Chapter 6: System-Level Analysis

6.1. Introduction

This chapter sets the stage for how the El Paso region keeps people and goods moving. It first introduces the congestion management process as a clear, data-informed way to identify congestion and turn findings into practical roadway improvements. It then discusses the analysis of the network to determine whether the region conforms to air quality standards using modeling. Lastly, it outlines the scenario-planning effort used to define both a preferred baseline and an aspirational future for land use and transportation, creating a common framework to help guide project selection. Together, these elements offer an approachable foundation for choosing projects that meet today's needs while guiding the region toward a more dependable, accessible network.

6.2. Congestion Management Process

Traffic congestion is one of the primary challenges to the national and regional transportation systems in urban areas, including the El Paso area. Unmitigated traffic congestion results in wasted fuel, time, and costs to the economy. Congestion management is the application of strategies to improve transportation system performance and reliability by reducing the adverse impacts of congestion on the movement of people and goods.

One tool EPMPO utilizes to address and mitigate traffic congestion in the region is the development and implementation of a **congestion management process (CMP)**. A CMP is a federally required, systematic, and regionally adopted approach for managing congestion that provides accurate, up-to-date information on transportation system performance and assesses alternative strategies for congestion management that meet state and local needs. The CMP is intended to move these congestion management strategies into the funding and implementation stages. The most current EPMPO CMP was adopted in 2025 refer to **Appendix E: CMP** for the full document.

6.2.1. Integration with the Metropolitan Planning Process

Metropolitan transportation planning is built on a comprehensive, continuing, and cooperative (3C) process that aligns regional needs, vision, and goals. Key planning

products, such as MTP, TIP, and the CMP, serve as tools for implementing these goals. Effective integration of these elements is essential for a comprehensive planning framework. The CMP both supports and is supported by these other activities.

Federal regulations require periodic updates for the MTP and TIP, while the CMP does not have a mandated update cycle. However, the four-year federal certification review and MTP update cycle provide a practical baseline. At a minimum, the CMP must be updated often enough to supply current information for each MTP update. To ensure this, EPMPO aligns CMP updates with the MTP development cycle, allowing congestion management strategies to inform project selection in the MTP.

The cooperative nature of the 3C process is evident in the CMP's reliance on shared data and analysis. Both the CMP and MTP are data-driven, using current system conditions to forecast future needs. The CMP, however, focuses on identifying congestion hotspots and often requires more detailed operational data and specialized analysis tools than long-range planning typically uses. Data sharing among planning partners, along with access to analytical tools and skilled staff, significantly enhances the CMP's effectiveness.

Figure 6-1. Congestion along US 68/180

6.2.2. CMP Framework

The EPMPO CMP follows the framework recommended by the United States Department of Transportation (USDOT) Federal Highway Administration (FHWA) in *Congestion Management Process: A Guidebook*. EPMPO followed the 8-step CMP framework:

Step 1 Regional Objectives: Define the regional **CMP objectives** to assess the extent of congestion and support the evaluation of the effectiveness of congestion reduction and mobility enhancement strategies for the movement of people and goods.

Step 2 CMP Network: Update the **CMP network** based on data availability and feasible data collection; the primary data source is the National Performance Management Research Data Set (NPMRDS) with metropolitan planning area.

Step 3 Performance Measures: Align federally mandated **performance measures** with determined CMP Objectives.

Step 4 Data Collection and System Performance: Collect **congestion data** from the National Performance Management Research Data Set, or NPMRDS.

Step 5 Analyze Challenges and Needs: Analyze congestion data to identify **challenges and needs**.

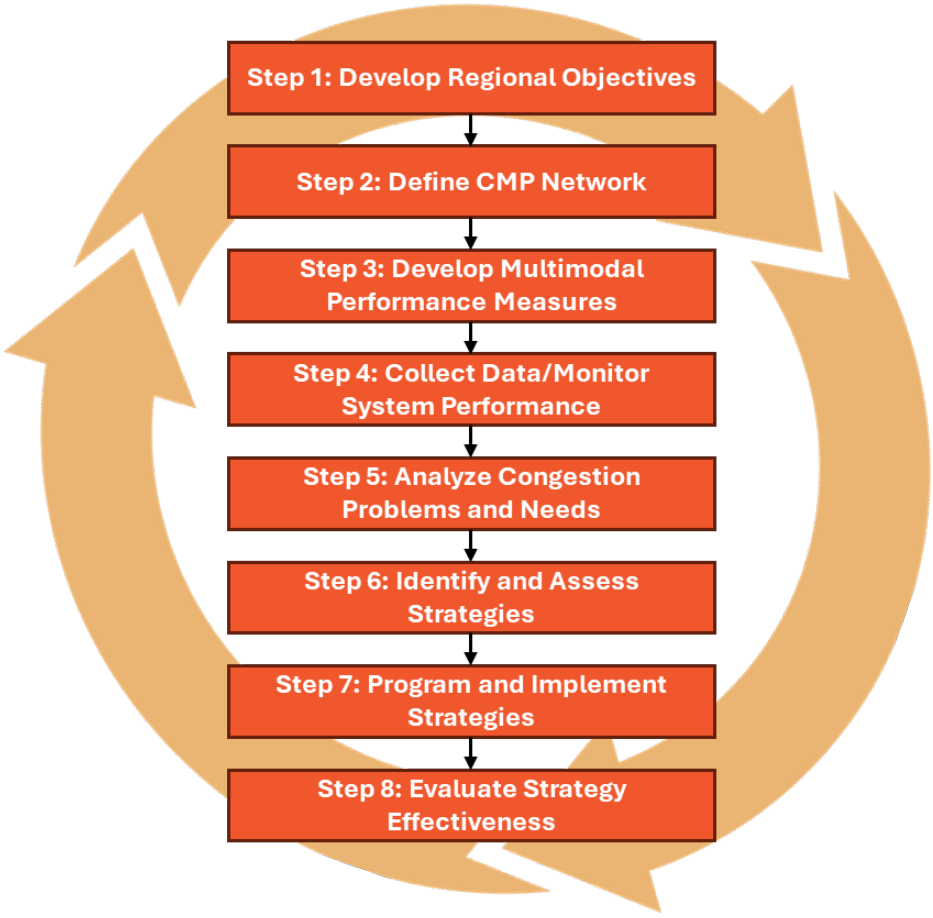
Step 6 Identify Strategies: Identify **strategies** that address identified congestion problems and needs in Step 5.

Step 7 Program and Implementation: Develop and implement a plan to **fund and implement** congestion strategies identified in Step 6.

Step 8 Strategy Effectiveness: Establish a regular program for data collection and to **monitor system performance** and evaluate effectiveness of chosen implemented strategies.

This 8-step framework for the EPMPO CMP is graphically demonstrated in **Figure 6-2**.

Figure 6-2: CMP 8-Step Framework



6.2.3. Congestion Management Strategies

Selecting appropriate congestion mitigation strategies is a core element of the CMP. EPMPO identifies strategies at two levels: systemwide and corridor strategies.

Systemwide Strategies

EPMPO maintains a comprehensive "toolbox" of strategies that can be applied across the regional transportation network. Most of these strategies fall under Transportation System Management and Operations (TSM&O) rather than capacity expansion. TSM&O strategies focus on actively managing the multimodal network to optimize performance, preserve existing capacity, and improve safety and reliability.

Capacity-adding improvements, such as corridor expansions or localized bottleneck relief, are considered only when operational strategies cannot meet long-term needs. These projects are costly and require significant investment. See **Appendix E: CMP** for the full list of systemwide strategies.

Corridor Strategies

Based on congestion analysis, corridor-level strategies address specific challenges and align with CMP objectives and the goals of the RMS 2052 MTP. These strategies aim to maintain travel time reliability and reduce congestion.

Corridor strategies are grouped into two categories:

- **Recurring Congestion Strategies** – Address predictable, regularly occurring congestion caused by demand exceeding capacity.
- **Non-Recurring Congestion Strategies** – Target congestion from temporary events such as crashes, weather, work zones, or special events, which create unpredictable delays.

Capacity improvements, including intersection or interchange reconfigurations, may be considered to optimize flow and resolve localized bottlenecks. In line with FHWA guidance, the CMP does not identify specific projects but provides recommended actions to advance EPMPO's goals for system efficiency and reliability. See **Appendix E: CMP** for the full list of corridor strategies.

6.3. Transportation Conformity

The cities of El Paso and Anthony, NM have been designated as moderate non-attainment areas for Particulate Matter, 10 microns or less (PM_{10}) since 1991, although there is no emissions budget established for Anthony. A small portion of the City of El Paso has been operating under an EPA-approved 10-year maintenance plan for Carbon Monoxide (CO) since 2008. The limited maintenance plan covering CO for the next 10 years was approved by the EPA in September 2017. The Transportation Conformity Analysis performed for the RMS 20520 MTP demonstrates that the projected emissions of VOC, NOX (Ozone), and PM_{10} conform to the Motor Vehicle Emissions Budget (MVEB) enacted by TCEQ and approved by the EPA. An interim emissions test no-greater than-baseline-year was developed for the portion of Doña Ana County near Sunland Park, NM nonattainment area. This transportation conformity analysis was obtained by projecting vehicle miles and hours traveled from the Travel Demand Model, calculating emissions of these vehicles using the Motor Vehicle Emission Simulator (MOVES2014b) (latest release December 2018) and AP-42 section 13.2.1 models (EPA, January 2011), and comparing the results to the MVEB for El Paso County, and comparing the results of the 2017 baseline year against the analysis years 2027, 2032, 2042 and 2052 according to the interim emissions test no-greater-than-baseline-year for the portion of Doña Ana County near Sunland Park, NM non-attainment area. Although the PM10 nonattainment area is the City of El Paso, the PM_{10} budget includes all of El Paso County. The TDM has a validated 2022 base year with forecast network years of 2027, 2032, 2042 and 2052. The forecast years incorporate projects proposed in the MTP and TIP. The model outputs were sent to the Texas A&M Transportation Institute (TTI) for emissions analysis. The model outputs and MVEBs for nonattainment areas in the MPA are in **Table 6-1**and **Table 6-2**. More information regarding transportation conformity can be found in **Appendix F: Transportation Conformity Report**.

Table 6-1. El Paso Conformity Analysis Summary

Pollutant	MVEB	Modeled Emissions		
		2032	2042	2052
VOC (ton/day)	36.23	4.00	3.12	2.90
NOX (ton/day)	39.76	5.25	3.35	3.12
PM_{10} (ton/day)*	12.05	6.02/6.68	6.40/7.11	6.58/7.32

**Includes summer and winter amounts.*

Table 6-2. Dona Ana, NM Conformity Analysis Summary

Pollutant	Modeled Emission				
	2017	2027	2032	2042	2052
VOC (ton/day)	0.044	0.026	0.021	0.016	0.015
NOX (ton/day)	0.09	0.03	0.02	0.01	0.01

6.4. Scenario Planning

Scenario planning is, at its core, a way of learning before committing. Instead of assuming tomorrow will look like yesterday with a few more people and cars, EPMPO invited regional stakeholders to explore several plausible futures and to watch how the transportation system, land use, and traveler behavior respond in each. In this MTP, we frame that exploration around three contrasting narratives:

1 A **Car-Focused "Status Quo" Scenario** that extends today's development patterns;
1 A **Visionary Alternative Future Scenario** that pairs bold transit enhancements with targeted up-zoning in transit station areas and activity centers; and
2 A **Transitional Alternative Future Scenario** that leans into multimodal investments and gradual policy shifts.

Each scenario is more than a map; it is a set of coordinated assumptions. Where and how the region grows, how transit and road networks are configured, and which policies shape daily choices are varied across the scenarios. The travel demand model (TDM) and land-use model are then used to play those futures forward. Land-use models estimate where households and businesses allocate within the El Paso MPA depending on land availability and cost and under different zoning policies , while interacting with the TDM translating land-use responses into mobility outcomes – traffic volumes, speeds, mode shares, emissions, and reliability. By comparing the stories those models tell, we see tradeoffs clearly and identify which strategies move us toward the region's vision before dollars are programmed.

6.4.1. Stakeholder Scenario Planning Workshops

In April 2025, four stakeholder scenario planning workshops were convened to engage local partners, community members, and technical experts in shaping alternative future land use and transportation scenarios for the region. These workshops built upon findings from an October 2024 Delphi Panel that was utilized to determine development trends in

the region to inform the TDM development. The scenario planning workshops provided a structured forum to review scenario narratives, test policy levers (including upzoning), and gather input that would refine modeling assumptions prior to project selection and fiscal constraint. Following the scenario planning workshops, EPMPO considered the stakeholder feedback received. Based on alignment with existing regional conditions and workshop input, EPMPO designated the "Status Quo" scenario as the prevalent practice for investment planning, identified the Transitional scenario as the gradual evolution benchmark to guide project evaluation, and used the Visionary scenario to define the upper bounds of ambition and its impact – informing refinements such as converting RTS to BRT, adding BRT corridors, allowing land-use upzoning within BRT stations and with it, a transit oriented development node framework.

6.4.2. Scenarios Considered

Three alternative futures were developed and shaped with stakeholder feedback through the scenario planning process: the Car-Focused "Status Quo", the Visionary Alternative Future, and the Transitional Alternative Future. These alternative scenarios illuminate tradeoffs between maintaining current land development and mobility patterns and pursuing more multimodal, transit-supportive outcomes. Each scenario combines coordinated assumptions about land use, transit service, and roadway investments, and was vetted through April 2025 stakeholder workshops to ensure feasibility and local relevance.

Car-Focused "Status Quo" Scenario

This scenario represents a continuation of present-day development and travel patterns in the El Paso region. It reflects an auto-oriented trajectory in which infrastructure and land use continue to follow long-established trends.

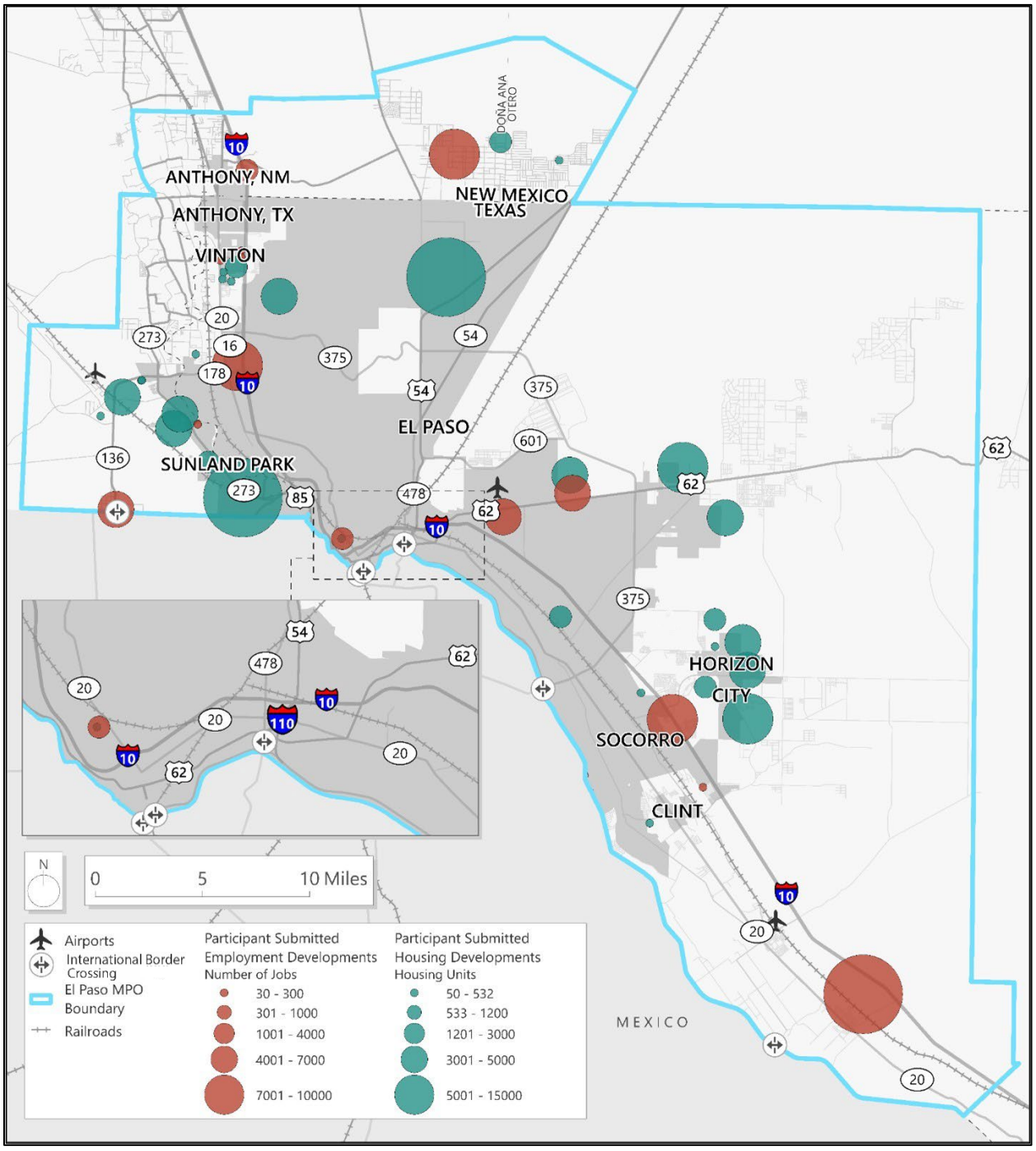
- **Transportation Investment Focus**: Future investment under this scenario prioritizes increased roadway capacity and operational efficiencies to serve single-occupancy vehicles, freight movement, and transit within the existing system. It mirrors the infrastructure priorities currently shaping the region's mobility.
- **Land Use and Development Pattern**: Current land-use zoning policies allow sprawling development to continue radiate outward from the urban core of El Paso. Anticipated housing and employment growth over the next 25 years will go to low-density, peripheral areas—supporting a landscape still dominated by car travel.
- **Stakeholder Workshop Feedback**: Participants in the April 2025 Scenario Planning Workshops confirmed that this scenario mirrors the development pattern and transportation investments they've observed and experienced. Feedback indicated

a general acceptance of this status quo, reinforcing its role as the baseline for future planning.

- **Scenario Outcome**: Given strong alignment with current regional conditions and input received during the workshop series, the El Paso MPO has identified this scenario as the most likely future for transportation investment and growth planning. Currently, it appears there is little or no feasibility for major zoning changes (towards upzoning aligned with BRT and transit oriented development).

The housing and employment trends based on feedback received during TDM Delphi Panels represent the Car-Focused "Status Quo" Scenario as indicated in **Figure 6-3**.

Figure 6-3: Car-Focused "Status Quo" Scenario



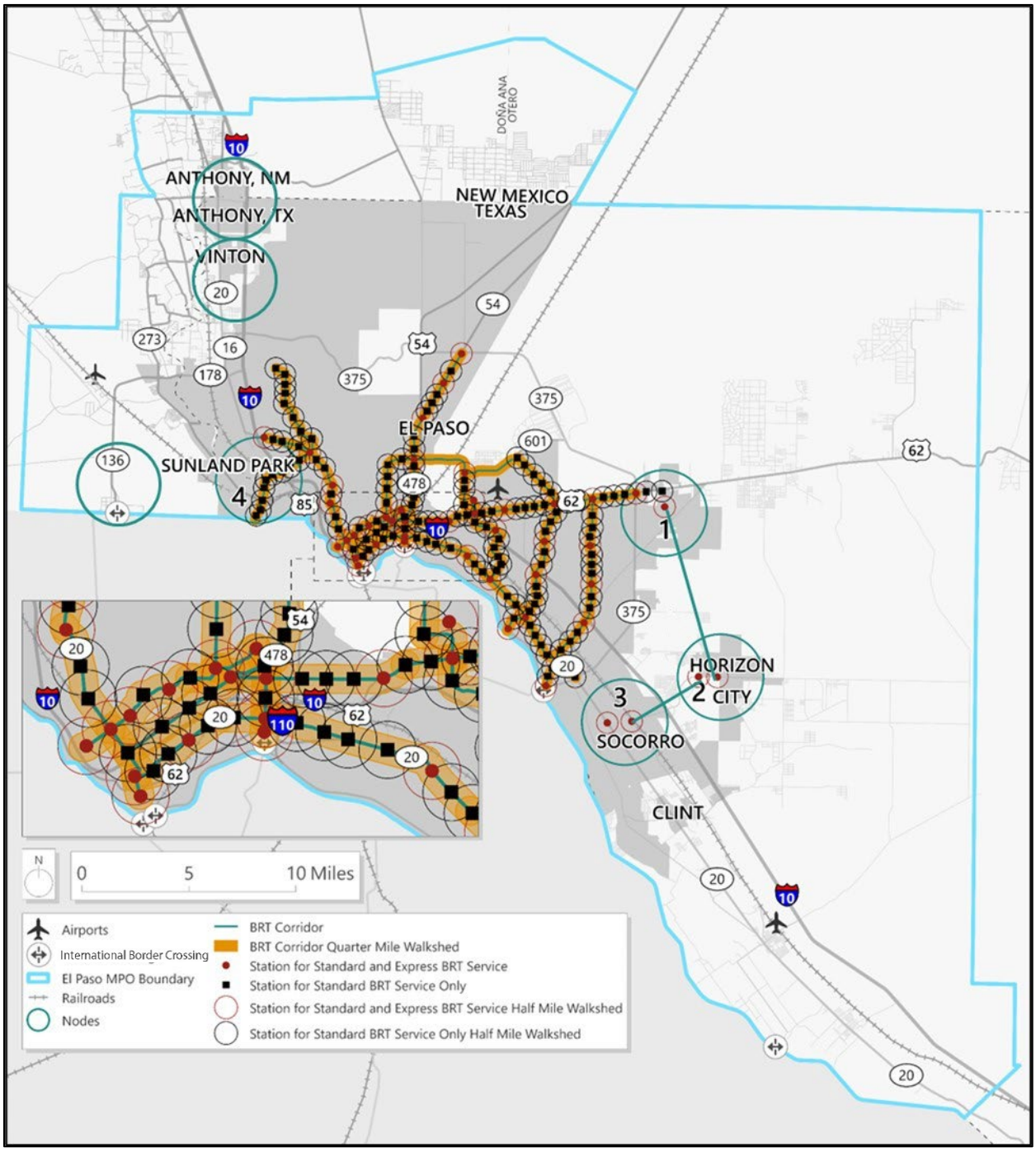
Visionary Alternative Future Scenario

This scenario envisions a transformative shift toward a more connected, walkable, and transit-oriented region. It introduces bold upzoning (land use) and infrastructure policies designed to reduce car dependency and support active modes of travel.

- **Transportation Investment Focus**: Under this vision, investment is exclusively channeled toward accommodating regional travel needs through transit expansion, particularly Bus Rapid Transit (BRT), as well as pedestrian and bicycle infrastructure. No new roadway capacity projects are included. The goal is a mobility network centered on accessibility and sustainability.
- **Land Use and Development Pattern**: Land-use upzoning policies incentivizes development concentration around high-capacity transit, with dense, mixed-use growth and re-development encouraged within half-mile radii of BRT stations and quarter-mile buffers along BRT corridors. Seven regional "nodes," identified and confirmed through workshop input, serve as compact centers of housing, employment, and services. This strategic densification aims to anchor vibrant, multimodal neighborhoods.
- **Stakeholder Workshop Feedback**: While many participants found this scenario aspirational, it was often described as "too visionary" for full-scale implementation given current political and infrastructural constraints. However, workshop input led to important refinements, including the addition of two BRT corridors linking Rich Beam to Horizon City and Horizon City to Socorro, and an expanded node framework.
- **Scenario Outcome**: Though not selected as the preferred path forward, this scenario played a pivotal role in shaping the planning dialogue. It helped define the outer bounds of regional ambition and laid the foundation for a more balanced approach reflected in the third scenario.

The Visionary Alternative Future Scenario is shown in **Figure 6-4**.

Figure 6-4: Visionary Alternative Future Scenario



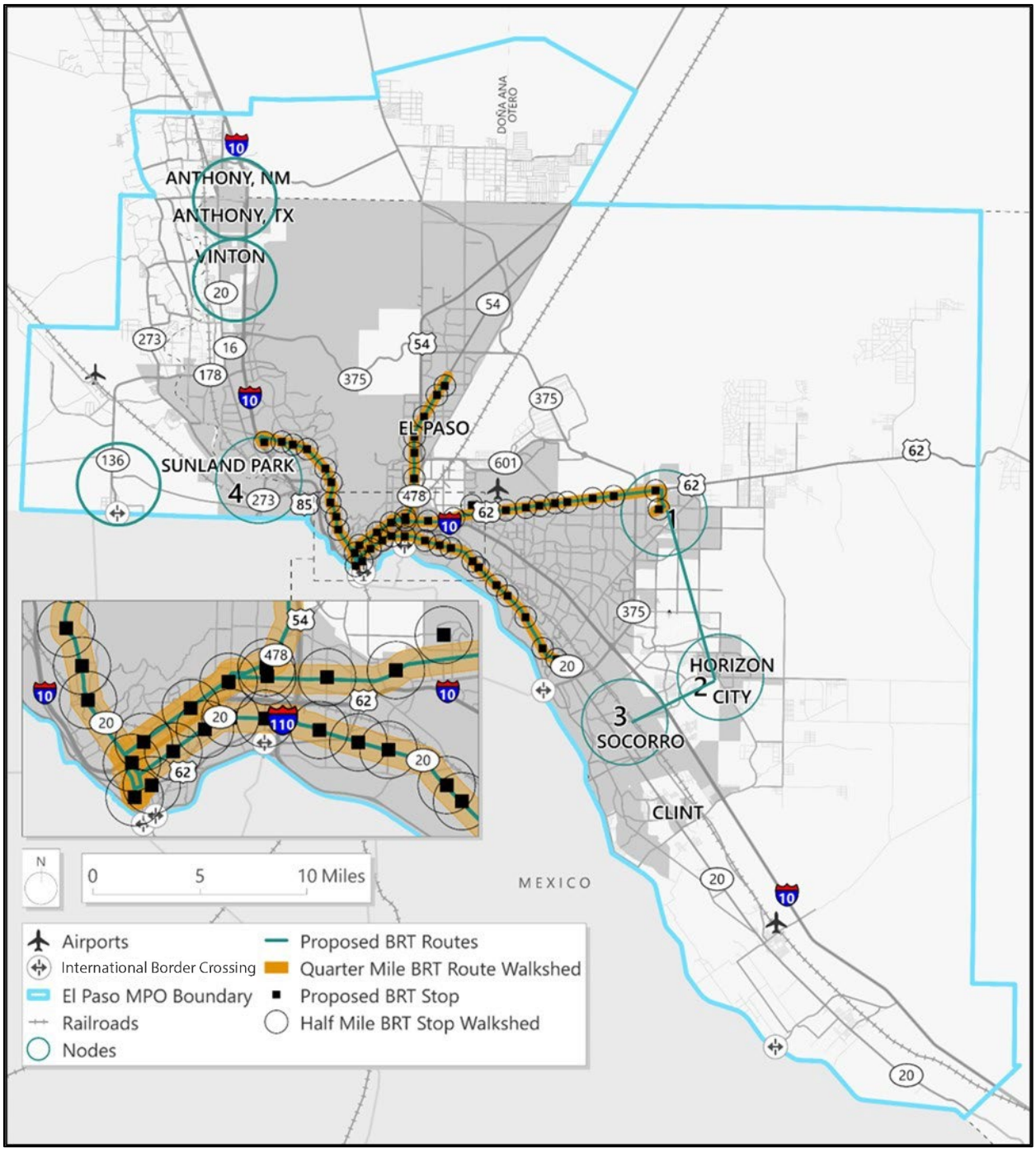
Transitional Alternative Future Scenario

Striking a balance between pragmatism and vision, this scenario integrates key elements from both the Status Quo and Visionary futures. It acknowledges existing development patterns while charting a course toward more multimodal, sustainable, and equitable outcomes.

- **Transportation Investment Focus**: Investments under this scenario are distributed across all modes, including roadway, transit, bicycle, and pedestrian infrastructure, offering a more balanced network that responds to diverse travel needs. A robust four-line BRT system (converted from RTS) anchors the transit component while preserving strategic roadway enhancements.
- **Land Use and Development Pattern**: Like the Visionary Scenario, this approach calls for concentrated growth within transit-accessible corridors and designated mixed-use nodes. Current RTS converted to BRT corridors and seven defined nodes guide density and development incentives, supporting compact, transit-supportive communities without fully abandoning existing patterns.
- **Community Feedback and Key Updates**: Workshop participants widely supported this "middle ground" approach as more feasible and adaptable across the region. Feedback validated the expanded node network and the inclusion of the two additional BRT corridors.
- **Scenario Outcome**: The El Paso MPO has identified this scenario as the gradual evolution future for the region. It will serve as a guiding benchmark during project evaluation, ensuring that nominated investments reflect a commitment to integrated, forward-looking planning.

The Transitional Alternative Future Scenario is shown in **Figure 6-5**.

Figure 6-5: Transitional Alternative Future Scenario



6.4.3. Most Likely Baseline and Gradual Evolution Benchmark

Taken together, EPMPO will proceed with the Car-Focused "Status Quo" as the most likely baseline for near-term investment planning, fiscal constraint, and conformity analyses. The Transitional Alternative Future serves as the gradual evolution benchmark in the project selection and prioritization process. In practice, candidate projects that advance the Transitional scenario's multimodal outcomes including greater station-area accessibility, a strengthened BRT network, and compact, transit-supportive growth will receive elevated consideration, even as the program remains anchored to current regional conditions reflected in the Status Quo. The Visionary scenario continues to serve as the upper bound for stress-testing policies and revealing long-range opportunities, with refined elements (e.g., added BRT corridors, land-use upzoning near BRT stations and expanded nodes) informing incremental updates over time.

Figure 6-6. Scenario Planning Workshop