Contents

CONGESTION MANAGEMENT PROCESS

MOVING PEOPLE
CONNECTING PLACES

Traffic congestion impacts how easy - or not - it is to get around. While traffic will grow as more people and jobs move to the Alamo Area, we can and should try to manage the challenge ahead of us. One way is by reducing the demand for space on the *same* road at the *same* time. Another way is by improving the efficiency of the transportation system overall.

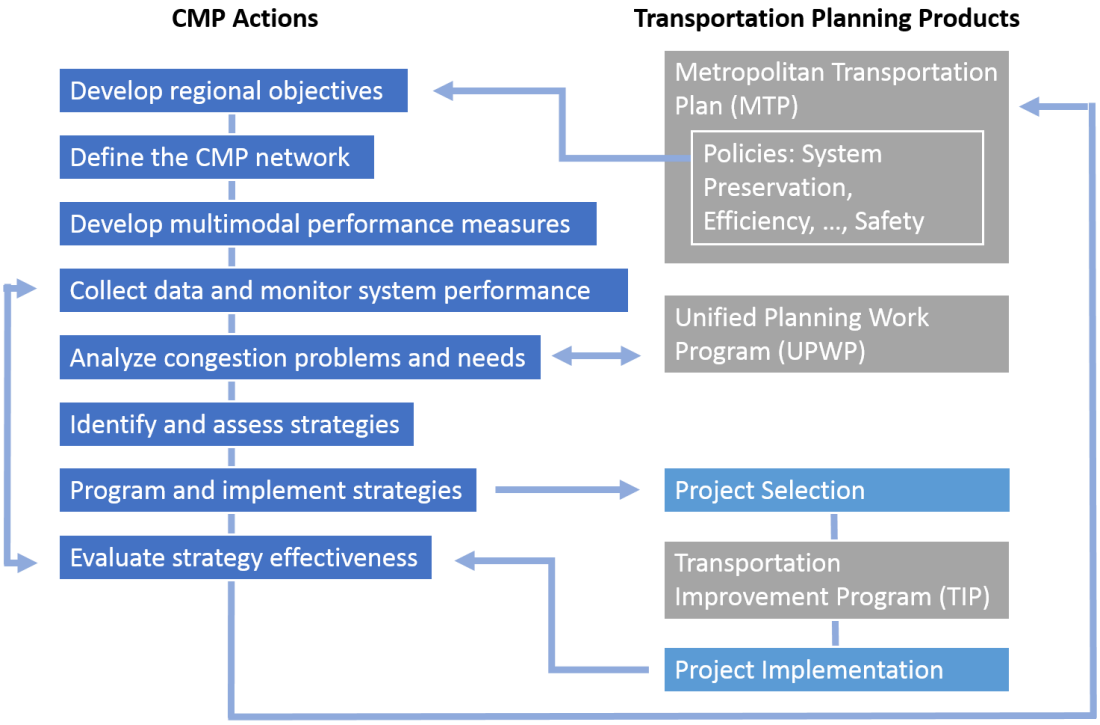
Congestion Management is the act of using a mix of strategies to reduce traffic. Metropolitan areas like ours with populations over 200,000 are known as transportation management areas (TMAs). TMAs are required by the federal government to have an ongoing congestion management process (CMP). The process includes eight actions:

1. Develop regional congestion management objectives
2. Define the CMP network
3. Develop multimodal performance measures
4. Collect data and monitors 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

Figure XX shows the connections between the CMP and other elements of AAMPO's transportation planning process.

Figure 1. The Congestion management process informs and is informed by AAMPO's three transportation planning products: our Metropolitan Transportation Plan, Transportation Improvement Program and Unified Planning Work Program



In TMAs that are not meeting federal requirements for air quality, federal funds cannot be used for projects that build new roads or expand the number of lanes for single-occupant vehicles (SOV) unless the area's CMP addresses the need for additional roadway space by other multimodal strategies first. Since the Environmental Protection Agency (EPA) designated Bexar County as a nonattainment area for ozone (effective September 24, 2018), the CMP is especially important for the future of transportation in our region.

Additional information can be found in the Code of Federal Regulations for the CMP on pg. XX or online at 23 CFR 450.322.

Comparing the Alamo Area to other Regions

Traffic studies show that the Alamo Area is not yet one of the most congested regions in the country or state, but it has been identified as having one of the fastest growing congestion levels. The average commuter in San Antonio spends more than 44 hours in traffic each year, burning through $1,000 in costs associated with congestion and an extra 20 gallons of fuel that expels ozone-forming pollutants into the air (Urban Mobility Report, Texas Transportation Institute (TTI), 2015).

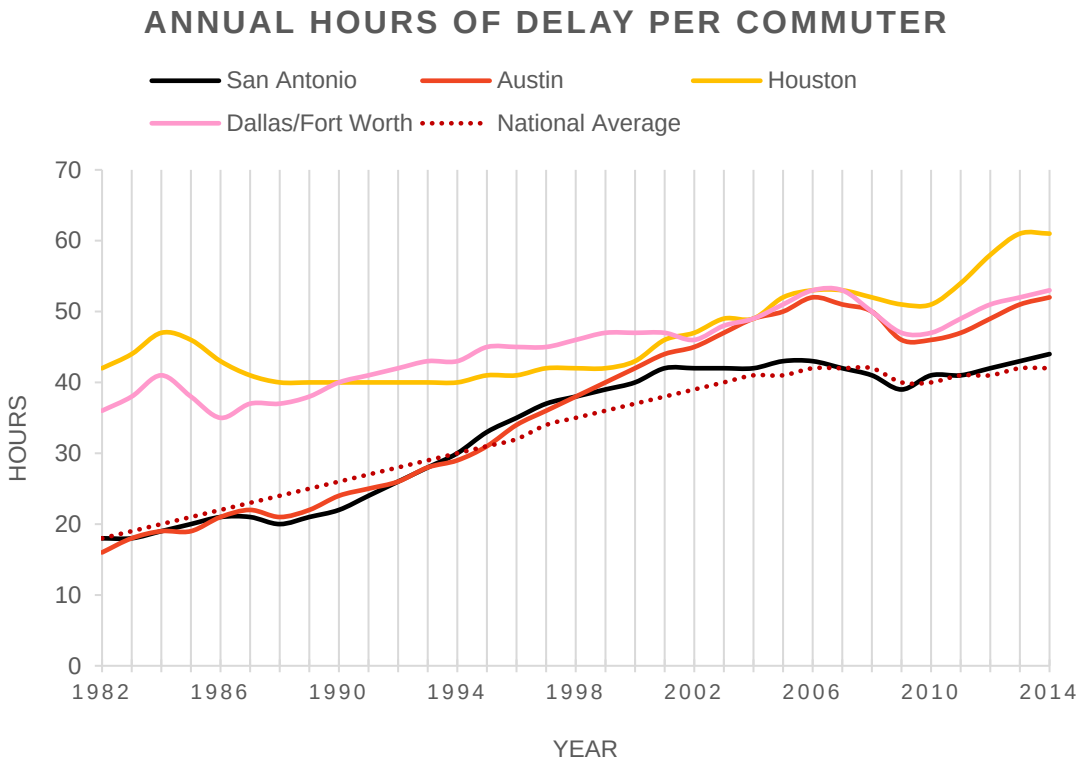
Figure XX compares San Antonio's congestion with other major Texas cities using two common measures: Annual Hours of Delay per Commuter and Travel Time Index.

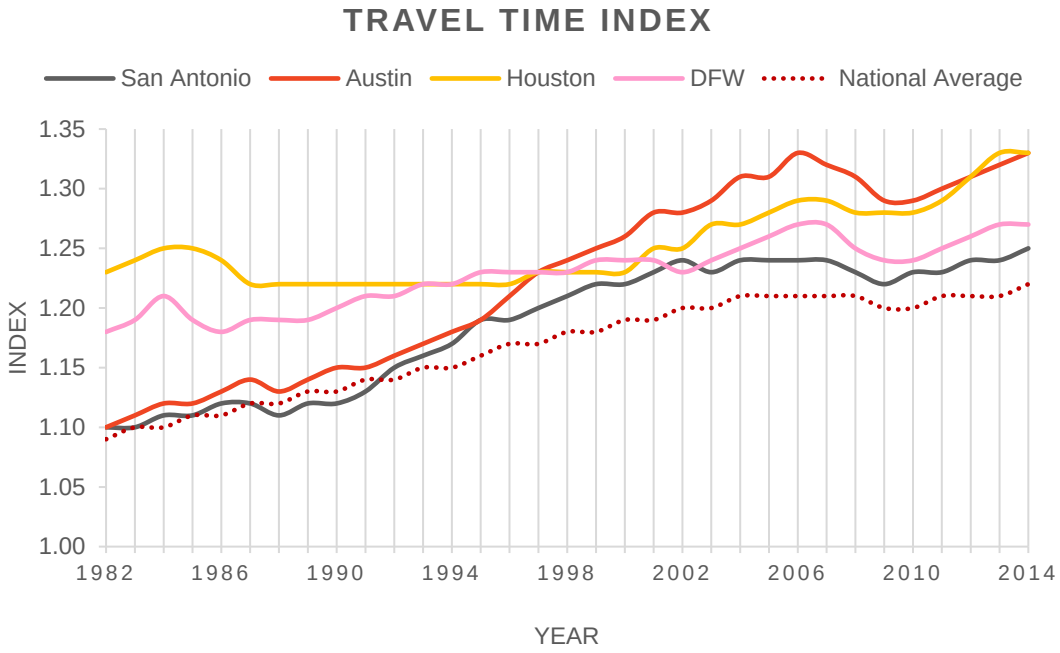
Figure 2 shows how two common measures of congestion have changed over time in major Texas Cities.

Annual Hours of Delay per Commuter is the extra travel time during the year divided by the number of people who commute in private vehicles in the urban area.

Travel Time Index is the ratio of travel time in the peak period to the travel time at free-flow conditions. A value of 1.30 indicates a 20-minute free-flow trip takes 26 minutes in the peak period.

Source: Texas A&M Transportation Institute (TTI) 2015 Metro Mobility Scorecard





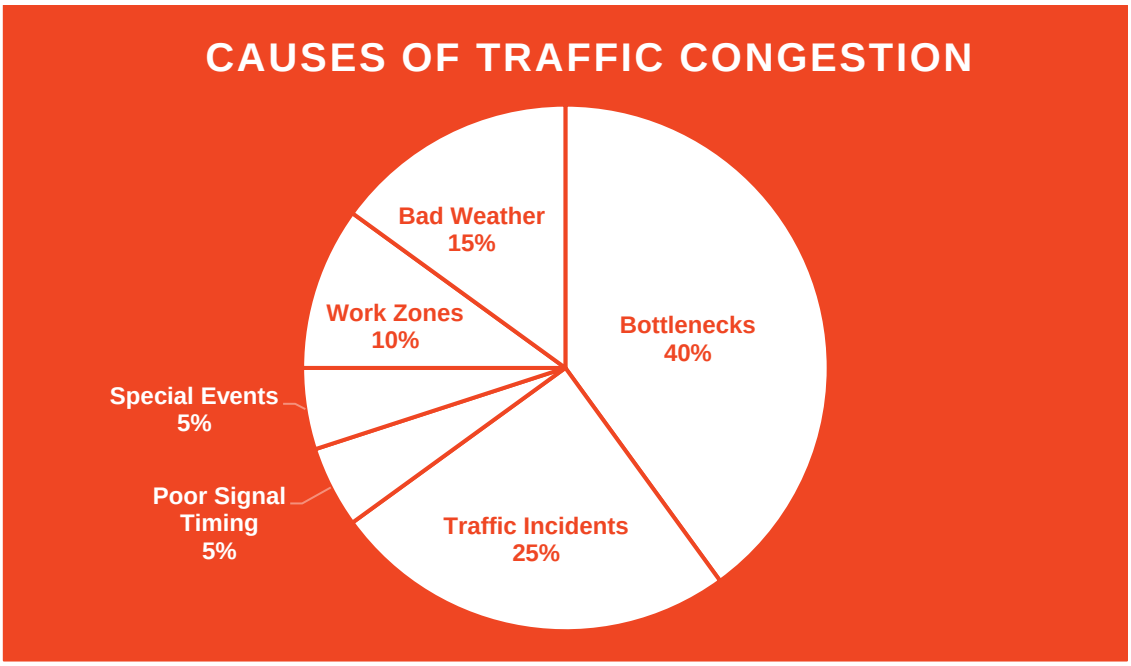
Causes of Traffic Congestion

Congestion occurs when travel demand is greater than the available roadway space, transit vehicle or other transportation facility. Typical causes of traffic congestion include:

- Bottlenecks that occur at intersections, interchanges, and other locations where traffic signals, traffic merging or special events cause a change in traffic flow
- Weather events, such as flash flooding
- Temporary capacity-reducing roadway conditions, such as work zones
- Crashes and other incidents that either partially block roadways or cause passing motorists to slow down

The national distribution of these causes is shown in Figure X.X. Nationally, 60% of all congestion is “non-recurring”. It is caused by occasional traffic incidents, bad weather, work zones, poor signal timing, and special events. The remaining 40% of congestion is “recurring” and is usually an effect of bottlenecks.

Figure 3: FHWA categorizes five causes of congestion. Source: https://www.fhwa.dot.gov/policy/otps/bottlenecks/chap2.cfm



Accomplishments

Over the past five years, the Alamo Area has paid significant attention to reducing demand and improving the flow of the transportation system. AAMPO took a major step forward with the overhaul of the region’s CMP in early 2017. Our TMA each action required by the federal government for our congestion management process using a step-by-step approach.

AAMPO began by conducting an online public survey in February 2017 that focused on current commuting habits and community priorities. AAMPO led a workshop for partner agency staff in

March 2017. Feedback from both the self-selected public survey and agency staff workshop shaped our congestion management objectives. At the workshop, consensus was also reached on the CMP network, and discussion helped inform meaningful congestion indicators and a data and monitoring plan. Figure XX illustrates outcomes of the online survey and agency staff workshop.

In the fall of 2018, AAMPO staff presented a recommended path forward to the Technical Advisory Committee (TAC) and incorporated feedback from the TAC members into a final CMP. This chapter represents the region's congestion management process, which is also available at www.alamoareampo.org/CMP.

Since approving our region's previous long-range plan, AAMPO has enhanced the regional Travel Demand Model with four time-period traffic assignment and developed a micro-model capable of better small-area analysis and active transportation planning.

Additionally, all Texas MPOs gained access to the National Performance Measures Research Data Set and a suite of roadway speed analytics tools when TxDOT joined the Traffic Performance Metrics Pooled Fund Study.

The Regional Transportation Attitude Survey was completed in early 2018. It is the third of its type to be conducted for AAMPO in the past decade. A Regional Bike Share Master Plan was also completed in 2018, identifying potential future SWell Cycle bike share station locations in Bexar County and exploring the possibility of bike share in Comal, Guadalupe and Kendall Counties. AAMPO initiated a Regional Thoroughfare Plan Study in 2017 with the resulting product goal being a single classification system for the region's major thoroughfares. This study builds off of the Multimodal Transportation Plan, a City of San Antonio plan awarded AAMPO Surface Transportation Program – Metro Mobility funds in 2014.

In October 2018, AAMPO launched Alamo Commutes. Previously "Commute Solutions" under the Alamo Area Council of Governments, the program emphasizes travel demand management for employers and commuters.

The region's Intelligent Transportation System (ITS), TransGuide, celebrated its 20th anniversary in 2015. Since its start in 1995, the original 26 miles of freeway coverage by TransGuide has expanded to over 126 miles, outgrowing the TransGuide facility technology and layout. AAMPO STP-MM funding awarded in 2018 will support major upgrades and expansion of TransGuide as well as the creation of a Safety Service Patrol (SSP) which will begin operating on controlled access highways in Bexar, Comal and Kendall Counties in 2019. The SSP will assist stranded motorists with minor emergencies and provide light-duty traffic control.

Congestion Management Process

The City of San Antonio implemented an innovative towing management contract in 2015 with the help of the multi-agency Traffic Incident Management group. This program has reduced the average arrival time of a tow truck when called by the San Antonio Police Department from 45 minutes to under 15 minutes, helping to achieve the ultimate goal of reducing clearance time for freeway crashes.

The TxDOT San Antonio District and City of San Antonio are increasingly piloting different technologies to optimize traffic cameras on arterials and highways and track signal performance metrics.

In 2015, VIA Metropolitan Transit opened Centro Plaza at VIA Villa, transportation hub servicing most downtown routes, improving traffic flow and transfers. VIA also opened a 400-vehicle capacity Park and Ride in the Stone Oak area in 2018 and worked with the City of San Antonio to secure funding that increased frequency of a dozen transit routes.

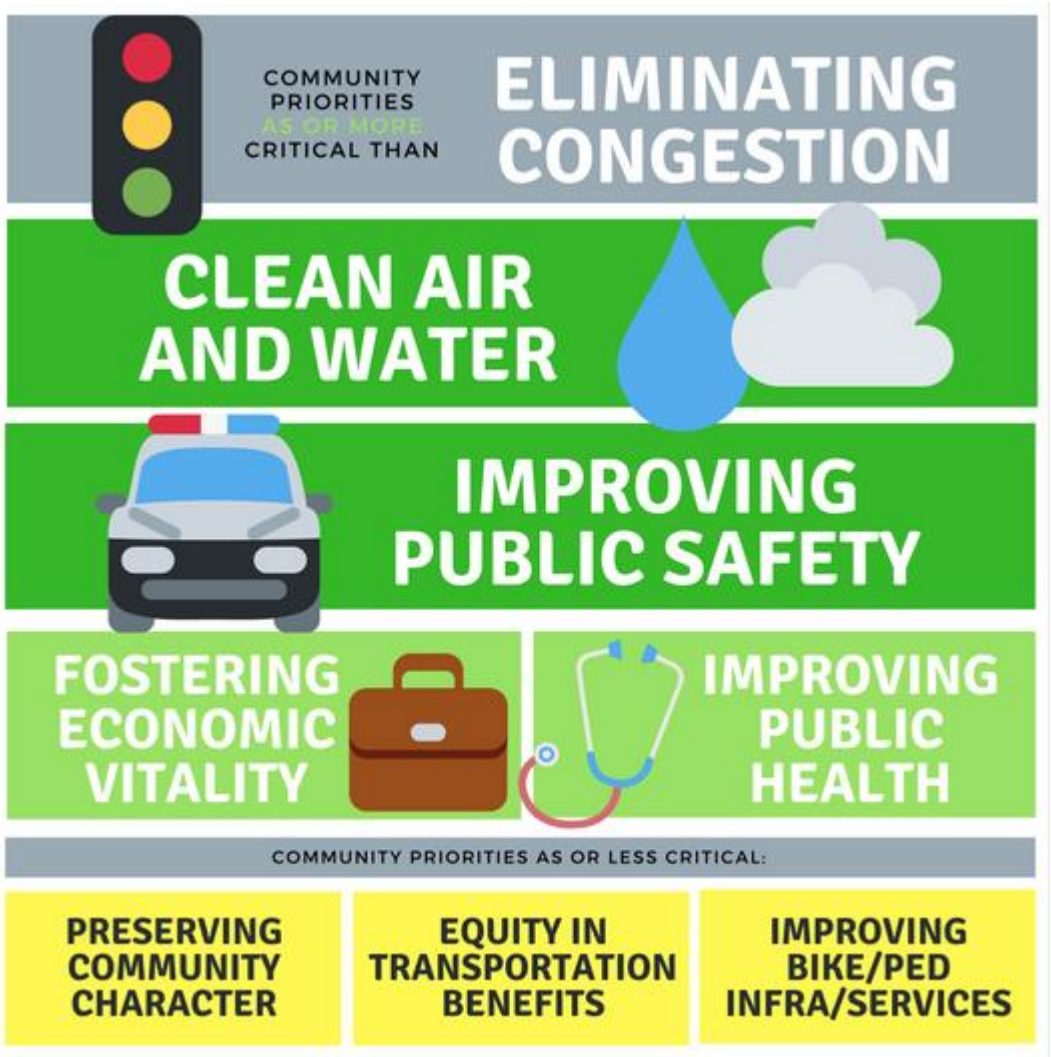


Figure 4: In the online survey, community members related the importance of eliminating congestion to other community priorities.

Congestion Management Process

HOW DID WE DEVELOP OBJECTIVES?

1

An online survey and stakeholder workshop identified important congestion concerns

2

This feedback focused our efforts on the places and timing of congestion that most needs to be addressed

3

We determined what data is available to track what we wanted to measure

4

We looked at what was realistic based on regional growth trends, fiscal constraints and other Mobility 2045 goals

Regional Objectives for Congestion Management

The CMP outlines eight specific congestion management objectives that work toward the Mobility 2045 goal to increase the efficiency of the transportation system and manage traffic congestion. These include:

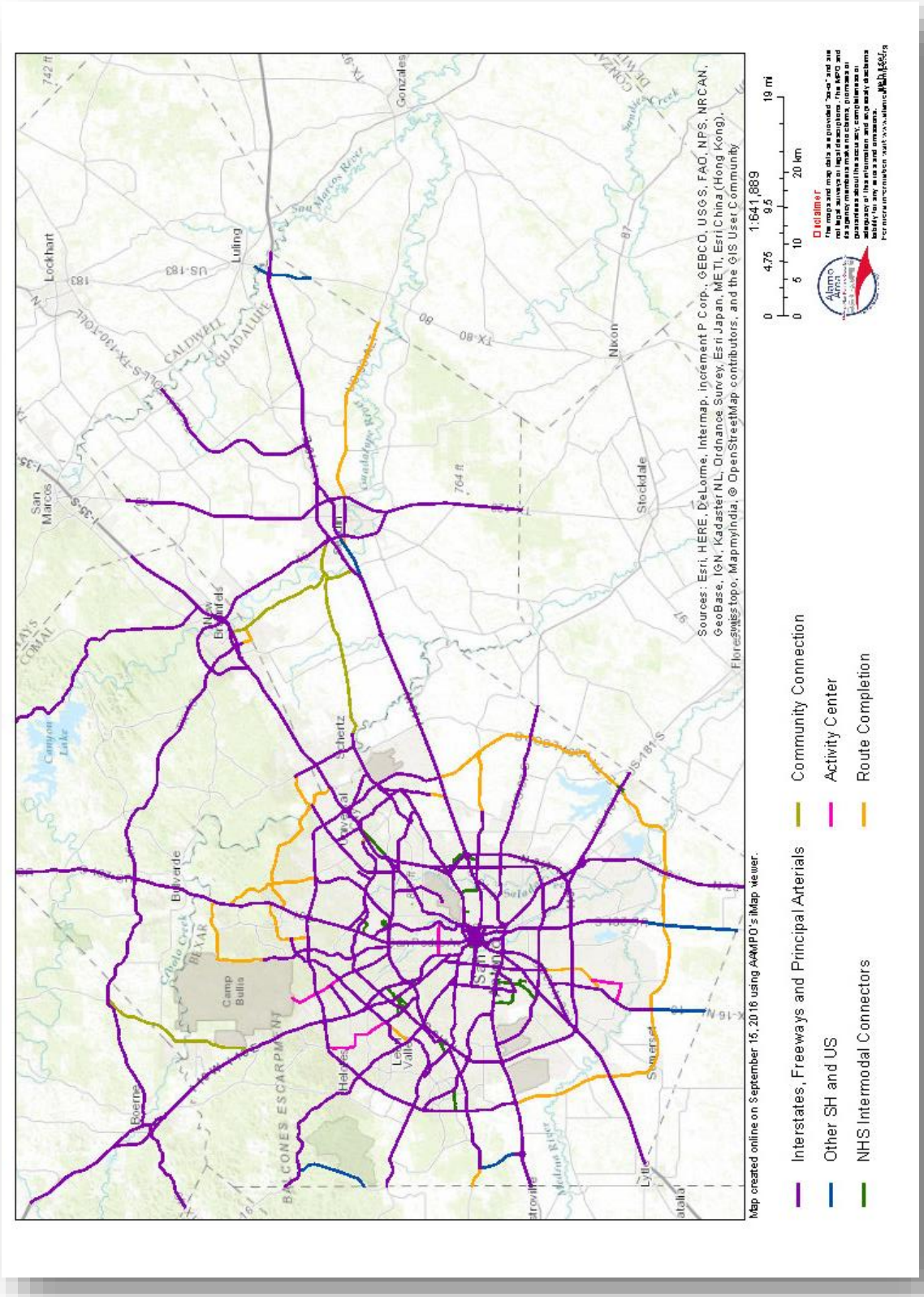
- Maintain congested VMT per capita through 2022
- Maintain current level of congested hours through 2022
- At least 65% of the Interstate should be reliable by 2022
- At least 45% of the Non-Interstate NHS should be reliable by 2022
- Average reliability of the transit system should be 85% by 2040
- Double the population and employment within a quarter-mile access of frequent transit by 2040
- Maintain 60 minutes or less incident clearance time on expressways through 2022
- Maintain travel time for freight moved on highways through 2022

CMP Network

AAMPO analyzes congestion on and defines its CMP network as all Regionally Significant roadways within our planning area. Over months of collaboration with state and local transportation planning partners in 2016, AAMPO defined Regionally Significant roadways as those that are:

- federally functionally classified as interstate freeways, other freeways or expressways
- federally functionally classified as principal arterials
- intermodal connectors included in the federally adopted National Highway System
- designated as SH or US routes
- community connections that provide direct, continuously signed connections between nearby or adjacent census defined urbanized areas, urban clusters and population centers with more than 5,000 people
- between activity centers that serve as primary regional connectors to an otherwise unserved regional activity center
- extensions of Regionally Significant Roadways to connect non-connecting termini

Figure 2: Map of Regionally Significant Roadways in the Alamo Area. Visit www.alamoareampo.org/imap to view these roadways online



Multimodal Performance Measures

In 2018, AAMPO staff developed baseline data for these eight performance measures tracking congestion at the regional level. (Note, performance measures are regional, not limited to the CMP network.) Updates are published on our online performance measure dashboard at www.alamoareampo.org/TPM and in the Performance Report chapter of the Metropolitan Transportation Plan.

Table 3: Performance measures track characteristics like intensity and extent of congestion

Type of Measure	Performance Measures
Objective: Maintain congested VMT per capita through 2022	
Intensity: The relative severity of congestion that affects travel	Number of road miles operating at V/C < 1.0 and ≥ 1.0
Extent: The number of system users or components (e.g. vehicles, pedestrians, transit routes, lane miles) affected by congestion	Percent of vehicle miles traveled at V/C ≥ 1.0
Objective: Maintain current level of congested hours through 2022	
Duration: The amount of time the congested conditions persist before returning to an uncongested state	Congested hours
Objective: At least 65% of the Interstate should be reliable by 2022 **Objective: At least 45% of the Non-Interstate NHS should be reliable by 2022** **Objective: Average reliability of the transit system should be 85% by 2040**	
Reliability: The changes in congestion that occur on different days or at different times of day.	Percent of person-miles traveled on the Interstate that are reliable Percent of person-miles traveled on the Non-Interstate NHS that are reliable Number of HOV lane miles Transit system average reliability

GOOD TO KNOW

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.

	Percent of transit trips on dedicated lanes
Objective: Double the population and employment within a quarter-mile access of frequent transit by 2040	
Land Use and **Accessibility** Measures	Population within quarter-mile access of frequent transit service Employment within quarter-mile access of frequent transit service
Objective: Maintain 60 minutes or less incident clearance time on expressways through 2022	
Safety	Incident clearance time
Objective: Maintain travel time for freight moved on highways through 2022	
Freight Measures	Truck Travel Time Reliability (TTTR) Index on the Interstate Number of Top 100 truck bottlenecks

Collecting Data and Monitoring the System

AAMPO brings together, organizes and analyzes data collected by our transportation partners in order to:

- Define the extent and duration of congestion
- Help determine causes of congestion
- Evaluate the efficiency and effectiveness of implemented actions.

Read more in Ch. X - Performance Report about data sources used by AAMPO.

As part of the congestion management process, AAMPO inventories our CMP network at the corridor level. A database is compiled relating attributes of the CMP network corridors that include several characteristics organized under four categories:

Alternative Roadway Infrastructure: Factors that influence access to/from the region, between regional activity centers, and to/from local land uses

- Parallel expressways (within 5 mi)
- Parallel arterials (frontage roads, major and minor arterials within 1 mi)
- Direct connections (interchanges) to other highways

Modal Options: Factors that influence the viability of traveling by alternative modes on the corridor

- Public Transportation
- Rideshare (Park-and-Ride, Transit Center, Park-and-Pool)
- Managed/HOV lanes
- Bike or pedestrian facility

System Demand: Factors that influence the size of demand for roadway space on the corridor

- Peak volume over capacity (V/C)
- Truck volume percentage
- Area Type

System Reliability: Factors that influence occasional (non-recurring) traffic congestion on the corridor

- Crash rate
- Shoulders
- Safety Service Patrol coverage
- Truck lane restrictions
- Intelligent Transportation System technology

A map of the CMP network and database are at www.alamoareampo.org/CMP. AAMPO staff reviews the CMP network database for accuracy during updates to the long-range Metropolitan Transportation Plan. Agencies proposing a project for MPO funding that would add vehicle capacity to a corridor must confirm that the project is on AAMPO's CMP network or complete a Corridor Fact Sheet form with their project application, if it is not.

Performance Measure	Data Source	How Often it is Collected	Responsible Partner	Definition	Alignment with Other Plans
Number of road miles operating at V/C < 1.0 and ≥ 1.0	Travel Demand Model (TDM)	At the time of TDM update	AAMPO		
Percent of vehicle miles traveled at V/C ≥ 1.0	TDM	At the time of TDM update	AAMPO		
Congested hours	Urban Congestion Report	Quarterly	TTI	Average number of hours during specified time periods in which road sections are congested — speeds less than 90 percent of free-flow speed (e.g., 54 mph if free-flow speed is 60 mph). Reported for weekdays (6 am to 10 pm). Averages are weighted across road sections and urban areas by VMT using volume estimates derived from FHWA's HPMS.	
Percent of person-miles traveled on the Interstate that are reliable	National Performance Measure Research Data Set (NPMRDS)	Monthly	AAMPO & TTI		National performance measure

Performance Measure	Data Source	How Often it is Collected	Responsible Partner	Definition	Alignment with Other Plans
Percent of person-miles traveled on the Non-Interstate NHS that are reliable	NPMRDS	Monthly	AAMPO & TTI		National performance measure
Number of HOV lane miles	TDM	Annually	AAMPO		
Transit system average reliability	Automated Vehicle Locating System	Monthly	VIA		
Percent of transit trips on dedicated lanes	Automated Passenger Counter	Annually	VIA		
Percent of population within quarter-mile distance of frequent transit service	VIA and TDM	At the time of TDM update	AAMPO & VIA		
Percent of employment within quarter-mile distance of frequent transit service	VIA and TDM	At the time of TDM update	AAMPO & VIA		
Incident clearance time	TransGuide observations	Annually	TxDOT	Average time in minutes from incident detection to clearance of collisions and disabled vehicles	TxDOT statewide performance measure
Truck Travel Time Reliability (TTTR) Index on the Interstate	NPMRDS	Monthly	AAMPO & TTI		National performance measure

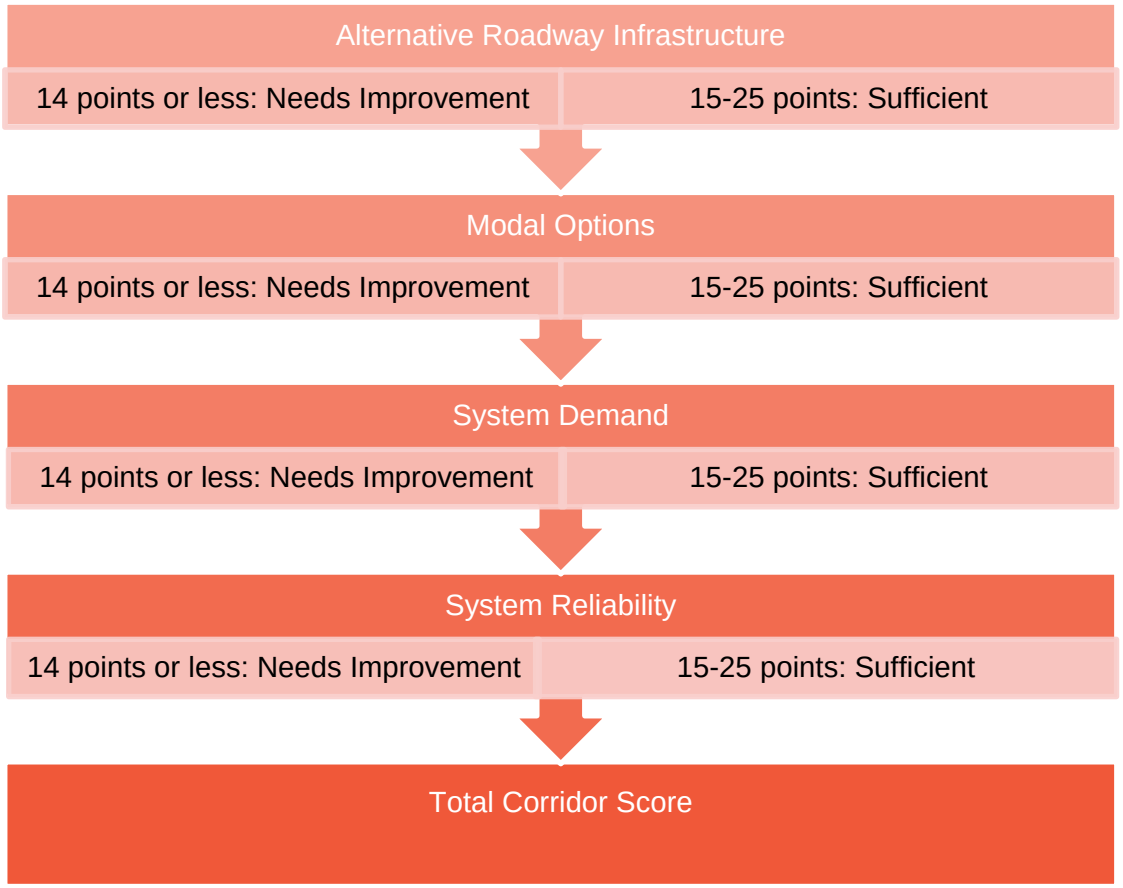
Performance Measure	Data Source	How Often it is Collected	Responsible Partner	Definition	Alignment with Other Plans
Number of Top 100 truck bottlenecks	American Transportation Research Institute	Annually	TxDOT		Texas Freight Mobility Plan performance measure

Analysis of Congestion Problems and Needs

The information collected through the corridor inventory described previously is used to score each corridor based on its capacity to handle congestion.

The maximum score a corridor can receive is 100 points (25 points per category). Corridors with higher scores are equipped with more travel options to alleviate congestion from the main roadway facility. Corridors with lower scores should be considered for improvements based on the sufficiency score of each category.

Figure X.X illustrates how the total corridor score is summed from the four categories used to understand the corridor's capacity to handle congestion. Detailed CMP Corridor Scoring Criteria is outlined in Figure X.X



Category	Inventory	Measure	Points	Max Number of Points
Alternative Roadway Infrastructure	Parallel Expressways[1] (within 5 mi)	Yes	11	25
		None	0	
	Parallel Arterials[1] (frontage roads, major and minor arterials within 1 mi)	Entire and Partial Limits	10	
		Entire Limits	7	
		Partial Limits	3	
		None	0	
	Direct Connections (Interchanges) to other highways[1]	Yes	4	
		None	0	
Modal Options	Public Transportation[2]	Rapid Transit and Bus	10	25
		Rapid Transit	7	
		Bus	5	
		None	0	
	Rideshare[2] (Park-and-Ride, Transit Center, Park-and-Pool)	Yes	7	
		None	0	
	Managed/HOV Lanes[3]	Yes	6	
		None	0	
	Bike or Pedestrian Facility[1] (entire corridor)	Bike Lane and Sidewalk	2	
		Bike Lane	1	
		Sidewalk	1	
		None	0	
System Demand (Recurring)	2015 Peak V/C[3]	Below	10	25
		Regional Average = 0.85		
		Above	3	

Category	Inventory	Measure	Points	Max Number of Points
System Demand (Recurring) *Continued*	2015 Truck Volume Percentage	Below	10	25
		Regional Average = 11.54%		
		Above	3	
	Area Type	Rural	8	
		Suburban	6	
		Urban	4	
		Urban Intense	2	
		Urban Core	1	
System Reliability (Non-Recurring)	2017 Crash Rate[4]	Below or Average	10	25
		(Regional Average Rate = 289)		
		Above	3	
	Shoulders[1] (For emergency stopping or congestion bypass)	Full Outside *and* Inside	6	
		Full Outside *or* Inside	3	
		Partial Limits	1	
		None	0	
		Refuge areas (for surface streets)	3	
	Safety Service Patrol Coverage[5]	Entire Limits	3	
		Partial Limits	1	
		None	0	
	Truck Lane Restrictions	Entire Limits	3	
		Partial Limits	1	
		None	0	
	Intelligent Transportation Systems	Entire Limits	3	
		Partial Limits	1	
		None	0	

Table 4: CMP Corridor Scoring Criteria
Source:
[1]Google Maps Imagery
[2]VIA Metropolitan Transit
[3]AAMPO Data;
[4]AAMPO interpretation of TxDOT CRIS Data
[5]TxDOT

Strategy Identification

There are many ways (“strategies”) to manage congestion. This section defines those strategy types that fit the character of our region and can help achieve our congestion management objectives

Intelligent Transportation Systems (ITS): TransGuide, an Intelligent Transportation System, was designed by the San Antonio District of the Texas Department of Transportation (TxDOT). This "smart highway" project provides information to motorists about traffic conditions, such as accidents, congestion and construction. With the use of cameras, message signs and fiber optics, TransGuide can detect travel times and provide that information to motorists not only with the message signs on the highways, but also with the use of the Internet and a Low-Power Television Station. TransGuide helps emergency responders rapidly respond to crashes and emergencies. Partners in the TransGuide project include TxDOT, the City of San Antonio (police/fire/EMS/traffic), and VIA Metropolitan Transit. ITS focuses on communication and real time information of traffic conditions. Components of ITS include:

- Advanced Traffic Management: dynamically managing roadway conditions based on prevailing and predicted traffic conditions. Examples include lane assignment, dynamic speed limits, adaptive ramp metering and real-time travel information. “TransGuide” is the traffic management system in the Alamo Area
- Advanced Public Transit Systems: on-board vehicle locating system to ensure travel time reliability and communications between buses and headquarters
- Emergency Management: related to disaster threats and marshalling resources

Policy Management includes existing and new ordinances and regulations that impact the transportation system. Policy management includes:

- Land Use: land use decisions to discourage urban sprawl and promote higher density levels and mixed use development to encourage travel by walking, bicycling and transit
- Preservation of Green Space: preserve undeveloped land and open spaces to provide for continuation of landscape character, scenic beauty and recreational opportunities so as not to worsen congestion, air and water quality
- Parking Management: includes policies that encourage more efficient use of existing public and private parking facilities (shared parking and improved parking facility design)
- Vehicle Use Limitations: refers to geographic areas where travel by car is restricted; can also include implementing no-drive days

- Preserve Neighborhood Aesthetic: refers to congestion mitigation with improvements complementing and protecting the cultural and historical nature of a corridor, neighborhood or geographic area
- Transit-Oriented Development (TOD) clusters housing and commercial uses to encourage public transit ridership

Corridor Improvements are strategies for corridors that are at least one mile in length. These improvements include:

- Capacity Improvements: add more travel lanes to roads for vehicles in both directions; if there is high rush travel flow in one direction consider adding reversible lanes that will change direction depending on the peak travel
- Congestion Relief Corridors: new roadways on new alignments that will relieve congestion on parallel roadways
- Bottleneck Removal: This includes improvements such as roadway widening to provide shoulders and improved sight lines or auxiliary lanes to improve merging and diverging. This also includes interchange modifications to decrease weaving sections on a freeway and intersection modifications such as adding dedicated turn lanes and realigning intersection streets,
- Roadway Rehabilitation: includes improving the roadway surface through filling potholes, resurfacing, or stabilizing the roadway structure
- Bicycle Facilities: addition of bicycle lanes, protected or buffered bicycle lanes, multi-use paths, and bicycle racks and lockers
- Pedestrian Facilities: includes improving sidewalks, adding countdown and/or audible signals and crosswalks

Advanced Transportation Systems are new strategies and technologies for the region including:

- Premium Transit: such as enhanced bus (Primo), Bus Rapid Transit (BRT), and Light Rail Transit (LRT)
- Managed Lanes: includes High Occupancy Vehicle lanes, express lanes or other special lanes
- Passenger Rail Service: between regional hubs such as San Antonio and Austin
- High Speed Rail: TxDOT completed the first phase of a Texas-Oklahoma Passenger Rail Study in 2017 and found high speed passenger rail between San Antonio and Dallas-Fort Worth feasible. The next step would be a project-level environmental study.

Operational Management includes techniques to optimize capacity and improve safety and reliability of the roadway system. Operational Management includes the following:

- Connected and Automated Vehicle (CAV) technology
- Incident Management: clearing incidents, crashes and major events to allow traffic flow to resume
- Access Management: limiting the number and placement of access points such as driveways on major roads; also includes the use of roadway medians and turning restrictions to improve safety and traffic flow
- Signalization & Traffic Flow Improvements: optimizing traffic signals, adding turn lanes or making lanes reversible to improve efficiency (to include the Superstreet concept)
- Railroad Crossing Improvements: installing gates and warning signals at railroad crossings or closing some at-grade (surface street) crossings to improve safety
- Construction Coordination: coordinating construction with other known projects in an area and scheduling the work during non-rush hour periods; inform the public and improve signage for safer travel
- Freight Management: monitoring freight travel patterns and identifying preferred truck routes or truck lanes.

The aim of **Travel Demand Management Campaigns** is to reduce automobile use and congestion. The MPO's "Alamo Commutes" and Walkable Community Programs educate employers and community members about these efforts:

- Rideshare Program: includes informal and employer sponsored carpool and vanpool programs
- Flexible Work Hours: includes staggered schedules, flexible hours and compressed work weeks that allow employees to arrive and leave work outside the traditional rush hour
- Guaranteed Ride Home Program: assures commuters who take alternative transportation a ride home in the event of a medical or family emergency
- Telecommuting: working full or part time at home, at a satellite or branch facility
- Walkable Community Program: the MPO hosts Walkable Community Workshops to help identify challenges and barriers to walking and identify potential improvements to help make walking a safer, more attractive option for people.

Public Transportation Improvements include the following activities:

- Transit Service Enhancements: includes expanding service areas, adding new transit routes, improving service frequency on existing routes, extending routes to serve more areas, expanding hours of service, and better timing to allow for faster transfers
- Transit Facilities: improving amenities such as adding benches, passenger shelters, and real time bus arrival information; also includes enhancing and constructing passenger facilities such as transfer centers, park & rides, or multi-modal terminals
- Ridership Incentives: includes programs to encourage transit use such as reduced fares, monthly passes and employer subsidies for the passes

Table X.X matches up strategies to the relevant corridor scoring categories introduced on p. XX. For example, “advanced traffic management” is one of the identified Intelligent Transportation Systems strategies to reduce congestion through:

- Sharing real-time travel information of alternative paralleling routes (Alternative Route Infrastructure);
- Managing access to a highway through ramp metering (System Demand); and
- Notifying the public about a crash ahead in time to take an alternative route (System Reliability)

to name a few ways. But, “advanced traffic management” will not be the strategy that improves congestion by expanding Modal Options along a corridor. “Advanced public transit systems”, though, can mitigate congestion by making public transportation more attractive to roadway users (Modal Options), decreasing the demand of roadway space by SOV drivers (System Demand).

Table 5: Strategies for Managing Congestion

Strategy type	Strategy	CMP Corridor Scoring Category			
		Alternative Route Infrastructure	Modal Options	System Demand	System Reliability
Intelligent Transportation Systems	Advanced traffic management	■		■	■
	Advanced public transit systems		■	■	■
	Emergency management	■		■	■
Policy Management	Land use		■	■	
	Preservation of green infrastructure		■		
	Parking management		■	■	■
	Preserve neighborhood aesthetic		■		
	Transit-Oriented Development (TOD)		■	■	
Corridor Improvements	Capacity improvements	■		■	■
	Congestion relief corridors	■		■	■
	Bottleneck removal	■		■	■
	Roadway rehabilitation				■
	Bicycle and pedestrian facilities		■	■	
	Pedestrian facilities		■	■	
Advanced Transportation Systems	Premium transit		■	■	■
	Managed lanes		■	■	■

Strategy type	Strategy	CMP Corridor Scoring Category			
		Alternative Route Infrastructure	Modal Options	System Demand	System Reliability
Advanced Transportation Systems (cont…)	Passenger rail service				
	High speed rail				
	Active parking management				
Operational Management	Connected and Automated Vehicle (CAV) technology				
	Incident management system				
	Access management				
	Signalization and traffic flow improvements				
	Railroad crossing improvements				
	Construction coordination				
	Freight management				
Travel Demand Management Campaigns	Rideshare program				
	Flexible work hours				
	Telecommuting				
	Guaranteed ride home				
	Walkable Community Program				
Public Transportation	Transit service enhancements				

Strategy type	Strategy	CMP Corridor Scoring Category			
		Alternative Route Infrastructure	Modal Options	System Demand	System Reliability
Improvements	Transit facilities				
	Transit ridership incentives				

Strategy Implementation

As the Transportation Improvement Program (TIP) and Metropolitan Transportation Plan are updated, CMP objectives and performance measures become part of the technical scoring process used to prioritize and select projects in those short- and long-range plans. CMP corridor scoring criteria does not replace the existing TIP and MTP project selection process used by AAMPO. It offers an additional tool for decision-making by the Technical Advisory Committee and Transportation Policy Board.

To enact these strategies, AAMPO relies on the actions of our transportation partners such as the Alamo Area Council of Governments, Alamo Regional Mobility Authority, cities and counties throughout the region, TxDOT and VIA Metropolitan Transit/Advanced Transportation District. During project planning and design, project sponsors can select appropriate strategies for addressing local congestion issues on the CMP network.

Evaluating Strategy Effectiveness

Strategies are generally evaluated for their potential and actual success through staff-level technical analysis. New mobility data from the National Performance Management Research Data Set (NPMRDS) allows AAMPO to study current and historic speeds on hundreds of roadway segments within the study area using user-generated travel data. For operational and infrastructure projects on roadways included in the NPMRDS, AAMPO can now prepare before-and-after effects of the investment.

Because projects are built or coordinated by agencies other than the MPO, it is critical that AAMPO make robust use of our own committees and those of our partner agencies to relay the effectiveness of strategies and to maintain consistency between planned/programmed projects and the CMP.

Over time, AAMPO's online dashboard at www.alamoareampo.org/TPM and Performance Report chapter of the Metropolitan Transportation Plan will be a valuable tool for tracking performance toward reaching CMP goals.

Federal Requirements

§ 450.322 Congestion management process in transportation management areas.

(a) The transportation planning process in a TMA shall address congestion management through a process that provides for safe and effective integrated management and operation of the multimodal transportation system, based on a cooperatively developed and implemented metropolitan-wide strategy, of new and existing transportation facilities eligible for funding under title 23 U.S.C. and title 49 U.S.C. Chapter 53 through the use of travel demand reduction (including intercity bus operators, employer-based commuting programs such as a carpool program, vanpool program, transit benefit program, parking cash-out program, shuttle program, or telework program), job access projects, and operational management strategies.

(b) The development of a congestion management process should result in multimodal system performance measures and strategies that can be reflected in the metropolitan transportation plan and the TIP.

(c) The level of system performance deemed acceptable by State and local transportation officials may vary by type of transportation facility, geographic location (metropolitan area or subarea), and/or time of day. In addition, consideration should be given to strategies that manage demand, reduce single occupant vehicle (SOV) travel, improve transportation system management and operations, and improve efficient service integration within and across modes, including highway, transit, passenger and freight rail operations, and non-motorized transport. Where the addition of general purpose lanes is determined to be an appropriate congestion management strategy, explicit consideration is to be given to the incorporation of appropriate features into the SOV project to facilitate future demand management strategies and operational improvements that will maintain the functional integrity and safety of those lanes.

(d) The congestion management process shall be developed, established, and implemented as part of the metropolitan transportation planning process that includes coordination with transportation system management and operations activities. The congestion management process shall include:

> (1) Methods to monitor and evaluate the performance of the multimodal transportation system, identify the underlying causes of recurring and non-recurring congestion, identify and evaluate alternative strategies, provide information supporting the implementation of actions, and evaluate the effectiveness of implemented actions;
>
> (2) Definition of congestion management objectives and appropriate performance measures to assess the extent of congestion and support the evaluation of the effectiveness of congestion reduction and mobility enhancement strategies for the

movement of people and goods. Since levels of acceptable system performance may vary among local communities, performance measures should be tailored to the specific needs of the area and established cooperatively by the State(s), affected MPO(s), and local officials in consultation with the operators of major modes of transportation in the coverage area, including providers of public transportation;

(3) Establishment of a coordinated program for data collection and system performance monitoring to define the extent and duration of congestion, to contribute in determining the causes of congestion, and evaluate the efficiency and effectiveness of implemented actions. To the extent possible, this data collection program should be coordinated with existing data sources (including archived operational/ITS data) and coordinated with operations managers in the metropolitan area;

(4) Identification and evaluation of the anticipated performance and expected benefits of appropriate congestion management strategies that will contribute to the more effective use and improved safety of existing and future transportation systems based on the established performance measures. The following categories of strategies, or combinations of strategies, are some examples of what should be appropriately considered for each area:

(i) Demand management measures, including growth management, and congestion pricing;

(ii) Traffic operational improvements;

(iii) Public transportation improvements;

(iv) ITS technologies as related to the regional ITS architecture; and

(v) Where necessary, additional system capacity.

(5) Identification of an implementation schedule, implementation responsibilities, and possible funding sources for each strategy (or combination of strategies) proposed for implementation; and

(6) Implementation of a process for periodic assessment of the effectiveness of implemented strategies, in terms of the area's established performance measures. The results of this evaluation shall be provided to decision makers and the public to provide guidance on selection of effective strategies for future implementation.

(e) In a TMA designated as nonattainment area for ozone or carbon monoxide pursuant to the Clean Air Act, Federal funds may not be programmed for any project that will result in a significant increase in the carrying capacity for SOVs (i.e., a new general purpose highway on a

new location or adding general purpose lanes, with the exception of safety improvements or the elimination of bottlenecks), unless the project is addressed through a congestion management process meeting the requirements of this section.

(f) In TMAs designated as nonattainment for ozone or carbon monoxide, the congestion management process shall provide an appropriate analysis of reasonable (including multimodal) travel demand reduction and operational management strategies for the corridor in which a project that will result in a significant increase in capacity for SOVs (as described in paragraph (d) of this section) is proposed to be advanced with Federal funds. If the analysis demonstrates that travel demand reduction and operational management strategies cannot fully satisfy the need for additional capacity in the corridor and additional SOV capacity is warranted, then the congestion management process shall identify all reasonable strategies to manage the SOV facility safely and effectively (or to facilitate its management in the future). Other travel demand reduction and operational management strategies appropriate for the corridor, but not appropriate for incorporation into the SOV facility itself, shall also be identified through the congestion management process. All identified reasonable travel demand reduction and operational management strategies shall be incorporated into the SOV project or committed to by the State and MPO for implementation.

(g) State laws, rules, or regulations pertaining to congestion management systems or programs may constitute the congestion management process, if the FHWA and the FTA find that the State laws, rules, or regulations are consistent with, and fulfill the intent of, the purposes of 23 U.S.C. 134 and 49 U.S.C. 5303.

(h) ***Congestion management plan.*** A MPO serving a TMA may develop a plan that includes projects and strategies that will be considered in the TIP of such MPO.

(1) Such plan shall:

(i) Develop regional goals to reduce vehicle miles traveled during peak commuting hours and improve transportation connections between areas with high job concentration and areas with high concentrations of low-income households;

(ii) Identify existing public transportation services, employer based commuter programs, and other existing transportation services that support access to jobs in the region; and

(iii) Identify proposed projects and programs to reduce congestion and increase job access opportunities.

(2) In developing the congestion management plan, an MPO shall consult with employers, private and nonprofit providers of public transportation, transportation

management organizations, and organizations that provide job access reverse commute projects or job-related services to low-income individuals.