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ROADWAY SYSTEM

MOVING PEOPLE
CONNECTING PLACES

The region's roadway system transports people and goods locally and to other parts of the state. Located on two major freight corridors, IH 10 and IH 35, our region is fortunate to have relatively good mobility as compared to other Metropolitan Statistical Areas with comparable populations. However, with another 1.5 million new residents expected by 2045, resiliency and reliability of the roadway system will increase in priority as we work to maintain current levels of congestion and the region's quality of life.

Accomplishments Over the Past Five Years

Since the update of the Metropolitan Transportation Plan (MTP) in December 2014, several roadway-related developments have occurred. With the passage of Proposition 1 and Proposition 7 funding proposals by the State of Texas, more projects have been able to expand the roadway system in this rapidly growing region. Additionally, the 84th Session of the Texas Legislature HB 1 ended diversions from the state's gas tax which resulted in an additional \$620 million/year statewide. Locally, Bexar County was successful in seeking authority from the State to increase the vehicle registration fees by \$10 which has helped them fund multiple projects in Bexar County. The additional local and state funding has resulted in



The TxDOT San Antonio District has constructed and/or started construction of 179 projects in the MPO study area over the past five years.

Source: TxDOT Online Project Tracker

the conversion of most toll lane projects that were previously adopted in the MPO's Plan to non-toll and high occupancy vehicle lanes.

According to TxDOT's Project Tracker, In the past five years, the TxDOT San Antonio District had 179 projects under construction or beginning construction within the MPO study area for a total estimated cost of \$1,544,756,427. Another 140 projects will begin with the next four years for a total estimated cost of \$1,206,590,988.

The San Antonio Mobility Coalition (SAMCo) continues to help with the education and funding processes at the federal, state and local levels.

Roadway System Policies

The pace of population and employment growth in the Alamo Area will continue to put pressure on the capacity of the roadway network. While it is recognized that building the region out of current and future congestion is not possible, adding new lanes and making operational improvements will be part of the comprehensive strategy to improve the transportation system.

Roadway system improvements proposed in the MTP are constrained to the amount of funding available, or those revenues that can be reasonably expected over the 25-year horizon of the MTP. The anticipated revenues fall short of covering all desired roadway projects, so the funded roadway projects included in the MTP address the region's most congested areas. The policies proposed below will assist in developing the best transportation system for the area.

- Support the design, planning, maintenance and operation of a roadway system that is compatible with the needs of other modes such as bicycles, pedestrians, public transportation, and truck and rail freight
- Using performance measures, monitor the functionality of the roadways in the region
- Analyze and display crash information for the roadway system and use this quantitative information and the goals of the State Highway Safety Plan as factors in the project selection process
- Leverage transportation asset management data and methods to make informed, cost-effective program decisions and optimize the use of existing transportation assets
- Use technology such as intelligent transportation systems and signal prioritization to optimize the roadway operations
- Require land developers to preserve the necessary rights-of-way in future travel corridors
- Require private developer contributions in roadway construction in undeveloped areas through the development process
- Ensure a process exists for maintaining roadways through their life cycle

- Support travel demand management techniques that reduce single occupancy vehicle trips and vehicle miles of travel throughout the system, including ride share/car share, parking pricing/policies, land use policies, and employer trip reduction programs
- Support the integrated development and implementation of transportation, land use and economic development plans by ensuring consistent collaboration between local, regional and statewide transportation partners

Roadway Functional Classification

The MTP is primarily concerned with those roadways that will be built or expanded using federal funding sources. These roadways are part of the “functionally classified roadway system.” A functionally classified roadway system allows for urban streets to be grouped by their purpose or function. There are three main functions for urban streets: 1) movement of traffic, 2) distribution or collection of traffic, and 3) provide access to terminal points. Freeways provide maximum movement of vehicles, but allow limited access to the adjacent land use. Arterial streets have lower vehicular capacity and speed, but allow for direct access to surrounding land use. Collector and residential streets primarily provide access to larger facilities, as each class of urban street serves as a collection device for the next lower class of street. The functional classification system is further defined in Table 1.

Functionally classified roadways describe the various levels of vehicular mobility. Using functional class in the transportation planning process ensures that general land use and local development are considered in evaluation of both existing and future transportation needs. Another purpose for using the functional classification system is to help determine which roadways should be included in a regional transportation system.

Table 1 – Functional Classification System Description

FUNCTIONAL CLASS	LEVEL OF MOBILITY	SYSTEM ACCESS	LEVEL OF ACCESSIBILITY
Freeway	Connects all urban subregions together; connects urban and rural service areas with metro major activity centers; connects to other cities.	To other freeways, principal arterials, and selected arterials; no direct land access.	Long trips at high speed within and through the metro area; express transit trips.
Principal Arterial	Connects two or more subregions; provides secondary connections outside cities; complements freeways in high volume corridors.	To freeways, other principal arterials, and high-volume collectors; no direct land access except major traffic generators.	Medium distance to long trips at high to moderate speeds within the urban area; express transit trips.
Arterial	Connects adjacent subregions and activity	To freeways, principal arterials, other	Medium to short trips at moderate to low

FUNCTIONAL CLASS	LEVEL OF MOBILITY	SYSTEM ACCESS	LEVEL OF ACCESSIBILITY
	centers within subregions.	arterials, and collectors; restricted direct land access.	speeds; local transit trips.
Collector	Connects neighborhoods within and between subregions.	To arterial, other collectors, and local streets; direct land access.	Primarily serves collection and distribution function for the arterial system at low speeds; local transit trips.
Local	Connects blocks within neighborhoods and specific activities within homogeneous land use areas.	To collectors and other local streets; direct land access.	Almost exclusively collection and distribution; short trips at low speeds.



Major Thoroughfare Plans

The area’s Major Thoroughfare Plans are composed primarily of principal and major arterial streets and provides the necessary transportation support and access to and from local land uses. Since many major expressway corridors are constrained from acquiring additional right-of-way, much of the additional out-year demand will likely have to be accommodated through a better connected and more efficient arterial street system. Many of the major and minor arterials are expected to be constructed by developers interested in expanding commercial and residential development outside of built portions of the cities within the MPO study area.

To help local partners plan for this and think about regional connections, the MPO commissioned the Regional Thoroughfare Plan Study. The purpose of the study was to review existing major thoroughfare plans to identify differences between plans in the MPO study area, determine constraints that impact the constructability of proposed thoroughfares, perform a needs study that used both capacity and connectivity criteria to identify areas in the region that should be the focus of further study, and develop a “bridge” to understand how individual jurisdictions’ existing classification system align with the regional system.

Local jurisdictions were involved in this process and were given the tools they need to revise their major thoroughfare plans if deemed necessary.

Comal and Kendall Counties are two of the fastest growing counties in the country. Further, most of their growth is a result of domestic migration and as a result more impactful to their roadway networks that were built for rural traffic.

Regionally Significant Roadway Network

In anticipation of a nonattainment designation for ozone, the MPO began work in January 2016 to develop a definition for “regionally significant projects.” Over a series of discussions and presentations to the region’s Technical Advisory Committee and was ultimately approved by the MPO Transportation Policy Board on _____. The MPO’s adopted, regionally significant roadway definition is as follows:

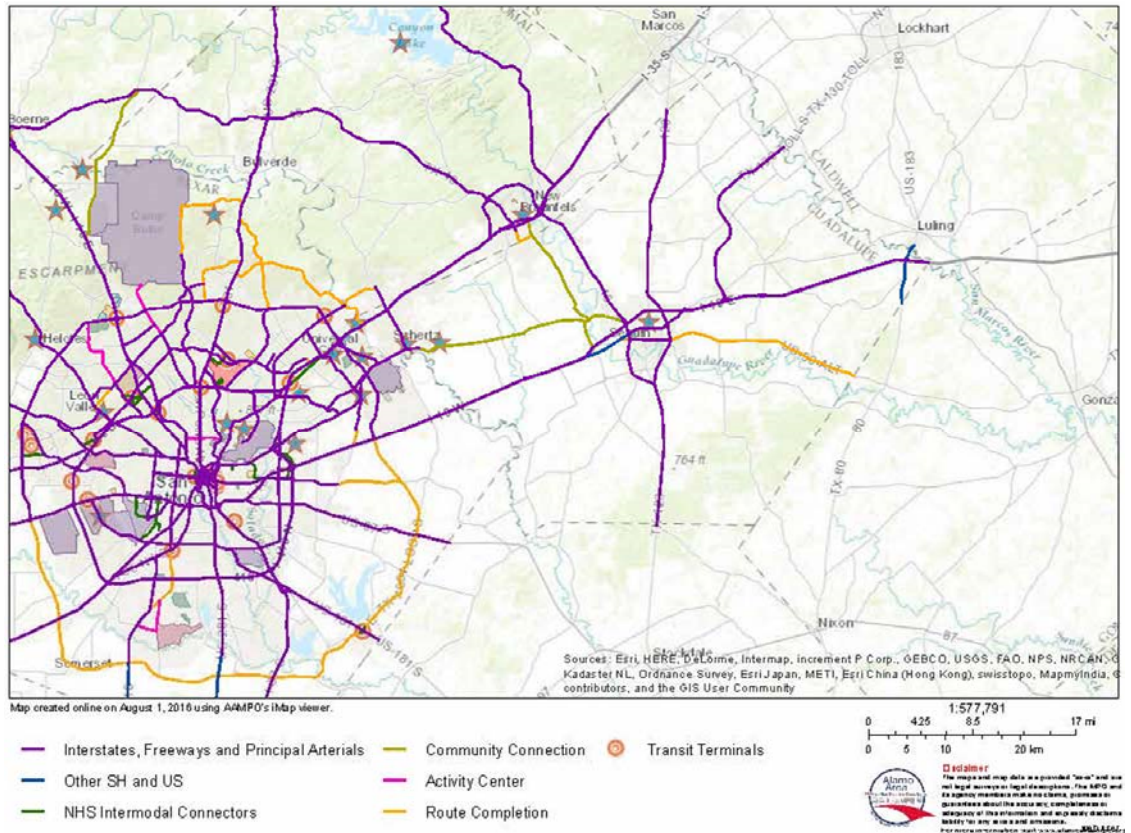
- Those facilities federally functionally classified as interstate freeways, other freeways or expressways
- Those facilities federally functionally classified as principal arterials
- Roadways and intermodal connectors included in the federally adopted National Highway System
- Roads designated as SH 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
- Roadways 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

While not mapped because none currently exist, the AAMPO’s regionally Significant Roadways definition also includes the following:

- Fixed guideway transit facilities that offer an alternative to regional highway travel
- Tollways
- Grade-separated interchange projects on Regionally Significant Roadways where no access existed previously

The regionally Significant Roadways system is shown in Figure 1. These roadways are serving the region’s transportation needs by providing access to major activity centers and employers that include military bases, Brooks, Port San Antonio, Toyota, major shopping malls, the South Texas Medical Center, colleges and universities and communities of 5,000 or more in population.

Figure 1 – Regionally Significant Roadway Network



Base Year and Future Year Roadway Systems

The future year (2045) roadway system was developed using an extensive technical and financial analysis and public input. Agencies' priorities and projected transportation usage were evaluated to develop a network of the future year highway and street system. The number of lane miles, vehicle miles of travel, vehicle hours of travel, and average speeds for facility types are summarized in Table 2Table 4.

Table 2 – Comparison of Vehicle Miles of Travel by Facility Type

FACILITY TYPE	2015	% OF TOTAL	2025	% OF TOTAL	2045	% OF TOTAL
Radial Interstate						
Loop Interstate						
Tolled Radial Interstate Main Lanes						
Tolled Interstate Loop Main Lanes						
Radial Freeway						
Loop Freeway						
Tolled Radial Main Lanes						
Tolled Loop Main Lanes						
Radial Expressway						
Loop Expressway						
Principal Arterial Divided						
Principal Arterial with Center Left Turn Lane						
Principal Arterial Undivided						
Minor Arterial Divided						
Minor Arterial with Center left Turn Lane						
Minor Arterial Undivided						
Collector Divided						
Collector with Center Left Turn Lane						
Collector Undivided						
Frontage Roads						
Ramps Main Lanes to Frontage Roads						
Ramps Main Lanes to Main Lanes						
Tolled Ramps						
Totals						

Table 3 – Comparison of Vehicle Hours by Facility Type

FACILITY TYPE	2015	% OF TOTAL	2025	% OF TOTAL	2045	% OF TOTAL
Radial Interstate						
Loop Interstate						
Tolled Radial Interstate Main Lanes						
Tolled Interstate Loop Main Lanes						
Radial Freeway						
Loop Freeway						
Tolled Radial Main Lanes						
Tolled Loop Main Lanes						
Radial Expressway						
Loop Expressway						
Principal Arterial Divided						
Principal Arterial with Center Left Turn Lane						
Principal Arterial Undivided						
Minor Arterial Divided						
Minor Arterial with Center left Turn Lane						
Minor Arterial Undivided						
Collector Divided						
Collector with Center Left Turn Lane						
Collector Undivided						
Frontage Roads						
Ramps Main Lanes to Frontage Roads						
Ramps Main Lanes to Main Lanes						
Tolled Ramps						
Totals						

Table 4 – Comparison of Average Daily & Congested Speed by Facility Type

FACILITY TYPE	2015	% OF TOTAL	2025	% OF TOTAL	2045	% OF TOTAL
Radial Interstate						
Loop Interstate						
Tolled Radial Interstate Main Lanes						
Tolled Interstate Loop Main Lanes						
Radial Freeway						
Loop Freeway						
Tolled Radial Main Lanes						
Tolled Loop Main Lanes						
Radial Expressway						
Loop Expressway						
Principal Arterial Divided						
Principal Arterial with Center Left Turn Lane						
Principal Arterial Undivided						
Minor Arterial Divided						
Minor Arterial with Center left Turn Lane						
Minor Arterial Undivided						
Collector Divided						
Collector with Center Left Turn Lane						
Collector Undivided						
Frontage Roads						
Ramps Main Lanes to Frontage Roads						
Ramps Main Lanes to Main Lanes						
Tolled Ramps						
Totals						

Regional Toll Analysis

Mobility 2040 outlined a robust toll lane system, requiring the MPO to conduct a Regional Toll Analysis to ensure the toll lane system did not cause an adverse impact to traditionally disadvantaged residents. With the availability of new funding sources, all previous toll lanes have been converted to managed (non-toll) lanes in Mobility 2045 with the exception of Cibolo Parkway (planned) and SH 130 (operating). Since these two facilities do not intersect, creating a system, the MPO is not required to conduct a new Regional Toll Analysis.

Conclusions

Despite the significant investment in roadway projects and policies over the past three years, congestion on the region's roadways is expected to increase in the future. The roadway projects outlined in the funded project list begin to mitigate the expected growth in congestion. However, to accommodate the higher burden that will be placed on the transportation system, not just expansion of the roadways, but operational improvements (such as signal re-timings and intersection modifications) and enhancements to the transit, bicycle and pedestrian systems must occur. This includes exploring new and emerging technologies for their potential to help the existing roadway system run more efficiently and reliably.

Other potential improvements to relieve congestion and improve quality of life are documented in Chapter 10 Congestion Management Process.