This plan will update and replace the *Forward 45* MTP. The plan is mandated under federal law to be updated every five years; this has been accomplished.

What has changed since the preparation of the previous plan through the year 2045? To answer that question, one must start by stating that a new federal transportation bill was approved in November 2021, about mid-way between the completion of the older 2045 plan and the new plan for 2050. This landmark bill, known as the Investment in Infrastructure and Jobs Act (IIJA), includes an unprecedented financial commitment to many efforts that will directly affect the PBMPO:

- Funding to repair and rebuild the nation's roads and bridges with a focus on climate change mitigation, resilience, equity, and safety for all users.
- Improved transportation options for millions of Americans and reduced greenhouse emissions through the largest investment in public transit in U.S. history.
- Upgraded airports and ports to strengthen our supply chains and prevent disruptions that have caused inflation. This will improve U.S. competitiveness, create more and better jobs at these hubs, and reduce emissions.

Funding from the passage of IIJA is currently being realized in the PBMPO region and the future funding scenario is included within this plan and is in part tied to the bill.

Planning Studies

The PBMPO has participated in numerous studies led by TxDOT. These included the following:

- Texas Legislature mandated Ports-to-Plains corridor study resulting in the future alignment of I-27
- Texas Delivers 2050 – Texas Freight Mobility Plan
- I-20 and Corridor Studies
- Loop 338 Study
- Truck Parking study for West Texas

The PBMPO has performed a lead role in the following studies:

- Wildcatter Trail bicycle and pedestrian corridor
- Resilience Improvement Plan
- Planning & Environmental Linkage study for an Outer Loop

PBMPO staff have also participated in numerous committees and associations as follows:

- Border Trade Advisory Committee
- Association of Texas MPOs
- Texas Public Health Association mobile workshop
- Governor's appointed Advance Air Mobility Advisory Committee
- Texas Statewide Multimodal Transit Plan

Planning Emphasis Areas

Within the Forward50 MTP, eight chapters cover the history of the region, it's demographic make-up, the importance of freight movement, highway and non-highway transportation modes, project selection and scoring, financial planning, system performance, challenges and threats to the region's transportation system.

It is important to note that the MPO has considered the USDOT's Planning Emphasis Areas that were delivered in a letter December 30, 2021. The emphasis areas that should be considered in metropolitan and statewide planning include the following.

Tackling the Climate Crisis

The PBMPO has programmed Category 10 funds from federal sources in FY 2025 to provide an eight-unit electric vehicle charging station near I-20 in Odessa.

Equity and Justice40 in Transportation Planning

The PBMPO has supported planning efforts by Ector, Midland, and Martin Counties; the Cities of Midland and Odessa; and the Midland Odessa Urban Transit District (MOUTD) to improve infrastructure for non-motorized travel, reduce public transit fares where applicable, and complete Comprehensive Safety Action Plans that affect all agency members of the MPO and the public. The implementation phase of the Action Plans may result in successful grant applications to expedite priority projects in the region.

Complete Streets

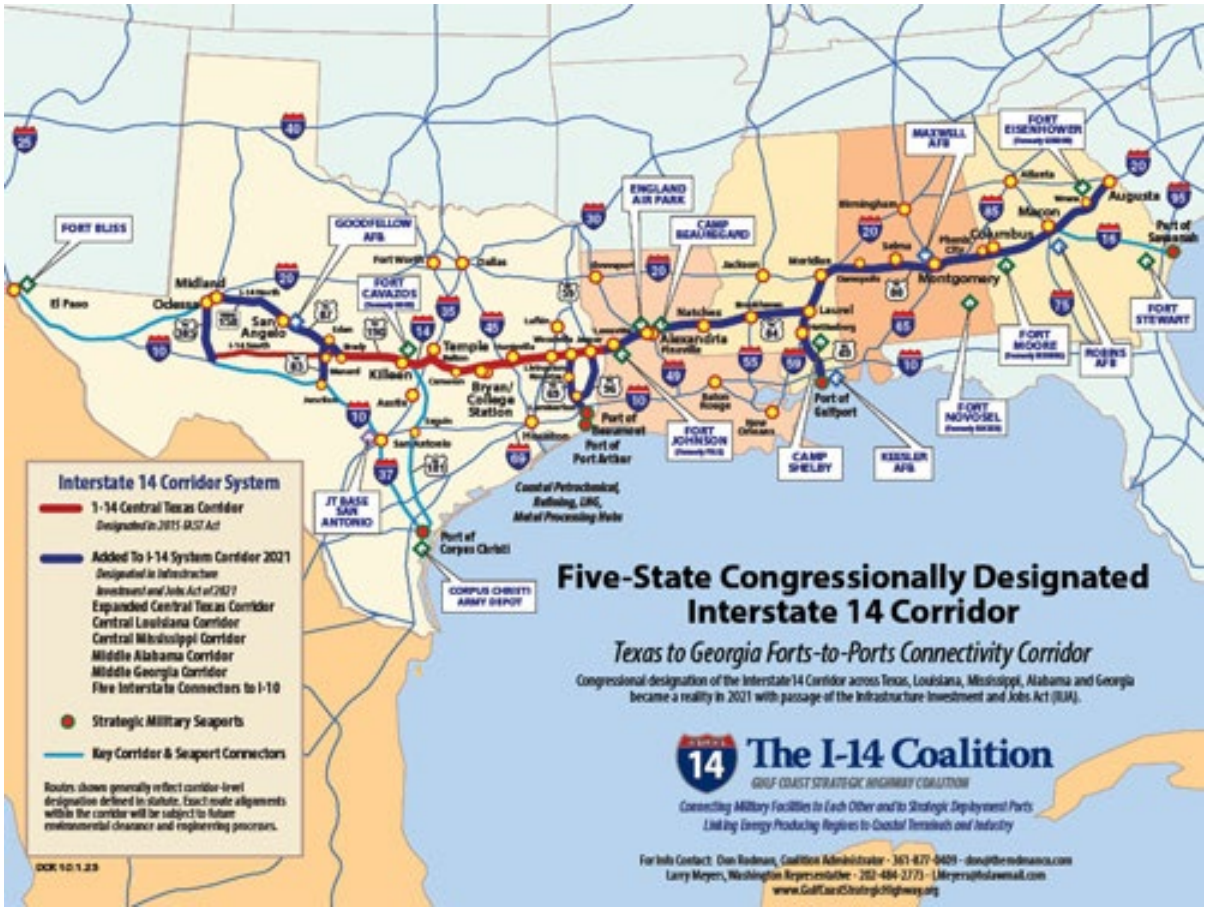
The PBMPO has continued to support the construction of the Wildcatter Trail, which is a proposed 19-mile corridor connecting Midland to Odessa on land mostly absent of automobiles. The City of Midland received a TxDOT Category 9 Transportation Set-Aside Program grant for the construction of a portion of the trail. The MPO is prepared to support similar efforts when funding opportunities arise.

Public Involvement

The PBMPO has utilized its consulting assistance firms to assist with public involvement during the Wildcatter Trail plan development, the PEL study to outline the potential location of an outer loop, the MPO's web page to share TxDOT and other agency media information, and to allow for remote involvement pursuant to the Texas Governor's directive experienced during the COVID-19 lockdown period and afterward.

Strategic Highway Network (STRAHNET)

PBMPO has worked with the TxDOT Odessa District as well as the cities of Midland and Odessa and both affected counties to plan for the construction of I-27 and I-14. I-14 is known as the Forts-to-Ports corridor since it connects major military facilities stretching from Fort Stewart in Savannah, Georgia to Fort Bliss in El Paso.



Federal Land Management Agency Coordination

No tribal lands exist in the PBMPO boundary or the outlying region. The closest tribal government is in El Paso. The state of Texas has three federally recognized tribes: Alabama-Coushatta in Polk County, Kickapoo Traditional in Maverick County, and Ysleta Del Sur Pueblo in El Paso County.

Planning and Environmental Linkages (PEL)

The PBMPO has a long record of preparing PEL studies. The first such study was completed in 2014 and resulted in the acquisition of right-of-way and subsequent construction of a 2-lane road by Midland County to connect Loop 250 W to SH 158 on the southeast side of the MAB. This corridor relieves traffic on I-20 and provides a safe and convenient route for SE/NW travel. A second PEL was completed in early 2024 for the potential outer loop construction.

Data in Transportation Planning

The PBMPO has welcomed data sharing to improve policy and decision making. Recent additions to the data sets used by the MPO include the COMPAT tool developed by the Texas A&M Transportation Institute. It is used for congestion analysis and management since the shared data ties directly to PM3, system reliability. The PBMPO also relies on the TxDOT Crash Records Information System for data related to safety on all surface modes of transportation.

Final Analysis

Finally, the PBMPO exists by federal mandate to move people and goods in the safest and most efficient manner. Decisions made by the MPO Policy Board have historically overlapped with federal and state directives and policies. The MPO has a long-standing record of addressing the needs of the traveling public in and throughout the region. Mandates and laws have changed over the years but the basic tasks of providing a continuous, comprehensive and cooperative planning process have continued since 1965.

With the Forward50 MTP in place, the PBMPO stands ready to plan for two new interstate systems, expand the transit fleet, give greater focus on non-motorized travel and complete streets, and increase participation by stakeholders to ensure that the region's quality of life is improved through transportation planning and implementation.

This space intentionally left blank.

1 Vision and Planning Principles

FORWARD 50

METROPOLITAN TRANSPORTATION PLAN

The Forward50 MTP

The Forward50 Metropolitan Transportation Plan (MTP) is a long-range transportation plan tailored to the unique needs of the Permian Basin MPO region in Texas. With a strong emphasis on the energy sector, this plan addresses current and future transportation needs while recognizing the vital role transportation plays in daily life. The Forward50 MTP also acknowledges transportation's influence on the social and built environment of the region.

In the Permian Basin, transportation is more than simply getting from point A to point B. It's about giving people access to employment opportunities, community resources, and everyday goods. The Forward50 MTP goes beyond traditional transportation options and proposes innovative solutions that prioritize efficiency and effectiveness. And, it ensures that people, goods, and services can move seamlessly throughout the region in ways that bolster the regional economy and supports its growth.

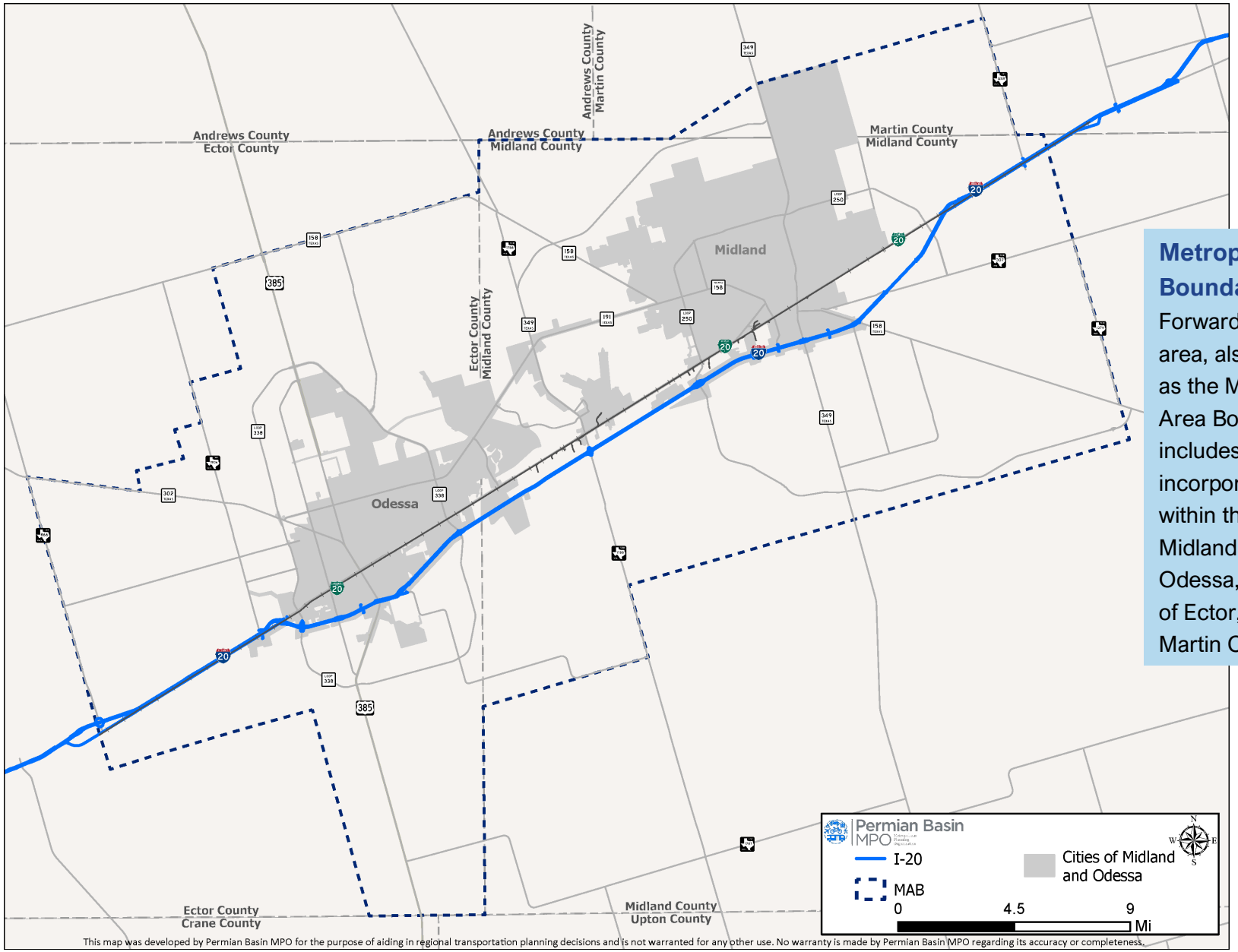
Addressing the challenge of planning, designing, and constructing transportation projects requires foresight and the ability to apply available funding to priority improvements. Making it safer and easier to travel in the Permian Basin region begins by understanding potential future growth and development, determining current and future transportation needs, and aligning recommendations with community priorities.

From MTP to Funded Project. The PBMPO has the responsibility of preparing and ensuring that the MTP considers the built and natural environment in the region as it sets the long-term transportation vision for the area. The Forward50 MTP serves as the guiding framework for transportation investments, directing funding from local, state, and federal sources toward projects that enhance regional connectivity and address community needs. It is crucial to note that projects must be included in the MTP to be eligible for federal funding.

The Permian Basin MPO

A Metropolitan Planning Organization (MPO) is a federally mandated regional agency charged with carrying out a region's transportation planning processes. MPOs are required in all urbanized areas with populations over 50,000. The Permian Basin MPO (PBMPO) was established in 1965 to ensure federal transportation dollars are spent based on a continuing, comprehensive, and cooperative process. The City of Odessa serves as the administrative and financial agent for the PBMPO under a three-party agreement with the Texas Department of Transportation (TxDOT). The MPO consists of seven member agencies including Midland, Ector, and Martin Counties, the City of Odessa, the City of Midland, the TxDOT Odessa District, and Midland Odessa Urban Transportation District (MOUTD).

Figure 1.1 – PBMPO Metropolitan Area Boundary



Metropolitan Area Boundary. The Forward50 MTP study area, also referred to as the Metropolitan Area Boundary (MAB), includes the incorporated land within the City of Midland, City of Odessa, and portions of Ector, Midland, and Martin Counties.

The Metropolitan Planning Process

The Forward50 MTP is the product of a coordinated planning effort to establish and fulfill the region's transportation vision. The planning process required a collaborative effort between stakeholders, municipalities, and MPO staff to create a plan that reflects the values and needs of the region. The process also educated the public about the MTP and other MPO processes while listening to participants as they identified issues and opportunities. The result is an MTP that emphasizes engagement as an important tenet of a performance-based planning process.

Using the MTP

The MTP report communicates the process and outcomes of the Forward50 MTP through the presentation of eight chapters.

- **Chapter 1 (Vision and Planning Principles)** outlines the background of the plan and introduces the planning process.
- **Chapter 2 (Area Snapshot)** presents an overview of the existing conditions including demographic trends, existing transportation assets.
- **Chapter 3 (Public Participation Process)** provides key highlights from the public engagement process.
- **Chapter 4 (Roadway Projects and Priorities)** outlines the roadway projects, describes the results of the prioritization process, and summarizes the MTP's effect on disadvantaged communities.

  Chapter 5 (Multimodal Recommendations) highlights ways to foster a safe, efficient, and sustainable transportation system that supports multimodal travel, energy, freight, and security goals. It also discusses advancements and trends in transportation technology.
- **Chapter 6 (Financial Plan)** documents funding mechanisms at the local, state, and federal levels as a strategy to implement priority projects.
- **Chapter 7 (Performance-Based Planning)** highlights the role of performance-based planning.
- **Chapter 8 (Congestion Management Process)** discusses implementation strategies and measures to effectively manage and alleviate traffic congestion.

Federal Transportation Legislation

The Forward50 MTP is governed by the Infrastructure Investment and Jobs Act (IIJA), also known as the Bipartisan Infrastructure Law (BIL). This federal transportation legislation carries forward the federal planning factors established in previous legislation referred to as the Fixing America's Surface Transportation Act or FAST Act and previous transportation bills:

Support the economic vitality of the metropolitan area

Increase the safety of the transportation system for motorized and non-motorized users

Increase the security of the transportation system for motorized and non-motorized users

Increase the accessibility and mobility of people and freight

Protect and enhance the environment

Enhance the integration and connectivity of the transportation system

Promote efficient system management and operation

Emphasize the preservation of the existing system

Improve the resiliency and reliability of the transportation system

Enhance travel and tourism

In addition, the IIJA introduced new or reinforced areas of focus for consideration within the metropolitan transportation plan:

- Improve the environmental resiliency of the transportation system
- Reduce carbon emissions by developing a Carbon Reduction Strategy
- Progress equity in the transportation planning process by not disproportionately burdening historically marginalized groups and communities
- Consider the link between the role of transportation and housing
- Promote transportation technology in metropolitan planning

Updating the MTP

The Permian Basin MPO's MTP is required to be updated every five years. However, amendments during the interim years help ensure the MTP contains relevant information in response to changing conditions. Amendments to the MTP often result from project and/or funding allocation changes (such as following the adoption of a new UTP). MTP amendments require public outreach and demonstration of fiscal constraint and must also be approved by the MPO's Policy Board.

Existing Plan Review

The Forward50 MTP builds upon the area's many plans and policies that have guided decision-makers over the years. The following section provides a concise overview of several relevant planning documents and highlights notable recommendations.

2025-2028 Transportation Improvement Program (TIP)

The Permian Basin MPO's TIP outlines the planning, funding, and development of a safe, efficient, and sustainable multimodal transportation system. It details project selection criteria, funding categories, performance measures, and compliance with federal regulations, focusing on highway safety, pavement and bridge conditions, and overall system performance. The program emphasizes performance-based planning and public participation to meet current and future transportation needs.

Limited English Proficiency Plan, 2024

The Permian Basin MPO's Limited English Proficiency (LEP) Plan includes strategic measures to enable individuals with limited English skills to engage in the transportation planning process. This involves language assistance services such as translating key documents, providing interpretation at public meetings, and distributing critical information in languages commonly spoken in the community. The LEP Plan operates alongside the Public Participation Plan (PPP), a separate document established in 2013 and amended in 2018, outlining broader public involvement strategies. Additionally, the LEP Plan aligns with the Title VI program, ensuring non-discrimination in access and participation based on race, color, or national origin.

Congestion Management Process, 2024 Update

The Congestion Management Process (CMP) for the Permian Basin MPO focuses on managing congestion within the Transportation Management Area (TMA) by using a structured approach that includes eight steps:

1. Develop congestion management objectives
2. Define a congestion monitoring network
3. Develop multimodal performance measures
4. Collect data and monitor system performance
5. Analyze congestion problems and needs
6. Identify and assess congestion management strategies
7. Program and implement congestion management strategies
8. Evaluate strategy effectiveness

This process ensures that congestion management is tailored to the specific needs of the TMA, addressing unique mobility challenges and guiding investment decisions to improve the performance and safety of the multimodal transportation system.

Unified Planning Work Program, 2024 and 2025 and FY 2025

The FY 2024 Unified Planning Work Program (UPWP) for the Permian Basin MPO outlines key transportation planning activities for the Midland-Odessa area, following federal guidelines under the IIJA, FAST Act, and MAP-21. It includes projects funded by federal, state, and local sources, focusing on detailed corridor-level planning and ensuring public involvement.

Title VI/Environmental Justice Plan, 2024

A Title VI & Environmental Justice Plan is a comprehensive document that outlines strategies and guidelines to ensure that PBMPO complies with Title VI of the Civil Rights Act and addresses environmental justice concerns. The plan aims to promote fair and equitable distribution of resources and benefits, mitigate any adverse impacts on vulnerable and marginalized communities, and promote meaningful participation and engagement of all stakeholders in the decision-making process. It includes measures to assess the potential impacts of projects on low-income communities and communities of color, develop strategies to avoid or minimize these impacts and provide opportunities for public input and involvement.

Interregional "Outer Loop" Planning-Environmental Linkages (PEL) Study, 2024

A PEL (Preliminary Engineering and Environmental) study is a comprehensive evaluation conducted at the early stages of a transportation project to assess its feasibility, and potential impacts, and identify any regulatory requirements. This study worked towards establishing a common vision for an interregional transportation facility that would:

- Enhance safety and mobility
- Enable better movement of goods and services
- Provide a higher functional classification for a more comprehensive service

The study included an analysis of the project's purpose and need, alternative solutions, environmental impacts, community and stakeholder input, and cost estimation. The findings of the PEL help inform decision-makers and project planners in determining the next steps for the Outer Loop and ensure compliance with applicable laws and regulations.

Permian Basin MPO Resilience Improvement Plan, 2023

The Permian Basin MPO Resilience Improvement Plan aims to assess the transportation system within the PBMPO MAB and analyze on-state system roads outside of the MAB. The study includes identifying historical disruptions to the transportation system, vulnerable routes, and viable relief routes and mitigation options. It also investigates freight issues that may affect resiliency and conducts Title VI/EJ investigations. The study involves coordinating with emergency management entities, identifying potential alert and messaging systems, obtaining stakeholder input, developing a resiliency project scoring element, and evaluating general and relative project/solution costs and implementation times, as well as coordinating with TxDOT and other agencies on related efforts.

EZ-Rider Transit Asset Management Plan, 2022-2026

The EZ-Rider Transit Asset Management (TAM) Plan outlines the strategies and goals for maintaining and improving the transit assets of the Midland-Odessa Urban Transit District. Covering the agency's six fixed routes in Midland, six in Odessa, and a commuter route connecting both cities, the plan provides a framework for achieving a reliable and safe transit service, prioritizing actions and resource allocations to ensure the system's long-term sustainability and efficiency.

Odessa Parks Master Plan, 2022

The Odessa Parks Master Plan assesses the built environment's character and offers recommendations for enhancing community identity through targeted improvements. The plan identifies needs by analyzing community preferences, parkland distribution, facility conditions, and program participation. It proposes strategic actions to enhance parks, recreation programs, trails, and urban landscapes for a diverse and accessible recreational system.

Downtown Odessa Master Plan, 2022

The Downtown Odessa Master Plan is a strategic guide for transforming Downtown Odessa into a major destination. Developed from an Implementation Workshop, the plan outlines multiple interconnected strategies for long-term success. Each strategy is detailed with specific actions, contributing to a cohesive effort. The plan includes concise overviews of each strategy, key components, and actionable steps for implementation.

Permian Basin Multi-Use Corridor Study, 2022

The Connecting Midland and Odessa Multi-Use Trail Corridor Study, led by the Permian Basin MPO, explores the feasibility of a multi-purpose trail between Midland and Odessa. Funded by TxDOT and MPO resources, the study aligns with local master plans and aims to provide safe, non-motorized travel options. It reviews existing corridor conditions, identifies potential routes, engages the public, and provides cost estimates for implementation. The study seeks to integrate a multi-use path that enhances connectivity, considering the region’s distinctive environmental and industrial context within the Permian Basin.

Permian Basin Freight and Energy Sector Transportation Plan, 2020

The Permian Basin Freight and Energy Sector Transportation Plan targets an optimized regional transportation network to support the region’s extensive oil and gas production activities. It prioritizes integrating localized freight data with state and national datasets to accurately capture the region's freight dynamics, particularly those associated with the energy sector. The plan outlines a strategic framework to enhance multimodal connectivity and system performance. It includes targeted infrastructure improvements, policy recommendations, and data analytics to guide investment and decision-making.

Midland Parks Master Plan, 2020

The Parks and Trails Master Plan outlines future needs, goals, and improvements for Midland's parks and trails, including a conceptual design for a town-wide trail system. Developed through site assessments and community engagement, the plan provides a 20-year roadmap to enhance parks and trails with prioritized and budgeted recommendations for phased implementation.

EZ-Rider Public Transportation Agency Safety Plan, 2020

The EZ-Rider Public Transportation Agency Safety Plan (PTASP), developed with the Texas Department of Transportation, outlines steps to improve safety across all Midland-Odessa Urban Transit District (MOUTD) levels. Following federal rules from MAP-21 and the FAST Act, the plan uses Safety Management Systems (SMS) to guide actions like creating a Safety Management Policy, managing safety risks, and ensuring safety performance.

Odessa Transportation Master Plan, 2019

The Transportation Master Plan (TMP) is a strategic guide for Odessa's future roadway network and infrastructure investments. It updates the Master Thoroughfare Plan (MTP) by assessing current conditions, identifying constrained facilities, and prioritizing projects to develop a targeted Capital Improvements Plan (CIP). The TMP also includes studies on downtown parking, a corridor analysis of Grant Avenue, and a citywide evaluation of pavement conditions and maintenance.

Three County Thoroughfare Map, 2018

The Three-County Thoroughfare Plan by the Permian Basin MPO guides transportation planning for Midland, Ector, and Martin counties. It highlights Interstate 20 as a key east-west route and includes proposals for new expressways, arterials, and collectors to improve connectivity and traffic flow.

Envision Odessa Comprehensive Master Plan, 2016

Envision Odessa is the City's Comprehensive Plan, serving as a strategic guide for future development and investment. It includes essential elements like the Future Land Use and Thoroughfare Plans, ensuring that infrastructure, development, and zoning decisions align with the community's vision. The plan outlines key infrastructure, housing, quality of life, and downtown revitalization strategies. The Action Plan within Envision Odessa provides a framework for implementation, guiding leaders in making informed growth, development, and reinvestment decisions.

Northeast Midland Feasibility Study, 2016

The Northeast Midland Feasibility Study, led by the City of Midland and Permian Basin MPO, assesses transportation needs in a 52.6 square-mile area, including Midland’s ETJ and parts of Midland and Martin Counties. The study uses a collaborative planning approach to integrate local and regional mobility demands with environmental considerations, aligning with community and economic goals. It identifies existing conditions, land use scenarios, and environmental constraints, providing a future transportation network development framework. The study emphasizes inter-agency coordination and stakeholder engagement to enhance public support and address the anticipated growth of regional economic activity, particularly in the oil and gas sectors.

Tall City Tomorrow: Midland Comprehensive Plan, 2016

The Tall City Tomorrow Plan is Midland's strategic framework for future growth, informed by comprehensive community input. It thoroughly analyzes population, land use, and infrastructure trends to establish a robust foundation for development. The plan articulates a unified vision, emphasizing land use planning, housing diversification, transportation systems, downtown revitalization, and infrastructure enhancement, with targeted strategies to elevate the city's character and overall quality of life.

Connecting Midland: Hike and Bike Trails Master Plan, 2015

The Hike and Bike Trails Master Plan for Midland envisions a comprehensive trail system connecting the entire city. It is designed to be flexible and periodically updated through 2024. The plan aims to guide trail development, enhance mobility, and improve access to grant opportunities by aligning with Texas Parks and Wildlife Department guidelines.

Midessa Land Use Transportation Study, 2014

The Midessa Land Use and Transportation Study updates the SH 191 Corridor Management Plan to address rapid growth and evolving conditions along the SH 191 corridor between Midland and Odessa. Based on updated data and stakeholder input, it refines the strategic approach to land use, transportation, and infrastructure planning. The study focuses on enhancing access, mobility, and safety while managing development impacts and coordinating intergovernmental efforts across an 84.7-square-mile study area.

South Midland Mobility Planning and Environmental Linkage (PEL) Study, 2014

The South Midland Mobility Planning and Environmental Linkage (PEL) Study integrates transportation planning with environmental considerations in alignment with federal acts like SAFETEA-LU and MAP-21. These acts mandate the inclusion of environmental mitigation and multi-agency collaboration in transportation projects. The study spans a 99-square-mile area in South Midland, encompassing both urban and rural landscapes. The study is driven by anticipated growth due to significant oil and gas activities. It addresses existing and forecasted mobility and safety challenges by proposing a potential mobility corridor that balances roadway expansion, multimodal transport options, and land use planning.

This space intentionally left blank.

Guiding Principles, Goals, and Objectives

The six guiding principles identified in the Forward50 MTP reflect the regional vision for the transportation system and address the federal planning factors. Throughout the planning process, the guiding principles influenced the development of the recommendations, prioritization of projects, and application of financial constraint. The principles are presented in alphabetical order and are supported by identified goals and objectives.

Cohesive/Cooperative

Goal 1	Increase collaboration with member entities to provide continuous, cooperative, and comprehensive transportation planning.
Objectives	• Attend planning meetings, workshops, and public hearings to gather information and provide input on regional transportation projects and issues.
Goal 2	Increase outreach efforts to further educate the general public and Title VI/Environmental Justice communities of how the transportation planning process impacts them.
Objectives	• Inform the public of the MPO's role regarding current and future transportation decision-making efforts. • Increase participation from the public throughout the transportation planning process.

Congestion/Mobility

Goal 3	Reduce congestion and decrease time delays on the transportation system.
Objectives	• Implement and maintain the Congestion Management Process as a tool to analyze and identify congestion problems and needs. • Encourage ride-sharing and alternative working hours to alleviate congestion
Goal 4	Promote awareness of alternative transportation modes.
Objectives	• Encourage increased participation in transit, cycling, and walking for purposes beyond recreation.

Connectivity/System Continuity

Goal 5	Connect infrastructure and services by reducing gaps and conflicts in the multimodal transportation system.
Objectives	• Utilize Planning and Environmental Linkage studies and other tools for developing new infrastructure prior to considering significant investment.
Goal 6	Ensure that freight is moved safely, efficiently, and seamlessly throughout the region.
Objectives	• Coordinate efforts with partner entities and stakeholders to improve the movement of freight.

Efficient Use of Funding

Goal 7	Identify critical system issues and areas as identified through the Congestion Management Process.
Objectives	• Employ tools such as Intelligent Transportation Systems and enhanced technology to maximize system efficiency.
Goal 8	Identify non-traditional funding sources or apply for resources beyond what is allocated.
Objectives	• Increase available funding sources to complete more projects on the transportation system.

Safety

Goal 9	Incorporate best practices related to safety during the planning process.
Objectives	• Reduce crashes resulting in fatalities, injuries, and property damage within the region. • Promote regional efforts to maintain the existing system to keep it in optimal condition
Goal 10	Assist with educational efforts to bring awareness to users of the transportation system.
Objectives	• Provide and promote opportunities to educate the public on transportation safety.

Livability

Goal 11	Improve the overall quality of life for the traveling public.
Objectives	• Work with partner entities and stakeholders to address livability issues and local policies affecting transportation, neighborhoods, and safety.
Goal 12	Incorporate multiple modes of transportation in the planning process
Objectives	• Facilitate discussions with the member agencies, the public, and transit providers related to transit service • Partner with public agencies and private companies to increase bicycle and pedestrian
Goal 13	Address transportation needs in unincorporated communities.
Objectives	• Work with community groups in unincorporated areas to improve public transportation accessibility.

Federal Planning Factors

To ensure compliance with federal requirements, Forward 2050 must establish a clear connection between its guiding principles and the federal planning factors. The accompanying table demonstrates how each guiding principle addresses one or more of the federal planning factors established in the FAST Act and carried forward in the IIJA.

Table 1.1: Federal Planning Factors

FEDERAL PLANNING FACTORS	PERMIAN BASIN PRINCIPLES					
						
Support the economic vitality of the metropolitan area	✓	✓	✓	✓		✓
Increase the safety of the transportation system for motorized and non-motorized users			✓		✓	✓
Increase the security of the transportation system for motorized and non-motorized users			✓		✓	✓
Increase the accessibility and mobility of people and freight		✓	✓			✓
Protect and enhance the environment, promote energy conservation, improve quality of life, and promote consistency between transportation		✓	✓	✓		✓
Enhance the integration and connectivity of the transportation system		✓	✓		✓	✓
Promote efficient system management and operation	✓		✓	✓	✓	
Emphasize the preservation of the existing transportation system			✓		✓	✓
Improve the resiliency and reliability of the transportation system		✓	✓	✓	✓	✓
Enhance travel and tourism		✓	✓	✓		✓

This space intentionally left blank.

2 Area Snapshot

FORWARD 50

METROPOLITAN TRANSPORTATION PLAN

Introduction

The Forward50 MTP defines the strategy for creating a regional transportation system that accommodates current mobility needs and looks to the future to anticipate where new needs may arise. This chapter briefly summarizes the people, places, and mobility trends that must be understood to identify multimodal projects that address present and future needs.

History

The western expansion of the United States and the discovery of oil played major roles in the history of the Midland-Odessa region.

- **Western Expansion.** Seeking a route around the Rocky Mountains, settlers found Texas to be an ideal location for transportation routes. The arrival of the Texas and Pacific Railroad in the late 1880s established Midland and Odessa as midway points between Dallas and El Paso.
- **Oil.** The discovery of oil in the mid-1920s transformed the two communities. In the decades since, the petroleum industry has shaped the people, culture, and economy of the Permian Basin, with Ector and Midland Counties becoming the epicenter of the nation's oil and gas industry. The growth of this industry has attracted people and diversified the regional economy.

Midland and Odessa are the only urbanized areas in the Permian Basin and continue to grow closer together. The cities have capitalized on the economics of the petroleum industry, with major petroleum companies relocating or expanding their presence in the region over the last two decades. The region benefits from its location along I-20 and other important highways, as well as rail and air transportation services. The movement of people and goods in the region is crucial due to its dominance as a center of oil and gas production.

Area Snapshot | People

The Permian Basin MPO has analyzed the region's population and economic growth trends. This analysis aims to develop and implement projects that address travel patterns and transportation requirements within the Permian Basin MAB.

Demographic Trends and Projections

The advancements in hydraulic fracturing and horizontal drilling have led to a significant increase in oil and gas production. Consequently, this growth has attracted workers from across the United States to west Texas, particularly the cities of Midland and Odessa. As a result, it is important to address the potential strain on the transportation system and other infrastructure, as outlined in the Forward50 MTP.

SOURCE: AMERICAN COMMUNITY SURVEY (ACS) 2017-2021 5-YEAR ESTIMATES

POPULATION

333,435
TOTAL POPULATION

278,801 IN 2010

306,099 IN 2015

333,435 IN 2021

DIVERSITY AND AGE

32.5
AVERAGE AGE

32.6
MALE AVERAGE AGE

32.6
FEMALE AVERAGE AGE

5.3%
BLACK OR AFRICAN AMERICAN

38.3%
WHITE

51.6%
HISPANIC OR LATINO

4.8%
OTHER RACE OR MIXED

VEHICLE ACCESS

1.9%
OF HOUSEHOLDS HAVE NO ACCESS TO A VEHICLE

20%
OF HOUSEHOLDS CAN ONLY ACCESS ONE VEHICLE

EDUCATION

80.5%
HIGH SCHOOL GRAD OR HIGHER

22%
BACHELOR'S OR HIGHER

COMMUTING PATTERNS

53,172
ARE EMPLOYED IN THE PERMIAN BASIN AREA, BUT LIVE OUTSIDE OF IT

105,678
LIVE AND WORK IN THE PERMIAN BASIN AREA

30,981
LIVE IN THE PERMIAN BASIN AREA, BUT WORK OUTSIDE OF IT

MODE TO WORK

93.3% **OF WORKERS WHO USE CAR, TRUCK, OR VAN**

85.1% **OF WORKERS DRIVING ALONE**

8.2% **OF WORKERS WHO CARPOOLED**

3.2% **OF WORKERS WORKING FROM HOME**

2.6% **OF WORKERS WHO WALK**

0.1% **OF WORKERS WHO BIKE**

0.1% **OF WORKERS WHO USE PUBLIC TRANSPORTATION**

INCOME AND POVERTY

$74,126
MEDIAN HOUSEHOLD INCOME WITHIN MAB

12.8%
WITHIN MAB ARE IN POVERTY

$67,400
STATE MEDIAN HOUSEHOLD INCOME

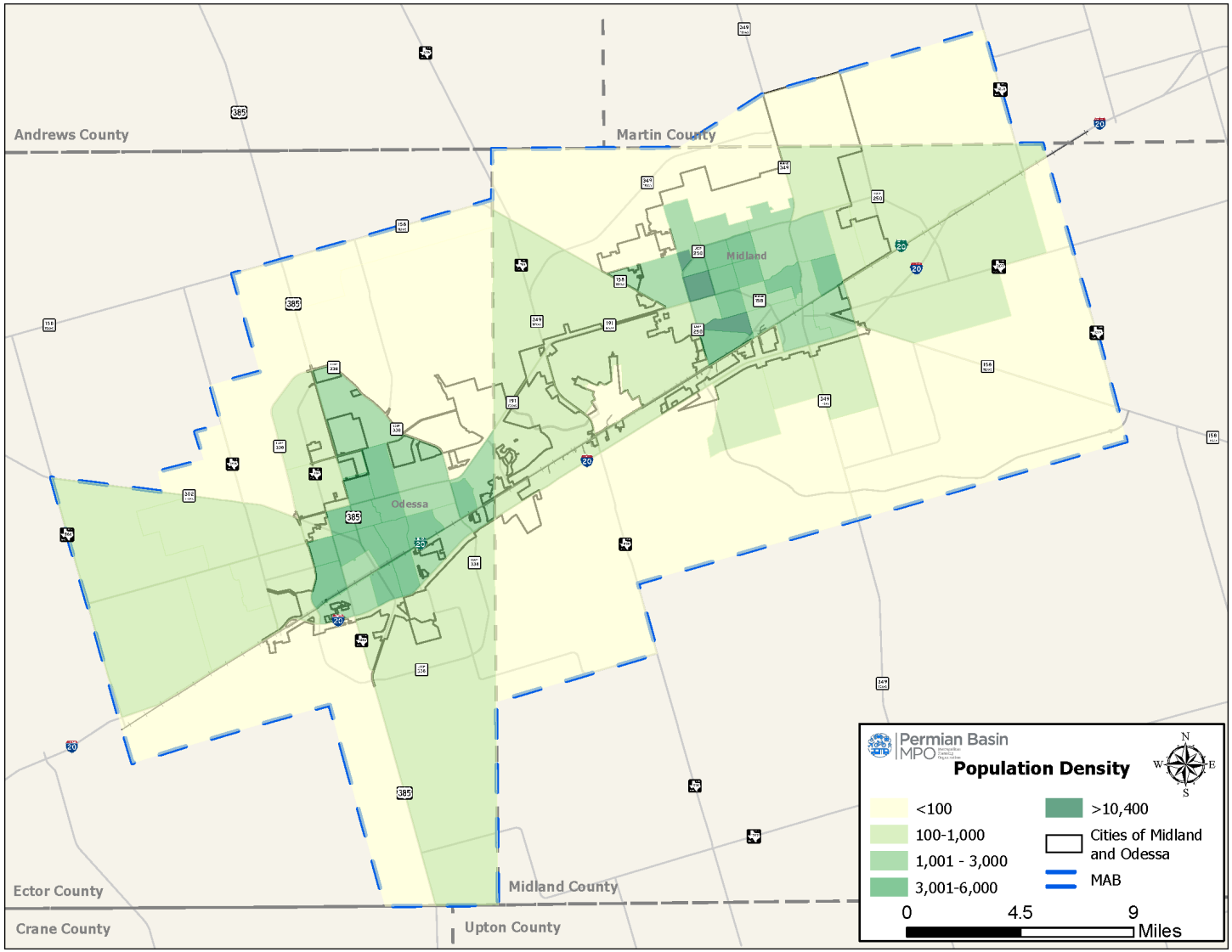
14.2%
OF STATE POPULATION IN POVERTY

Source: 2021 Census: American Community Survey (ACS) 2017-2021 5-Year Estimates

Population Density

As shown in Figure 2.1, the highest population density is in the cities of Midland and Odessa, which have population densities of over 2,400 people per square mile. Approximately 60% of residents live outside of the city limits of Midland and Odessa, however, future development is somewhat restricted by the oil wells and pipelines that exist in these areas. Areas outside of the two urban areas are largely rural and have low- to medium-density.

Figure 2.1 – Population Density



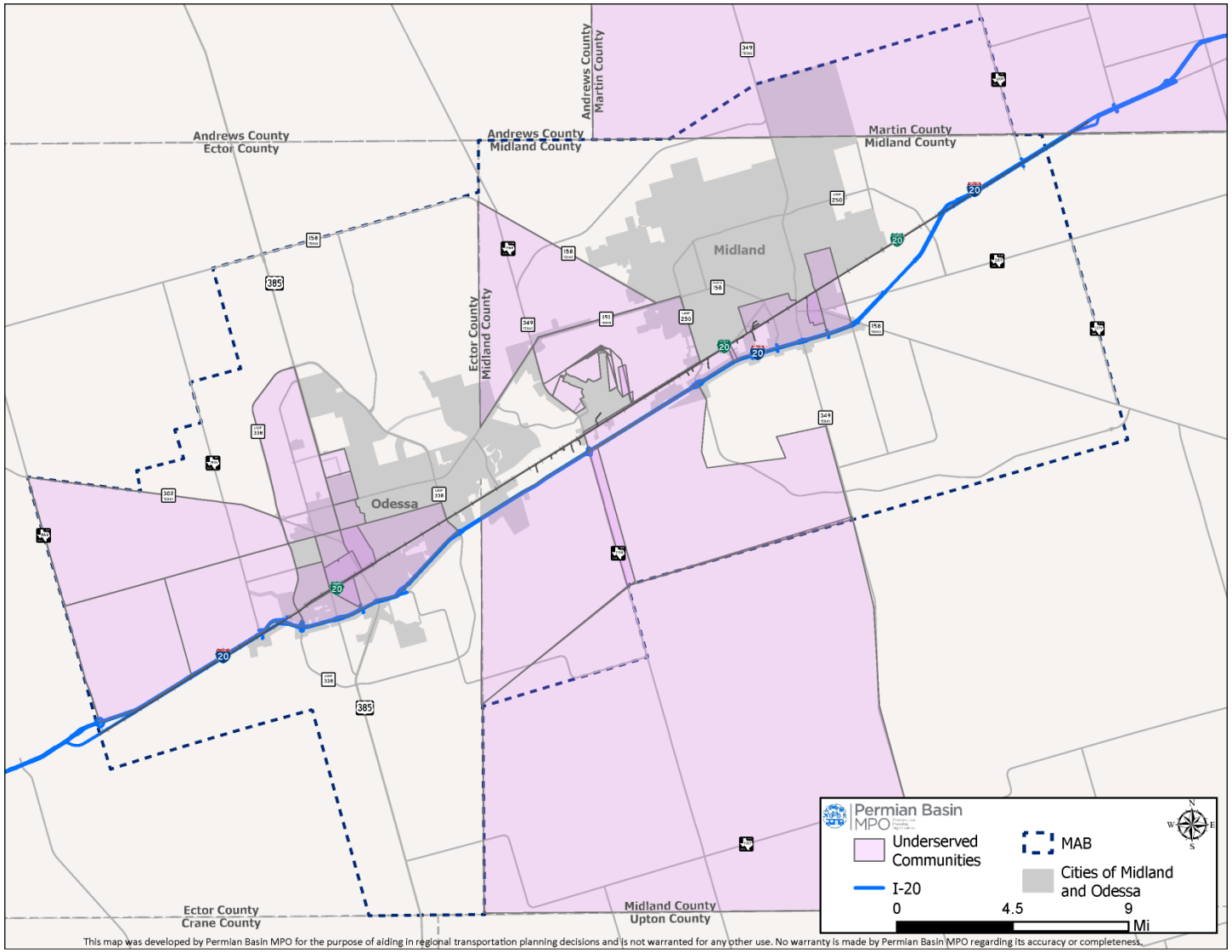
Source: 2022 ACS 5-year Estimates

Equitable Transportation Community Index

As part of the Justice40 initiative, the United States Department of Transportation (USDOT) created the Equitable Transportation Community Index. This index includes five components: Transportation Insecurity, Climate and Disaster Risk Burden, Environmental Burden, Health Vulnerability, and Social Vulnerability. This index was created to help the US DOT understand how investments in transportation were addressing or impacting these disadvantages. As shown in Figure 2.2, 29 census tracts within the Permian Basin MAB are identified as disadvantaged.

See Appendix A for more information.

Figure 2.2 – Disadvantaged Census Tracts

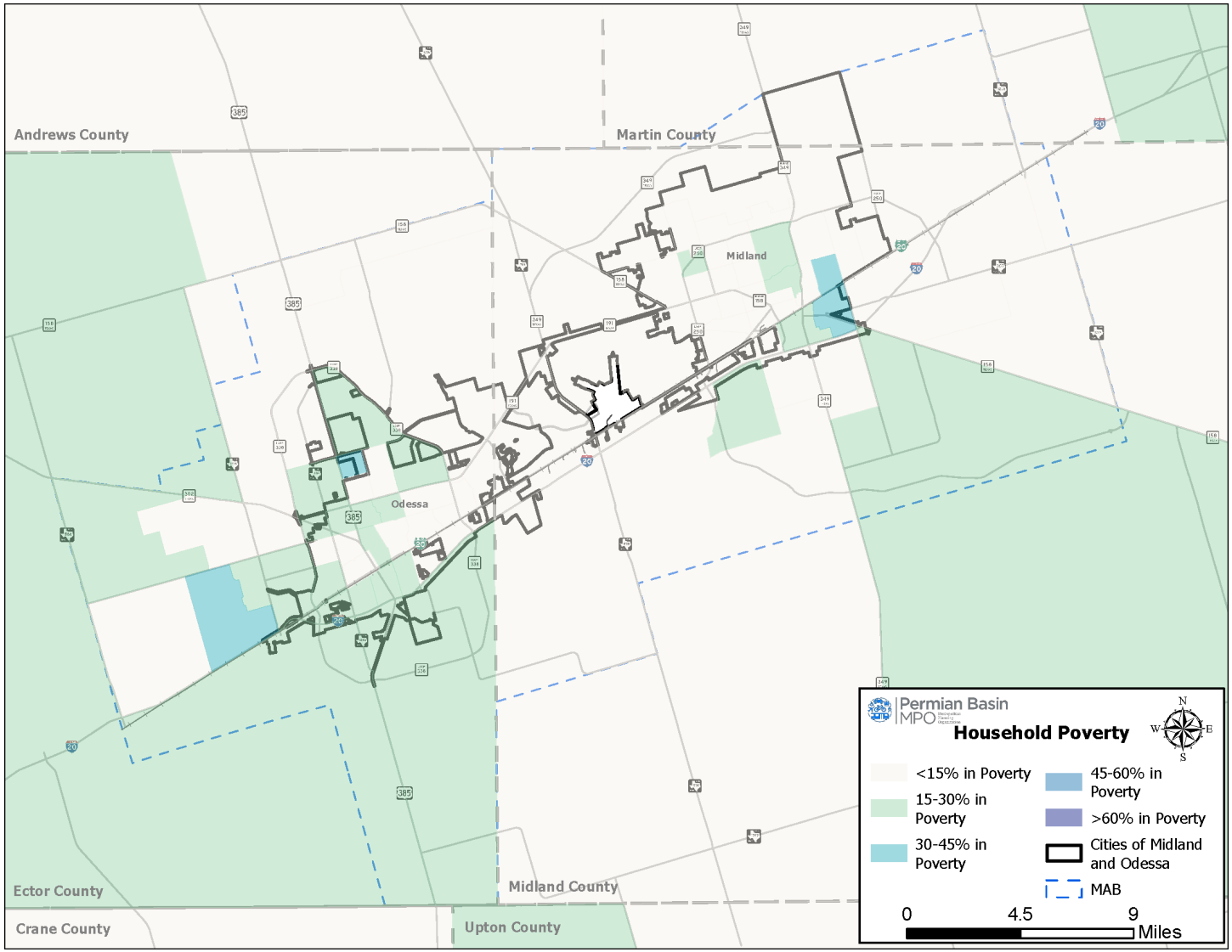


Source: US Department of Transportation, 2024

Household Income and Poverty

The Permian Basin MPO has a lower household poverty rate than the Texas average, with 12.8% of households in poverty compared to Texas's 14.2% and a median income of $74,126 (almost $7,000 more than the state median). As shown in Figure 2.3, the highest concentration of households in poverty is in the Westover Acres neighborhood west of Odessa and the neighborhoods of Moody, Greenwood, and Nueva La Jolla in eastern Midland.

Figure 2.3 – Household Poverty



Source: 2022 ACS 5-year Estimates

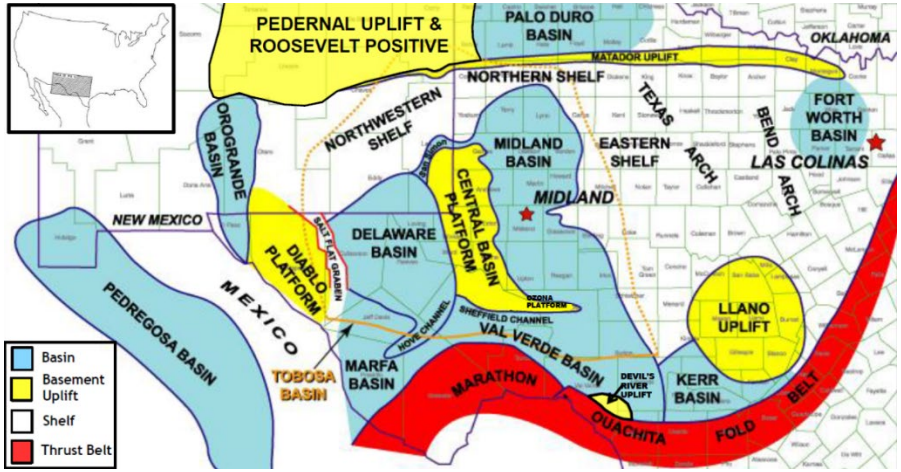
Area Snapshot | Places

Environmental and Historic Features

The larger Permian Basin region (which includes areas beyond the Permian Basin MAB) is a vast and diverse region located in west Texas and southeastern New Mexico. The region is renowned for its rich environmental and historic features that have shaped the area over millions of years. From a geological perspective, the Permian Basin is a sedimentary basin that is estimated to have formed around 300 million years ago during the Permian Period. It is home to a variety of unique rock formations, which provide valuable insights into the Earth's ancient history. Figure 2.4 shows the geological formations for the region and beyond.

Figure 2.5 highlights the environmental and historical features of the Permian Basin MAB. In terms of environmental significance, the Permian Basin is known for its diverse and fragile ecosystem. It is home to a variety of plant and animal species, including cacti, mesquite trees, jackrabbits, and roadrunners. The region also supports a significant bird population, with many migratory birds making their way through the area. The Permian Basin is intersected by several rivers, including the Pecos River. These natural features provide water resources for both wildlife and human populations. However, the growth of the oil and gas industry in the region has posed significant challenges to the environmental balance, with issues such as water contamination and habitat destruction being of concern.

Figure 2.4 – Geological Formations

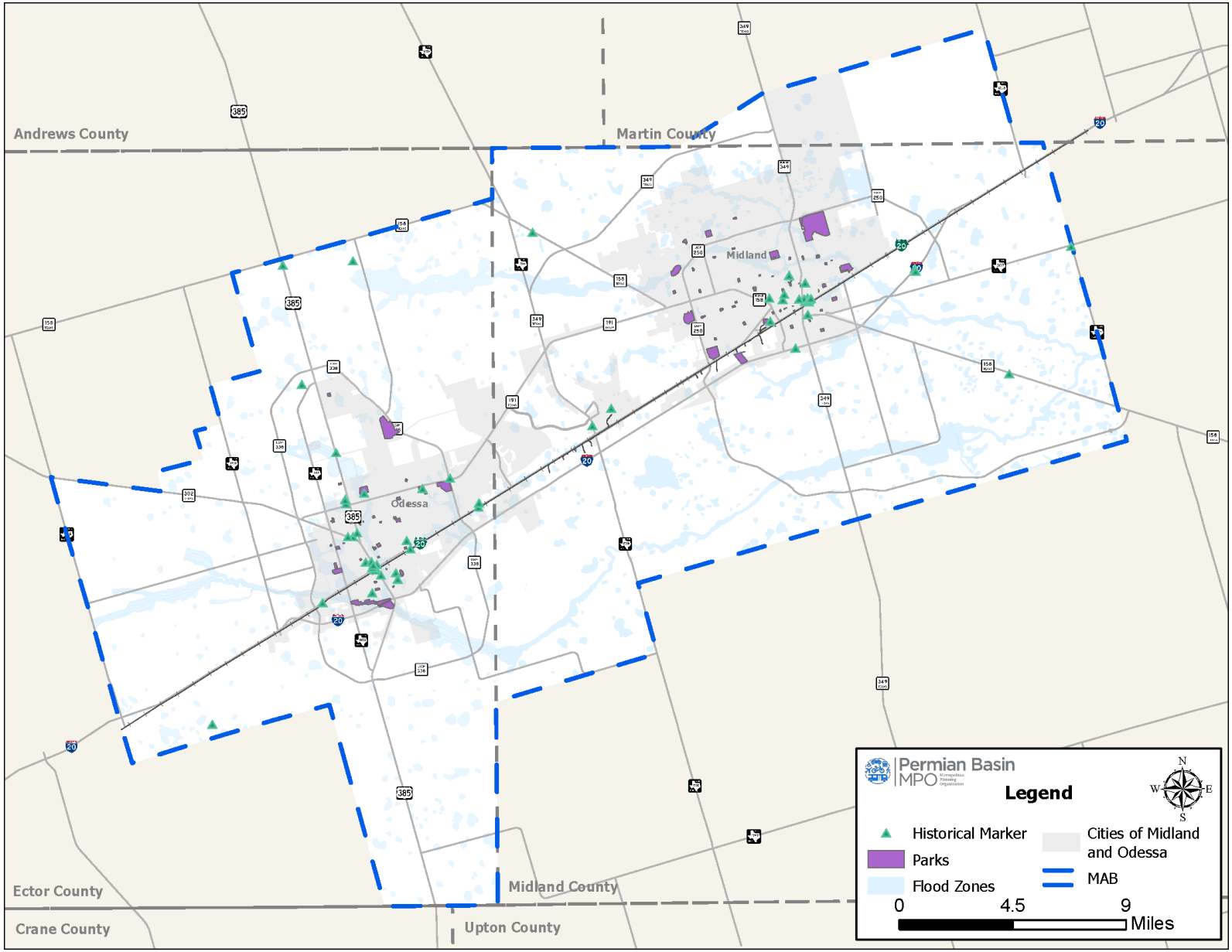


Source: Pioneer Natural Resources

The Permian Basin also holds a wealth of cultural and archaeological significance. The area has been inhabited by various Native American tribes for thousands of years, leaving behind traces of their presence in the form of rock art and artifacts. The region also played a significant role in the history of the American West, with the establishment of cattle ranches and the growth of towns and cities that sprung up around the oil industry. The Permian Basin is also home to several historic sites, such as the George W. Bush Childhood Home and the Permian Basin Petroleum Museum, which offer a glimpse into the region's past.

Figure 2.5 – Environmental and Historic Features

Source: Texas Historical Commission, FEMA



Key Destinations and Activity Centers

Downtown Midland

In downtown Midland, visitors can explore the Midland Center, a multi-purpose venue that hosts concerts, trade shows, and community events. The Permian Basin Petroleum Museum, another popular attraction, provides a comprehensive look into the region's rich oil and gas heritage. Additionally, downtown Midland offers a unique blend of shopping and dining experiences with numerous art galleries, boutique shops, and the Yucca Theatre.

Downtown Odessa

Downtown Odessa boasts several attractions that highlight the city's history and culture. The Ellen Noel Art Museum showcases a wide range of art exhibits, including works by local, national, and international artists. The Presidential Museum and Leadership Library offers a fascinating glimpse into the lives of U.S. presidents and provides insight into the nation's political history. Downtown Odessa also features the Ector Theatre, a historic venue that hosts live performances and cultural events.

Public Facilities

Government buildings such as city halls, post offices, and courthouses are popular destinations. Also, major event venues, such as the Scharbauer Sports Complex, Momentum Bank Ballpark, Midland County Horseshoe Arena, Ector County Coliseum, Ratliff Stadium, and the Wagner Noël Performing Arts Center, generate substantial traffic as crowds gather for athletic games, musical concerts, and other regional events.

Education Facilities

Several independent school districts, charter schools, and a STEM Academy are in the Permian Basin MAB. In addition, the area is home to four higher education institutions: the University of Texas Permian Basin, Midland College, Odessa College, and Texas Tech University Health Sciences Center of the Permian Basin.

Retail

Two large regional shopping malls and several retail centers and chain grocery stores provide residents and visitors with shopping opportunities. Major shopping centers include Music City Mall, Midland Park Mall, the Colonnade Shopping Center, Westgate Plaza, Walmart, and H-E-B. Nationally known chains and local restaurants, hotels, and theaters also serve the region.

Medical

The region’s major medical facilities include Medical Center Hospital, Odessa Regional Medical Center, Midland Memorial Hospital, and the newly constructed Veteran’s Affairs Clinic. These facilities are located adjacent to major roadways and corridors.

Other Destinations

The region’s collection of local and regional destinations includes:

- Ellen Noel Art Museum, Permian Basin Petroleum Museum, Museum of the Southwest, George Bush Childhood Home and Museum, and Sibley Nature Center
- Wagner Noël Performing Arts Center, Jackalopes ice hockey, Rockhound’s baseball, and local football leagues
- Golf and country clubs
- Community learning centers and libraries

Area Snapshot | Mobility

Functional Classification

The functional classification system designates characteristics of roadways into general hierarchies that describe the relationship between mobility and accessibility. Understanding the various roles that roadways play is crucial when considering how to improve the movement of people and goods within and through the Permian Basin MAB. The types of classifications include:

Principal Arterials provide the highest level of mobility among the functional classification categories. These roadways are divided into three sub-categories.

- Interstates, the highest classification of Arterials, are defined as continuous, limited-access routes that have trip lengths and volumes indicative of substantial statewide or interstate travel. *Examples include I-20.*
- Other Freeways and Expressways must be divided with limited access and egress points that are typically grade-separated. They primarily serve through traffic and major circulation movements. *Examples include SH 191 (Midland/Ector County) and Loop 250 W (I-20 to Fairgrounds Road, Midland).*
- Other Principal Arterials provide long-distance connections but do not fit the two categories above. Other Principal Arterials are not access-controlled, so abutting land uses can have direct access. *Examples include SH 158 (Midland), SH 349 (Midland), SH 338 (Odessa) and U.S. Highway 385 (Odessa).*

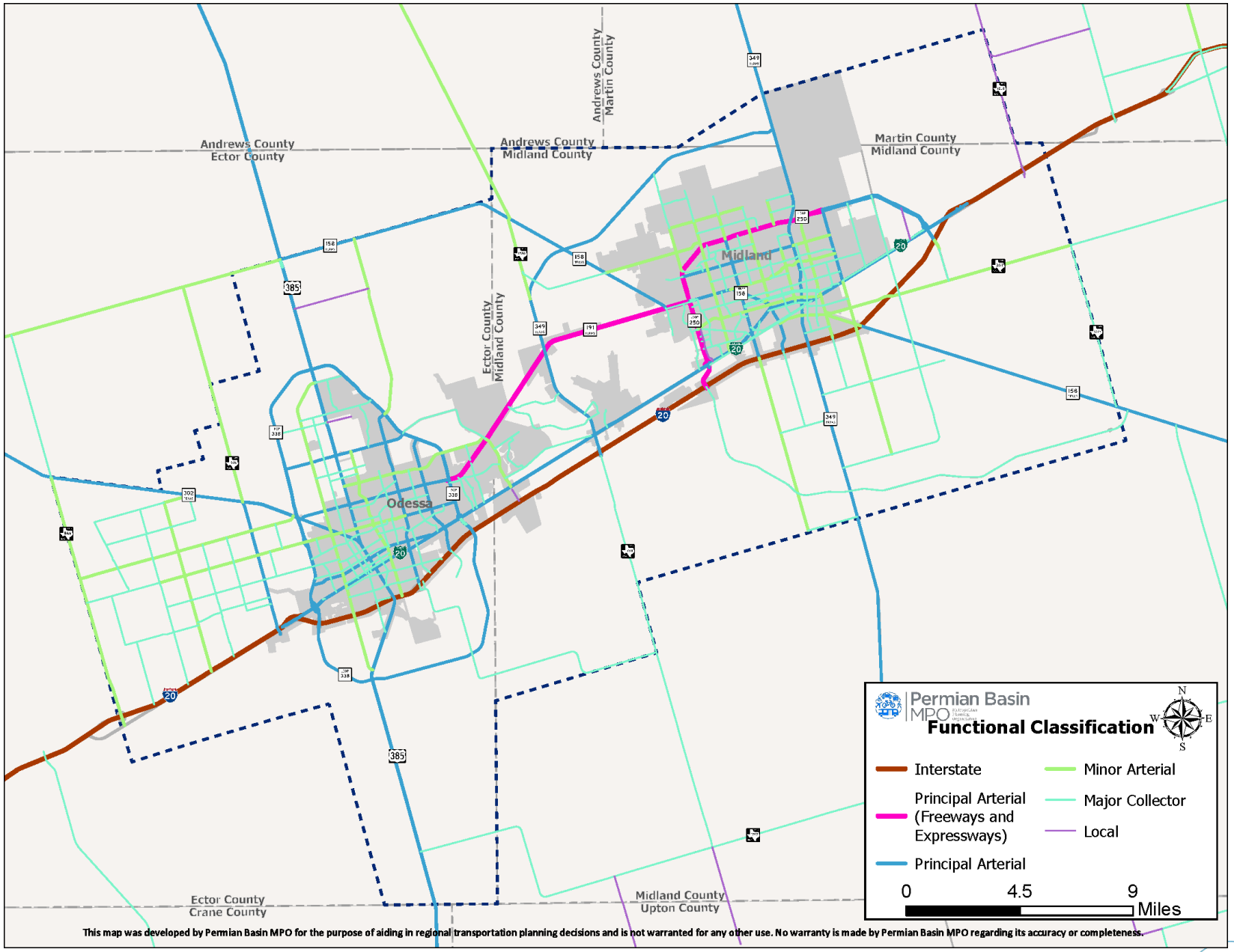
Minor Arterials serve trips of moderate length and provide for relatively high overall travel speeds with minimum interference to through movement. *Examples include SH 302 (Odessa), North County Road West (Odessa), Midland Drive (Midland) and Lamesa Road (Midland).*

Collectors gather traffic from local roads and direct it to arterials. In rural areas, they serve intra-county travel (Midland – Ector – Martin), with distances shorter than Arterials. In urban areas, they provide both land access and traffic circulation within residential neighborhoods and commercial and industrial areas. Collectors are divided into two sub-categories with subtle differences:

- Major Collectors are typically longer in length than Minor Collectors, with fewer access points, higher speed limits, higher traffic volumes and more travel lanes. *Examples include Dawn St (Odessa), Illinois (Midland), and many others.*
- Minor Collectors are typically shorter in length, with more access points, lower speeds, lower volumes and fewer travel lanes. Examples include CR 1140 (Midland), Beal Pkwy (Midland), and E Cottonwood Rd. (Odessa)

Local Roads provide access to adjacent private property or low-volume public facilities. Travel distance on local roads is relatively short when compared to the higher classifications. This classification accounts for the largest percentage of all roadways in terms of mileage.

Figure 2.6 – Functional Classification



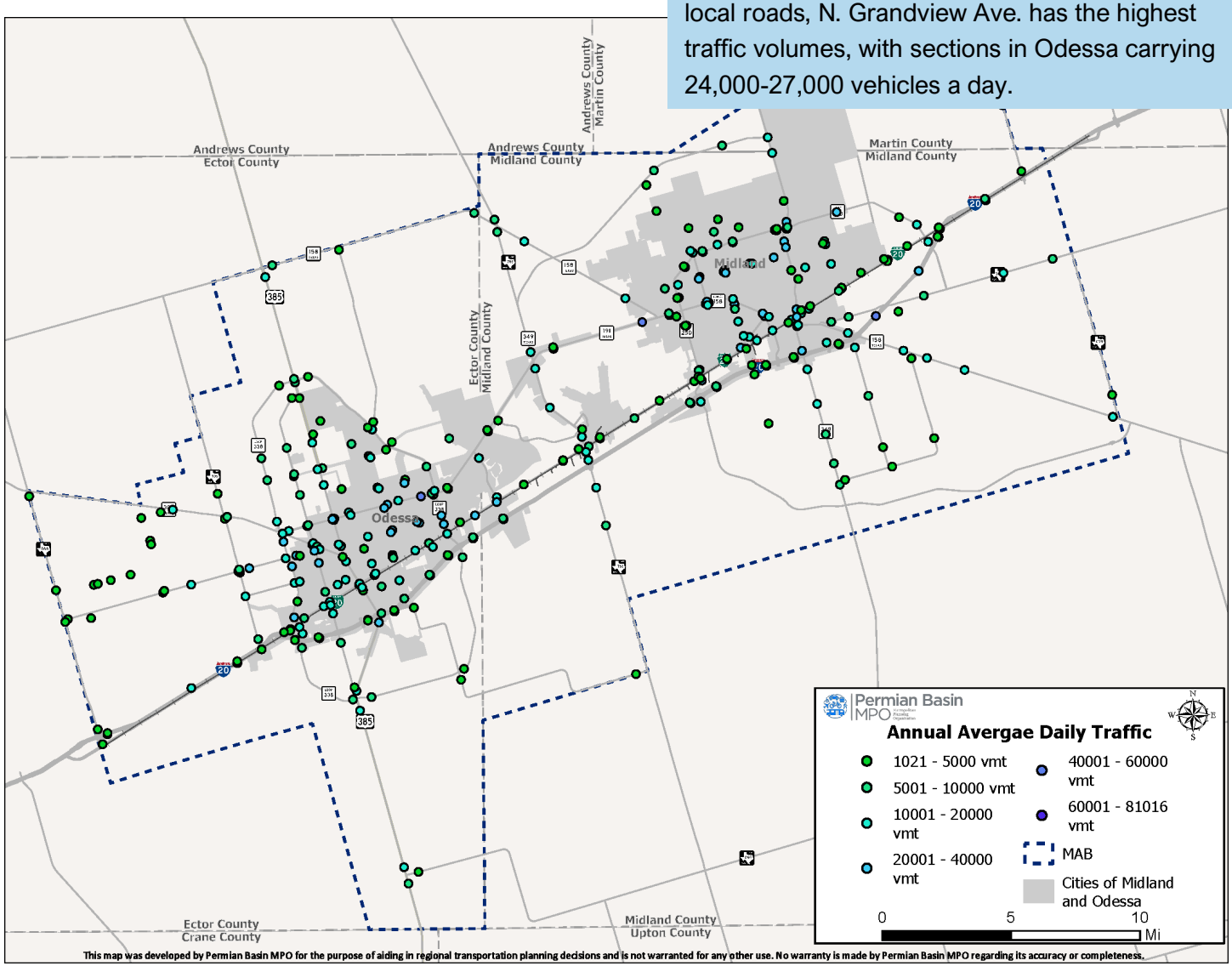
Average Annual Daily Traffic (AADT)

Annual Average Daily Traffic (AADT) is a metric used to determine the average number of vehicles that pass through a specific location on a road each day. The volume of traffic typically depends on factors such as the purpose, design, and location of the road. Major highways catering to long-distance travel tend to have higher traffic volumes.

AADT volumes are useful in identifying areas with high travel demand, such as commercial centers, educational institutions, and medical facilities. Additionally, AADT volumes can indicate roadways that may experience a significant amount of through traffic.

As shown in Figure 2.7, Loop 250, I-20, and SH 191 have the highest traffic volumes. Among local roads, N. Grandview Ave. has the highest traffic volumes, with sections in Odessa carrying 24,000-27,000 vehicles a day.

Figure 2.7 – Annual Average Daily Traffic, 2023



Source: TxDOT

Roadway Congestion

Transportation system analysis and travel forecasting are critical components in the regional transportation planning process. They lay the foundation for identifying future transportation solutions, evaluating alternatives, and making investment decisions. At the time of this MTP preparation the PBMPO Travel Demand Model (TDM) for 2050 was not completed. It is currently underway and will likely be available in the spring of 2025. Once the TDM is received from TxDOT the MPO will begin utilizing it for future project selection; this may occur as early as the first amendment to the plan.

This space intentionally left blank.

Crashes

TxDOT and the Permian Basin MPO continue to lead efforts to address travel safety and adhere to federal transportation legislation. From 2019 to 2023, 42,829 crashes were reported in the Permian Basin MAB.

- **Location of crashes.** Crashes were distributed somewhat evenly between the cities and unincorporated areas: Midland (36%), Odessa (37%), and unincorporated areas (27%).
- **On-system roadways.** Roadways designated on the State Highway System and maintained by TxDOT with the highest numbers of crashes included: I-20 (6,267), SH 191 (2,947), and US 385 (1,849).
- **Off-system roadways.** Roadways not designated on the State Highway System and not maintained by TxDOT (i.e. city street, county road) with the highest number of crashes included: N Grandview Ave, N Midkiff Rd, W Wadley Ave, and E University Blvd, each of which recorded more than 500 crashes.
- **Severity.** Approximately 25% of crashes resulted in some type of injury. A total of 383 crashes (0.9%) resulted in a fatality.
- **Causation.** The most frequent contributing factor was failing to control speed (8,012), followed by failing to yield the right of way at a stop sign (3,693) and failing to yield the right of way while turning left (2,814).
- **Bicyclists and Pedestrians.** A total of 371 (0.87%) crashes involved a cyclist or pedestrian, with N Grandview Ave, W Wadley Ave, and E University Blvd having the largest concentration for on-system roadways and SH 191, FM 2020, and SH 349 having the largest concentration for off-system roadways. SH 191 accounted for the most crashes out of all roadways (20 crashes).
- **Intersections.** Approximately 35% of crashes occurred at an intersection. Many of these intersections were focused around the downtown areas and high-volume intersections such as SH 191 and Loop 250.
- **Railroads.** A total of 36 crashes involved the UP railroad.

Highway Safety Improvement Program (HSIP). The Highway Safety Improvement Program (HSIP) is a Federal-aid program tasked with reducing traffic fatalities and serious injuries on all public roads, non-State-owned roads, and roads on tribal land. The HSIP takes a data-driven, strategic approach to improving highway safety on all public roads. Cities and counties apply for HSIP funding when project calls are issued, and HSIP funding can be applied to installing traffic safety measures such as rumble strips, widening of shoulders, permissive left turn signals, and enhanced signage. The Permian Basin MPO member agencies have completed numerous projects through the HSIP since SAFETEA-LU established the HSIP as a core federal-aid program in 2005.

Figure 2.8 – Bicycle and Pedestrian Crashes (Heat Map), 2019 to 2023

Source: TxDOT Crash Records Information System

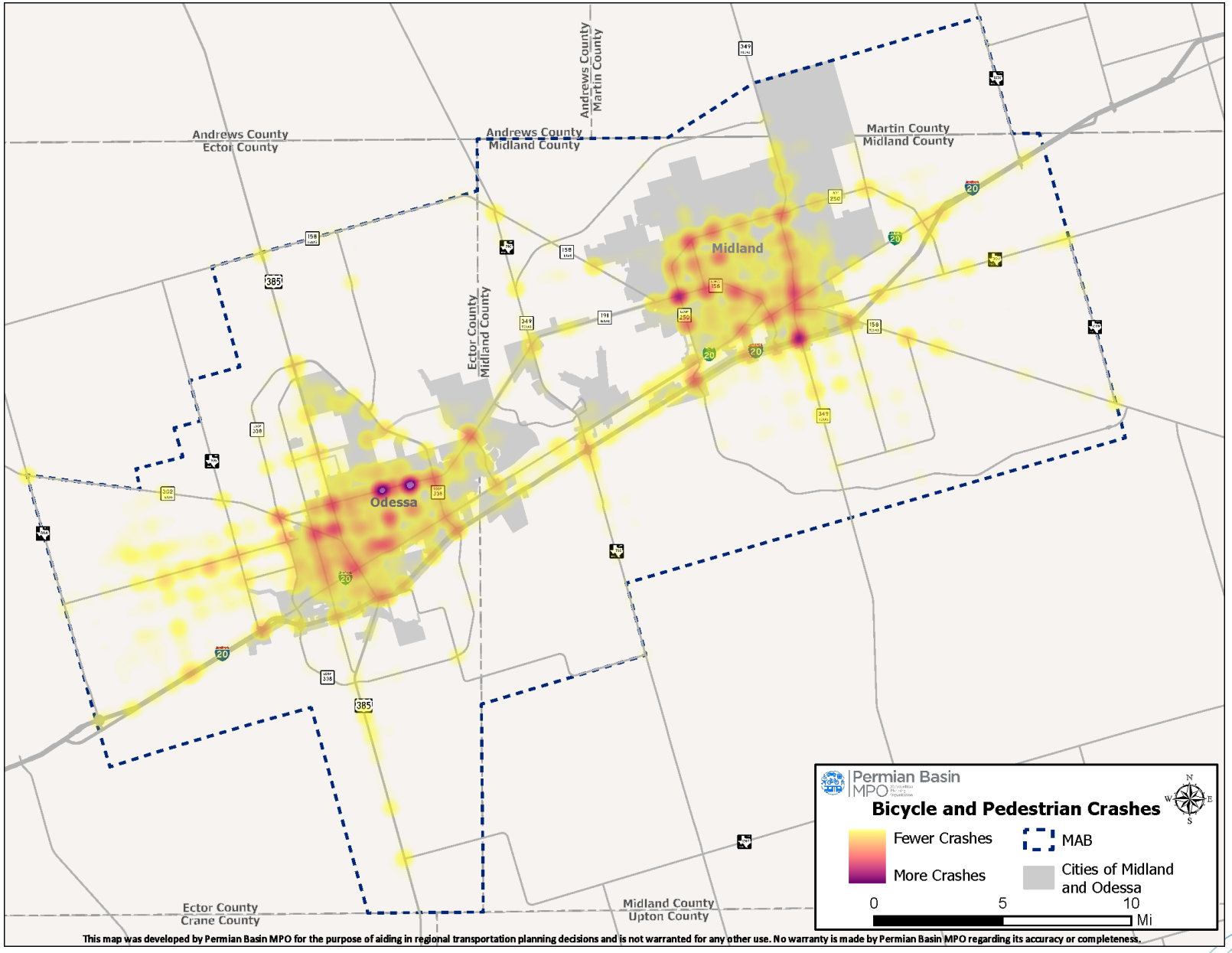


Figure 2.9 – Fatal Crashes Heat Map, 2019 to 2023

Source: TxDOT Crash Records Information System

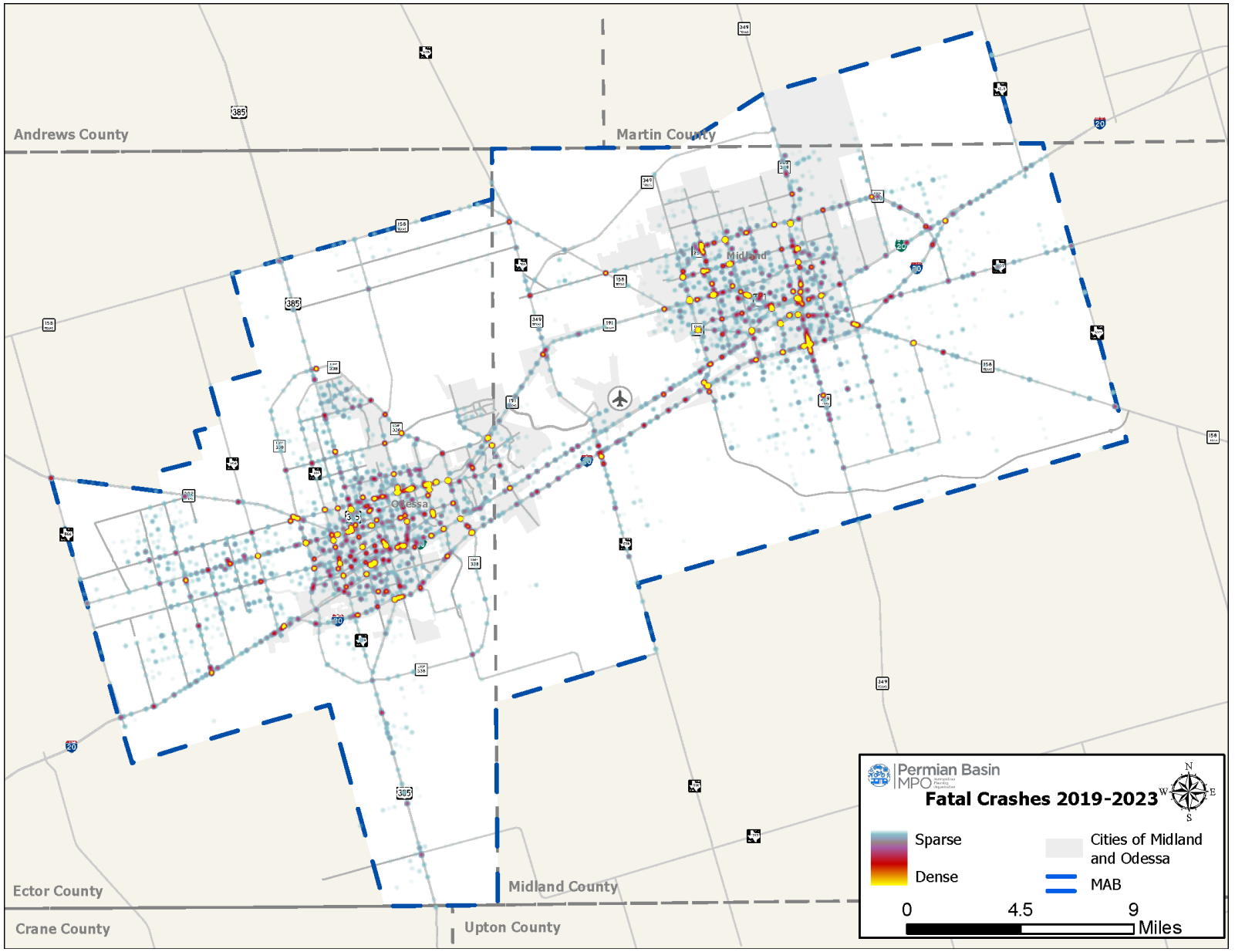
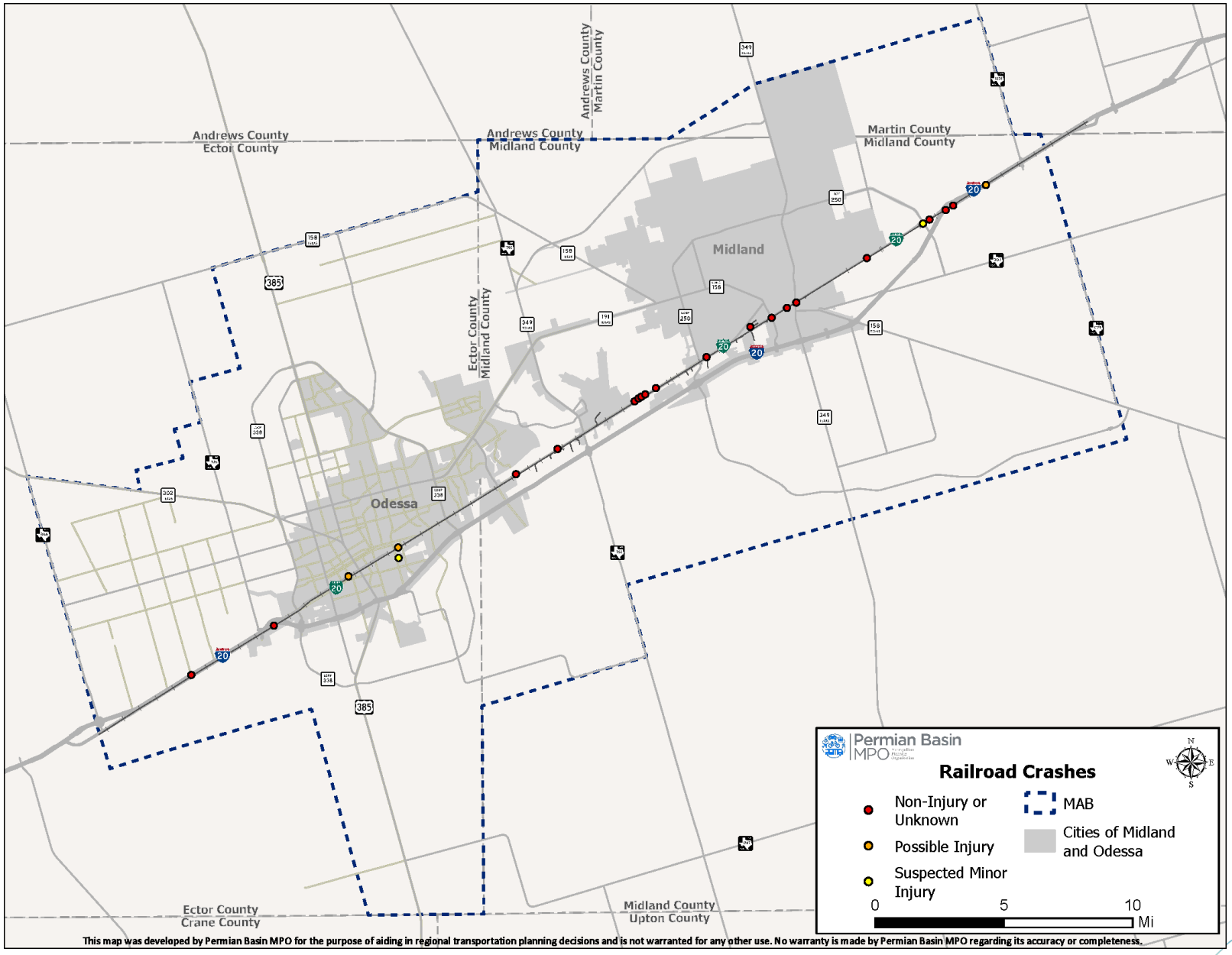


Figure 2.10 – Railroad Crashes, 2019 to 2023

Source: TxDOT Crash Records Information System



Bike and Pedestrian Infrastructure

The Permian Basin MAB has historically seen more roadway and transit investments compared to active transportation. To narrow the gap, the Permian Basin MPO established a Bicycle and Pedestrian Advisory Committee in 2017 and conducted a study in 2019 to promote a regional trail between Midland and Odessa.

Midland and Odessa have made progress in developing their active transportation networks and recognize the need for additional pedestrian access. Pedestrian facilities vary, with many areas having incomplete networks. The cities are working to fill these gaps by requiring sidewalks for new development and including upgrades as part of roadway reconstruction. Priority is given to areas with high pedestrian traffic, such as schools, parks, and business districts.

The region also has various off-system recreational trails, including those at the UTPB campus, the I-20 Wildlife Preserve, Comanche Trail Park, and the Odessa Mountain Bike Park. Figure 2.11 shows the City of Midland Hike Bike Route. Figure 2.12 shows the region's existing bicycle and pedestrian infrastructure.

Figure 2.11 – City of Midland Hike Bike Route, 2024

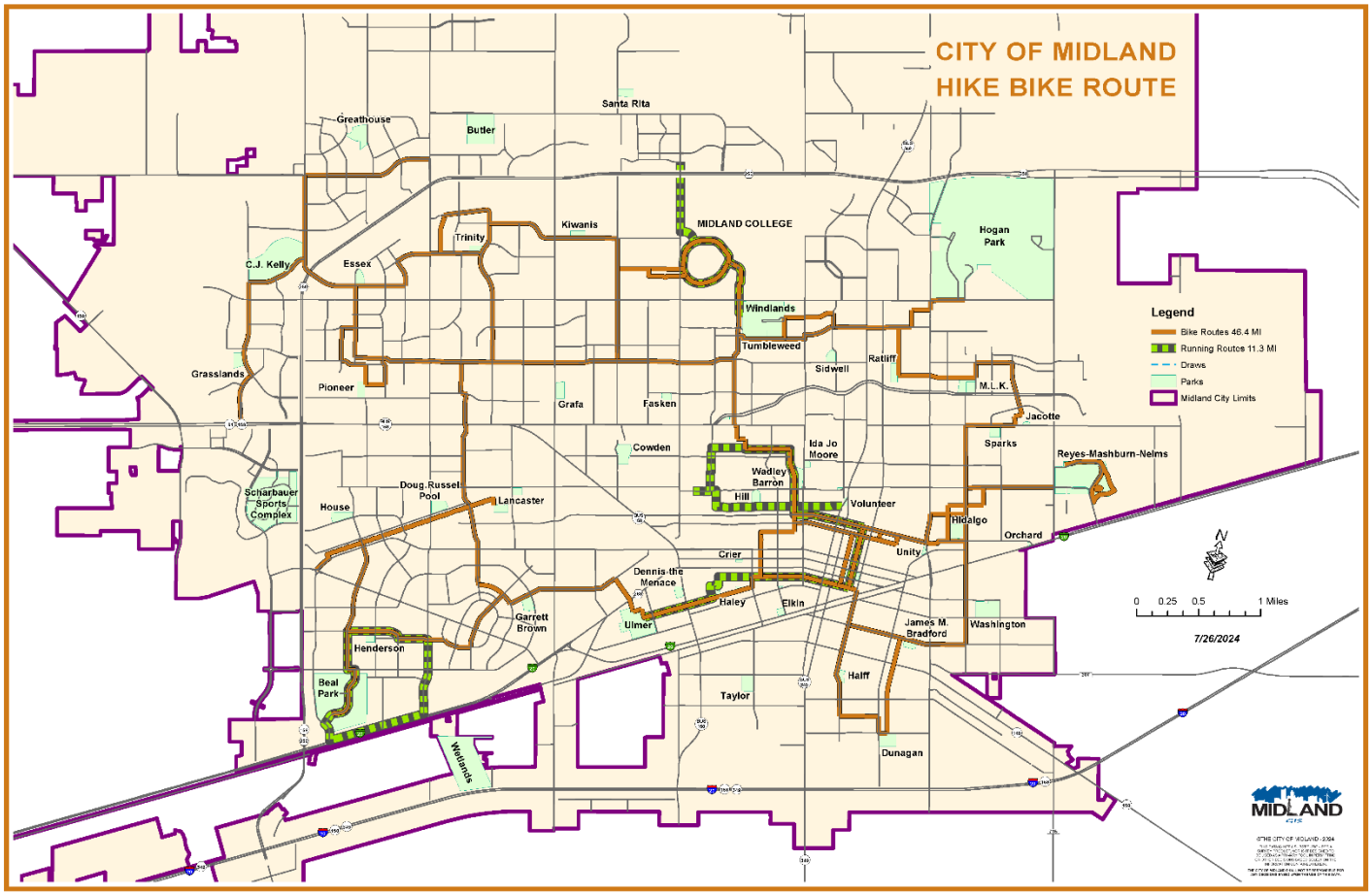
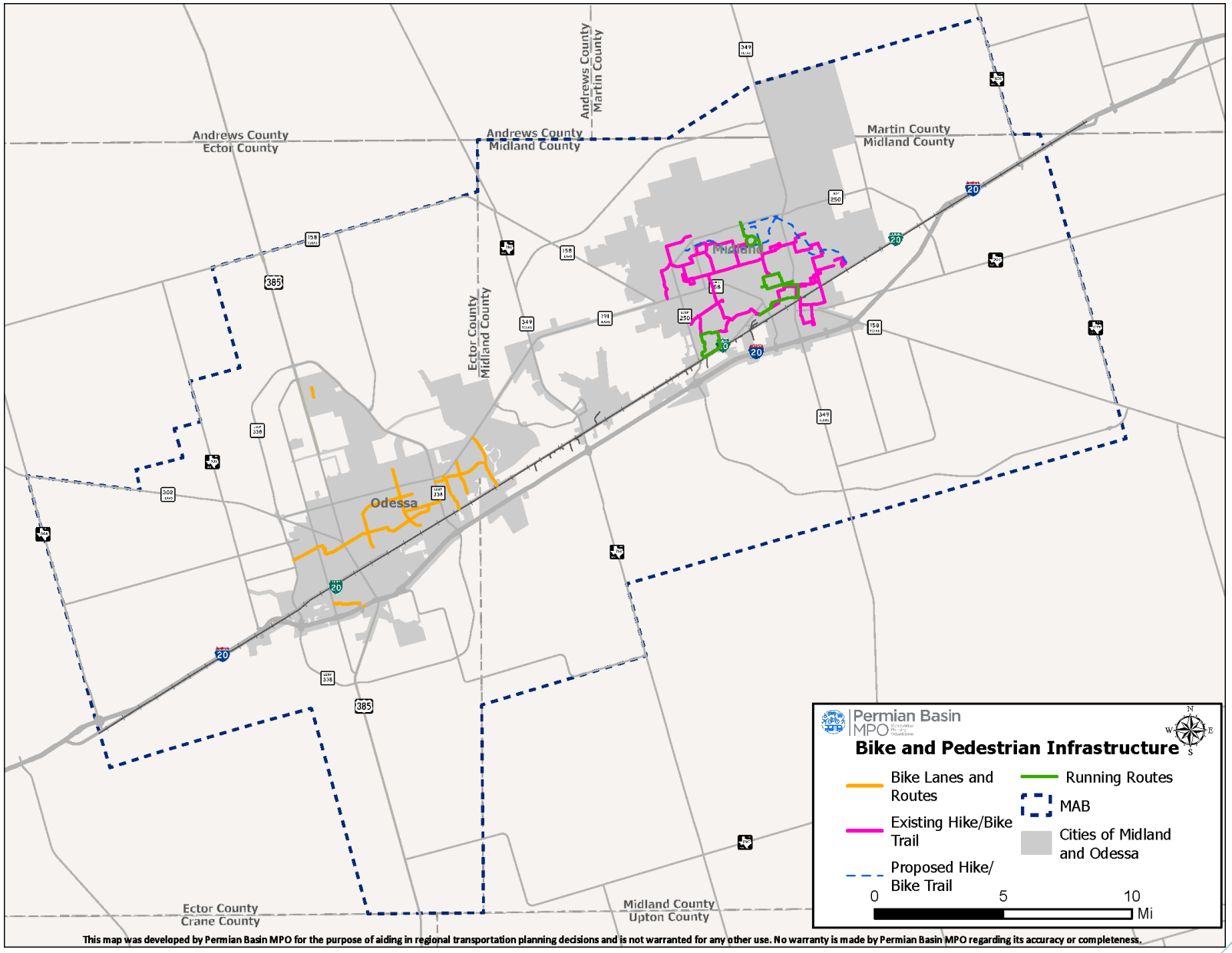


Figure 2.12 – Existing Bike and Pedestrian Infrastructure

Source: Cities of Midland and Odessa



Transit

EZ-Rider operates the transit system for Midland and Odessa under the direction of the Midland-Odessa Urban Transit District (MOUTD). The transit system operates 12 fixed routes (six each within Midland and Odessa), paratransit, and an inter-city connectivity route between Midland and Odessa.

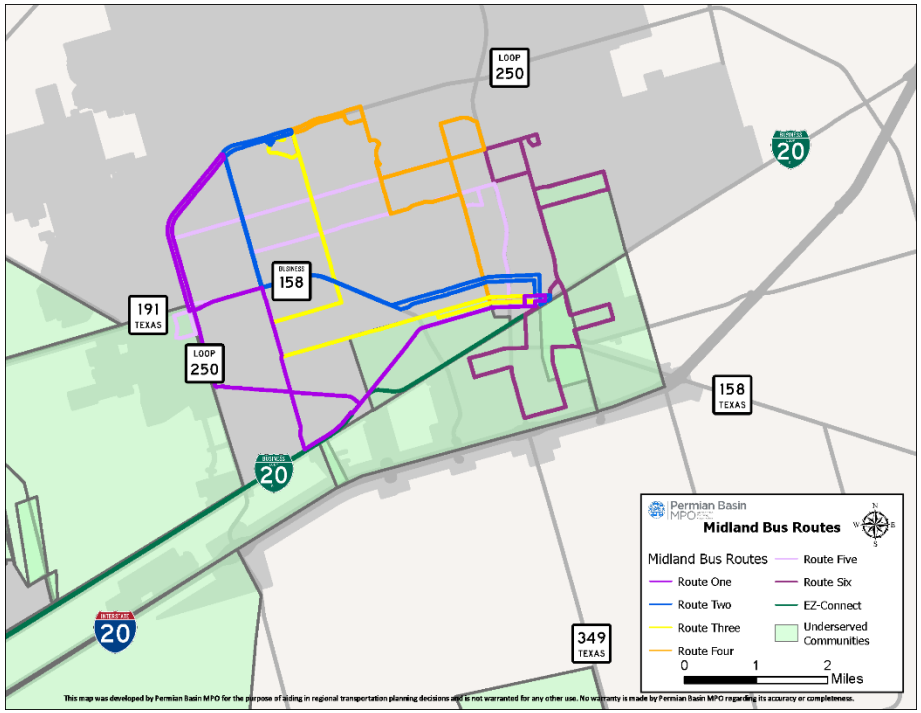
For persons living outside the EZ-Rider service area, West Texas Opportunities (WTO) provides demand response transportation service including the unincorporated areas of Ector, Midland, and Martin Counties, and the surrounding 15 counties.

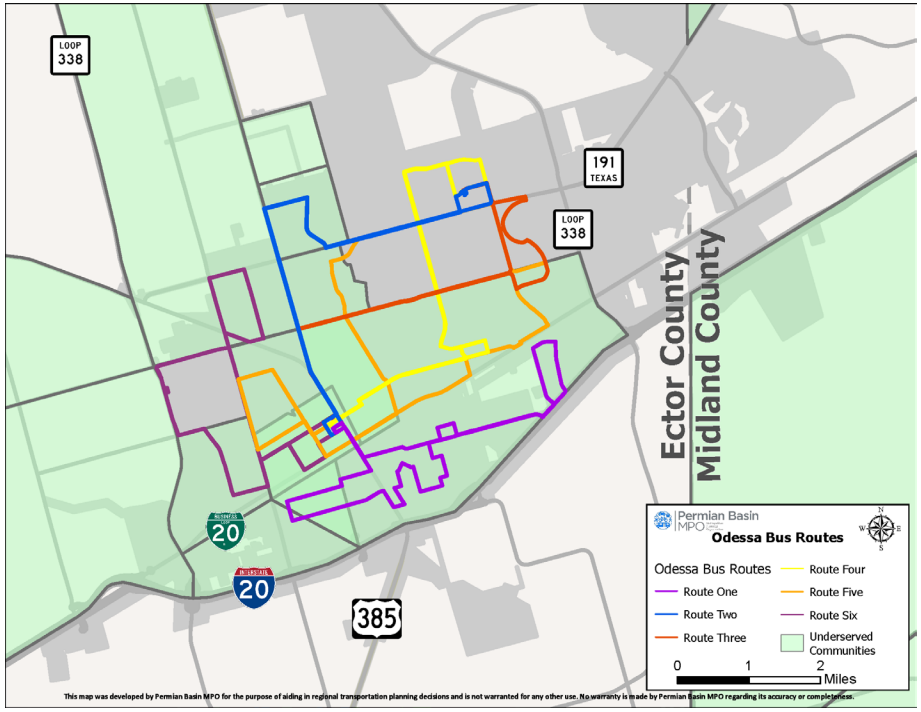
Table 2.1 – Transit Annual Ridership, Revenue Miles, and Revenue Hours, 2018 to 2022

		2018	2019	2020	2021	2022
Demand Response	**Ridership**	43,246	44,641	28,449	19,128	27,946
	Revenue Miles	200,375	216,732	145,578	112,057	152,764
	Revenue Hours	18,737	19,673	14,121	10,785	14,111
	Fare Revenue	$24,070	$27,592	$20,067	$16,309	$28,738
Commuter Bus	**Ridership**	12,615	15,158	17,449	9,554	10,309
	Revenue Miles	107,256	140,701	204,902	197,556	187,235
	Revenue Hours	3,301	4,739	7,187	6,974	6,149
	Fare Revenue	$823	$17,819	$24,340	$10,246	$12,238
Bus	**Ridership**	312,673	268,658	208,610	155,302	177,305
	Revenue Miles	644,989	644,109	655,228	642,597	658,517
	Revenue Hours	41,336	40,676	41,745	40,874	42,016
	Fare Revenue	$157,791	$224,554	$155,023	$143,660	$174,120

Figure 2.13 – Midland and Odessa Transit Routes with Underserved Communities

Source: EZ-Rider

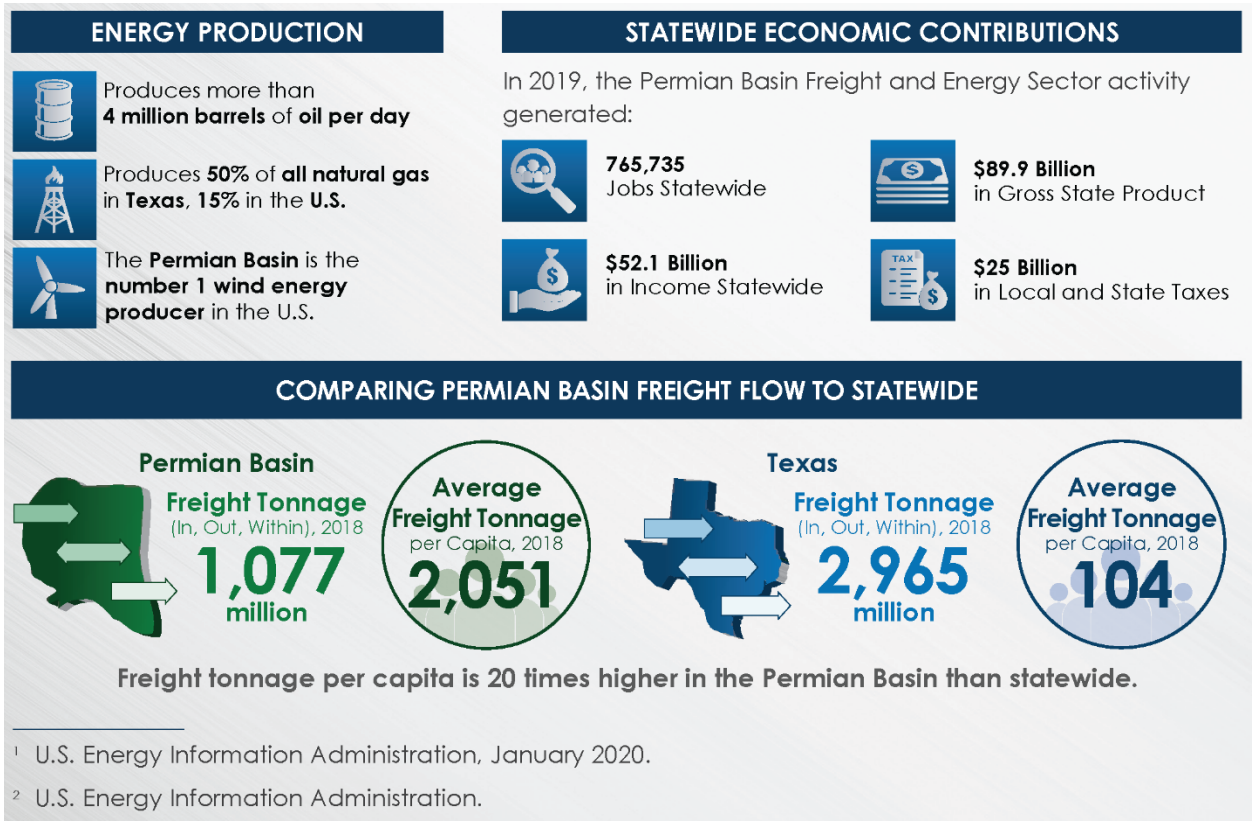




Freight, Rail, and Aviation

The Permian Basin Freight and Energy Sector Transportation Plan (November 2020) describes the freight and energy sector's critical importance locally and beyond:

> ***The growth in energy sector activity is driving rapid economic and population growth. The energy sector activity and the energy and non-energy-related freight movements in the region have impacts that extend far beyond the Permian Basin. Businesses and residents in the region rely upon raw materials, supplies, and consumer goods from all over the world to keep businesses operating and residents fed and clothed. Businesses also depend on access to global markets to export the oil, gas, and other products produced in the region.***
>
> *- Permian Basin Freight and Energy Sector Transportation Plan*



Source: TxDOT

The Freight and Energy Sector Transportation Plan's study area covers approximately 75,000 square miles and extends well outside the Permian Basin MAB to include 24 counties in West Texas and southeastern New Mexico. This area's role in the state economy and contribution to freight traffic is significant.

Figure 2.14 shows the freight, rail, and aviation network for the Permian Basin MAB.

Freight. State truck freight routes include I-20, SH 158, SH 349, W. Industrial Ave., FM 1788, FM 1882, FM 3503, Garden City Hwy / W. Florida Ave., SH 191, Loop 250, Loop 268 / W. Wall St., Loop 338, Kermit Hwy / State Spur 450, and US 385. I-20 contributes to the National Freight Network.

Rail. Union Pacific owns and operates railways in the region. Most rail crossings are at grade, with grade-separated crossings at I-20, SH 302, FM 1882, S Grant Ave, S John Ben Shepperd Pkwy, Loop 338, SH 349, SH 158, Rankin Hwy, SH 250, and FM 1208.

Aviation. One primary commercial service airport and two general aviation airports serve the area, including the Midland International Air and Space Port where space flights are permitted (see Table 2.2 for enplanements since 2019).

Figure 2.14 – Existing Freight, Rail, and Airport Facilities

Source: TxDOT

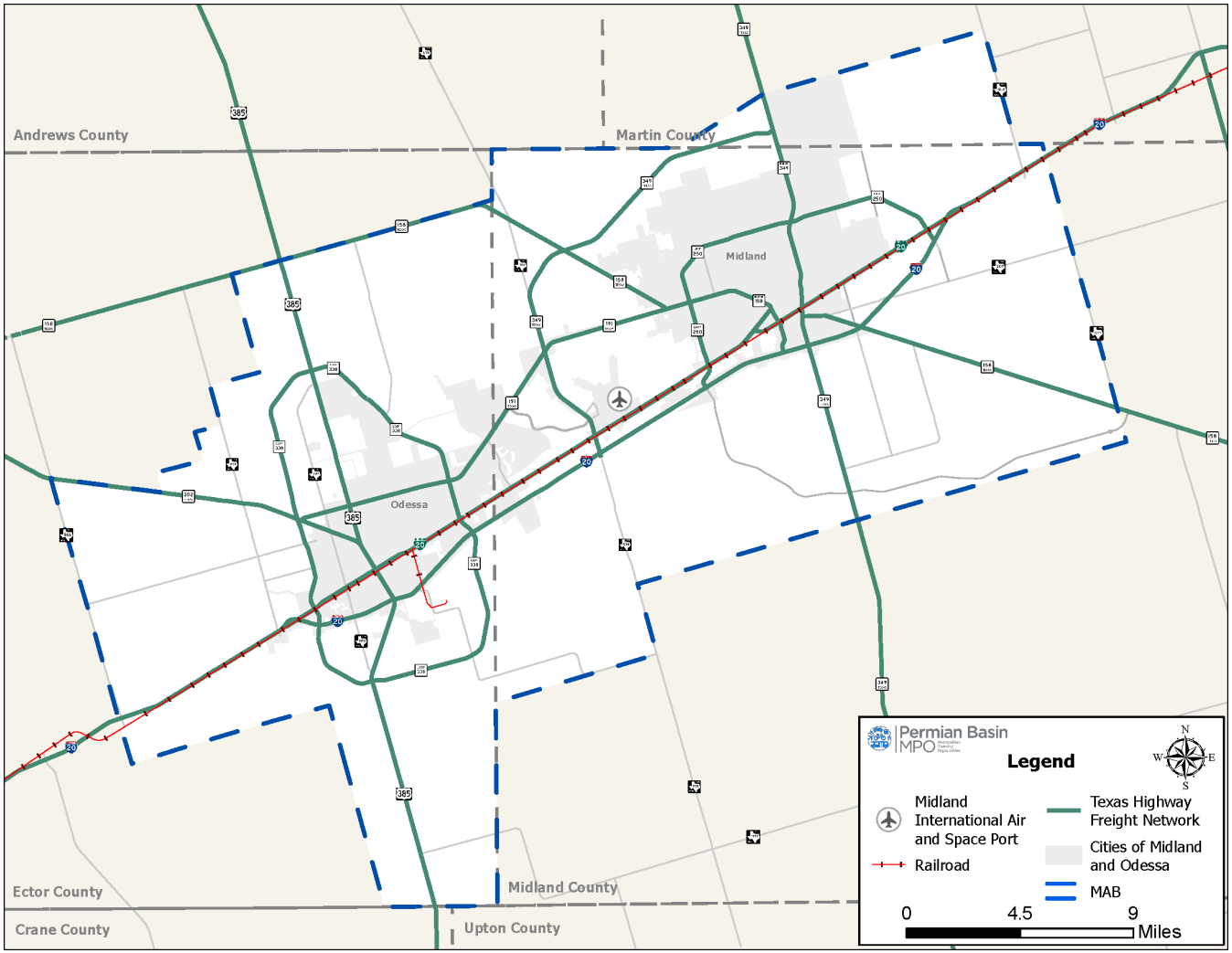


Table 2.2 – Midland International Air and Space Port Enplanements, 2019 to 2023

	2019	2020	2021	2022	2023	% Change
Enplanements	672,382	319,570	504,264	633,964	684,416	1.79%

This space intentionally left blank.

3 Public Participation Process

FORWARD 50

METROPOLITAN TRANSPORTATION PLAN

Introduction

Public participation serves an important and necessary role in transportation planning. Effective engagement identifies a variety of community members and leaders to provide meaningful input at key points throughout the planning process. This chapter provides an overview of the public participation process, including the activities and outcomes that informed the development of the Forward50 MTP.

Public Participation and the Permian Basin MPO

The MPO's Public Participation Plan (PPP) is a Policy Board approved document that sets the guidelines used for ongoing public involvement for the transportation planning process in the Permian Basin MPO. The PPP emphasizes the importance of early, on-going public involvement in the transportation planning process. Early public involvement enables the MPO to make more informed decisions, improve quality through collaborative efforts, and build mutual understanding and trust between the MPO and the public.

The Forward50 MTP adheres to the public involvement techniques and timeframes recommended as part of the PPP for each of the MPO's planning activities.

Engagement Strategy

A collaborative approach to developing the Forward50 MTP helped to ensure a fuller understanding of a community's desires in developing a vision for the Permian Basin area.

Objectives

Public participation for the Forward50 MTP centered on three objectives:

1 | Educate and Empower

- Increase familiarity with the MPO process, including the MTP
- Provide the opportunity for people to identify issues and needs, express their vision and goals, and weigh in on recommendations and priorities

2 | Participate and Collaborate

- Interact with and gather input and options from those who live, work, play, study, invest, and worship in the Permian Basin area
- Engage the MPO's Technical Advisory Committee to help broaden the perspectives drawn into the process

3 | Monitor and Communicate

- Track whether feedback received during engagement is representative of the Permian Basin area
- Communicate to participants how their input is incorporated and the influence this input will have on decision-making

Participants

The engagement process included outreach to residents and stakeholders to untap specialized knowledge and experiences from the Permian Basin area. Key participants invited to outreach activities included the following:

- General public
- Policy Board members
- Technical Advisory Committee member
- Community, civic, and business groups
- Major employers
- Public transportation employees and users
- Pedestrians and bicyclists
- Regional, state, and federal agencies/organizations

Activities

The community offered input at key points during the Forward50 MTP process. Engagement activities included the following:

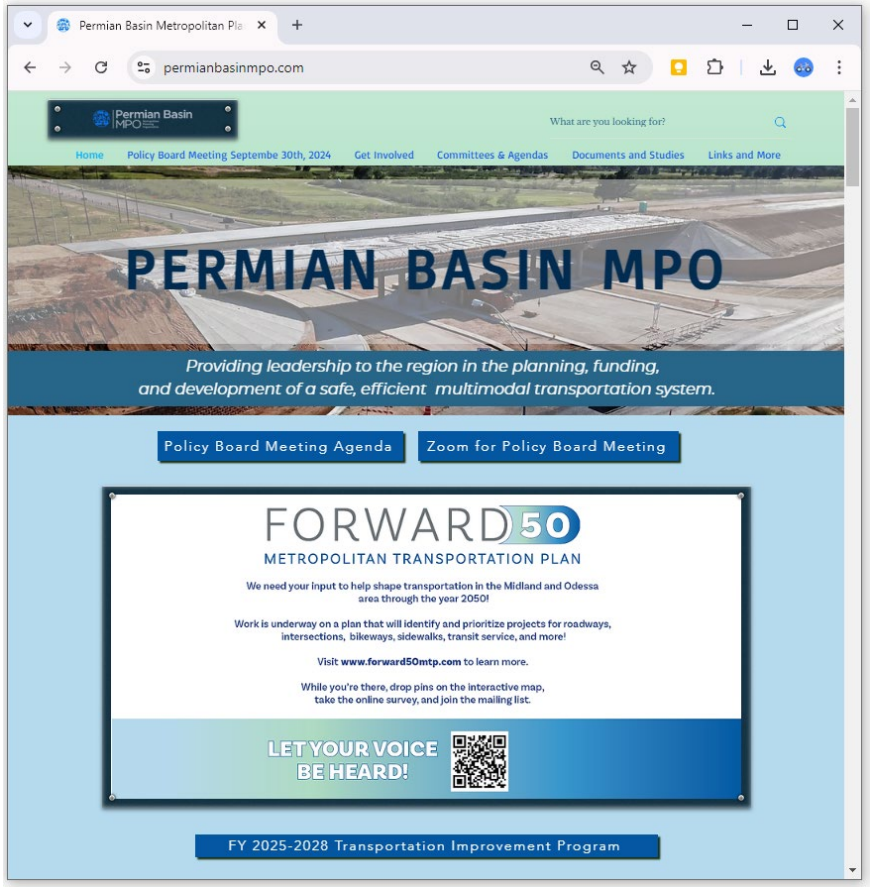
- Project website
- Online surveys
- Meetings and pop-up events
- Technical Advisory Committee and Policy Board meetings

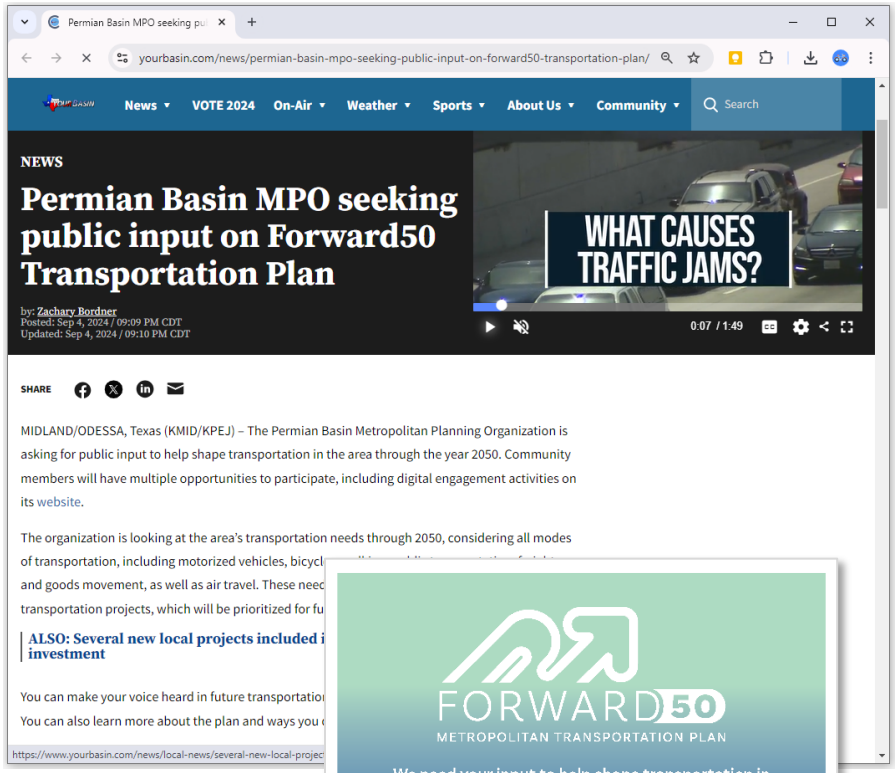
This chapter describes these activities in more detail.

Promotion

Promoting the Forward50 MTP occurred through traditional outreach channels from the Permian Basin MPO, the Cities of Midland and Odessa, and local media. Engagement activities were promoted during standing meetings, through email correspondence, via social media, and printed flyers.

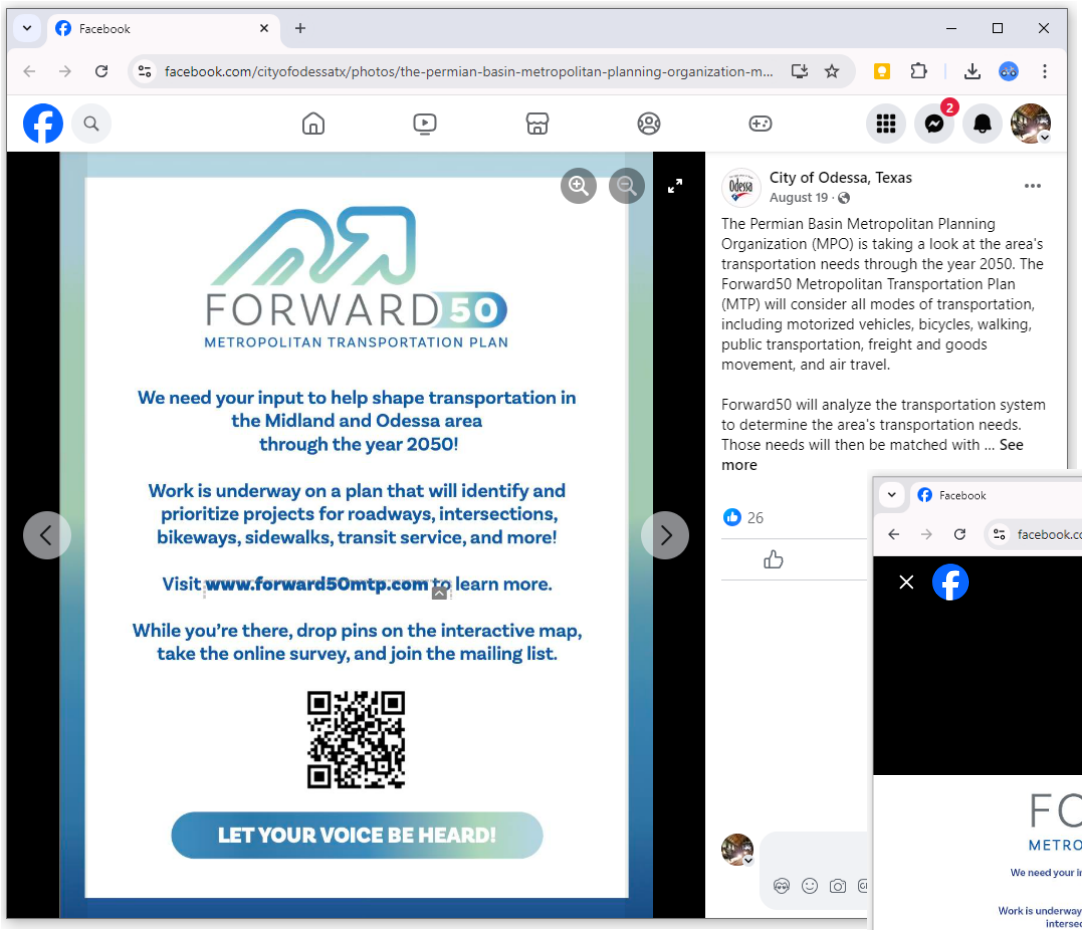
Permian Basin MPO Website





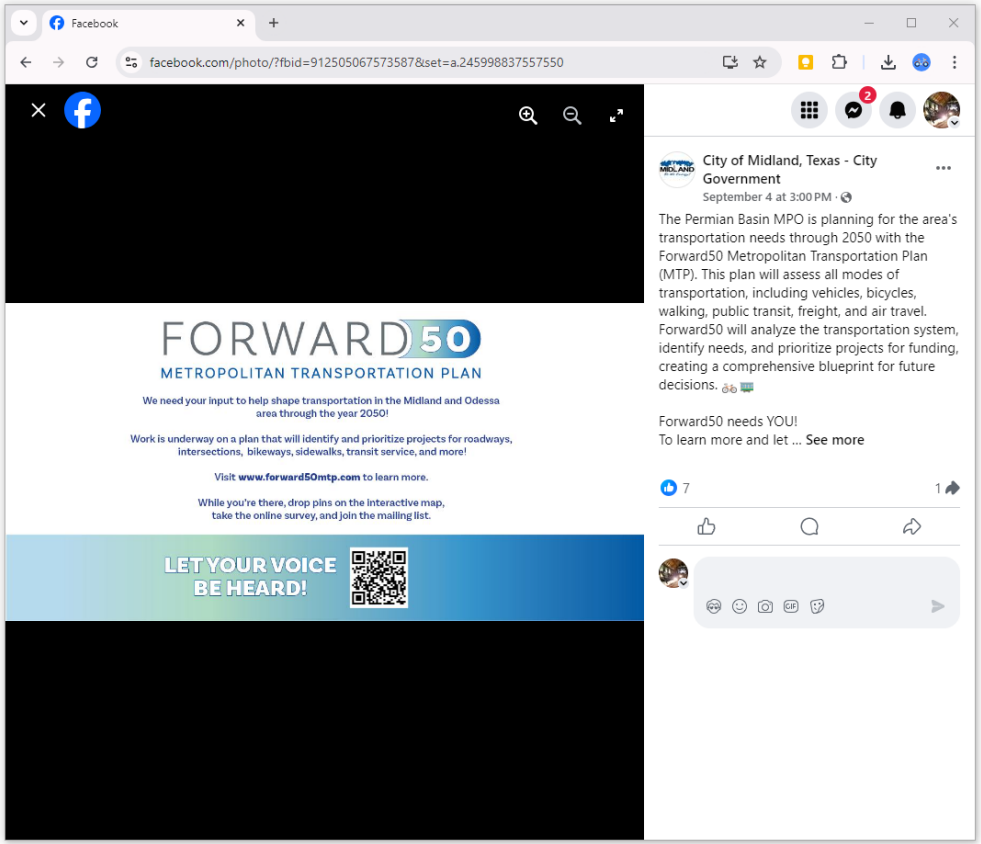
Local Media New Article

Printed Flyer



City of Odesa Facebook Post

City of Midland Facebook Post



Engagement Activities

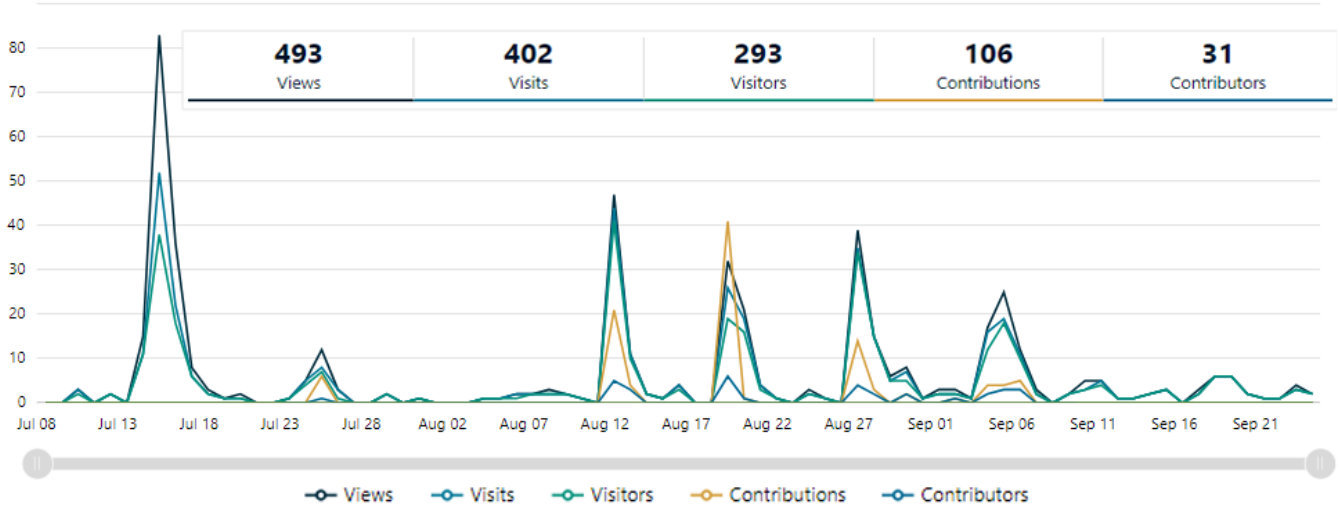
Project Website

A project website was maintained throughout the planning process. The website, built on the Social Pinpoint platform, served as a one-stop digital engagement hub with an overview of the planning process, FAQs, MTP resources, and an up-to-date project status. The website was used to promote outreach events and to launch digital engagement tools such as surveys, interactive maps, and digital comment forms.

Project Website – Mobile Device Version

Project Website – Desktop Version

Website Performance Statistics



Online Survey

An online survey was made available on the project website from July 8, 2024 to September 16, 2024 to engage the public to uncover specific areas of concern within the transportation network in their community. The survey received 16 responses.

In one word, describe traveling in the study area TODAY.

Congested (x4)	Unpractical	Watch out
Scary (x3)	Terrible	Life-altering
Dangerous (x2)	Stressful	Tense

In one word, describe your vision for traveling in the study area IN THE FUTURE.

Safe (7)	Calm	Expanded
Efficient	Variety	Big city
Pleasant	Easy	Smooth

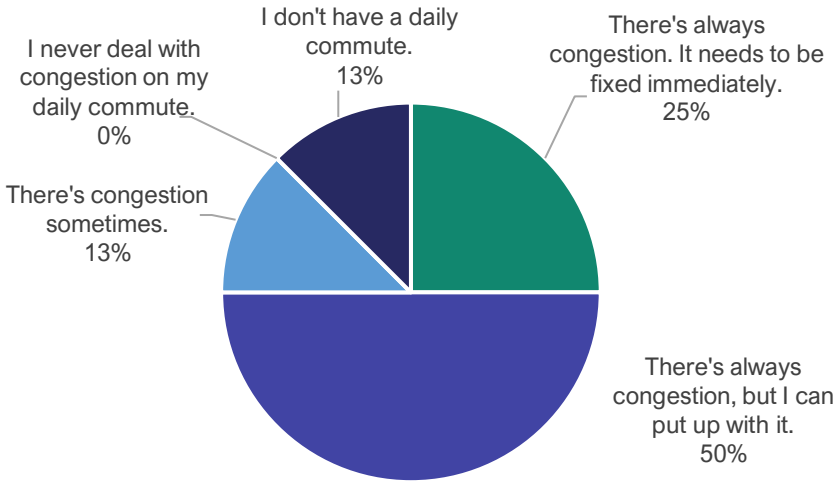
Over the past five years, has traveling in the study area worsened, stayed the same, or improved?

Worsened — **Stayed the Same** — **Improved**

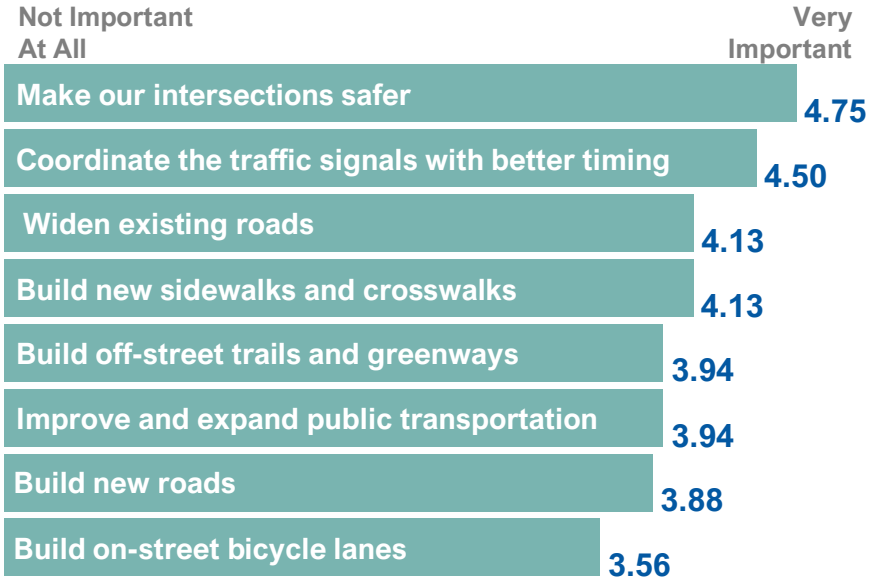
Tell us why you answered that way.

- *I know there's been some improvements made by city of Midland, such as some bike lanes. I wish the bike lanes would be extended further. The traffic lights are antiquated and sometimes don't change for 10+ minutes late at night*
- *A lot more traffic for the roads.*
- *The roads cannot handle the amount of traffic.*
- *I see more and more wrecks every day. Fatalities are at an all-time high.*
- *It has gotten worse—reckless drivers, too many drivers in a small space, too much construction all at one time.*
- *The road infrastructure and transportation system have not kept pace with the growth of the metro area. We all rely on our cars and are driving on roads made to handle maybe half of what they do now and are surprised when we have deadly accidents.*
- *Much more traffic on roughly the same roads. Secondary forms (buses, bikes, walking, etc.) are difficult and usually much more dangerous.*
- *Gotten more congested and not keeping up with demand*
- *There is road construction everywhere*
- *I feel like traveling in the region has stayed relatively the same. Although improvements have helped conditions from getting worse, we need to be more proactive.*
- *More cars, increased population and many people who don't obey laws.*
- *The way people drive is crazy*
- *Big spring has continued to grow busier; as has Downtown. The number of pedestrians is increasing during all hours of the day, not just between 8-5.*
- *The increase in population growth and vehicle traffic has outpaced the infrastructure demands to keep up.*
- *Several roadway projects are happening at one time*

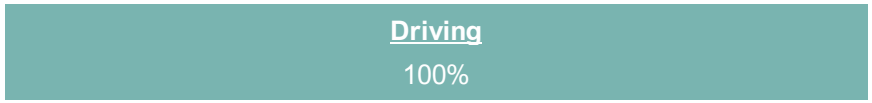
How would you describe congestion on your daily commute?



On a scale of 1 (not important at all) to 5 (very important), rate each of the following transportation priorities.



Most of the time, I travel by...



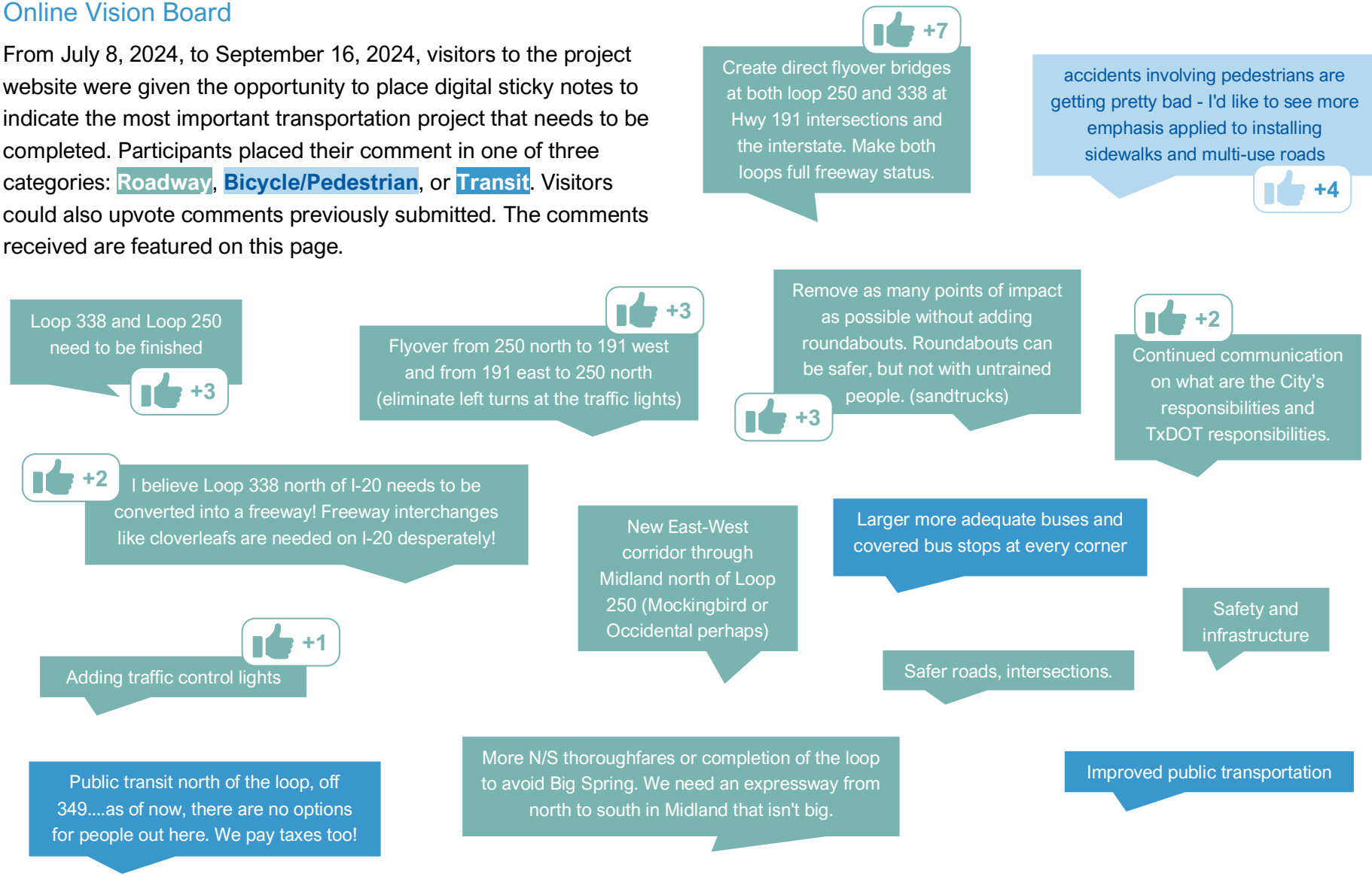
I would prefer to travel more often by...

How would you rank the priorities in order of importance?

	Average Ranking	Times Ranked in Top 3
Build new roads	**4.25**	**43.8%**
Widen existing roads	**3.81**	**56.3%**
Make our intersections and interchanges safer	**2.25**	**87.5%**
Coordinate the traffic signals with better timing	4.50	31.3%
Build new sidewalks and crosswalks	4.75	12.5%
Build on-street bicycle lanes	6.38	6.3%
Build off-street trails and greenways	4.81	37.5%
Improve and expand public transportation	5.25	25.0%

Online Vision Board

From July 8, 2024, to September 16, 2024, visitors to the project website were given the opportunity to place digital sticky notes to indicate the most important transportation project that needs to be completed. Participants placed their comment in one of three categories: **Roadway**, **Bicycle/Pedestrian**, or **Transit**. Visitors could also upvote comments previously submitted. The comments received are featured on this page.



Interactive Online Map

From July 8, 2024, to September 16, 2024, an interactive online map collected comments on transportation issues and ideas. Respondents then categorized their comments as Roadway, Bike/Pedestrian, Transit, or Other.

Figure 3.1 displays where participants dropped pins to indicate an issue or idea. By category, 96% of the comments were identified by participants as a Roadway comment, 3% as Bike/Pedestrian, and 1% as Other. In general, more comments were left on the Odessa side of the MAB.

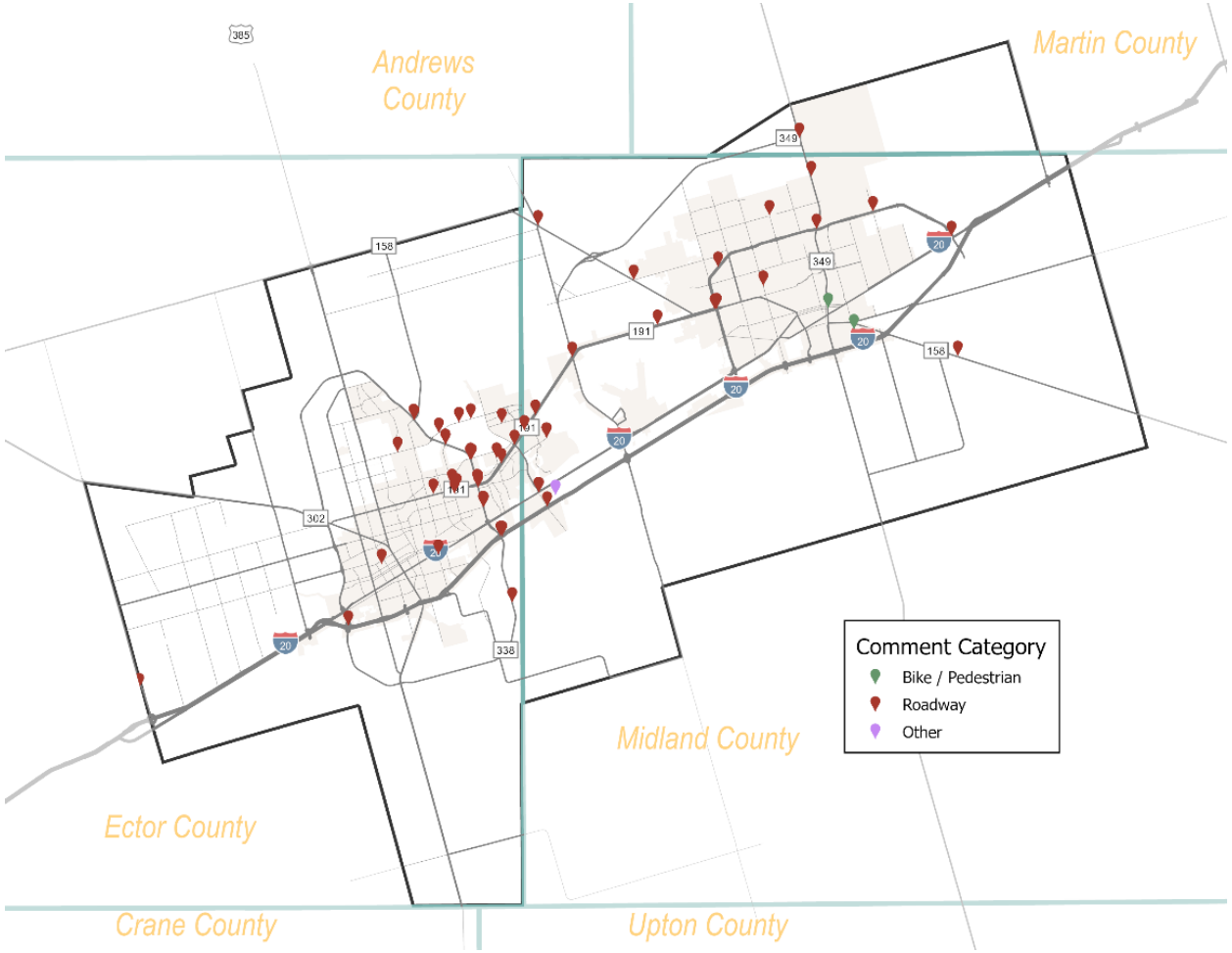
Most (~60%) of roadway pins comments related to flyover lanes, interchanges, overpasses, or bridges.

Other popular roadway pin related to widening existing roadways or creating new extensions.

Remaining roadway pins focused on intersection improvements, access management, alternative routes, and traffic operations.

Bike/Pedestrian pins focused on accessibility and safety.

Figure 3.1 – Interactive Online Map Comments



Policy Board

The Policy Board is the governing body for the MPO and makes all decisions regarding transportation policies and adopts all plans and programs developed by the MPO. The Board meets monthly, and its meetings are open to the public. All MPO Policy Board meetings were announced in accordance with the MPO's Public Participation Plan and were compliant with the Texas Open Meetings Act.

The Policy Board provided regular and continuing general policy guidance during the development of the Forward50 MTP beginning with an introductory presentation by the project team on July 15, 2024.

Technical Advisory Committee

In support of all MPO functions, a Technical Advisory Committee (TAC) meets monthly to review and prioritize transportation planning needs and provide recommendations to the Policy Board. The TAC consists of representatives from member jurisdictions and transportation agencies as well as non-voting members with specialties related to long range planning such as GIS, traffic management, engineering, and construction.

- Cities of Midland and Odessa
- Ector, Midland, and Martin Counties
- MOUTD (EZ-Rider)
- TxDOT – Odessa District
- Federal Highway Administration – Texas Division

Specific to the Forward50 MTP, the TAC played several important roles, which included:

- Providing local context and expertise on transportation needs and areas of potential improvement
- Evaluating and recommending candidate projects for inclusion in the MTP
- Reviewing the project scoring system required under federal and state laws
- Establishing the financial plan in accordance with federal requirements (CFR 450.324(11)(v) that state the MTP must be fiscally constrained for the first ten years
- Reviewing the MTP's final content and providing input where necessary

Public Comment Period

As a new MTP, the Permian Basin MPO's Public Participation Plan (PPP) requires a 30-day public comment period. The public review period for the Forward50 MTP occurred from October 10, 2024, to November 9, 2024. The PPP also requires at least one public meeting at least 30 days prior to adoption to present a new or amended MTP. A public meeting was held on October 29, 2024, from 5:30pm to 7:30pm at the CEED Auditorium. The meeting began with an open house period during which participants viewed display boards. Then, the project team presented the draft plan and facilitated a Q&A session with participants.

Copies of the draft Forward50 MTP were placed at the Ector and Midland County Libraries, the City Secretaries' Offices of the Cities of Odessa and Midland, Martin County Courthouse, and TxDOT Odessa District office. The draft MTP was also made available during regular business hours at the Permian Basin MPO office. The plan also was made available on the Permian Basin MPO and project websites during the 30-day public review period. During this period, the website had 156 visitors, 14 downloads of the report, and six downloads of the executive summary.


Plenty of road construction on

oaoa.com/local/plenty...

OA online

Home › Local

Local | Local News

Plenty of road construction on tap

By Odessa American - October 18, 2024

PERMIAN BASIN MPO
VISUALIZE. PLAN. IMPLEMENT.

The draft report for the Forward50 Metropolitan Transportation Plan is now out and public review and comment process lasts until Nov. 9.

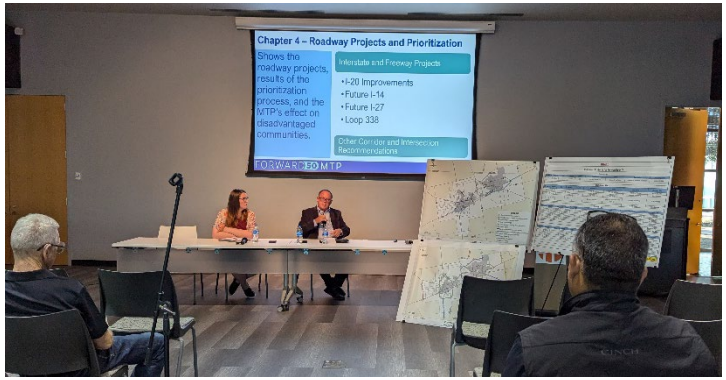
The Permian Basin MPO is responsible for planning the multimodal transportation system in Odessa, Midland and portions of Ector, Midland and Martin counties, Cameron Walker, executive director of the Permian Basin MPO said.

The MPO's 25 year draft plan includes an estimated 3.5 billion of federal, state money and local funds for the highway network. An additional $175 million will be utilized for public transit service.

Highlights within the plan include two new interstates, I-27 and I -14, and two direct connects, as well as major improvements in both cities.

Local Media New Article

MOTRAN provided comments to the MPO during the public review period, which resulted in minor changes to the report to correct typos and clarify the identification of roadways. Comments received regarding I-27 and I-14 were in accordance with the draft document released for public comment.



4 Roadway Projects and Priorities

FORWARD 50

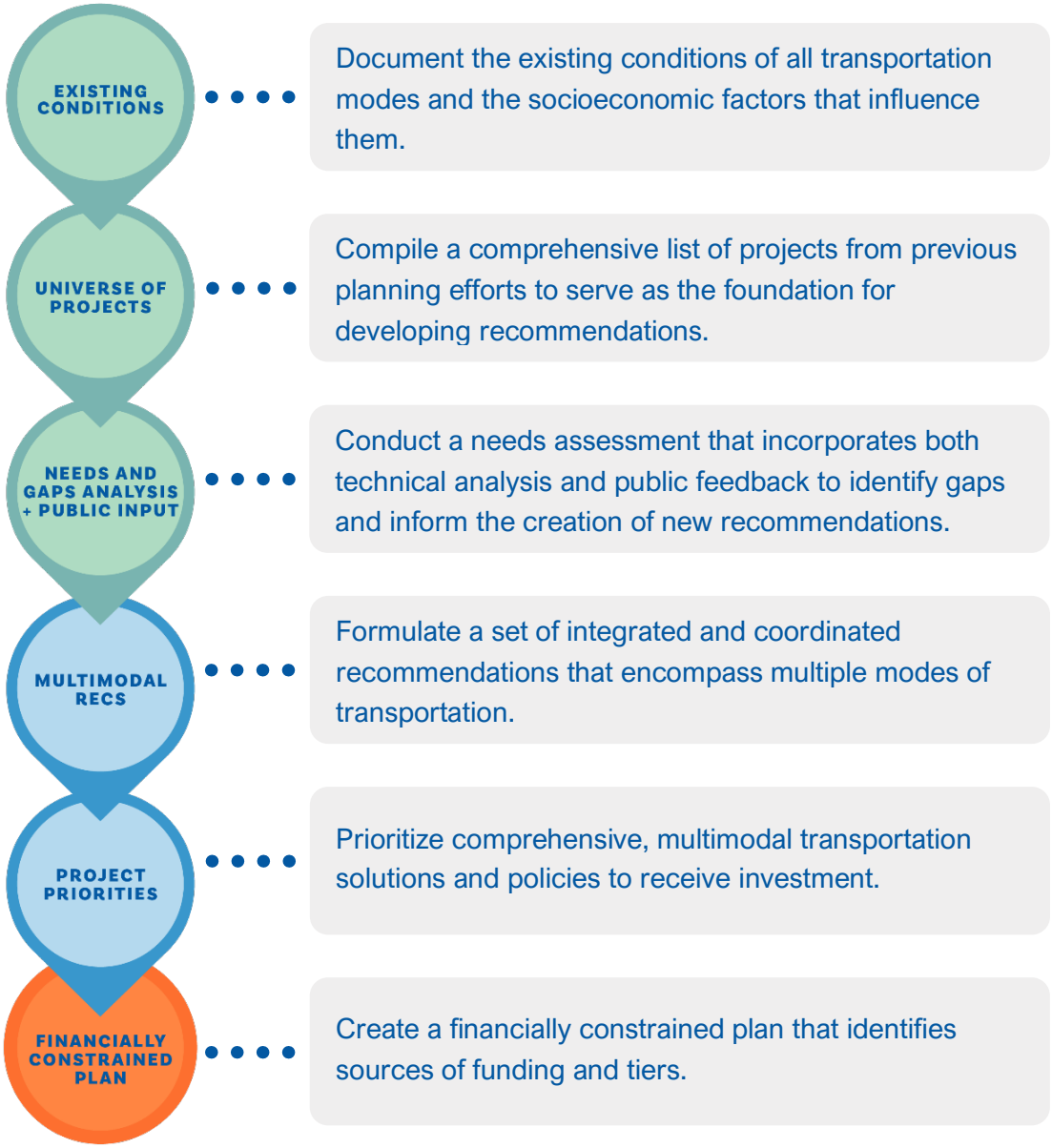
METROPOLITAN TRANSPORTATION PLAN

Transportation Strategy

An integrated and practical transportation system is a crucial component of any community. A well-designed system connects individuals to various amenities such as stores, job opportunities, and recreational activities, while also addressing traffic congestion and promoting healthy lifestyles. The transportation strategy discussed in the Forward50 MTP was developed to align with and support the principles outlined in Chapter 1. The Forward50 MTP transportation strategy builds upon the broader regional initiatives outlined in the plan's guiding principles, with a specific focus on economic vitality, mobility, accommodating multiple modes of transportation, and ensuring safety.

Transportation Planning Process

An effective long-range transportation plan must communicate its vision, process, recommendations, and outcomes. In the development of the Forward50 MTP, the guiding principles and key outcomes of the existing conditions were integrated into the recommendations. The creation of balanced recommendations typically follows an iterative process as described here.



System Recommendations

Regional decisions have the potential to improve safety and mobility for all users of different modes of transportation, and the Forward50 MTP acknowledges this. The process of developing system-level recommendations began with a review of previous planning efforts to establish a framework for the region. This was followed by reviewing existing conditions and focused discussions with the Technical Advisory Committee (TAC), stakeholders, members of the public, local agencies, and public officials.

Outcomes from data analysis and preliminary public engagement indicated a clear need to provide the community with more options for transportation. Throughout the development of the recommendations, the underlying concepts of enhanced mobility, accessibility, and connectivity were consistently emphasized.

The transportation network plays a vital role in shaping the vibrancy of a community. In the case of the Permian Basin MPO, the region already benefits from a diverse range of transportation connections that make it an attractive place to live, work, and engage in recreational activities. Infrastructure such as the Midland International Air and Space Port and the Union Pacific Rail Line contribute to the region's economic growth, which is driven by industries like energy, health, education, and agriculture. Midland and Odessa both benefit from their locations on Interstate Highway 20, a major east-west corridor that is the only federally designated Primary Freight Corridor in the region. Through engagement activities, the community has expressed a collective understanding of the importance of having a comprehensive and multifaceted transportation system.

In the first phase of public outreach, participants believe the transportation recommendations should:

- Address existing safety and congestion issues
- Expand and enhance existing public transportation service
- Provide safe and accessible ways to move around the region for all modes of transportation

The input gathered throughout the planning process has been integrated with previous planning efforts to formulate a comprehensive set of transportation recommendations. These recommendations, which consist of a unique blend of projects, serve as the guiding blueprint for the Permian Basin MPO's future transportation planning for the next 25 years. To ensure alignment with the region's overarching vision, the coordinated recommendations are presented through a series of visuals and maps for each mode of transportation. Although presented as individual maps, careful consideration has been given to ensure that the recommendations collectively contribute to the greater vision of the region.

Project Prioritization

Project prioritization is a critical component of the metropolitan planning process and the preparation of the Forward50 MTP.

First, to spend federal dollars on local transportation projects and programs, a metropolitan area must have an adopted Metropolitan Transportation Plan (MTP) and a Transportation Improvement Program (TIP). Federal regulations require both documents to be performance-based and fiscally constrained.

Fiscal constraint has been a key component of transportation planning and program development since the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 and reinforced with every subsequent transportation bill. Fiscal constraint means that the cost of those projects selected for inclusion in the MTP's planning horizon reasonably matches the expected funding levels for that time period. The TIP must indicate that the cost of projects does not exceed projected available funding during the four-year period.

Second, because of the limited resources available, a process was followed to score and rank projects for consideration and inclusion in the MTP list of fiscally constrained priority projects contained in this chapter. The scoring criteria used are based on the Federal Planning Factors from the FAST Act and IIJA Act, the requirements outlined in House Bill 20, and the Permian Basin MPO's mission statement, goals, and objectives. It is important to note that the MTP and TIP must reflect the same scope and projected cost prior to approval to commence project letting.

Project Prioritization Process

The MPO's initial step in the project prioritization process was to publish a call for projects. Stakeholders and the community at large were invited to submit projects for consideration across all modes. A 30-day "Call for Projects" was published in September 2023. One letter of response was received from the Midland Odessa Transportation Alliance (Motran). Projects already listed in the 2045 MTP, including subsequent amendments, were assumed to be eligible for consideration into the Forward50 MTP.

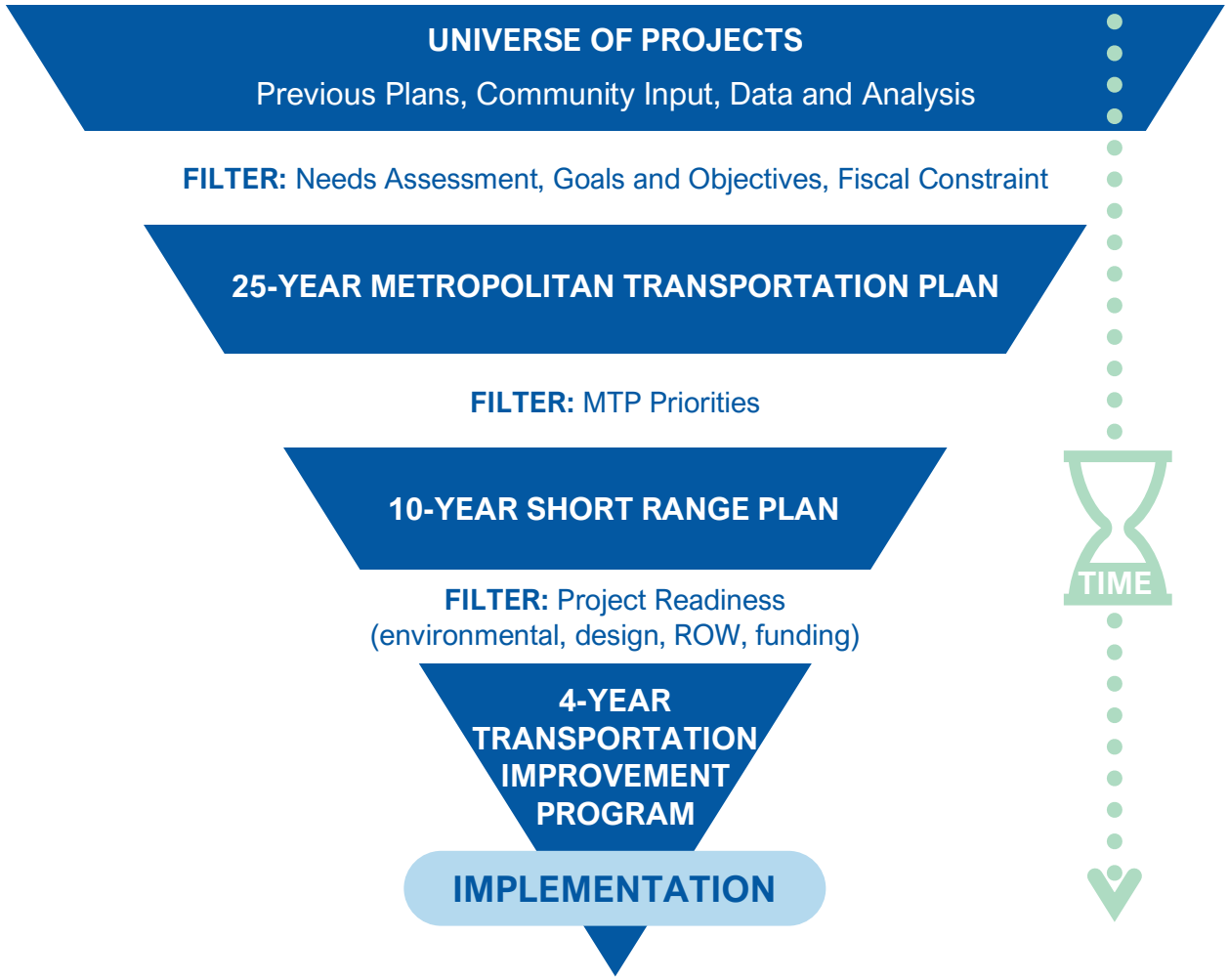
A scoring sheet and general definition of scoring criteria is included in the Appendix. It was drafted on multiple occasions by the Permian Basin MPO staff with assistance from the TAC during special called meetings to gain a complete understanding of how the scoring process would work in the project selection process. As it was an extensive project list, the TAC collaboratively ranked each of the listed projects. The scoring criteria and weighting balance reflect federal and state goals as well as local needs.

Once the top priority projects were identified according to the procedures described above, they were placed into the financially constrained component of the MTP based on the projected funding levels for the MTP planning horizon, project score, and project implementation timeline. Once fiscal constraint for the MTP planning horizon was reached, projects were placed into the "illustrative" priority table. Projects in the fiscally constrained list will be eligible to be moved to the TIP once it is determined by TxDOT that funding becomes available.

The process of moving a project forward into the TIP is a cooperative one between Permian Basin MPO and the TxDOT Odessa District. During TIP updates and amendments, projects will be moved from the financially constrained component of the MTP to the TIP as shown in the image to the right.

As the MTP planning horizon is revised or when new information or new funds become available, a reevaluation of the MTP project list may be required.

Currently funded projects in the *Vision 2045 Plan* are identified along with their funding source. Regionally significant projects potentially funded through outside sources are included in the project listings as well.



Roadway Recommendations

A well-rounded and efficient transportation network requires blending connectivity and access with mobility. This delicate balance is evident in the proposed roadway recommendations. The Forward50 MTP recommendations serve as a foundation for promoting complete street concepts by integrating enhancements for pedestrians, cyclists, and public transportation. While only a portion of these needs can be funded within the scope of this plan, the vision projects can be considered in future iterations of the plan. The findings from the project prioritization process are detailed later in this chapter.

Two new interstate corridors will benefit the Permian Basin MPO. I-14 and I-27 will offer economic growth, additional public safety, and reduced congestion over time. Stakeholders understand that projects such as these interstates will take decades to complete. The MPO's initial action is to place fiscally constrained projects into the Forward50 MTP. The MPO relied on recent TxDOT studies of both new interstate corridors. This was especially valuable since the final version of the reports indicated specific projects and anticipated cost estimates. The documents were both approved in 2024 and thus, the cost estimates are current.

The majority of the projected funding over the life of the fiscally constrained plan will be used to construct these interstates and other freeways as shown in Table 4.1. Projects and estimates in the planning studies are shown in Tables 4.2 and 4.3. Due to their characteristic as interstate highways, they are inherently costly.

Table 4.1 – Percentage of Funding

*Total Estimated Future Construction Costs	
2025 UTP Total	$1,786,315,375
2035-2050 Total	$1,730,542,000
Grand Total	$3,516,857,375

**Some projects are duplicated for I-27 and I-20 due to it being on the same roadway*

***2025 UTP**

Roadway	Interstates and Freeways	Percentage
I-27	$231,538,626	13%
I-14	$35,000,000	2%
SL 338	$106,236,056	6%
SL 250	$30,969,208	2%
I-20	$1,449,070,014	81%
Other**	$156,040,097	9%

**2025 UTP (2025-2034) - Uses the 2025 UTP Total from Total Estimated Future Construction Costs*

***2035-2050**

Roadway	Interstates and Freeways - Existing	Interstate and Freeway Projects - Proposed	Total	Percentage
I-27	$15,000,000	$313,500,000	$328,500,000	19%
I-14	$0	$315,000,000	$315,000,000	18%
SL 338	$105,000,000	$571,642,000	$676,642,000	39%
SL 250	$79,000,000	$120,000,000	$199,000,000	11%
I-20	$10,000,000	$0	$10,000,000	1%
Other**	$28,400,000	$173,000,000	$201,400,000	12%

**2035-2050- Uses the 2035-2050 Total from Total Estimated Future Construction Costs*

***25 Year Total**

Roadway	Total	Percentage
I-27	$560,038,626	16%
I-14	$350,000,000	10%
SL 338	$782,878,056	22%
SL 250	$229,969,208	7%
I-20	$1,459,070,014	41%
Other**	$184,440,097	5%

**25 Year Total- Uses the Grand Total from Total Estimated Future Costs*

***Non-Freeway Corridors*

Interstate and Freeway Projects

I-20 Improvements

The study of I-20 within the Permian Basin MPO boundary was undertaken in fall 2015 due to the importance of the interstate as a travel and trade corridor. The aging interstate system, population growth, and increased economic activity also contributed to the decision to evaluate and modernize the corridor. Stakeholder engagement and public input were sought to assess safety and transportation concerns, and consultants evaluated different roadway configurations, needs assessments, and traffic data. Based on initial findings and recommendations, TxDOT dedicated funds to develop design schematics for a 36-mile stretch of the study corridor instead of the originally planned 12-mile portion. The TxDOT Odessa District and the Permian Basin MPO collaborated to secure funding and resources for Phase I of the Permian Basin I-20 Corridor Study.

In the initial ten-year window of the MTP, the fiscally constrained I-20 projects and their status are shown in Table 4.5a and 4.5b later in this chapter. The coordinated effort between TxDOT and the Permian Basin MPO has prioritized the modernization of this important interstate, taking into account stakeholder input and the region's transportation needs. However, specific details regarding the projects and their current status are not provided in the given text.

Future I-14

The Fixing America's Surface Transportation (FAST) Act of 2015 authorized several roadways to be upgraded nationally to interstate standards and ultimately designated as part of the I-14 corridor in Texas, Louisiana, Mississippi, Alabama and Georgia. This new interstate system will enhance connectivity in the southern United States and improve mobility between urban and rural population centers, military installations, maritime ports, and economic sectors including energy, freight, timber and agriculture. See Figure 4.1 and Table 4.2.

Future I-27

The I-27 Numbering Act of 2023 (S. 992), signed into law on March 22, 2024, designates the Texas and New Mexico portions of the future I-27 corridor, also called the Port-to-Plains Corridor. See Figure 4.2 and Table 4.3.

Other Freeways

Stakeholders and the Technical Advisory Committee identified ways to build out the regional freeway system. A corridor identified for freeway conversion includes major portions of Loop 338 in Odessa. The MPO's project list for the previous five years has shown "Upgrade to Freeway" section for many portions along Loop 338. This road is a complete loop facility around Odessa. TxDOT's study of the corridor divided it into six segments. Two of the segments have been listed in the Forward50 MTP illustrative list and are not required to be fiscally constrained. The other freeways are shown in Figure 4.3 and Table 4.4 See Figure 4.7 and Table 4.8 for the complete list of illustrative projects.

Figure 4.1 – Future I-14

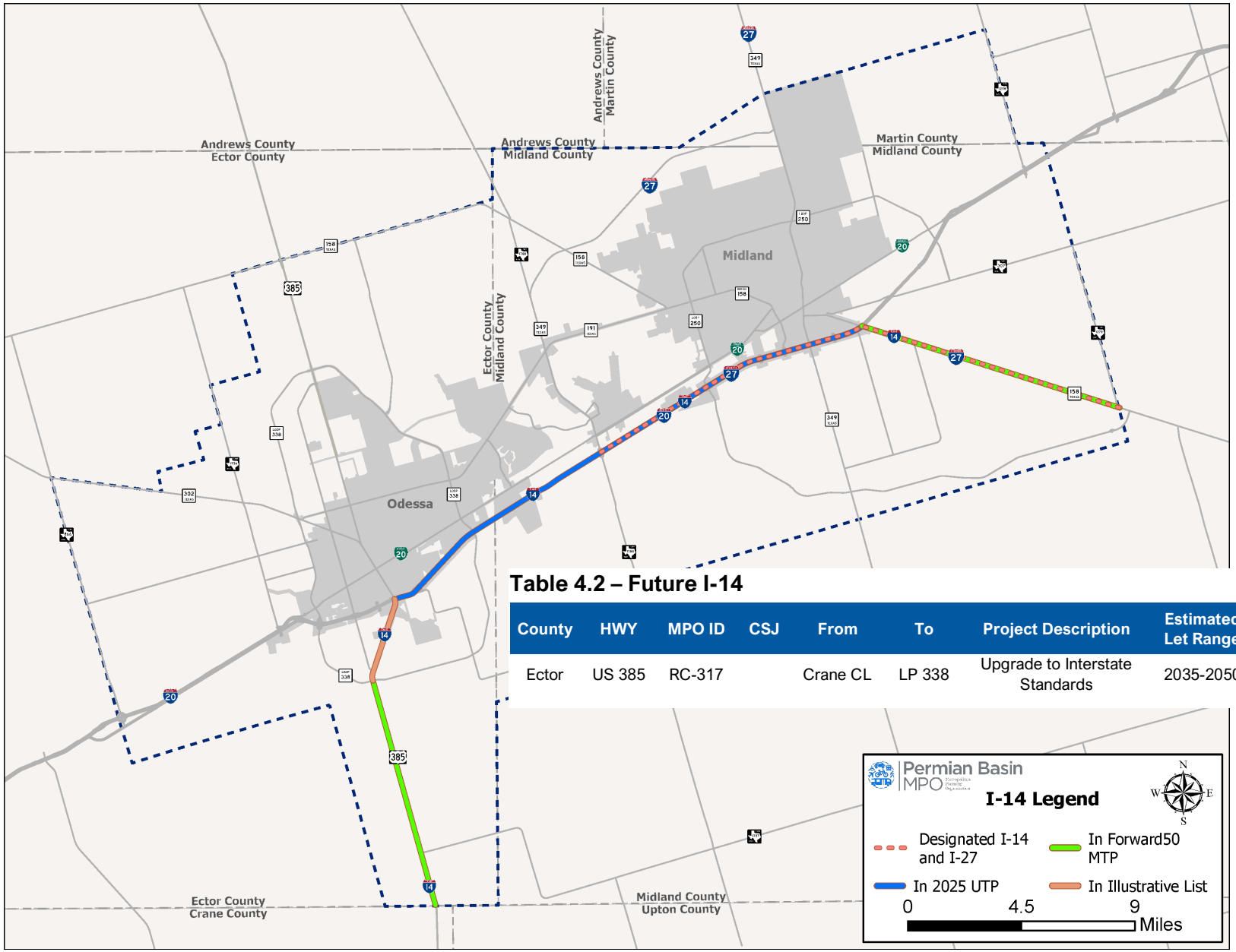


Table 4.2 – Future I-14

County	HWY	MPO ID	CSJ	From	To	Project Description	Estimated Let Range	Cost Estimate
Ector	US 385	RC-317		Crane CL	LP 338	Upgrade to Interstate Standards	2035-2050	$315,000,000

Figure 4.2 – Future I-27

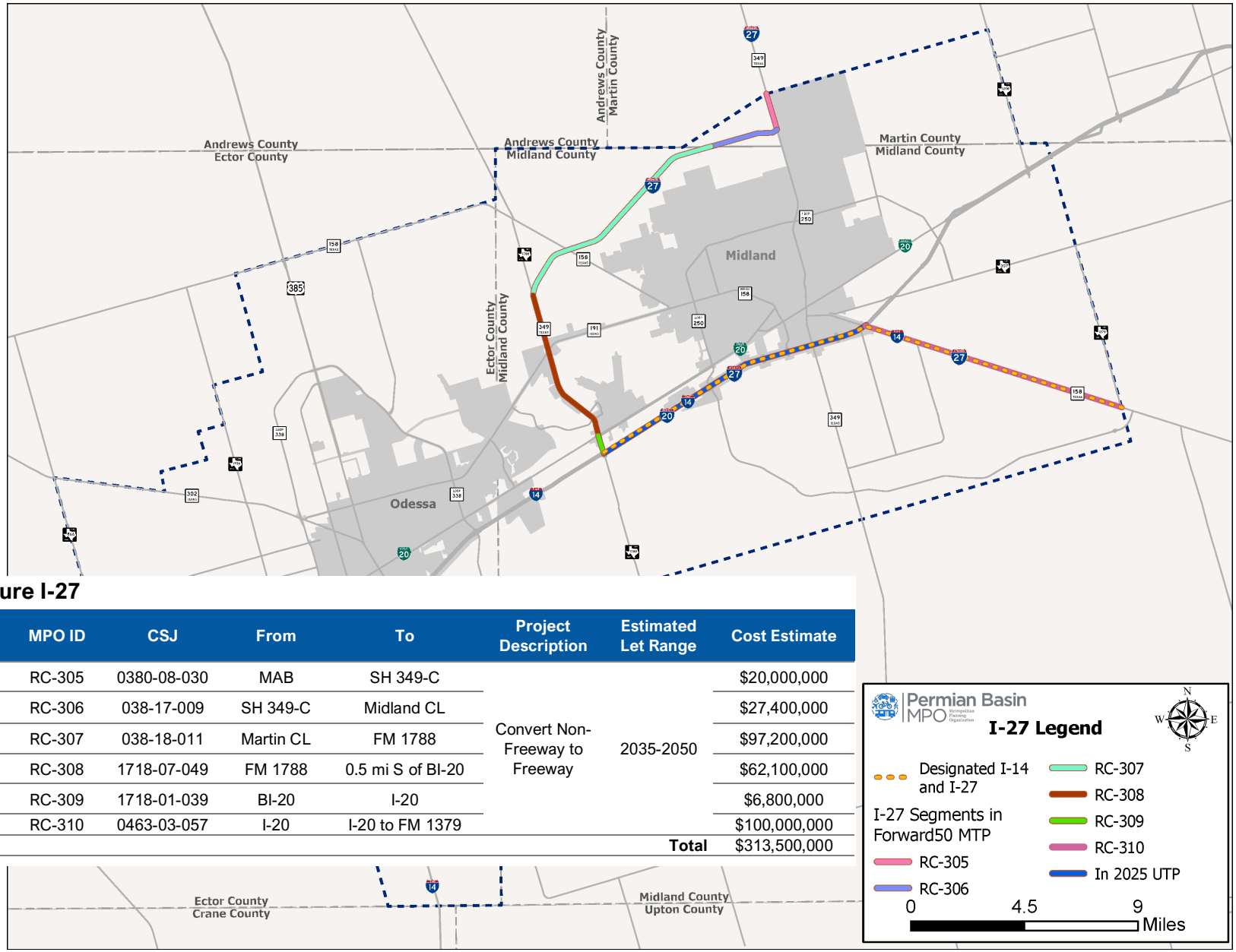


Table 4.3 – Future I-27

County	HWY	MPO ID	CSJ	From	To	Project Description	Estimated Let Range	Cost Estimate
Martin	SH 349	RC-305	0380-08-030	MAB	SH 349-C	Convert Non-Freeway to Freeway	2035-2050	$20,000,000
Martin	SH 349	RC-306	038-17-009	SH 349-C	Midland CL			$27,400,000
Midland	SH 349	RC-307	038-18-011	Martin CL	FM 1788			$97,200,000
Midland	SH 349	RC-308	1718-07-049	FM 1788	0.5 mi S of BI-20			$62,100,000
Midland	SH 349	RC-309	1718-01-039	BI-20	I-20			$6,800,000
Midland	SH 158	RC-310	0463-03-057	I-20	I-20 to FM 1379			$100,000,000
							Total	$313,500,000

Figure 4.3 – Other Freeways

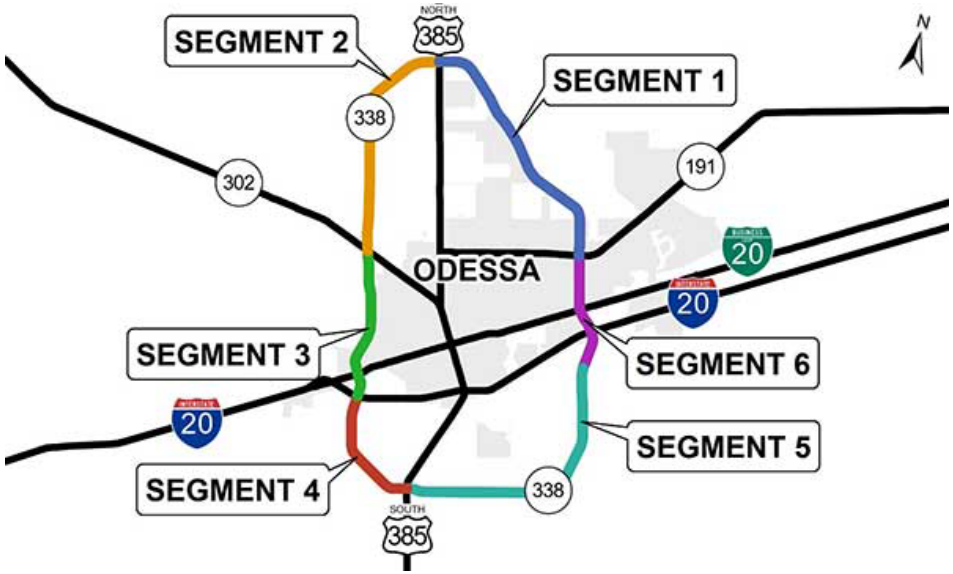


Table 4.4 – Loop 338

Length	County	HWY	Segment	From	To	Project Description	Cost Estimate
7.6	Ector	LP 338	1	East SH 191	N US 385	consists of a four-lane highway with new overpasses under construction at the intersections of North US 385 and Yukon Road.	$138,259,000
4.4	Ector	LP 338	3	SH302	W I-20	consists of a four-lane highway, with overpasses located at the intersections of University Boulevard (FM 2020), West 16th Street (FM3472), West BI-20, and West I-20	$122,755,000
3.7	Ector	LP 338	4	W I-20	S US 385	consists of a two-lane highway	$190,628,000
8.1	Ector	LP 338	5	S US 385	0.8 m S of E I-20	consists of a two-lane highway	
3.4	Ector	LP 338	6	0.8 m S of E I-20	E SH 191	consists of a four-lane highway with an overpass at East BI-20 and signalized intersections at East I-20 and East SH 191.	$367,511,000
6.8	Ector	LP 338	2	North US 385	SH 302	consists of a two-lane highway from west of US 385 to West Yukon Road, and a four-lane highway from West Yukon Road to SH 302, with an overpass at the intersection of SH 302	$110,491,000
						Total:	**$929,644,000**

Figure 4.4 – 2025 UTP Foward50 MTP Years 2025-2034

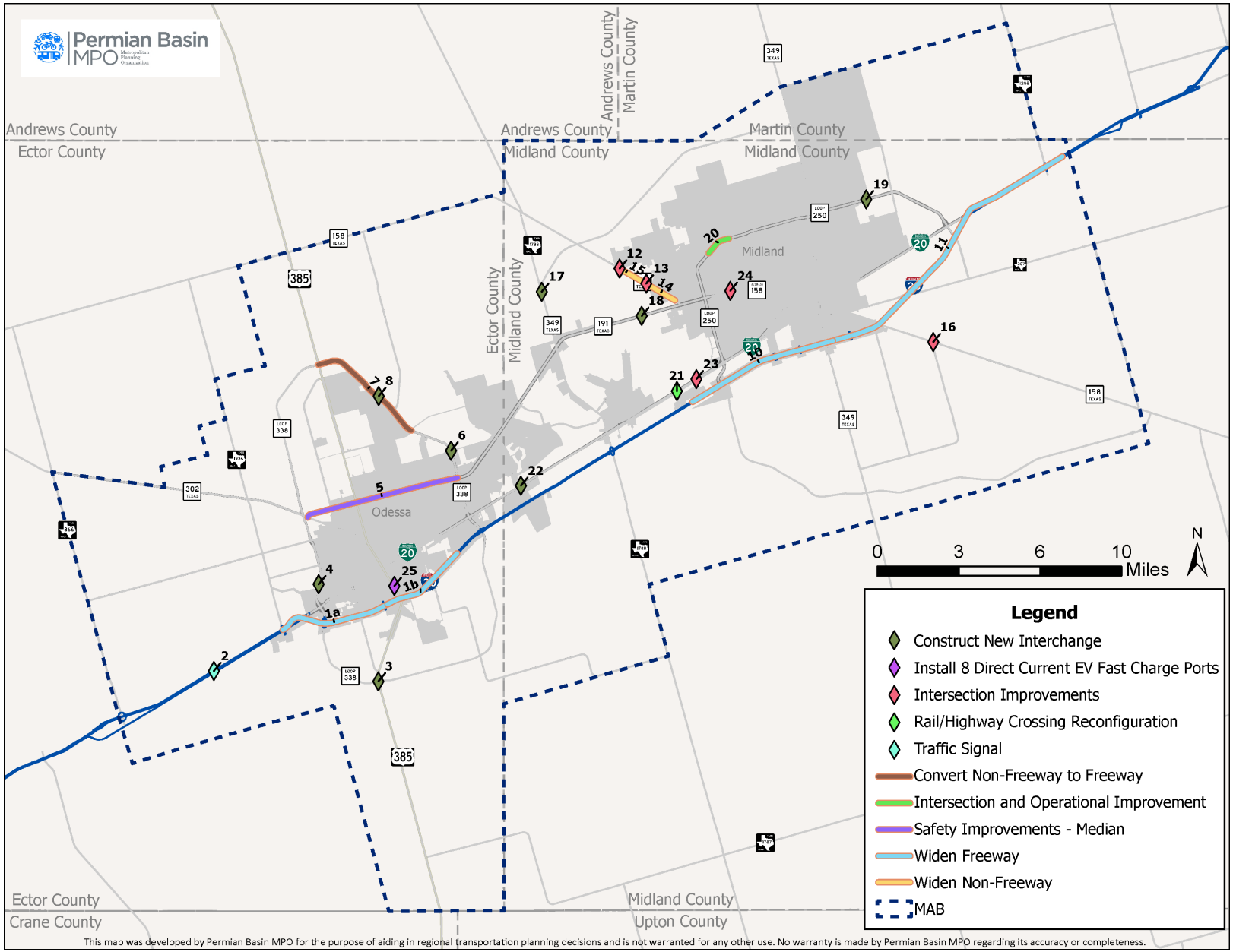


Table 4.5a – 2025 UTP Foward50 MTP Years 2025-2034

2025-2028 TIP										
UTP MAP ID	MPO ID	CSJ	COUNTY	HWY	FROM	TO	Project Description	ESTIMATED LET RANGE	COST ESTIMATE	Total Authorized
3	RC-09	0229-01-042	Ector	US 385	at South SL 338	-	New Interchange	2025-2028	$35,000,000	$35,000,000
12	RC-236	0463-02-079	Midland	SH 158	at CR 60/ Briarwood	-	Intersection Improvements	2025-2028	$3,600,000	$3,600,000
13	RC-234	0463-02-080	Midland	SH 158	at Wadley Ave	-	Intersection Improvements	2025-2028	$3,600,000	$3,600,000
21	RC-137	0005-02-112	Midland	BI-20 E	at CR 1250	-	Rail/Highway Crossing	2025-2025	$6,600,000	$6,600,000
10	RC-259	0005-14-092	Midland	IH 20	East of CR 1250	East of SH 349	Widen Freeway	2026	$222,538,626	$222,538,626
25	RC-303	5000-00-206	Ector	US 385	at 1201 S. Grant Ave	-	Install 8 Direct Current Fast Charge ports within one mile of the Electric Alternative Fuel Corridors (IH 20)	2025-2028	$1,740,095	$1,740,095
								2025-2028 TOTALS:	$273,078,721	$273,078,721
Remaining UTP Years 2029-2034										
UTP MAP ID	MPO ID	CSJ	COUNTY	HWY	FROM	TO	Project Description	ESTIMATED LET RANGE	COST ESTIMATE	Total Authorized
6	RC-13 int b	2224-01-116**	Ector	SL 338	at 52nd/56th	-	New Interchange	2029-2034	$35,000,000	$28,500,000
4	RC-131	224-01-110	Ector	SH 302	at West 8th St	-	New Interchange	2029-2034	$28,000,000	$28,000,000
7	RC-134	2224-01-117	Ector	SL 338	Yukon Rd E	US 385 N	Upgrade to Freeway	2029-2034	$36,236,056	$36,236,056
22	RC-15a	0005-02-119**	Midland	BI-20 E	at Faudree	-	New Interchange	2029-2034	$50,000,000	$27,920,000
19	RC-17	1188-02-111	Midland	SL 250	at Todd Rd	-	New Interchange	2029-2034	$25,969,208	$25,969,208
24	RC-232	0463-02-081	Midland	BS 158B	at FM 868	-	Intersection Improvements	2029-2034	$5,600,000	$5,600,000
23	RC-235	0005-02-125	Midland	BI-20E	at Avalon Dr	-	Intersection Improvements	2029-2034	$4,400,000	$4,400,000
20	RC-243	1188-02-123	Midland	SL 250	Midland Dr	W of Midkiff Road	Intersection and Operational Improvement	2029-2034	$5,000,000	$5,000,000
16	RC-251	0463-03-053	Midland	SH158	at CR 120	-	Intersection Improvements	2029-2034	$4,000,000	$4,000,000
11	RC-260	0005-15-093**	Midland	IH 20	East of SH 349	East of FM 1208	Widen Freeway	2029-2034	$577,934,843	$72,000,000
5	RC-261	2296-01-058	Ector	SH 191	Loop 338 E	Loop 338 W	Safety Improvements	2029-2034	$6,000,000	$6,000,000
2	RC-265	0004-07-137	Ector	IH 20	N IH 20 service Road/Murphy St	IH 20/Moss Ave	Traffic Signal	2029-2034	$750,000	$750,000
1a	RC-27	0004-07-135**	Ector	IH 20	West of FM 1936	Monahans Draw	Widen Freeway	2029-2034	$378,877,502	$316,742,536
17	RC-275	1718-07-047	Midland	SH 349	at FM 1788	-	Intersection & Operational Improvements	2029-2034	$5,000,000	$5,000,000
18	RC-276	2296-02-033**	Midland	SH 191	at CR 1250	-	New Interchange	2029-2034	$35,000,000	$16,000,000
1b	RC-28	0005-13-063**	Ector	IH 20	Monahans Draw	East of JBS Parkway	Widen Freeway	2029-2034	$268,969,043	$249,501,256
15	RC-300	0463-02-094	Midland	SH 158	Wadley Ave	Briarwood Ave	Widen Non-Freeway	2029-2034	$6,500,000	$6,500,000
8	RC-77	2224-01-131	Ector	SL 338	at 87th St	-	New Interchange	2029-2034	$35,000,000	$35,000,000
14	RC-93a	0463-02-089	Midland	SH 158	Wadley Ave	Sinclair Ave	Widen Non-Freeway	2029-2034	$5,000,000	$5,000,000
								TOTALS:	$1,513,236,652	$878,119,056
								10 Year Total:	**$1,786,315,373**	$1,151,197,777
								Total Funding to be Determined:	$635,117,596	
**Partially Funded		**Legend:**				**I-27**		**I-14**		

Table 4.5b – TxDOT Funding Category of Projects in 2025 UTP

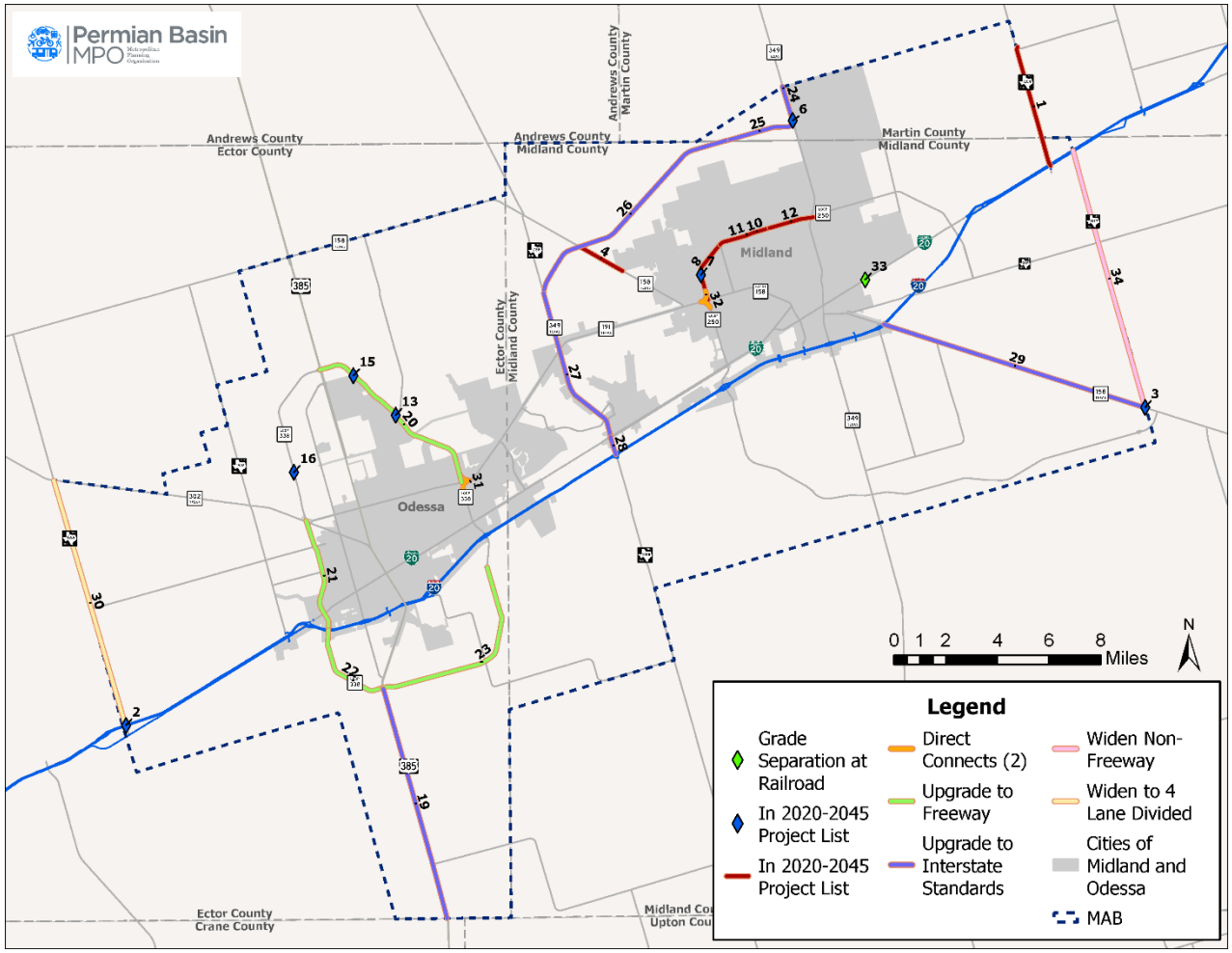
2025-2028 TIP														
UTP MAP ID	MPO ID	CSJ	CAT 2	CAT 3	CAT 4	CAT 5	CAT 6	CAT 7	CAT 8	CAT 9	CAT 10	CAT 11	CAT 12 S	CAT 12 P
3	RC-09	0229-01-042	$28,000,000	$2,000,000	-				-		$5,000,000	-	-	-
12	RC-236	0463-02-079	$3,600,000	-	-				-		-	-	-	-
13	RC-234	0463-02-080	$3,600,000	-	-				-		-	-	-	-
21	RC-137	0005-02-112	$6,000,000	-	-				$600,000		-	-	-	-
10	RC-259	0005-14-092	$12,340,792	-	-				-		-	-	$179,148,763	$31,049,071
25	RC-303	5000-00-206	-	-	-				-		$1,740,095	-	-	-
TIP Total:			$53,540,792	$2,000,000					$600,000		$6,740,095		$179,148,763	$31,049,071
Remaining UTP Years 2029-2034														
UTP MAP ID	MPO ID	CSJ	CAT 2	CAT 3	CAT 4	CAT 5	CAT 6	CAT7	CAT 8	CAT 9	CAT 10	CAT 11	CAT 12 S	CAT 12 P
6	RC-13 int b	2224-01-116**	$5,500,000	$500,000	-				-		-	-	$22,500,000	-
4	RC-131	224-01-110	$26,000,000	$2,000,000	-				-		-	-	-	-
7	RC-134	2224-01-117	$32,236,056	-	-				-		-	-	$4,000,000	-
22	RC-15a	0005-02-119**	$15,170,000	$2,000,000	$10,750,000				-		-	-	-	-
19	RC-17	1188-02-111	$25,969,208	-	-				-		-	-	-	-
24	RC-232	0463-02-081	$5,600,000	-	-				-		-	-	-	-
23	RC-235	0005-02-125	$4,400,000	-	-				-		-	-	-	-
20	RC-243	1188-02-123	$5,000,000	-	-				-		-	-	-	-
16	RC-251	0463-03-053	$4,000,000	-	-				-		-	-	-	-
11	RC-260	0005-15-093**	-	-	-				-		-	-	$13,750,000	$58,250,000
5	RC-261	2296-01-058	$6,000,000	-	-				-		-	-	-	-
2	RC-265	0004-07-137	$750,000	-	-				-		-	-	-	-
1a	RC-27	0004-07-135**	-	-	$30,855,424				-		-	-	$194,837,112	$91,050,000
17	RC-275	1718-07-047	$5,000,000	-	-				-		-	-	-	-
18	RC-276	2296-02-033**	$16,000,000	-	-				-		-	-	-	-
1b	RC-28	0005-13-063**	-	-	$30,855,424				-		-	-	$174,445,832	$44,200,000
15	RC-300	0463-02-094	$6,500,000	-	-				-		-	-	-	-
8	RC-77	2224-01-131	$35,000,000	-	-				-		-	-	-	-
14	RC-93a	0463-02-089	$5,000,000	-	-				-		-	-	-	-
29-34 Total:			$198,125,264	$4,500,000	$72,460,848								$409,532,944	$193,500,000
Grand Total:			**$251,666,056**	**$6,500,000**	**$72,460,848**				**$600,000**		**$6,740,095**		**$588,681,707**	**$224,549,071**
Total Category Funding in 2025 UTP											**$1,151,197,777**			
****Partially Funded**														

Other Corridor & Intersection Recommendations

The remainder of the projects on the 25-year list include State highway and Loop projects within both communities, as well as a railroad grade separation. These projects are focused on intersection improvements and interchanges to address connectivity, congestion, as well as safety. Direct connect faciltiies are proposed on both Loop 338 and Loop 250. The region experiences a high percentage of commuter traffic between the two cities on the SH 191 corridor.

Intersection improvements help create a more comprehensive transportation network. During the MTP process, safety and mobility concerns were raised at numerous intersections for pedestrians, cyclists, transit users, and drivers. Improving intersections can be a cost-effective way to minimize conflicts between different travel modes. As shown in Figure 4.5, these recommendations address safety and traffic flow issues as well as identify electric vehicle charging locations.

Figure 4.5 – Forward50 MTP 2035-2050 Projects



The projects were evaluated within the prioritization process to identify preferred intersection projects for funding through 2050.

Table 4.6 – 2035 to 2050 Project List

MTP MAP ID	MPO ID	Highway	Limits From	Limits To	Description	Length	County	Cost Estimate
1	RC-248	FM 1208	I-20	FM 1212	Widen non-freeway	4.6	Martin/Midland	**$18,400,000**
2	RC-277	IH 20	-	FM 866	Reconfigure Interchange	1	Ector	**$10,000,000**
3	RC-274	SH 158	-	at FM 1379/CR 1232	Reconfigure Intersection	1	Midland	**$5,000,000**
4	RC-301	SH 158	SH 158	at Briarwood to SH 349-C	Widen to 5 lanes	1.5	Midland	**$10,000,000**
6	RC-126	SH 349	-	at BS 349	Reconfigure Intersection	1	Martin	**$10,000,000**
7	RC-271	SL 250	-	at Wadley	Intersection Improvement	1	Midland	**$5,000,000**
8	RC-272	SL 250	SH 158	FM 868	Widen to 6 lanes	3	Midland	**$30,000,000**
10	RC-270	SL 250	Midkiff Rd	Garfield St	Ramp Reversal, Intersection Improvement	1	Midland	**$12,000,000**
11	RC-273	SL 250	FM 868	Garfield St	Widen to 6 lanes	2	Midland	**$20,000,000**
12	RC-240	SL 250	Garfield St	Big Spring St	Ramp Reversal, Traffic Signal Upgrades	2	Midland	**$12,000,000**
13	RC-78	SL 338	-	At Grandview/FM 544	Construct new Interchange	1	Odessa	**$35,000,000**
15	RC-76	SL 338	-	At 100th St.	Construct new Interchange	1	Ector	**$35,000,000**
16	RC-40a int	SL 338 W	-	At. W Yukon Rd	Construct new interchange	1	Ector	**$35,000,000**
19	RC-317	US 385	Crane CL	SL 338 - Segment 1	Upgrade to Interstate Standards	11	Ector	**$315,000,000**
20	RC-311	SL 338 - Segment 1	SH 191	US 385	Upgrade to Freeway	8	Ector	**$138,259,000**
21	RC-312	SL 338 - Segment 3	SH 302	I-20	Upgrade to Freeway	5	Ector	**$122,755,000**
22	RC-313	SL 338 - Segment 4	I-20	US 385 S	Upgrade to Freeway	3.5	Ector	**$190,628,000**
23	RC-314	SL 338 - Segment 5	US 385 S	Unnamed road S of I-20		7	Ector	
24	RC-305	Future I-27 - Portion of Section 12	Metropolitan Area Boundary	SH 349-C	Convert Non-Freeway to Freeway	1.76	Martin	**$20,000,000**
25	RC-306	Future I-27 - Section 13	SH 349-C	Midland CL	Convert Non-Freeway to Freeway	3	Martin/Midland	**$27,400,000**
26	RC-307	Future I-27 - Section 14	Martin CL	FM 1788	Convert Non-Freeway to Freeway	10.8	Midland	**$97,200,000**
27	RC-308	Future I-27 - Section 15	FM 1788	0.5 M S of BI-20	Convert Non-Freeway to Freeway	7.2	Midland	**$62,100,000**
28	RC-309	Future I-27 - Section 16	BI-20	I-20	Convert Non-Freeway to Freeway	1	Midland	**$6,800,000**
29	RC-310	Future I-27 - Section 17	I-20	FM 1379	Convert Non-Freeway to Freeway	12.62	Midland	**$100,000,000**
30	RC-303	FM 866	I-20	SH 302	Widen to 4lane divided	11	Ector	**$88,000,000**
31	RC-318	SH 191	at LP 338	-	Direct Connect	1	Ector	**$120,000,000**
32	RC-319	SH 191	at LP 250	-	Direct Connect	1	Midland	**$120,000,000**
33	RC-302	BI-20	at Fairgrounds Rd	-	Grade Separation at Railroad	1	Midland	**$35,000,000**
34	RC-320	FM 1379	SH 158	I-20	Widen Non-Freeway	10	Midland	**$50,000,000**
Legend:	**I-27**	**I-14**	**Total:**	**$1,730,542,000**				

Figure 4.6 – Forward50 MTP 2035-2050 Proposed Projects

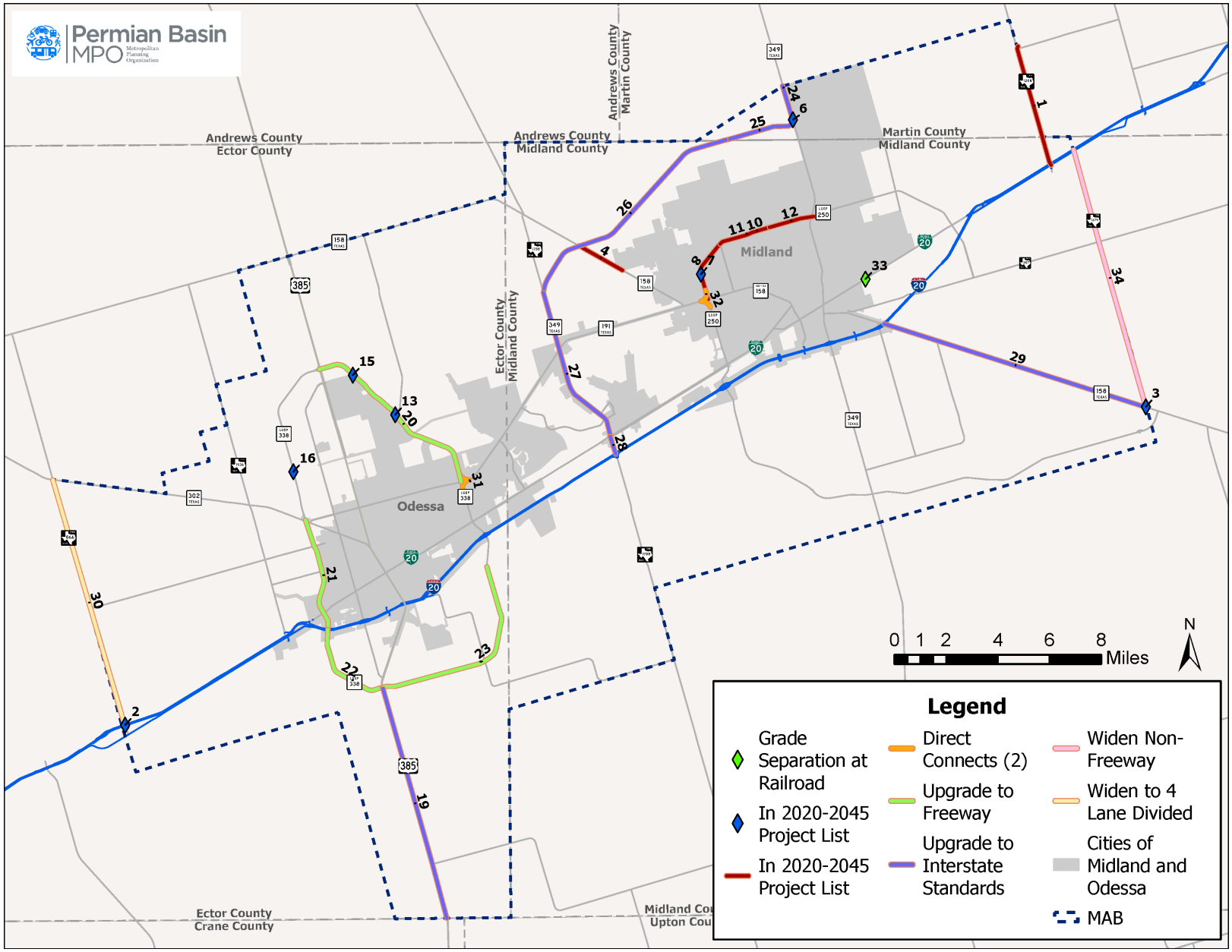


Table 4.7 – Forward50 MTP 2035-2050 Proposed Projects

Future I-14								
MTP Map ID	MPO ID	CSJ	County	Length	Road Name	Limit	Description	Estimated Cost*
19	RC-317		Ector	11	US 385 (Future I-14)	Crane CL to LP 338	Upgrade to Interstate Standards	**$315,000,000**
*Estimated Cost retrieved from TxDOT Study**								
State Loop 338								
MTP Map ID	MPO ID	CSJ	County	Length	Road Name	Limit	Description	Estimated Cost*
20	RC-311		Ector	8	SL 338 - Segment 1	SH 191- US 385	Upgrade to Freeway	$138,259,000
21	RC-312		Ector	5	SL 338 - Segment 3	SH 302 - I-20	Upgrade to Freeway	$122,755,000
22	RC-313		Ector	3.5	SL 338 - Segment 4	I-20 - US 385 S	Upgrade to Freeway	$190,628,000
23	RC-314		Ector	7	SL 338 - Segment 5	US 385 S - unnamed road S of I-20		
*Estimated Cost retrieved from TxDOT Study**							**SL 338 Total:**	**$451,642,000**
Future I-27								
MTP Map ID	MPO ID	CSJ	County	Length	Road Name	Limit	Description	Estimated Cost*
24	RC-305	0380-08-030	Martin	1.76	Future I-27 - Portion ofSection 12	MAB to SH 349-C	Convert Non-Freeway to Freeway	$20,000,000
25	RC-306	0380-17-009	Midland	3	Future I-27 - Section 13	SH 349-C to Midland CL	Convert Non-Freeway to Freeway	$27,400,000
26	RC-307	0380-18-011	Midland	10.8	Future I-27 - Section 14	Martin CL to FM 1788	Convert Non-Freeway to Freeway	$97,200,000
27	RC-308	1718-07-049	Midland	7.2	Future I-27 - Section 15	FM 1788 TO 0.5 MI S of BI 20	Convert Non-Freeway to Freeway	$62,100,000
28	RC-309	1718-01-039	Midland	1	Future I-27 - Section 16	BI 20 TO I-20	Convert Non-Freeway to Freeway	$6,800,000
29	RC-310	0463-03-057	Midland	12.62	Future I-27 - Section 17	I-20 to FM 1379	Convert Non-Freeway to Freeway	$100,000,000
*Estimated Cost retrieved from TxDOT Study**							**Future I-27 Total:**	**$313,500,000**
							Interstates and Loop 338 Total:	**$1,080,142,000**
Direct Connects and Other Projects								
MTP Map ID	MPO ID	CSJ	County	Length	Road Name	Limit	Description	Estimated Cost
30	RC-303		Ector	11	FM 866	I-20 - SH 302	Widen to 4 lane divided	$88,000,000
31	RC-318		Ector	1	SH 191	at LP 338	Direct Connect	$120,000,000
32	RC-319		Midland	1	SH 191	at LP 250	Direct Connect	$120,000,000
33	RC-302		Midland	1	BI-20	at Fairgrounds RD	Grade Separation at Railroad	$35,000,000
34	RC-320		Midland	10	FM 1379	From SH 158 to I-20	Widen Non-Freeway	$50,000,000
								$413,000,000
							Grand Total:	**$1,493,142,000**
							Projects in Years 2035-2045 of the MTP:	**$237,400,000**
Sept 19 2024							**Grand Total of Later Years + Proposed Projects**	**$1,730,542,000**

Figure 4.7 – Forward50 MTP Illustrative Projects

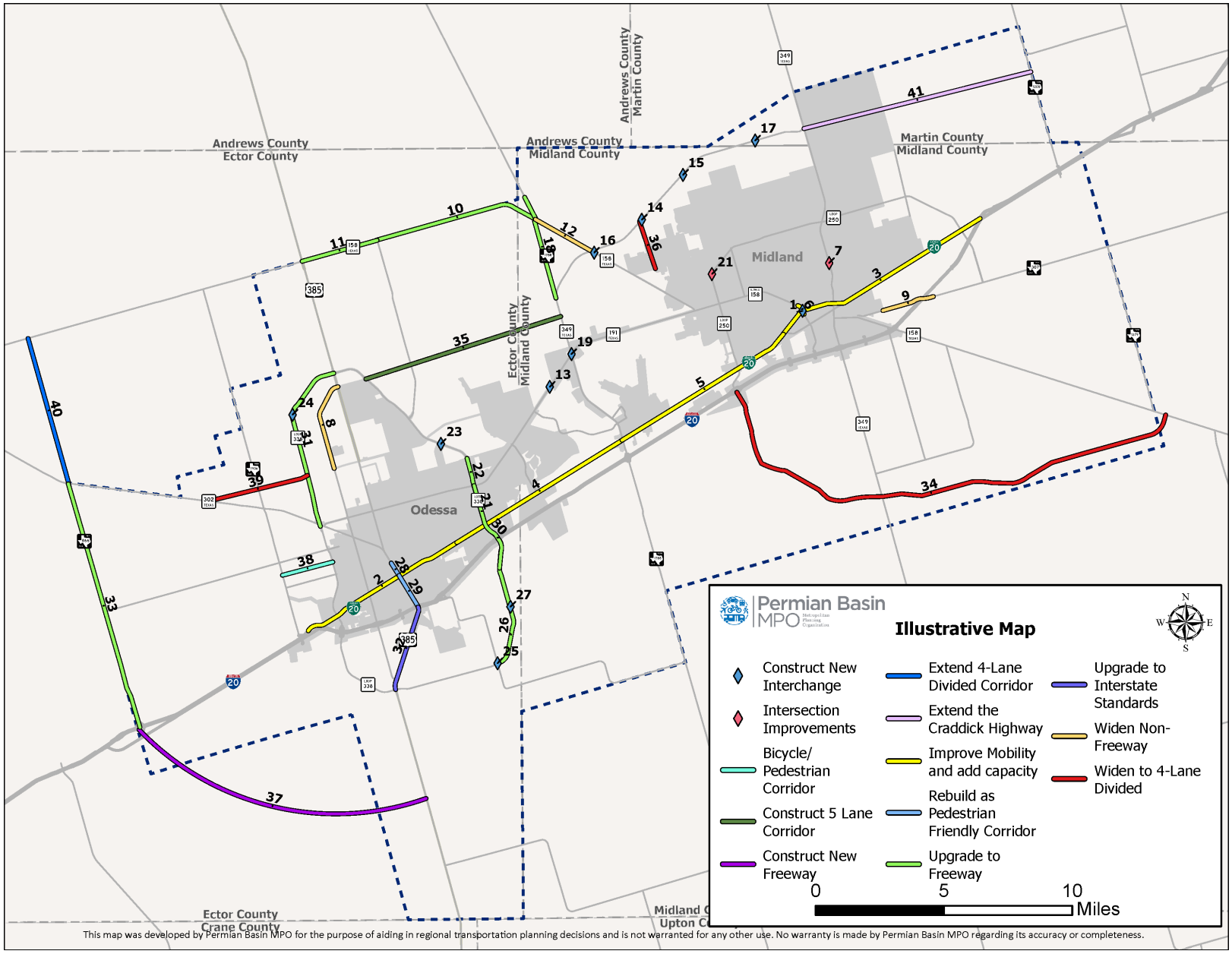


Table 4.8 – Forward50 MTP Illustrative Projects

MTP Map ID	Project ID	County	Length	Road Name	Limit	Description	Estimated Cost
On-System Roadway Projects							
1	RC-157	Midland	1	BI 20	At Hwy 158 (Garfield St.)	Construct new interchange	$35,000,000
2	RE-03b	Ector	8	BI 20	IH 20 to 8th St.	Improve mobility and add capacity	$40,536,000
3	RE-04b	Midland	10.5	BI 20	Front St. to I 20	Improve mobility and add capacity	$67,560,000
4	RE-03a	Ector	9	BI 20	8th St. to FM 1788	Improve mobility and add capacity	$42,788,000
5	RE-04a	Midland	9	BI 20	FM 1788 to Wall/Front St.	Improve mobility and add capacity	$38,284,000
6	RC-159	Midland	0.5	BS 158 (Andrews Hwy)	At FM SL 268 (Wall St), including Ohio Ave to Indiana Ave	Improve mobility and add capacity	$5,500,000
7	RC-239	Midland	1	BS 349 (Big Spring St)	At Scharbauer Dr	Intersection Improvements, Widen Structure	$4,000,000
8	RE-02	Ector	4	FM 1882	US 385 northern jct. to Yukon Rd	Widen non-freeway	$16,000,000
9	RE-10a	Midland	2.4	FM 307	Fairgrounds Rd to CR 1150	Widen non-freeway	$9,600,000
10	RC-70	Ector	7	SH 158	FM 1788 to Grandview	Upgrade to Freeway	$56,000,000
11	RC-71	Ector	3.6	SH 158	Grandview to US 385	Upgrade to Freeway	$28,800,000
12	RC-94	Midland	3	SH 158	SH 349 to FM 1788	Widen non-freeway	$24,000,000
13	RC-118	Midland	1	SH 191	At Unnamed Rd West of FM 1788	Construct new interchange	$35,000,000
14	RC-49a int	Midland	1	SH 349	At CR 1250	Construct new interchange	$35,000,000
15	RC-107	Midland	1	SH 349	At Holiday Hill	Construct new interchange	$35,000,000
16	RC-106	Midland	1	SH 349	At SH 158	Construct new interchange	$35,000,000
17	RC-108	Martin	1	SH 349	At Garfield Rd	Construct new interchange	$35,000,000
18	RC-69	Midland	4	FM 1788	SH 349-C to 1 mi north of SH 158	Upgrade to Freeway	$32,000,000
19	RC-100	Midland	1	SH 349/FM 1788	At SH 191	Construct new interchange	$35,000,000
20	RC-244	Midland	1	SL 250	Wadley Ave/Holiday Hill Rd/Tremont Ave	Intersection Improvements, Traffic Signal Upgrades	$7,500,000
21	RC-18	Ector	2.6	SL 338	SH 191 eastern jct. to IH 20 eastern jct.	Upgrade to Freeway	$20,800,000
22	RC-13	Ector	1.3	SL 338	52nd St. to SH 191	Upgrade to Freeway	$10,400,000
23	RC-128	Ector	1	SL 338	At JBS Parkway	Construct new interchange	$35,000,000
24	RC-117	Ector	1	SL 338 N	At Wireline Rd. (CR 1157)	Construct new interchange	$35,000,000
25	RC-73	Ector	1	SL 338 S	At FM 3503	Construct new interchange	$35,000,000
26	RC-141	Ector	6	SL 338 SE	FM 3503 to IH 20 Eastern Jct.	Upgrade to Freeway	$48,000,000
27	RC-249	Ector	1	SL 338 SE	At Bates Field Rd.	Construct New Interchange	$35,000,000
28	RC-129	Ector	1	US 385 (Grant Ave.)	2nd St. to 10th St.	Rebuild as a Pedestrian Friendly Corridor	$8,000,000
29	RC-130	Ector	1.6	US 385 (Grant Ave.)	2nd St. to IH 20	Rebuild as a Pedestrian Friendly Corridor	$6,250,000
30	RC-315	Ector	6	LP 338	.8 m S of E I-20 to E SH 191	Upgrade to Freeway	$367,511,000
31	RC-316	Ector	2	LP 338	North US 385 to SH 302	Upgrade to Freeway	$110,491,000
32	RC-321	Ector	3.5	US 385	S LP 338 to I-20	Upgrade to Interstate Standards	$113,000,000
33	RC-322	Ector	11	FM 866	I-20 to SH 302	Upgrade to Freeway	$132,000,000
						On-System Total:	$1,574,020,000
Off-System Roadway Projects							
34	RC-323	Midland	20	CR 1232	SH 158 to W. Loop 250	Widen to 4-lane divided	$150,000,000
35	RC-324	Ector	8	100th Street	Loop 338 E to FM 1788	Construct 5-lane Corridor	$100,000,000
36	RC-325	Midland	2	CR 1250	CR 60 to SH 349	Widen to 4-lane divided	$22,000,000
37	RC-326	Ector	13.5	New Corridor	I-20 at FM 866 to US 385 S	Construct Freeway	$160,000,000
38	RC-327	Ector	2	22nd Street	FM 1936 to Loop 338 W	Bicycle/Pedestrian Corridor	$7,000,000
39	RC-328	Ector	4	Yukon Road	Loop 338 W to SH 302	Widen to 4-Lane Corridor	$32,000,000
40	RC-304	Ector	5	FM 866	SH 302 - SH 158	Extend 4 Lane Divided Corridor	$100,000,000
41	RC-329	Midland	8	SH-349 C	SH 349 to FM 1208	Extend Craddick Highway to the East	$100,000,000
						Off-System Total:	$671,000,000
Color Scheme:		**I-27**	**I-14**			**Illustrative Grand Total:**	**$2,245,020,000**

Title VI / EJ Analysis and Aiding Underserved Populations

The purpose of an environmental justice (EJ) review is to ascertain that federally funded transportation projects do not adversely impact underserved populations. Federal Highway Administration states that "disproportionately high and adverse effects, not size, are the bases for EJ. A very small, protected population in the project, study, or planning area does not eliminate the possibility of a disproportionately high and adverse effect on these populations." The Permian Basin MPO is responsible for ensuring and documenting that these populations are not adversely affected. Figure 4.8 shows the

2035-2050 projects from the Forward50 MTP within disadvantaged communities. The location of the underserved populations was extrapolated from the Screening Tool for Equity Analysis of Projects (STEAP) which is a public tool produced by FHWA using data from the American Community Survey. Table 4.9 shows the percentage of funding that is allocated to disadvantaged areas.

Justice40

The Justice40 initiative is a federal goal outlined in Executive Order 14008 to confront and address underinvestment in disadvantaged communities. The initiative brings resources to communities most impacted by climate change, pollution, and environmental hazards. It provides an opportunity to address gaps in transportation infrastructure and public services by working toward a goal of at least 40% of the benefits from grants, programs, and initiatives flow to disadvantaged communities.

Justice40 is not a one-time investment nor a single pot of money. It is a government-wide initiative that makes a series of changes to ensure benefits reach communities most in need. Through Justice40, USDOT is working to increase affordable transportation options that connect Americans to good-paying jobs, fight climate change, and improve access to resources and quality of life in communities throughout the country.

The initiative allows USDOT to identify and prioritize projects that benefit rural, suburban, tribal, and urban communities facing barriers to affordable, equitable, reliable, and safe transportation. Disadvantaged populations within the Permian Basin MAB were identified during the 2020 US Census.

Table 4.9 – Funding in Disadvantaged Areas

	Total Estimated Future Construction Cost	Funding in Disadvantaged Areas	Percentage of Funding in Disadvantaged Areas
2025 UTP	$1,786,315,375	$976,575,268	55%
2035 to 2050 MTP	$1,730,542,000	$847,574,000	49%
Total 25-Year Period	**$3,516,857,375**	**$1,824,149,268**	**52%**

Figure 4.8 – 2025 UTP Projects within Disadvantaged Areas

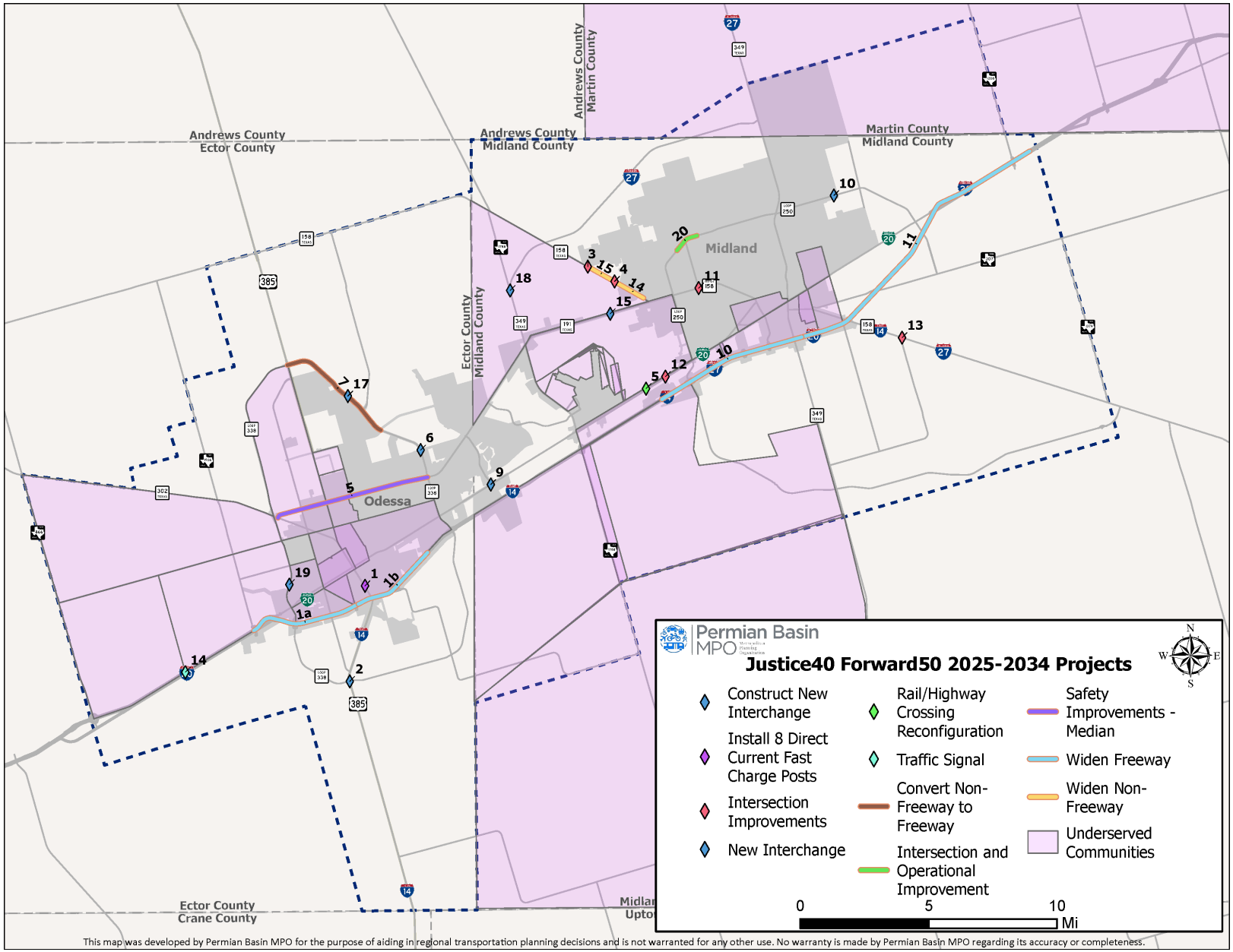
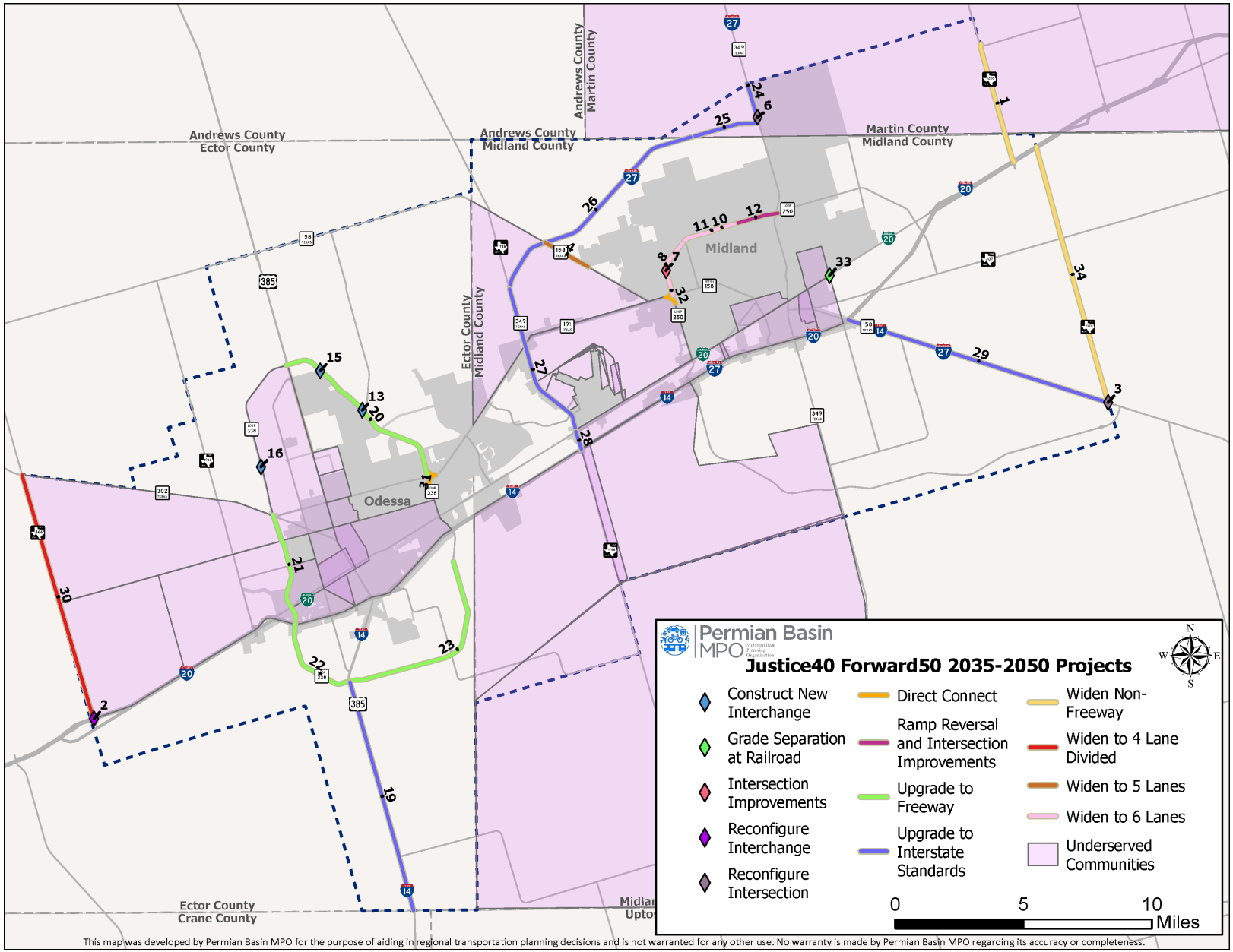


Figure 4.9 – 2035 to 2050 MTP Projects within Disadvantaged Areas



5 Multimodal Framework

FORWARD 50

METROPOLITAN TRANSPORTATION PLAN

Introduction

Creating system-level recommendations started with a review of previous planning efforts to establish a framework for the region. This was then accompanied by an existing conditions report, as well as discussions with the Technical Advisory Committee, stakeholders, members of the public, local agencies, and public officials. One outcome of this effort was the desire to provide the Permian Basin community with greater mode choice. The underlying concepts of enhanced mobility, accessibility, and connectivity were consistent themes in the development of the recommendations.

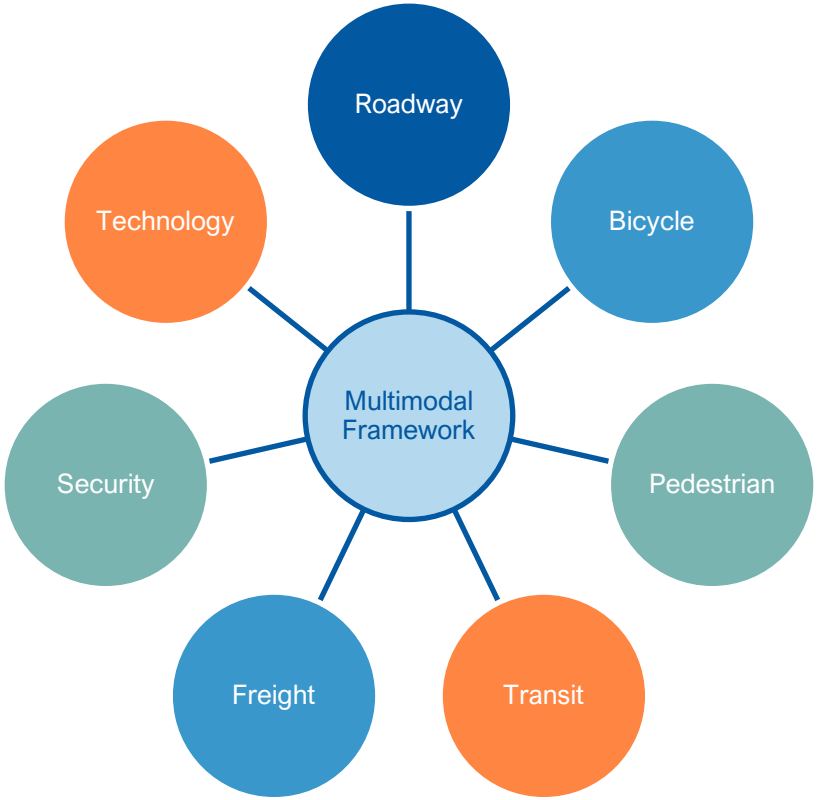
The vibrancy of a community is heavily dependent on the transportation network. The Permian Basin MAB already has existing connections by various modes of transportation that make it a desirable place to live, work, and recreate. Further emphasized in engagement activities, the community recognizes the importance of a multifaceted transportation system. In the first phase of public outreach, participants believe the transportation recommendations should:

- Provide safe ways to travel regardless of mode
- Expand and enhance existing public transportation service
- Build new sidewalks and crosswalks

The input collected throughout the planning process was incorporated with previous planning efforts to form a set of transportation recommendations. This unique blend of projects establishes the blueprint for the PBMPO to plan for the future of transportation through the year 2050.

Multimodal Framework

The multimodal recommendations are presented with narrative, visuals, and maps as available for each mode of transportation. While presented as individual pieces, careful and thoughtful consideration were made to ensure the recommendations aligned with the roadway recommendations introduced in Chapter 4 and support the transportation vision for the region as expressed in Chapter 1.



Bicycle and Pedestrian

To promote active transportation, it is essential to establish a well-integrated bicycle and pedestrian network that provides the necessary infrastructure. When designing a comprehensive bicycle network, it is important to consider the various types of users and facilities required.

Bikeability

Given the many reasons people choose to bike, the bikeability of an area depends on having facilities that cater to different skill levels. A complete network accommodates the needs of all cyclists regardless of skill level or trip purpose.

Skill Level

- **Child Cyclist.** These users typically have little to no experience on the road.
- **Basic Adult Cyclist.** Adult cyclists are typically less secure about riding in traffic without dedicated bicycle facilities.
- **Advanced Cyclist.** This group is typically the most experienced and confident on the road.

Trip Purpose

- **Utilitarian:** Individuals who do not have access to a vehicle or are unable to operate one, and rely on non-negotiable trips for purposes such as work, school, grocery shopping, or returning home.
- **Recreational:** Individuals who seek an active and healthy lifestyle, regardless of their access to a vehicle.

Image Source: Permian Basin Bicycle Association

Walkability

Walkability is a crucial aspect of a healthy transportation system. Other modes of transportation such as driving, biking, or public transportation require each trip to begin and end by walking. When a well-developed pedestrian network is in place, walking becomes an affordable and practical transportation choice that benefits both individuals and communities. Several features contribute to making walking a more attractive mode of transportation, including:

- A mix of land uses
- Appropriately sized pedestrian facilities
- Buffers between the sidewalk and moving traffic
- Beautification such as native street trees or plants.

Design elements can also enhance pedestrians' comfort and confidence. These elements include the following:

- Narrowing streets to reduce crossing distance
- Implementing traffic calming to slow down vehicles
- Incorporating signage, crosswalks, or other pedestrian infrastructure.

Bicycle and Pedestrian Recommendations

By implementing a variety of tools to enhance bikeability and walkability, communities can create a stronger sense of place and a safer environment for all residents. To address the needs of the region, the following strategies are recommended for consideration:

- Closing gaps in the bicycle and pedestrian network strategically to enhance connectivity within the existing network
- Advocating for bicycle and pedestrian improvements as an integral part of roadway projects to promote the development of complete streets
- Ensuing bicycle, and especially, pedestrian access to and from key destinations, activity centers, and community resources
- Performing routine maintenance on existing bicycle and pedestrian facilities to safeguard infrastructure investments

It is advantageous to implement bicycle and pedestrian recommendations in conjunction with the proposed roadway recommendations, whenever feasible. The PBMPO and local jurisdictions are also encouraged to pursue projects as funding becomes available to address any gaps in the pedestrian network.

Complete Streets. Elements of complete streets are assumed to be part of the recommended improvements in which it is reasonable for them to apply. The approach to complete streets, which varies based on the roadway and its surrounding land use context, includes elements such as sidewalks, bicycle lanes, crossing opportunities, curb extensions, accessible pedestrian signals, and more.

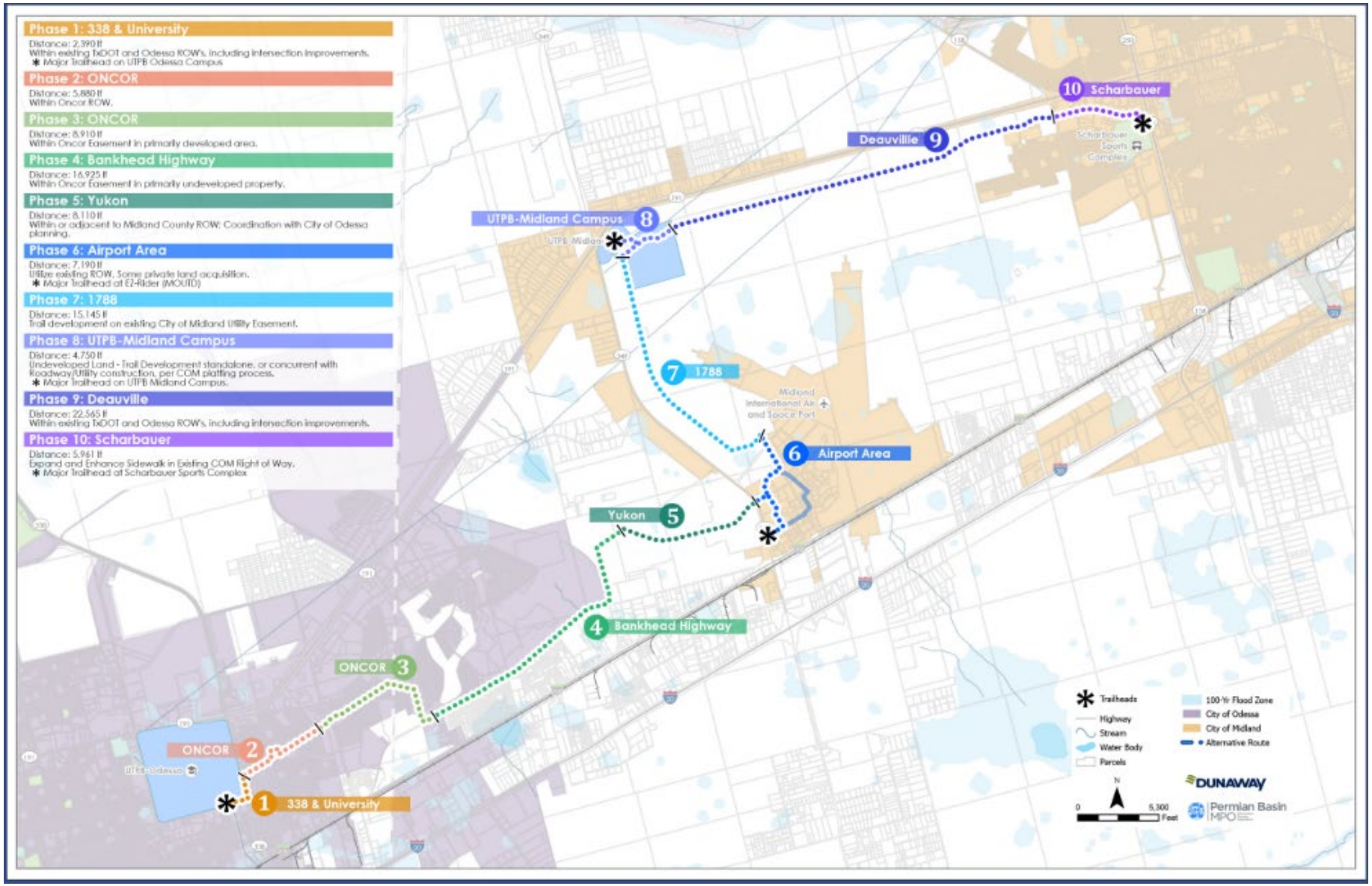
Midland Bicycle Lanes

The City of Midland applied for Transportation Set-Aside Program funding from TxDOT in 2017. The project aimed to enhance pedestrian and bicycle infrastructure in downtown Midland, promoting alternative transportation options for workers and visitors. The approved project included the addition of bicycle lanes on N Lorraine St. and N Main St. The work on this project has been completed.

Wildcatter Trail

In September 2017, the Permian Basin Metropolitan Organization received supplemental funding from TxDOT's State Planning and Research program to evaluate the feasibility of an intercity trail facility. The organization approved additional funding for the study, which outlined preliminary routes for further consideration. In June 2022, the final report was accepted, and the trail was designated as the "Wildcatter Trail." Efforts to develop the trail have been supported by various entities, including Ector and Midland counties, the cities of Midland and Odessa, and the University of Texas Permian Basin. Grant applications were successful in 2023, securing funding for the construction of a portion of the non-motorized corridor in Midland and on the UTPB campus. The estimated cost for the entire multi-use trail connecting Midland and Odessa is $55,000,000, but it is only partially funded. The proposed Wildcatter Trail is shown in Figure 5.1.

Figure 5.1 – Proposed Wildcatter Trail



Transit

Transit Service and Riders

In its optimal state, public transit achieves a balance between maximizing ridership and providing widespread coverage. However, these two objectives often conflict with each other. Typically, a region's population is concentrated in a small area, which means that the service's potential for high ridership is limited to a smaller geographic area compared to the overall service area. This issue is particularly evident in the Midland-Odessa Urban Area, which consists of rural areas outside of the mid-size cities of Midland and Odessa.

The primary focus of transit service should be to provide reliable and convenient transportation that meets the needs and desires of the community. By prioritizing usefulness and convenience, transit can effectively serve all users, including those who rely on transit, those who have the choice to use it, and others.

- **Captive riders** do not have access to or are unable to use a personal vehicle. They are dependent on walking, biking, and the transit system to travel.
- **Choice riders** have the means to drive themselves but choose instead to use transit. Reasons choice riders use transit include saving money, convenience, comfort, or environmental principles.

Transit Projects

The PBMPO is a multimodal planning agency. The portion of this chapter after this paragraph provides a list of transit projects prioritized over the 25-year life of the MTP.

Section 5310: Enhanced Mobility for Seniors and Individuals with Disabilities

This program provides funds to meet the transportation needs of older adults and persons with disabilities. In the past, EZ-Rider has utilized Section 5310 funds to purchase vehicles for its senior transportation program. Now, Section 5310 funds EZ-Rider's mobility management program to provide travel training and trip planning to area residents.

Table 5.1 – Section 5310 Project List

	2025	2026-2030	2031-2040	2041-2050
Mobility Management	$250,000	$500,000	$525,000	$600,000

Section 5307: Urbanized Area Formula Funding

This program provides resources for capital, operating, and planning activities by transit agencies in urbanized areas. The funding formula for small urban areas (those with a population of 50,000-199,999) is based on population, low-income population, and population density.

Table 5.2 – Section 5307 Project List

	2025	2026-2030	2031-2040	2041-2050
Route Studies	$300,000	$530,000	$530,000	$600,000
Add 2 Fixed Routes	$ -	$4,473,531	$9,116,367	$9,346,857
Add (1) Hour – Fixed	$ -	$3,092,426	$7,867,550	$8,066,466
(1) MOD Midland	$ -	$1,654,594	$3,371,807	$3,457,057
(1) MOD Odessa	$ -	$1,654,594	$3,371,807	$3,457,057
Downtown Operator Facility – Midland	$350,000	$ -	$ -	$ -
Downtown Operator Facility – Odessa	$350,000	$ -	$ -	$ -
Increase Frequency on (2) Routes	$ -	$667,683	$6,750,717	$6,886,953
Fleet Replacement Program	$1,075,000	$2,834,900	$10,397,400	$10,337,400
Bus stop amenities	$250,000	$750,000	$ -	$ -

Section 5339: Bus and Bus Facilities

FTA makes additional resources available to replace, rehabilitate, and purchase buses and related equipment, and to construct bus-related facilities, through the Section 5339 program. These funds are utilized by EZ-Rider to update its fleet to keep it in a state of good repair.

Table 5.3 – Section 5339 Project List

	2025	2026-2030	2031-2040	2041-2050
Fleet Replacement Program	$325,000	$1,675,000	$3,400,000	$3,460,000

Combined funding anticipated to address highway and transit projects and programs over the 25-year period is as follows:

- Transit Funding total = $175,503,899
- Highway Funding total = $3,498,227,375

The revenues indicated herein are sufficient to cover the projects and programs listed for the multi-modal system. As shown in Chapter 6, the majority of the available funds will be programmed on freeways and interstates.

Freight, Security, and Technology

Freight

In November 2020, TxDOT published the Permian Basin Freight and Energy Sector Transportation Plan. This plan addresses the specific needs and challenges, identifies key freight corridors, assesses existing infrastructure, and proposes improvements to enhance freight movement efficiency and safety.

Stakeholder Engagement

The PBMPO is actively engaged with various stakeholders, including industry representatives, trucking companies, rail operators, and logistics providers. Collaborating with these entities offers valuable insight into the unique challenges and opportunities associated with freight transportation in the region.

Infrastructure Investment

Given the significant increase in freight movement, it is essential to invest in infrastructure upgrades that can accommodate the growing demand. This may include expanding and improving existing roads, bridges, and rail facilities, as well as considering alternative modes of transportation, such as intermodal terminals, to help alleviate congestion on the road network.

Data Tracking and Monitoring

The PBMPO and its regional partners are working toward implementing policies that encourage and support efficient freight transportation. This includes promoting the use of advanced technologies for freight tracking and management as well as incentivizing the adoption of sustainable and environmentally friendly freight practices.

Accurate and up-to-date data is crucial for effective freight planning and decision-making. Robust data collection systems and analytical tools should be used to monitor and evaluate freight movements, identify bottlenecks, and measure the impact of proposed improvements. This data-driven approach can help prioritize investments and ensure that resources are allocated effectively.

Security

Asset Protection

Transportation security is essential for protecting critical assets. The Permian Basin is home to a vast network of highways, pipelines, and rail systems that are vital for the transportation of goods and resources. Any disruption or damage to these assets can have significant consequences, including supply chain disruptions and economic losses. By prioritizing transportation security, the Forward50 MTP can help safeguard these critical assets and ensure the uninterrupted flow of goods and services.

Accident Mitigation

Implementing security measures helps mitigate risks and prevent accidents, ensuring the well-being of those who work in the transportation industry and the public. It is important to prioritize the safety of individuals involved in the transportation system and minimize the potential for accidents, injuries, or loss of life.

Safeguarding the Economy

The region's economy heavily relies on the production and transportation of oil and gas resources. Disruptions or security breaches in the transportation network can have severe consequences for the energy sector, leading to supply chain disruptions, economic losses, and potential impacts on national energy security.

Regulation Compliance

Compliance with security regulations ensures that the transportation infrastructure in the Permian Basin meets the necessary standards. By prioritizing transportation security in the Forward50 MTP, the region demonstrates a commitment to maintaining a secure and reliable transportation system, which not only helps avoid penalties but also fosters trust and confidence in the industry.

Rail Security

Efforts to ensure railroad security are of utmost importance to Union Pacific. The company operates a robust security program 24/7, covering a vast 32,000-mile outdoor factory. In collaboration with highly trained, commissioned police force, Union Pacific coordinates security efforts with various agencies, including U.S. Customs and Border Protection, U.S. Coast Guard, Federal Bureau of Investigation, Central Intelligence Agency, Department of Homeland Security, and Transportation Security Administration. Union Pacific was the first U.S. railroad to be designated as a partner in the Customs-Trade Partnership Against Terrorism, a program by CBP aimed at enhancing security processes throughout the global supply chain.

To keep trains secure and communities safe, Union Pacific utilizes cutting-edge security technology to detect unauthorized access. The company employs a dynamic enterprise risk management process with continuous monitoring to identify and address potential concerns, adapting to the ever-changing economic, political, and legal environments. Risks are identified, prioritized, and regularly presented to the UP Board of Directors for review and consideration. Union Pacific also employs security-focused technology to monitor key installations and railroad infrastructure conditions.

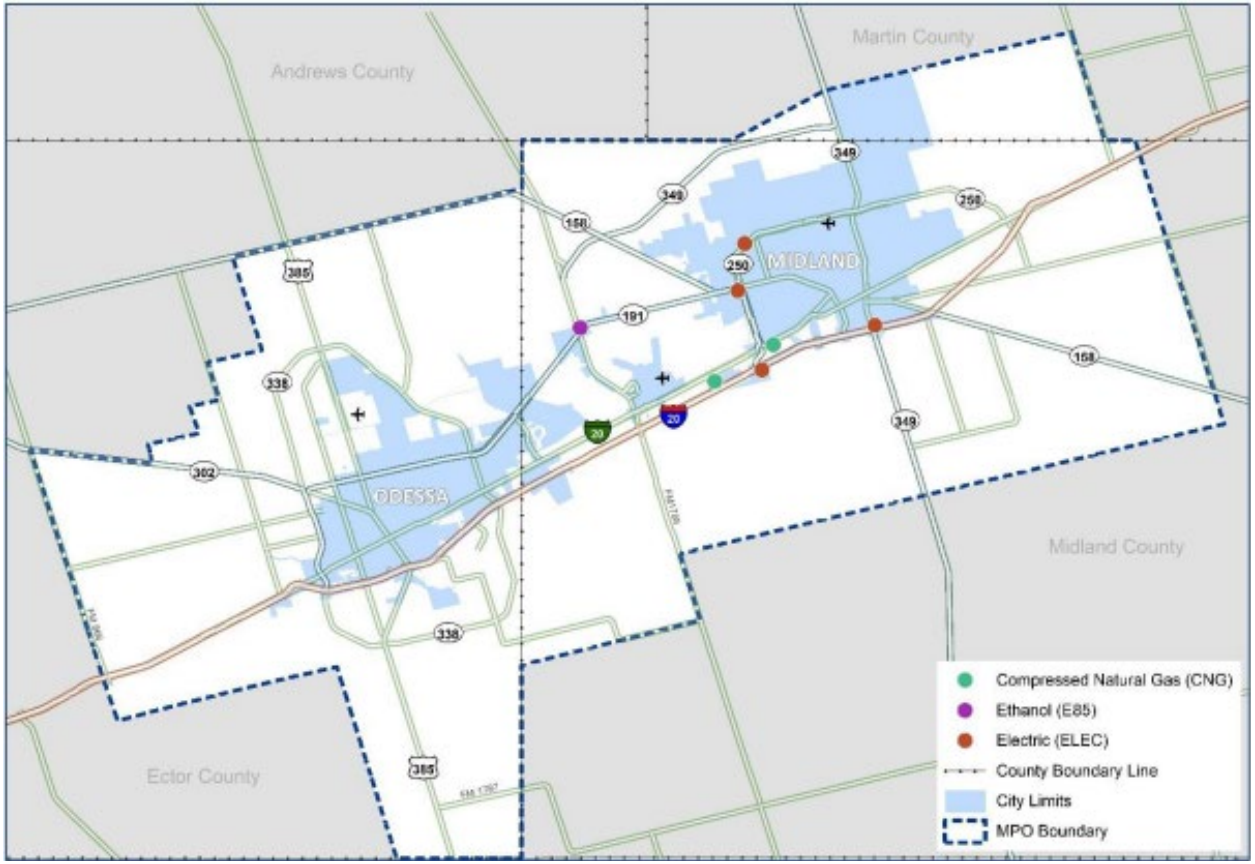
Technology

In recent years, the Permian Basin has witnessed significant technological advancements in transportation. One notable development is the implementation of advanced communication and data systems to improve efficiency and safety. Intelligent Transportation Systems (ITS) have been introduced to facilitate real-time monitoring of traffic conditions, optimize signal timing, and provide accurate travel information to drivers. These systems help reduce congestion, enhance mobility, and improve overall transportation operations in the Permian Basin.

Additionally, there has been a growing focus on alternative transportation modes in the Permian Basin. The region has seen increased investment in infrastructure for electric vehicles (EVs) and the installation of charging stations to support their use. This encourages the adoption of sustainable transportation options and reduces emissions in the area. The location of alternative fueling stations is shown in Figure 5.2.

Furthermore, there have been advancements in ridesharing platforms and autonomous vehicle technology, which have the potential to transform the way people travel in the MAB. These technological advancements aim to enhance transportation options, increase accessibility, and promote a more sustainable and efficient transportation system in the region.

Figure 5.2 – Alternative Fueling Stations



Midland International Air & Space Port

Midland's location near Interstate 20 and nearby rail trans-loading facility makes the area convenient for cargo to be offloaded and transported by truck. Additionally, Midland boasts both an air and space port, offering commercial services through airlines such as Southwest Airlines, American Airlines, United Airlines, and Delta Air Lines. The Midland International Air & Space Port serves as a hub for other spaceports in the United States, thanks to its ideal position within airspace corridors.


Midland International Air & Space Port

Housing and Transportation

The relationship between housing and transportation shapes livelihoods and everyday experiences. The increasing disconnect between housing variety and supply with job location places a greater, potentially adverse demand on the transportation network. Consequently, people spend most of their income on housing and transportation. The synergies between housing and transportation can improve affordability, accessibility, and availability.

According to the latest American Community Survey (ACS) 5-Year Estimates (2022), the average commute time in the United States is 26.7 minutes compared to 20.1 minutes in Midland and 23.4 minutes in Odessa. While other ACS 5-Year Estimate trends show shift toward working from home (11.7% nationally), understanding the ways in which people choose to live and travel can help inform important planning decisions. Expensive housing can relocate or push people to suburban areas further away from employment, education, and healthcare opportunities. To create healthy, vibrant communities, the intentional and collaborative coordination of housing and transportation decision making is essential.

Additional Resources

Housing In Transportation Planning
https://www.planning.dot.gov/planning/topic_housing.aspx

American Planning Association (APA) Housing Policy Guide
https://www.planning.org/publications/document/9178529/

H+T Affordability Index
https://htaindex.cnt.org/

This space intentionally left blank.

6 Financial Plan

FORWARD 50

METROPOLITAN TRANSPORTATION PLAN

Overview of the MPO's Financial Picture

Federal regulations under the USDOT require MPOs to include a financial plan as an element of the long-range planning process. The financial plan must demonstrate that proposed investments are reasonable in the context of anticipated future revenues over the life of the plan. Meeting this requirement in the financial planning realm is called "fiscal constraint."

The Forward50 MTP project list is fiscally constrained based on an in-depth analysis of anticipated revenues and escalated project costs due to inflation. Anticipated revenues include funding from federal, state, and local sources. This Chapter provides detailed assumptions regarding revenue sources, project cost, and future revenue needs used to develop the MTP financial plan.

Unified Transportation Program

Funding for transportation improvements in Texas is driven by the Unified Transportation Program (UTP), which is a ten-year, mid-range planning document used by TxDOT to guide the state's project development. The UTP contains a list of priority investments throughout the state. MPOs are responsible for establishing their own priority projects for consideration and approval by the Texas Transportation Commission (TTC) during each annual UTP renewal.

House Bill 20

In 2015, the Texas Legislature passed House Bill (HB) 20 which requires that TxDOT and all MPOs maintain a ten-year planning and programming cycle that includes the same time frame as the TxDOT UTP, i.e. a ten-year rolling period. HB 20 also requires the UTP to contain funding streams that provide a high degree of confidence to pay for projects in the ten-year window.

Forward50 MTP

This chapter includes a discussion of roadway and transit funding assumptions, based on the anticipated revenues. The fiscally constrained list of projects in Chapter 4 contains highway transportation and Chapter 5 includes transit improvements as identified by Permian Basin MPO Policy Board, the TAC, staff, stakeholders, EZ-Rider, and the public who attended hearings and workshops during the development of the MTP.

As stated in previous chapters, numerous opportunities for public and stakeholder input were offered during the preparation of the plan. The transportation improvements recommended in the Forward50 MTP are intended to meet the anticipated needs within the ten-year and 25-year time frames, or other time periods; subject to amendment(s) by the MPO Policy Board.

Cost Estimates and Total Project Cost

During the preparation of the Forward 2045 MTP, the TAC and a working committee met frequently to establish credible cost estimates for the types of projects being considered for inclusion into the MTP. These included projects such as overpasses, road widenings, added capacity projects and non-freeway to freeway conversions including interstate highways along multiple corridors. Part of the staff and TAC responsibilities associated with the preparation of the Forward 45 MTP and subsequent amendments was to generate a new projection of cost for each amendment to the MTP.

Staff and the TAC used a similar process for the Forward50 MTP. The project listing includes a reference to total project cost (TPC) to indicate to stakeholders that the funding made available to the MPO is for construction purpose; other non-construction expenditures are paid for by others.

Total Project Cost

Total Project Cost (TPC) is the total cost of all phases associated with a project including:

- **Preliminary Engineering.** Project development activities during which basic planning objectives are translated into specific, well-defined engineering criteria that transition a project into the final design process
- **ROW Purchase.** Cost of any real property required to construct or implement a project
- **Construction Cost.** Cost of the actual construction (labor and materials)
- **Construction Engineering.** Cost of the interpretation of plans and specifications and formulation of engineering decisions
- **Contingencies.** Estimated amount of any unforeseen costs associated with a project
- **Indirect Cost.** Expenses the provider or contractor incurs for operating its business. Indirect cost rates for providers selected to contract for various work tasks are obtainable from TxDOT's Audit Office.

Awareness of the TPC provides decision makers, stakeholders, and the public with a more accurate picture of the funds that will be necessary to complete a construction project. The construction cost is the only line item in the TPC that is paid for with the MPO's Category 2 funds. All non-construction project costs are paid for with TxDOT funding. Until a project is eligible to be fully funded and placed into the MPO's four-year TIP and the TxDOT STIP the full dollar amount of the TPC is not entirely known; this is especially true for outer year projects. To reflect this in the MTP document it should be stated that 20% of the TPC will be necessary to provide the non-construction funding portions of any project. Because these funds are not coming from the MPO, they are not fiscally constrained.

TPC is frequently updated by TxDOT as a project advances closer to its anticipated inclusion into the statewide TIP. The construction cost and non-construction costs are fully calculated prior to a project's year of expenditure.

Components of a Cost Estimate

Cost estimates include the following components:

- **Base Estimate.** Developed and documented by the districts with engineering judgement applied. Base estimates are developed using the best information known at the time and the phase of the project.
- **Allowances.** Items known to be required on the project but at a particular project development stage are not yet known or quantifiable.
- **Contingencies.** Costs for unknowns and uncertainties should be documented and included in the engineer's estimate.

Table 6.1 – Cost Estimating Worksheet

Description of Work	$ Million	Increment
Widen Non-Freeway	4	per mile
Construct Freeway with Frontage Roads	12	per mile
Construct New Interchange	35	unit
Reconstruct Interchange	13	unit
Interchange work involves a linear distance	8.4	per mile

Preventive Maintenance and Operations

A critical part of the overall planning effort is to ensure that investments of public funds are maintained over time. It is also important to ensure operational improvements help to move people and goods and to increase longevity of the completed projects. These are federal, state, and regional priorities.

The integrity of the existing highway system and urban streets should not be allowed to deteriorate. The operation and maintenance projections shown herein in Table 6.X are provided to cover improvements such as traffic signal modernizations, general signal improvements, pavement rehabilitation, seal coating, and overlays. Projecting the TxDOT Odessa District's maintenance funding over the life of the MTP is difficult, as this funding is spread throughout the district and not just the Metropolitan Area Boundary. This funding is used when needed and where needed at any given time. However, based on history we have projected 25 years of funding based on a 4% increase throughout the plan. A yearly average is then shown to better predict preservation of the systems.

The TxDOT Odessa District invests on an annual basis to ensure that roadways are maintained. These funds are from the District's available Category 1 (Preventive Maintenance and Rehabilitation funds). Discussions with the TxDOT Odessa District staff indicate that maintenance and operations funding is typical and that the MPO should continue to benefit from approximately $18.5 million annually. These funds are managed entirely by the TxDOT Odessa District. Sample projects funded by the TxDOT Odessa District Category 1 funds include:

FY 2021

- BI-20 Roadway Rehabilitation from Fairgrounds Rd to IH 20

FY 2022:

- SH 140 Roadway Rehabilitation from BS 349C to IH 20
- BS 158 Roadway Rehabilitation from Wall St to Front St.
- US 385 Roadway Rehabilitation from SH 191 to 8th St.

FY 2023:

- SL 338 Roadway Rehabilitation from US 385N to SH 191
- BS 349C Roadway Rehabilitation from SL 250 to IH 20
- SS 588 Roadway Rehabilitation from Eastridge to BI 20
- BI 20 Roadway Rehabilitation from Faudree to 1 MI E of FM 1788
- BI 20 Roadway Rehabilitation from 8th St to Odessa Country Club

FY 2024:

- FM 3503 Roadway Rehabilitation from IH 20 Exit Ramp to JBS Pkwy
- BI 20 Roadway Rehabilitation from FM 1882 to Hancock
- FM 1882 from BI 20 to US 385S
- SH 349 Intersection Improvement at SH 191
- SL 338 Roadway Rehabilitation from W Yukon Rd to US 385N
- IH 20 Roadway Rehabilitation from Moss Ave to E of FM 1936

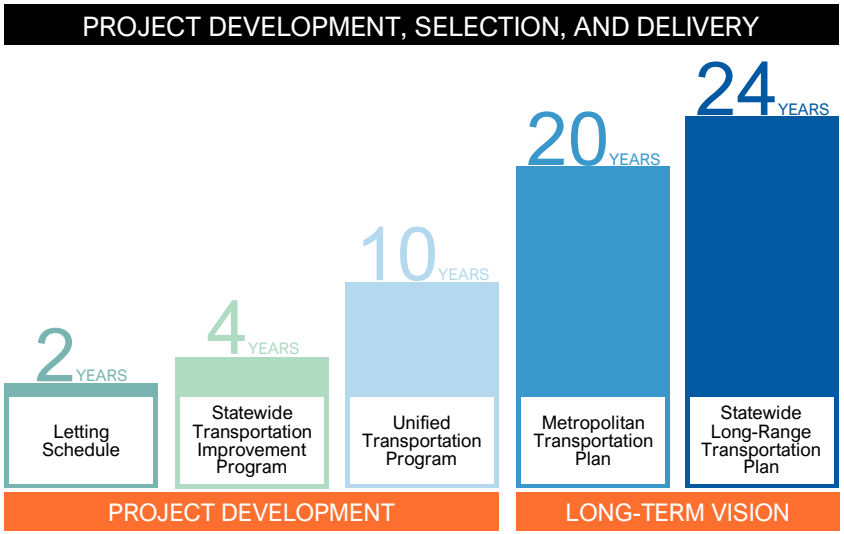
In addition to the TxDOT financial commitment to maintenance and operations, both cities and all three counties provide annual funding to maintain off system roads and bridges to improve safety and system reliability as well as continued economic value. Table 6.2 indicates future revenues as well as maintenance and operations anticipated costs over the 25-year period.

Table 6.2 – Maintenance and Operations Projected Cost by Jurisdiction

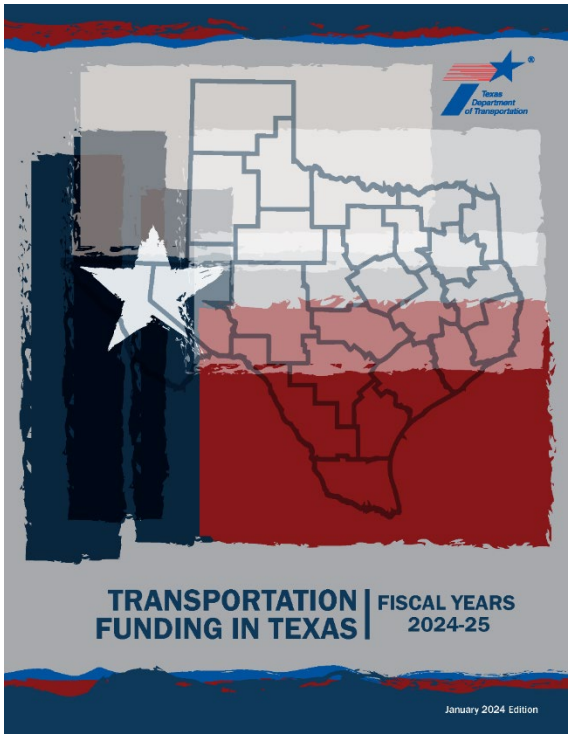
Maintenance and Operations Projected Cost by Jurisdiction	Estimated Revenues	Estimated Expenditure
TxDOT – Odessa District	$465,230,000	$465,230,000
City of Midland	$650,000,000	$650,000,000
City of Odessa	$410,000,000	$410,000,000
Ector County	$375,000,000	$375,000,000
Midland County	$400,000,000	$400,000,000
Martin County	$75,000,000	$75,000,000
MOUTD	$140,409,642	$140,409,642

Constrained Funding Scenario

To provide the reader with additional information covering the TxDOT UTP process, the TTC and TxDOT use the UTP as a ten-year plan to guide transportation project development. The UTP is developed annually in accordance with the Texas Administrative Code (TAC §16.105) and is approved by the TTC prior to August 31. The UTP authorizes projects for construction, development and planning activities and includes projects involving highways, aviation, public transportation, freight rail, ports, and state and coastal waterways.



The UTP is part of a comprehensive planning and programming process flowing from TxDOT's agency mission to project-level implementation. That is, the UTP is an intermediate programming document linking the planning activities of the Statewide Long-Range Transportation Plan (SLRTP), the Metropolitan Transportation Plans, and Rural Transportation Plan to the detailed programming activities under the Statewide Transportation Improvement Program (STIP), MPO Transportation Improvement Programs (TIP), and TxDOT's 24-month (2-year) construction letting schedule.



More, specifically, the UTP is a listing of projects and programs that are planned to be constructed and/or developed within the first ten years of the State's 24-year SLRTP. Project development includes activities such as preliminary engineering work, environmental analysis, right-of-way acquisition and design. Despite its importance to TxDOT as a planning and programming tool, the UTP is neither a budget nor a guarantee that projects will or can be built. However, it is a critical tool in guiding transportation project development within the long-term planning context. In addition, it serves as a communication tool for stakeholders and the public in understanding the project development commitments TxDOT and its partners are making.

The Permian Basin MPO benefits directly from the inclusion of projects into the State's UTP. Once a project is listed in the 10-year UTP, the listed activities can begin. Typically, by the time a project is included in the UTP it has been discussed and analyzed on a needs basis among the MPO's member agencies, interested parties, TxDOT, and the Policy Board.

As part of this exercise in prioritizing projects and indicating fiscal constraint within the MTP, the TAC and Policy Board prepared a list of projects for consideration into the MPO's priority project list (see Chapter 4). It is from this list that projects are chosen for inclusion into the UTP. The Transportation Commission has the authority to provide funding for projects that may not be listed in the MPO's project list using funding categories it has available.

The UTP development process includes the steps listed below:

1
- Establish strategic goals, performance measures, and approved targets

2
- Develop the planning cash forecast

3
- Determine the UTP funding distribution strategy

4
- Release the UTP planning targets

5
- Prioritize and select transportation projects locally using an adopted scoring and selection process

6
- Identify funding for the transportation projects

7
- Prioritize and select transportation projects at the state level

8
- Produce the UTP document and project listings

9
- Conduct UTP public meeting and public hearing

10
- Present to Texas Transportation Commission for adoption

Federal Funds

Revenues collected from federal motor fuel taxes are deposited in the federal Highway Trust Fund, appropriated by Congress through the Federal-Aid Highway Programs, and distributed to each state. Most TxDOT projects are funded with both federal and state funds, with the most common share being 80% federal, 20% state. The Federal Highway Administration (FHWA) reimburses TxDOT for qualified project expenditures as they are paid out.

The current federal legislation for transportation and related topics is Public Law No: 117-58 (11/15/2021) known as the Infrastructure Investment and Jobs Act (IIJA), sometimes referred to as the Bipartisan Infrastructure Law (BIL). The law authorized $1.2 trillion for transportation and infrastructure spending with $550 billion going toward "new" investments and programs. This bill provides new funding for infrastructure projects, including:

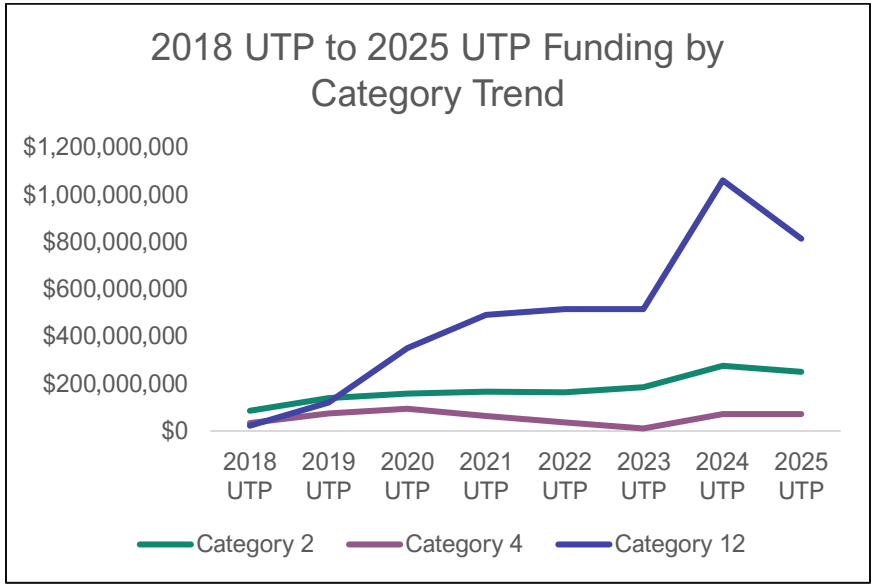
- roads, bridges, and major projects
- passenger and freight rail
- highway and pedestrian safety
- public transit
- broadband
- ports and waterways
- airports
- power and grid reliability and resiliency
- water infrastructure
- resiliency, including funding for coastal resiliency, ecosystem restoration, and weatherization
- clean school buses and ferries
- electric vehicle charging
- addressing legacy pollution by cleaning up Brownfield and Superfund sites and reclaiming abandoned mines

The importance of this bill cannot be overstated. Funding available for projects has increased because of the new law.

State Funds

The State Highway Fund is TxDOT's principal fund. Most of the taxes and fees deposited in the State Highway Fund are dedicated by the Texas Constitution to support state highways. The primary source of State Highway Fund revenues is the state motor fuel tax, vehicle registration fees, sales taxes (Proposition 7), and the oil and gas production tax (also known as severance tax or Proposition 1).

Category 2 Funds. Revenues from Propositions 1 and 7 are held in special subaccounts of the State Highway Fund. These funds are realized at the MPO level when the distribution of Category 2 (Metropolitan & Urban Area Corridor Projects) funds is made by the Transportation Commission. The main source of funding for the Permian Basin MPO is Category 2. This source has increased at a steady pace over the past ten years as shown below.

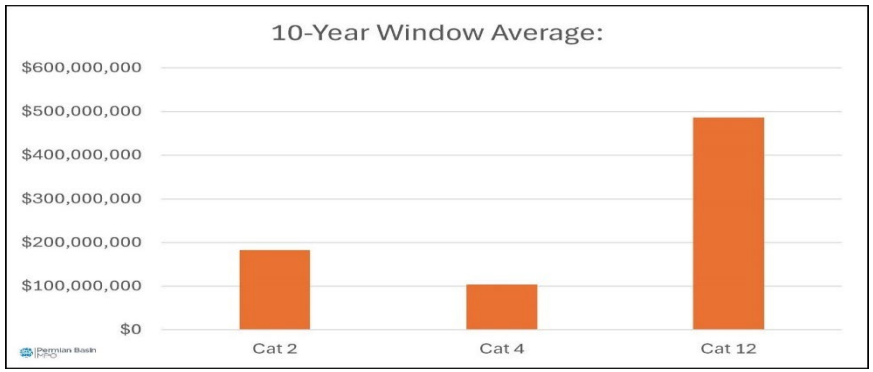


Category 4 Funds. While Category 2 funds are the MPO's most consistent revenue source, the TxDOT Odessa District has recently coordinated with the MPO to program funding from Category 4 (Statewide Urban Connectivity) to fund on-system projects. Category 4 funds in the 2025 UTP cycle average approximately $17M per year. To indicate future revenue, this sum will be used on an annual basis.

Category 12 Funds. Furthermore, the TTC has programmed significant Category 12 (Strategic Priority) funds for major projects including I-20, US 385, SL 250, and SL 338. The Category 12 funds provided serve to expedite project implementation. The TTC made these funds available partially due to the MPO leveraging its Category 2 funds as well as funds provided by both the Midland and Odessa Economic Development Corporations.

Category 11 Funds. Additionally, the TxDOT Odessa District typically spends a portion of its annual Category 11 allocation in the MPO boundary as well, these are District Discretionary funds.

TxDOT Category 4 and 12 funds have increased at a faster rate than Category 2 funds in the PBMPO region, as shown in the chart that indicates a ten-year funding allocation average. Categories 3 and 11 are not shown.



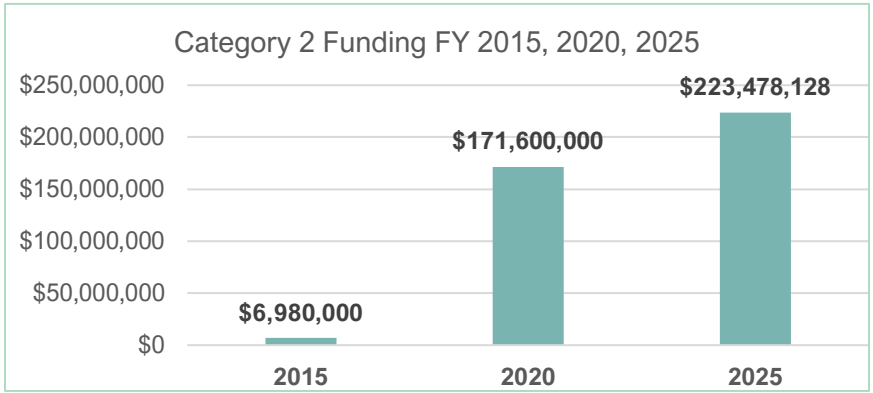
Larger MPOs benefit from the remaining TxDOT funding categories that are shown in the image below from the 2025 UTP.

Source: TxDOT 2025 Unified Transportation Program

Funding By Category

Category 2 Funds

For all MPOs, Category 2 funds are distributed based on several factors. The Texas Administrative Code (Title 43, Part 1, Rule 16.154) contains a formula to distribute funds based on population, truck vehicle miles traveled, congestion, number of on-system lane miles, and safety using fatal and serious injury crashes as reported through the TxDOT Crash Record Information System. The Permian Basin MPO is allocated Category 2 funds for each year of the UTP based on these factors. As stated earlier, the UTP is a ten-year planning document and reasonably forecasts funding over the ten-year period so that the MPO can be aware of available funding to plan for mid-term transportation projects in the first ten-years of the 25-year MTP. The chart below shows a comparison of the funding made available through the UTP to the Permian Basin MPO in FY 2015 and FY 2020 and FY 2025. This is shown to indicate that funding around the FY 2015 time was scarce and that within a five-year period it grew substantially. It is extremely important for the MPO to show that these trends exist since they are the basis upon which reasonable assumptions can be made about future funding.



The TxDOT Category 2 funds authorized for programming of the MPO's projects are utilized to address mobility and added capacity projects on urban corridors to mitigate traffic congestion, as well as traffic safety and roadway maintenance or rehabilitation. Projects must be located on the state highway system.

Non-Traditional Funding

The cities in the Permian Basin MPO region have a history of contributing local funds toward constructing prioritized projects as determined by the Policy Board. In 2005, the Odessa Development Corporation (ODC) contributed $5 million for the construction of an overpass at John Ben Shepperd Parkway to link the major north-south corridor with an emerging industrial park located south of the Union Pacific Railroad tracks and accessing I-20. At that time, the TxDOT Odessa District was preparing to delay construction until funding became available. The ODC realized construction of the project would require additional funds from local, non-state sources. In 2018 both the ODC and the Midland Development Corporation (MDC) donated $15 million of locally generated funds to contribute toward important projects including Loop 250 at CR 1150 in Midland, US 385 at N Loop 338 in Odessa, Loop 250 at CR 1140 in Midland, and Loop 250 at SH 158 in Midland. Local funds from the City of Odessa and Ector County were also provided for a traffic signal and grade improvement project at 52nd/56th Streets at Loop 338 in Odessa. It is anticipated that this trend will continue and that this funding source can be reasonably programmed at a rate of $1 million per year from both entities combined. This type of funding is listed in the TxDOT UTP as Category 3 (Non-Traditional) sources.

In summary, anticipated funding for the MTP planning period comes primarily from five identified sources: Categories 2, 3, 4, 11, and 12 as shown in Table 6.3 The TTC has provided additional Category 12 funding for major improvements on I-20 and at several interchange locations on the Loop roads in both cities. These reasonably expected funding levels from the sources shown in Table 6.3 meet the fiscal constraint requirement under federal legislation.

Table 6.3 – Anticipated Annual Revenue FY 2025-2050

TxDOT Funding Category	Estimated Revenue Per Year
Category 2 – Urban Mobility	$23,000,000
Category 3 – Non-Traditional	$1,000,000
Category 4 – Urban Connectivity	$17,000,000
Category 11 – District Discretionary	$3,000,000
Category 12 – Strategic Priority	$46,000,000
Total	**$90,000,000**

To provide a conservative projection of revenue, the MPO estimates that funding for highway projects will increase at a modest rate of 4% per year which closely mirrors the historic growth of the TxDOT UTP. Thus, at the estimated rate of funding shown in Table 6.3 of $90 million per year, the MPO would benefit from approximately $3.9 billion of highway funding over the planning period. Table 6.4 indicates the projected revenue annually through the MTP time period. To remain conservative and avoid overprogramming of projected funds, the MPO has listed projects within the Forward50 MTP that cost an estimated $3.49 billion over the life of the plan. This projection includes all programmed projects in the 2025-2034 UTP and the remaining fifteen years through 2050. As stated in Chapter 5, projected funding for transit services for the same 25-year period is approximately $175.5 million.

Table 6.4 – Projected Revenue for Highway Project Funding 2025-2050

2025 UTP | Year (Estimated Revenue)		
2025 ($90,000,000)	2030 ($109,498,761)	
2026 ($93,600,000)	2031 ($113,878,712)	
2027 ($97,344,000)	2032 ($118,433,860)	
2028 ($101,237,760)	2033 ($123,171,215)	
2029 ($105,287,270)	2034 ($128,098,063)	
Remaining Years, 2035-2050 | Year (Estimated Revenue)		
2035 ($133,221,986)	2041 ($168,568,312)	2046 ($205,089,126)
2036 ($138,550,865)	2042 ($175,311,045)	2047 ($213,292,691)
2037 ($144,092,900)	2043 ($182,323,486)	2048 ($221,824,399)
2038 ($149,856,616)	2044 ($189,616,426)	2049 ($230,697,375)
2039 ($155,850,880)	2045 ($197,201,083)	2050 ($239,925,270)
2040 ($162,084,915)		
Total for 25-Year Period		**$3,988,057,016**
2035-2050 Total		**$2,907,507,375**
Total Project Cost of Projects 2035-2050		**$1,730,542,000**
Balance		**$1,176,965,375**

NOTE: Funding increase includes Cat. 2, 3, 4, and 12

Inflation

Guidance from TxDOT suggests that an inflation rate of 4% per year should be applied to projects within the UTP as follows:

- Year 1 – 0
- Year 2 – 4%
- Year 3 – 8%
- Year 4 – 12%
- Years 5-10 (outside STIP) – 12%

The MTP is updated every five years to include updated cost estimates, therefore, so when it comes time to program the latter year projects those estimates will have long since been updated. An estimate of inflation is factored into all projects in the ten-year period.

Forecasted Transit Revenues

Forecasted Revenues to Midland Odessa Urban Transit District (MOUTD)

The MOUTD is the umbrella agency through which EZ-Rider provides urban transit services in the Midland and Odessa urbanized areas. Revenue received by EZ-Rider is through Federal Transit Administration's (FTA) Urbanized Area Formula Grants (Section 5307). The funds are used for transit capital, operating assistance and for transportation related planning. Also, discretionary grants such as Bus and Bus Facilities (Section 5339) are awarded to EZ-Rider as a form of funding commonly used for additional buses, vehicle replacement and facilities.

Available funding for EZ Rider operating and capital expenses, from 2025 to 2050 are shown in Table 6.5, operating funding for EZ Rider is drawn from Section 5307 sources: FTA Section 5307 (Urbanized Area Formula Program), State Funds, Local Funds, and Operating Revenue.

Table 6.5 – MOUTD Operating Budget, 2025 to 2050

	2025	2026-2030	2031-2040	2041-2050	TOTAL
Operating	$3,393,004	$18,755,063	$34,832,251	$35,712,920	$89,300,234
Maintenance	$1,960,643	$10,344,971	$20,127,772	$20,636,665	$51,109,408
ADA	$918,419	$4,626,651	$9,428,401	$9,666,780	$23,721,832
Planning	$440,297	$2,218,051	$4,520,046	$4,634,327	$11,372,425
				Grand Total	$175,503,899

7 Performance-Based Planning

FORWARD 50

METROPOLITAN TRANSPORTATION PLAN

FAST Act and IIJA Performance Measures

A national performance-based planning requirement for federal, state, and regional agencies was established in 2012 with the Moving Ahead for Progress in the 21st Century (MAP-21) legislation, to tie capital investments to transportation system performance. The Fixing America's Surface Transportation (FAST) Act was enacted in 2015 and continued the performance-based planning momentum, and more specifically, performance-based transportation outcomes originally outlined in MAP-21. The Infrastructure Investment and Jobs Act passed in November 2021 continued these requirements. US Department of Transportation (USDOT) is responsible for administering the surface transportation performance-based planning program, with rule-making oversight by the FHWA and FTA. The performance management framework is based upon seven national goals established in MAP-21 and reinforced in the FAST Act and the IIJA Act, which include:

- **Safety.** To achieve a significant reduction in traffic fatalities and serious injuries on all public roads Infrastructure
- **Infrastructure Condition.** To maintain the highway infrastructure asset system in a state of good repair
- **Congestion Reduction.** To achieve a significant reduction in congestion on the National Highway System
- **System Reliability.** To improve the efficiency of the surface transportation system
- **Freight Movement and Economic Vitality.** To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development
- **Environmental Sustainability.** To enhance the performance of the transportation system while protecting and enhancing the natural environment
- **Reduced Project Delivery Delays.** To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion

What are the benefits of performance management?

Two of the benefits associated with performance management include: the MPO using system information (data) to make informed decisions about system investment; the MPO achieving performance goals as written in the CMP, the MTP and other documents that address how performance may be improved.

Federal Performance Measures

Federal performance measures for both the highway and transit system have been established as part of the federal performance management initiative. For each performance measure, the Permian Basin MPO assessed the effective (starting) date of the measure, the recommended data sources, and network applicability (Interstate system, National Highway System, all public roads, etc.). The highway system performance measures are listed in Table 7.1 and apply to all MPOs and State DOTs; however, the Permian Basin MPO is in attainment for air quality therefore the environmental sustainability goal area is not applicable. The highway performance measures align with the seven national goals.

Table 7.1 – FAST Act and IIJA Performance Measure Summary

National Goal Area	Rulemaking Category	Performance Measure
Safety	Safety	Number of Fatalities
		Rate of Fatalities
		Number of Serious Injuries
		Rate of Serious Injuries
		Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries
Infrastructure Condition	Infrastructure	Percentage of Pavements in Good Condition (Interstate)
		Percentage of Pavements in Poor Condition (Interstate)
		Percentage of Pavements in Good Condition (Non-Interstate NHS)
		Percentage of Pavements in Poor Condition (Non-Interstate NHS)
		Percentage of Bridges in Good Condition (NHS)
		Percentage of Bridges in Poor Condition (NHS)
System Reliability	System Performance	Percent of Reliable Person-Miles Traveled (Interstate)
		Percent of Reliable Person-Miles Traveled (Non-Interstate NHS)
Freight Movement & Economic Vitality	System Performance	Truck Travel Time Reliability (TTTR) for the Interstate System
Environmental Sustainability	System Performance	Total Emissions Reduction
Congestion Reduction	System Performance	Annual Hours of Peak Hour Excessive Delay (PHED) Per Capita on the National Highway System (NHS)
		Percent of Non-Single Occupancy Vehicle (SOV) Travel

Source: Federal Highway Administration

Federal Performance and Target Setting

Although federal performance measures are defined at the federal level, one of the key tasks for MPOs, State DOTs, and transit agencies is to establish performance targets based on the federally defined measures. Guidance is provided by USDOT regarding the development of performance targets, but it is the responsibility of each respective agency to coordinate efforts in order to establish and monitor targets over time.

Highway Targets

Highway safety targets were required for State DOTs first, MPOs were given 180 days after the State's targets were established to define their own targets. MPOs had the option to establish targets in one of two ways: 1) Agree to contribute toward the accomplishment of the State DOT target, or 2) Develop a quantifiable target for the MPO planning area. At the time this MTP was developed, Safety (PM1), Infrastructure Condition including Transit Asset Management (PM2), and System Reliability (PM3) were all in place as adopted by the MPO Policy Board. The PM2 and PM3 requirements were the most recent and they were adopted in the summer of 2023. TxDOT established its safety targets are highlighted by the following:

- Targets for each performance measure are based on 5-year rolling averages
- Targets are for calendar years
- Targets will be established annually, or otherwise as may be required
- States and MPOs will coordinate to establish targets

PM1 - Safety

Target: Total number of traffic fatalities

2023 Target | To decrease the expected rise of fatalities to not more than a five-year average of 3,682 fatalities in 2023.	**Target or Actual Data**
2019	3,619
2020	3,874
2021	4,486
2022	3,272
2023	**3,159**
2023 Target expressed as 5-year average	*3,682*

The calendar year target for 2023 would be **3,159 fatalities**.

Target: Total number of serious injuries

2023 Target | To decrease the expected rise of serious injuries to not more than a five-year average of 17,062 serious injuries in 2023.	**Target or Actual Data**
2019	15,858
2020	14,659
2021	19,434
2022	17,539
2023	**17,819**
2023 Target expressed as 5-year average	*17,062*

The calendar year target for 2023 would be **17,819 serious injuries**.

Target: Fatalities per 100 million vehicle miles traveled

2023 Target | To decrease the expected rise of fatalities per 100 MVMT to not more than a five-year average of 1.38 fatalities per 100 MVMT in 2023.	Target or Actual Data
2019	1.26
2020	1.49
2021	1.70
2022	1.25
2023	**1.20**
2023 Target expressed as 5-year average	*1.38*

The calendar year target for 2023 would be **1.20 fatalities per 100 MVMT**.

Target: Serious Injuries per 100 million vehicle miles traveled

2023 Target | To decrease the serious injuries per 100 MVMT to not more than a five-year average of 6.39 serious injuries per 100 MVMT in 2023.	Target or Actual Data
2019	5.50
2020	5.63
2021	7.35
2022	6.70
2023	**6.77**
2023 Target expressed as 5-year average	*6.39*

The calendar year target for 2023 would be **6.77 serious injuries per 100 MVMT**.

Target: Number of non-motorized fatalities and serious injuries

2023 Target | To decrease the expected rise of non-motorized fatalities and serious injuries to not more than a five year average of 2,357 non-motorized fatalities and serious injuries in 2023.	Target or Actual Data
2019	2,291
2020	2,206
2021	2,628
2022	2,321
2023	**2,340**
2023 Target expressed as 5-year average	*2,357*

The calendar year target for 2023 would be **2,340 non-motorized fatalities and serious injuries**.

The Permian Basin MPO adopted its safety measures and targets through an approved Policy Board resolution on January 16, 2018, and subsequently in 2019, 2020, 2021, 2022, 2023, and 2024 following TxDOT's release of its updated targets. It is anticipated that the MPO will continue to support TxDOT's goals to improve traffic safety in the MPO region; the Policy Board will be presented with updated TxDOT targets as they are released.

PM2 – Pavement and Bridge Condition

The PM2 road and bridge condition targets and transit asset management targets adopted by the Policy Board are shown in Table 7.2. Pavement condition for roads on the Interstate system and the Non-Interstate system on roads in the Permian Basin MPO boundary are in better condition than the state, except that Non-Interstate roads are only marginally better. Several maintenance projects completed by the TxDOT Odessa District will result in higher "good condition" ratings when a future analysis of pavement condition is completed.

The Permian Basin MPO coordinated with TxDOT Odessa District, the TAC, and Policy Board and decided to support the road and bridge condition (PM2) targets established by TxDOT (the transit authority adopted standards related to PM2 for its transit fleet independently). The PM3 or system performance targets were established by the MPO based on an analysis of travel time delay using National Performance Management Research Data Set. The MPO adopted a target of 1.50 as a truck travel time reliability index on I-20 and a travel time reliability of 90% as a target for the year 2020; these targets have been updated as shown in Table 7.4. Table 7.8 shows the system reliability measures and targets adopted by TxDOT and the MPO.

Transit Asset Management Targets

1. Reduce Overall Maintenance Costs by 20%
2. Increase Fleet Spare Ratio to at least 20%
3. Reduce Road Calls by 50%
4. Improve Safety and Security of bus stops and address ADA Compliance

Table 7.2 – FAST Act and IIJA Performance Measure Summary

Rulemaking Category	Performance Measure	TxDOT Target Due Date	PBMPO Target Due Date
Infrastructure	Percentage of Pavements Good Condition (Interstate)	May 20, 2018	November 16, 2018
	Percentage of Pavements Poor Condition (Interstate)		
	Percentage of Pavements Good Condition (Non-Interstate)		
	Percentage of Pavements Poor Condition (Non-Interstate)		
	Percentage of Bridges Good Condition (NHS)		
	Percentage of Bridges Poor Condition (NHS)		

Source: TxDOT

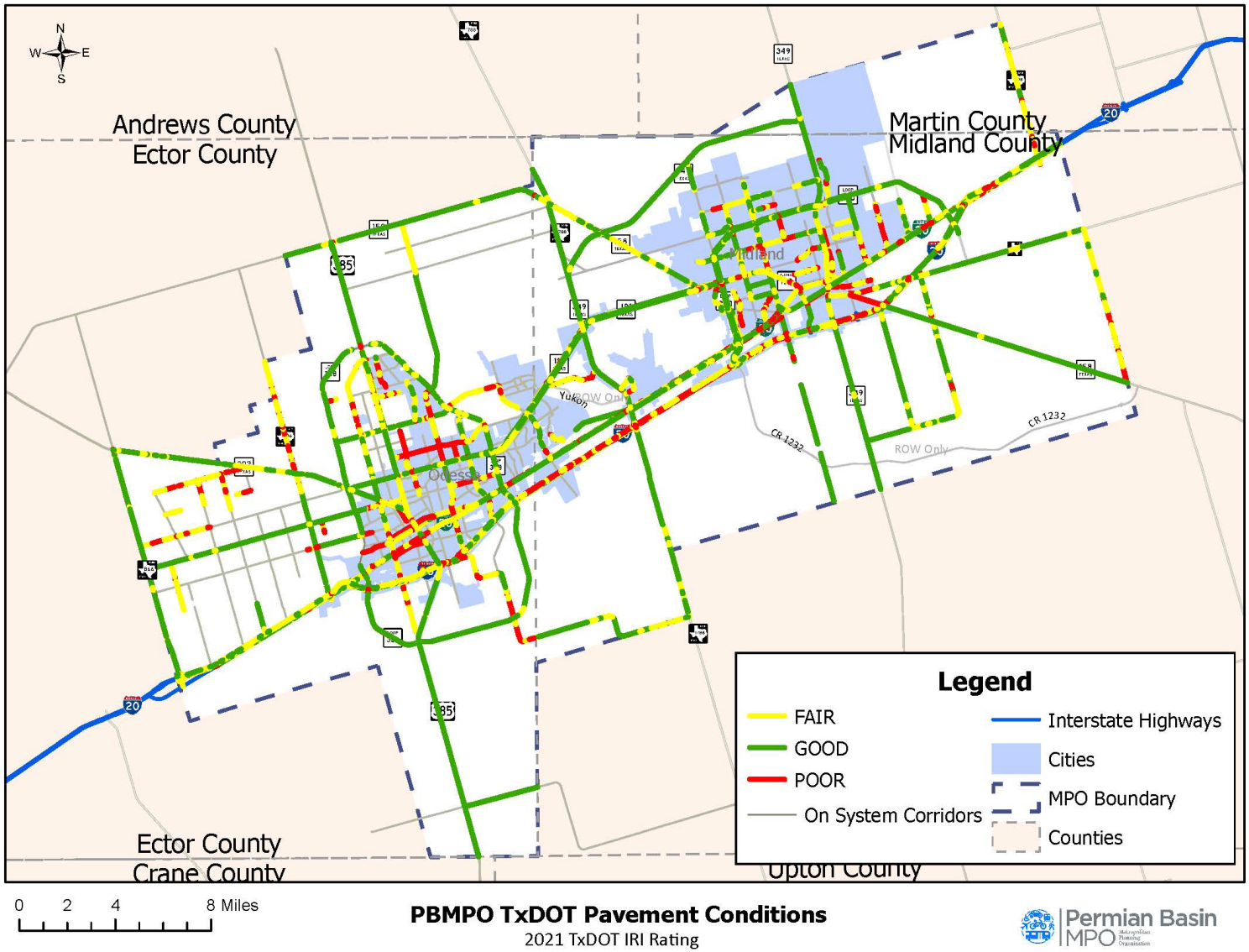
Table 7.3 – TxDOT and PBMPO PM2 Targets – FY2022 and FY2023

Performance Measures	Baseline (2022)	2-Year Target (2024)	4-Year Target (2026)
Pavement on IH			
Percent in 'good' condition	64.5%	63.9%	63.6%
Percent in 'poor' condition	0.1%	0.2%	0.3%
Pavement on non-IH NHS			
Percent in 'good' condition	51.7%	45.5%	46.0%
Percent in 'poor' condition	1.3%	1.5%	1.5%
Performance Measures	**Baseline (2022)**	**2024 Target**	**2026 Target**
NHS Bridge Deck Condition			
Percent in 'good' condition	1.1%	1.5%	1.5%
Percent in 'poor' condition	49.2%	48.5%	47.6%

Pavement Condition

The International Roughness Index (IRI) is the indicator used to measure how smooth or rough a pavement surface feels. The lower the calculated IRI, the smoother the pavement will ride. The higher the IRI, the rougher the pavement will ride. Figure 7.1 shows the 2017 IRI MAB pavement conditions.

Figure 7.1 – Permian Basin MPO Pavement Condition



Bridge Condition

The volume of vehicles, especially freight carriers, on the roads in the Midland Odessa region has also increased wear to the region's bridges. Maps 7.3 and 7.4 below depict the current federal condition ratings of each bridge within the MPO's boundary. Table 7.4 describes the federal bridge condition ratings by category.

Nearly half of the region's bridges (107 out of 246) were built before 1970, and when many of the bridges approach the end of their useful life, they will require rehabilitation or reconstruction. Bridges by decade built are shown in Figures 7.4 and 7.5. In the bridge inventory system, all major structural deficiencies are considered to evaluate bridges and ratings are provided to represent the overall structural condition. This appraisal rating is based on the condition rating of superstructure, substructure, and inventory rating. In the Permian Basin MPO region, among the 246 bridges, 225 bridges (91.5%) scored above a 70% sufficiency rating. Table 7.6 shows the bridge structural condition by county.

Table 7.4 – FHWA Bridge Condition Rating Categories

FHWA Condition Ratings (Deck, Superstructure, Substructure)		
Code	**Condition**	**Description**
9	Good	
8	Good	No problems noted
7	Good	Some minor problems
6	Fair	Structure elements show some minor deterioration
5	Fair	Structural elements are sound but may have minor section loss, cracking, spalling or scour
4	Poor	Advance section loss, deterioration, spalling or scour
3	Poor	Loss of section, deterioration, spalling or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.

Source: FHWA

Table 7.5 – Number of Bridges by Condition Ratings

	Good	Fair	Poor	Total
2018	104	137	3	**244**
2016	117	124	0	**241**
2014	139	98	0	**237**

Source: TxDOT

Table 7.6 – Bridge Condition by County

	Total Bridges	Sufficient Bridges >70%
Ector County	127	116
Martin County	0	0
Midland County	119	109
Total	**246**	**225**

Source: TxDOT

Figure 7.2 – Ector County Bridge Conditions

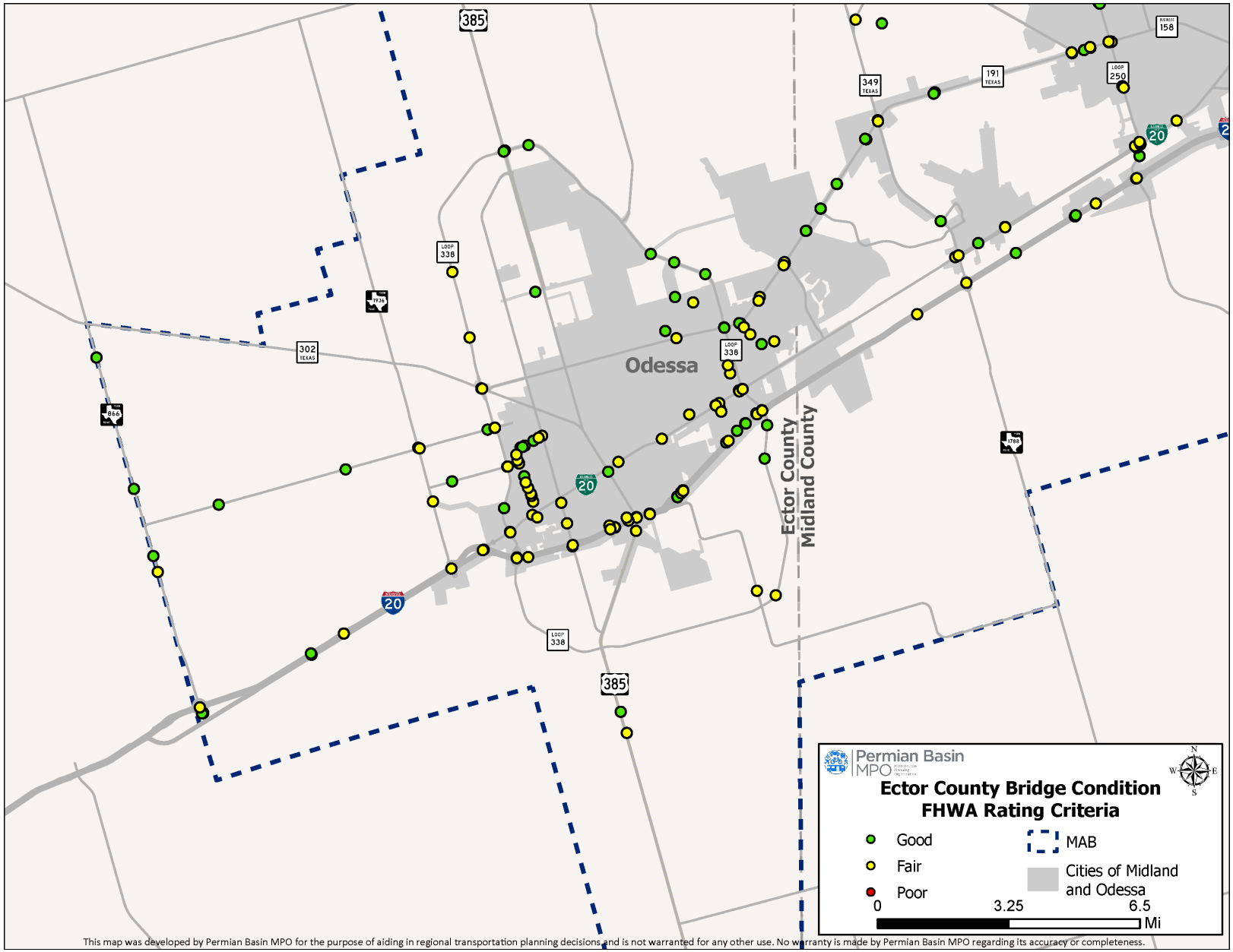


Figure 7.3 – Ector County Bridges Decade Built

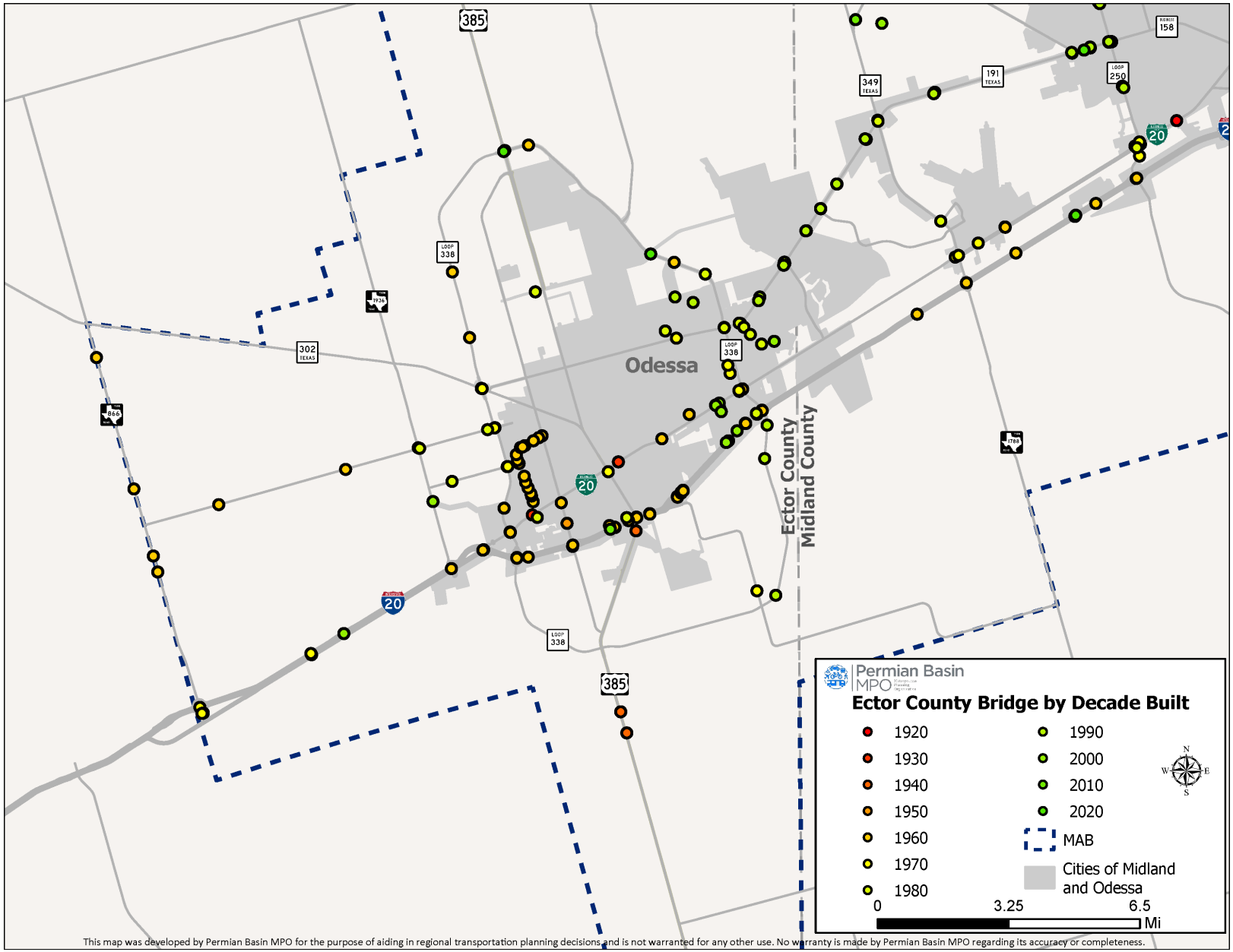


Figure 7.4 – Midland County Bridge Conditions

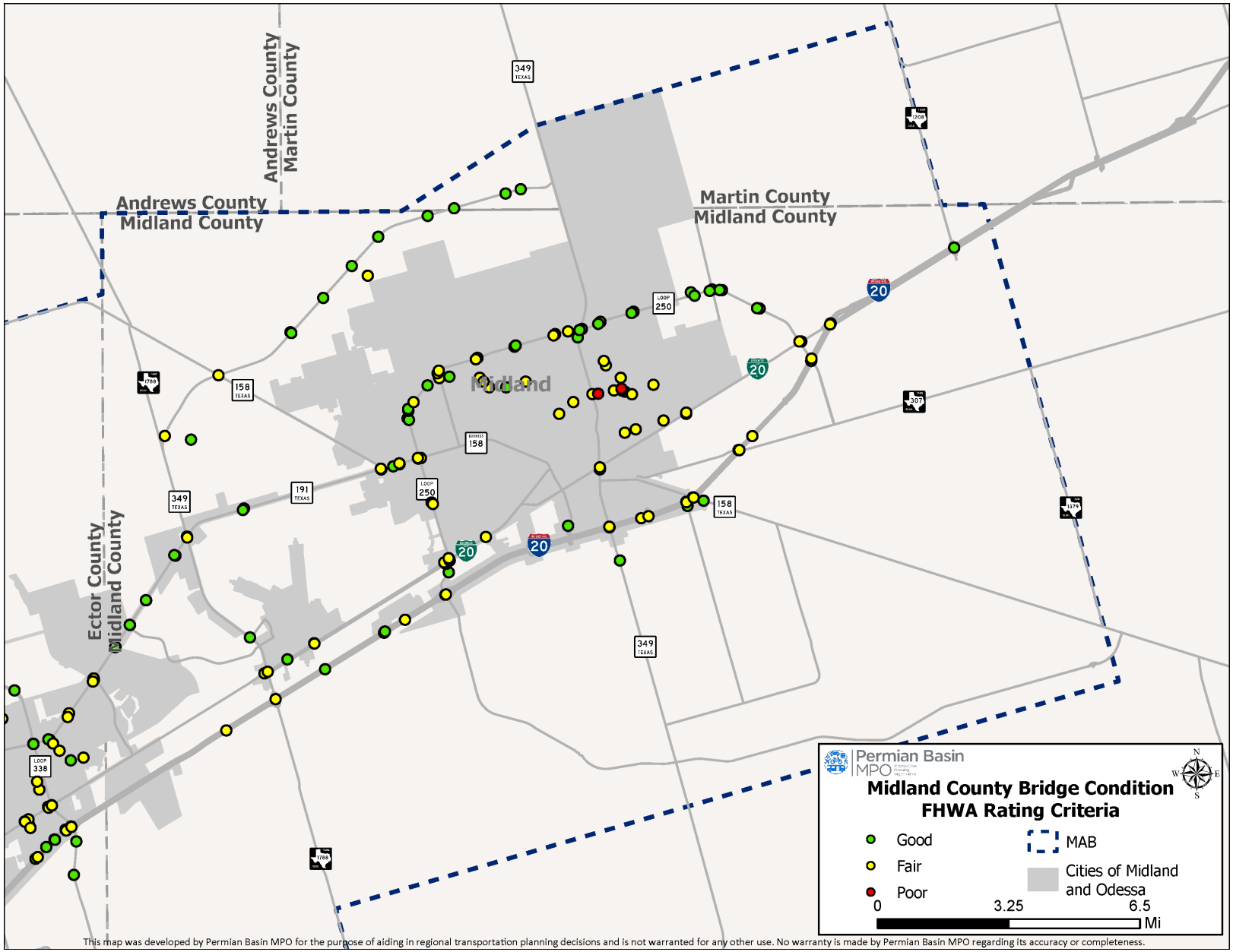
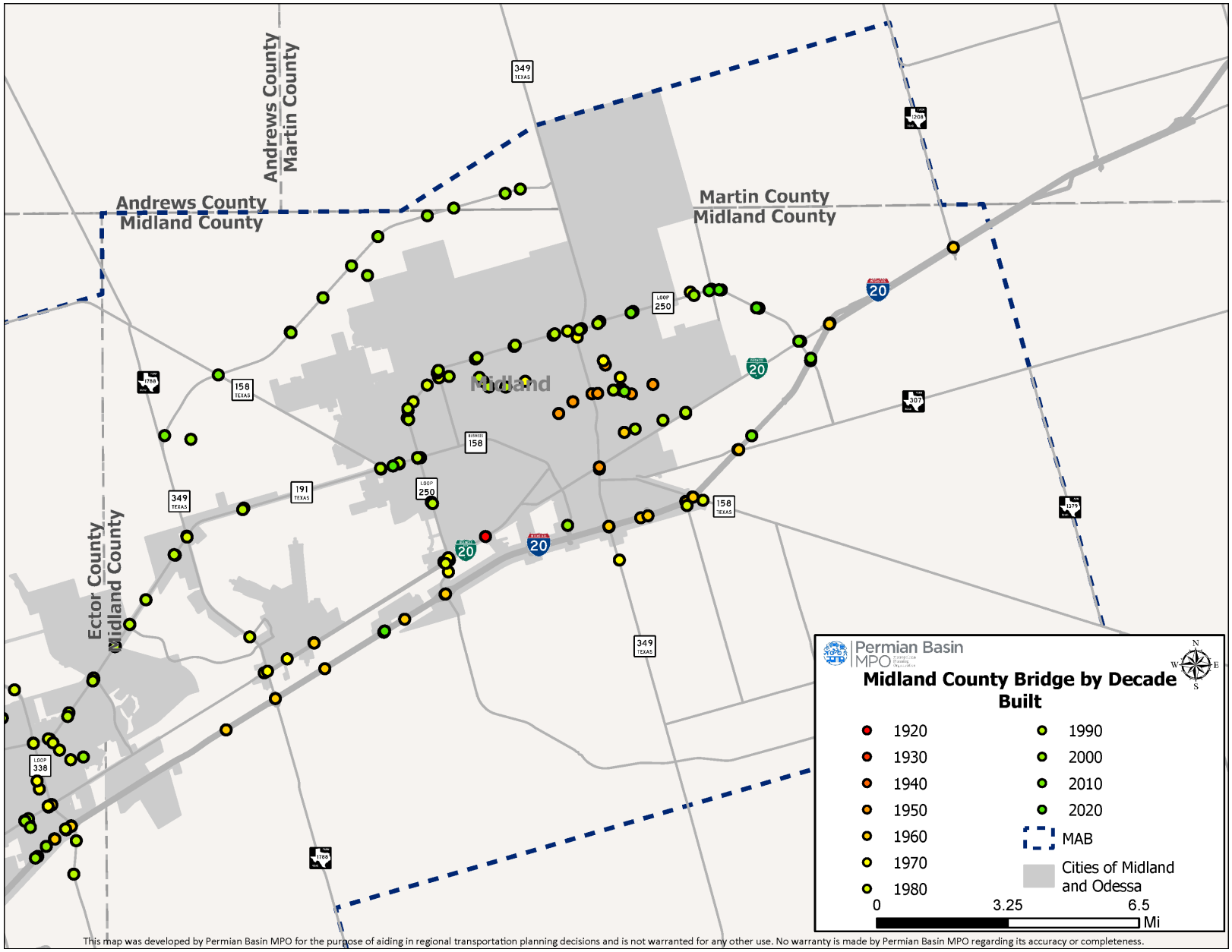


Figure 7.5 – Midland County Bridges Decade Built



PM3 – System Performance

The MPO's target for Interstate Highway travel time reliability was set at 90%, while the TxDOT target is 61.2%. For non-Interstate traffic, the travel time reliability factor set by the MPO was 90% in the year 2022; TxDOT's statewide target for the same time frame is 55.4%. These numbers are shown in Table 7.9. The MPO established a target of 1.50 for overall travel time delay in 2020. The TxDOT target for overall delay is a factor of 1.7. Travel time delay means that a trip that should take 20 minutes under free flow condition when a delay factor of 1.5 takes 30 minutes instead. In addition to the above targets, the Permian Basin MPO already indicated a baseline Truck Travel Time Index of 1.37 along I-20 in 2017 and a target of 1.5 in the year 2020. The MPO's goal is to maintain a reasonable degree of Truck Travel time delay and person travel time delay even though major growth is occurring in the region with traffic volumes expected to increase and especially truck volumes emanating from the growth of the energy sector. Further reporting on the PM3 requirement is expected in 2020 and 2022. The MPO has the authority to readopt its performance-based planning resolutions to reflect changes in performance targets as the Policy Board determines. It is anticipated that the MPO will consider reducing its established target of 1.5 to ensure that congestion is included in the scoring of more projects.

Table 7.7 – TxDOT and MPO System Performance Measures – Adoption Timeline (to be updated)

Rulemaking Category	Performance Measure	TxDOT Target Due Date	PBMPO Target Due Date
System Performance	Percent of Reliable Person-Miles Traveled (Interstate)	May 20, 2018	November 19, 2018
	Percent of Reliable Person-Miles Traveled (Non-Interstate NHS)		
	Truck Travel Time Reliability (TTTR) for the Interstate System		
	Annual Hours of Peak Hour Excessive Delay (PHED) Per Capita on the National Highway System (NHS)	May 20, 2018	November 19, 2018
	Percent of Non-Single Occupancy Vehicle (SOV) Travel		

Table 7.8 – TxDOT and PBMPO PM3 Targets – 2023

Performance Measure 3 (National Highway System)	2022 Target (Using Travel Time Index)
Level of Travel Time Reliability – Interstate	TTI 1.5 or greater – project
Level of Travel Time Reliability – Interstate	TTI 1.5 or greater
Non-Interstate Level of Travel Time Reliability	TTI 1.5 or greater

Performance Measures	Baseline (2022)	2-Year Target (2024)	4-Year Target (2026)
NHS Travel Time Reliability			
IH Level of Travel Time Reliability	85%	85%	85%
Non-IH Level of Travel Time Reliability	85%	85%	85%
Truck Travel Time Reliability	1.75	1.75	1.75

Transit Asset Management (TAM) Plan

Under Federal Transit Administration requirements, Tier II transit providers are required to develop a TAM Plan that includes an implementation strategy, key activities, and list of resources, along with an outline of how the provider will monitor, update, and evaluate its TAM Plan. The Permian Basin MPO coordinated with the EZ-Rider Transit provider to develop a TAM Plan with performance measures as shown below. This task was completed in October 2018 and updated in 2022.

Table 7.9 – Transit Asset Management Plan Reporting Measures *Source: FHWA / FTA*

Transit Category	Performance Measure
Transit Asset Management (TAM) and National Transit Database (NTD) Reporting	Equipment – Percent of equipment valued > $50,000 (support, non-revenue service vehicles) that have met their Useful Life Benchmark (ULB)
	Rolling Stock – Percent of revenue vehicles surpassing their ULB by Asset Class
	Facilities – Percent of facilities with condition rating below 3.0 on FTA Transit Economic Requirements Model (TERM) Scale
	Infrastructure – Percent of guideway directional route miles with performance restrictions by class

Public Transportation Agency Safety Plan

A safety plan is also required by agencies that provide public transportation services. The plan is intended to include methods for identifying and evaluating safety risks, strategies to minimize exposure to hazards and unsafe conditions, as well as a process for conducting an annual review and update of the plan. The EZ-Rider transit service completed and adopted an agency safety plan in 2020.

Both the TAMP and PTASP documents are available for review on the PBMPO website.

Performance Based Planning and Programming

In the Permian Basin Metropolitan Planning Organization (PBMPO) area, performance based planning and programming (PBPP) satisfies federal requirements related to safety, bridge and pavement condition, and system reliability. Ideally any MPO would address and solve all transportation problems immediately. However, financial and other resource constraints make that impossible. Therefore, MPOs must make tough decisions on which projects to program with limited funds.

PBPP provides transparency and accountability for the project analysis, prioritization, selection, and programming processes. Transparency and accountability occur by providing decision makers with opportunities to select and program projects that solve identified challenges in the transportation system. The

current federal transportation legislation, the Infrastructure Investment and Jobs Act (IIJA), also known as the Bipartisan Infrastructure Law (BIL), continues the PBPP requirements from previous legislation. The Federal Highway Administration (FHWA) has established performance measures for the following transportation elements:

- Safety (PM1)
- Pavement and Bridge Condition (PM2)
- System Performance (PM3)

These performance measures support FHWA's seven national goals:

1. **Safety:** To achieve a significant reduction in traffic fatalities and serious injuries on all public roads infrastructure
2. **Infrastructure Condition:** To maintain the highway infrastructure asset system in a state of good repair
3. **Congestion Reduction:** To achieve a significant reduction in congestion on the National Highway System
4. **System Reliability:** To improve the efficiency of the surface transportation system
5. **Freight Movement and Economic Vitality:** To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development
6. **Environmental Sustainability:** To enhance the performance of the transportation system while protecting and enhancing the natural environment
7. **Reduced Project Delivery Delays:** To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion

Each MPO and state DOT establish performance targets for each of the performance measures. MPOs may adopt/support their respective state DOT targets or establish their own.

PM 1 – Safety

The PBMPO continues to support the Texas Department of Transportation (TxDOT) performance targets for:

- Number of fatalities
- Rate of fatalities per 100 million vehicle miles traveled (VMT)
- Number of serious injuries
- Rate of serious injuries per 100 million VMT
- Number of non-motorized fatalities and non-motorized serious injuries

These performance targets aim toward achieving TxDOT's "Road to Zero" vision. PBMPO staff previously studied pros and cons of setting individual safety targets for the MPO but determined the not-required efforts are not a good use of the MPO's resources. PBMPO does monitor safety data to communicate to decision makers and the public and to provide feedback loop information. PBMPO does its part to support TxDOT's targets, and to improve metropolitan area safety, by including safety as a key element of the project selection process.

PBMPO understands the important difference between numbers of fatalities and fatal incidents. In some cases, fatal crashes may result in one fatality, but in other cases, a single fatal crash may have multiple fatalities, depending on vehicle types and numbers of passengers. Therefore, it is equally important to know where fatal and serious injury crash frequencies are high as well.

PBMPO identifies road segments and intersections that have the highest fatal crash frequencies. PBMPO and partner agencies develop and program projects that are intended to reduce fatal crashes when planning and design tools can be effective. For locations where considerable numbers of fatal crashes are driver behavior based, PBMPO coordinates with agencies and entities to promote better driver safety for issues such as distracted driving, driving under the influence of drugs or alcohol, speeding, and obeying traffic control signs and devices.

PM2 – Pavement and Bridge Condition

FHWA requires that state DOTs and MPOs monitor conditions for bridges on Interstate Highways and on the National Highway System (NHS). The three bridge conditions are good, fair, and poor. Good condition bridges are structurally sound and need no attention. Fair condition bridges are not yet structurally deficient but need to be monitored for future deterioration. Poor condition bridges have one or more elements that are deficient and need improvements or replacement. Bridge conditions are measured by percentages of bridge deck areas, not number of bridges. Therefore, the largest bridges by deck area can skew the bridge conditions in areas with relatively few bridges. A bridge is any span over 20 feet in length.

When addressing bridge conditions, MPOs and state DOTs report bridge percentages in good and poor conditions. Bridges in Texas are repaired or replaces based on TxDOT inspections, database, and a statewide funding category.

PM 3 – System Performance

The System Performance measure monitors reliability in terms of:

- Percentage of person-miles traveled on the Interstate System rated “reliable”
- Percentage of person-miles traveled on the Non-Interstate National Highway System rated as “reliable”
- Percentage of truck travel time on the Interstate System rated as “reliable"

IH 20 is the only Interstate Highway in the PBMPO planning area and is currently undergoing major reconstruction of roadbeds and interchanges as part of an overall project that will widen the majority of the highway from four lanes to six lanes and convert frontage road operations from two-way to one-way. With increased traffic volumes, including various sized trucks, reliability on IH 20 has decreased in recent years. While construction work is in progress, person-miles traveled and truck travel time reliability have declined due in part to lane closures, ramp closures and relocations, and interchange closures while bridges are rebuilt. Construction on IH 20 segments will continue for at least the next 10 years.

Multiple metropolitan area highways are included in the NHS and therefore monitored for system performance. As a transportation management area (TMA), the PBMPO maintains a congestion management process (CMP). At its most recent federal certification review, PBMPO's CMP was found to be in compliance with federal requirements and appropriately used in the project scoring, analysis, and programming processes. PBMPO uses data and tools, such as the Congestion Management Process Assessment Tool (COMPAT), to monitor congestion in the metropolitan area. PBMPO has set, and continues to adjust as necessary, travel time delay thresholds. These thresholds identify road segments that are deemed "congested" and those that are nearing the congestion threshold. Using COMPAT to identify and monitor road segments enhances the project analysis, prioritization, and programming processes.

While some projects focus on one performance measure, there are projects that address multiple performance measures. One example is the "Wildcatters Trail" that links the east side of Odessa with the west side of Midland. This path will accommodate bicyclists and pedestrians who are using it for exercise, recreation, and commuting. The Wildcatters Trail addresses safety by providing bicyclists with an alternative to the SH 191 frontage roads. Over the years multiple people have been killed or seriously injured while riding bicycles on the SH 191 frontage roads. It also provides a path for increased exercise for pedestrians and runners, promoting a healthier public. The Wildcatters Trail will connect the following points of interest:

- University of Texas Permian Basin (Odessa campus)
- Midland International Air and Space Port
- University of Texas Permian Basin (Midland campus)
- Scharbauer Sports Complex (Midland)

The Wildcatters Trail will be completely separated from any vehicular traffic streets and highways and has a Master Plan. Some of the pathway segments are funded.

The PBMPO metropolitan area is currently in "attainment" status for air quality standards. PBMPO staff continually stays aware of air quality monitoring readings and regulations, including PM 2.5 standards.

Since 2018 the PBMPO has continually adopted and supported TxDOT's performance targets for each of the performance measures at the required time intervals.

Table 7.10 – Performance Measure Consideration

MPO ID	PM 1: Safety Targets	PM 2: Road & Bridge	PM 3: System Performance
FY 2025-2028			
RC-09	✓	✓	✓
RC-236	✓	✓	✓
RC-234	✓	✓	✓
RC-137	✓	×	✓
RC-259	✓	✓	✓
RC-303	EV Charging Station		
FY 2029-2034			
RC-13* int b	✓	✓	✓
RC-131	✓	✓	✓

RC-134	✓	✓	✓
RC-15a*	✓	✓	✓
RC-17	✓	✓	✓
RC-232	✓	✓	✓
RC-235	✓	✓	✓
RC-243	✓	✓	✓
RC-251	✓	✓	✓
RC-260	✓	✓	✓
RC-261	✓	✓	✓
RC-265	✓	×	✓
RC-27	✓	✓	✓
RC-275	✓	✓	✓
RC-276	✓	✓	✓
RC-28	✓	✓	✓
RC-300	✓	✓	✓
RC-77	✓	✓	✓
RC-93a	✓	✓	✓
FY 2035-2050			
RC-248	✓	×	×
RC-277	✓	✓	✓
RC-274	✓	✓	✓
RC-301	✓	✓	✓
RC-126	✓	✓	✓
RC-271	✓	✓	✓
RC-272	✓	✓	✓

RC-270	✓	✓	✓
RC-273	✓	✓	✓
RC-240	✓	✓	✓
RC-78	✓	✓	✓
RC-76	✓	✓	✓
RC-40a int	✓	✓	✓
RC-317	✓	✓	✓
RC-311	✓	✓	✓
RC-312	✓	✓	✓
RC-313	✓	✓	✓
RC-314	✓	✓	✓
RC-305	✓	✓	✓
RC-306	✓	✓	✓
RC-307	✓	✓	✓
RC-308	✓	✓	✓
RC-309	✓	✓	✓
RC-310	✓	✓	✓
RC-303	✓	×	×
RC-318	✓	✓	✓
RC-319	✓	✓	✓
RC-302	✓	×	✓
RC-320	✓	×	×

8 Congestion Management Process

FORWARD 50

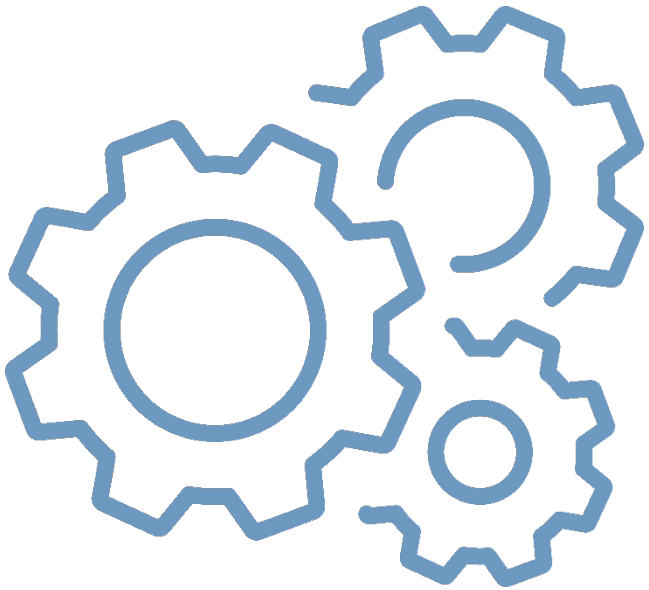
METROPOLITAN TRANSPORTATION PLAN

Introduction

This chapter includes content from the updated 2024 Congestion Management Process (CMP) for the Permian Basin Metropolitan Planning Organization (PBMPO) planning area. This CMP includes applicable assumptions, methodologies, performance measures, and potential congestion mitigation strategies to address mobility issues. Future updates t o the PBMPO CMP will be posted on the MPO's website.

What is Congestion Management?

Congestion management is the application of strategies and transportation system improvements to enhance system performance and reliability. These enhancements are accomplished by reducing the adverse impacts of congestion on the movement of people and goods.



What is a Congestion Management Process?

A CMP is a federally required systematic and regionally accepted approach for managing congestion within a transportation management area (TMA). The CMP provides accurate, up-to-date information on transportation system performance. It also assesses various strategies for mobility, while meeting state and local needs. The CMP is intended to move these congestion management strategies into the funding and implementation stages tied to investments on the multimodal transportation network. The CMP, as defined in federal regulations, is intended to serve as a systematic process that provides safe and effective integrated management and operation of the multimodal transportation system. The process includes eight main steps:

1. Develop congestion management objectives
2. Define a congestion monitoring network
3. Develop multimodal performance measures
4. Collect data and monitor system performance
5. Analyze congestion problems and needs
6. Identify and assess congestion management strategies
7. Program and implement congestion management strategies
8. Evaluate strategy effectiveness

A CMP should address a TMA's specific congestion issues. Congestion is relative among metropolitan areas – and often even within a single metropolitan area. The CMP has become an important tool for addressing persistent congestion problems, project selection, and prioritizing investments.

Approach to Data Collection

The flexibility in CMP development allows MPOs to design their own approaches and processes to fit their individual needs. The CMP is an on-going process, continuously progressing and adjusting over time as goals and objectives change. New congestion issues arise, new information sources become available, and new strategies are identified and evaluated.

A major advancement since the previous Permian Basin MPO's CMP is the availability of technological tools for identifying congestion, including:

- Congestion Management Process Assessment Tools (COMPAT) which provides annual travel time index (TTI), hours of delay, and planning time index (PTI), among other measures. These data are based upon yearly averages and provide an annual "snapshot" based upon INRIX (a private company) data received from the previous year.
- INRIX has its own set of tools which became available in mid-2023 to Texas MPOs through a licensing agreement with the Texas Department of Transportation (TxDOT). INRIX provides roadway analytics through not only fixed sensors, but in-vehicle data collection in real-time.
- Regional Integrated Transportation Information System (RITIS) is another web-based software suite that uses INRIX and other datasets to perform more in-depth analysis of transportation conditions over various time periods and selected criteria. This extensive traffic analysis software also became available in mid-2023 to the MPOs.

In addition to the above new resources, the PBMPO continues to make use of geographic information system (GIS) transportation data received from TxDOT's Crash Reporting Information System (CRIS) data, the building permit/subdivision platting data from the Cities of Midland and Odessa, and Census data growth patterns and projections, and work with TxDOT's Transportation Planning and Programming Division (TPP) on a travel demand model (TDM).

Analysis of Data within the Congestion Network

The CMP identifies congestion locations and causes. By completing this task, a clearer focus can be applied to transportation planning efforts. Most of PBMPO's planning area congestion is experienced on roads included in the congestion monitoring network (Figure 8.1). According to the Federal Highway Administration (FHWA), roadway congestion consists of three key elements: severity, extent, and duration. The blending of these elements determines the overall congestion effect on roadway users. Congestion severity refers to the magnitude of the problem at its peak. Congestion extent describes the geographic area or number of affected motorists. Duration describes the lengths of times that users experience congested conditions. Because these elements have direct relationships, any increase in one will subsequently result in an increase in the other elements. Therefore, as roadway congestion severity increases, congestion duration will increase. These increases will impact greater numbers of motorists and roadway facilities, thus increasing the extent. The PBMPO Policy Board considers existing and future

congestion identified through the CMP when prioritizing and funding projects and programs.

Congestion occurs due to several foreseeable and unforeseeable events, either in isolation or in combination. Congestion is classified as either recurring or non-recurring. PBMPO uses the recently available tools to differentiate the types of recurring congestion associated with peak travel times, freight movement, intersection locations, various corridor classifications, schools, business districts, bottlenecks, at-grade rail crossings, and parking. INRIX, other data, and toolsets, also assist in identifying non-recurring congestion associated with incidents such as crashes, construction, and weather-related events.

PBMPO's CMP focuses on regionally significant roadways, including freeways, frontage roads, major arterial streets, intersections, interchanges, and corridor segments that comprise the congestion monitoring network. PBMPO uses TTI and other related data to develop congestion thresholds. These thresholds identify which road segments are "congested" and "near-congested." The thresholds may change over time as congestion measures increase or decrease throughout the CMP network. Projects on roads near or above congestion thresholds receive points in the project scoring process

Performance Measures

Developing performance measures to identify, assess, and communicate congestion is critical. One key to CMP effectiveness is the ability of the MPO staff to adequately assess system performance to identify problem areas. Understandable communications of that information to the public and decision-makers is also important. A performance measure, such as TTI or cost of delay, is used to determine the extent of a congestion issue. PBMPO adopted (in 2021) a performance measure threshold for congestion using a TTI of 1.5 or greater to identify a road or road segment as being congested. The Midland-Odessa Urban Transportation District (MOUTD), operating as the EZ-Rider transit agency, uses other metrics such as "on-time" performance rates for stops along their bus routes.

Performance measures serve as indicators to better understand transportation facility usage and the traveler characteristics. Performance measures can also be assessed over time to indicate whether congestion management strategies are successful and produce meaningful and/or desired outcomes. By monitoring performance and the outcomes from implemented improvement strategies, the quality of decision-making in the planning process can be improved and limited financial resources can be expended more effectively. The requirement for on-going assessment of the performance measures leads to the need to identify measures that are quantifiable, without placing a heavy burden on time, cost, or PBMPO staff training. This CMP establishes a set of performance measures that can be calculated from real world data on an annual basis, or on an ad-hoc basis using INRIX/RITIS and other tools. All results provide PBMPO with useful information to encourage better transportation investment decisions.

The federal CMP requirements do not mandate specific performance measures that must be used during the process. Identifying appropriate congestion performance measures is up to

each MPO. Although a wide range of performance measures is available, those selected for PBMPO CMP must be understandable, outcome—oriented, and supported by regularly available data. Two specific and measurable performance objectives to be established and monitored by PBMPO are: 1) reduce traffic delays on network freeways and arterial streets identified as having the most serious travel delays; and 2) reduce transit travel delays on routes having serious schedule delays. Over time, PBMPO identifies and uses specific measures and determines effectiveness in addressing congestion. As necessary, the PBMPO Policy Board will reconsider funding and scheduling priority amendments. Since 2018, the PBMPO Policy Board has regularly taken action to support TxDOT's adopted congestion performance targets.

Several performance metrics for measuring congestion are most recently (as of 2023) available in the RITIS Probe Data Analytic Suite for the MPO staff to perform congestion scans or create performance charts. These performance metrics include:

Comparative Speed. Measured speed as a percentage of the historical average speed for this time of day and day of week.

Congestion: Free Flow Speed. Measured speed as a percentage of the free flow speed.

Congestion: Posted Speed Limit. Measured speed as a percentage of the posted speed limit.

Historical Average Congestion: Free Flow Speed. Historical average speed as a percentage of the free flow speed for this time of day and day of week.

Historical Average Congestion: Posted Speed Limit. Historical average speed as a percentage of the posted speed limit for this time of day and day of week.

Buffer Time. The extra time (or time cushion) that travelers must add to their average travel time when planning trips to ensure on-time arrival (95% Travel Time - Average Travel Time).

Buffer Index. The Buffer Time's percentage value of the Average Travel Time ((95% Travel Time - Average Travel Time) / Average Travel Time). Its value increases as reliability gets worse. For example, a buffer index of .4 (40 percent) means that, for a 20-minute average travel time, a traveler should budget an additional 8 minutes (20 minutes x 40 percent = 8 minutes) to ensure on-time arrival most of the time.

Planning Time. The total time a traveler should plan for to ensure on-time arrival (95% Travel Time).

Planning Time Index: Free Flow Speed. The total travel time that should be planned when an adequate buffer time is included (95% Travel Time / Free-flow Travel Time). The planning time index differs from the buffer index because it includes typical delay as well as unexpected delay. Thus, the planning time index compares near-worst case travel time to a travel time in light or free-flow traffic. For example, a planning time index of 1.60 means that, for a 15-minute trip in light traffic, the total time that should be planned for the trip is 24 minutes (15 minutes x 1.60 = 24 minutes).

Planning Time Index: Posted Speed Limit. The total travel time that should be planned when an adequate buffer time is included (95% Travel Time / Speed Limit Travel Time). The planning time

index differs from the buffer index in that it includes typical delay as well as unexpected delay. Thus, the planning time index compares near-worst case travel time to a travel time in traffic moving at the posted speed limit. For example, a planning time index of 1.60 means that, for a 15-minute trip when moving at the speed limit, the total time that should be planned for the trip is 24 minutes (15 minutes x 1.60 = 24 minutes).

Travel Time Index: Free Flow Speed. Travel time represented as a percentage of the ideal travel time (Travel Time / Free-flow Travel Time).

Travel Time Index: Posted Speed Limit. Travel time represented as a percentage of the ideal travel time (Travel Time / Speed Limit Travel Time).

In addition, the following performance measures/variables are utilized in the COMPAT tool PBMPO has often used over the past three years:

Person Hours of Delay. The difference in travel time from uncongested traffic and congested traffic. This is for all persons in vehicles traveling for a year

Congested Costs. The annual costs to travelers due to such factors as loss productivity and extra vehicle wear

Average-Annual Daily Traffic (AADT). The total volume of traffic on a highway segment for one year, divided by the number of days in the year

Vehicle Miles of Travel – The mileage traveled by all vehicles on a highway segment over an average day in a year

Peak Vehicle Miles of Travel. The mileage traveled by all vehicles on a highway segment in the peak period over an average day in a year

Truck AADT. The total volume of truck traffic on a highway segment for one year, divided by the number of days in the year

Truck Vehicle Miles of Travel. The mileage traveled by all trucks on a highway segment over an average day in a year

Truck Person-Hours of Delay. The difference in travel time from uncongested traffic and congested traffic. This is for all truck person-hours traveling for a year

Reference Speed. The average speed of vehicles in uncongested conditions

Congested Speed. The average speed of vehicles in congested conditions

Truck Reference Speed. The average speed of trucks in uncongested conditions

Truck Congested Speed. The average speed of trucks in congested conditions

Travel Time Index. The ratio of the peak-period travel time as compared to the free-flow travel time. This measure is computed for the AM peak period (6:00 a.m. to 9:00 a.m.) and PM peak period (4:00 p.m. to 7:00 p.m.) on weekdays

Truck Travel Time Index. The ratio of the peak-period travel time for trucks as compared to the free-flow travel time for trucks. This measure is computed for the AM peak period (6:00 a.m. to 9:00 a.m.) and PM peak period (4:00 p.m. to 7:00 p.m.) on weekdays

Planning Time Index (PTI) 80. The ratio of the 80th percentile travel time as compared to the free- flow travel time

Planning Time Index 95. The ratio of the 95th percentile travel time as compared to the free- flow travel time

Truck Planning Time Index 80. The ratio of the 80th percentile truck travel time as compared to the truck free-flow travel time

Truck Planning Time Index 95. The ratio of the 95th percentile truck travel time as compared to the truck free-flow travel time

Congested CO2 Lbs. The extra CO2 emitted from vehicles in congested conditions

Normal CO2 Lbs. The CO2 emitted from vehicles in uncongested conditions

The final two criteria above are of special interest to PBMPO with the current Infrastructure Investment and Jobs Act (IIJA) funding available for exploring carbon reduction strategies. Other performance measures that PBMPO utilize include:

Crash Measures. Crash measures identify if there is a high concentration of crashes at a particular location along a corridor or at a particular turning movement at an intersection or cross street. Crashes certainly impact travel conditions and can be the cause of non-recurring congestion along corridors and intersections. Identifying "hot spot" crash locations and examining the location in the field can assist in identifying potential projects to improve the safety and function of the roadway corridor or intersection. Common improvements could include improving sight distance, adding turn lanes, adding traffic signals, implementing traffic calming devices, etc. Crash measures in PBMPO's area could include the following:

- Number of crashes along a specified corridor
- Number of crashes at a particular intersection
- Type of crashes along a specified corridor
- Type of crashes at a particular intersection
- Number of crashes per million vehicle-miles over a section of roadway

Transit Travel Condition Measures. These measures provide information on the conditions experienced by public transit users. Aspects of transit travel conditions include vehicle ridership vs. load capacity and on- time performance reliability. Thus, transit travel condition measures in the Permian Basin MPO area include the following:

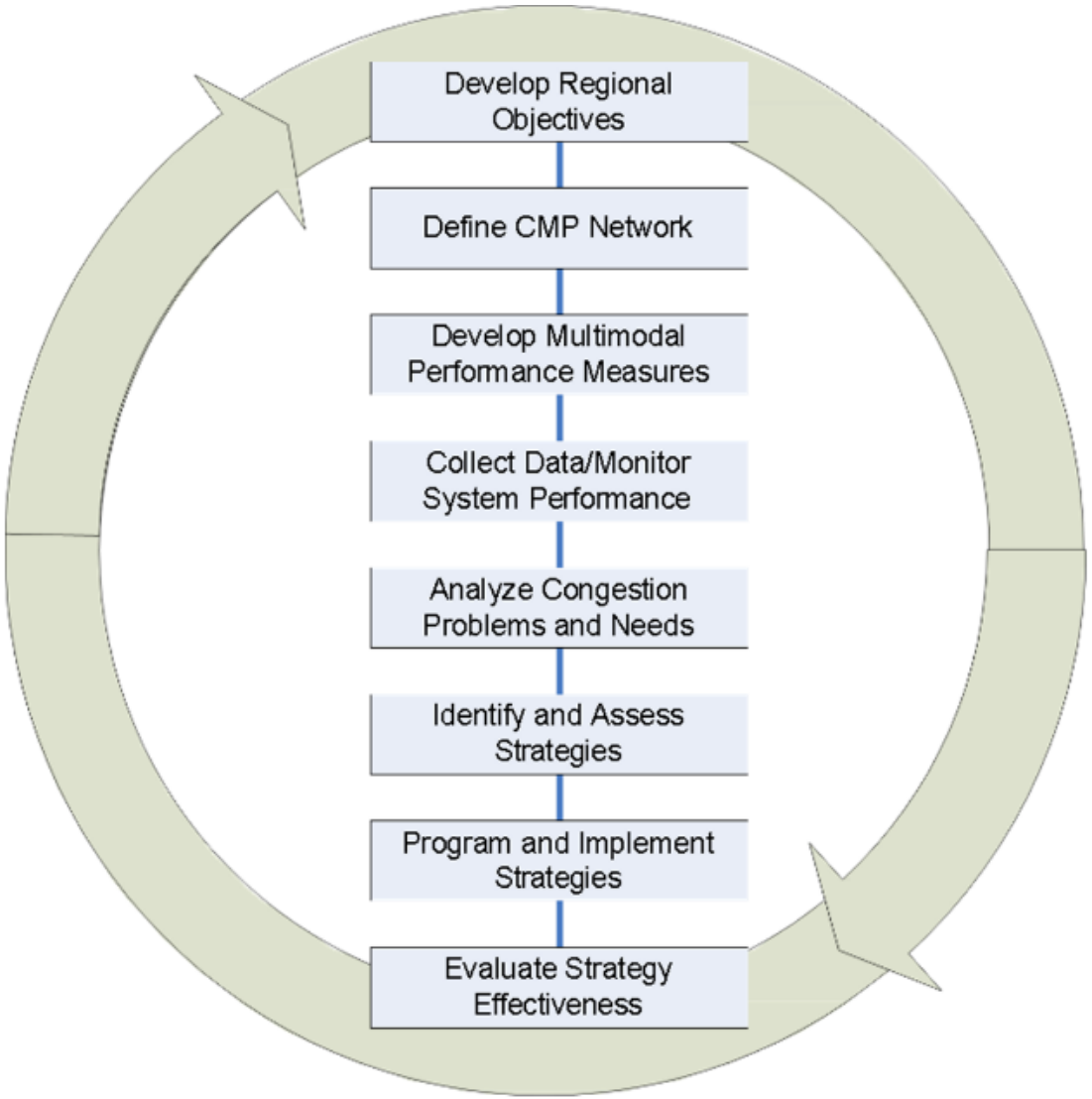
- Transit ridership
- Transit capacity along congested corridors
- Transit availability
- Transit scheduling delays due to congestion

Two of the main factors in deciding a mode of travel include the availability and the reliability of transit. Because automobiles provide both availability and reliability, most trips are completed using cars. Examining transit ridership and capacities along congested corridors will assist in identifying potential route extensions and modifications that may encourage more transit "choice" ridership. If public transportation is not available along a congested corridor, this may be a potential corridor to review alternatives to improve congestion.

PBMPO Congestion Management Process

The PBMPO planning area population, according to the most recent U.S. Census estimates, is 340,455. Within this area, PBMPO has the responsibility of coordinating safe and efficient movement of people and goods on the multi-modal public transportation system. The PBMPO multi-modal transportation system includes facilities for pedestrians, bicyclists, transit riders, air transport users, and automobile/truck users.

The PBMPO CMP is modeled after the process suggested in the FHWA *Congestion Management Process: A Guidebook*. The diagram shown here visualizes the step-by-step process, emphasizing the ongoing nature of the CMP. More details for each step are provided on the following page.



Develop Regional Objectives – First, MPO needs to answer the questions: "What is the desired outcome?" and "What do we want to achieve?" It may not be feasible or desirable to try to eliminate all congestion, and so in this step it is important to define the regional objectives for congestion management that are designed to achieve the desired outcome. Some MPOs also define congestion management principles, which shape how congestion is addressed from a policy perspective.

Define the CMP Network - Second, answering the question, "What components of the transportation system are the focus?" involves defining both the geographic scope and system elements (e.g., freeways, major arterials, transit routes) that will be analyzed in the CMP.

Develop Performance Measures – Third, the CMP addresses the question, "How do we define and measure congestion?" This involves developing performance measures to be used to measure congestion on both a regional and local scale. These performance measures should support the regional objectives.

Collect Data/Monitor System Performance – After performance measures are defined, data is collected and analyzed to determine, "How does the transportation system perform?" Data collection may be ongoing and involve a wide range of data sources from various planning partners.

Analyze Congestion Problems and Needs - Using available data and analysis techniques, the CMP should address the questions, "What congestion problems are present in the region, or are anticipated?" and "What are the sources of unacceptable congestion?"

Identify and Assess Strategies - Working together with the MPO's planning partners, the CMP should address the question, "What strategies are appropriate to mitigate congestion?" This step involves both identifying and assessing potential strategies and may include efforts conducted as part of the development of the MTP, corridor studies, or project studies.

Program and Implement Strategies – Then the question, "How and when will solutions be implemented?" needs to be answered. This involves: including strategies in the MTP; determining funding sources; prioritizing strategies; allocating funding in the TIP; and, ultimately, implementing the strategies.

Evaluate Strategy Effectiveness – Lastly, "What have we learned about implemented strategies?" This step will be tied closely to monitoring system performance and is designed to inform future decision making about the effectiveness of transportation strategies. From the lessons learned in this step, the process begins again in a continuous process of monitoring and improving congestion management processes within the region.

Develop the Vision, Goals and Objectives

The CMP foundation begins with identifying a vision, goals, and objectives for reliable goods and people movement. The vision states what the transportation system should look like in the future. Goals state how the MPO will reach the vision and objectives state how the MPO will achieve the goals. They are an essential part of a data-driven, performance-based approach to transportation planning.

Generally, the vision, goals and objectives used for the CMP are the same as those adopted by the Policy Board for the MTP.

The PBMPO vision is *"To have an affordable system of transportation infrastructure and services that safely connects the regional community and fosters economic prosperity and quality of life."*

The PBMPO's technical advisory committee (TAC) and the general public have indicated through planning processes that congestion is one of the highest priorities when recommending transportation infrastructure investments. Capturing the full spectrum of regional priorities in the transportation planning process, the CMP includes many of the same MTP goals related to congestion and performance targets. The sections that follow identify performance measures and data collection to evaluate progress toward overall goals which are often indirectly related to congestion.

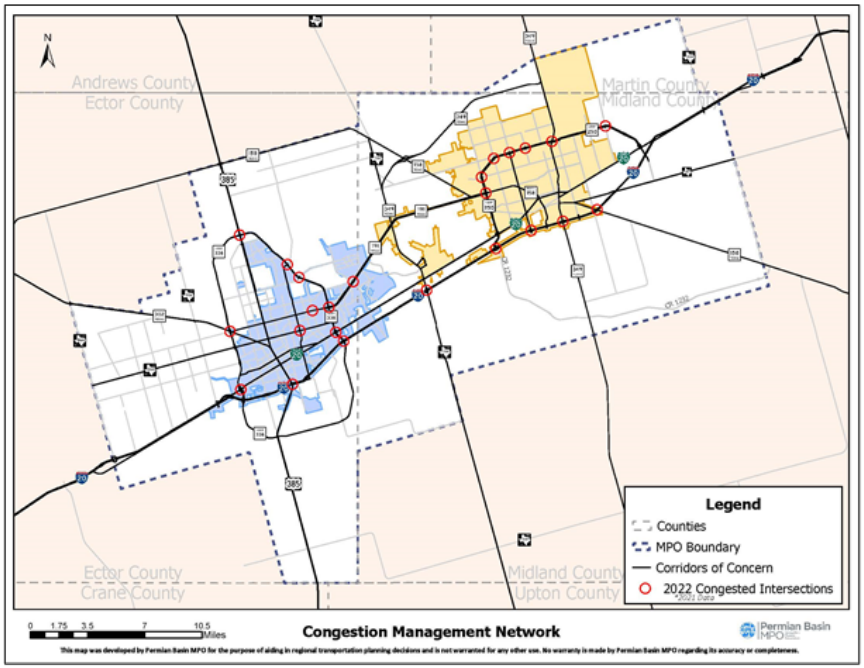
See Chapter 1 for congestion-related goals and objectives.

Define the CMP Network

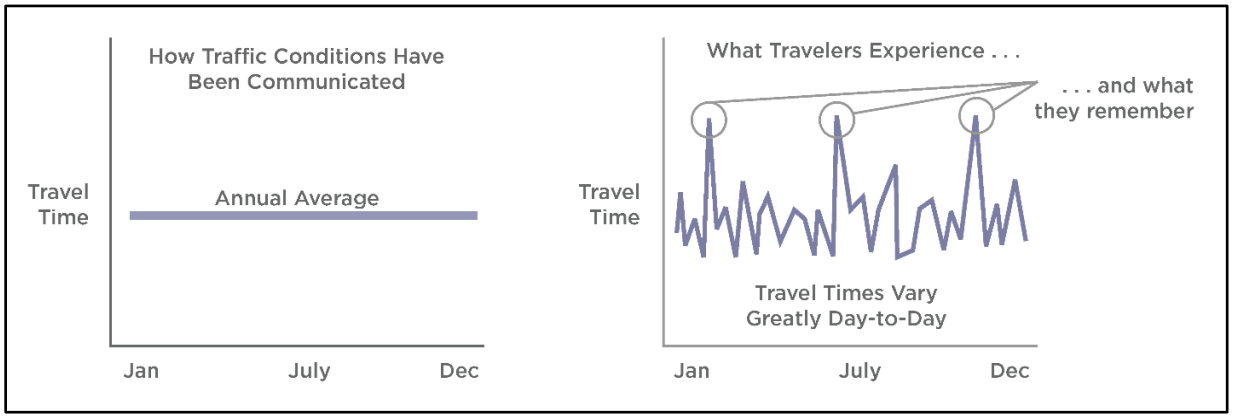
The CMP identifies congestion locations and causes. By completing this task, a clearer focus can be applied to transportation planning and programming efforts. Most of the PBMPO congestion occurs on facilities in the congestion monitoring network map shown in Figure 8.1.

The primary focus of the 2024 updated CMP is on road and transit impacted congestion; however, other modes of transportation may also be reviewed as data becomes available to PBMPO. For the 2024 CMP update, PBMPO relied more on quantitative data than qualitative public perception. Public input is still very much a part of the CMP today as it is made available to the public for comment and input and requires a public hearing for adoption.

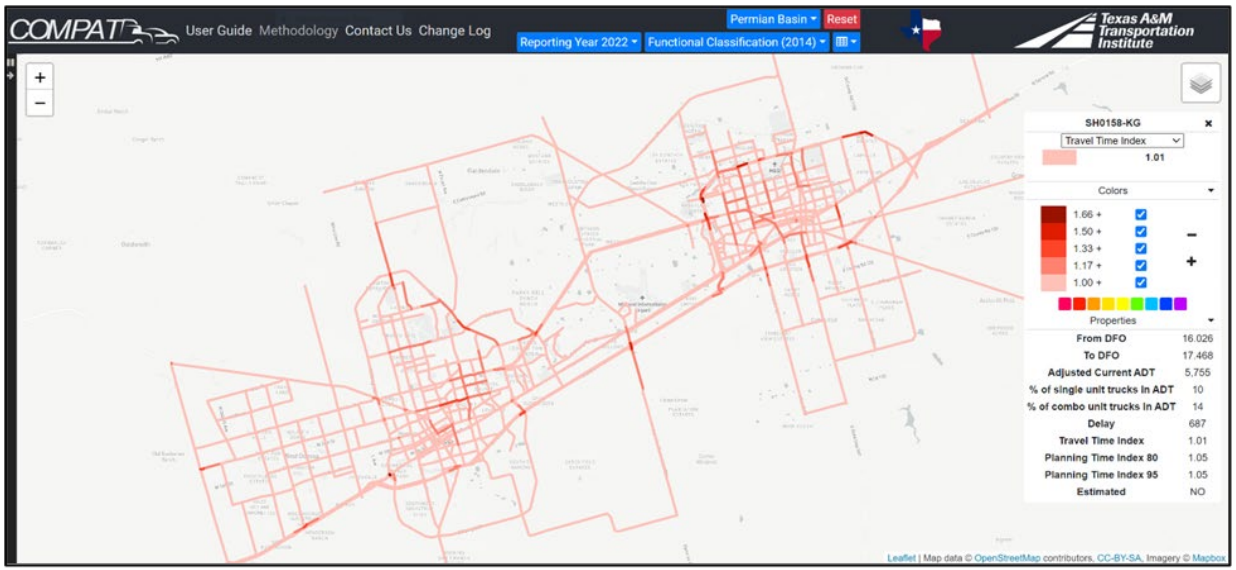
Figure 8.1 – Congestion Management Network



The simple graphic to the right from the FHWA publication on travel time reliability puts quantitative measured data in perspective with qualitative public perception.

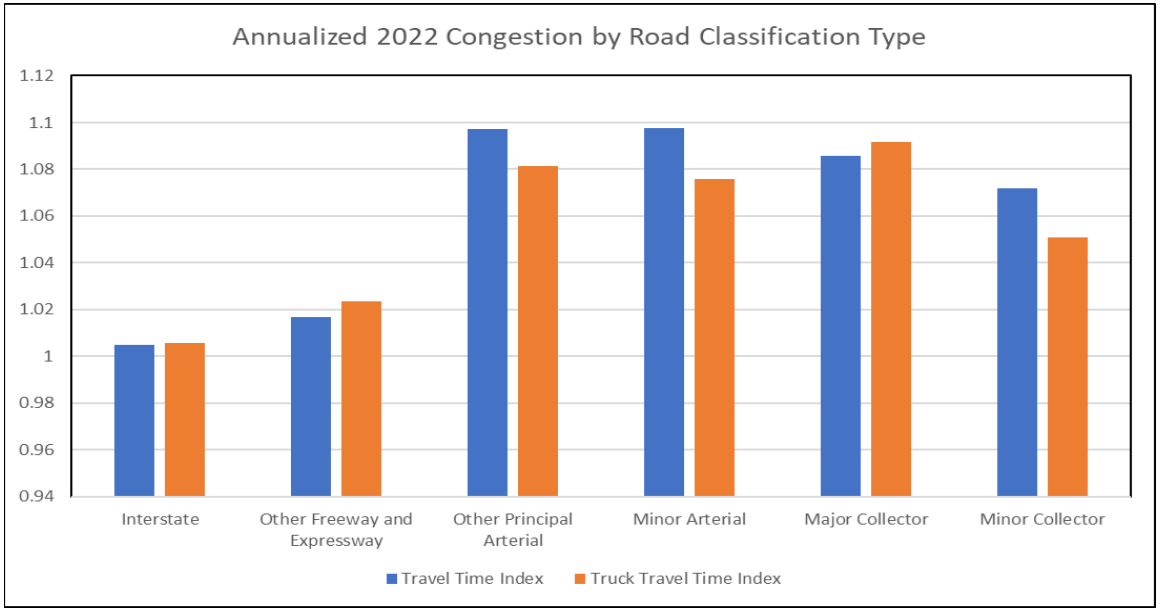


One of the valuable tools that PBMPO uses is COMPAT, which can identify, among other metrics, the TTI as the ratio of the travel time during the peak period to the time required to make the same trip during off-peak periods. A value of 1.25, for example, indicates a 20-minute off-peak trip requires 25 minutes during the peak period. PBMPO has adopted a TTI of 1.5 as a threshold in scoring potential projects higher on the congestion rating in the project selection process. The COMPAT-generated figure to the right shows the TTI for the reporting year 2022 (based upon 2021 data). Because the TTI is based upon an annual average of both Wednesdays and Saturdays over the year, great travel time fluctuations do not appear.



Another metric for measuring congestion throughout PBMPO's transportation planning network is the person hours of delay. Person hours of delay measures the delay per mile during the peak periods, which can be in the 6:00 a.m. to 9:00 a.m. and 4:00 p.m. to 7:00 p.m. ranges.

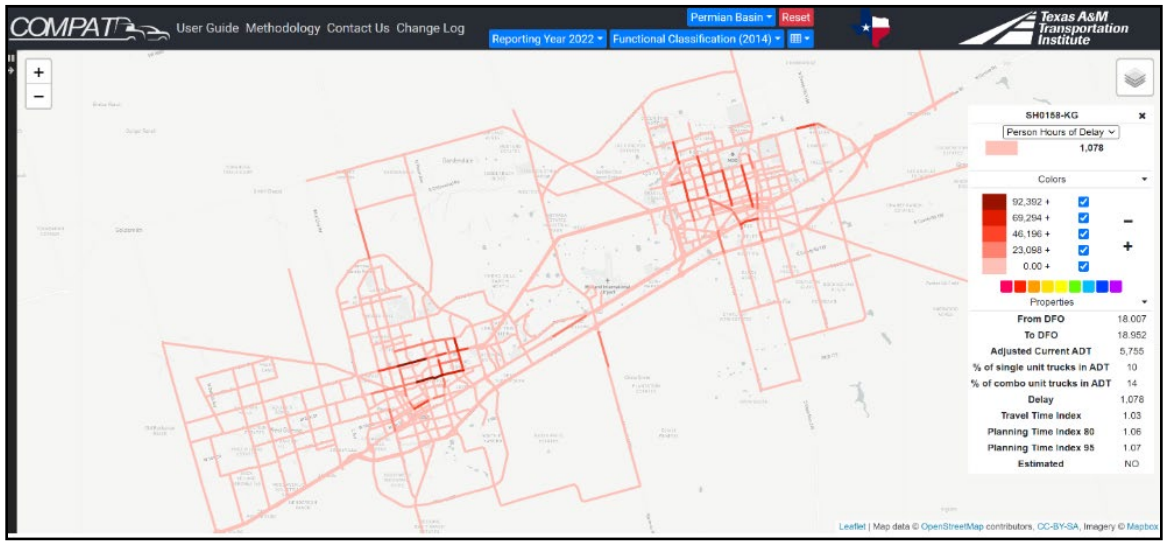
COMPAT Person Hours of Delay along the significant road corridors within the PBMPO planning area shown as an annual average for the reporting year 2022 based upon 2021 INRIX data.



Develop Multimodal Performance Measures

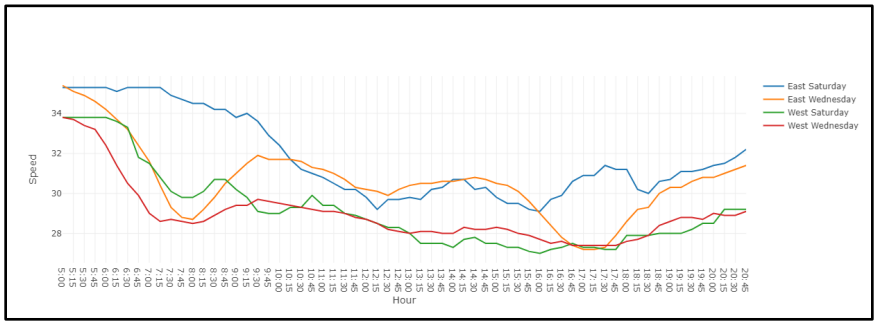
PBMPO works closely with the EZ-Rider, the MPO's only public transit agency. EZ-Rider has six fixed routes within each city – Midland and Odessa, including EZ-Connect. EZ-Connect is a commuter service between the cities of Midland and Odessa.

With representation on PBMPO's Policy Board, MOUTD staff keep the MPO informed of ridership and on-time performance measures throughout their route networks. The majority of transit system congestion is very similar to the commuting public with occasional rerouting around construction areas that may impact safety and accessibility to various bus stops.

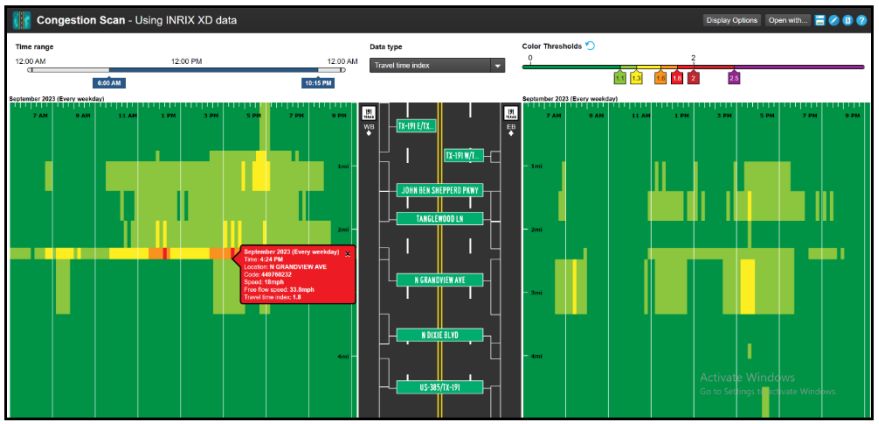


Collect Data/Monitor System Performance

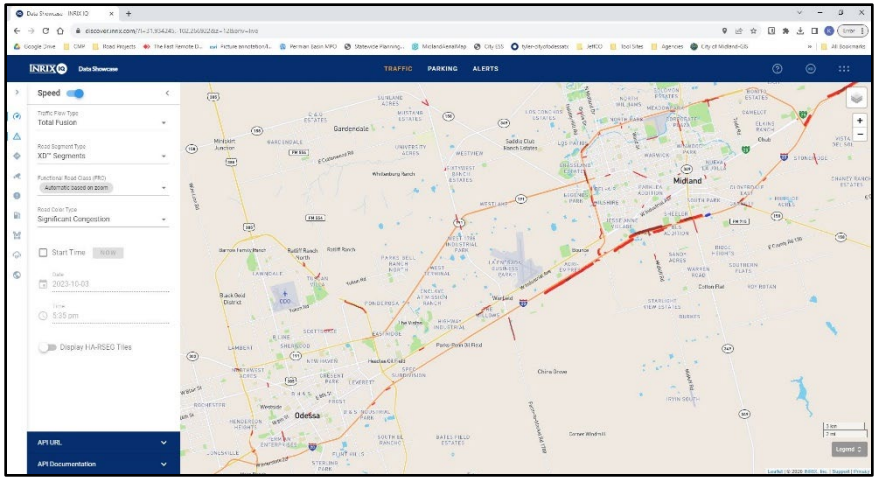
PBMPO accesses several resources for collecting and monitoring traffic data. The image below is an example of a closer road segment along SH-191 between N Grandview Ave and SL-338 in Odessa analysis using COMPAT, identified locally as 42nd Street, as it transitions from a freeway to an arterial from the east.



The image below is a more detailed look at the same road segment using the same INRIX data in the RITIS software showing the weekday average for September 2023.



Another tool for PBMPO to utilize is the INRIX IQ web-based interface for monitoring system performance in real-time. The image below shows a screen capture of the areas (shown in red) that are experiencing significant congestion. Other options include selection for minor congestion, speed, and relative speed (the difference between the current reported speed and the typical speed for the current time of day and day of week).



Analyze Congestion Problems and Needs

One shortcoming of looking at the CMP Network based upon annualized data averages is missing recurring congestion events that occur during peak travel hours. Those events may not display in a map or report due to the short congested road segment length. PBMPO is committed to continually taking a closer look at the way congestion data is analyzed with evolving analysis tools.

The image to the right is an example of recurring congestion during peak travel times on any given weekday on State Spur 588 (Faudree Road) at its intersection with Business I-20. The image shows the location of a bottleneck at this location with the blue circle representing the head/beginning of the bottleneck and the blue line the length of the bottleneck. Note that the aerial imagery is not perfectly aligned with the precise location of the bottleneck, which is on the southbound side of Faudree Road. While the length of the bottleneck is only 0.02 miles (approximately 100'), the duration of this congested bottleneck is 33 minutes. Ground truthing was observed of this congested area over months by PBMPO staff during regular commuting. The primary congestion cause is the result of the short length of the free right-turn for Faudree Road traffic heading south and turning west onto Business I-20.

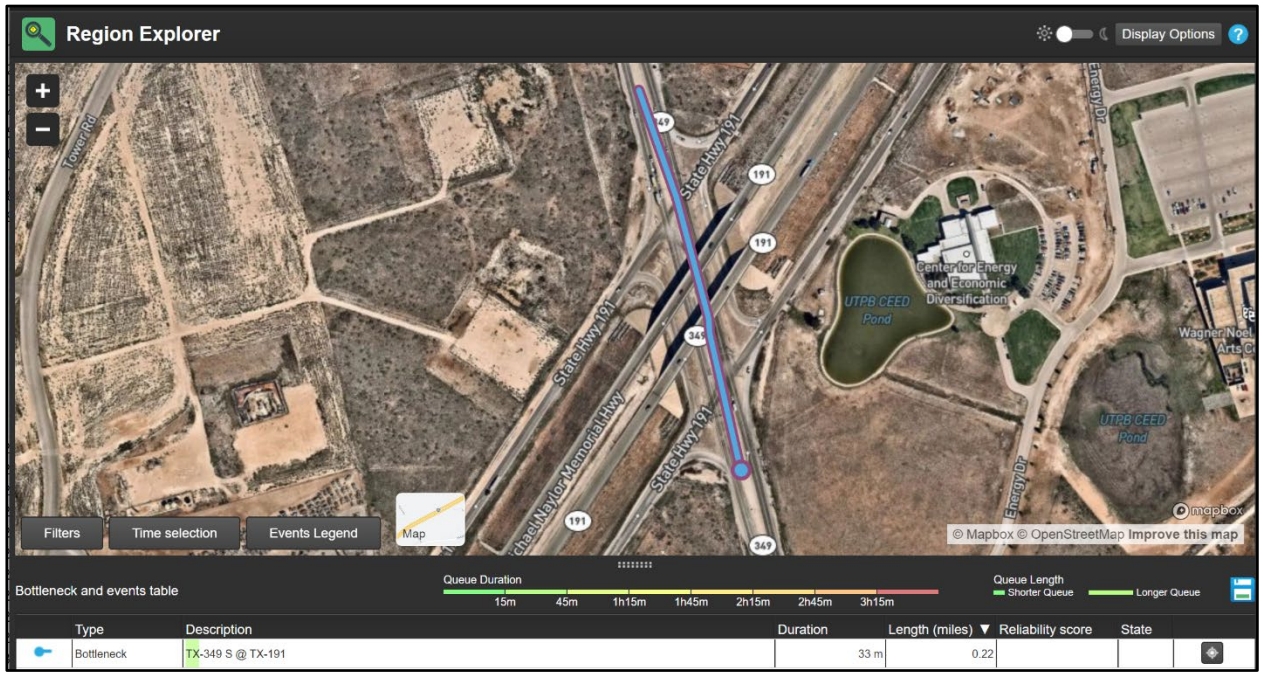
As a result of the short right-turn only lane, the vehicle queue often blocks the outside left-turn lane heading south on Faudree and attempting to turn east on Business I-20. The double left-turn onto Business I-20 east then becomes an essentially open lane without cars being able to utilize it due to the SB Faudree Road traffic intending to turn west on Business I-20 blocking this lane.

TX-588-SPUR (Faudree Road) @ Business I-20 identifying the length and duration of an example recurring traffic bottleneck during a peak weekday travel hour. (Source: MPO Staff analysis using RITIS Region Explorer – Bottleneck CMP Tool)

It is worth mentioning that the queuing length of free right-turn lanes in PBMPO planning area is inadequate in multiple locations. PBMPO is interested in working closely with TxDOT and local agencies to determine if solutions to expand designated right-turn queue lengths at heavily congested locations might be implemented. Roadway configurations that may have been adequate for traffic years ago may now be creating congested bottlenecks, not only due to PBMPO's volume of truck to car ratios with increased petroleum activity, but to area population increases of roughly 30% over the past ten years.

The image to the right is another such example of a bottleneck intersection. While this example is a routinely congested intersection, the length and duration of the bottleneck shown here again in blue is exacerbated by a short free right-turn lane on northbound SH 349/FM 1788 to eastbound SH 191.

PBMPO staff ground truthing observations found that a significant contributing factor to the bottleneck shown on Map 3.6 is due to inadequate right-turn queue length. This same situation regularly occurs with eastbound SH 191 traffic turning south onto SH 349/FM 1788. Transportation System Management (TSM) and intersection design can both be utilized to improve conditions such as these.



TX-349 (FM-1788) @ SH-191 identifying the length and duration of an example recurring traffic bottleneck during a peak weekday travel hour. (Source: MPO Staff analysis using RITIS Region Explorer – Bottleneck CMP Tool)

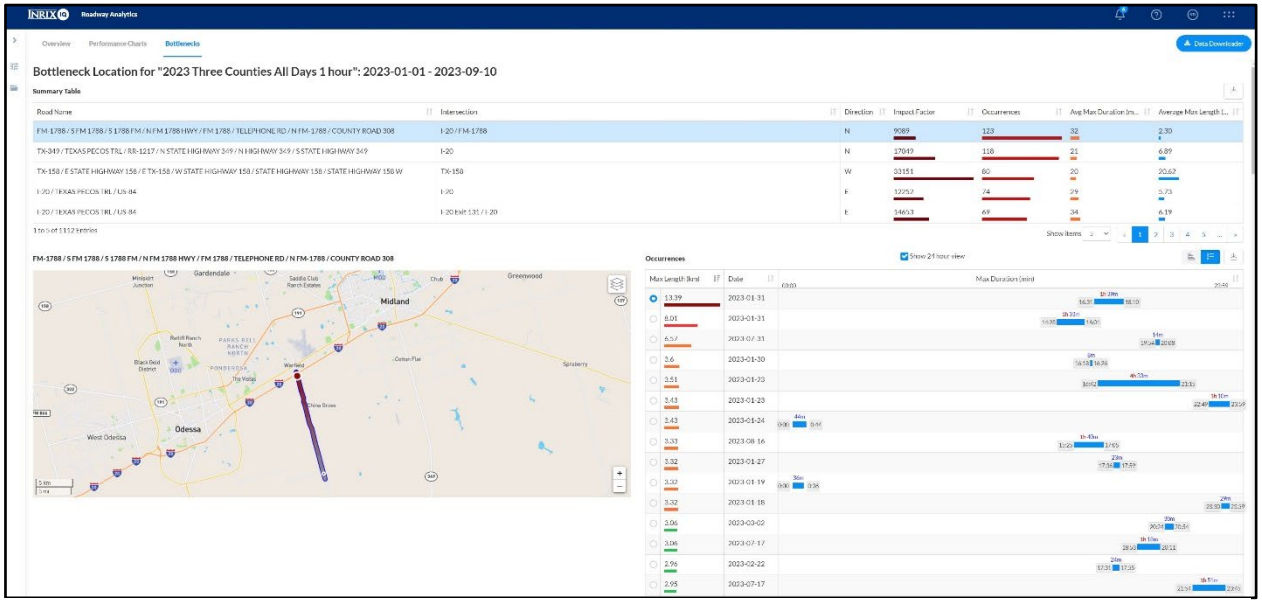
Identify and Assess Strategies

It is important to understand the nature of congestion when identifying and addressing strategies to alleviate congestion. Non-recurring congestion due to construction, weather, or road incidents would be accurately addressed through the road network's resiliency. That is, to have a plan for alternative routes for known construction work, or the ability of the road network to accommodate single events such as crashes or weather events as motorists are rerouted. Recurring congestion can be attributable to various factors including the volume of traffic during peak travel times, traffic light signal timing, road configuration. Or, as in the example shown in the image here, it may be a combination of factors resulting in a traffic bottleneck.

At a high-level, bottlenecks are locations on the roadway where conditions have fallen below a certain percent of the reference speed for an extended period of time. Bottleneck temporal and geospatial extents can be used to determine which locations are particularly troublesome for the traveling public. This is the case on the heavily truck-traveled FM 1788 traveling northbound just south I-20.

Another tool, the bottleneck profile, provides summary information for each bottleneck including the average maximum queue length, average duration and total duration.

Bottleneck strategy assessment for the example shown on FM 1788 would be collaborative with PBMPO TAC. Project scoring for congestion criteria on this road segment would be relatively high. Potential congestion mitigation strategies to remove the bottleneck might include the addition of another northbound lane and extension of the right-turn only lane further south allowing more queued traffic to move from the through lanes to enter eastbound I-20.



A Bottleneck Profile shown for FM-1788 where severe congestion is recurring at various points throughout the day. (Source: MPO Staff analysis using INRIX IQ – Roadway Analytics Tool)

Program and Implement Strategies

PBMPO uses the CMP to address persistent congestion problems and help prioritize transportation investments. There are many congestion management strategies and each differs in terms of implementation effectiveness, cost, complexity, and difficulty. Congestion management strategies are not one size fits all. Rather, congested roadways and intersections must be properly examined to evaluate which congestion mitigation strategy will effectively improve the congestion related problems. The CMP framework identifies numerous congestion mitigation strategies that will individually or collectively improve the operational efficiency of PBMPO transportation facilities. When implemented, the improvements impact auto, transit, pedestrian, and bicycle usage. Several proven congestion management strategies that can be used to mitigate congestion in PBMPO region include:

- **Transportation System Management and Operations Strategies (TSMO)** – Enhancing the efficiency of the transportation system can be achieved by implementing traffic operational and management strategies, which can allow more effective management of the supply and use of existing roadway facilities. It can increase effective capacity by optimizing traffic operations without constructing additional lanes. This is low cost, requires minimal right-of-way, and can be constructed or implemented quicker than other congestion management strategies.
- **Access Management Strategies** – As defined by FHWA, access management is “the proactive management of vehicular access points to land parcels adjacent to all manner of roadways”. Thus, access management strategies control the entrance and exit of vehicles on the roadway to remove potential conflict points between vehicles. These include access spacing, driveway spacing, safe turning lanes, median treatments such as two-way left-turn lanes, and right-of-way management.
- **Transportation Systems Management (TSM)** – Optimize the efficiency of the transportation system by improving vehicle flow. The TSM approach to congestion mitigation seeks to identify operational improvements to enhance the capacity of existing transportation systems. TSM improvements are designed to improve traffic flow and the movement of vehicles and goods, which in turn improves air quality, system accessibility, and safety. These include road geometric improvements, traffic signal timing, and way-finding signage improvements.
- **Incident Management Strategies** – Implemented as responses to roadway incidents, such as crashes that may cause non-recurring congestion and include strategies to improve response time and reduce accident clearance times.
- **Intelligent Transportation Systems (ITS) and Dynamic Message Signs** – Information technology to improve the functionality of the transportation system.

Utilizing new tools for analysis and effectively managing and mitigating congestion in PBMPO’s planning area, requires a multilevel, multi-jurisdictional approach. Analyzing every

congested corridor or intersection and developing a strategy for congestion remediation is not a function of this document. Specific corridor studies and analysis are recommended as part of the congestion management process. Identification of congestion areas will generally fall to the parties identified as responsible for each corridor. However PBMPO plays an active role in ensuring the 2024 CMP is fully incorporated into each of the following:

- PBMPO MTP
- TxDOT 10-year Unified Transportation Plan
- PBMPO 4-year Transportation Improvement Program (TIP)

Additionally, some strategies fall outside of the purview of PBMPO and its transportation planning partners. For instance, efficient land-use and specific site plan development review would be valuable in identifying potential development corridor access points that may contribute to congestion.

Given that the region's need for transportation investments is greater than available funding, it is important to prioritize investments that provide the most benefit to the region in terms of regional goals and objectives. This analysis provides a systematic methodology for evaluating and ranking individual projects of fiscally responsible MTP, UTP and TIP. Strategy recommendations to address congestion are federally mandated and are an integral part of the CMP. PBMPO's well-rounded suite of strategies include:

- Preserve existing transportation system condition
- Improve system performance through operation and management
- Promote non-vehicular modes
- Add capacity where it is the best option to relieve congestion
- Public transportation strategies that enhance access to and the effectiveness of transit

While not yet available at the time of this 2024 CMP update, significant consideration should be given to the 2050 TDM, which is expected from TxDOT's TPP Division in early 2024. Other documents for consideration in programming and implementing CMP strategies should include the State Loop 338 Study, PBMPO Resiliency Plan, PBMPO Comprehensive Safety Action Plan, as well as long-range consideration of PBMPO Interregional Corridor Planning and Environmental Linkages (PEL) Study.

Evaluate Strategy Effectiveness

A key part of effective transportation planning decisions is the use of accurate and viable transportation data. All project planning, programming, and subsequent monitoring should be completed using viable and current data. Relevant data allows decision makers to complete a needs assessment and consider project development involving the MTP and TIP as applicable. Prioritization of funding should include review of available data, which relate to the performance measures in Section 2.2. Project results analysis will follow project implementation. Data collection will be accomplished in cooperation with PBMPO member agencies and other partners. Some of the costs required for detailed congestion and corridor analysis efforts may be funded through PBMPO. However, much of the traffic count data and accident data are provided by PBMPO's member agencies.

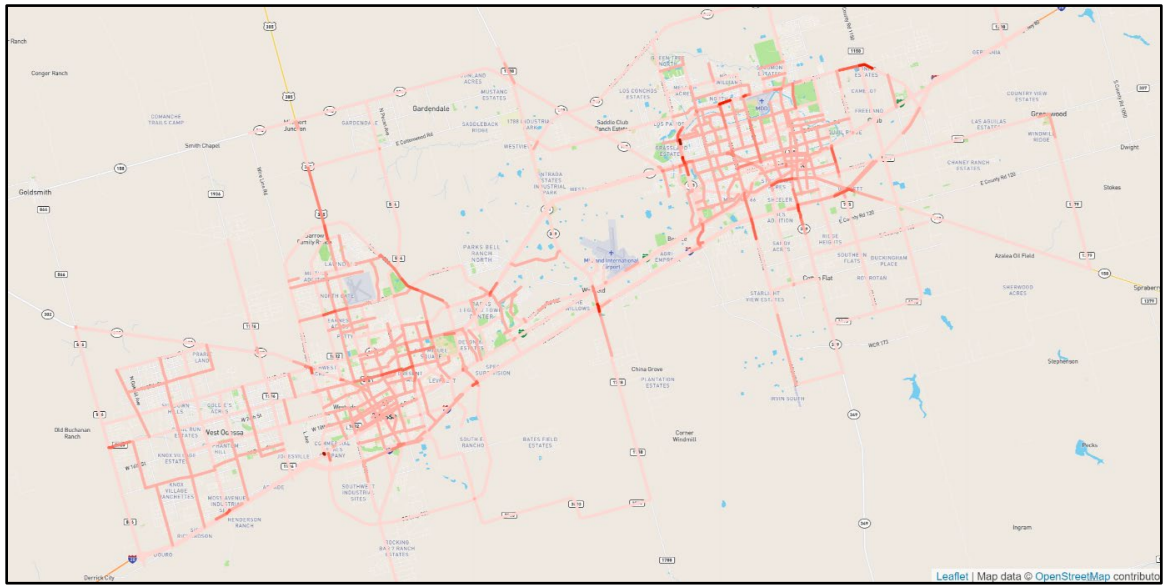
Previously PBMPO would rely on an annual data collection effort to measure how effectively the region is managing congestion. However, with advancements in technologies and the availability of data through cellphones and in-vehicle collection devices, a wealth of data is available from real-time to specific historical dates and times. TxDOT's support will provide MPOs with these newly available data and congestion analysis tools (in the form of INRIX IQ/RITIS) cannot be overstated. Post analysis of a completed road project's effectiveness, to road incidents such as construction or vehicle crashes become an extremely valuable CMP tool.

Volume to capacity ratios and other information should continue to be calculated based on the average daily traffic (ADT) on CMP network segments and planning-level capacities as estimated in the regional TTDM. While TxDOT has automatic traffic recorders (ATRs) at numerous locations in metropolitan area, technology has been rapidly shifting to "vehicle probe data." These datasets retrieve anonymous cell phone, bluetooth, and other vehicle position and speed data. Whichever established data collection mechanism is used, it ensures that necessary CMP performance monitoring data is available. PBMPO will continually utilize GIS mapping to analyze the data, including for future CMP updates.

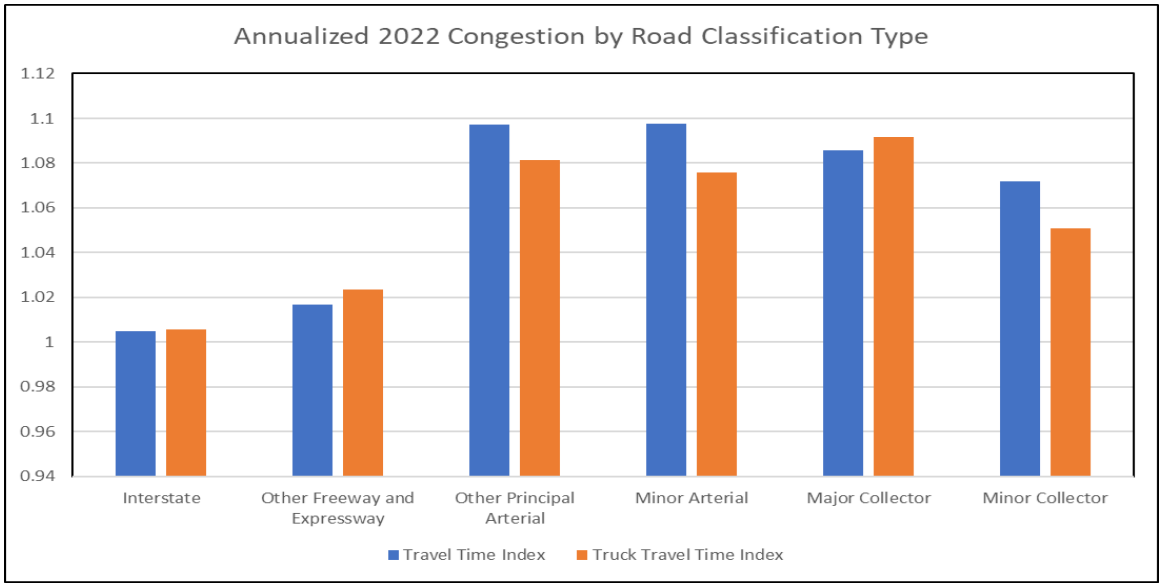
Travel time studies should be conducted along the CMP corridors during the peak periods and non-peak periods to better understand the congestion characteristics of the corridor. CRIS data provides the number of crashes along any given corridor and is an indicator for non-recurring congestion; crashes along the CMP network may result in expected delays and unreliable travel times. This crash data is maintained by the TxDOT for all roadways and allows for queries on several criteria (i.e., excessive speed, impaired driver, type of crash – vehicle/vehicle or vehicle/pedestrian, and many other variables.

Regionally Significant Corridors

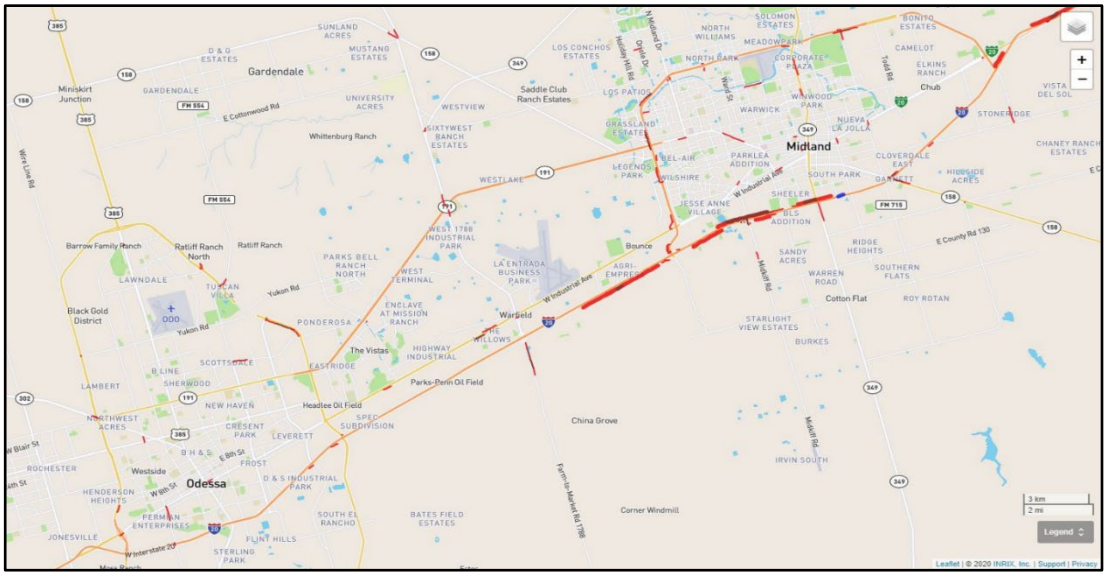
All regionally significant roads within PBMPO's planning area experience non-recurring congestion throughout the year. Non-recurring congestion primarily is typically based upon construction or an event such as a crash. The recurring congestion is primarily centered around the morning and evening peak periods. If the data is annualized however, as in the image to the right, across all the functional classifications, very few regionally significant corridors stand out as congested.



The image to the right provides the annualized average TTI outlined by road classification type and the congestion measure experienced by all vehicles and for trucks only. Note that "on average," PBMPO planning area's regionally significant corridors remain below the 1.5 TTI congestion threshold that the MPO Policy Board has adopted.



The figure shown here illustrates the results of utilizing another tool to examine regionally significant road congestion at a single point in time. In this case the MPO staff can analyze actual congested travel speeds in real-time. Note the great difference between the map on the previous page (showing annualized averages of congestion which is helpful in identifying recurring problem areas over time) and the image shown on this page (which is a snapshot of congestion as it appeared on October 3rd at 5:30 during the evening peak period). This map highlights the significantly congested corridor along IH 20 in Midland, which is currently under reconstruction.



Given the 42-mile scope of the IH 20 reconstruction over the next 20 years, it can be expected this construction project will have an increase in overall annualized congestion rates in the PBMPO region. This impact is likely to be observed in the next annualized data refresh in the February 2024 COMPAT update. The IH 20 corridor widening, reconfigured interchanges, and frontage road conversion to one-way operations, will result in congestion for each construction phase in the foreseeable future.

While the PBMPO is not overly congested in general, compared to larger Texas MPOs, it does have some corridors of concern that will become more congested during the next 25 years without mitigation. PBMPO will use 2050 TDM once TxDOT delivers it.

Corridors of concern are important corridors that currently function below the 1.50 TTI and need monitoring to avoid unacceptable congestion. Corridor profiles show the travel corridor, surrounding land uses, and areas of need. Table 8.1 and Figure 8.2 indicate congested intersections near or above the 1.50 TTI threshold.

Figure 8.2 – Congested Intersections along the PBMPO's Corridors of Concern

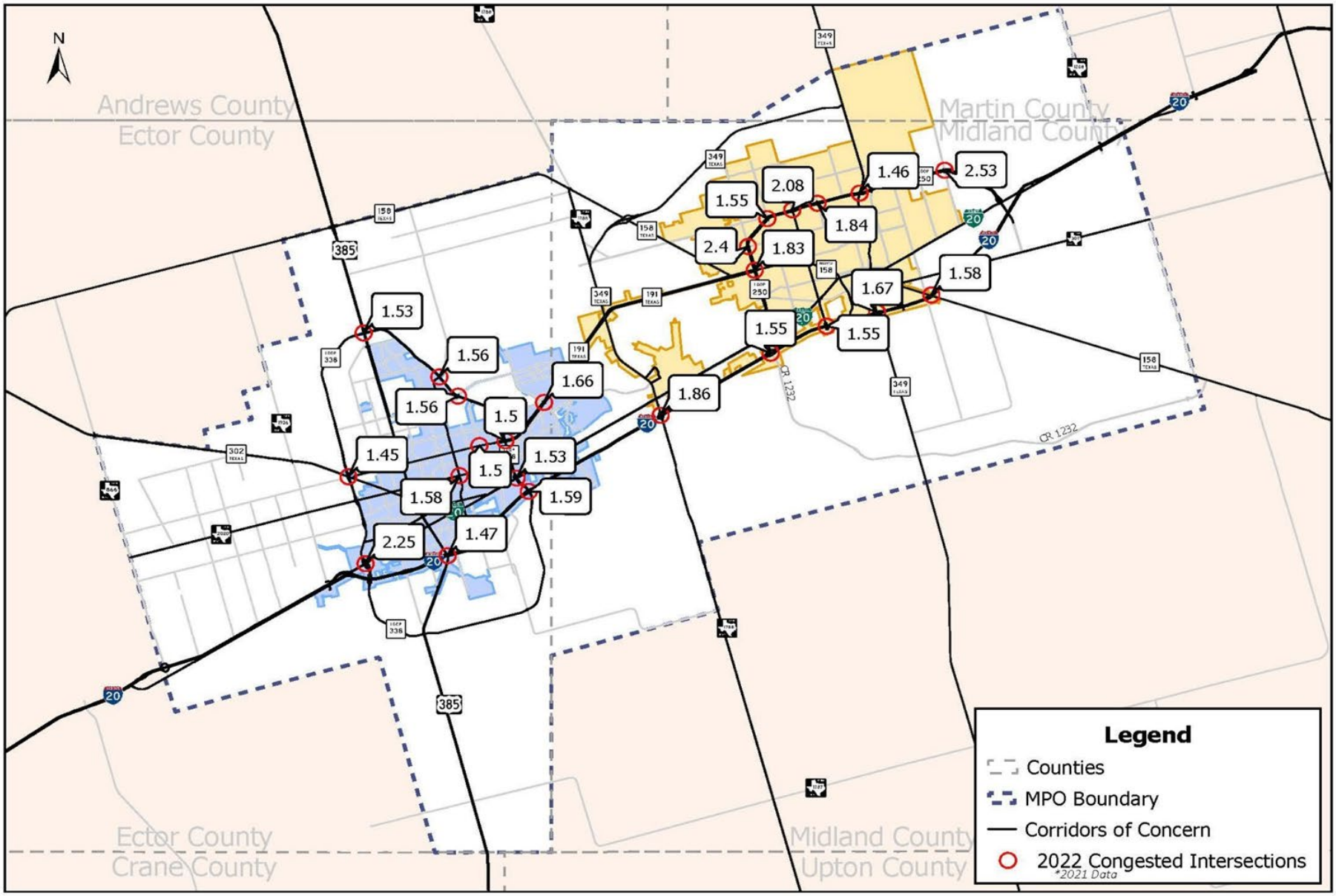


Table 8.1 – Congested Intersections and Corresponding Projects

PBMPO Most Congested Intersections and Resolution Status				
County	Intersections	TTI	Projects	Status
Ector	US 385 at N SL 338	1.53	New Interchange	Complete
Ector	State Highway 302 at W SL 338	1.45	Outside of UTP	-
Ector	B-20 at W SL 338	2.25	Part of Corridor Study	Study Complete
Ector	Interstate 20 at US 385	1.47	Part of I-20 Reconstruction	Ongoing
Ector	E SL 338 at Grandview Ave	1.56	Part of I-20 Reconstruction	Ongoing
Ector	E SL 338 at Yukon	1.56	New Interchange	Complete
Ector	SH 191 at E SL 338	1.50	Part of Corridor Study	Study Complete
Ector	BI-20 at E SL 338	1.53	Part of Corridor Study	Study Complete
Ector	Interstate 20 at E SL 338	1.59	Part of I-20 Reconstruction	Letting 2024
Ector	N Grandview at University Ave	1.58	None Known	-
Ector	SH 191 at JBS Parkway	1.50	None Known	-
Ector	SH 191 at Faudree	1.66	Faudree Widening (City)	Ongoing
Midland	Interstate 20 at 1788	1.86	Part of I-20 Reconstruction	Ongoing
Midland	Interstate 20 at W SL 250	1.55	Part of I-20 Reconstruction	Ongoing
Midland	Interstate 20 at S Midkiff Rd	1.55	Part of I-20 Reconstruction	Ongoing
Midland	Interstate 20 at SH 349	1.67	Reconstruct Interchange	est 2027
Midland	Interstate 20 at SH 158	1.58	Reconstruct Interchange	est 2029
Midland	SL 250 at Elkins Rd	2.53	New Interchange	Complete
Midland	SL 250 at SH 349	1.46	None Known	-
Midland	SL 250 at Garfield	1.84	None Known	-
Midland	SL 250 at N Midkiff Rd	2.08	Widen WB/SB Turn Lanes	Complete
Midland	SL 250 at Midland Dr	1.55	None Known	-
Midland	SL 250 at Wadley	2.40	None Known	-
Midland	SL 250 at SH 191	1.83	Intersection Improvements	Complete

**2022 Data Retrieved from TTI Congestion Management Process Assessment Tool (COMPAT)*

Anticipated Outcomes of 2022-2023 Construction

The COMPAT tool lists compiled data labeled 2022; however, the data is from the year 2021. In the year 2021 and through the fall of 2023, most of the locations where congestion is high were in varying phases of construction or reconstruction. It is anticipated that the Loop 250 interchange at Elkins Road, the Loop 250 interchange at SH 158, the IH 20 interchange at FM 1788/SH 349, and the IH 20 interchange at Midkiff Road will all indicate lower TTIs after construction completion. As part of the CMP strategy, PBMPO staff will make a presentation to the Policy Board showing the “before and after " TTI levels at the stated locations as well as other congested spots. These feedback loops will indicate if the projects attained desired outcomes.

In April 2023 staff presented a summary of performance measure impacts at five new interchange locations. All of the interchange investments occurred after FY 2018 so the ability to show “before and after" conditions using the COMPAT tool was readily available. The information shared with the Policy Board pertained to safety as well as congestion. The congestion component is attached as an Appendix to this CMP update. Staff will continue to provide the Policy Board and stakeholders with a summary of the results from PBMPO capital investments.

This space intentionally left blank.

FORWARD 50 MTP

VISUALIZE, PLAN, IMPLEMENT

PERMIAN BASIN MPO

November 2024