

El Paso  
Metropolitan  
Planning  
Organization

# TRANSPORTATION CONFORMITY REPORT

**Destino 2045 Metropolitan Transportation Plan  
and  
Destino 2019-2022 Transportation  
Improvement Program**

4/26/2018

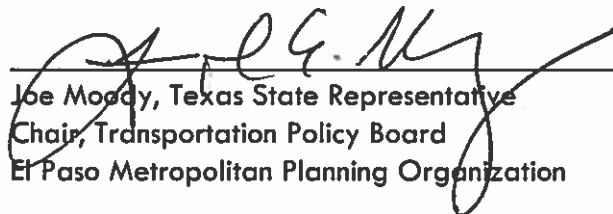
*This report was funded in part through grant(s) from the Federal Highway Administration, U.S. Department of Transportation. The views and opinions of the authors (or agency) expressed herein do not necessarily state or reflect those of the U.S. Department of Transportation.*

**EL PASO METROPOLITAN PLANNING ORGANIZATION  
TRANSPORTATION POLICY BOARD  
RESOLUTION ADOPTING THE TRANSPORTATION CONFORMITY REPORT FOR  
THE DESTINO 2045 METROPOLITAN TRANSPORTATION PLAN (MTP) AND  
DESTINO 2019-2022 TRANSPORTATION IMPROVEMENT PROGRAM (TIP)  
FOR THE PARTICULATE MATTER NONATTAINMENT AREA AND  
THE CARBON MONOXIDE MAINTENANCE AREA**

A conformity determination has been made that the proposed Metropolitan Transportation Plan (MTP) and Transportation Improvement Program (TIP) have met the requirements for Carbon Monoxide (CO) and Particulate Matter of 10 Microns or less in size (PM<sub>10</sub>) reductions set forth in the U.S. Environmental Protection Agency's (EPA's) final rule on conformity. Therefore, the MTP and TIP have been determined to:

- (i) be consistent with the most recent estimates of mobile source emissions;
- (ii) provide for expeditious implementation of transportation control measures in the applicable implementation plan; and
- (iii) contribute to annual emissions reductions consistent with sections 182(b)(1) and 187(a)(7) with respect to CO, and PM<sub>10</sub>.

It is therefore shown that the El Paso Metropolitan Planning Area's Destino 2045 MTP and the Destino 2019-2022 TIP are in conformity under the Federal Clean Air Act Amendments of 1990 (FCAA).

  
\_\_\_\_\_  
Joe Moody, Texas State Representative  
Chair, Transportation Policy Board  
El Paso Metropolitan Planning Organization

  
\_\_\_\_\_  
Robert Bielek, P.E., District Engineer  
Texas Department of Transportation-El Paso District

  
\_\_\_\_\_  
Trent Doolittle, P.E., District Engineer  
New Mexico Department of Transportation-District

# TABLE OF CONTENTS

|   |           |
|---|-----------|
| <b>Executive Summary .....</b>  | <b>7</b>  |
| <b>1.0 Introduction.....</b>  | <b>11</b> |
| 1.1 MPO Organization and Role.....  | 11        |
| 1.2 Purpose.....  | 11        |
| 1.3 Conformity Criteria.....  | 11        |
| 1.4 Document Format.....  | 12        |
| 1.5 Electronic Data Submittal.....  | 12        |
| 1.6 Pre-Analysis Consensus Template.....  | 12        |
| <b>2.0 MTP and TIP Conformity to the SIP.....</b>                               | <b>13</b> |
| 2.1 Overview.....   | 13        |
| 2.2 Submittal Frequency.....  | 13        |
| 2.3 Transportation Control Measures.....  | 13        |
| 2.4 Regionally Significant Control Programs.....                                | 13        |
| 2.4.1 Inspection and Maintenance Program.....                                   | 13        |
| 2.5 Regionally Significant Travel Projects/Programs.....                        | 13        |
| 2.6 Non-Federal Projects/Programs.....  | 14        |
| 2.7 Exempt Projects/Programs.....   | 14        |
| 2.8 Financial Planning for the Destino 2045 MTP.....                            | 16        |
| 2.9 Financial Planning for Corresponding Destino 2019-2022 TIP.....             | 18        |
| <b>3.0 Vehicle Activity.....</b>  | <b>20</b> |
| 3.1 Demographic Specification .....   | 20        |
| 3.2 Travel Demand Model .....   | 21        |
| 3.2.1 Travel Model Description .....  | 21        |
| <b>4.0 Emissions Budget and MOVES Model.....</b>                                | <b>23</b> |
| 4.1 Overview .....  | 23        |
| 4.1.1 Assumptions .....   | 23        |
| 4.1.2 Methodology .....   | 23        |
| 4.1.3 Data Sources and Development .....  | 23        |
| 4.2 MOVES2014a Inputs .....   | 24        |
| 4.2.1 Summary of Control Programs Modeled .....                                 | 24        |
| 4.2.2 I/M Program .....   | 24        |
| 4.2.3 Anti-Tampering Program (ATP).....   | 24        |
| 4.2.4 Oxygenated Fuel, Fuel Reid Vapor Pressure, and Diesel Sulfur Content..... | 24        |
| 4.2.5 Temperatures by Time Period .....   | 24        |
| 4.2.6 Vehicle Registration Distributions and Diesel Fractions .....             | 26        |
| 4.2.7 Vehicle Registration Distributions .....                                  | 26        |
| 4.2.8 Diesel Fractions .....  | 26        |

|  |           |
|--|-----------|
| 4.2.9 VMT Mix .....  | 27        |
| 4.2.10 TRANSVMT Inputs .....   | 27        |
| 4.2.11 Time-of-Day Factors .....                                       | 27        |
| 4.2.12 Area Type Specifications .....                                  | 27        |
| 4.2.13 Time-of-Day Directional Split Factors .....                     | 28        |
| 4.2.14 Time-of-Day Capacity Factors .....                              | 28        |
| 4.2.15 Free Flow Speed Factors .....                                   | 28        |
| 4.2.16 Speed Model Formulation .....                                   | 28        |
| 4.3 Post Processed Adjustments .....                                   | 29        |
| <b>5.0 Mobile Source Emissions Reductions Strategies (MOSERS)....</b>  | <b>30</b> |
| 5.1 Transportation Control Measures (TCMs) .....                       | 30        |
| 5.1.1 Timely Implementation of TCMs .....                              | 30        |
| 5.1.2 Project “Slippage” .....   | 30        |
| 5.2 VMEP .....   | 30        |
| 5.3 TERM .....   | 30        |
| 5.4 CMAQ .....   | 30        |
| <b>6.0 Determination of Regional Transportation Emissions.....</b>     | <b>32</b> |
| 6.1 Procedure .....  | 32        |
| 6.1.1 Mobile Source Emissions Estimate and AP-42, Section 13.2.1 ..... | 32        |
| 6.1.1.1 MOVES .....  | 32        |
| 6.1.2 TTI Emissions Estimation Utilities ... ..                        | 33        |
| 6.2 Calculated Emissions .....   | 34        |
| 6.2.1 Calculated Link-Based Emissions .....                            | 34        |
| 6.2.2 Calculated Emissions for Donut Areas .....                       | 34        |
| 6.3 Emissions Estimations Utilities .....                              | 34        |
| 6.3.1 TRANSVMT .....   | 34        |
| 6.3.2 VehPopulationBuild.....  | 34        |
| 6.3.3 OffNetActCalc.....   | 34        |
| 6.3.4 MOVESactivityInputBuild.....                                     | 35        |
| 6.3.5 MOVESfleetInput Build.....                                       | 35        |
| 6.3.6 RatesCalc.....   | 35        |
| 6.3.7 RatesAdj.....  | 35        |
| 6.3.8 EmsCalc .....  | 35        |
| 6.4 Final Emission Analysis Results .....                              | 37        |
| 6.4.1 Network-Based Model .....  | 37        |
| 6.4.2 Off-Network TERMS .....  | 38        |
| 6.4.3 Summary .....  | 38        |
| <b>7.0 Interagency Consultation.....</b>                               | <b>39</b> |
| 7.1 Process Description .....  | 39        |
| <b>8.0 Public Participation.....</b>                                   | <b>41</b> |

## GLOSSARY OF ABBREVIATIONS

|                       |  |
|-----------------------|--|
| <b>ATOM2</b>          | Texas Spatially Disaggregate Trip Distribution Model (Atomistic Model) |
| <b>ATP</b>            | Anti-Tampering Program   |
| <b>ATR</b>            | Automatic Traffic Recorder   |
| <b>AP-42</b>          | Compilation of Air Pollutant Emission Factors                          |
| <b>BBER</b>           | Bureau of Business and Economic Research                               |
| <b>BRT</b>            | Bus Rapid Transit  |
| <b>CD</b>             | Compact Disc   |
| <b>CBI</b>            | Coordinated Border Infrastructure                                      |
| <b>CDB</b>            | County Data Base   |
| <b>CFR</b>            | Code of Federal Regulations  |
| <b>CMAQ</b>           | Congestion Mitigation & Air Quality Improvement Program                |
| <b>CMP</b>            | Congestion Management Process  |
| <b>CNG</b>            | Compressed Natural Gas   |
| <b>CO</b>             | Carbon Monoxide  |
| <b>CO<sub>2</sub></b> | Carbon Dioxide   |
| <b>DPS</b>            | Department of Public Safety  |
| <b>EF</b>             | Emissions Factor   |
| <b>EMFAC</b>          | Emissions Factor Model   |
| <b>EMSCALC</b>        | Emissions Calculation Program  |
| <b>EPA</b>            | U.S. Environmental Protection Agency                                   |
| <b>EPMPO</b>          | El Paso Metropolitan Planning Organization                             |
| <b>FCAA</b>           | Federal Clean Air Act and Federal Clean Air Act Amendments of 1990     |
| <b>FHWA</b>           | Federal Highway Administration   |
| <b>FTA</b>            | Federal Transit Administration   |
| <b>FY</b>             | Fiscal Year  |
| <b>GC</b>             | Gas Cap  |
| <b>HC</b>             | Hydrocarbons   |
| <b>HDV</b>            | Heavy-Duty Vehicle   |
| <b>HPMS</b>           | Highway Performance Monitoring System                                  |
| <b>I/M</b>            | Inspection/Maintenance Program   |
| <b>LDV</b>            | Light Duty Vehicle   |
| <b>LOS</b>            | Level of Service   |
| <b>LPG</b>            | Liquefied Petroleum Gas  |
| <b>MOBILE</b>         | EPA-approved emissions modeling software                               |
| <b>MOVES</b>          | MOtor Vehicle Emission Simulator                                       |
| <b>MOSERS</b>         | Mobile Source Emission Reduction Strategies                            |
| <b>MPO</b>            | Metropolitan Planning Organization                                     |
| <b>MTP</b>            | Metropolitan Transportation Plan                                       |
| <b>MVEB</b>           | Motor Vehicle Emission Budget  |
| <b>NAAQS</b>          | National Ambient Air Quality Standards                                 |
| <b>NEPA</b>           | National Environmental Policy Act                                      |
| <b>NMDOT</b>          | New Mexico Department of Transportation                                |
| <b>NMED</b>           | New Mexico Environment Department                                      |

|                         |  |
|-------------------------|--|
| <b>NO<sub>x</sub></b>   | Nitrogen Oxides  |
| <b>OBD</b>              | On-Board Diagnostics   |
| <b>PM<sub>2.5</sub></b> | Particulate Matter 2.5 Microns or Less                               |
| <b>PM<sub>10</sub></b>  | Particulate Matter 10 Microns or Less                                |
| <b>PPP</b>              | Public Participation Program   |
| <b>RVP</b>              | Fuel Reid Vapor Pressure   |
| <b>ROW</b>              | Right of Way   |
| <b>SED</b>              | Socioeconomic and demographic data                                   |
| <b>SHO</b>              | Source hours operating   |
| <b>SIP</b>              | State Implementation Plan  |
| <b>SUT</b>              | Source use types   |
| <b>TAC</b>              | Texas Administrative Code  |
| <b>TAZ</b>              | Traffic Analysis Zone  |
| <b>TERM</b>             | Transportation Emission Reduction Measures                           |
| <b>TCM</b>              | Transportation Control Measure                                       |
| <b>TCEQ</b>             | Texas Commission on Environmental Quality                            |
| <b>TCR</b>              | Transportation Conformity Report                                     |
| <b>TDM</b>              | Travel Demand Model  |
| <b>TIP</b>              | Transportation Improvement Program                                   |
| <b>TMA</b>              | Transportation Management Area                                       |
| <b>TPAC</b>             | Transportation Project Advisory Committee                            |
| <b>TPB</b>              | Transportation Policy Board  |
| <b>TPEPP</b>            | Texas Populations Estimates and Projection Programs                  |
| <b>TransCAD</b>         | Transportation GIS Software  |
| <b>TRANSVMT</b>         | Utility post-processing TDM  |
| <b>TRIPCAL5</b>         | Trip Generation Program  |
| <b>TRZ</b>              | Transportation Reinvestment Zone                                     |
| <b>TSI</b>              | Two-Speed Idle   |
| <b>TTC</b>              | Texas Transportation Commission                                      |
| <b>TTI</b>              | Texas A&M Transportation Institute                                   |
| <b>TWC</b>              | Texas Workforce Commission   |
| <b>TWG</b>              | Technical Working Group  |
| <b>TxDMV</b>            | Texas Department of Motor Vehicles                                   |
| <b>TxDOT</b>            | Texas Department of Transportation                                   |
| <b>TxDOT TP&amp;P</b>   | Texas Department of Transportation Planning and Programming Division |
| <b>UE</b>               | User equilibrium   |
| <b>UPWP</b>             | Unified Planning Work Program  |
| <b>USC</b>              | United States Code   |
| <b>UTP</b>              | Unified Transportation Program                                       |
| <b>VMEP</b>             | Voluntary Mobile Emissions Reduction Programs                        |
| <b>VMT</b>              | Vehicle Miles Traveled   |
| <b>VOC</b>              | Volatile Organic Compounds   |

## **EXECUTIVE SUMMARY**

The Air Quality Conformity Analysis performed for the Destino 2045 Metropolitan Transportation Plan (MTP) and the Destino 2019-2022 Transportation Improvement Program (TIP) demonstrate that the projected emissions of Carbon Monoxide (CO) and Particulate Matter 10 Microns or Less (PM<sub>10</sub>) conform to the Motor Vehicle Emissions Budget (MVEB) enacted by the Texas Commission on Environmental Quality (TCEQ) and approved by the U.S. Environmental Protection Agency (EPA). For the purpose of this conformity determination per guidance from the consultative partners, demonstration for CO has to be performed for the only year 2020, as this is the last year of the maintenance plan. This transportation conformity analysis was obtained by projecting vehicle miles and hours traveled from the TransCAD Travel Demand Model (TDM), calculating emissions of these vehicles using the MOtor Vehicle Emission Simulator (MOVES2014a) (released December 2015 and updated November 2016) and AP-42 section 13.2.1 models (EPA, January 2011), and comparing the results to the MVEB for the County of El Paso, Texas. It should be noted that the CO maintenance plan budget covers a portion of the City of El Paso and although the PM<sub>10</sub> nonattainment area is the City of El Paso, the PM<sub>10</sub> budget covers El Paso County (Appendix A, page 5).

The Destino 2045 MTP is a 27-year plan with approximately \$5.4B of multimodal projects and programs included in fiscal years (FY) 2019-2045. The El Paso MPO (EPMPO) study areas stretches across the state lines of Texas and New Mexico, including El Paso County in Texas, Southern Dona Ana County, and a portion of Otero County in New Mexico. Facilitating the movement of people and goods throughout the region over this period of time presents numerous challenges from a financial component. Projects and programs in the Texas portion of the EPMPO study area are approximate \$4.4B. Transit projects come to approximately \$944M. New Mexico projects total approximately \$42M. See Appendix C, for the financial summary and project list, which demonstrates a thorough comparison of project revenues and associated project costs in the Destino 2045 MTP.

The Destino 2045 MTP, Destino 2019-2022 TIP and Transportation Conformity Report was presented to the El Paso MPO Transportation Policy Board on May 18, 2018 for adoption.

### **Networks**

The TDM has a validated 2012 base year with forecast network years of 2020, 2030, 2040 and 2045. The forecast years incorporate projects proposed in the MTP and TIP. The model outputs were then sent to the Texas A&M Transportation Institute (TTI) for emissions analysis.

### **Conformity Requirements**

The Texas Commission on Environmental Quality (TCEQ) and New Mexico Environmental Department (NMED) prepared State Implementation Plans (SIPs) as described in the following subsections:

#### **El Paso CO Maintenance Plan**

There have been no monitored violations of the CO eight-hour standard since 2001. The maintenance plan approved by EPA in August 2008 (effective on October 3, 2008), demonstrates that El Paso will remain in attainment of the CO standard for at least ten years following EPA approval. This maintenance plan includes a commitment to submit a second 10-year maintenance plan two years before the end of the first 10-year maintenance plan period. The limited



maintenance plan was approved by EPA in September 2017 (Effective on October 10, 2017). The maintenance plan was developed to ensure that the area remains in attainment of the CO standard. The maintenance area boundary is described in the EPA Green Book as follows: "That portion of the City of El Paso bound on the north by Highway 10 from Porfirio Diaz Street to Reynolds Street, Reynolds Street from Highway 10 to the Southern Pacific Railroad lines, the Southern Pacific Railroad lines from Reynolds Street to Highway 62, Highway 62 from the Southern Pacific Railroad lines to Highway 20 and Highway 20 from Highway 62 to Polo Inn Road; bound on the east by Polo Inn Road from Highway 20 to the Texas Mexico border; bound from the south by the Texas-Mexico border from Polo Inn Road to Porfirio Diaz Street; and bound on the west by Porfirio Diaz Street from the Texas-Mexico border to Highway 10."

## **PM<sub>10</sub> SIP**

The TCEQ submitted "Revisions to the State Implementation Plan (SIP) for Inhalable Particulate Matter (PM<sub>10</sub>): 1991 PM<sub>10</sub> SIP for Moderate Area - El Paso" to the EPA in 1991. The EPA approved the SIP submittal in 1994. The PM<sub>10</sub> non-attainment area described in the EPA Green Book is the City of El Paso.

## **New Mexico PM<sub>10</sub> SIP**

Anthony, New Mexico, in Doña Ana County, was designated as non-attainment for the PM<sub>10</sub> 24-hour National Ambient Air Quality Standards (NAAQS) in 1991. Part of the PM<sub>10</sub> Moderate Area SIP Guidance requires anthropogenic (man-made) source categories with significant emissions to be analyzed for technical and economic feasibility of implementing control measures. A copy of New Mexico's PM<sub>10</sub> SIP is included in Appendix A (page 22-106). There is no PM<sub>10</sub> budget established for Anthony, NM, however, an air quality assessment may be conducted on an individual project basis, in coordination with the New Mexico consultative partners, to examine the potential effects on PM<sub>10</sub> within the Anthony, NM PM<sub>10</sub> non-attainment area.

The non-attainment area is described in the EPA Green Book as the following: "The area bound by Anthony Quadrangle, Anthony, New Mexico - Texas. SE/4 La Mesa 15' Quadrangle, N3200 - W10630/7.5, Township 26S, Range 3E, Sections 35 and 36 as limited by the New Mexico - Texas State line on the south".

## **Regional Emissions Analysis**

Regional emissions analyses of transportation plans and improvement programs are developed to ensure that they are consistent with air quality requirements identified in the SIP. The analysis of the EPMPO nonattainment areas accounts for emissions resulting from the EPMPO's MTP and TIP, including all regionally significant projects, and the effects of emission control programs.

## **Motor Vehicle Emissions Budgets**

The PM<sub>10</sub> MVEB applies to El Paso County. The CO budget applies to the CO maintenance area.

**Table 1**  
**Motor Vehicle Emissions Budgets for El Paso CO Maintenance**  
**and PM<sub>10</sub> Non-Attainment Areas**

|                          | CO <sup>3</sup>            | PM <sub>10</sub>            |
|--------------------------|----------------------------|-----------------------------|
| <b>Classification</b>    | Attainment/<br>Maintenance | Moderate Non-<br>Attainment |
| <b>MVEB<br/>tons/day</b> | 29.66 <sup>1</sup>         | 12.10 <sup>2</sup>          |

<sup>1</sup> Approval and Promulgation of Implementation Plans; Texas; El Paso County Carbon Monoxide Redesignation to Attainment, and Approval of Maintenance Plan <https://www.gpo.gov/fdsys/pkg/FR-2008-08-04/pdf/E8-17700.pdf>

<sup>2</sup> Transportation Conformity: Motor Vehicle Emissions Budgets (MVEB) (Appendix A: El Paso PM-10 page 5)

<sup>3</sup> For the purpose of this conformity determination per guidance from the consultative partners, demonstration for CO has to be performed for the only year 2020, as this is the last year of the maintenance plan.

## Conformity Tests

MOVES2014a is the EPA-approved model for calculating aggregate motor vehicle emission factors for pollutants such as CO and direct PM<sub>10</sub>, so that they can be compared to the MVEB. The official release of MOVES2014a (released December 2015 and updated November 2016) was applied for this analysis based on a consultative partner’s conference call to request guidance on the use of MOBILE-based MVEBs with a MOVES-based regional emissions analysis for the transportation conformity determination as MOVES-based MVEBs do not currently exist in the SIP. For the purposes of this conformity determination, per guidance from the consultative partners, it was recommended to use the previous PM<sub>10</sub> MOBILE-based MVEBs for the transportation conformity determination for the MTP/TIP conformity.

El Paso Metropolitan Planning Organization hosted a consultative partner’s conference call to request guidance for the approval of El Paso Carbon Monoxide Limited Maintenance Plan. For the purpose of this conformity determination per guidance from the consultative partners, demonstration for CO has to be performed for year 2020, as this is the last year of the maintenance plan. The EPMPO will proceed using the CO MOBILE-based MVEBs for the transportation conformity determination for the MTP/TIP conformity.

The AP-42 model is also used to calculate emission factors for re-suspended road dust. It was designed to calculate a daily (average seasonal day) emissions factor for each of the four basic road types (Freeway, Arterial, Collector and Local) and to apply these rates to the appropriate Vehicle Miles Traveled (VMT) estimates by TDM functional classification. The MOVES2014a program is executed using summer and winter temperature and conditions to simulate emissions for CO and PM<sub>10</sub>.

## Modeling

TransCAD software was used to create the EPMPO’s regional TDM. Inputs to the TDM include projected demographics for the analysis years to test the effects of proposed transportation projects (2020, 2030, 2040 and 2045). Roadway networks were prepared for these years

showing the number of lanes and roadway types (functional class) that would be constructed according to proposed MTP and TIP project descriptions, as well as roadways that already exist.

**Table 2**  
**El Paso Conformity Analysis Summary**  
**(Emissions expressed in Tons per Day)**

| <b>Pollutant</b>              | <b>Budget</b>            | <b>2020<sup>5</sup></b> | <b>2030</b> | <b>2040</b> | <b>2045</b> |
|-------------------------------|--------------------------|-------------------------|-------------|-------------|-------------|
| CO <sup>1</sup>               | <b>29.66<sup>3</sup></b> | 5.08                    | -----       | -----       | -----       |
| PM <sub>10</sub> <sup>2</sup> | <b>12.1<sup>4</sup></b>  | 6.36/6.90               | 6.80/7.34   | 7.41/7.98   | 7.68/8.28   |

<sup>1</sup> The CO Analysis is only for zones in the maintenance areas. The MVEB of 29.66 tons per day (tpd) applies to the network year 2020. Emissions estimates indicate winter weekday figures.

<sup>2</sup>PM<sub>10</sub> emissions include summer/ winter figures. The PM<sub>10</sub> budget is based on the 1994 PM<sub>10</sub> Mobile Emissions Inventory.

<sup>3</sup> Approval and Promulgation of Implementation Plans; Texas; El Paso County Carbon Monoxide Redesignation to Attainment, and Approval of Maintenance Plan ( <https://www.gpo.gov/fdsys/pkg/FR-2008-08-04/pdf/E8-17700.pdf>)

<sup>4</sup>Transportation Conformity: Motor Vehicle Emissions Budgets (MVEB) (Appendix A: El Paso PM-10)

<sup>5</sup>For the purpose of this conformity determination per guidance from the consultative partners, demonstration for CO has to be performed for the only year 2020, as this is the last year of the maintenance plan.

# **SECTION 1.0**

## **INTRODUCTION**

### **1.1 MPO Organization and Role**

In the El Paso Transportation Management Area (TMA), the City of El Paso is designated as the fiscal agent for the Metropolitan Planning Organization (MPO), established pursuant to Section 134 of Chapter 1 of Title 23 of the United States Code (23 USC). The TPB is the transportation policy setting authority for the EPMPO. The TPB meetings are the forum for cooperative decision making by elected officials of local governments for the EPMPO Study Area. The EPMPO Study Area consists of El Paso County, and the southern portions of Doña Ana and Otero Counties in New Mexico. Appendix B provides a map of the EPMPO Study Area Boundary.

The MPO coordinates regional multimodal transportation plans involving the study of present transportation patterns in relation to existing and projected regional development. The TPB and its subcommittees carry out this coordination function. The MPO is responsible for the preparation of the MTP, the TIP, Transportation Conformity Report (TCR), the Unified Planning Work Program (UPWP), the Congestion Management Process (CMP), and other documents as required by 23 USC §134; the Federal Clean Air Act and Federal Clean Air Act Amendments of 1990 (FCAA); and respective SIPs.

### **1.2 Purpose**

The purpose of this conformity analysis is to determine if the Destino 2045 MTP and Destino 2019-2022 TIP are consistent with projected CO and PM<sub>10</sub> emission requirements.

### **1.3 Conformity Criteria**

The FCAA require transportation plans, programs, and projects in non-attainment and maintenance areas that receive approval and/or funding from the FHWA or FTA, to conform to the MVEBs established in the respective SIP/Maintenance Plans. The main objective is to prevent future transportation development from causing new air quality violations, worsening existing violations, and/or delaying a region's attainment of the NAAQS. The conformity criteria used by the EPMPO is derived from the Transportation Conformity Regulations found in 40 Code of Federal Regulations (CFR) Part 93.

The following is a summary of the key criteria used in this conformity determination:

- Use of interagency consultation (see Section 7.0)
- Incorporation of the latest planning assumptions in the planning documents and modeling
- Use of approved models and methodology
- Development of an MTP and TIP that conform to the MVEBs established in the SIP/Maintenance Plans

## **1.4 Document Format**

This conformity determination report follows the Model Conformity Documentation outline adopted by the Technical Working Group (TWG) for Mobile Source Emissions.

## **1.5 Electronic Data Submittal**

The MTP, TIP, conformity documents for all non-attainment areas within the EPMPO, attachments, and related technical documents are available on the EPMPO Web Site located at <http://www.elpasompo.org/> and electronically on a compact disc (CD) from the EPMPO. Please call (915) 212-0258 for a copy. The conformity determination is in Adobe (pdf) formats.

## **1.6 Pre-Analysis Consensus Template**

The Pre-Analysis Consensus Template originates from the efforts of the TWG to develop a process for reaching early consensus on the parameters to be used for a conformity determination. A Pre-Analysis Consensus Plan was utilized for this conformity determination. The development of the networks and the emissions modeling are a two-step process and therefore some of the information in the pre-analysis consensus template populated initially could be modified. The EPMPO's takeaway from the email received from FHWA on December 19, 2017, on which was stated "We have reviewed EPMPOs responses to the Pre-Analysis Consensus Plan and do not have additional comments, at this time.", is that consensus has been reached on the Pre Analysis Consensus Plan with the understanding that this was the current state of knowledge as of November 13, 2017. The consultation partners agreed to move forward and include the analysis notes, containing the remaining details in the conformity document.

## **SECTION 2.0**

### **MTP AND TIP**

### **CONFORMITY TO THE SIP**

#### **2.1 Overview**

#### **2.2 Submittal Frequency**

The MPO, under rules that govern nonattainment metropolitan areas, must approve a long-range plan every four years and a short-range program every two years, with all plans passing an analysis for conformity determination. If amendments are proposed to the MTP or TIP that would affect air quality and estimated emissions, an additional analysis must be made. The EPMPO is proposing an update to the long range plan Destino 2045 MTP and corresponding Destino 2019-2022 TIP. The TPB follows the procedure of hearing and considering all public comments before adopting the respective MTP and TIP, however, there were no public comments submitted during the public involvement period for this Transportation Conformity Report, and 5 general comments were received (refer to Appendix J).

#### **2.3 Transportation Control Measures**

There are no Transportation Control Measures (TCM) requirements identified in the PM<sub>10</sub> SIP and CO Maintenance Plan.

#### **2.4 Regionally Significant Control Programs**

Regionally significant control programs are intended to mitigate air pollution and assist an area in attaining the NAAQS. A mix of programs are selected by the state and are based on which programs are needed to attain the NAAQS. The selected control programs are incorporated into the appropriate SIP. Section 2.4.1, below, is one provision written in the SIP's for the nonattainment pollutants dealing with transportation-related measures.

##### **2.4.1 Inspection and Maintenance Program**

The current El Paso County Inspection and Maintenance (I/M) program, originating in 1987, employs the Two-Speed Idle (TSI) and the on-board diagnostics (OBD) tests. All 1995 and older model year vehicles are required to pass the TSI test. The TSI test measures tailpipe exhaust emissions of CO, Carbon dioxide (CO<sub>2</sub>), and other hydrocarbons (HC) while the vehicle idles at both high and low speeds and then includes a gas cap integrity test. The EPA-approved OBD test is required for all 1996 model year and newer vehicles. The OBD is an emission test to check the vehicle's on-board computer that identifies problems with the vehicle's emission control components.

Details of the I/M program and rules may be found in 30 Texas Administrative Code (TAC) Chapter 114 Subchapter C Division 1: Vehicle Inspection and Maintenance.

## 2.5 Regionally Significant Travel Projects/Programs

The TDM used for conformity determination consist of existing roadways considered to be regionally significant in the base year (2012) and the regionally significant roadways expected to be in place for each of the intermediate and horizon years: 2020, 2030, 2040 and 2045 regardless of funding source.

The determination of regionally significant projects comes from the “Regionally Significant Project” definition found in 40 CFR Section 93.101. The definition is as follows:

*“Regionally significant project means a transportation project (other than an exempt project) that is on a facility which serves regional transportation needs (such as access to and from the area outside of the region, major activity centers in the region, major planned developments such as new retail malls, sports complexes, etc., or transportation terminals as well as most terminals themselves) and would normally be included in the modeling of a metropolitan area’s transportation network , including at a minimum all principal arterial highways and all fixed guideway transit facilities that offer an alternative to regional highway travel.”*

Included in the TDM are the roadways on which conformity is based and thus considered regionally significant. Roadways in the travel demand model are coded with functional class and capacity classifications.

Regionally significant transit projects are represented through the mode share model. The model includes route systems for transit, with changes in speed or other operating conditions affecting the projected ridership. The mode share model has an effect on roadways by removing any projected transit riders before automobile vehicle trips are calculated and assigned to roadways.

## 2.6 Non-Federal Projects/Programs

The MTP contains population and land use assumptions that project urban growth to the year 2045 into areas that are now vacant or have rural-type development. It has been El Paso’s experience in the recent past that urban development involves the transition of totally or primarily vacant land (mainly desert) into subdivisions, with all services being provided in conjunction with the subdivision development, including water, sewer, roadways, and other services such as schools and parks. This has been accomplished through the subdivision ordinances of the City of El Paso and surrounding communities, and the relationship that the cities have with large developers who are able to build large-scale, phased developments. Although this procedure so far has occurred primarily within the larger cities and their extra-territorial jurisdictions, it can be expected that the same type of development will occur within other municipalities as urban growth expands.

## 2.7 Exempt Projects/Programs

Certain types of projects are defined in 40 CFR §93.126 that are exempt from conformity determination requirements. These projects generally do not add capacity to the roadway network and do not increase the transit miles traveled; thus, they add no new emissions to the metropolitan area. The examples listed in 40 CFR §93.126 include:

### Safety

- Railroad/highway crossings

- Projects that correct/improve/eliminate a hazardous location or feature
- Safer non-Federal-aid system roads
- Shoulder improvements
- Projects that increase sight distance
- Highway Safety Improvement Program Implementation
- Traffic control devices and operating assistance other than signalization projects
- Railroad/highway crossing warning devices
- Guardrails, median barriers, crash cushions
- Pavement resurfacing and/or rehabilitation
- Pavement marking
- Emergency relief
- Fencing
- Skid treatments
- Safety roadside rest areas
- Adding medians
- Truck climbing lanes outside the urbanized area
- Lighting improvements
- Widening narrow pavements or reconstructing bridges
- Emergency truck pullovers

## **Mass Transit**

- Operating assistance to transit agencies
- Purchase of support vehicles
- Rehabilitation of transit vehicles (In PM<sub>10</sub> nonattainment or maintenance areas, such projects are exempt only if they are in compliance with control measures in the applicable implementation plan.)
- Purchase of office, shop, and operating equipment for existing facilities
- Purchase of operating equipment for vehicles
- Construction or renovation of power, signal, and communications systems
- Construction of small passenger shelters and information kiosks
- Reconstruction or renovation of transit buildings and structures
- Rehabilitation or reconstruction of track structures, track, and trackbed in existing right of way
- Purchase of new buses and rail cars to replace existing vehicles or for minor expansions of the fleet
- Construction of new bus or rail storage/maintenance facilities categorically excluded in 23 CFR Part 771

## **Air Quality**

- Continuation of ride-sharing and van-pooling promotion activities at current levels
- Bicycle and pedestrian facilities.

## **Other**

- Specific activities which do not involve or lead directly to construction, such as:
  - Planning and technical studies
  - Grants for training and research programs
  - Planning activities conducted pursuant to Titles 23 and 49 U.S.C.



#### Federal-aid systems revisions

- Engineering to assess social, economic, and environmental effects of the proposed action or alternatives to that action
- Noise attenuation
- Emergency or hardship advance land acquisitions
- Acquisition of scenic easements
- Plantings, landscaping, etc.
- Sign removal
- Directional and informational signs
- Transportation enhancement activities (except rehabilitation and operation of historic transportation buildings, structures, or facilities)
- Repair of damage caused by natural disasters, civil unrest, or terrorist acts, except projects involving substantial functional, locational or capacity changes

## 2.8 Financial Planning for the Destino 2045 MTP

The Destino 2045 MTP is a 27-year plan with approximately \$5.4B of multimodal projects and programs included in fiscal years (FY) 2019-2045. The El Paso MPO (EPMPO) study areas stretches across the state lines of Texas and New Mexico, including El Paso County in Texas, Southern Dona Ana County, and a portion of Otero County in New Mexico. Facilitating the movement of people and goods throughout the region over this period of time presents numerous challenges from a financial component. Projects and programs in the Texas portion of the EPMPO study area are approximately \$4.4B. Transit projects come to approximately \$944M. New Mexico projects total approximately \$42M. See Appendix C, for the financial summary and project list, which demonstrates a thorough comparison of project revenues and associated project costs in the Destino 2045 MTP.

There is a mix of Federal Highway Administration (FHWA), Federal Transit Administration (FTA), state (Texas and New Mexico) and local revenues used to cover associated project costs in the Destino 2045 MTP. It should be noted that all federal funds herein have been calculated to include the required local match, usually 20%. The Destino 2045 MTP includes total project cost, comprised of construction, Right-of-Way (ROW), and preliminary engineering costs. The first ten years of the Destino 2045, FY 2019-2028, are fiscally constrained by funding category, followed by fiscal constraint in FY 2029 and 2030. Banding together multiple years was applied for financial constraint in the outer years of the plan from 2031-2040 and 2041-2045. The EPMPO coordinated with TXDOT and NMDOT to determine an acceptable inflation rates for projects within in their respective states. This resulted in compounded inflation rates of 4% in Texas, and 1.5% in New Mexico.

The EPMPO administers three federal funding categories, Congestion Mitigation and Air Quality (CMAQ), Surface Transportation Program in urbanized areas for metropolitan mobility projects and the Transportation Alternative Program (TAP), which incorporates safe routes to schools and the recreation trails program. Texas CMAQ and STP-MM funds were accounted for through the Texas 2018 Unified Transportation Program (UTP) for years 2019-2027 of the Destino 2045 MTP. The 2018 UTP trend grows the CMAQ and STP-MM programs at 1.01%. This growth is in line with the historical average, and the EPMPO continued this growth rate throughout the remaining years of the Destino 2045 MTP with total Texas CMAQ revenue of \$347M, and total STP-MM revenue of \$614M. New Mexico CMAQ and STP-Large Urban revenue expectations were coordinated with NMDOT, and

at the direction of NMDOT there was no growth rate applied to these programs in the Destino 2045 MTP. The total New Mexico CMAQ revenue is \$38M and total STP-Large Urban revenue is \$22M. The total Texas TAP program is \$38M, and NMDOT provides available TAP funds as they become available for planning and programming purposes. Federal funding administered by the EPMPO in the Destino 2045 is in line with historical trends and no reduction of these funds are expected in the future. The EPMPO is also the designated recipient for the FTA 5310 program to meet the transportation needs of elderly persons and persons with disabilities where public mass transportation services are otherwise unavailable, insufficient or unequipped to handle their needs. Based on historical trends the EPMPO has estimated \$650,000 each year, 2019-2022, for a total of \$2,600,000 in the Destino 2025 MTP.

From 2019-2021 approximately \$20M of CMAQ funds are being transferred from FHWA to FTA for Sun Metro to operate Bus Rapid Transit (BRT) and street car projects. Sun Metro will continue to receive traditional FTA 5307 formula funds for programs such as capital maintenance, planning and ADA Para Transit for approximately \$509M, and for Transit Enhancement type projects covered by FTA 5339 funds for nearly \$100M, which includes approximately \$51M for buses and bus facilities. The FTA 5307 and 5339 funds are growing at a modest rate of just over 1% in the Destino 2045 MTP. Three Sun Metro projects are programmed with the expectation of receiving FTA 5309 Very Small Starts funding. Historically, Sun Metro has received Very Small Starts funding when leveraged by local funding. Design and Construction for Streetcar Phase II - Service to from downtown to the Medical Center of the Americas (MCA), FY 2023, Design & Construction for Juarez & El Paso International Pedestrian Crossing, FY 2024, and Design and Construction for Transit Center for intercity and international transit, FY 2026, are all programmed at 50% Certificates of Obligation and 50% FTA 5309 Very Small Starts funding. The total project cost for the three projects is approximately \$332M.

TXDOT's 2018 UTP was used to account for financial constraint of Texas highway projects and programs, within the Destino 2045 MTP from 2019-2027, through traditional federal revenues from Categories 1-12. Unless otherwise noted, most of these funding categories continue throughout the Destino 2045 MTP, but no additional growth rate beyond 2027 was applied. Some of these categories are not used for specific projects but are a demonstration Replacement and Rehabilitation, and Category 8-Safety Projects. Local contributions (which is beyond required local match to federal funds) is captured under Category 3 for projects in the Texas portion of the EPMPO study area. of programs, such as Category 1-Preventative Maintenance and Rehabilitation, Category 6-Structure

TXDOT proposed additional revenues assumptions in the Destino2045 MTP: \$217M Clear Lanes Initiative (funds to address Texas' most congested choke points) for the US 62/180 Montana Expressway and Frontage Roads Phase II, in 2028. \$438M bonding revenue for Borderland Expressway (AKA Northeast Parkway) in 2029. \$180M of El Paso-District allocation of Rider 11B Border Funding between 2023-2031. \$669M of Category 2 (Transportation Management Area Corridors) from 2028-2045. \$ 50M in of Toll Revenue, in 2031, generated from the first 10 years of operation of the Border West Expressway. \$900M combined between two Texas funding sources - Proposition 1 (which allocates money from the rainy day fund to state highway fund for construction, maintenance and rehabilitation) and Proposition 7 funds (which supplies funding to the State Highway Fund from sales and use tax and state motor vehicle tax to build, maintain and restore non-tolled public roads) was distributed throughout the plan between 2023 and 2045.

NMDOT proposed federal and state revenues at approximately \$39M through a combination of STP-Large Urban, STP-Flex, National Highway Performance Program (NHPP), National Highway Performance-Freight (NHPP-F) and Border State Infrastructure (SBSI) funds for the Bridge Replacement at NM 404/IH-10, in 2021, Construction of NM 404 Super 2 from IH-10 to NM 213, in 2023, Widening of NM 404 from IH-10 to NM 213 and Widening of NM 213 from NM 404 to Texas state line, in 2029.

Local government agencies within the EPMPO study area, including, but not limited to the City of El Paso and the County of El Paso, have projects programmed in the Destino 2045 MTP. Approximately \$545M of local multimodal projects are included with funding from federal and local resources.

On 12/6/17 the Transportation Project Advisory Committee (TPAC) recommended the Destino 2045 MTP Project List and Financial Summary to the Transportation Policy Board (TPB) for approval on December 15, 2017. Public involvement for the Destino 2045 MTP, 2019-2022 TIP and Transportation Conformity Report was scheduled March 9, 2018 – April 9, 2018. The TPB approved the final Destino documents on May 18, 2018

## **2.9 Financial Planning for the Destino 2019-2022 TIP**

The Destino 2019-2022 TIP covers a program horizon of four fiscally constrained years. The Destino 2019-2022 TIP is consistent with the Destino 2045 MTP, and contain regionally significant projects to be funded with federal and non-federal funds. Inclusion of a project in the Destino 2019-2022 TIP reflects a consensus of priority needs among residents living in the MPO study area, locally and state-elected officials, local transportation agency representatives, and representatives of TxDOT and NMDOT. The Destino 2019-2022 TIP is, in effect, a listing of transportation priority needs that will be implemented that contain total estimated costs and implementation dates. The Destino 2019-2022 TIP may be amended as transportation needs and/or funding levels change.

The Destino 2019-2022 TIP is fiscally constrained for transit projects and highway projects in the New Mexico and Texas portion of the El Paso MPO study area. This area is comprised of El Paso County, southern Dona Ana County, NM, and a small portion of Otero County, NM. The majority of projects are in the highway section for Texas, but all federal, state and locally funded projects of regional significance in the El Paso MPO study area are included.

Traditional federal funding categories that flow through TxDOT into the TIP are based on revenue forecasts in TxDOT's associated Unified Transportation Program (UTP). The UTP reflects the projects and programs that may be delivered from available forecasted funding in Texas over a 10-year period. Close coordination is ongoing with NMDOT on available funds to be used in New Mexico. Transit projects are funded with FTA funds, and local funds. Most of the transit funding is for Sun Metro projects, the mass transit provider in the region.

Meetings of the Transportation Project Advisory Committee (TPAC), which recommends projects for approval, and the TPB, which approves projects in the TIP were used as open forum for the MPO public involvement process. The required 30-day public involvement/comment period was met for the Destino 2019-2022 TIP. These meetings were advertised in local newspapers. At the time of the approval of

the Destino 2045 MTP the corresponding Destino 2019-2022 TIP was also approved by the TPB, on May 18, 2018.

## **SECTION 3.0**

### **VEHICLE ACTIVITY**

Section 3.0 describes the basic TDM inputs and approach used to develop the modeled volumes that are a necessary part of the air quality conformity process. Two of the primary travel model inputs - networks (e.g., an electronic representation of the current and future transportation system made up of links and nodes) and demographics - are briefly described below.

#### **3.1 Demographic Specification**

To develop the 2012 base year demographic estimates and 2020, 2030, 2040 and 2045 demographic forecasts for the Destino 2045 TDM, first a review of the 2012 socioeconomic and demographic data (SED) developed for the Destino MTP was done by comparing data from various sources: 2010 Census population information, The University of New Mexico Bureau of Business and Economic Research (BBER) and Texas Workforce Commission (TWC). Several findings and recommendations were identified after the comparison of the data. Based on the recommendations and comments received from Texas Department of Transportation Planning and Programming Division (TxDOT TP&P), various steps were undertaken to bring the Destino 2012 socioeconomic data in El Paso County closer to observed data.

The 2010 population from the Destino TDM was first updated using 2010 census block population data. The individual Traffic Analysis Zone (TAZ)-specific growth rates between years 2010 and 2012 from the Destino TDM were then applied to obtain 2012 population. The individual TAZ populations in El Paso County were then scaled to be consistent with the Texas Populations Estimates and Projection Programs (TPEPP) 2012 control total. The TPEPP population growth rate for El Paso County was applied for the New Mexico side of the MPO in order to obtain control totals for the TAZs falling outside El Paso County. The growth rates were checked against the growth rates of Doña Ana County, and the growth patterns are similar. El Paso County growth patterns were used because that was the best data available and the TPEPP data is very thorough. The 2012 control total was then used to proportionally scale the base year population.

The 2012 employment data is a result of a projection using the previous year's employment trends. This was created before TWC 2012 data was available. In order to represent actual employment as much as possible, the basic, retail and service employment were derived directly from 2012 TWC data for El Paso County. The 2012 education employment from the Destino TDM was not updated using the TWC.

The results of the socioeconomic data update were reviewed by the EPMPO, TxDOT El Paso District and TxDOT TP&P. Revisions were made based on feedback from the review combined with additional follow up analysis. Further information on the development of the demographic data for the base and forecast years associated with each TAZ can be found in Appendix G – Destino 2045 Travel Demand Model Development.

The final TAZ geography contains 869 TAZs, as well as 21 external stations, including several border crossings.

**Table 3**  
**Summary of Demographic Data for the Study Area**

|                        | <b>2012</b> | <b>2020</b> | <b>2030</b> | <b>2040</b> | <b>2045</b> |
|------------------------|-------------|-------------|-------------|-------------|-------------|
| <b>Population</b>      | 876,646     | 1,050,416   | 1,186,027   | 1,311,439   | 1,373,481   |
| <b>Employment</b>      | 307,368     | 368,186     | 415,793     | 460,405     | 482,584     |
| <b>Households (HH)</b> | 290,628     | 348,043     | 394,069     | 436,295     | 457,170     |
| <b>Persons/HH</b>      | 2.96        | 2.97        | 2.97        | 2.97        | 2.97        |

Source: El Paso MPO, 2018

### 3.2 Travel Demand Model

For the development of the 2045 Destino Travel Demand Model, the EPMPD sought a vendor to develop a Model interface along with the validation of the new 2012 base year (refer to Appendix G) and development of the forecast years. The model factors, Highway Performance Monitoring System (HPMS) and the seasonal adjustment utilized for this conformity determination are indicated in Table 4. This section provides a brief description of the Destino Model.

**Table 4**  
**Travel Model Demand factors**

| <b>Model Factor</b>        | <b>Detail</b>  |
|----------------------------|--|
| <b>HPMS</b>                | 0.925442459  |
| <b>Seasonal Adjustment</b> | <u>2020, 2030,2040, &amp; 2045 TDM (ANSWT)</u><br><u>Seasonal Summer Weekday Factor: 0.95645</u><br><br><u>2020, 2030,2040, &amp; 2045 TDM (ANSWT)</u><br><u>Seasonal Winter Weekday Factor: 0.99560</u> |

#### 3.2.1 Travel Model Description

The study area for the Destino Model includes El Paso County in Texas and small portions of Doña Ana and Otero counties in New Mexico. The model base year is 2012 and the model forecast years include 2020, 2030, 2040, and 2045. The Destino Model uses a multiyear master line layer from which individual analysis year networks are derived for use in the analysis of travel demand in the El Paso area.

The Destino Model interface is a combination of TxDOT trip generation and distribution programs and standalone set of macros that run within the TransCAD travel demand modeling software platform.

The Destino Model is a trip-based model, typical of most state of the practice models, which is validated to daily traffic flows. Only person trips engaged in vehicular travel are analyzed. Transit and non-motorized trips are accounted for. The traffic flows are produced through a typical four step process that includes – trip generation, trip distribution, and mode share and traffic assignment, with a speed feedback loop. The trip generation and trip distribution procedures utilize TxDOT TP&P uniquely developed software, commonly referred to as the “Texas Package”.

Within the Texas Package, the TripCAL5 trip generation software is used to generate person trip ends for the El Paso travel demand model. The Destino Model uses TxDOT’s ATOM2 trip distribution program to distribute the productions and attractions calculated by the trip generation program. The Destino Model includes as well a Logit-based mode choice procedure which converts person-trips into vehicle-trips (drive alone, share ride 2 and 3+), as well as transit, pedestrian, and bicycle trips. All of these trips are provided for four time-of-day periods: AM Peak, PM Peak, mid-day and night-time.

Finally, the Destino Model uses the TransCAD User Equilibrium (UE) Assignment for vehicle trips. The assignment procedure in the Destino model includes toll road modeling capabilities as well.

## **SECTION 4.0**

### **EMISSIONS BUDGET AND MOVES MODEL**

#### **4.1 Overview**

The TDM has a validated 2012 base year with forecast network years of 2020, 2030, 2040, and 2045 (Appendix I- Emissions Analysis Notes include the network years as well as the base year). The forecast years incorporate projects proposed in the MTP and TIP. The model outputs were then sent to the Texas A&M Transportation Institute (TTI) for emissions analysis.

#### **4.1.1 Assumptions**

This document summarizes the MOVES2014a inputs and other inventory elements TTI used for developing the 2020, 2030, 2040, and 2045 on-road mobile source emissions inventories for the El Paso MTP conformity analysis.

#### **4.1.2 Methodology**

TTI produced winter season weekday CO, and both summer and winter weekday PM<sub>10</sub> emissions estimates for each evaluation year. The procedure and data applied to develop the emissions estimates follows the same general methodology (i.e., hourly, TDM link-based) as applied in the most recent El Paso MTP conformity analysis. However, the procedure applied the latest planning assumptions to include data that are more recently available (e.g., new traffic assignments, latest available registrations data for development of vehicle fleet characteristics, latest MOVES2014a model release, as allowed by the timeframe of this analysis).

#### **4.1.3 Data Sources and Development**

The EPMPD provided the requisite 24-hour travel model traffic assignments and intrazonal trips. TTI provided the various seasonal weekday VMT adjustment factors (for total VMT and for hourly VMT distributions) based on the latest multi-year TxDOT El Paso Automatic Traffic Recorder (ATR) data, and the HPMS consistency factor (from travel model validation year). TTI also provided travel model traffic assignments and intrazonal trips by time period (AM Peak, Midday, PM Peak, and Overnight), as well as VMT mix by roadway functional classification group for the 24-hour period, based on recent multi-year classification counts.

The MOVES2014a speed-sensitive Freeway and Arterial drive cycle emissions factors were applied to the freeway and non-freeway (excluding Ramps) functional classifications, respectively, and the MOVES2014a Ramp drive-cycle emissions factors were applied to the Ramp functional classification.

TTI provided emissions estimates for 13 vehicle types in the typical summary form of hourly totals by county and road type as well as 24-hour totals. The MOVES2014a commands/inputs are located in Appendix I.



## **4.2 MOVES2014a Inputs**

TTI developed the MOVES2014a model inputs according to guidance provided in *MOVES2014 and MOVES2014a Technical Guidance: Using MOVES to Prepare Emission Inventories for State Implementation Plans and Transportation Conformity* (EPA, November 2015) and *MOVES2014a User Guide* (EPA, November 2015). Please see Appendix I for more detailed information on the MOVES Inputs.

### **4.2.1 Summary of Control Programs Modeled**

This section summarizes the MOVES2014a commands and data parameter values used in MOVES2014a to model the El Paso I/M Program and Anti-Tampering Program (ATP), CO season Oxygenated Fuel Program and the Fuel Reid Vapor Pressure (RVP) Gasoline Program.

### **4.2.2 I/M Program**

The El Paso I/M program consists of exhaust (start year 1987) and evaporative (start year 1997) component tests conducted on an annual basis. As of January 1, 2007, 1996 and newer I/M-subject vehicles equipped with OBD systems are tested under OBD and gas cap integrity (GC) tests, while pre-1996 and non-OBD equipped vehicles are tested under the TSI and GC tests. Please see Appendix I for more detailed information on the I/M Program.

### **4.2.3 Anti-Tampering Program (ATP)**

The ATP is a statewide, annual vehicle inspection program that is included in the emissions factor modeling for areas that also administer an I/M program. The ATP became effective in El Paso in 1983. The ATP requires any person owning, operating, and/or selling a motor vehicle to ensure the systems or devices used to control emissions are in good and operable condition. The program requires the use of the equipment at all times, thus prohibiting the operator or vendor from tampering with the emissions control system of the vehicle. The program is administered by the Department of Public Safety (DPS). This program applies to the gasoline-fueled vehicle class within a two through twenty four year vehicle age. For this conformity analysis the I/M program and ATP were modeled using MOVES2014a commands and input parameters provided in Table 11 of the ELP Destino Analysis notes found in Appendix I.

### **4.2.4 Oxygenated Fuel, Fuel Reid Vapor Pressure, and Diesel Sulfur Content**

The El Paso Oxygenated Fuels Program, which began on October 1, 1992, requires that all gasoline in the area have a minimum oxygen content of 2.7 percent oxygen by weight from October 1 to March 31 of each year in order to control CO emissions. Please see Appendix I for more detailed information on the Oxygenated Fuel, Reid Vapor Pressure, and Diesel Sulfur Content.

### **4.2.5 Temperatures by Time Period**

The ambient temperature input values (shown in Table 5 below) consist of the seasonal daily average hourly temperatures. These values were input to MOVES2014a by season and are consistent with those inputs used in the CO Maintenance Plan and subsequent periodic on-road mobile source inventories

**Table 5**  
**Meteorological Inputs to MOVES: Temperature (T) - Fahrenheit, Relative Humidity (RH) - Percent, Barometric Pressure (BP) - Inches of Mercury<sup>1</sup>.**

| Hour | Summer |      |        | Winter |      |        |
|------|--------|------|--------|--------|------|--------|
|      | T      | RH   | BP     | T      | RH   | BP     |
| 1    | 76.4   | 48.8 | 26.068 | 34.3   | 50.1 | 26.191 |
| 2    | 74.5   | 51.8 |        | 32.7   | 53.6 |        |
| 3    | 72.9   | 55.4 |        | 31.0   | 55.0 |        |
| 4    | 71.5   | 59.3 |        | 29.9   | 57.4 |        |
| 5    | 70.4   | 60.9 |        | 28.6   | 58.7 |        |
| 6    | 69.0   | 63.8 |        | 27.9   | 60.0 |        |
| 7    | 66.0   | 67.7 |        | 26.0   | 63.9 |        |
| 8    | 68.2   | 73.0 |        | 27.7   | 62.0 |        |
| 9    | 74.0   | 58.5 |        | 34.5   | 51.9 |        |
| 10   | 78.7   | 50.1 |        | 42.9   | 40.7 |        |
| 11   | 83.0   | 43.0 |        | 49.0   | 33.8 |        |
| 12   | 86.3   | 38.0 |        | 54.6   | 28.1 |        |
| 13   | 89.5   | 33.5 |        | 58.0   | 25.3 |        |
| 14   | 92.4   | 29.1 |        | 59.9   | 23.2 |        |
| 15   | 94.3   | 26.3 |        | 62.0   | 21.3 |        |
| 16   | 95.2   | 24.9 |        | 63.0   | 20.4 |        |
| 17   | 97.0   | 23.2 |        | 62.5   | 21.2 |        |
| 18   | 96.0   | 24.4 |        | 59.1   | 23.8 |        |
| 19   | 93.0   | 27.6 |        | 52.8   | 30.5 |        |
| 20   | 90.8   | 31.1 |        | 50.0   | 33.1 |        |
| 21   | 88.3   | 33.6 |        | 44.2   | 41.9 |        |
| 22   | 84.5   | 39.1 |        | 40.8   | 44.3 |        |
| 23   | 82.3   | 42.8 |        | 39.1   | 46.4 |        |
| 24   | 80.1   | 44.4 |        | 37.3   | 50.5 |        |

Note: Hourly values are consistent with prior MOBILE6 "min/max temperature" command input values used in the original 1990 base year SIP emissions inventories and in prior El Paso MTP regional emissions estimates for conformity. TTI estimated average the hourly temperature values within the original min/max temperature input range (and hourly average relative humidity and barometric pressure values) using hourly weather data from the same dates and location (El Paso International Airport weather station) used for the original min/max temperature estimates.

<sup>1</sup> Appendix I- Analysis Notes

## 4.2.6 Vehicle Registration Distributions and Diesel Fractions

Vehicle registration (age) distributions and diesel fractions inputs to MOVES2014a were developed using the latest available Texas Department of Motor Vehicles (TxDMV) analysis year-specific mid-year county vehicle registration data. 2012 data was used for the 2012 base year. The latest available data (2014) was used for the future analysis years; 2020, 2030, 2040, and 2045. The vehicle age distribution input data set are county level except for the heavy-duty vehicle (HDV) class 8b category which is state level. The diesel fractions input data sets (one for each evaluation year) are state level. MOVES2014a defaults were used where the required information was not available in the TxDMV data.

The application of local registration distributions and diesel fractions follows guidance in *MOVES2014 and MOVES2014a Technical Guidance: Using MOVES to Prepare Emission Inventories for State Implementation Plans and Transportation Conformity* (EPA, November 2015). Please see Appendix I for more detailed information on the vehicle age distributions and diesel fractions.

## 4.2.7 Vehicle Registration Distributions

The user-supplied vehicle registration distributions input to MOVES2014a are by vehicle age for any of the 13 composite (combined gasoline and diesel) vehicle types. MOVES2014a internal default distributions are applied for vehicle classes for which the analyst does not provide alternate values. The input values for each vehicle class are 30 age fractions representing the fraction of vehicles by age for that particular vehicle class as of July of the evaluation year. These age fractions start with the evaluation year as the 1<sup>st</sup> age fraction and work back in annual increments to end with the 30<sup>th</sup> fraction, which represents the fraction of vehicles of age 30 years and older. The fractions are calculated as the model-year-specific registrations in a class divided by the total vehicles registered in that class.

## 4.2.8 Diesel Fractions

MOVES2014a allows the modeler to specify diesel fractions for 13 composite (gasoline and diesel) vehicle categories by vehicle age. MOVES2014a assumes that urban/transit buses are 100 percent diesel, and that motorcycles are all gasoline fueled, so these two categories do not require diesel fractions. The diesel fraction represents the portion of diesel vehicles in a composite (gasoline and diesel) vehicle class for any vehicle age. When the modeler enters diesel fractions, all 13 sets of fractions are required. Each set of fractions contains the diesel fractions estimates for 30 vehicle ages from the evaluation year back through the 30<sup>th</sup> fraction, which represents vehicle ages of 30 years and older. The model year that MOVES2014a applies to each age-specific diesel fraction value depends on the calendar year of evaluation, thus the modeler must provide separate input for each evaluation year to be modeled.

## **4.2.9 VMT Mix**

TTI developed El Paso County time-of-day (AM Peak, Mid-Day, PM Peak, Overnight), weekday VMT mix (Source Use Types) estimates by roadway functional classification for each analysis year. Using latest available vehicle classification counts (2005-2014) and associated year-end registration data (2013). The methodology is described in *Developing MOVES Source Use Types and VMT Mix for Conformity Analysis* (TTI, August 2016).

MOVES uses a different vehicle classification scheme than the FHWA categories. MOVES categorized the fleet based on nine different fuel types and 13 different source use types (SUTs). For the analysis, VMT mix estimates were developed for functional classification groups. Please see Appendix I for more detailed information on the VMT Mix.

## **4.2.10 TRANSVMT Inputs**

The TRANSVMT utility post-processes TDM output to produce hourly, seasonal and day-of-week specific, on-road vehicle, directional link VMT and speed estimates. The TRANSVMT utility processes a TDM traffic assignment by multiplying the link volumes by the appropriate HPMS, seasonal, or other VMT factors. Hourly factors are then used to distribute the link VMT to each hour in the day. For non/directional traffic assignments, directional split factors are also applied to produce VMT/volume estimates for each direction of travel.

A speed model involving both the link estimated free flow speed and estimated directional delay ( as a function of volume and capacity) is used to estimate the operational time-of-day link speeds for each direction.

Since intrazonal links are not included in the TDM, special intrazonal links are created and the VMT and speeds for these special links are estimated using the intrazonal trips from the trip matrix and the zonal radii. The link VMT and speeds produced by TRANSVMT are subsequently input to the emissions calculation utility, EmsCalc, for applying the MOVES-based emissions factors.

## **4.2.11 Time-of-Day Factors**

TTI used the multi-year TxDOT El Paso ATR data to develop one set of average weekday VMT factors for each seasonal period for all analysis years. These factors were applied to allocate the time period TDM assignment-based VMT by hour-of-day to determine emissions. Please see Appendix I for more detailed information on the time-of-day factors.

## **4.2.12 Area Type Specifications**

El Paso is divided into five area types designated by a code or label and defined as shown in Table 6.

**Table 6  
El Paso Area Types**

| <b>Label</b> |                   |
|--------------|-------------------|
| 1            | Business District |
| 2            | Urban Intense     |
| 3            | Urban Central     |
| 4            | Suburban          |
| 5            | Rural             |

### **4.2.13 Time-of-Day Directional Split Factors**

The 24-hour link assignment volumes, adjusted for season and HPMS consistency and allocated by time-of-day, are non-directional volumes (i.e., the sum of the volumes in the two directions on a link). Directional splits were applied to estimate the portion of the travel that occurred in each direction. These directional volume estimates were used to estimate the directional speeds. Application of the directional split factors resulted in two link records for each network link: one record containing the estimated VMT and speed in the peak (or dominant) direction, and the second record containing the estimated VMT and speed in the opposite direction. This allowed the application of MOVES emissions factors directionally by speed. Please see Appendix I for more detailed information on the time-of day directional split factors.

### **4.2.14 Time-of-Day Capacity Factors**

Time-of-day (i.e., hourly) capacity factors were applied to non-directional capacity (or service volume) for each hour. In computing the directional volume/capacity (v/c) ratio for estimating the directional speeds, the directional split for capacity is assumed to be 50-50. Please see Appendix I for more detailed information on the time-of-day capacity factors.

### **4.2.15 Free Flow Speed Factors**

The estimated free flow speed is used in conjunction with the estimated directional delay (in minutes/mile) to compute the directional congested speed. Unless free flow speeds are included in the TDM, free flow speed factors are used to convert TDM speeds (which are by definition level of Service (LOS) C to LOS A speeds (free flow)).

Details of this procedure are provided in the discussion of the speed model in Section 4.2.16. Please see Appendix I for more detailed information on the free flow speed factors.

### **4.2.16 Speed Model Formulation**

The TDM speed model uses hourly volume and capacity to estimate delay. The link volume was also allocated by hour and direction using the VMT factors (HPMS and seasonal adjustments), hourly factors, and directional split factors. The development of hourly volume and capacity by direction is discussed previously in this document. The directional delay (in minutes per mile) due to congestion was calculated using the following volume/delay equation:

$$Delay = Min \left[ A e^{B \left( \frac{V}{C} \right)}, M \right]$$

Where:

- Delay = congestion delay (in minutes/mile);
- A & B = volume/delay equation coefficients;
- M = maximum minutes of delay per mile; and
- V/C = time-of-day directional V/C ratio.

The delay model parameters (A, B, and M) were developed for the Dallas/Fort Worth area and verified by application in other Texas urban areas. Table 7 shows these parameters.

**Table 7**  
**Volume/Delay Equation Parameters**

| Facility Category        | A     | B   | M    |
|--------------------------|-------|-----|------|
| High-Capacity Facilities | 0.015 | 3.5 | 5.0  |
| Low-Capacity Facilities  | 0.050 | 3.0 | 10.0 |

Given the estimated directional delay (in minutes/mile) and the estimated free flow speed, the directional congested speed is computed as follows:

$$Congested\ speed = \frac{60}{\frac{60}{Freeflow\ speed} + Delay}$$

This model was applied at the link level by area type and functional class combination for each time period and each direction. Directional, hourly operational link speeds were estimated using the speed model, which estimates delay on each link as a function of volume-to-capacity, and applies it to the link's estimated free-flow speed. Local streets category link average operational speeds were estimated, represented by the centroid connector and added intrazonal links, as centroid connector TDM input speeds and the zone's average centroid connector input speed, respectively. Please see Appendix I for more detailed information on the speed model.

### 4.3 Post Processed Adjustments

No emissions rate adjustments were required and therefore no emissions rate adjustments via post-processing were performed.

## **SECTION 5.0**

### **MOBILE SOURCE EMISSION REDUCTION STRATEGIES (MOSERS)**

#### **5.1 Transportation Control Measures (TCMs)**

As defined by the EPA in the Transportation Conformity Regulations, a Transportation Control Measure (TCM) “is any measure that is specifically identified and committed to in the applicable implementation plan, including a substitute or additional TCM that is incorporated into the applicable State Implementation Plan (SIPs) through the process established in FCAA section 176(c)(8), that is either one of the types listed in FCAA section 108, or any other measure for the purpose of reducing emissions or concentrations of air pollutants from transportation sources by reducing vehicle use or changing traffic flow or congestion conditions. Notwithstanding the first sentence of this definition, vehicle technology-based, fuel-based, and maintenance-based measures which control the emissions from vehicles under fixed traffic conditions are not TCMs for the purposes of this subpart.”

The approved El Paso CO Maintenance Plan, and El Paso and Anthony, NM, PM<sub>10</sub> SIP, do not contain any TCMs.

##### **5.1.1 Timely Implementation of TCMs**

There are no current TCMs to report.

##### **5.1.2 Project “Slippage”**

No project “slippage” to report.

#### **5.2 VMEP**

The El Paso SIP does not include any Voluntary Mobile Emissions Reduction Programs (VMEP).

#### **5.3 TERM**

The El Paso SIP does not include any Transportation Emission Reduction Measures (TERM).

#### **5.4 CMAQ**

Part of the strategy to reduce emissions has been to use Congestion Mitigation & Air Quality Improvement Program (CMAQ) funds leveraged with local and other federal funds to develop projects that positively affect air quality. The El Paso region has made use of these funds since their inception in the Intermodal Surface Transportation Efficiency Act of 1991.

Before any project is approved and funded an evaluation is made of the costs and air quality benefits resulting from project implementation.

The Transportation Project Advisory Committee (TPAC) of the MPO is charged with comparing the results of these evaluations and making recommendations to the TPB for allocation of CMAQ funding in each fiscal year of the TIP.

The MPO Project List includes CMAQ projects that will be funded through the Destino 2019-2022 TIP (see Appendix C).



## SECTION 6.0

### DETERMINATION OF REGIONAL TRANSPORTATION EMISSIONS

This section describes the modeling procedures used to determine conformity for the Destino 2045 MTP. It describes the TDM, mobile source emission estimation methodology, and AP-42 Model, Section 13.2.1.

#### 6.1 Procedure

##### 6.1.1 Mobile Source Emissions Estimate and AP-42 Model, Section 13.2.1

###### 6.1.1.1 MOVES

The EPA highway vehicle emissions factor model provides average in-use fleet emissions factors for a variety of pollutants. For this case, the model was used to produce emissions factors for two pollutants: CO and PM<sub>10</sub> (direct vehicle PM<sub>10</sub> emissions, excluding re-suspended dust from paved roads, which is discussed later in this document). MOVES2014a is the most recently EPA-approved model; however, MOBILE6.2.03 was used in the process of generating highway mobile source emissions inventories, motor vehicle emissions budgets, and control strategies for SIPs under the FCAA, and in developing environmental impact statements under the National Environmental Policy Act (NEPA). The EPMPO hosted a consultative partners conference call to request guidance on the use of MOBILE-based motor vehicle emission budgets (MVEBs) with a MOVES-based regional emissions analysis for the transportation conformity determination as MOVES-based MVEBs do not currently exist in the SIP. For the purposes of this conformity determination, per guidance from the consultative partners, it was recommended to use the previous PM<sub>10</sub> and CO MOBILE-based MVEBs for the transportation conformity determination for the MTP/TIP conformity.

MOVES2014a is a model that estimates volatile organic compounds (VOCs), nitrogen oxides (NO<sub>x</sub>), particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>), carbon monoxide (CO), and other precursors from cars, trucks, buses, and motorcycles for SIP purposes and conformity determinations outside of California (California use Emissions Factor Model (EMFAC)). The internal calculation procedures used in MOVES2014a are provided in various technical reports posted on EPA's MOVES Internet page located at <https://www.epa.gov/moves/moves-technical-reports>

MOVES categorizes vehicles into 13 source types and have 6 fuel types (gasoline, ethanol (E-85), diesel, compressed natural gas (CNG), electricity, and liquefied petroleum gas (LPG)). MOVES calculates emissions based on vehicle miles traveled (VMT) by vehicle type, the number of each type of vehicle in the fleet, vehicle age distribution, fuel information, meteorological data, etcetera. The user can specify many of the variables affecting vehicle emissions. Five different road types are considered in MOVES as well as a 31-year range for vehicle ages.

Table 8 shows the 13 source types, which are subsets of five HPMS vehicle types.

**Table 8**  
**MOVES Source Types and HPMS Vehicle Types**

| Source Type ID | Source Types                 | HPMS Vehicle Type ID | HPMS Vehicle Type                                    |
|----------------|------------------------------|----------------------|--|
| 11             | Motorcycle                   | 10                   | Motorcycles  |
| 21             | Passenger Car                | 25                   | Light Duty Vehicles (LDV) - Short and Long Wheelbase |
| 31             | Passenger Truck              |                      |  |
| 32             | Light Commercial Truck       |                      |  |
| 41             | Intercity Bus                | 40                   | Buses  |
| 42             | Transit Bus                  |                      |  |
| 43             | School Bus                   |                      |  |
| 51             | Refuse Truck                 | 50                   | Single Unit Trucks                                   |
| 52             | Single Unit Short-haul Truck |                      |  |
| 53             | Single Unit Long-haul Truck  |                      |  |
| 54             | Motor Home                   |                      |  |
| 61             | Combination Short-haul Truck | 60                   | Combination Trucks                                   |
| 62             | Combination Long-haul Truck  |                      |  |

Table 9 shows the five different road types and their description.

**Table 9. Road Types**

| Road Type                     | Description  |
|-------------------------------|--|
| Off-Network (roadtype 1)      | all locations where the predominant activity is vehicle starts, parking and idling (parking lots, truck stops, rest areas, freight or bus terminals) |
| Rural Restricted Access (2)   | rural highways that can only be accessed by an on-ramp   |
| Rural Unrestricted Access (3) | all other rural roads (arterials, connectors, and local streets)   |
| Urban Restricted Access (4)   | urban highways that can only be accessed by an on-ramp   |
| Urban Unrestricted Access (5) | all other urban roads (arterials, connectors, and local streets)   |

### 6.1.2 TTI Emissions Estimation Utilities

The following is a summary of the series of tools developed by TTI for developing link-based, time-of-day, on-road mobile source emissions estimates for air quality analyses. These utilities produce emissions factors with the latest MOVES emissions factor model, and apply them to travel model-based activity estimates to calculate emissions at user-specified temporal and spatial scales. The location of emissions by grid, or travel network link coordinates, may also be specified. The emissions estimation tools are: RatesCalc, EmsCalc, TransVMT, VMTmixBuild, OffNetActCalc, VehpopulationBuild and MOVESfleetInputBuild. RatesCalc – produces and/or compiles emissions rate tables from MOVES output; EmsCalc – calculates hourly link emissions for a county (or coded sub-county area) using the estimated link VMT and speeds, VMT mixes, off-network activity, and emissions factors from MOVES, RatesCalc, or RatesAdj; TransVMT – estimates the on-road fleet VMT and operational speeds for use in air quality analyses (input to EmsCalc), based on TDM data sets; VMTmixBuild – formats gasoline and diesel MOVES source type (vehicle type) VMT mix input to EmsCalc; OffNetActCalc – calculates SHP, SHI, APU hours, and starts inputs to EmsCalc; VehpopulationBuild – calculates vehicle population estimates input to OffNetActCalc based on

vehicle registration data and other factors; and MOVESfleetInputBuild – produces sourcetypeagedistribution and avft (i.e., fuel fractions) table inputs to MOVES, based on vehicle registration data, MOVES default data, and VMT mix estimates.( See Appendix I).

## **6.2 Calculated Emissions**

### **6.2.1 Calculated Link-Based Emissions**

The main components of the emissions estimates (link VMT, VMT mix, and emissions factors) were combined according to the procedures described to produce the resulting emissions estimates.

The resulting emissions estimates are summarized in table 10. Additional detail in the form of hourly and 24-hour emissions by functional classification and vehicle type are available electronically (Appendix I).

### **6.2.2 Calculated Emissions for Donut Areas**

Emissions for donut areas are not applicable for this analysis since nonattainment area is not outside the metropolitan planning area boundary and is not a donut area (reference: 40 CFR 93.101 Definitions).

## **6.3 Emissions Estimations Utilities**

### **6.3.1 TRANSVMT**

The TRANSVMT utility post-processes travel demand models outputs to produce hourly, on-road vehicle, seasonal and day-of-week specific, directional link VMT, and speed estimates. The TRANSVMT utility processes a TDM traffic assignment by multiplying the link volumes by the appropriate HPMS, seasonal, or other VMT factors. Hourly factors are then used to distribute the link VMT to each hour in the day. The TTI speed model is used to estimate the operational time-of-day link speeds for each direction. Since intrazonal links are not included in the TDM, special intrazonal links are created and the VMT and speeds for these special links are estimated using the intrazonal trips from the trip matrix and the zonal radii. The link VMT and speeds produced by TRANSVMT are subsequently input to the EmsCalc utility for applying the MOVES-based emissions factors (as well as with other utilities to develop off-network activity estimates).

### **6.3.2 VehPopulationBuild**

The VehPopulationBuild utility builds the sourcetypeyear data files in a format consistent with the MOVES input database table and the SUT/fuel type population input file (can be used with the EmsCalc utility to estimate emissions or the OffNetActCalc utility to estimate starts and SHP) using the VMT mix and the TxDMVregistration data sets. The TxDMV registration data sets are three sets of registration data (an age registration data file, a gas trucks registration data file, and a diesel trucks registration data file) that list 31 years of registration data.

### **6.3.3 OffNetActCalc**

The OffNetActCalc calculates the analysis scenario (i.e., year, season, day type) SHP, starts, SHI, and APU hours by hour, SUT, and fuel type used to estimate emissions using the EmsCalc utility. The starts activity is calculated using the SUT/fuel type population and the starts per vehicle (typically the MOVES default). The SHI and APU hours are a function of hotelling hours. This utility has two

options for calculating the hotelling hours. Using the first option, the analysis scenario 24-hour hotelling hours is calculated using a user-supplied extended idle factor applied to the source hours operating (SHO) data. The second option (and suggested method) uses base data (24-hour hotelling, link VMT and speeds, and VMT mix), the analysis scenario data used to calculate the SHP, and the analysis scenario SHP to calculate the analysis scenario 24-hour hotelling hours.

### **6.3.4 MOVESactivityInputBuild**

The MOVESactivityInputBuild utility builds the roadtypedistribution, hourvmtfraction, avgspeeddistribution, roadtype, hpmsvtypeday, sourcetypeedayvmt, year, state, zone, zoneroadtype, monthvmtfraction, and dayvmtfraction data files in a format consistent with the MOVES input database tables using the link-based hourly VMT and speeds developed with the TRANSVMT or VirtualLinkVMT utility, the VMT mix, and the MOVES defaults. The utility also has the option of building the sourcetypeage (adjusted to reflect the 24-hour VMT mix), starts, and hotellinghours data files in a format consistent with the MOVES input database tables using the output from the OffNetActCalc utility, along with inputs from the MOVES runs and the MOVES defaults.

### **6.3.5 MOVESfleetInputBuild**

The MOVESfleetInputBuild utility builds the sourcetypeagedistribution database table and fuel/engine fraction inputs to MOVES using the TxDOT registration data sets and the MOVES default database tables.

### **6.3.6 RatesCalc**

The RatesCalc utility calculates emissions rates in terms of rate/SHP for the evaporative emissions processes using the data in the County Data Base (CDB) used in the MOVES emissions rates run and the MOVES default database.

### **6.3.7 RatesAdj**

The RatesAdj utility applies emissions rate adjustments to an emissions rate database table produced by RatesCalc utility (ttirateperdistance, ttirateperstart, ttirateperhour, or ttiratepershp) or by this utility to produce a new emissions rate database table in the same format as the input emissions rate database table

### **6.3.8 EmsCalc**

The EmsCalc utility estimates the hourly link emissions for one user-specified county using the emissions factors (either from RatesCalc or RatesAdj), the 24-hour or time period VMT mix, the hourly link VMT and speeds activity estimates (either from TRANSVMT or VirtualLinkVMT), and the off-network activity (SHP, starts, and SHI). This utility produces a tab-delimited output summary (including hourly and 24-hour totals) and hourly link emissions output files (optional). The primary inputs to EmsCalc are: emissions factors from RatesCalc or RatesAdj; link-based hourly VMT and speeds developed with the TRANSVMT or VirtualLinkVMT utility. For each link, the following information is input to EmsCalc: link start node, link end node, link county number, link roadway type number, link area type number, link VMT, and link operational speed estimate; 24-hour or time period VMT mix by roadway type, MOVES SUT, and MOVES fuel type; and Off-network activity (SHP, starts, SHI, and APU hours) by hour and SUT/fuel type.

The emissions estimation can be categorized by two basic types based on the type of emissions factors: the roadway-based emissions and the off-network-based emissions. For the roadway-based emissions (tirateperdistance emissions factors), the VMT for each link is distributed to each of the SUT/fuel type combinations listed in the VMT mix by roadway type (as designated in the VMT roadway type designations). For link speeds greater than 75 mph, the emissions factors for 75 mph are used. For link speeds less than 2.5 mph, the emissions factors for 2.5 mph are used. For those link speeds that fall between the 16 MOVES speeds, the emissions factors are interpolated using the emissions factor interpolation methodology in the following section. For the off-network emissions, the tirateperstart, tirateperhour, and tiratepershp emissions rates (by SUT/fuel type) are multiplied by the appropriate activity, which is determined by the emissions process.

The emissions estimates are output in a tab-delimited file (including all of the SUT/fuel type combinations listed in the VMT mix on a single line, separated by a tab character) for the specified county by pollutant, link roadway type, and SUT/fuel type combination for each of the specified episode time periods. A 24-hour (or total if all 24 hours are not specified) output is also included in the tab-delimited file.

## Example Emissions Factor Interpolation

To calculate emissions factors for link speeds that fall between two of the 16 MOVES speed bin speeds, an interpolation methodology similar to the methodology used with MOBILE6 is used. This methodology interpolates each emissions factor using a factor developed from the inverse link speed and the inverse high and low bounding speed bin speeds. The following is an example for a link speed of 41.2 mph.

The interpolated emissions factor (EF<sub>Interp</sub>) is expressed as:

$$EF_{\text{Interp}} = EF_{\text{LowSpeed}} - FAC_{\text{Interp}} \times (EF_{\text{LowSpeed}} - EF_{\text{HighSpeed}})$$

Where:

$EF_{\text{LowSpeed}}$  = emissions factor (EF) corresponding to the speed below the average link speed;

$EF_{\text{HighSpeed}}$  = EF corresponding to the speed above the average link speed; and

$$FAC_{\text{Interp}} = \left( \frac{1}{\text{Speed}_{\text{link}}} - \frac{1}{\text{Speed}_{\text{low}}} \right) \bigg/ \left( \frac{1}{\text{Speed}_{\text{high}}} - \frac{1}{\text{Speed}_{\text{low}}} \right)$$

Given that:

$$EF_{\text{LowSpeed}} = 0.7413 \text{ g/mi};$$

$$EF_{\text{HighSpeed}} = 0.7274 \text{ g/mi};$$

$$\text{Speed}_{\text{link}} = 41.2 \text{ mph};$$

$$\text{Speed}_{\text{low}} = 40 \text{ mph}; \text{ and}$$

$$\text{Speed}_{\text{high}} = 45 \text{ mph}.$$

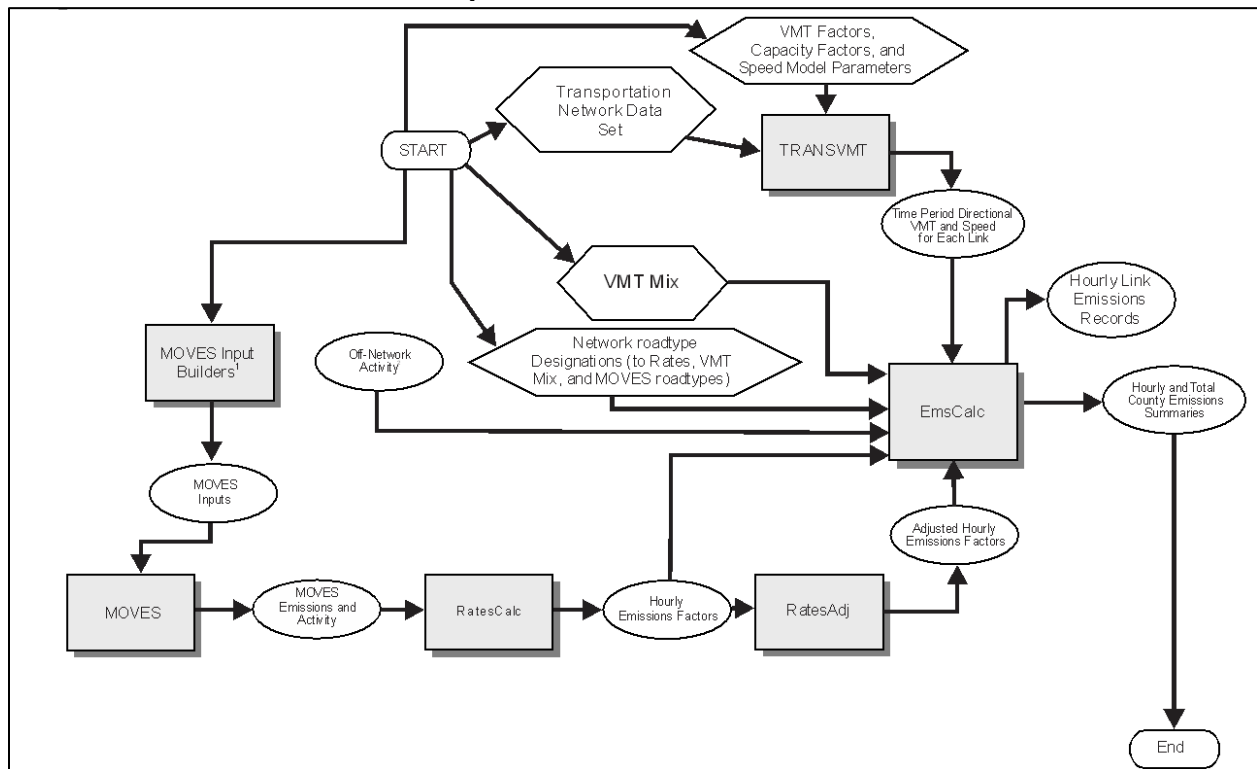
$$FAC_{\text{Interp}} = \left( \frac{1}{41.2\text{mph}} - \frac{1}{40\text{mph}} \right) \bigg/ \left( \frac{1}{45\text{mph}} - \frac{1}{40\text{mph}} \right) = \frac{-0.00073}{-0.00278} = 0.26214;$$

$$EF_{\text{Interp}} = 0.7413 \text{ g/mi} - (0.26214) H (0.7413 \text{ g/mi} - 0.7274 \text{ g/mi});$$

$$= 0.7377 \text{ g/mi.}$$

The following diagram shows the overall emissions estimate process flow.

**Diagram 1**  
**Travel Demand Model Network Link-Based**  
**Hourly MOVES Emissions Estimates**



<sup>1</sup>MOVESactivityInputBuild, MOVESfleetInputBuild, MOVESmetInputBuild, and VehPopulationBuild.

<sup>2</sup>VehPopulationBuild, and OffNetActCalc.

## 6.4 Final Emission Analysis Results

### 6.4.1 Network-Based Model

Table 10 is a summary of the VMT and associated CO emissions for the winter season emissions.

**Table 10**  
**Winter Season CO Emission Data<sup>1</sup>**

| <b>YEAR</b>             | <b>Total Vehicle Miles of Travel (Including Intrazonal)</b> | <b>CO Emissions in Tons per Day</b> |
|-------------------------|---|-------------------------------------|
| <b>MVEB</b>             | -   | 29.66                               |
| <b>2020<sup>2</sup></b> | 1,357,366   | 5.08                                |

<sup>1</sup> All values are average winter weekday estimates. The VMT listed are used to calculate the average speed.

<sup>2</sup> For the purpose of this conformity determination per guidance from the consultative partners, demonstration for CO has to be performed for the only year 2020, as this is the last year of the maintenance plan.

Sources: Networks and Traffic Assignments, TxDOT. VMT, Emission Factors, and Emission Estimates, TTI.

Table 11 is a summary of the VMT and associated PM<sub>10</sub> emissions for the summer\winter season emissions.

**Table 11**  
**PM<sub>10</sub> Emission Data**

| <b>Year</b> | <b>Season</b> | <b>VMT<sup>1</sup></b> | <b>PM<sub>10</sub> Emissions (tons/day)</b> |
|-------------|---------------|------------------------|---|
| <b>MVEB</b> | --            | --                     | 12.1  |
| <b>2020</b> | Summer        | 18,574,279             | 6.36  |
|             | Winter        | 19,334,573             | 6.90  |
| <b>2030</b> | Summer        | 21,041,304             | 6.80  |
|             | Winter        | 21,902,580             | 7.34  |
| <b>2040</b> | Summer        | 23,061,602             | 7.41  |
|             | Winter        | 24,005,574             | 7.98  |
| <b>2045</b> | Summer        | 23,972,906             | 7.68  |
|             | Winter        | 24,954,179             | 8.28  |

Notes: 1) VMT are from summer and winter action assignments.

Source: Texas A&M Transportation Institute

## 6.4.2 Off-Network TERMS

Off-network TERM have not been included in the El Paso SIP, thus there is no requirement to make adjustment.

## 6.4.3 Summary

The CO and PM<sub>10</sub> emissions from the travel demand model all meet the MVEB requirements without any adjustments or additional credits required from VMEP, TERM, or TCMs.

This conformity determination demonstrates that the total emissions calculated from the modeled roadway network for future years will be at levels below the MVEB. Table 2, on page 10 provides the conformity results for both the PM<sub>10</sub> and CO budget tests.

## **SECTION 7.0**

### **INTERAGENCY CONSULTATION**

#### **7.1 Process Description**

Section 176(c)(4)(B)(i) of the FCAA contain the guidelines that are used by the EPMPO during the interagency consultation process for conformity. Based on these guidelines, the EPMPO must provide the opportunity for consultation with the group of partners (listed below) prior to the conformity determination. Preliminary technical meetings are held with the consultative partners and the EPMPO to discuss the planning process prior to the commencement of emissions modeling. The modeling parameters, planning assumptions, as well as the type of model to be used are discussed with the consultative partners.

Upon conclusion of the preliminary technical meetings, the emissions modeling process begins. Once the emissions estimates are developed, they are included in the transportation conformity report. If there is a need to re-evaluate the emissions estimates and conduct additional modeling, the consultative partners are notified.

The EPMPO provides a 30 day public comment period. At the end of the 30 day public comment period, the conformity report is prepared for submittal to the TPB for review. The finalized conformity document is then sent to all consultative partners for the beginning of a 90 day review period, in which the consultative partners provide comments on the conformity document before final approval. The EPMPO responds to all comments, and as needed, incorporates the requested edits into the conformity document. Once all edits have been incorporated, the conformity document may be submitted to the FHWA for final review of the transportation conformity report.

The consultative procedures specifically require coordination with the following government agencies during the MTP development process and for the interagency review:

- EPA
- FHWA (Texas and New Mexico)
- FTA
- TxDOT
- TCEQ

Since the EPMPO regional study area covers portions of southern New Mexico, consultations with the following New Mexico agencies are also involved in the consultative process:

- NMDOT
- NMED

The EPMPO's committee structure helps to ensure that the consultative requirements are met during the MTP development process. TxDOT, NMDOT, and NMED are members of the TPAC of the MPO. This committee recommends approval of the MTP, the TIP, and recommends submittal of the TCR to the TPB.

All three documents are submitted to all the consultative partners including the Texas and New



Mexico Divisions of the FHWA.

Interagency consultation efforts conducted for this conformity determination included the development of a Pre-analysis Consensus Plan, multiple consultation conference calls with the Consultative Group, and several opportunities for review and comments on the transportation conformity determination document by the consultation partners.

In addition, the meeting minutes from various consultative calls specific to this conformity determination can be found in Appendix F.

## SECTION 8.0

### PUBLIC PARTICIPATION

The goal of the Public Participation program (PPP) is to involve the community in a proactive planning effort that provides the opportunity for input in the early stages of the conformity determination. The guidelines followed for public participation can be found at the following link: <http://elpasotx-prod.civica.granicusops.com/civicax/filebank/blobdload.aspx?BlobID=22867>

The 30-day public comment period was held from March 9, 2018 to April 9, 2018 at the following locations, dates, and times:

|   |                           |                           |
|---|---------------------------|---------------------------|
| •Sergio Troncoso Library                      | March 12, 2018            | 4:00-5:45 p.m.            |
| •Sunland Park Council Chambers                | March 13, 2018            | 5:00-6:30 p.m.            |
| •Westside Regional Command Center             | March 14, 2018            | 5:30-7:00 p.m.            |
| •El Paso Metropolitan Planning Organization   | March 15, 2018            | 4:00-6:00 p.m.            |
| •Memorial Park Library                        | March 19, 2018            | 4:30-6:00 p.m.            |
| <del>•Northeast Regional Command Center</del> | <del>March 20, 2018</del> | <del>5:30-7:00 p.m.</del> |
| • El Paso Metropolitan Planning Organization  | March 20, 2018            | 5:30-7:00 p.m.            |
| •Pebble Hills Regional Command Center         | March 21, 2018            | 5:30-7:00 p.m.            |
| • Project Amistad                             | March 26, 2018            | 5:30-7:00 p.m.            |

Draft plans were provided free of charge, however, copies of over-sized or lengthy materials were available at reproduction and postage costs consistent with the State of Texas Comptroller's policy. Electronic copies of draft documents and major updates are posted on the MPO website for public viewing. [http://www.elpasompo.org/scroll\\_bar\\_area/conformity/default.htm](http://www.elpasompo.org/scroll_bar_area/conformity/default.htm)

There were no public comments received during the public involvement period for the Destino 2045 Transportation Conformity Document and five general comments were received (refer to Appendix J).