

CONGESTION MANAGEMENT PROCESS

Nov 2019

OUTLOOK ON CONGESTION

Congestion in El Paso Region was evaluated through the public involvement process for Destino 2045 MTP. The majority of the survey respondents (71%) believed that congestion needs were a top priority region wide; the Central El Paso (74%) and West Valley (71%) sub-regions had the highest respondent rates prioritizing congestion needs. Most respondents (86%) agreed with maps of forecasted V/C ratios provided during the public visioning workshops. Furthermore, 61% of respondents believed that automobiles in the El Paso study area would be inadequately served in the next 28 years.

El Paso MPO's responsibility as a non-attainment area, is to work closely with local member jurisdictions to manage congestion, either by a better distribution of travel demand, or by improving the efficiency of the transportation system.



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THE EL PASO MPO

CONGESTION MANAGEMENT PROCESS

PREPARED BY: MPO STAFF

ADOPTED: NOVEMBER 15, 2019

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ACRONYMS

ADT	Average Daily Traffic
AADT	Average Annual Daily Traffic
BRT	Bus Rapid Transit
BWT	Border Wait Times
CO	Carbon Monoxide
COMPAT	Congestion Management Process Tool
CMP	Congestion Management Process
CMS	Congestion Management System
DOT	Department of Transportation
DMD	Downtown Management District
EPMPO	El Paso Metropolitan Planning Organization
FHWA	Federal Highway Association
HOT	High Occupancy Toll
HOV	High Occupancy Vehicle
ITS	Intelligent Transportation System
LOS	Level of Service
MPO	Metropolitan Planning Organization
MTP	Metropolitan Transportation Plan
RTS	Rapid Transit System
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act-A Legacy for Users
SOV	Single Occupant Vehicles
TIP	Transportation Improvement Program
TMA	Transportation Management Area
TMC	Transportation Management Center
TTI	Travel Time Index
TTI	Texas Transportation A&M Institute
UPWP	Unified Planning Work Program
UTEP	University of Texas at El Paso
V/C	Volume over Capacity ratio
VMT	Vehicle Miles Travelled



CONGESTION MANAGEMENT PROCESS

1. INTRODUCTION

The El Paso MPO is required to maintain a Congestion Management Process (CMP) as part of its ongoing transportation planning process. The CMP is required to be developed and implemented in all Transportation Management Areas (TMAs) – urbanized areas with a population over 200,000.

A CMP is a process for managing congestion that provides information on transportation system performance. It recommends a range of strategies to minimize congestion and enhance the mobility of people and goods. The CMP analyzes the regional transportation network and identifies congested corridors and strategies to minimize congestion. It also evaluates strategies for both their anticipated and experienced effectiveness.

NON-ATTAINMENT AREAS

In transportation management areas (TMAs) designated as ozone or carbon monoxide (CO) non-attainment areas, the CMP takes on a greater significance. Federal law prohibits projects that result in a significant increase in carrying capacity for single occupant vehicles (SOVs) from being programmed in these areas unless the project is addressed in the region's CMP.

The CMP must provide an analysis of reasonable travel demand reduction and operational management strategies; if the analysis demonstrates that these strategies cannot fully satisfy the need for additional capacity and SOV capacity is warranted, then the CMP must identify strategies to manage the SOV facility safely and effectively, along with other travel demand reduction and operational management strategies appropriate for the corridor.

A portion of El Paso County is designated as limited maintenance for CO and effective August 2018, a portion of Sunland Park, New Mexico has been designated as marginal non-attainment area for Ozone.

HISTORY OF CMP IN EL PASO

- | | |
|------|---|
| 1991 | Congestion Management System (CMS) is required as part of the Intermodal Surface Transportation Efficiency Act |
| 1997 | First CMS is adopted by El Paso MPO Transportation Policy Board |
| 2008 | CMS was updated and renamed Congestion Management Process (CMP) as part of changes made by the Safe, Accountable, Flexible, Efficient Transportation Equity Act-A Legacy for Users (SAFETEA-LU) |
| 2013 | El Paso MPO Transportation Policy Board approved CMP update |
| 2019 | Update to the CMP presented in this report |

8-STEP PROCESS

The process model for congestion management recommended by the federal regulations as presented in the Congestion Management Process Guidebook, provides an outline for an objectives-driven, performance-based approach consisting of eight elements:

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

CONGESTION MANAGEMENT PROCESS

THE CMP IN THE PLANNING PROCESS

The CMP is a medium-term planning effort that advances the goals of the Metropolitan Transportation Plan (MTP) and strengthens the connection between the Plan and the Transportation Improvement Program (TIP). Below is a diagram (Figure 1.) that shows the connections between the CMP and other Transportation Planning Documents and Products.

Links A, B, C show that the CMP is integrated with the MTP, TIP and UPWP. Link D is the connection with the Regional Intelligent Transportation Systems (ITS) Architecture, which serves as guiding document and is required of each region by the federal regulations, outlines the needs and creates the framework from which to plan, design, deploy, operate and maintain intelligent transportation systems.

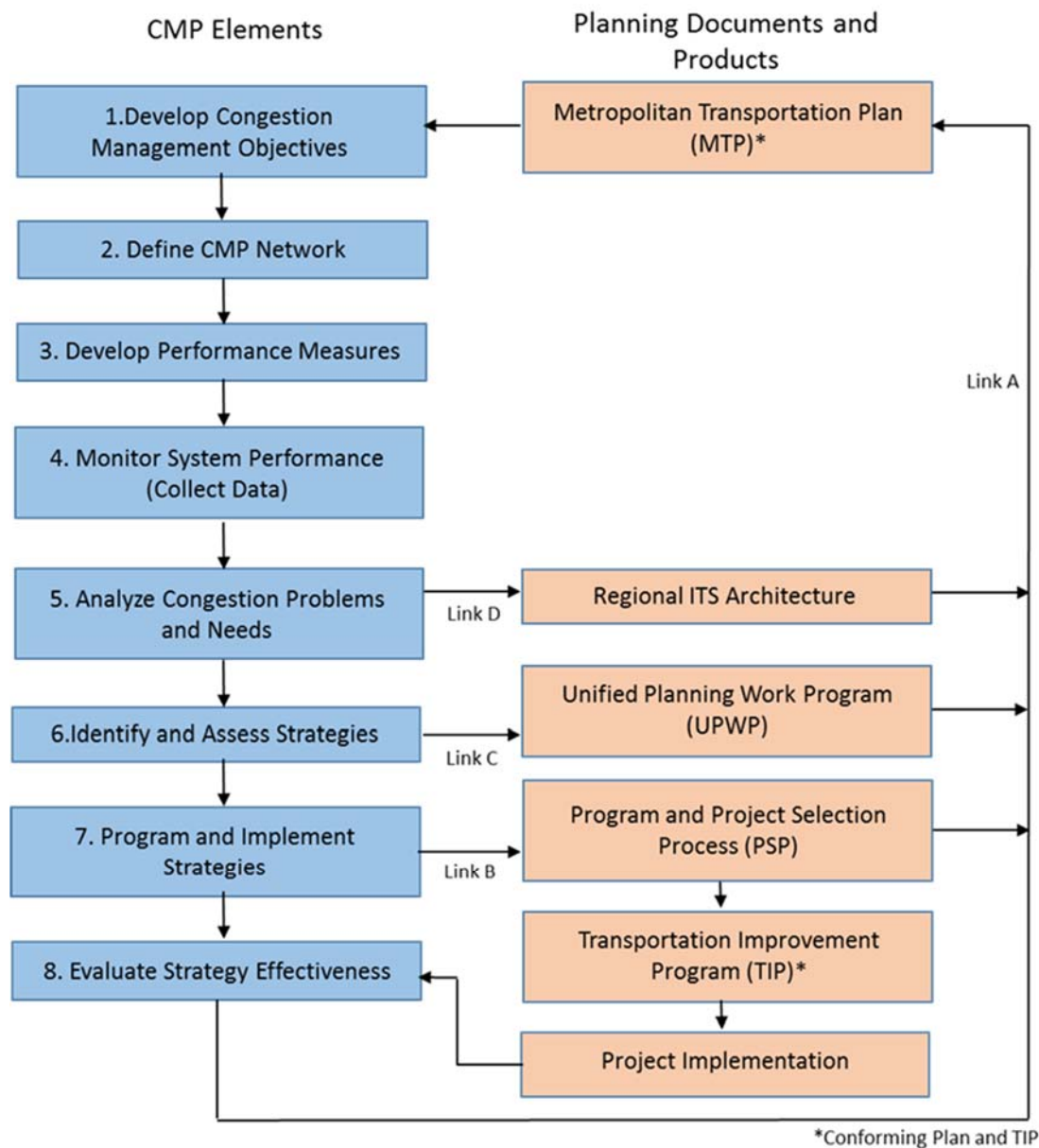


FIGURE 1. INTEGRATION OF THE CONGESTION MANAGEMENT PROCESS IN THE TRANSPORTATION PLANNING PROCESS



CONGESTION MANAGEMENT PROCESS

CMP AD HOC COMMITTEE

For the development of this CMP update an Ad Hoc committee comprised of 7 members from the Transportation Project Advisory Committee (TPAC) was appointed by the Transportation Policy Board on April 26, 2019. The Ad Hoc committee was formed to actively participate in the development of each step of the process. The Ad Hoc committee met on a monthly basis and provided feedback and oversaw the development of the CMP.

Among the committee member's responsibilities was the review of data inventory source available to the MPO and facilitation of data acquisition for the development of the performance measures.

Detailed below is the list of the members with representatives from the following agencies.



In addition, participation from other technical staff from each agency was also encouraged to attend. These members as they were more familiarized with the day to day operations provided their input on specific issues and was found to be very beneficial for the development of the CMP update.

TABLE 1. CMP AD HOC COMMITTEE MEMBERS.

TITLE/REPRESENTATION	CURRENT REPRESENTATION BY
Texas	
County of El Paso	Jose Landeros
City of El Paso	Yvette Hernandez
Mass Transit Board	Raul Escobedo
Texas Department of Transportation (TXDOT)	Marty Boyd
University of Texas at El Paso (UTEP)	Greg McNicol
New Mexico	
Doña Ana County	Samuel Paz
New Mexico Department of Transportation (NMDOT)	Harold Love

STAKEHOLDER COLLABORATION

Collaboration and coordination among a wide range of stakeholders – MPO planners, State DOT planning and operations staff, transit agencies, local governments, toll authorities, university transportation centers, and the private sector – is an important foundation for an effective CMP. Within the metropolitan transportation planning process, these partners can work together to develop regional objectives for congestion management, define performance measures, share and analyze data, and identify potential strategies.

Source: CMP: A Guidebook, FHWA.



CONGESTION MANAGEMENT PROCESS

2. CMP GOALS AND OBJECTIVES

The identification of goals and objectives for regional congestion is the foundation of the congestion management process. Regionally defined objectives delineate what the region wants to achieve regarding congestion management, and are an essential part of an objectives-driven, performance-based approach to planning for operations.

The Ad Hoc committee revisited the Goals, Objectives and Performance Measures presented in the 2013 CMP and made recommendations. Some measures were modified based on monitoring activities currently conducted by some agencies and others based on additional literature review.

Four CMP Goals are outlined in the CMP as listed below with their corresponding objectives.

TABLE 2. CMP GOALS AND OBJECTIVES.

GOAL 1:	PROVIDE A TRANSPORTATION SYSTEM THAT SERVES THE PUBLIC WITH MOBILITY CHOICES INCLUDING PEDESTRIANS AND BICYCLES
•	Increase/accommodate and improve bicycling options and facilities in the region
•	Increase/accommodate and improve pedestrian facilities in the region
•	Increase and improve accessibility to transit system and facilities
•	Improve the reliability and efficiency of transit system
•	Continue Intelligent Transportation System (ITS) improvements in the region
GOAL 2:	IDENTIFY AND MITIGATE CONGESTION ON THE TRANSPORTATION SYSTEM
•	Identify, diagnose, and address highway bottlenecks and travel delays
•	Increase efforts to reduce crash rates and improve safety on the system
•	Increase and improve the regional incident management program
•	Reduce travel delays on major arterial roads for all alternative modes
•	Reduce travel delays at traffic signals
•	Enhance border crossing road operations to improve facilitation of commercial truck traffic, pedestrians and passenger vehicles
GOAL 3:	MINIMIZE AIR QUALITY IMPACTS OF CONGESTION
•	Encourage and enhance shared ride programs in the region (e.g., carpools, vanpools)
•	Promote transit options to citizens in the region
•	Promote travel demand management programs in the region
•	Promote air-quality issues in the region
GOAL 4:	PROMOTE ACCESSIBILITY TO AN EFFICIENT TRANSPORTATION SYSTEM FOR ALL CITIZENS
•	Improve connectivity between all modes in the system
•	Improve border crossing activities for all users of the system (pedestrian, automobile, trucks, bicycles)



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3. CMP NETWORK DEFINITION

The CMP network provides a framework for analyzing congestion problems within the El Paso MPO study area. Although the CMP has traditionally focused primarily on the road network, the CMP network should consider the transit, bicycles, and pedestrian networks as well as their interface with the highway network.

Nevertheless, it is not intended to be comprehensive or all-inclusive, as it is anticipated that new and revised

corridors will be defined over time as the CMP is applied to emerging congestion challenges.

The following criteria was developed to define the CMP monitoring network for this update (Figure 2). During the review, the 2013 CMP network was modified based on member's recommendations. For example, several minor arterials that met the criteria were identified and added to the network

TABLE 3. CRITERIA TO DEFINE THE CMP NETWORK

CATEGORY	DESCRIPTION	COMMENT
Freeways/Highways	All access-controlled facilities including (but not limited to) Interstates and US Highways	Include Facilities Functionally Classified as: <ul style="list-style-type: none"> 01 – Interstate 02- Other Freeways and Expressways
Principal Arterials	Principal Arterials as classified by the Federal Functional Classification.	Include Facilities Functionally Classified as: <ul style="list-style-type: none"> 03 – Principal Arterial
Select Minor Arterials that:	Serve significant interregional and intraregional travel, and connect rural population centers not already served by a principal arterial or connect with intermodal transportation terminals not already served by a principal arterial.	Includes rural state highways such as: NM 28 or NM 213 And rural roadways such as Darrington road.
Strategic Connectors	All state system facilities not included in the above categories. Corridors which provide regional mobility which are not encompassed within the other criteria provided above.	Includes: <ul style="list-style-type: none"> Farm to Market; State Highways; US Highways; Interstate Highways
All fixed guideway transit systems in the MTP	Any public transportation facility which utilizes and occupies a designated right-of-way or rails including (but not limited to) rapid rail, light rail, commuter rail, busways, automated guideway transit, and people movers.	Includes Streetcar route (4.8 mile) through El Paso's uptown and downtown areas.



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Volume Threshold Criteria for lower than Principal Arterials

Facilities below Principal Arterial
Classification based on area and volume.

Texas Roadways¹

- Urban Minor Arterials
ADT \geq 10,000 vehicles per day
 - Rural Minor Arterials
ADT \geq 6,000 vehicles per day
- New Mexico Roadways²
- AADT \geq 6,000

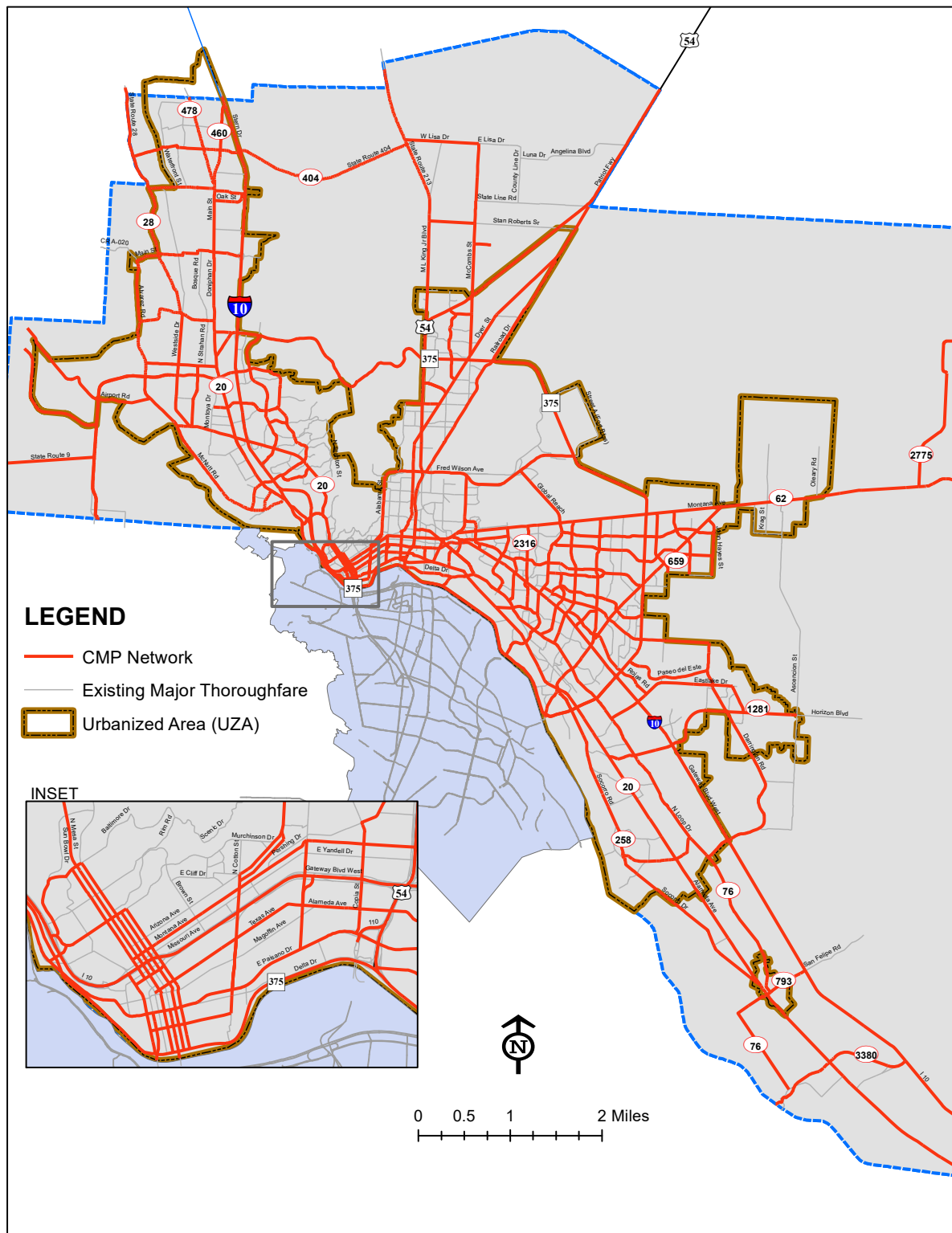
¹ Based on TxDOT Roadway-Highway Inventory Network (RHINO) ADT traffic volume data.

² Based on New Mexico Highway Performance Monitoring System (HPMS) AADT traffic volume data.



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FIGURE 2. UPDATED 2019 CMP NETWORK





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4. PERFORMANCE MEASURES

Multimodal performance measures are used to understand congestion problems, assess potential solutions, and monitor the effectiveness of implemented congestion management strategies. Table 6 (on page 10), includes a number of measures that EPMPO can work toward implementing. Identified as Tier 1 are the performance measures that are discussed in this CMP update and Tier 2 are measures identified by the Ad Hoc committee as desired measures to be presented in future updates as data collection/modeling capabilities expand within the agency.

The CMP update report includes a performance monitoring plan (on Section 5) for acquiring, analyzing, and monitoring the data needed to implement these multimodal performance measures.

GOAL 1

PERCENT OF ADDED MILES OF BIKE FACILITIES (SYSTEM WIDE)

The City of El Paso Bike Plan, completed in 2016, details the existing bicycle network mileage by facility type as shown in Table 5, which includes over 100 miles of existing on-street bicycle facilities and over 30 miles of existing shared-use paths. The Plan also outlines the bicycle facility recommendations consisting of more than 900 miles of bikeways linking El Pasoans to schools, parks employment opportunities, cultural amenities and institutions, Sun Metro buses and street-cars, SunCycle bike share stations, and ultimately to one another. Because these recommendations are conceptual in nature, some recommendations may change as individual projects are designed and implemented.

These existing miles will be used as the basis for measuring the percent of added miles of bike facilities in subsequent CMP updates as the facilities are implemented.

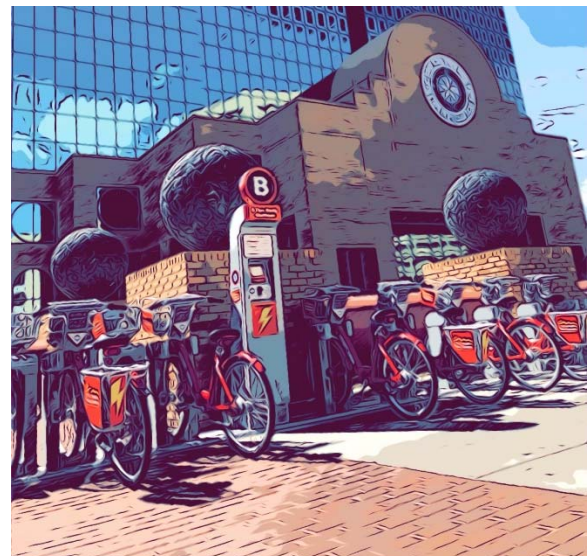
TABLE 4. EXISTING BICYCLE NETWORK BY FACILITY TYPE

Facility Type	Miles
Signed/Marked Bicycle Routes	11.5
Wide Shoulders	28.5
Bike Lanes	62.0
Buffered Bike Lanes	7.0
Shared-Use Paths (including Sidepaths)	30.6
Total	140

As of July 2016

PERCENT OF ADDED MILES OF TRANSIT FACILITIES WITH BIKE PARKING

In order to provide a better understanding of the progress towards improving the accessibility and efficiency of bicycles to offer travelers a feasible and attractive travel option, EPMPO staff recommends revising this measure to “the percent of added bus stops with bicycle parking”. After a review of the type of data that is currently acquired by Sun Metro and the calculation methods available, the original measure was not feasible to obtain.





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Currently, the total number of bike racks by facility in the transit system is shown below. This information will be used as the basis to calculate the percent of added bus stops with bicycle parking in subsequent updates of the CMP.

Bike racks in transit system	
Brio Stations	67
Transit terminals	74
Shelters with high demand	171
Total	312

ON-TIME PERFORMANCE (SYSTEM-WIDE)

On-time performance is a percentage value used to indicate whether buses arrive or depart late, on time, or early. Transit Cooperative Research Program¹ (TCRP) Report 165 proposes 0 to 5 minutes as the threshold values because most passengers adjust their time according to scheduled arrival time, and no earlier than that. Table 6, presents the Transit Level of Service (LOS) values from TCRP Report 165.



Current Sun Metro system-wide performance indicators show 93-94% through April 2019. A CMP performance measure of 90% indicates a commitment to maintain their very good level of service. Using the overall system-wide average will also prevent problems on individual routes from having a greater negative effect on the average.

TABLE 5. TRANSIT LEVEL OF SERVICE (LOS) ON-TIME PERCENTAGES

A	95-100%
B	90-94.9%
C	85-89.9%
D	80-84.9%
E	70-79.9%
F	<70%

Source: TCRP Report 165: Transit Capacity and Quality of Service Manual, Third Edition (2013)

GOAL 2

TRAVEL TIME METRICS

Travel time metrics generated by the Texas A&M Transportation Institute to compute the Texas 100 Most Congested Road Sections report are available to MPOs via the Congestion Management Process Tool (COMPAT). The following metrics are reported for analysis of the identified congested segments (as described in Section 6 – Congestion Problems and Needs).

- Travel Time Index
- Truck Travel Time Index
- Person Hours of Delay
- Truck Vehicle Hours of Delay
- Congested Speed
- Truck Congested Speed



Historical travel time measures will be used to analyze the congested segments and identify any improvements in congestion levels. Travel time metrics for 2016 are presented in Tables 7 and 8 (on page 13).



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TABLE 6. RECOMMENDED PERFORMANCE MEASURES.

Goal	Performance Measures – Tier 1	Performance Measures – Tier 2
Provide a transportation system that serves the public with mobility choices including pedestrians and bicycles	<ul style="list-style-type: none"> • % of added miles of bike facilities system wide • % of added miles of transit facilities with bike parking. • On-time performance system-wide. 	<ul style="list-style-type: none"> • % of added miles of sidewalks system wide • % of jobs within ½ mile of BRT system (brio). * • % of jobs within ½ mile of bicycle facilities. * • % of population within ½ mile of BRT system (brio). * • % of population within ½ mile of bicycle facilities. * • Average Transit travel time (Running time) by route. • On-time performance by route. • Number of miles of highway on the CMP network with traffic detectors, CCTV, and DMS coverage. * • Number of miles of major arterial on the CMP network with traffic detectors, CCTV, and DMS coverage. *
Identify and mitigate congestion on the Transportation System	<ul style="list-style-type: none"> • V/C ratios per segment of Highway. • Travel Time Index (TTI) per segment of Highway. * • V/C ratios per segment of Major arterial roads. • Travel Time Index per segment of Major arterial roads. * • Number of crashes. • Number of fatalities. * • Number of incapacitating injuries. * 	<ul style="list-style-type: none"> • Intersection Level of Service at peak-hour. • Average wait times for commercial, pedestrian and passenger vehicles (region-wide average signal wait time). • Delay for commercial, pedestrian and passenger vehicles. • Number of incidents on state highways by roadway. • Incident clearance time on state highways by roadway. • Regional incident management program participation.
Minimize air quality impacts of congestion	<ul style="list-style-type: none"> • Number of vehicles in vanpool programs. • Number of riders on vanpool programs. • Number of articles (programs) promoting air-quality. • Number of marketing programs developed and implemented to promote transit. 	<ul style="list-style-type: none"> • Number of vehicles in carpool programs. • Number of riders on carpool programs. • % and number of large employers in the region with official alternative work schedules, parking incentives, subsidized bus service (e.g. City of El Paso, UTEP). • Average age of fleet vehicles. • % of fleet vehicles transitioned to clean or alternative fuels.



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Promote accessibility to an efficient transportation system for all citizens	<ul style="list-style-type: none"> • Total capacity of park and ride lots. • % of bus stops on BRT (brio) routes within ½ mile of bike lanes. • Average border wait times (BWTs) for all users (Pedestrians, truck, auto and bike). • Number of pedestrians, trucks, auto and bikes crossing the border. • Number and location of pedestrian drop-off at POEs. • Number of pedestrians and bicyclists struck by vehicles near POEs. 	<ul style="list-style-type: none"> • Progress toward creating a seamless transit ridership experience among all providers (County of El Paso Transit Study). • Number of improvements at transfer centers. • Number of added buses, routes or extensions.
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*Measures to be reported at the Multimodal Corridor Web-based Application

NUMBER OF FATALITIES AND SERIOUS INJURIES

To aid in the analysis of congested segments, a five-year average (2013-2017) of fatalities and serious injuries for the identified segments is shown in Table 9. The EPMPO has acquired these crash statistics for the identified CMP network and is developing systematic methods for evaluating the effects on non-recurring congestion and to assess before and after implementation of individual projects.

GOAL 3

NUMBER OF VEHICLES AND RIDERS ON VANPOOL PROGRAMS

There is an extensive vanpool program in the El Paso region. Operated by Vamonos Vanpool in partnership with Enterprise, vanpooling reduces commuting costs, reduces air pollution (one van can take as many as fourteen cars off the road), and reduces traffic congestion. The MPO seeks to maintain a robust, growing vanpool program. The performance measure for this strategy is the annual increment in ridership. This implies a maximum number of participants in any given year based on the number of vans and their seating capacity. Within those limits, the MPO seeks to promote the program and increase the number of vans and participants.

NUMBER OF MARKETING PROGRAMS DEVELOPED AND IMPLEMENTED TO PROMOTE TRANSIT

Sun Metro is constantly implementing a wide range of events to promote transit. The following is a list by category:

Outreach:

- Presentation on the benefits of transit.
- Presentations on streetcar safety.
- Career days at local schools with bus on site for tour.
- Community meetings for service modifications.
- Community meetings for proposed changes to downtown routes 4 and 9, and all route changes that have taken place and are continually modified due to service changes.
- Public meetings for Alameda and Dyer RTS.
- Sun Metro App
- Sun Metro QR Code

Media tours:

- Northgate Transit Center
- Streetcar Maintenance Storage & Facility

Media Events:

- Arrival of Streetcar PCC#1506 –March 2018
- Arrival of Streetcar PCC#1512 – April 2018



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- Arrival of Streetcar PCC#1504 – July 2018
- Arrival of Streetcar PCC#1514 – Sept 2018
- Arrival of Streetcar PCC#1515 – July 2018
- Arrival of Streetcar PCC#1511 – Dec 2018



Events:

- Northgate Transit Center Grand Opening
- Streetcar Unveiling event
- Streetcar Launch event
- Streetcar Emergency Response Exercise, first responder and streetcar personnel simulation exercise
- Alameda and Dyer Brio Groundbreaking

Events in partnership with:

Downtown Management District (DMD)- Downtown Hotel Tour, streetcar ride and tour of hotels in the downtown area.

UTEP- Park+Ride to Football Games, Graphic Design Class, students class competition to design artwork related to Sun Metro and the environment.

Destination El Paso – Winterfest, Free rides to event. Neon Desert Musical Festival, Free rides to ticketholders.

United Way – Kids on the Go Summer Program, free rides for kids to select summer programs throughout the city.

Museum and Cultural Affairs Department:

- Special Guest appearance of El Paso Chihuahuas Baseball Mascot Chico
- Trolley Track: A Streetcar Music Series, live musical performances on Streetcar
- Last Thursdays: Streetcar rides to local art displays
- Read a Long: El Paso Library story time inside Streetcar
- Artwork at Brio Stations
- Artwork at Northgate Transit Center

Parks and Recreation Department – Celebration of Lights Parade

Fort Bliss – Big Truck Day, Brio bus on site for kids and family

Creative Kids – Kids Artwork at Sun Metro shelters around El Paso

Campaigns:

- Summer Staycation, Ride Sun Metro to kid establishments around town.
- Sun Metro Now, placards at all bus stops.
- Sun Metro Go, app to plan your trip, view schedules, and get next departure times.
- WinterFest Express, free rides to WinterFest on rubber-tire trolley.
- Free Ride on Día de los Libros, kids 18yrs and younger ride all sun metro services for free.
- Kids on the Go! Summer Youth Transportation program
- Streetcar Summer Schedule Hours.

Regional/National Conferences:

- Texas Transit Association, state rodeo on site and conference.
- SouthWest Transit Association, national conference in downtown El Paso.



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TABLE 7. TRAVEL TIME METRICS FOR CONGESTED SEGMENTS (ARTERIALS)

Segment ID	Road Name	From	To	Person Hours of Delay	Truck Vehicle Hours of Delay	2016 AADT	Vehicle Miles of Travel	Miles of Highway	Congested Speed	Truck Congested Speed	Travel Time Index	Truck Travel Time Index
Arterials												
A1	N Mesa St / SH 20	Executive Center Blvd	Texas Ave	715,598	6,576	46,200	135,597	2.9	20.1	19.25	1.36	1.25
A2	N Mesa St / SH 20	IH 10 / US 180 / US 85	Executive Center Blvd	971,753	16,726	61,997	331,373	5.3	28.7	24.29	1.25	1.2
A3	N Zaragoza Rd / FM 659	Gateway Blvd / IH 10	Joe Battle Blvd / TX 375 Loop	427,710	32,205	29,242	104,949	3.6	25.1	23.4	1.25	1.21
A4	Lee Trevino	Montana Ave / US 180 / US 62	Gateway Blvd / IH 10	537,049	7,591	29,265	124,609	4.3	25.1	23.11	1.31	1.18
A5	Montwood Dr	Lee Trevino Dr	N Zaragosa Rd	285,517	14,358	28,019	86,914	3.1	30	23.3	1.2	1.27
A6	N Yarbrough Dr	Montana Ave / US 180 / US 62	Gateway Blvd / IH 10	242,799	2,752	25,694	87,745	3.4	26.4	25.29	1.21	1.14
A7	Doniphan / SH 20	Talbot Ave / SL 375	Canam Hwy / IH 10/ US 180	121,568	2,953	20,486	97,657	4.8	33.3	29.57	1.1	1.12
A8	N Loop Dr / FM 76	N Americas Ave / SL 375	Horizon Blvd / FM 1281	199,301	3,640	17,067	52,122	3.1	35.7	35.34	1.14	1.1
A9	Montana Ave / US 180 / US 62	Gateway Blvd / IH 10	Global Reach Dr	468,862	9,518	37,901	218,762	5.8	34.6	32.39	1.16	1.18
A10	N Loop Dr / FM 76	North Carolina Dr	N Americas Ave / SL 375	247,874	9,042	21,234	112,901	5.3	28	26.17	1.19	1.15
A11	Global Reach Dr	Libert Expy/ Supur 601	Montana Ave / US 180 / US 62	189,550	1,794	25,908	75,885	2.9	30.8	29.8	1.16	1.13
A12	Alameda Ave/ SH 20	Americas Ave/Loop 375	Passmore Rd	408,822	29,329	23,831	108,336	4.5	28.9	29.23	1.38	1.38
A13	Montwood Dr	Viscount Blvd	Lee Treviño	172,064	3,264	22,999	68,469	3	25.4	23.74	1.16	1.14
A14	Delta/North Loop	Alameda Ave	Hawkins Blvd	47,825	4,231	20,419	34,590	1.7	32.2	30.72	1.09	1.11
A15	Socorro Rd/258	Americas Ave/Loop 375	Passmore Rd	299,159	3,978	18,142	90,004	5	31.8	31.38	1.12	1.07
A16	Zaragoza Rd	Waterfill	Gateway Blvd / IH 10	302,276	8,798	51,155	89,395	3.8	22.9	22.21	1.23	1.21



CONGESTION MANAGEMENT PROCESS

TABLE 8. TRAVEL TIME METRICS FOR CONGESTED SEGMENTS (HIGHWAYS)

Segment ID	Road Name	From	To	Person Hours of Delay	Truck Vehicle Hours of Delay	2016 AADT	Vehicle Miles of Travel	Miles of Highway	Congested Speed	Truck Congested Speed	Travel Time Index	Truck Travel Time Index
Highways												
H1	Mainlanes - IH 10	N Mesa St / SH 20	Patriot Fwy / US 54	458,161	31,601	179,708	569,671	3.2	52.9	53.46	1.21	1.18
H1	WB Frontage Road -IH 10	N Mesa St / SH 20	Patriot Fwy / US 54	85,875	6,357	11,571	37,688	3.3	34.9	34.61	1.09	1.07
H1	EB Frontage Road -IH 10	N Mesa St / SH 20	Patriot Fwy / US 54	51,389	4,068	9,096	16,081	1.8	30.6	31.91	1.15	1.12
H2	Mainlanes - IH 10	Patriot Fwy / US 54	Hawkins Blvd	476,716	26,191	165,831	646,077	3.9	52.8	53.13	1.15	1.15
H2	WB Frontage Road -IH 10	Patriot Fwy / US 54	Hawkins Blvd	57,835	5,838	6,022	21,438	3.6	33.8	33.17	1.1	1.07
H2	EB Frontage Road -IH 10	Patriot Fwy / US 54	Hawkins Blvd	149,329	7,420	11,890	42,518	3.6	32.1	31.57	1.17	1.08
H3	Mainlanes - IH 10	W Paisano Dr / US 85	N Mesa St / SH 20	793,591	46,401	140,426	789,053	5.6	51.6	52.75	1.24	1.21
H4	Mainlanes - IH 10	Hawkins Blvd	Lee Trevino Dr	572,917	41,547	129,514	523,625	4	53.4	52.39	1.19	1.2
H4	WB Frontage Road -IH 10	Hawkins Blvd	Lee Trevino Dr	218,309	12,177	27,762	102,692	3.7	34.5	34.06	1.12	1.1
H4	EB Frontage Road -IH 10	Hawkins Blvd	Lee Trevino Dr	258,705	12,703	21,557	83,082	3.9	34.2	34.11	1.14	1.1
H5	Mainlanes - Joe Battle Blvd / Loop 375	IH-10	Pellicano Dr	35,592	2,910	39,385	68,215	1.7	57.8	57.2	1.06	1.07
H5	SB Frontage Road -IH 10	IH-10	Pellicano Dr	77,382	3,520	15,649	30,798	2	37	36.89	1.08	1.05
H5	NB Frontage Road -IH 10	IH-10	Pellicano Dr	49,703	3,579	11,940	25,420	2.1	37.4	35.93	1.08	1.06
H6	Mainlanes - IH 10	Mesa Ave	Redd Rd	103,244	8,533	101,318	170,822	1.7	55.5	55.22	1.16	1.16
H6	SB Frontage Road -IH 10	Mesa Ave	Redd Rd	34,876	3,203	6,449	11,175	1.7	32.9	32.83	1.07	1.06
H6	NB Frontage Road -IH 10	Mesa Ave	Redd Rd	21,218	2,056	5,384	9,330	1.7	33.6	33.22	1.07	1.07
H7	Mainlanes - IH 10	Eastlake Dr	Horizon Blvd / FM 1281	17,132	1,579	25,903	62,996	2.4	62.4	62.1	1.03	1.03
H7	WB Frontage Road -IH 10	Eastlake Dr	Horizon Blvd / FM 1281	137,974	7,507	26,517	75,335	2.8	34.6	33.9	1.1	1.08
H7	EB Frontage Road -IH 10	Eastlake Dr	Horizon Blvd / FM 1281	122,310	6,466	27,657	66,931	2.4	34.6	33.9	1.1	1.08
H8	Mainlanes - Patriot Freeway/ US 54	Ellenthorne Ave	Pershing	26,059	2,657	60,532	174,695	2.9	61.1	59.93	1.01	1.03
H8	SB Frontage Road -IH 10	Ellenthorne Ave	Pershing	68,855	4,329	19,841	58,747	3	41.5	37.48	1.06	1.07
H8	NB Frontage Road -IH 10	Ellenthorne Ave	Pershing	114,199	7,003	18,035	53,402	3	34.3	33.59	1.09	1.07

CONGESTION MANAGEMENT PROCESS

TABLE 9. CRASH STATISTICS FOR CONGESTED SEGMENTS

Segment ID	Road Name	From	To	2013-2017 Fatalities	2013-2017 Serious Injuries
Arterials					
A1	N Mesa St / SH 20	Executive Center Blvd	Texas Ave	15	7
A2	N Mesa St / SH 20	IH 10 / US 180 / US 85	Executive Center Blvd	9	39
A3	N Zaragoza Rd / FM 659	Gateway Blvd / IH 10	Joe Battle Blvd / TX 375 Loop	10	17
A4	Lee Trevino	Montana Ave / US 180 / US 62	Gateway Blvd / IH 10	7	15
A5	Montwood Dr	Lee Trevino Dr	N Zaragosa Rd	1	9
A6	N Yarbrough Dr	Montana Ave / US 180 / US 62	Gateway Blvd / IH 10	1	9
A7	Doniphan / SH 20	Talbot Ave / SL 375	Canam Hwy / IH 10/ US 180	6	20
A8	N Loop Dr / FM 76	N Americas Ave / SL 375	Horizon Blvd / FM 1281	0	5
A9	Montana Ave / US 180 / US 62	Gateway Blvd / IH 10	Global Reach Dr	2	38
A10	N Loop Dr / FM 76	North Carolina Dr	N Americas Ave / SL 375	7	10
A11	Global Reach Dr	Libert Expy/ Supur 601	Montana Ave / US 180 / US 62	1	6
A12	Alameda Ave/ SH 20	Americas Ave/Loop 375	Passmore Rd	4	12
A13	Montwood Dr	Viscount Blvd	Lee Treviño	0	5
A14	Delta/North Loop	Alameda Ave	Hunter Dr	2	2
A15	Socorro Rd/258	Americas Ave/Loop 375	Passmore Rd	3	11
A16	Zaragoza Rd	Waterfill	Gateway Blvd / IH 10	4	16
Highways					
H1	Mainlanes - IH 10	N Mesa St / SH 20	Patriot Fwy / US 54	5	23
H1	Frontage Roads -IH 10	N Mesa St / SH 20	Patriot Fwy / US 54	0	2
H2	Mainlanes - IH 10	Patriot Fwy / US 54	Hawkins Blvd	7	33
H2	Frontage Roads -IH 10	Patriot Fwy / US 54	Hawkins Blvd	1	9
H3	Mainlanes - IH 10	W Paisano Dr / US 85	N Mesa St / SH 20	9	15
H4	Mainlanes - IH 10	Hawkins Blvd	Lee Trevino Dr	9	17
H4	Frontage Roads -IH 10	Hawkins Blvd	Lee Trevino Dr	7	11
H5	Mainlanes - Joe Battle Blvd / Loop 375	IH-10	Pellicano Dr	5	6
H6	Mainlanes - IH 10	Mesa Ave	Redd Rd	4	12
H6	Frontage Roads -IH 10	Mesa Ave	Redd Rd	2	4
H7	Mainlanes - IH 10	Eastlake Dr	Horizon Blvd / FM 1281	2	11
H7	Frontage Roads -IH 10	Eastlake Dr	Horizon Blvd / FM 1281	1	1
H8	Mainlanes - Patriot Freeway	Ellenthorpe Ave	Pershing	2	5
H8	Frontage Roads -IH 10	Ellenthorpe Ave	Pershing	3	2



CONGESTION MANAGEMENT PROCESS

NUMBER OF MARKETING PROGRAMS DEVELOPED AND IMPLEMENTED TO PROMOTE OTHER MODES

The City of El Paso Bike Plan (Goal 4.9) includes education and encouragement policies to encourage the public to try other modes of transportation and educate them on bicycle infrastructure. The following are some of the events coordinated by the city's bicycle program coordinator:

- Health fair events with El Paso Police Department (EPPD) and El Paso Independent School District (EPISD)
- EPPD's Annual Safety Town inside Bassett (includes Bike Rodeo component).

The City of El Paso is always looking for new ideas, opportunities, and support to expand the educational and encouragement components of the Bike Plan. Part of the coordination with EPISD is aimed at the implementation of bike rodeos as part of the Safe Routes to School (SRTS) efforts.

GOAL 4

TOTAL CAPACITY OF PARK AND RIDE LOTS

Sun Metro offers various Park and Ride lots throughout El Paso that allow commuters to park their vehicles and ride a Sun Metro bus. The capacity at each of the park and ride facilities is shown below.

Park and Ride Lots can be used in conjunction with HOV lanes and/or express bus services. They are particularly helpful for encouraging HOV use for longer distance commute trips.

The EPMPO will seek to provide additional park and ride facilities that accommodate carpooling and/or regional transit service.

Park+Ride Facility	Capacity
Union Plaza Transit Terminal (UPTT)	419
East Side Transit Center	103
RC Poe Park+Ride	50
Mission Valley Transit Center	49
Northgate Transit Center	175
Westside Transit Center	175
Glory Road Transit Center	436
Downtown Transfer Center (Santa Fe St.)	30

Source: Sun Metro web page (www.sunmetro.net/how-to/park-ride)

NUMBER OF PEDESTRIANS, TRUCKS, AUTO AND BIKES CROSSING THE BORDER AND AVERAGE BORDER WAIT TIMES (BWTs) FOR ALL USERS

The ports of entry (POEs) in El Paso region are vital conduits for the regional economy and culture. The MPO will monitor the number of crossings by type along with the average wait times for the crossings. The international border is not within the control of the EPMPO, but the agency understands that there are efforts available to it to increase the efficiency and effectiveness of aspects of the transportation system that affects the POEs.

The International Bridges department of the City of El Paso provides annual North Bound border crossings and Border Wait Times (BWTs) for pedestrian, passenger and commercial vehicles entering the United States. The data is collected by the U.S Customs and Border Protection and compiled by the City of El Paso. The EPMPO will collect and analyze this data in order to identify possible congestion management solutions with its purview.

PERCENT OF BUS STOPS ON BRT SYSTEM (BRIO) WITHIN ½ MILE OF BIKE FACILITIES (SYSTEM-WIDE)

To improve connections between bicycle and pedestrian facilities to transit, the development of performance measures that provide a framework for agencies to pursue projects and assess progress is



CONGESTION MANAGEMENT PROCESS

among the recommendations identified in the Regional Models of Cooperation peer exchange (October 24, 2016).



The Regional Models of Cooperation is a program of the FHWA Every Day Counts 3 (EDC-3) initiative, co-led by the FHWA Office of Planning and the Federal Transit Administration (FTA) Office of Planning. https://www.fhwa.dot.gov/planning/regional_models/peer_exchange/index.cfm

To provide a level of access to high frequency transit by bicycle in the region, the percent of bus stops on BRT system (Brio) within ½ mile of bike facilities was selected as the preferred measure. Currently, Mesa Brio route is the only completed and operating BRT route. Therefore, there is only a 16% of bus stops within ½ mile of bike facilities of the total BRT system. 18 bus stops/stations out of the 28 are within ½ mile of existing bike facilities (Table 10). When Alameda and Dyer Brio routes are completed, there will be a 47% out of the total 67% of identified bus stops on BRT system within ½ mile of bike facilities.

Furthermore, the analyzed bike facilities in this CMP update include the bike facilities identified as existing as of 2018. The City of El Paso Bike Plan has identified additional facilities that will be increasing these percentages in future years.

Table 10. Percent of BRT stops near bike facilities

BRT Routes	Total Bus stops on route	Bus stops within ½ mile of bike facilities	% of bus stops within ½ mile of bike facilities	Status	% of total BRT system
Mesa	28	18	64%	Completed	16%
Alameda	34	23	68%	Under Construction	35%
Dyer	24	14	58%	Under Construction	47%
Montana	30	23	77%	Coming Soon	67%
Total BRT system	116	78	67%		



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5. DATA COLLECTION AND MONITORING PLAN

An important step in the CMP process is to identify existing data collection efforts that will help in the development of the performance measures. Collecting data on system performance is a responsibility of facility owners and operators. The MPO's primary role is that of collator, coordinator, and analyzer of data collected by agencies across the region.

Facility Owners	MPO
<ul style="list-style-type: none">• Collect data on System Performance• Submit to MPO in pre-determined intervals	<ul style="list-style-type: none">• Coordinate data collection efforts• Analyze collected data

Table 11 (on page 20), is the baseline data inventory for the identified CMP performance measures. The MPO acquires primarily vehicle metrics and is coordinating with agencies the acquisition of data for other modes such as bicycle and pedestrian, transit and border crossings.

Data is currently acquired by the MPO from the following sources:

TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT)

TXDOT is a strong partner with EPMPO in data collection. TxDOT maintains a collection of traffic counts to support planners in the development of transportation plans and programs as well as analysis of project alternatives. TxDOT annually collects traffic count data on TxDOT-maintained roads and makes the data available to the public on a yearly basis. In addition to the annual counts, TxDOT's five year count program (previously called urban saturation count program) provides traffic count information on TxDOT maintained roads, county roads and city streets.

NATIONAL PERFORMANCE MANAGEMENT RESEARCH DATA SET (NPMRDS).

FHWA is making available the National Performance Management Research Data Set (NPMRDS) to States and MPOs as a tool for performance measurement.

NPMRDS is a vehicle probe-based data set acquired by FHWA to support the agency's Freight Performance Measures (FPM) and Urban Congestion Report (UCR) programs. The data set includes average travel times by calendar day in 5 minute increments covering the National Highway System (NHS). The data includes travel times for passenger and freight vehicles and are reported by road direction.

EPMPO will be utilizing the travel time data to evaluate strategies for specific corridor segments and before and after analysis.

CONGESTION MANAGEMENT PROCESS ASSESSMENT TOOL (COMPAT)

The Congestion Management Process Assessment Tool (COMPAT) is a web tool developed by the Texas A&M Transportation Institute for use by MPOs and stakeholders with congestion management process planning and corridor study development. Specific functions are to help assemble volume and speed data from an INRIX speed data set procured by TxDOT to compute the Texas 100 Most Congested Road Section report, and the TxDOT-maintained Roadway-Highway Inventory Network (RHINO) data sets.

CRASH RECORDS INFORMATION SYSTEM (C.R.I.S)

TxDOT's Crash Records Information System is an automated database maintained by the state and available to the public via their query tool or annual summary reports. The database goes back to 2009 and provides information about the location of reported crashes, as well as different attributes that provide more detail about who was involved and the outcome of each crash (e.g. injury or fatality).

NEW MEXICO TRAFFIC CRASH DATA SET

The University of New Mexico provides access to a variety of New Mexico traffic crash data available on behalf of the New Mexico Department of Transportation, Traffic Safety Division, Traffic Records Bureau (NMDOT).



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REGIONAL TRAVEL DEMAND MODEL (TDM)

A TDM is a representation of travel behavior throughout a transportation system network. The model uses roadway attributes and socioeconomic data such as population and employment to predict travel behavior. The latest Destino TDM uses a 2012 base year and forecasted 2045 demographic inputs to forecast travel demand along the TDM roadway network for different time periods. The TDM results provide estimates of vehicle travel times, speed, and traffic volumes along the roadway system of the region.

PUBLIC TRANSPORTATION DEPARTMENT –SUN METRO

Sun Metro reports on an annual basis on system wide performance measures to the National Transit Database (NTD). The measures reported are general indicators such as service area population, passenger trips and miles, vehicle miles and revenue miles.

In addition, Sun Metro develops internal reports of measures that are available to the MPO on a regular basis. Currently the MPO has acquired the following performance statistics from Sun Metro:

- Total ridership by year and in monthly bases
- Passengers per hour
- On-Time Performance by route
- Routes in GIS format with demographic information.
- Shelter/Bus Stop information in GIS format

CITY OF EL PASO – INTERNATIONAL BRIDGES DEPARTMENT

The International bridges department provided annual northbound border crossings and wait times for pedestrian, passenger and commercial vehicles entering the United States. The data is collected by the U.S. Customs and Border Protection and compiled by the City of El Paso.

MONITORING PLAN

Since 2007, the EPMPO has initiated a data collection and monitoring plan to provide performance indicators

and help determine current congestion levels in the El Paso MPO Study Area. In 2015, the EPMPO developed a Performance Indicators Report which presented the status of congestion in the MPO planning area. The report developed a top ten list of congested roadways based on Volume over Capacity ratios (v/c). Also, reports on the historical travel times for selected freeway segments for 2015 and 2017 using National Performance Management Data Set were developed. However, there is no ongoing systematic process as required by federal regulations.

Given the number of travel time data sources now available to the EPMPO through its planning partners, the EPMPO is anticipating a successful ongoing data collection and analysis to support the CMP or implementation of CMP strategies.

In order for the Congestion Management Process to be a tool for tracking progress towards the region's congestion management goals, the following actions will be followed:

- The CMP should be updated at a minimum on a four-year cycle in conjunction with the Regional Transportation Plan update. However, updates to the CMP should be made in accordance with significant changes in the CMP network. System performance and strategy effectiveness should be monitored more frequently.
- An evaluation of system performance and strategy effectiveness should be done annually or biennially. The MPO in cooperation with member agencies should provide an evaluation of the effect of completed projects or effectiveness of strategies to maintain the added capacity and incorporate the results into future updates of the CMP.
- The CMP performance measures Tier 1 should be reviewed and revised as necessary in coordination with updates to the CMP and Tier 2 measures (refer to Table 6) should be incorporated in future CMP updates as data becomes available and MPO staff and funding resources allow for additional data analysis.



CONGESTION MANAGEMENT PROCESS

TABLE 11. DATA SOURCES FOR CMP PERFORMANCE MEASURES

Transportation Mode Vehicle Roadway					
	Metric	Performance Measure	Source Agency	Sources Data System	Acquired
	Vehicle Occupancy	Annual person hours of delay	<ul style="list-style-type: none"> • FHWA National Performance Management Research Data Set(NPMRDS) • INRIX 	Congestion Management Process Assessment Tool-TTI (COMPAT)	Yes
	Vehicle Travel Time	Travel Time Index	<ul style="list-style-type: none"> • FHWA National Performance Management Research Data Set(NPMRDS) • INRIX 	Congestion Management Process Assessment Tool-TTI (COMPAT)	Yes
	Average Daily Traffic	Volume to Capacity Ratio	<ul style="list-style-type: none"> • TxDOT • EPMPO 	<ul style="list-style-type: none"> • Statewide Traffic Analysis Reporting System - TxDOT (STARS II), • EPMPO Travel Demand Model 	Yes
	Average Total Vehicle Delay	Intersection LOS at Peak-hour	<ul style="list-style-type: none"> • City of El Paso-Streets & Maintenance • County of El Paso • Small cities and communities 	City Traffic Management Center (TMC)	No
	Traffic detectors, CCTV and DMS coverage	Number of miles of highway and major arterial CMP network with traffic detectors, CCTV and DMS coverage.	TxDOT	<ul style="list-style-type: none"> • TransVista • City Traffic Management Center (TMC) • NMDOT 	Yes
	Number of fatalities/Number of incapacitating injuries	Number of crashes on the CMP network	<ul style="list-style-type: none"> • TxDOT • NMDOT/Traffic Research Unit (TRU) 	<ul style="list-style-type: none"> • TxDOT-CRIS database • New Mexico Traffic Crash Data 	Yes
	Incident response time	Reduce incident response time	<ul style="list-style-type: none"> • TxDOT • City of El Paso-Streets & Maintenance 	<ul style="list-style-type: none"> • TransVista • City Traffic Management Center (TMC) 	No
	Number of vehicles and riders in vanpool/carpool programs	Increase vanpool/carpool ridership	<ul style="list-style-type: none"> • El Paso County 	<ul style="list-style-type: none"> • Van Pool Program "Vamonos" 	Yes



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Transportation Mode Bicycle and Pedestrian					
	Metric	Performance Measure	Source Agency	Sources Data System	Acquired
	Length of bike lanes	Percent increase of bike lanes built or improved within ½ mile from rapid transit (Brio)	City of El Paso	GIS data sets for bike facilities	Yes
	Length of sidewalks	Percent increase of sidewalks built or improved within ½ mile from rapid transit (Brio)	City of El Paso	GIS data sets for pedestrian facilities	Yes
	Number of transit terminals with bike parking facilities	Increase number of transit terminals with bike parking facilities	<ul style="list-style-type: none"> City of El Paso- Sun Metro County Transit 	GIS data set with transit assets	Yes
	Number of employees and population	Percent of jobs and population within ½ mile of rapid transit (Brio)	<ul style="list-style-type: none"> Census City of El Paso-Sun Metro 	<ul style="list-style-type: none"> Longitudinal Employer-Household Dynamics (LEHD) data set American Community Survey 5-Year Data (ACS-5year) Tiger Maps from Census GIS data set with bicycle facilities 	Yes
Transportation Mode Border Crossings					
	Metric	Performance Measure	Source Agency	Sources Data System	Acquired
	Wait time	Average wait time for commercial vehicles, passenger vehicles and pedestrian	City of El Paso- International Bridges Department	Annual wait time statistics (Interquartile Range)	Yes
	Traffic Volumes	Annual number of commercial vehicles, passenger vehicles and pedestrian	City of El Paso- International Bridges Department	Annual and Monthly crossings	Yes

6. CONGESTION PROBLEMS AND NEEDS

The analysis of congestion problems and needs for the El Paso Region focuses on identifying congested highway and major arterial segments on the CMP network by using the outputs from the travel demand model.

Two measures from the Travel Demand Model disaggregated by link were used as the criteria to develop a list of recommended congested segments:

- Average AM/PM Peak Volume over Capacity values ≥ 0.95
- AM/PM Peak Flow values $\geq 10,000$



CONGESTION MANAGEMENT PROCESS

The Volume over Capacity (v/c) ratio is a measure that represents level of congestion during the worst traffic conditions throughout an average day (i.e. peak period), it is traditionally used because travel demand models are designed to estimate future volumes on the transportation network that can support the CMP in scenario comparison.

Figure 3, shows the 2020 TDM congested links on top of the 2018 El Paso's top 20 congested road sections from the Texas "100 Most Congested Road Sections" (Texas 100) list published by Texas A&M Transportation Institute (TTI).

Based on the identified 2020 TDM congested links and Top 20 sections from TTI, the Ad Hoc committee selected a list of recommended segments to be analyzed for this CMP update (Table 12 and Figure 4). As a consistency check, when applicable, the list includes the 2017 and 2018 rankings for El Paso's top 20 from TTI's analysis.

These segments will be the focus for strategy identification in Section 7. Strategies along these segments or on alternate roads that will help achieve the performance measures along the selected segments were identified and will be the center for analysis in future updates.

TABLE 12. IDENTIFIED CONGESTED SEGMENTS FOR CMP ANALYSIS

Segment ID	Road Name	From	To	2017 EP Rank*	2018 EP Rank*
Arterials					
A1	N Mesa St / SH 20	Executive Center Blvd	Texas Ave	1	2
A2	N Mesa St / SH 20	IH 10 / US 180 / US 85	Executive Center Blvd	2	4
A3	N Zaragoza Rd / FM 659	Gateway Blvd / IH 10	Joe Battle Blvd / TX 375 Loop	10	6
A4	Lee Trevino	Montana Ave / US 180 / US 62	Gateway Blvd / IH 10	9	8
A5	Montwood Dr	Lee Trevino Dr	N Zaragosa Rd	14	11
A6	N Yarbrough Dr	Montana Ave / US 180 / US 62	Gateway Blvd / IH 10	18	14
A7	Doniphan / SH 20	Talbot Ave / SL 375	Canam Hwy / IH 10/ US 180	19	16
A8	N Loop Dr / FM 76	N Americas Ave / SL 375	Horizon Blvd / FM 1281	13	17
A9	Montana Ave / US 180 / US 62	Gateway Blvd / IH 10	Global Reach Dr	17	18
A10	N Loop Dr / FM 76	North Carolina Dr	N Americas Ave / SL 375	28	20
A11	Global Reach Dr	Libert Expy/ Supur 601	Montana Ave / US 180 / US 62	-	-
A12	Alameda Ave/ SH 20	Americas Ave/Loop 375	Passmore Rd	-	-
A13	Montwood Dr	Viscount Blvd	Lee Treviño	-	-
A14	Delta/North Loop	Alameda Ave	Hunter Dr	-	-
A15	Socorro Rd/258	Americas Ave/Loop 375	Passmore Rd	-	-
A16	Zaragoza Rd	Waterfill	Gateway Blvd / IH 10	15	12
Highways					
H1	IH 10	N Mesa St / SH 20	Patriot Fwy / US 54	6	1
H2	IH 10	Patriot Fwy / US 54	Hawkins Blvd	3	5
H3	IH 10	W Paisano Dr / US 85	N Mesa St / SH 20	8	10
H4	IH 10	Hawkins Blvd	Lee Trevino Dr	5	13
H5	Joe Battle Blvd / Loop 375	IH-10	Pellicano Dr	-	-
H6	IH 10	Mesa Ave	Redd Rd	-	-
H7	IH 10	Eastlake Dr	Horizon Blvd / FM 1281	-	-
H8	Patriot Freeway	Ellenthorpe Ave	Pershing	-	-

*From Texas A&M analysis of Top 100 Congested Road Sections in Texas (Texas 100).



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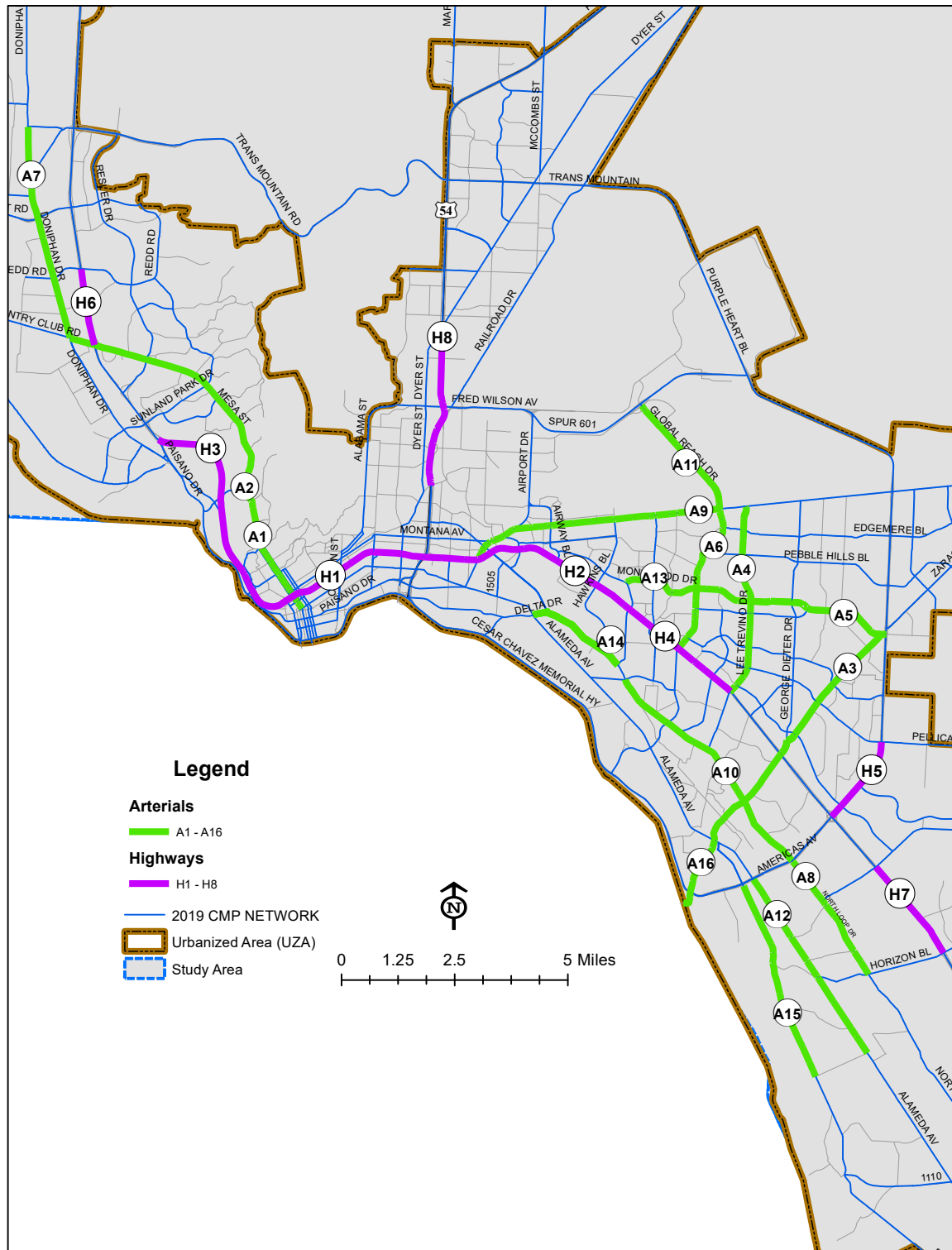
FIGURE 3. CONGESTED LINKS FROM 2020 TRAVEL DEMAND MODEL





CONGESTION MANAGEMENT PROCESS

FIGURE 4. IDENTIFIED CONGESTED SEGMENTS





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7. IDENTIFICATION OF CONGESTION MANAGEMENT STRATEGIES

Federal regulations require that alternatives to building new Single Occupancy Vehicle (SOV) road capacity should be explored first, where additional capacity is found to be appropriate and necessary, multimodal supplemental strategies such as Demand Management and Operations must be included, to get most long term value from the investment. Below is a diagram showing the Major CMP Strategies available for the region.

This section defines the strategy types that fit the character of our region among a wide range of available strategies. They are broadly grouped into four categories:

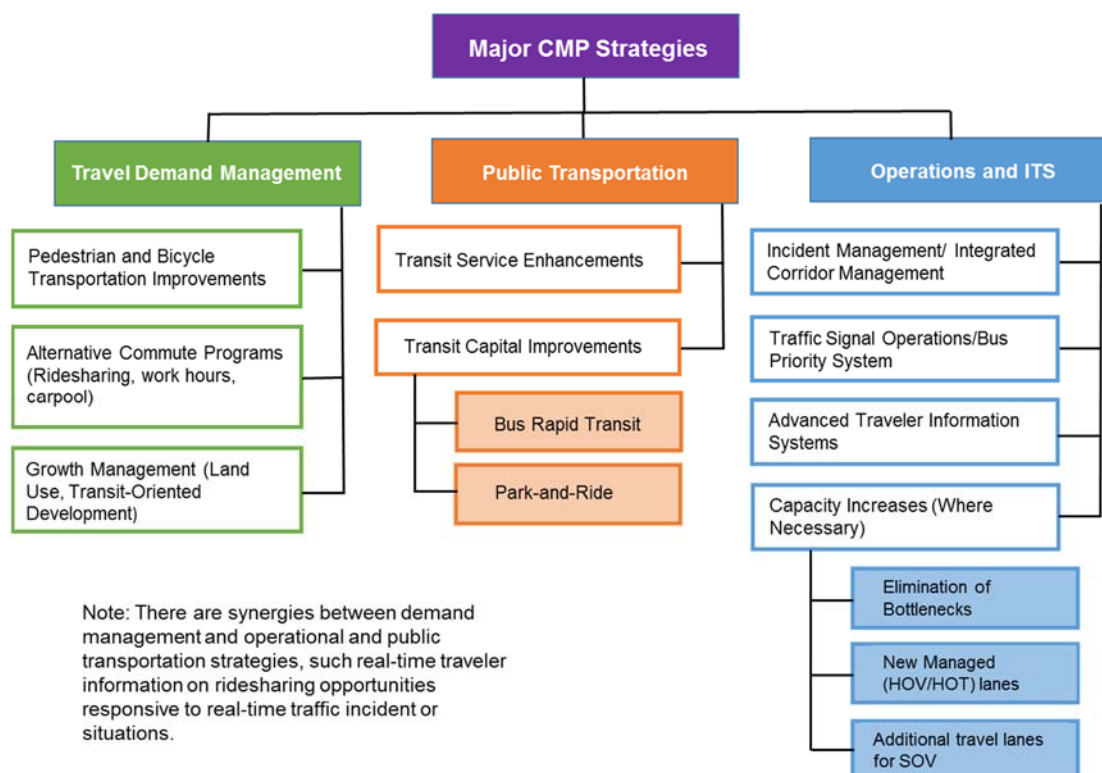
- Travel Demand Management
- Public Transportation

- Operations and ITS
- Physical Roadway Capacity

Table 13, provides the description of the regional strategies identified in the Destino 2045 MTP and current corridor studies. Listed in table 14 (Figure 5) are the strategies identified in Destino 2045 MTP that will potentially help address congestion along the identified congested segments. Among these congestion Mitigation Strategies are:

BICYCLE CONNECTIVITY INFRASTRUCTURE IMPROVEMENTS

To construct bicycle facilities citywide including buffered bike lanes, conventional bike lanes, bicycle boulevards, shared lane markings, and protected bicycle lanes.





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INCIDENT MANAGEMENT/TRAFFIC SURVEILLANCE AND CONTROL SYSTEMS

Includes installation or integration of new count stations, dynamic message signs, hardware and software, conduit, fiber optic cable and the communication systems into the City of El Paso's Traffic Management Center (TMC) and TxDOT's Trans-Vista. There are multiple roadway intersections within the community proposed.

ADVANCED TRAVELER INFORMATION SYSTEMS

The Border Traveler and Cargo ITS project at Zaragoza POE project will provide regional cross-border traveler information to local travelers, commercial vehicles, fleet managers, manufacturers, maquiladoras and others.

PUBLIC TRANSPORTATION

Public transportation strategies such as Transit Service Enhancements, Bus Rapid Transit and Park-and-Ride are programmed in the Destino MTP at various locations near or at alternate roads that will help manage congestion. Some examples are the Far East connector from Montana to Zaragoza Port of Entry which includes bus and roadway improvements at Zaragoza, Alameda, Montana connections; the project will build a park-and-ride lot at Zaragoza and Pellicano or Vista Del Sol for connectivity to R.C. Poe terminal and Loop 375 plus will provide express service to terminals and Zaragoza POE.

In addition, several Rapid Transit Service (RTS)/ Bus Rapid Transit (BRT) projects are programmed to provide pedestrian enhancements and service operating assistance for the Alameda, Dyer and Montana proposed routes.

ACCESS MANAGEMENT

Several access management projects are programmed in Destino 2045 MTP. Among this the conversion of Kansas and Campbell streets from one-way to two-way will help increase mobility to Mesa St. downtown.

Other operation strategies not along the identified congested segments but near or at alternate roads that will help manage congestion are the Montana and Missouri overpasses at railroad crossings.

PHYSICAL ROADWAY CAPACITY

Roadway capacity is contemplated primarily for freeway facilities such as IH10, Loop 375 and frontage roads at several locations along the congested segments.

CORRIDOR STUDIES

Collaboration with partners at implementing agencies is a critical element of the CMP. There needs to be consistency between planned/programmed projects and the CMP particularly for projects that will add capacity to roadways.

In this regard, a literature review of the available ongoing and completed studies was developed to identify specific congestion management strategies along the identified congested segments that will aid in addressing roadway congestion and mobility in the region (see Appendix B). The El Paso County Transit Study completed in summer 2018 was included in this review. This study examines the feasibility of a single, seamless, transit system in El Paso County, serving and connecting rural communities and urban areas in the county and city of El Paso. The identified transit gaps/needs and potential transit corridors are also presented in Appendix B.

Combining both, the findings of recent studies and the Destino 2045 MTP projects, a matrix of recommended strategies for short (0-5 years), medium (5-15 years) and long term (15-20 years) was developed (see Appendix C) as a tool for member agencies to identify the most appropriate and highest priority congestion management strategies for each of the congested segments. This matrix is recommended to be used in conjunction with the MTP's project prioritization process as reference by local governments in the development of all transportation projects.



CONGESTION MANAGEMENT PROCESS

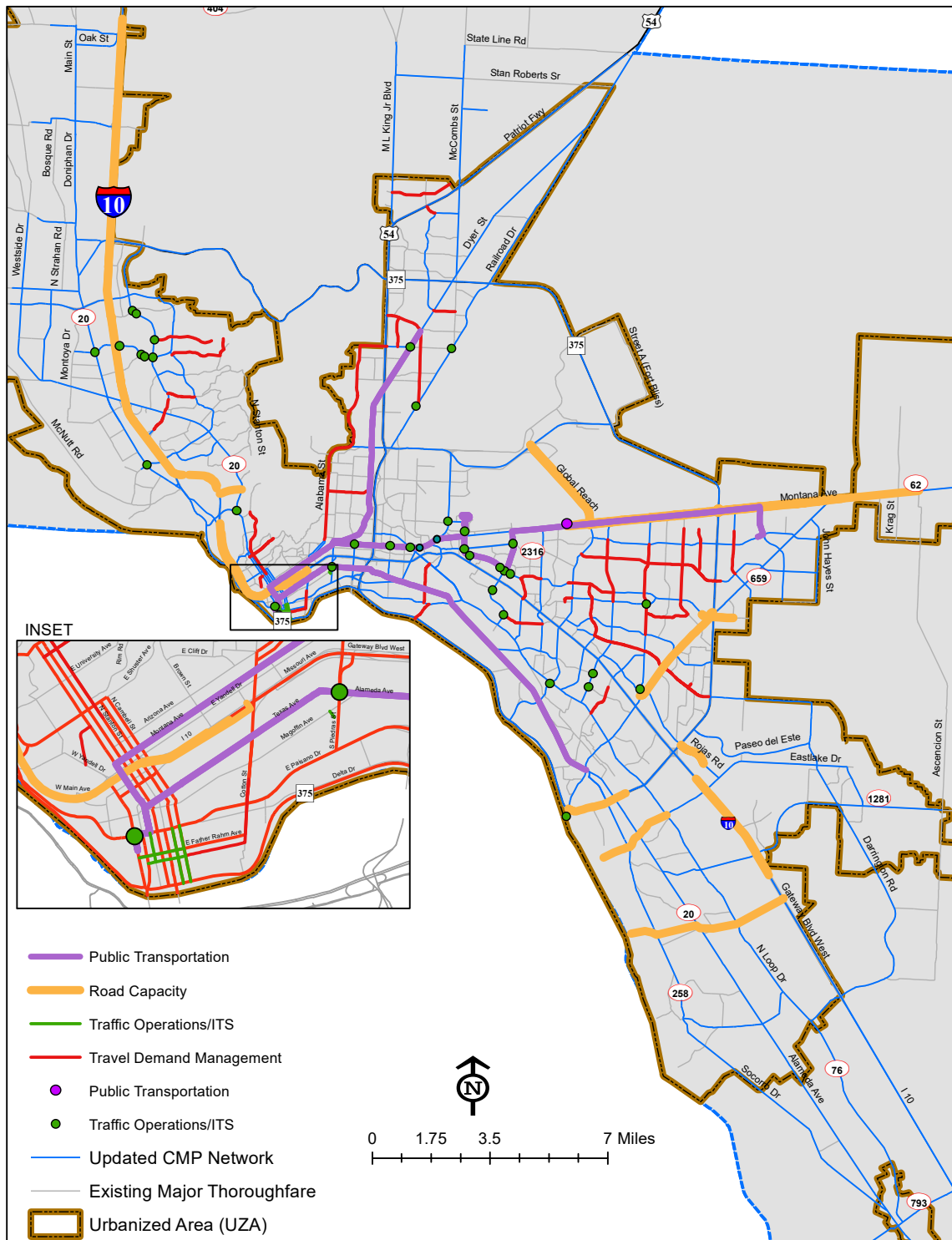
TABLE 13. REGIONAL CMP STRATEGIES

	Strategy Number	Strategy Type	Description
Travel Demand Management	1	Ped/Bicycle Improvements	Provide new sidewalks and designated bicycle lanes, provide bike parking, integrate bicycle facilities and sidewalks with transit, and/or ensure a safe and secure system for pedestrians and bicyclists.
	2	Alternative Commute Programs	Encourage commuters to use alternative models for trips to work and school can be using financial incentives or parking pricing incentives or by ridesharing programs, work hours, carpool, etc.
	3	Conversion to HOV/HOT lanes	Give rideshare and/or transit vehicle priority over general traffic through special lanes, traffic control devices, and/or charge tolls for single occupant vehicles.
	4	Growth Management (Land Use, Transit-Oriented Development)	Establish land use controls that encourage the use of transit, bicycle and pedestrian facilities, and/or ridesharing.
Public Transportation	5	Transit Service Enhancements	Includes vehicle replacement/ upgrade which furthers the benefits of increased transit use. Route extensions, service adjustments to better align transit serve with ridership markets.
	6	Bus Rapid Transit	Street travel ways devoted to increasing the person-carrying capacity within a travel corridor.
	7	Park and Ride Facilities	Parking facilities at transit stations, bus stops, and highway onramps, particularly at the urban fringe intended to facilitate transit and rideshare use. Some include bicycle parking. Parking should be free or significantly less expensive than in urban centers.
Operations and ITS	8	Incident Management/Integrated Corridor Management/Traffic Surveillance and Control Systems	Provide centralized traffic management centers, video traffic surveillance, emergency response teams, and/or special resources for dealing with specific problems, such as tow-trucks for stranded vehicles.
	9	Traffic Signal Operational/Bus Priority System	Additional travel lane at a signalized intersection that allows buses to proceed via their own "green-time" before other vehicles. Done by restriping within existing road footprint or this may require construction.
	10	Advanced Traveler Information Systems/Intelligent Transportation Systems	Provide driver information, vehicle control and tracking systems, transit improvements, and/or electronic charging of tolls. This can include changeable message signs, radio reports, and/or Internet information about traffic conditions.
	11	Intersection Improvements	Provide additional lanes at the intersection approach, left-and-right-turn lanes, and/or improved signal synchronization.
	12	Access management	Limit the number of driveways and intersections on arterials and highways and/or construct medians to control turning movements.
	13	Auxiliary Lanes	Deceleration lane provided on a freeway just before an exit off-ramp allowing vehicles to reduce speed outside the through-lanes. Acceleration lane provided as an extension of a freeway on-ramp or an arterial street turn-lane for vehicles to increase speed and merge more smoothly into the through-lane.
	14	Geometric Design Improvements* (Major Intersection/Interchange Improvements)	This includes bottleneck improvements such as roadway widening to provide shoulders, improved sight lines,. Interchange modifications to decrease weaving section on a freeway, paved shoulders and realignment of intersecting streets. Intersection modifications such as adding turning lanes at an intersection, realignment of intersection streets, intersection channelization, or modifying intersection geometrics to improve overall efficiency and operation.
Physical Roadway Capacity	15	Grade separated intersections at railroad crossings*	Roadway underpass or overpass of a railroad line.
	16	New travel lanes (general purpose)	Additional travel lanes on major freeways and streets (including truck climbing lanes on grades)
	17	New roadways	Construction of new roadways in areas previously not served by freeways/arterials.
*Strategies identified as Operational Improvements, not Physical Roadway Capacity to prevent confusion with adding capacity projects that trigger air quality conformity determination.			



CONGESTION MANAGEMENT PROCESS

FIGURE 5. STRATEGIES IDENTIFIED IN DESTINO 2045 ADDRESSING CONGESTED SEGMENTS





CONGESTION MANAGEMENT PROCESS

TABLE 14. DESTINO 2045 MTP STRATEGIES

SEGMENT ID	ROAD NAME	FROM	TO	DESTINO 2045 MTP PROJECT ID	STRATEGY TYPE	POTENTIAL CONGESTION IMPACTS
A1	N Mesa St/SH 20	Executive Center Blvd	Texas Ave	<ul style="list-style-type: none"> • M025B • R307D 	<ul style="list-style-type: none"> • Incident Management/ Traffic Surveillance and Control Systems • Access Management 	<ul style="list-style-type: none"> • Reduce travel delays at traffic signals • Increase and improve the regional incident management program • Improve traffic flow to/from downtown • Mitigate impacts of Border Highway on Downtown access
A2	N Mesa St/SH 20	IH 10/ US 180/ US 85	Executive Center Blvd	<ul style="list-style-type: none"> • M025B • A126X-CAP • I406X-CAP • I061X-CAP 	<ul style="list-style-type: none"> • Incident Management/ Traffic Surveillance and Control Systems • Geometric Design Improvements • New travel lanes 	<ul style="list-style-type: none"> • Reduce travel delays at traffic signals • Increase and improve the regional incident management program • Increase mobility and access
A3	Zaragoza Rd/ FM 659	Gateway Blvd/ IH 10	Joe Battle Blvd/ TX 375 Loop	<ul style="list-style-type: none"> • T081X • P428X-CAP-2 	<ul style="list-style-type: none"> • Park and Ride Facilities • Geometric Design Improvements • New travel lanes 	<ul style="list-style-type: none"> • Increase mobility and transit efficiency • Increase transit boarding and mode share • Increase mobility and access • Increase capacity
A4	Lee Treviño Dr.	Montana Ave /US 180 / US 62	Gateway Blvd / IH 10	<ul style="list-style-type: none"> • M090X • M025B 	<ul style="list-style-type: none"> • Pedestrian/Bicycle Improvements • Incident Management/ Traffic Surveillance and Control Systems 	<ul style="list-style-type: none"> • Increase non-motorized mode shares • Separate slow moving bicycles from motorized vehicles • Reduce travel delays at traffic signals • Increase and improve the regional incident management program



CONGESTION MANAGEMENT PROCESS

SEGMENT ID	ROAD NAME	FROM	TO	DESTINO 2045 MTP PROJECT ID	STRATEGY TYPE	POTENTIAL CONGESTION IMPACTS
A5	Montwood Dr.	Lee Trevino Dr.	N Zaragoza Rd	• P443X-CAP	• New travel lanes	<ul style="list-style-type: none"> • Increase mobility and access • Increase capacity
A6	N Yarbrough Dr.	Montana Ave/ US 180/ US 62	Gateway Blvd/ IH 10	<ul style="list-style-type: none"> • M087A • M090X • M025B 	<ul style="list-style-type: none"> • Pedestrian/Bicycle Improvements • Incident Management/ Traffic Surveillance and Control Systems 	<ul style="list-style-type: none"> • Increase non-motorized mode shares • Separate slow moving bicycles from motorized vehicles • Reduce travel delays at traffic signals • Increase and improve the regional incident management program
A7	Doniphan Dr. / SH 20	Talbot Ave / SL 375	IH 10/ US 180	• No project identified		
A8	N Loop Dr. / FM 76	N Americas Ave / SL 375	Horizon Blvd / FM 1281	<ul style="list-style-type: none"> • I062X-CAP • A527X-CAP 	• New travel lanes	<ul style="list-style-type: none"> • Increase mobility and access • Increase capacity
A9	Montana Ave / US 180 / US 62	Gateway Blvd/ IH 10	Global Reach Dr.	<ul style="list-style-type: none"> • T081X, T069X • T093X, T092X, T097X • F407A-CAP • F407B-CAP • F407D-CAP 	<ul style="list-style-type: none"> • Park and Ride Facilities • Bus Rapid Transit • Geometric Design Improvements • New travel lanes 	<ul style="list-style-type: none"> • Increase mobility and transit efficiency • Increase transit boarding and mode share • Increase person throughput capacity due to people switching from single occupancy motor vehicles to transit • Reduce daily VMT • Increase mobility and access • Increase capacity
A10	N Loop Dr. / FM 76	North Carolina Dr.	N Americas Ave / SL 375	• T064X, T091X-2	• Bus Rapid Transit	<ul style="list-style-type: none"> • Increase transit boarding and mode share • Increase person throughput capacity • Reduce daily VMT



CONGESTION MANAGEMENT PROCESS

SEGMENT ID	ROAD NAME	FROM	TO	DESTINO 2045 MTP PROJECT ID	STRATEGY TYPE	POTENTIAL CONGESTION IMPACTS
A11	Global Reach Dr.	Liberty Expy /Spur 601	Montana Ave / US 180 / US 62	• F405X-CAP	<ul style="list-style-type: none"> • Geometric Design Improvements • New travel lanes 	<ul style="list-style-type: none"> • Increase mobility and access • Increase capacity
A12	Alameda Ave / SH 20	Americas Ave / SL 375	Passmore Rd	<ul style="list-style-type: none"> • M090X • A433X-CAP 	<ul style="list-style-type: none"> • Pedestrian/Bicycle Improvements • New travel lanes 	<ul style="list-style-type: none"> • Increase non-motorized mode shares • Separate slow moving bicycles from motorized vehicles • Increase capacity
A13	Montwood Dr.	Viscount Blvd.	Lee Treviño Dr.	<ul style="list-style-type: none"> • M087B • M090X 	<ul style="list-style-type: none"> • Pedestrian/Bicycle Improvements 	<ul style="list-style-type: none"> • Increase non-motorized mode shares • Separate slow moving bicycles from motorized vehicles
A14	Delta/North Loop	Alameda Ave.	Hunter Dr.	<ul style="list-style-type: none"> • T064X, T091X-2 • T096X 	<ul style="list-style-type: none"> • Bus Rapid Transit 	<ul style="list-style-type: none"> • Increase person throughput capacity due to people switching from single occupancy motor vehicles to transit • Reduce daily VMT
A15	Socorro Rd/258	Americas Ave/SL 375	Passmore Rd	• A433X-CAP	<ul style="list-style-type: none"> • New travel lanes 	<ul style="list-style-type: none"> • Increase capacity
A16	Zaragoza Rd	Waterfill	Gateway Blvd/ IH 10	• C032	<ul style="list-style-type: none"> • Advanced Traveler Information Systems 	<ul style="list-style-type: none"> • Reduce travel times and delay • Some peak-period travel and mode shift



CONGESTION MANAGEMENT PROCESS

• HIGHWAYS						
SEGMENT ID	ROAD NAME	FROM	TO	DESTINO 2045 MTP PROJECT ID	STRATEGY TYPE	POTENTIAL CONGESTION IMPACTS
H1	IH 10	N Mesa St / SH 20	Patriot Fwy / US 54	• I063X-CAP	<ul style="list-style-type: none"> • Geometric Design Improvements • New travel lanes 	<ul style="list-style-type: none"> • Increase mobility and access • Increase capacity
H2	IH 10	Patriot Fwy/ US 54	Hawkins Blvd	• No project identified		
H3	IH 10	W Paisano Dr / US 84	N Mesa St / SH 20	<ul style="list-style-type: none"> • I406X-CAP • I061X-CAP 	<ul style="list-style-type: none"> • Geometric Design Improvements • New travel lanes 	<ul style="list-style-type: none"> • Increase mobility and access • Increase capacity
H4	IH 10	Hawkins Blvd	Lee Treviño Dr	• No project identified		
H5	Joe Battle Blvd / LS 375	IH – 10	Pellicano Dr	• F056X-CAP	<ul style="list-style-type: none"> • Geometric Design Improvements • New travel lanes 	<ul style="list-style-type: none"> • Increase mobility and access • Increase capacity
H6	IH 10	Mesa Ave	Redd Rd	• I405X-CAP	<ul style="list-style-type: none"> • Geometric Design Improvements • New travel lanes 	<ul style="list-style-type: none"> • Increase mobility and access • Increase capacity
H7	IH 10	Eastlake Dr	Horizon Blvd / FM 1281	<ul style="list-style-type: none"> • A429X-CAP • I062X-CAP 	<ul style="list-style-type: none"> • Geometric Design Improvements • New travel lanes 	<ul style="list-style-type: none"> • Increase mobility and access • Increase capacity
H8	US 54 / Patriot Freeway	Ellethrope Ave	Pershing Dr.	• T065X, T065X-2, T095X	• Bus Rapid Transit	<ul style="list-style-type: none"> • Increase person throughput capacity due to people switching from single occupancy motor vehicles to transit • Reduce daily VMT



CONGESTION MANAGEMENT PROCESS

8. IMPLEMENTATION AND STRATEGY EVALUATION

Implementation of congestion management strategies occurs through inclusion of strategies in the fiscally-constrained MTP and TIP. The MPO development process currently requires a project selection process (PSP) where projects considered for incorporation are ranked by different criteria including the project's ability to meet national performance and local congestion management goals as well as project readiness and funding availability.

Usual project funding identification occurs during the MTP and TIP development processes, while data collection, project monitoring and evaluation efforts made by the MPO will be funded thru MPO planning funds.

Direct feedback from project sponsors and implementing agencies via the corridor studies will greatly improve the monitoring of specific corridors. TxDOT is planning to contract a consultant to perform before-after analysis of all TxDOT major projects including TxDOT projects that were funded through CMAQ. Once this information is available it will be incorporated into the CMP analysis.

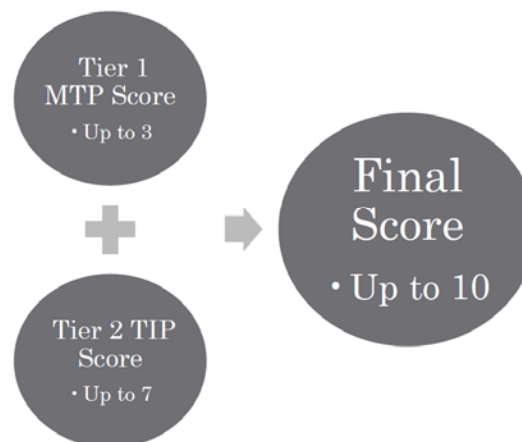
In some cases, the regional travel demand model will be used to assess the impacts of alternative strategies, specifically the additional system capacity projects and it could be used to analyze travel demand strategies such as conversion to High Occupancy Vehicle (HOV), or other land use scenarios.

STRATEGY EVALUATION

The primary method of monitoring the implemented strategies is through historical trends to support an understanding of the effectiveness of individual strategies. New travel time statistics from the National Performance Management Research Data Set (NPMRDS) will allow EPMPO to study current and historic speeds of the selected congested segments.

PSP Breakdown

- Phase 1 Call for Projects
- Phase 2 Need and Purpose
- Tier 1 MTP scores
 - Phase 2.1 National Goals
 - 25% of 6 max. possible points
 - Phase 2.2 MPO 2013 CMP Strategies
 - 25% of 6 max. possible points
- Tier 2 TIP scores
 - Phase 2.3A-C Project Financing
 - 25% of 8 max. possible points
 - Phase 2.3D-H Project Readiness
 - 25% of 20 max. possible points
- Phase 3 Draft Project List
- Phase 4 TPAC Recommendation
- Phase 5 Public Involvement
- Phase 6 TPB Action



APPENDIX A
CMP GOALS, OBJECTIVES, STRATEGIES, PERFORMANCE MEASURES, AND DATA SOURCES

Goals	Objectives	Strategies	Performance Measures	Data/Sources
1. Provide a transportation system that serves the public with mobility choices including pedestrians and bicycles	a. Increase/accommodate and improve bicycling options and facilities in the region	a/b. Bike Sharing Programs/ New Sidewalks and Designated Bicycle Lanes on Local Streets/ Improved Safety of existing Bicycle and Pedestrian Facilities.	a. % of added miles of bike facilities system wide/ % of added transit facilities with bike parking.	a. MPO compiles from cities and county
	b. Increase/accommodate and improve pedestrian facilities in the region		b. % of added miles of sidewalks system wide.	b. MPO compiles from cities and county
	c. Increase and improve accessibility to transit system and facilities	c. Enhance Transit Amenities/ Realigned Transit Service Schedules and Stop Locations/ Improved Bicycle and Pedestrian Facilities at Transit Stations.	c. Percent of jobs and population within 1/2 mile of BRT system (Brio)/bicycle facilities. ²	c. Sun Metro, MPO
	d. Improve the reliability and effectiveness of transit system	d. Dedicated Rights-of-Way for Transit/ Transit Intersection Queue Jump Lanes and Signal Priority.	d. On-time performance by route/Average Transit travel time (Running time) by route.	d. Sun Metro Performance Indicators
	e. Continue Intelligent Transportation System (ITS) improvements in the region.	e. Advanced Traveler Information Systems/ Traffic Surveillance and Control Systems/ Transit Vehicle Travel Information (GPS).	e. Number of miles of highway and major arterial CMP network with traffic detectors, CCTV, and DMS coverage. ²	e. TxDOT (TransVista), Department of Transportation City of El Paso (TMC)
2. Identify and mitigate congestion on the transportation system	a. Identify, diagnose, and address highway bottlenecks and travel delays	a. Acceleration[Deceleration] lanes/ Geometric Design Improvements/ Traffic Surveillance and Control Systems.	a. V/C ratios and Travel Time Index (TTI) per segment of Highway. ²	a. Travel Demand Model, COMPACT site, NPMRDS (INRIX SPEEDS), Corridor Studies (agencies).
	b. Increase efforts to reduce crash rates and improve safety on the system	b. Traffic Surveillance and Control Systems/ Road Weather Management/ Special Events and Work Zone Management.	b. Number of crashes (e.g. fatalities and/or incapacitating injuries). ²	b. TxDOT Transvista, 911 System [1], City of El Paso (TMC); TxDOT/NMDOT CRIS database (MPO/TTI)
	c. Increase and improve the regional incident management program	c. Highway Incident Detection and Management System/ Service Patrols/ Advance Traveler Information Systems.	c. Number of incidents on state highways by roadway, incident clearance time on state highways by roadway.	c. TxDOT Transvista, 911 System, City of El Paso (TMC); TxDOT CRIS database (MPO/TTI)
	d. Reduce travel delays on major arterial roads for all alternative modes	d. Incident Management/ Restricting turns at key intersections/ Converting streets to one-way operations/ Geometric Design Improvements	d. V/C ratios and Travel Time Index (TTI) per segment of major arterial roads. ²	d. Travel Demand Model, COMPACT site, NPMRDS (INRIX SPEEDS), Corridor Studies (agencies).
	e. Reduce travel delays at traffic signals	e. Traffic signal Coordination and Modernization/ Geometric Design Improvements	e. Intersection Level of Service at Peak-hour.	e. Synchro intersection LOS /Turning Movements Data from COEP DOT
	f. Enhance border crossing road operations to improve facilitation of commercial truck traffic, pedestrians and passenger vehicles.	f. ITS and Operational Strategies at POEs/ Freight Management.	f. Average wait time/Delay for commercial, pedestrian and passenger vehicles.	f. Border Crossing Information System, CBP Website
	g. Enhance partnerships between regional transportation system providers	g. Special Events, Work zone and Road Weather Management	g. Regional incident management program participation	g. TMT meeting (attendance roster and minutes)

APPENDIX A
CMP GOALS, OBJECTIVES, STRATEGIES, PERFORMANCE MEASURES, AND DATA SOURCES

Goals	Objectives	Strategies	Performance Measures	Data/Sources
3. Minimize air quality impacts of congestion	a. Encourage and enhance shared ride programs in the region (e.g., carpools, vanpools)	a. Ridesharing/ Car Sharing/ Employer Incentive programs to carpool.	a. Number of vehicles in vanpool/carpool programs, Number of riders on vanpool/carpool program	a. El Paso County Van Pool Programa "Vamonos"
	b. Promote transit options to citizens in the region	b. Public Education Campaigns to promote transit	b. Number of marketing programs developed and implemented to promote transit	b. Sun Metro
	c. Promote travel demand management programs in the region	c. Alternative Work Hours/ Telecommuting/ Parking incentives/ Subsidized bus service.	c. % and Number of large employers in the region with official alternative work schedules, parking incentives, subsidized bus service (e.g. City of El Paso, UTEP)	c. MPO
	d. Promote air-quality issues in the region	d. Public Education Campaigns	d. Number of articles (programs) promoting air-quality/ % of fleet vehicles transitioned to clean or alternative fuels/ Average age of fleet vehicles.	c. Newsletters/ online sites (e.g. Rider 7 program) /Sun Metro/County of El Paso
4. Promote accessibility to an efficient transportation system for all community members	a. Improve connectivity between all modes in the system.	a. Park-and-Ride/ Increasing Route Coverage and Frequencies/ Complete Streets (adequate facilities for all users).	a. Total capacity of park and ride lots/ Number of improvements at transfer centers/ Number of added buses, routes or extensions/ % of bus stops on high frequency routes within 1/2 mile of bike lanes	a. Cities/Sun Metro
		a2) Electronic Payment System and Universal Fare Cards	a2. Progress toward creating a seamless transit ridership experience among all providers	a2. County Regional Transit Study
	b. Improve border crossing activities for all users of the system (pedestrian, automobile, trucks, bicycles)	b. Geometric Design Improvements (Roundabout)/ Advanced Traveler Information Systems/ Freight Management	b. Average border wait times (BWT) and # of crossings for pedestrians, trucks, auto, and bikes crossing the border. ²	b. CBP website, City of El Paso International Bridges
		b2) Pedestrian safety improvements	b2. Number and location of pedestrian drop-off at POEs./ Number of pedestrians and bicyclists struck by vehicles near POEs.	b2. CRIS database. Mapping of incidents near POEs.

¹ 911 System keeps track of incidents in the non-state highway portions of the network

² Measures to be reported at the Multimodal Corridor Web-Application

APPENDIX B

Regional Corridor Studies Strategy List

Listed below is a consolidated list of strategies from the available El Paso region corridor studies on the TxDOT website and provided by agencies to the EPMPO.

Northeast Parkway

- Construction of a new location divided roadway
- Two main lanes in each direction with limited frontage roads
- Grade-separated interchanges at Loop 375, Dyer Street (Business US 54), US 54, McCombs Street (FM 2529), and MLK/FM 3255
- A dedicated shared use path

Alameda / Paisano Roundabouts

- Improved lighting
- Improved drainage
- Sidewalks
- Two roundabouts

SH 20 / Alameda Study

- Study in progress. Website for updates
<https://www.txdot.gov/inside-txdot/projects/studies/el-paso/sh20-alameda-ave.html>

I-10 Connect (under construction)

- Construct or modify six direct connectors between I-10 and various other highways and one direct connector from US 54 to I-110 and would reconfigure the I-110/US 62 (Paisano Drive) interchange. Add webpage address <https://www.txdot.gov/inside-txdot/projects/studies/el-paso/i10-connect.html>

I-10 Collector-Distributor Lanes

- New lanes along both sides of I-10
- Improved connectors at Resler Drive and Sunland Park Drive
- Interchange improvements at Mesa Street, Sunland Park Drive and Executive Center Boulevard

I-10 Operational Improvements (between Viscount Boulevard and Zaragoza Road)

- One additional lane in each direction
- Auxiliary lanes between Yarbrough and Lomaland

Loop 375 - Transmountain West

- Four-lane divided roadway with frontage roads
- Grade separated intersections
- Direct connector from Loop 375 west to I-10 east
- Direct connector from I-10 west to Loop 375 east
- Hike-and-bike trail
- Entrance and exit ramps

SH 20 / Mesa Street

Intersection Improvements

- Left or right-turn lane additions at three intersections
- Twenty-eight (28) location-specific additional left- and right-turn bays

Corridor Strategies

Short-term (1-5 years) SH 20 / Mesa Street overall corridor recommendations include:

- Pavement (travel lane) marking upgrades
- IH-10 ALT and EAST route directional signage at Franklin Avenue in downtown

Mid-term (5-10 years) SH 20 / Mesa Street overall corridor recommendations include:

- Horizontal and vertical curvature modifications
- Access Management (removal of redundant driveways and closure of identified median openings)
- Hooded left-turn lane installations at identified median locations
- Relocating the eastbound IH 10 exit ramp (to North Mesa Street) northward to allow driver access to McClintock Drive and serve as an alternate route to Doniphan Drive (SH 20) and retail sites and thereby avoid and alleviate the Mesa Street signalized intersections
- Extend Desert Pass Street to the Mesa Street / Belvidere Street intersection;
- Extend Mesa Park Drive to IH 10 (consistent with El Paso MPO)

- Link Mesa Park Drive and Executive Center Boulevard via a new location arterial (consistent with City of El Paso Thoroughfare Plan).

Long-term (10+ years) SH 20 / Mesa Street overall corridor recommendations include:

- Continuous, standard street luminaires; and
- Upgrade to a Smart Corridor or Connected Vehicle / Automated Vehicle (CV/AV) Corridor

Pedestrian

Short-term recommendations include:

- Intersection ADA sidewalk/ramp, crosswalk, and stop bar upgrades throughout the corridor alongside pavement (travel lane) markings
- Mesa Street median safety rail at Champions Place near Coronado High School including 10-foot wide crosswalks
- Mesa Street raised median with safety rail between Baltimore Drive and Cincinnati Avenue, and north of Baltimore Drive, including 10-foot wide crosswalks and removal of the existing mid-block crosswalk north of Glory Road
- Pedestrian Scramble signal timing at Mesa Street / University Avenue and at Mesa Street / River Avenue
- Montecillo Boulevard sidewalk installation, 10-foot wide crosswalks, ADA-accessible wheelchair ramps, and cut-through median refuge

Mid-term recommendations include:

- 10-foot wide Shared Use Path from Doniphan Drive (SH 20) to Resler Drive, and from Sun Bowl Drive to Glory Road
- Expanded sidewalks and perimeter sidewalk safety rails between Baltimore Drive / Glory Road and Cincinnati Avenue
- Retaining Wall relocation at the Mesa Street / River Avenue intersection

Long-term recommendations include:

- 10-foot wide Shared Use Path from Executive Center Boulevard to Brentwood Avenue
- Below-ground Mesa Street Signal Bypass lanes near UTEP (beneath Baltimore Drive / Glory Road, Cincinnati Avenue, and Robinson Avenue).

Transit

Short-term recommendations for bus queue jumping lanes are located as follows:

1. Southbound & Northbound Mesa Street at Resler Drive;
2. Northbound Mesa Street at Sunland Park Drive / Shadow Mountain Drive;
3. Southbound Mesa Street at Mesa Hills Drive;
4. Northbound Mesa Street at Festival Drive;

5. Southbound Mesa Street at Argonaut Drive;
6. Southbound & Northbound Mesa Street at Executive Center Boulevard;
7. Southbound Mesa Street at Sun Bowl Drive / Mesita Drive; and
8. Southbound Mesa Street at Glory Road / Baltimore Drive.

Mid-term recommendations include bus queue jumping lanes at the following locations that currently have a shared through / right-turn lane:

1. Southbound Mesa Street at Doniphan Drive (SH 20);
2. Northbound Mesa Street at Remcon Circle;
3. Southbound Mesa Street at Sunland Park Drive / Shadow Mountain Drive;
4. Southbound Mesa Street at Festival;
5. Northbound Mesa Street at Castellano Drive;
6. Northbound Mesa Street at Brentwood Avenue;
7. Northbound Mesa Street at Sun Bowl Drive / Mesita Drive; and
8. Northbound Mesa Street at Glory Road / Baltimore Drive.

Mid-term recommendations include bus queue jumping lane at the following locations that currently have a channelized right-turn lane:

1. Northbound Mesa Street at Doniphan Drive (SH 20);
2. Southbound Mesa Street at Remcon Circle;
3. Northbound Mesa Street at Mesa Hills Drive;
4. Northbound Mesa Street at Argonaut Drive; and
5. Southbound Mesa Street at Castellano Drive.

ITS

Short-term recommendations include:

- Bluetooth camera surveillance;
- Speed feedback signs; and
- Video Imaging Vehicle Detection System (VIVDS).

Mid-term recommendations include:

- Dynamic Message Signs; and
- Cellular modem/wireless links to TxDOT TransVista.

Long-term recommendations include:

- 144-count fiber along SH 20 / Mesa Street from Doniphan Drive to Loop 375;
- Connecting City of El Paso cameras to TxDOT's LoneStar system; and
- Smart Corridor along SH 20 / Mesa Street.

SH-20 / Doniphan Drive

Short-term improvements include:

- Bus stop shelters
- Shared-Use Path & Pedestrian Intersection Improvements
- ITS Fiber and Ground Boxes for Integrated Corridor Management
- Roadway Clear Zone Protection (e.g. light standards w/in 30' of travel lane)
- Regular Maintenance of Drainage Elements

Mid-term improvements include:

- Five projects to improve roadways to 4-Lanes divided, including:
 - Median and Buffer
 - Sidewalk
 - Illumination
 - Intersection Improvements
 - Aesthetic Elements
- Improve Railroad Crossings (18 locations), including:
 - Z Crossings for Pedestrian
 - Fencing
- Village of Vinton Roundabout
- Mid-Block Crossings (HAWK Signals) (5 locations)

Long-term improvements include:

- Two roadways to widen to 6-Lanes divided, including:
 - Median and Buffer
 - Sidewalk
 - Illumination
 - Intersection Improvements
 - Aesthetic Elements
- Retention Ponds

SH 178 Artcraft

Short-term improvements include:

- Desert North and Desert South intersection radius improvements for trucks and frequent oversize loads

Mid-term improvements include:

- Wide Radius Right Turn Lane at Desert South
- I-10 Texas U-turn bridges

- Planned Direct Connectors at I-10
- Planned Grade Separations at Westside and Upper Valley

FM 1281 / Horizon Blvd

Study in progress the following may change. Website for updates

<https://www.txdot.gov/inside-txdot/projects/studies/el-paso/sh20-alameda-ave.html>.

Short term

- Intersections
 - Optimize traffic signal timing at Alameda Ave
 - Improve turn lanes and optimize signal timing at Kenazo Ave
 - Convert Ascension St intersection to all-way stop control
- Pedestrian, Bicycle and Transit
 - Upgrade crosswalks to meet Americans with Disabilities Act (ADA) standards
 - Provide sidewalk connectivity from Rifton Ct to Ascension St and from I-10 to Ashford St
 - Install pedestrian hybrid beacon for midblock crossing at Horn Cir
 - Provide bus stop shelters and bus route signs
- Intelligent Transportation Systems (ITS)
 - Upgrade traffic signals for emergency response
 - Install fiber optic cables and pull boxes for improved communications
- Access Management
 - Access management along the corridor between I-10 and N Loop Dr
 - Improve driveway spacing and median opening locations
- Others
 - Street lighting and pavement marking upgrades; chevron signs on curves
 - Artistic street name signs and signal equipment for community identity
 - Conduct speed studies to ensure correctness of posted speed limit along the corridor

Mid term

- Intersections
 - Improve roadway alignment at Horizon Blvd/Stockyard Dr/ Nancy Dr intersection
 - Realign southbound Kenazo Ave to eliminate offset design
 - Realign Ascension St approaches at Horizon Blvd intersection
 - Provide turn lanes and signal optimization at Alameda Ave, North Loop Dr, Stockyard Dr, Love's Driveway, Kenazo Ave and Eastlake Blvd intersections
 - Install signals at Peyton Rd, Rifton Ct and Ascension St
- Pedestrian, Bicycle and Transit
 - Provide wider sidewalks from Alameda Ave to I-10
 - Provide special purpose lanes for bicycles from Alameda Ave to I-10

- Rail Road Crossing Improvements
 - Provide gates for pedestrian crossing on both directions

Long term

- Intersections
 - Innovative interchange design at I-10 interchange
 - Innovative intersection design at Rojas Dr, Ashford St and Darrington Rd
- Pedestrian, Bicycle and Transit
 - Provide wider sidewalks and shared use path from I-10 to Ascension St
 - Provide bicycle lane from Alameda Ave to I-10
- Intelligent Transportation Systems (ITS)
 - Complete connection to TransVista traffic management center
- Drainage Improvements
 - Develop recommendations to match proposed alternatives
- Access Management
 - Access management along the corridor from I-10 to Ascension St
 - Improve driveway spacing and median opening locations
- Rail Road Crossing Improvements
 - Provide an overpass at the Rail Road crossing to improve emergency response

I-10 Reimagine

- Study in progress. Website for updates Webpage
<https://www.txdot.gov/inside-txdot/projects/studies/el-paso/reimagine-i10.html>

Border Highway East Study Area PEL

- Additional information at Webpage
<https://www.txdot.gov/inside-txdot/projects/studies/el-paso/border-highway-east.html>

Short term

- Winn Road / Pan American rerouting of trucks to Zaragoza POE
- Loop 375 Americas Ave Mainlanes
- Loop 375 Americas Ave Ramp Reversals and Grade Separation at Railroad
- Intersection Improvements at Loop 375 and FM 258 / Socorro
- Intersection Improvements at Loop 375 and SH 20 / Alameda

Mid term

- Operational Improvements on FM 258 Socorro Road
- SH 20 Alameda Widening (Loop 375 to Horizon)
- FM 76 North Loop Widening (Horizon to FM 1110)

- New Extension of Border Highway East to FM 1110 Extension
- Extension of Old Hueco Tanks Road

Long term

- New Arterial from I-10 to Border Highway East between Socorro and San Elizario

Listed below is a consolidated list of congestion management strategies from the *Border Highway East PEL Prioritization* study from May 2018.

SH 20 (Alameda Ave.) At SL 375 (Americas Ave.) Intersection Improvements

Recommended Priority: Short-term (< 5 years), High priority.

- Advance left turn lanes
- Two through lanes
- Left turn lanes
- Right turn lanes
- 14-foot outside lanes
- Sidewalks

FM 258 (Socorro Rd.) At SL 375 (Americas Ave.) Intersection Improvements

Recommended Priority: Short-term (<5 years), High priority.

- Turn lanes on all approaches
- Restriping the frontage road.
- 14-foot outside lanes
- Sidewalks

SH 20 (Alameda Avenue) Widening - From Loop 375 to FM 1110 Realignment

Recommended Priority: Mid-term (5-15 years), High priority.

- Median
- Designated turn lanes
- 14-foot outside lanes
- Sidewalks

FM 76 (North Loop Drive) Widening - From FM 1281 (Horizon Boulevard) to FM 1110

Recommended Priority: Mid-term (5-15 years), Medium priority.

- Median
- Designated turn lanes
- 14-foot outside lanes
- Sidewalks

Border Highway East (Northern Portion) - From Loop 375 at Southside Road to Herring Road

Recommended Priority: Long-term (>15 years), High to Medium priority.

- Direct connectors between Loop 375 and Border Highway East
- Diamond interchanges at select locations
- Median

- Designated turn lanes
- 14-foot outside lanes
- Sidewalks

Border Highway East (Southern Portion) - From Herring Road to M.F. Aguilera Road (FM 3380)

Recommended priority: Long term (>15 years), Low to Medium priority.

- Freeway general purpose lanes in each direction with 10-foot inside and outside shoulders
- Frontage road lanes in each direction.
- Diamond interchanges at select locations
- Median
- Designated turn lanes
- 14-foot outside lanes
- Sidewalks

Old Hueco Tanks Extension - From FM 76 (North Loop Drive) To Border Highway East Extension

Recommended priority: Mid-term (5-15 years), High priority.

- New travel lanes in each direction
- Median
- Grade-separated railroad crossing
- Designated turn lanes
- 14-foot outside lanes
- Sidewalks

New Location Roadway - From I-10 To Border Highway East Extension

Recommended priority: Long term (>15 years), Medium priority.

- Grade-separated railroad crossing
- Designated turn lanes
- 14-foot outside lanes
- Sidewalks

FM 1110 Realignment - From Alameda Avenue (SH 20) To Border Highway East

Recommended priority: Mid-term (5-15 years), High priority.

- Median
- Designated turn lanes
- 14-foot outside lanes
- Sidewalks

New Location Roadway - From I-10 To Border Highway East Extension

Recommended priority: Long-term (>15 years), Low priority.

- Median
- Grade-separated railroad crossing
- Shared use shoulder

New Location Roadway - From I-10 To Proposed Border Highway East Extension
Recommended priority: Long-term (>15 years), Low priority.

- Median
- Grade-separated railroad crossing
- Shared use shoulder

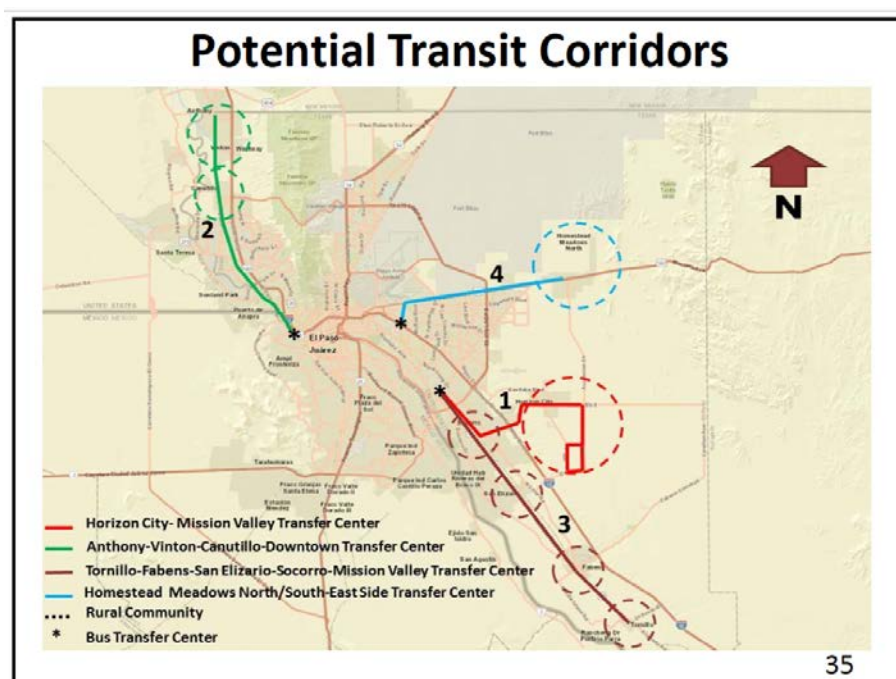
El Paso County Regional Transit Institutional Options Feasibility Study

The El Paso County Regional Transit Institutional Options Feasibility Study (El Paso County Transit Study) completed in summer 2018, examines the feasibility of a single, seamless, transit system in El Paso County, serving and connecting rural communities and urban areas in the county and the city of El Paso. The study identifies service, governance, and financial alternatives for countywide transit.

The identified transit gaps/needs are:

- Span of service too late/early for employment
- Bus fares too high for some with low income
- Distance to nearest stop too far in some locations
- Commute time is too long on some routes
- Transfers required between transit systems

The study identifies four potential transit corridors (see figure below) based on existing conditions and the transit need and supply indices; and presents six proposed transit service scenarios for countywide transit including forecasted ridership, operating and capital expenses, and sources of revenue.



APPENDIX C. 2019 CMP STRATEGIES MATRIX

APPENDIX C. 2019 CMP STRATEGIES MATRIX

				Travel Demand Management				Public Transportation			Operations and ITS							Physical Roadway Capacity										
				1		2		3		4		5	6		7	8	9		10		11	12	13	14	15	16		17
				Ped/Bicycle Improvements	Alternative Commute Programs (Ridesharing, work hours, carpool, etc.)	Conversion to HOV/HOT lanes	Growth Management (Land Use, Transit-Oriented Development)	Transit Service Enhancements	Bus Rapid Transit	Park and Ride Facilities	Incident Management/Integrated Corridor Management/Traffic Surveillance and Control Systems	Traffic Signal Operational/Bus Priority System	Advanced Traveler Information Systems/Intelligent Transportation Systems	Intersection Improvements	Access management	Auxiliary Lanes*	Geometric Design Improvements*	Grade separated intersections at railroad crossings*	New travel lanes (general purpose)	New roadways								
Segment ID	Road Name	From	To																									
Arterials																												
A1	N Mesa St / SH 20	Executive Center Blvd	Texas Ave																									
A2	N Mesa St / SH 20	IH 10 / US 180 / US 85	Executive Center Blvd																									
A3	N Zaragoza Rd / FM 659	Gateway Blvd / IH 10	Joe Battle Blvd / TX 375 Loop																									
A4	Lee Trevino	Montana Ave / US 180 / US 62	Gateway Blvd / IH 10																									
A5	Montwood Dr	Lee Trevino Dr	N Zaragoza Rd																									
A6	N Yarbrough Dr	Montana Ave / US 180 / US 62	Gateway Blvd / IH 10																									
A7	Doniphan / SH 20	Talbot Ave / SL 375	Canam Hwy / IH 10/ US 180																									
A8	N Loop Dr / FM 76	N Americas Ave / SL 375	Horizon Blvd / FM 1281																									
A9	Montana Ave / US 180 / US 62	Gateway Blvd / IH 10	Global Reach Dr																									
A10	N Loop Dr / FM 76	North Carolina Dr	N Americas Ave / SL 375																									
A11	Global Reach Dr	Liberty Expy/ Spur 601	Montana Ave / US 180 / US 62																									
A12	Alameda Ave/ SH 20	Americas Ave/Loop 375	Passmore Rd																									
A13	Montwood Dr	Viscount Blvd	Lee Treviño																									
A14	Delta/North Loop	Alameda Ave	Hunter Dr																									
A15	Socorro Rd/258	Americas Ave/Loop 375	Passmore Rd																									
Highways																												
H1	IH 10	N Mesa St / SH 20	Patriot Fwy / US 54																									
H2	IH 10	Patriot Fwy / US 54	Hawkins Blvd																									
H3	IH 10	W Paisano Dr / US 85	N Mesa St / SH 20																									
H4	IH 10	Hawkins Blvd	Lee Trevino Dr																									
H5	Joe Battle Blvd / Loop 375	IH-10	Pellicano Dr																									
H6	IH 10	Mesa Ave	Redd Rd																									
H7	IH 10	Eastlake Dr	Horizon Blvd / FM 1281																									
H8	Patriot Freeway	Ellenthorpe Ave	Pershing																									

* Strategies identified as Operational Improvements not Physical Roadway Capacity to prevent confusion with adding capacity projects that trigger air quality conformity determination.

	Short Term	0-5
	Mid Term	5-15
	Long Term	15-20+