

Introduction

The Capital Area Metropolitan Planning Organization (CAMPO) is the Metropolitan Transportation Planning Organization (MPO) for the greater Austin area in Central Texas and includes Bastrop, Burnet, Caldwell, Hays, Travis, and Williamson Counties. The Capital Area Region is home to over two million people and a robust economy that includes many corporate and regional headquarters. It also includes countless environmental, recreational, and entertainment amenities that contribute to the region’s quality of life. Integral to preserving the high quality of life in the Capital Area is the process of planning for the regional transportation system to better serve current and future demand.

Reserve for graphics

The Regional Transportation Plan (RTP) is a document that is adopted by the CAMPO Transportation Policy Board (TPB) every five years and forecasts the region’s needs for at least 20 years into the future. The plan is required to be multimodal, meaning it incorporates a variety of transportation modes – not only roads and highways, but also transit, walking, and biking. The plans and studies that CAMPO regularly undertakes inform the recommendations of the RTP.

Legislative Mandates

The historical framework for metropolitan transportation planning was developed from multiple federal transportation acts beginning in the 1970s. Each act has requirements that advanced the formation and adoption of metropolitan transportation plans as primary tools for the improvement and efficiency of regional transportation systems for people, goods, and freight. Specifically, the Moving Ahead for Progress in the 21st Century Act, or MAP-21, which was adopted in 2012, outlines requirements for a performance-based approach to planning that metropolitan plans can explicitly define. The Fixing America's Surface Transportation Act, or FAST Act, which was adopted in 2015, went further by requiring planning for regional and interurban transportation and development with a focus on multimodal options. At the state level, House Bill 20 requires performance-based transportation planning and programming that is used by the Texas Department of Transportation (TxDOT) to evaluate projects and programs in long range plans and by metropolitan planning organizations in the state to develop ten-year plans. The Regional Transportation Plan is one of the primary tools for implementing the federal and state transportation planning requirements while also reflecting local goals and priorities.

The purpose of the RTP is to coordinate regional transportation planning activities, prioritize a comprehensive list of projects, activities and programs, and develop a fiscal constraint analysis that estimates the region’s capacity to fund projects in the Plan. The effort is a periodic, goals-based, regional discussion of transportation alternatives in the context of growth. The recommended project list is one scenario for development of the transportation network and is used to align project development for regionally significant transportation infrastructure and programs. The 2045 RTP is based on current trends, development patterns and growth rates.

2045 Regional Transportation Plan Goals and Objectives

Goals	Objectives
Safety	A. Crash Reduction – Reduce severity and number of crashes for all modes.
	B. Vision Zero – Support local government and transit agencies reaching vision zero metrics.
Mobility	C. Connectivity – Reduce network gaps to add connectivity, eliminate bottlenecks, and enhance seamless use across all modes.
	D. Reliability – Improve the reliability of the transportation network through improved incident management, intelligent transportation systems (ITS), transportation demand management (TDM).
	E. Travel Choices – Offer time-competitive, accessible and integrated transportation options across the region.
	F. Implementation – Plan and deliver networks for all transportation modes, with reduced project delivery delays.
	G. Regional Coordination – Continue interagency collaboration between transportation planning, implementation, and development entities.
Stewardship	H. System Preservation – Use operations, ITS, and optimization techniques to expand the useful lifecycle of the multimodal system elements.
	I. Fiscal Constraint – Strategically prioritize fiscally constrained investments to maximize benefits to the region.
	J. Public Health – Improve public health outcomes through air and water quality protection and active mobility.
Economy	K. Natural Environment – Develop transportation designs that avoid, minimizes and mitigates negative impacts to water and air quality, as well as habitat.
	L. Economic Development – Enhance economic development potential by increasing opportunities to live, work, and play in proximity.
Equity	M. Value of Time – Enable mode choice and system management to keep people and goods moving and reduce lost hours of productivity.
	N. Access to Opportunity – Develop a multimodal transportation system that allows all, including vulnerable populations, to access employment, education and services.
	O. Impact on Human Environment – Promote transportation investments that have positive impacts and avoid, minimize, and mitigate negative impacts to vulnerable populations.
Innovation	P. Valuing Communities – Align system functionality with evolving character and design that is respectful to the community and environment for current and future generations.
	Q. Technology – Leverage technological advances to increase efficiency of travel across all modes and for users of the network.
	R. Flexibility – Develop a system that is adaptable and flexible to changing needs and conditions.

Most of the above draft 2045 **RTP** goals and objectives were based on previously adopted or in-draft CAMPO regional plans as seen in the list to the right. Any newly developed draft objectives not found in an existing CAMPO study are highlighted in gray.

Source:
Regional Active Transportation Plan (RATP)
Regional Incident Management Plan (RIMP)
Regional Arterials Concept Inventory (RACI)
Regional TDM Plan (TDMP)
New

Chapter 1: Existing and Baseline Conditions

Population, development patterns, mode choices, and inter-regional connections are all variables in understanding transportation system and their interrelation. The planning process represents a continuation of planning discussion, beginning with an evaluation of existing conditions and understanding of baseline trends.

A Booming Region

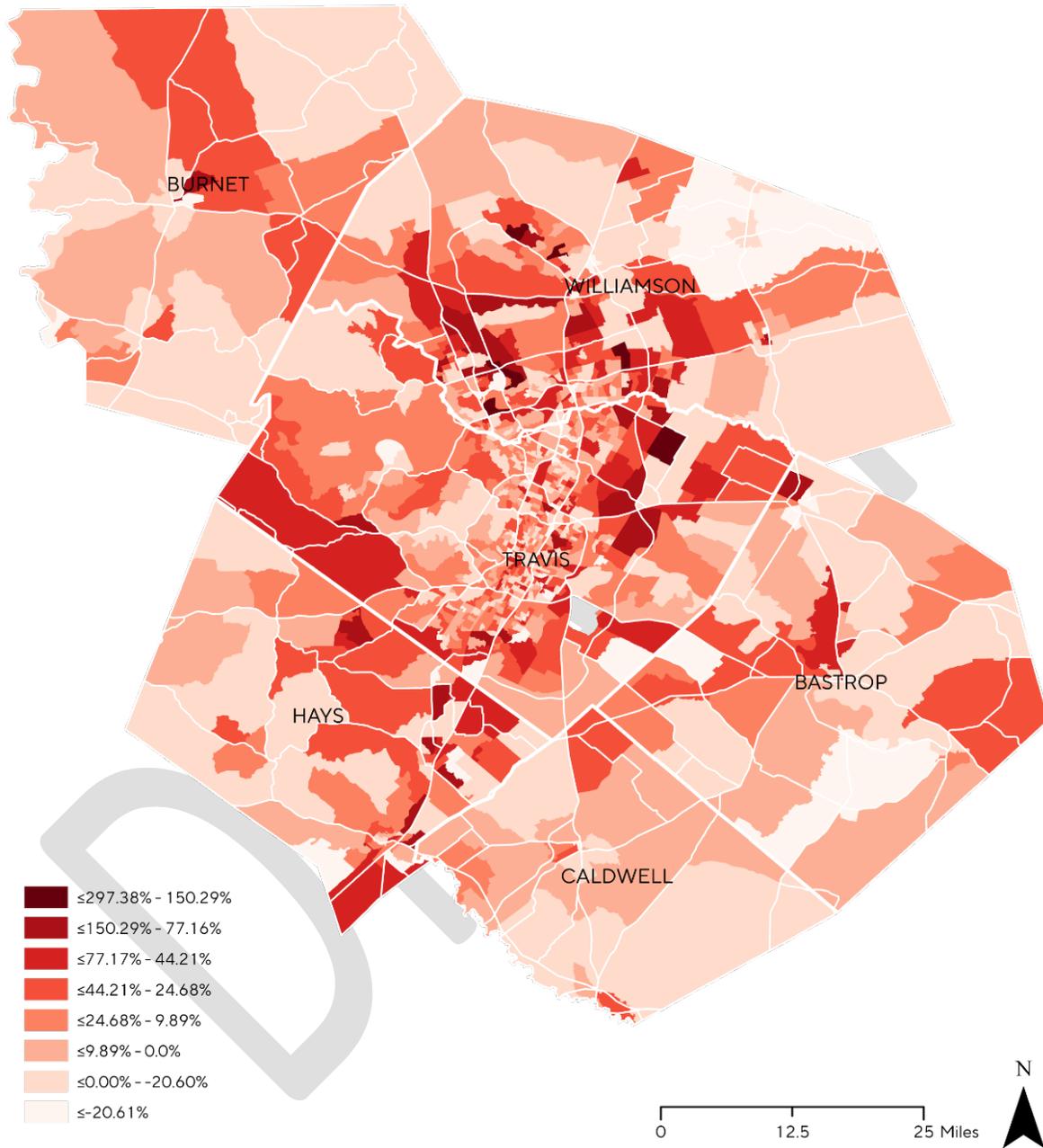
Like other Texas metropolitan areas, the story of CAMPO’s six county transportation network centers on rapid growth. Since 1990, the region’s population has more than doubled with a current estimate of just over 2 million people today. Although it is evident that the Capital Area has seen unprecedented growth, the composition of the region is also vastly different today than it was three decades ago. As each county has grown, some have grown faster than others making each county’s proportion of the whole different over time. As of 2015, Travis County remains the largest county by population with Caldwell County as the smallest.



Pflugerville: 1984 vs. 2019

County	1990	% of Region	2010	% of Region	2015	% of Region
Bastrop	38,263	4%	74,202	4%	75,423	4%
Burnet	22,677	3%	42,750	2%	43,726	2%
Caldwell	26,392	3%	30,057	2%	35,636	2%
Hays	65,614	8%	157,099	9%	172,419	9%
Travis	576,407	66%	1,024,462	59%	1,098,745	58%
Williamson	139,551	16%	422,501	24%	471,403	24%
Total Population	868,904		1,751,071		1,897,352	

Population Rate Change (2010-2017)



2045 Population Forecast

The plan includes an update to the long-range development projections of population and employment growth for the region. The demographic forecast developed by CAMPO, in partnership with local governments, forecasts that the Capital Area will continue growing, more than doubling in population to

County	2015	2045	% Change
Bastrop	75,423	265,000	252%
Burnet	43,726	94,000	116%
Caldwell	35,636	104,000	191%
Hays	172,419	633,000	267%
Travis	1,098,745	2,197,000	100%
Williamson	471,403	1,377,000	192%
Total	1,897,352	4,670,000	146%

Perspective on Growth:

The Capital Area's forecasted population estimate of around 4.7 million people is roughly the size of current day Metropolitan Phoenix.

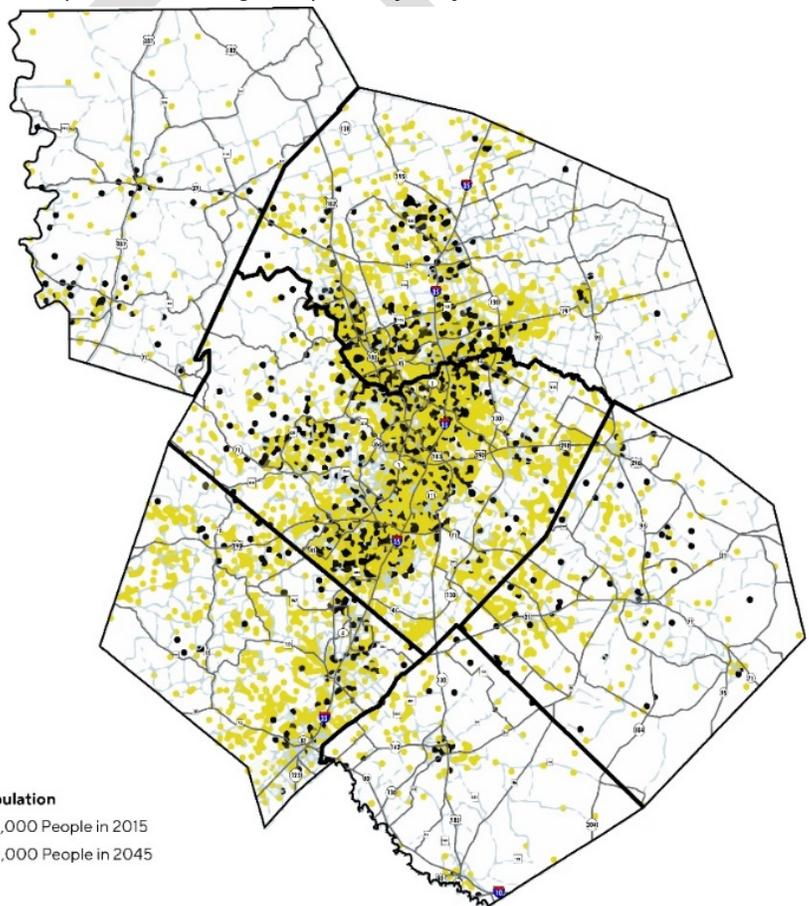
around 4.7 million residents by 2045. Travis County is expected to remain

the most populous county with a projected population of over 2 million people. The surrounding counties are expected to see higher population percent change, especially Hays, Williamson, and Bastrop Counties as they evolve from contributing communities to more developed, balanced economic communities on their own. Regional transportation plays a role in this growth pattern – as residents and businesses choose to locate based on access to jobs, housing, schools and services and costs. As referenced from public input all over the region – limits on time-access to these opportunities drive day-to-day, personal transportation choices.

As seen in **Table XX**, the population distribution of the CAMPO region is changing. Hays and Williamson Counties have continued to take up a larger share of the local population since 1990. Projections show that by 2045, Hays and Williamson Counties will be home to 38% of the region's residents, an increase of 14% since 1990. Bastrop County is also expected to grow to 6% of the regional

population while Travis County will continue growing but see its share of the region's population decrease by 2045. This maturing distribution of people will impact the function of transportation in the region, which indicates the need for innovative solutions to handle area-wide growth and related mobility challenges.

Figure XX shows the distribution of forecasted population growth between 2015 and 2045. The pattern illustrates that current suburban and exurban areas are expected to experience the largest increases in population growth.



2045 Employment Forecast

The six-county region continues to experience strong, continuous growth as an attractive place for people to live and businesses to grow. The regional economy has historically grown in correlation with the population and current projections forecast this to continue through the planning horizon. Forecasters from multiple sources referenced in the CAMPO projections anticipate the Capital Area’s economy will continue to expand through 2045 with employment growing 124% across the entire region. Travis County will retain most of the employment in the area with Williamson, Bastrop, and Hays Counties slated to dramatically increase their share of employment for the region as the Austin CBD reaches maturity. Burnet, Caldwell, and Williamson Counties will see a sizeable increase in employment, keeping pace with the population increase.

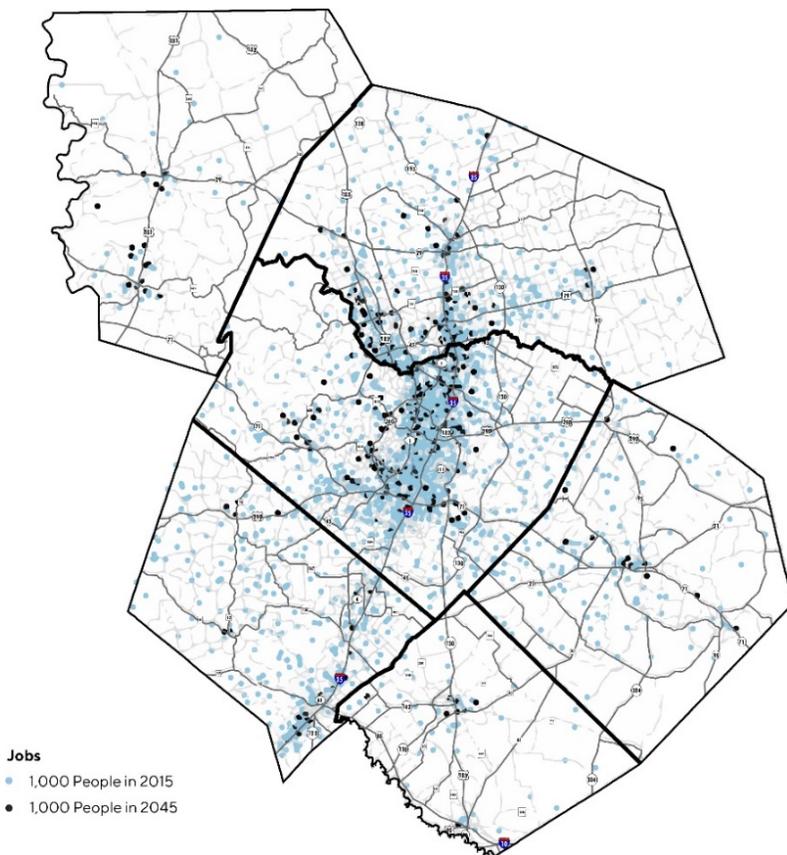


Figure XX shows the distribution of forecast employment growth between 2015 and 2045. Like the population density map, the employment pattern illustrates that suburban and exurban areas will experience the largest increase in employment growth. Much of the growth is expected to continue to be distributed across the region along major highway corridors like IH-35, US 290, FM 734 and SH 71. Growth in employment and services is expected to generate a sizeable increase in travel demand in the region. Not only does this mean more people trying to access jobs, but it also means a greater demand for freight, shippers, and delivery trips to serve the Capital Area’s growing industries.

County	2015	2045	% Change
Bastrop	32,346	134,000	315%
Burnet	18,603	37,000	100%
Caldwell	16,692	51,000	203%
Hays	87,243	299,000	243%
Travis	601,160	1,199,000	99%
Williamson	233,484	647,000	177%
Total Employment	989,528	2,367,000	139%

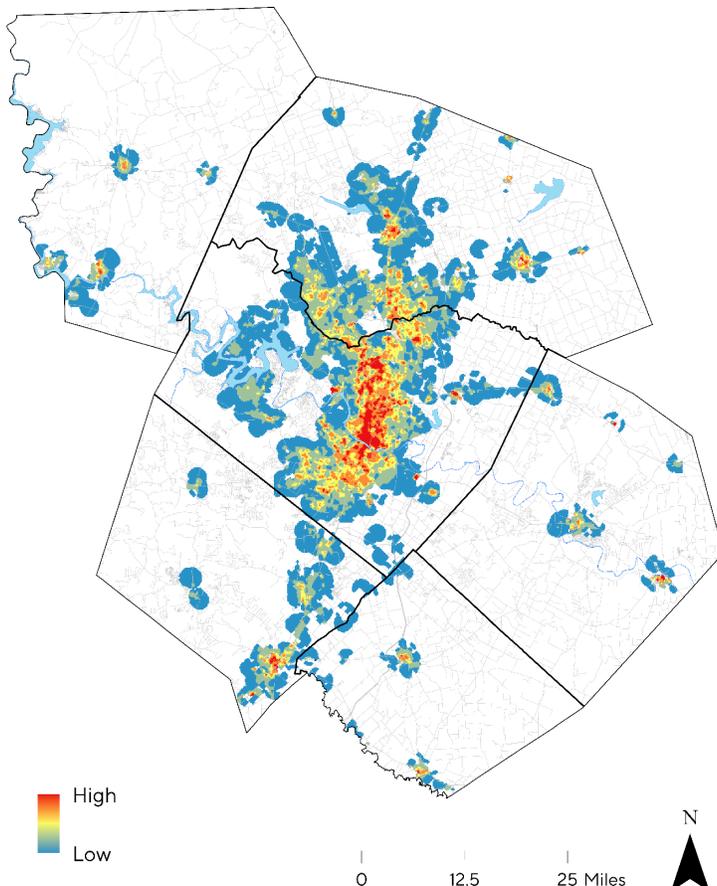
Regional Activity Centers Analysis

Part of the analysis for the 2045 RTP was to evaluate regional activity centers and how they impact the overall transportation system. This analysis overlaid population densities, employment densities, and street intersection densities to show areas that attract people to shop, work, and socialize. These centers tend to generate high demands for transportation, which has the potential to maximize the utility of transportation investments. Many regions were traditionally developed in a monocentric pattern where dense activity, specifically employment, is concentrated in the downtown core and surrounded by rings of residential areas. However, with the development of extensive road and highway networks, cities have tended to become more “polycentric” with multiple activity hubs that are developed along corridors. The Capital Area is not immune to this trend, as although downtown Austin still has a plurality of employment, areas such as the Domain, the US183 North/Parmer Corridor, and other suburban centers show rapid growth in future employment.

The Centers Analysis Map highlights the transportation/land-use connection by showing a stratification of activity centers and corridors. CAMPO’s analysis found that there are five classifications of activities and that higher levels of activity are not located solely in the urban core of Austin, but also in suburbs, smaller towns, and along major corridors. An area with higher combination of the elements can better capitalize on more diverse investments to help round out alternatives and make more efficient use of transportation corridors, where an area with a less intense activity level may seek to cover their basic mobility and transportation connectivity options as a local priority.

Centers Analysis

Jobs, Population, and Street Intersection Density



Some examples of Activity Centers and Corridors are:

Blue (Low)

- Rural areas like Wimberley and Mustang Ridge
- Austin Bergstrom International Airport

Green

- Small-medium sized towns like Bastrop and Taylor
- Suburban development like Cedar Park and Bee Cave

Yellow (Medium)

- Residential development like Montopolis, south Austin and Round Rock

Orange

- Historic downtowns like Luling and Georgetown
- Dense suburban development like in Round Rock (SH 45 and IH-35)

Red (High)

- Central Austin (CBD, State Complex, and UT-Austin)
- Downtown San Marcos

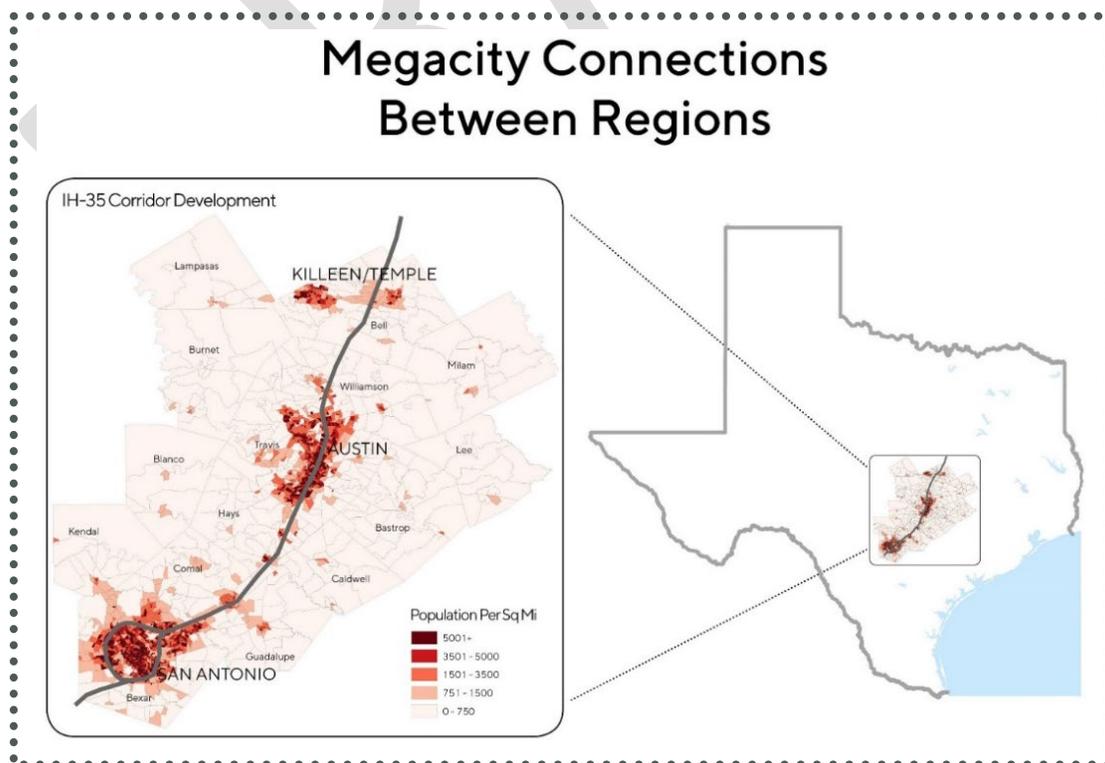
The Central Texas Megacity

When discussing developmental patterns and forecasted population growth, it's also important to understand how our region fits in with neighboring regions. By 2045, the Capital Area is projected to have almost 4.7 million residents, the San Antonio region is projected to have a population of 3.7 million, and the Killeen-Temple region will have over 500,000 inhabitants. Combining the three regions along the IH-35 corridor in Central Texas brings the population to roughly 9.5 million, comparable to modern day Metro Chicago, and will begin to resemble a megacity. The signs of a megacity are already apparent as people relocate to more affordable areas and commute longer distances between the regions. This growth and development permeating from the core urban areas will have serious implications for regional transportation systems, especially as flows of people become between these areas become more frequent. The recently completed Alamo-Capital Area Connections Study developed by TxDOT in partnership with the Alamo and Capital Area MPOs' showed that although there are high-levels of trips between the two areas, a vast majority of the trips are not travelling to/from the Downtown Cores of the areas, but were largely trips heading from suburban and satellite communities on the edge of each region, such as from San Marcos to the Loop 1604 Corridor or Kyle/Buda to the Ben White Corridor. These findings validate the decentralizing and suburbanization of services employment.

CAMPO has prioritized the coordination of transportation planning with the Alamo Area MPO and the Killeen-Temple MPO to create a more multimodal, equitable, sustainable, and fiscally responsible transportation system.

The Megacity: Collectively in 2045, the forecasted population of the Capital Area, Alamo Area, and Killeen-Temple regions will rival the population (roughly 9.5 M) and geographic length (roughly 160 mi.) of today's Chicagoland Metro.

Megacity Connections Between Regions



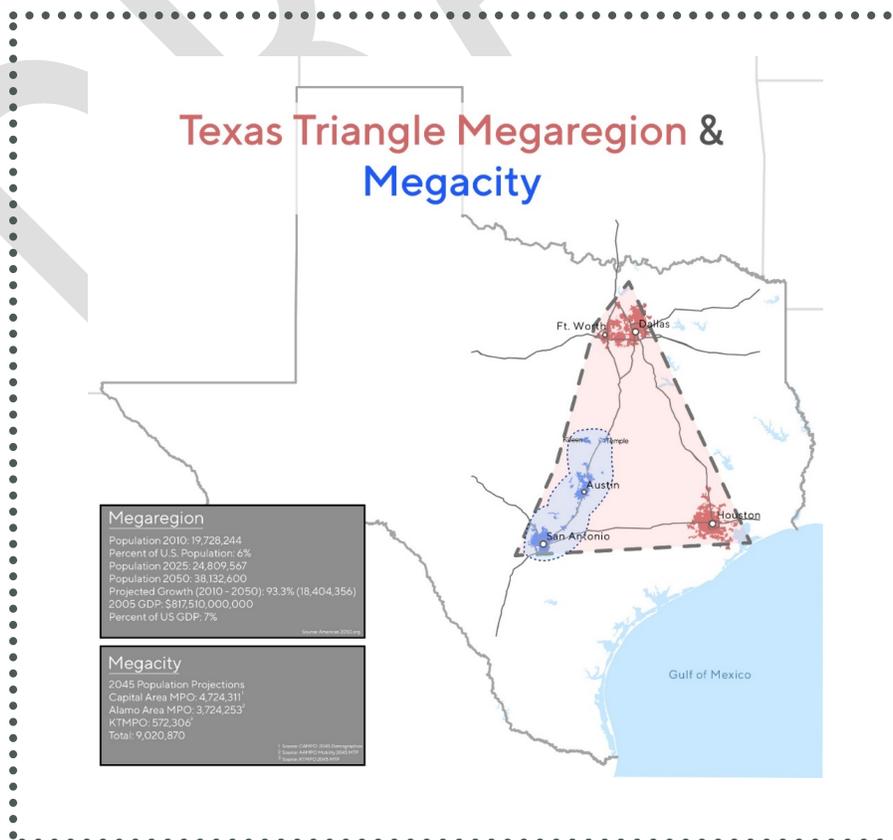
Planning for 9.5 million people

Recognizing the Capital Area's rapid growth is not isolated but merging with two adjacent regions, MPO staff has worked closely with the MPO's in the Killeen-Temple and San Antonio areas to ensure recommendations and analysis from the 2045 Regional Active Transportation Plan and Regional Arterials Concept Inventory is complimentary and compatible with their area plans.

Mega-Region (The Texas Triangle)

Beyond the Central Texas Megacity is the Texas Triangle Megaregion. Megaregions are highly connected regions composed of multiple metro areas that share infrastructure, economic and environmental systems. The Regional Plan Association (RPA) has identified the Texas Triangle as one of the 11 megaregions in the nation. The Triangle includes the metro areas of Austin, Dallas, Fort Worth, Houston, San Antonio, and the areas in between. As of 2010, the Texas Triangle Megaregion's population was nearly 20 million people and is projected to grow by more than 90% to over 38 million people by 2050. As the megaregion continues to develop, these metros must continue to collaborate on planning and development along the three major interstates that connects them: IH-10, IH-35, and IH-45; as well as other important transportation modes like passenger and freight rail, bus, and air routes. Planning and development collaboration is vital in sustaining the Texas Triangle Megaregion's vitality and attractiveness.

CAMPO has been considerate of planning needs in the Megaregion. The MPO recently partnered with the other five MPOs along the I-35 corridor to study potential options for high-speed transportation between Laredo and Fort Worth. In addition, CAMPO has included hurricane evacuation needs from coastal areas such as Houston-Galveston in planning considerations.



System Performance: Now and Then

CAMPO utilizes a Transportation Demand Model (TDM) to evaluate current and projected future transportation demand in the region. The regional model is one tool used to evaluate large-scale trends in changes to transportation investments and is best utilized to compare scenario alternatives at a high level and across multiple jurisdictions. The baseline model results show the changes between the 2015 base year and the 2045 horizon year. The 2015 foundation uses the current network with demographics to determine baseline demand metrics. The 2045 baseline results combine projects already programmed and under construction with the expected 2045 population and jobs in order to develop a better understanding of the baseline future demands. This assumes a doubling of our current population and no roadway improvements beyond those contained in the Transportation Improvement Program (TIP). Capital Area residents understand the noticeable levels of congestion currently experienced, and with many of these metrics increasing, we can expect that congestion will continue to be more pronounced in the future. As summarized in [Table X](#), along with the doubling population, without additional improvements contemplated in this plan, the region would reasonably expect to more than double the distances and travel times we are collectively travel per day (summarized as VMT and VHT) to get to destinations and quadrupling the time we spend in transportation. The associated average travel speeds on the network – a travel time reliability related metric tracked at the regional and state level – would be reduced by more than half. Additional model scenario results are developed for the constrained and illustrative scenarios summarized in [Chapter X](#), model results and [Chapter Y](#) performance measures.

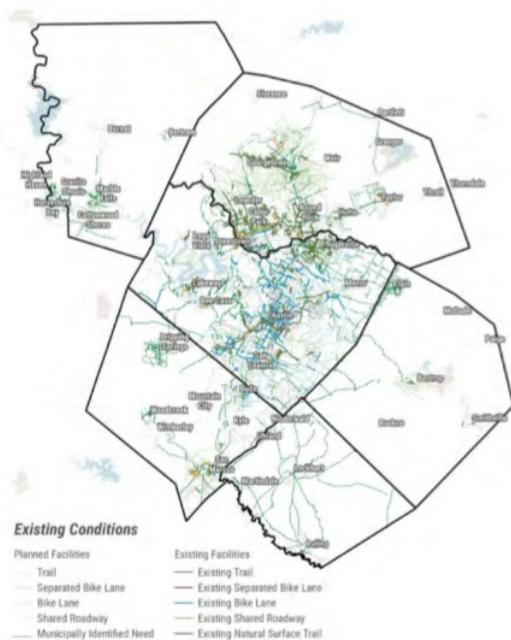
Transportation Demand Model: Baseline		
Metric	2015	2045 “No-Build”
Population	1,933,238	4,724,000
Employment	998,712	2,236,000
Network Centerline Mileage	5,349	5,555
Network Lane Mileage	12,987	13,608
Vehicle Miles Traveled (VMT)	49,281,299	112,415,000
VMT per Person	25.97	24.07
Vehicle-Hours Traveled (VHT)	197,731,039	208,083,000
VHT per Person	0.58	1.13
Vehicle-Capacity Traveled (VCT)	197,731,039	208,083,000
Network Volume-to-Capacity	0.25	0.54
Network Miles-Per-Hour (Avg.)	45	21

Active Transportation

NETWORK DEVELOPMENT

EXISTING AND CURRENTLY PLANNED ACTIVE TRANSPORTATION FACILITIES

CAMPO collected data on existing and planned trails, bike lanes, separated bike lanes, shoulders, and sidewalks. Collected data is a resource available to local governments to assist in future planning. See the existing condition chapter for more information on existing facilities.



Active transportation is a major component of the regional transportation network used for local trips, healthy lifestyles, and as a backbone for vulnerable populations at some stage of travel time using multiple transportation modes, such as transit. There are estimated to be more than 16,000 miles of roadways in the Capital Area with only a small portion currently having sidewalks. While some areas of the region have adequate sidewalk coverage, several jurisdictions have few sidewalks, sometimes only on the main commercial streets. The sidewalk network can be inconsistent, with sidewalks abruptly ending causing issues related to pedestrian safety Americans With Disabilities Act (ADA) inaccessibility. There are opportunities to systematically improve sidewalk connections in the region for both pedestrian movements and to access regional transit services. While the region currently includes many bike facilities, there are still many more planned to connect people to jobs, housing, and other destinations.

Existing Active Transportation Infrastructure	
Type	Miles
Sidewalks	2,000
Existing Bike Facilities	1,300
Locally Planned Bike Facilities	1,759
Locally Planned Upgrades	141

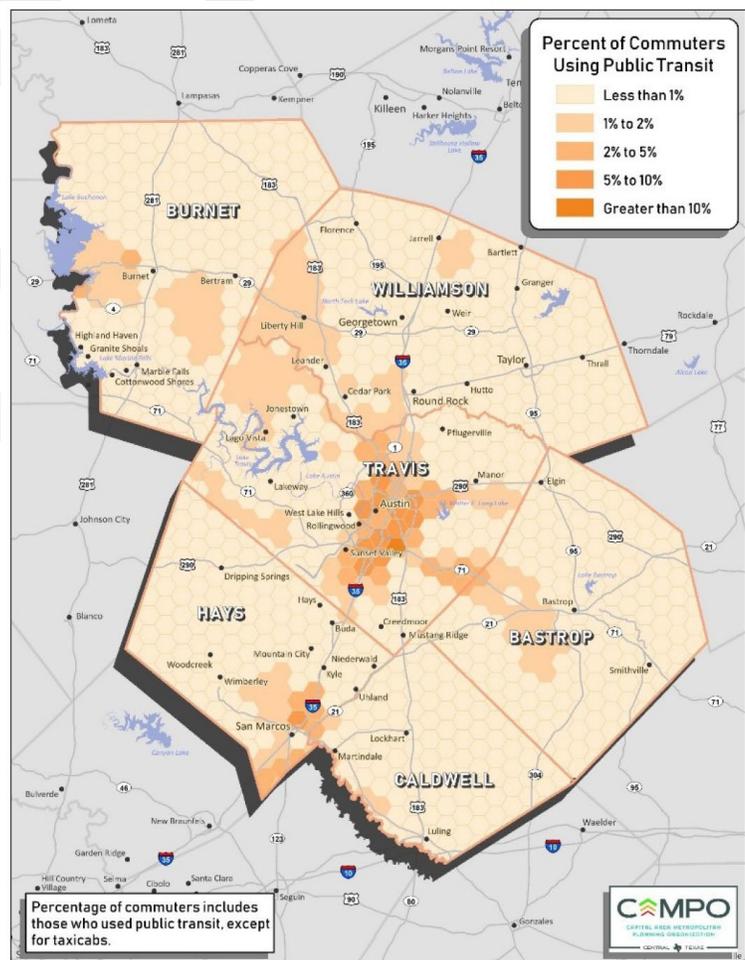
Public Transportation

As Central Texas continues to grow, the region's traditional job and activity centers are changing. Projections for 2045 show employment and trip generators throughout the region, not just the core business and downtown districts of the past, as represented transit as an existing mode share. With this change, transit must be adaptable to changing travel patterns and commuters' preferred transit options.

A comprehensive regional transit network that will meet the future needs of this fast-growing region relies on several strategies beyond just fixed route transit service. When regional transit is integrated with other travel modes, it becomes more convenient, feasible, and reliable for users. For instance, using strategies and recommendations from the 2045 Regional Active Transportation Plan, first and last mile connections become easier for transit riders. Most current transit options in the region rely on roads, so an arterials network, particularly one that prioritizes transit and multi-occupancy vehicles such as vanpools, as outlined in the Regional Arterials Concept Inventory, is key for transit reliability.

Increasing use of technology also enhances transit options by providing riders seamless connections from one transit or transportation provider to another, real-time data on trip times, and the ability to hail a ride from a smartphone or phone call. Technology is also enhancing transportation demand management strategies that, along with transit, seek to reduce or at least maintain vehicle miles and hours traveled throughout the region in the coming decades. Advancing technology in areas such as telemedicine and distance learning may completely eliminate the need to travel for some trips while increases in teleworking may reduce commuting.

The 2045 RTP considers Capital Metro's Project Connect and additional analysis and community outreach to forecast future transit needs for the CAMPO region. The technical analysis, review of local governments' and transportation agencies' future plans, and input from the community documented in the RTS, show the need for a continued coordinating effort for planning and implementing a comprehensive regional transit network - ranging from smaller four-to-six person vehicles to expanded express bus service on the region's arterials to additional commuter rail.



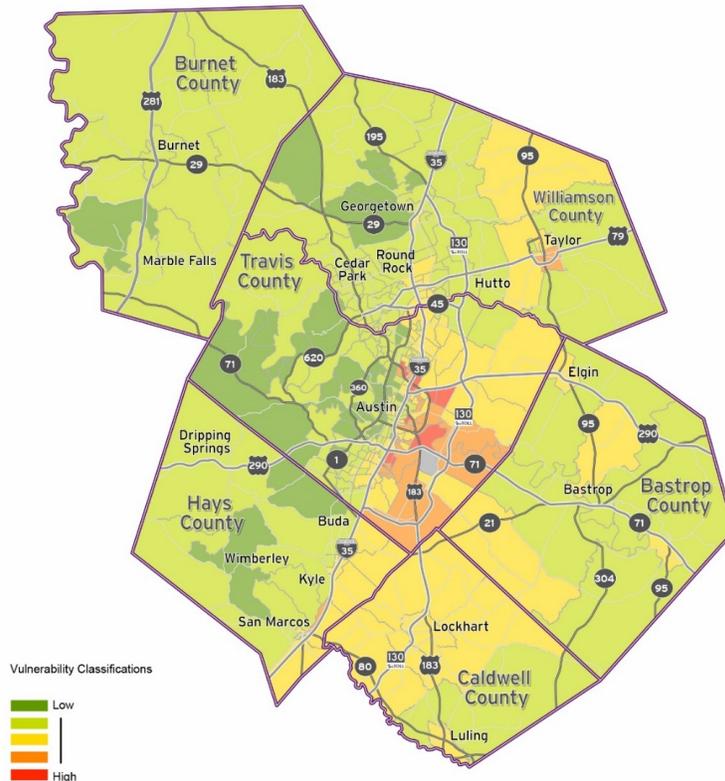
Environmental Considerations

CAMPO works to protect air quality, habitat, cultural resources, forests, and waterways for Capital Area residents. Careful and thoughtful consideration should be given to sensitive and/or limited environmental resources within our region. Analysis of land and water impact are included in the regional special studies found in the appendices. Impacts of potential projects are also considered in the 2045 RTP goals and objectives, evaluation of projects and performance measures. CAMPO's mandated role focuses on air quality and transportation impacts to vulnerable populations, specifically environmental justice groups.

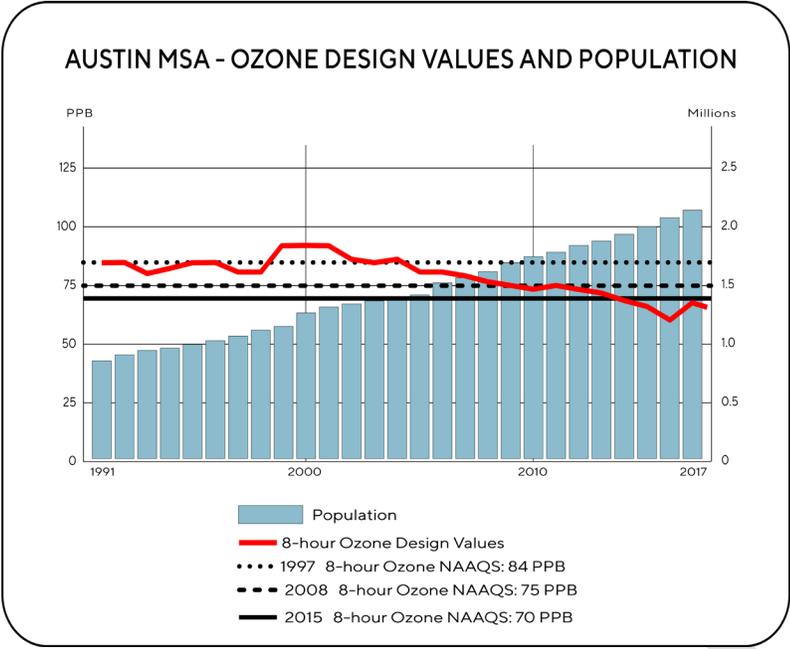
Vulnerable Populations

Consideration for vulnerable populations is another significant aspect of CAMPO's work. A portion of the Capital Area's population is considered vulnerable which includes the traditional characteristics from Title VI/Environmental Justice definitions established per the Federal Highway Administration (FHWA). Title VI of the Civil Rights Act and Executive Order 12898 (Environmental Justice) are laws that forbid discrimination based on race, color, national origin, and minority/low income status. The CAMPO expands on these characteristics to include others such as school-aged children, seniors, and persons with disabilities. **Figure XX** identifies the locations and intensity of the Capital Area's vulnerable population groups. These populations continue to grow as the total population of the region grows. People considered vulnerable can require special consideration with regards to transportation and they may not have access to standard, conventional or affordable transportation options. Although the vulnerability map shows the largest numbers east of IH 35, there are smaller pockets of vulnerable populations in other areas of the region as well.

Capital Area Region
Vulnerability



Source:
CAMPO, 2018 US Census Bureau



Air Quality

As the metropolitan planning organization responsible for the protection of air quality, environmental sensitivity is a major consideration for CAMPO. The Environmental Protection Agency (EPA) has consistently increased the regulations for ambient air quality and CAMPO has also consistently improved its air quality. Figure XX shows the regulations for ambient air quality attainment and the metrics for the Capital Area. The Capital area remains in air quality attainment and is expected to remain due to the automobile fleet getting cleaner, voluntary local programs, and relatively

Baseline Summary

The Capital Area is growing at a rapid rate, which requires innovative multimodal investments to improve the regional transportation system and ensure that it is scalable into the future. There are many implications of this growth that must be addressed, not the least of which is a transportation system that improves the lives of Capital Area and Texas residents and ensures a future of economic, social, and environmental sustainability.

The 2045 RTP uses the baseline conditions as foundation for the scenarios developed in the unconstrained needs plans at the local and regional level detailed in Chapter 2. The plan discussion then continues with consideration of fiscal constraint and project nomination process for the constrained and illustrative scenarios.

Chapter 2: Unconstrained Needs

Since the 2040 Transportation Plan, CAMPO has developed eight plans and studies as part of the Platinum Planning Program. The plans studies have influenced the 2045 Transportation Plan by providing detailed analysis of system-wide multi-modal improvements, impact of regional projects at the local level, a suite of potential projects eligible for federal and state funding, and policy tools that can be used to further regional mobility goals. The studies are not fiscally constrained and were developed to better understand a suite of potential transportation needs versus the region's or an entity's financial capacity to pay for study recommendations. Many of the projects identified in these studies were submitted by project sponsors as candidates for the 2045 RTP in the constrained or illustrative project listings. The plans and studies completed as part of the Platinum Planning program include:

Regional Plans:

- Regional Transportation Demand Management Plan (TDM)
- Regional Arterials Concept Inventory (RACI)
- Regional Active Transportation Plan
- Regional Incident Management Study
- Regional Transit Study

Local and Subregional Studies:

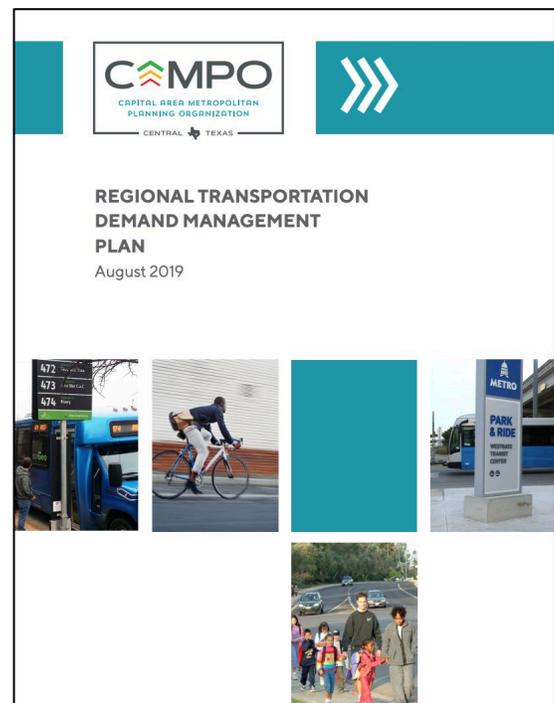
- MoKan-Northeast Subregional Plan
- Georgetown-Williams Drive Study
- Luling Transportation Study

Regional Plans

Regional Transportation Demand Management Plan

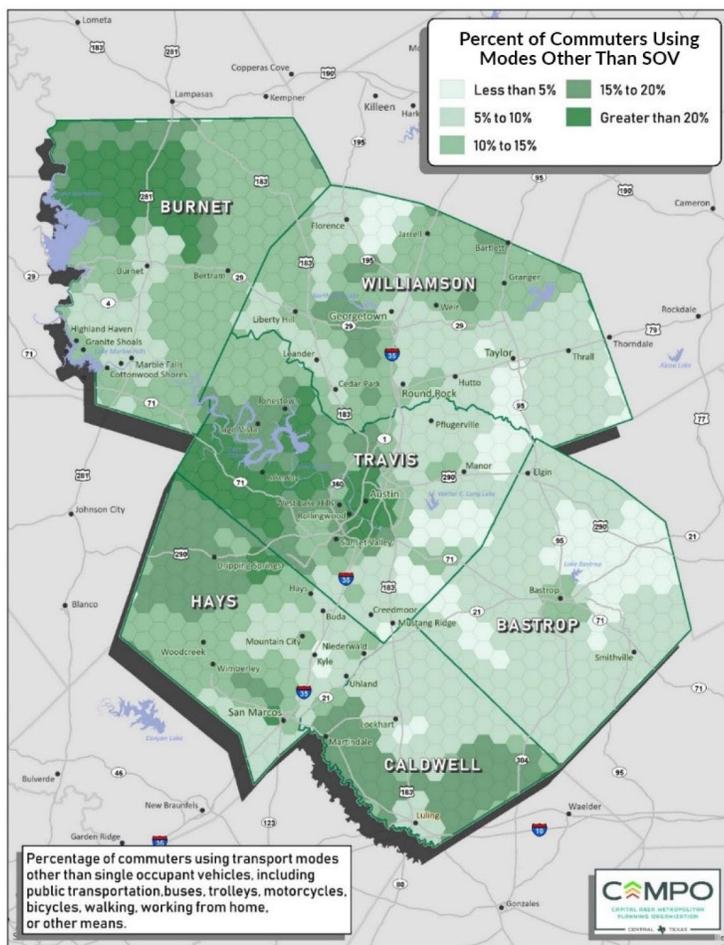
When analyzing transportation patterns in the Capital Area, it is crucial to look at how residents get to work. The US Census, which measures people's primary mode of travel to work, considers six travel modes: single-occupancy vehicle, carpooling, transit, bicycle, walk, and work at home. Across the United States, the US Census indicates that the largest mode share to work is perpetually the single-occupancy vehicle (SOV).

CAMPO's Transportation Demand Management (TDM) Study analyzed how commuters traveled to/from work. As a measure of travel demand, any mode other than travel by a SOV was considered a non-SOV trip, including those who telecommute to work or work from home. Figure 5.11 shows these combined non-drives alone modes by area. The graphic illustrates how combinations of multiple non-SOV modes can result in higher percentages of usage, even in areas where there are fewer transportation alternatives overall. The tracts in the figure have been aggregated into hexagons for ease of presentation.



The TDM Study also looked at the proportion of the Capital Area used transit as a means of transportation. Transit is typically offered in urbanized areas along fixed routes of travel but also can be demand responsive for routine, scheduled trips in areas of the region not supported by fixed route transit. As a result, transit as a share of work commutes can be a smaller share across a broad region but is critical for providing services to populations that otherwise do not have access to needed services. Capital Metro and CARTS currently serve as the main line-haul transit service providers for the region and serve over 30 million passenger trips per year, and approximately 100,000 average weekday trips. In 2017, Capital Metro operated 751 transit vehicles and CARTS operated 91 transit vehicles.

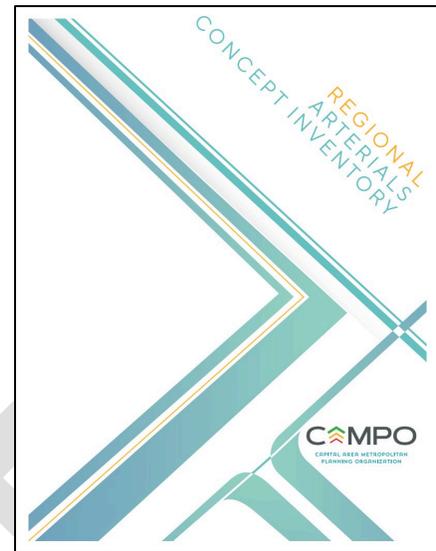
Key recommendations of the TDM plan included continued development and monitoring advancement of TDM in the region, update of TDM projects for the 2045 plan, and establishing cost-benefit analysis based on data now being collected by TDM-implementing agencies.



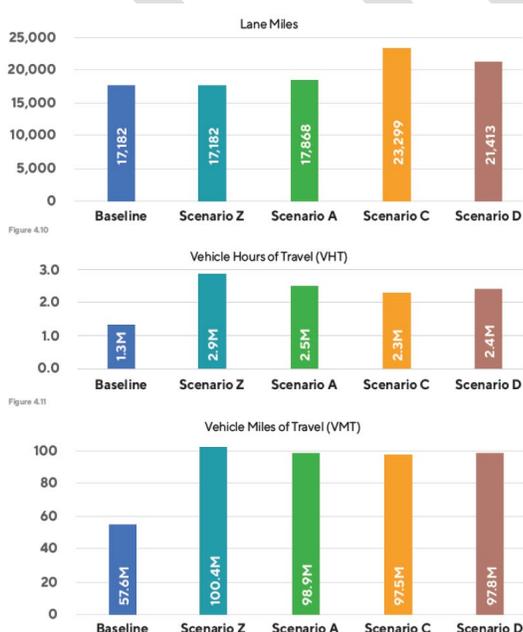
Regional Arterials Concept Inventory

As a part of CAMPO Platinum Planning Program, the Regional Arterial Concept Inventory effort held conversations between regional partners over a year-long process to raise and discuss concepts for mobility improvements. The effort explored developing a comprehensive arterial network to support future growth within the Capital Area region. The Regional Arterials Concept Inventory (RACI):

- Provides for a hierarchy of multimodal corridors that support options for diverse travel needs.
- Establishes connectivity for corridors that work together to support growth within a hierarchy that promotes flexible movement of people and goods.
- Establishes proper network spacing and provides a menu of street cross sections through a Pattern Book for regional partners.
- Identifies policy tools to empower local entities working to further regional connectivity goals.



The effort included analysis of existing conditions and development six concept scenarios, each exploring a different facet of corridor network development. Figure X includes a comparison of outcomes, with network scenarios that range between an “improvements only” to major facilities to a conceptual “full build out” of a comprehensive network of major and minor arterials for the growing six-county region. Additional scenarios examined interim reversible lanes as an interim concept reflective of limited resources, and an HOV/Peak Period concept for select facilities. Of the scenarios examined, Concept B, highlighting a diamond-lane or restricted-use-by-occupancy lane along regional connecting facilities as a way to increase “people throughput” for critical and limited corridors by more than 30%, had more broad support across participants. This key scenario could serve as an organizing concept for regional partners to coordinate across in the coming years and could result in the largest network of such facilities in the nation, if implemented. A need identified by stakeholders through the RACI was for a deeper, data based dive into regional bottlenecks and intersection needs, which would be the subject of future study.



Key Findings of the RACI:

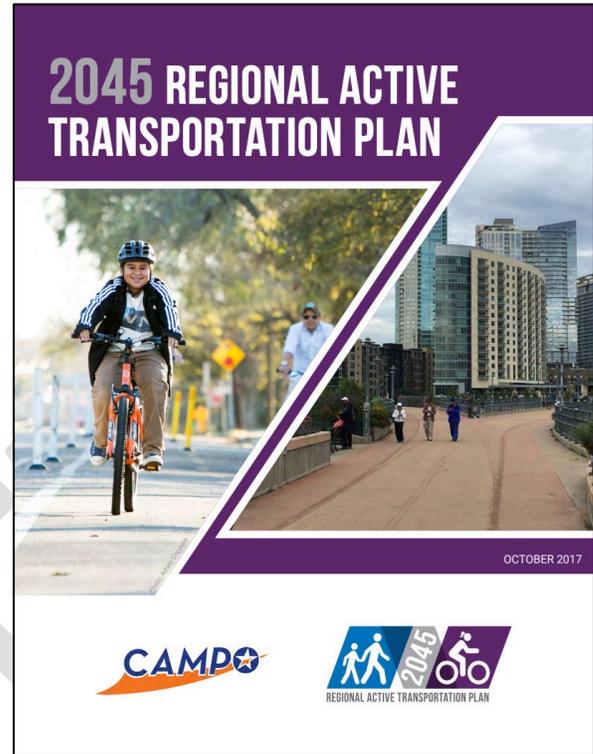
- The region is greatly underserved by a connected minor arterial network and is overdependent on limited access and principal arterials.
- Scenario B found that by providing restricting uses in a lane on certain facilities by occupancy or vehicle type could increase “people through-put” by 30 – 50%.
- Identified a “missing functional class” of regional connector roadway found in other regions that can efficiently serve trans-regional trips by providing less access than typical arterials.
- Given anticipated population growth, multiple scenarios with varying levels of possible network investment result in nominal increases to key metrics such as VMT, VHT, and congestion.

2045 Regional Active Transportation Plan

The purpose of the 2045 Regional Active Transportation Plan (RATP) is to document and provide a shared vision for the development of a safe and highly functional active transportation network of pedestrian and bicycle facilities and amenities for the six-county Capital Area.

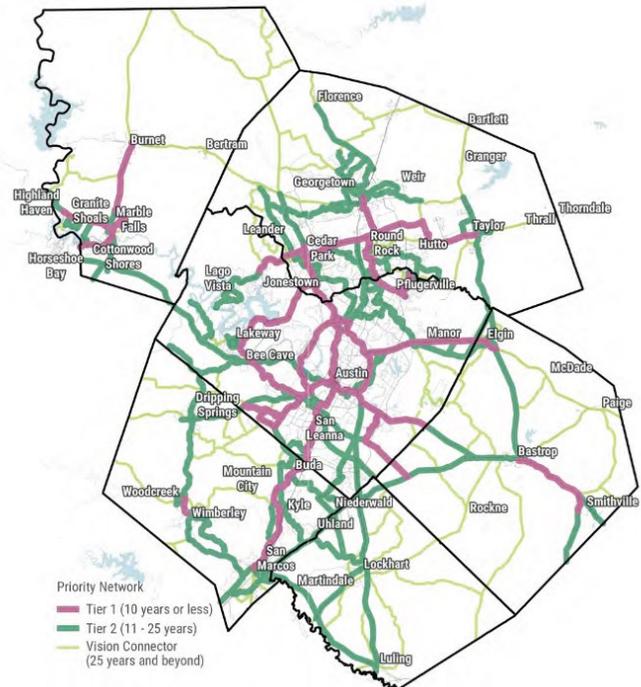
The 2045 Regional Active Transportation Plan is a first of its kind effort for the CAMPO Region. As part of this process CAMPO worked with local governments and partner agencies to develop a comprehensive bicycle and pedestrian facility inventory, a data-driven needs assessment, extensive public outreach and stakeholder engagement, and a thorough review of relevant case studies. In addition, the 2045 Regional Active Transportation Plan was one of the goals outlined in CAMPO’s Walkability Action Plan which can be found on the organization’s website.

The Plan culminated with the development of an unconstrained active transportation network and a tiered priority network of over 1,700 miles of inclusive of new and existing facilities.



Vision Network Grand Total: 1770 miles
Existing: 129 miles
New Construction Needed: 1246 miles
Potential Upgrade: 395 miles

Tier I: 308 total miles
Tier II: 720 total miles
Vision: 700 total miles



Regional Incident Management Study

To reduce the impact of incidents and improve safety in the Capital Area, a group of state, regional, and local transportation and public safety officials from Central Texas developed the CAMPO Regional Incident Management Strategic Plan and Performance Assessment. The plan builds on several successful Traffic Incident Management (TIM) programs that currently exist in the Region and identifies new programs and strategies to continue improving TIM in Central Texas. The goals of the Regional Incident Management Strategic Plan and Performance Assessment are to:

- Reduce the impacts of incidents to travelers in the Region, including reduced roadway clearance time, incident clearance time, and time to return to normal
- Reduce secondary crashes in the Region
- Provide accurate and timely traveler information to travelers throughout the Region

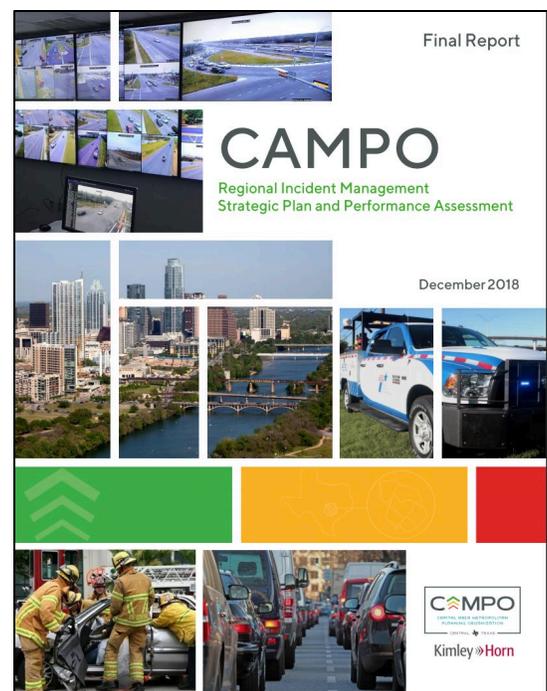
The CAMPO Regional Incident Management Strategic Plan and Performance Assessment developed a total of 29 recommendations to improve TIM in the Capital Area. The recommendations can be found in TIM Document in **Appendix X**.

To assist in prioritizing the TIM recommendations, a cost-benefit analysis was performed on selected recommendations that were conducive to quantitative analysis. Guidance was also provided on potential funding to implement the commendations. Recommended performance metrics to track the Region's progress towards improve TIM were developed, which include:

- Roadway Clearance Time
- Incident Clearance Time
- Number and Severity of secondary Crashes
- Survey of Traveler Information Satisfaction
- Incident Influence Time (Time to Return to Normal Flow)
- Percentage of Responders/Operators who have received TIM Training
- Rates of Injury or Fatality of First Responders on Incident Scene

To accelerate the implementation of recommendations that are expected to yield a high benefit-cost ratio and serve as foundation programs for other TIM activities, the TxDOT Austin District Office and CAMPO are working with local governments and transportation organizations to implement these policies:

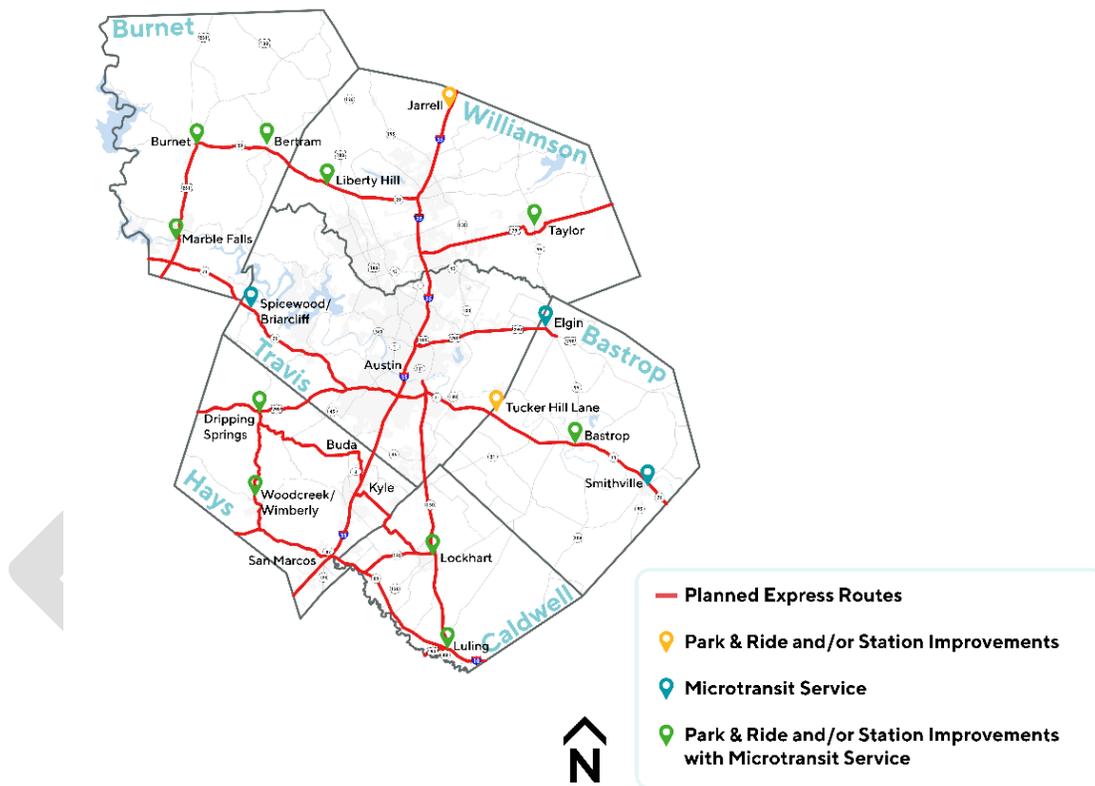
- Develop a Regional Open Roads Policy
- Develop a Standardized HAZMAT and Non-HAZMAT Clean-up Policy for the Region
- Develop a Framework for a Regional Rapid Clear Towing Program
- Develop a Framework for a Regional heavy Tow Program
- Develop a Standardized Data Collection and Performance Measures Framework for the Region
- Develop a Regional State of Traffic Incident Management Report



Regional Transit Study

The Regional Transit Study (RTS) gathered information from elected officials, local governments, transportation agencies, and the public to assess current conditions and future needs. Consistently and repeatedly, these stakeholders identified the need for direct transportation from rural and suburban communities to other rural and suburban communities for various purposes including accessing work, medical services, shopping, and leisure activities.

The RTS incorporates Capital Area Rural Transportation System (CARTS) future needs and services for the non-urbanized area, as well as connections to Capital Metro and other urbanized areas' transit services. CARTS' future-plans include operational improvements such as expanding express bus routes and on-demand service. Capital improvements include new or improved park and ride and intermodal facilities. These improvements are in line with future needs identified as part of the technical evaluation for this study as well as being identified by elected officials, local governments, non-profits, and the public.



CARTS 2045 Plan focuses on expanding Express Routes, Microtransit Service, and upgrading facilities

Better connected regional travel can be achieved using the Transit Toolkit developed as part of the Regional Transit Study. The toolkit lays out many options that can be deployed by local government project sponsors that meet their community's needs while staying sensitive to its context and character. Additionally, the toolkit also discusses ridesharing and transit supportive infrastructure such as vanpool programs and park and rides, respectively. As the region's employment and activity centers continue to expand throughout the six counties, a comprehensive park and ride and vanpool system has the potential to significantly reduce single occupancy vehicle travel.

Local and Subregional Studies:

Although much of the work CAMPO does is at the regional scale, local jurisdictions and partner agencies make improvements to the transportation system that have a regionally significant impact. Below are examples of local and subregional studies CAMPO has engaged in.

MoKan-Northeast Subregional Plan

The MoKan-Northeast Subregional Plan is a technical analysis of high-level concepts centered on improvements to the arterial roadway network in the Northeast subregion of CAMPO's area, along with an analysis of multi-modal options for the MoKan corridor. While the Regional Arterials Concept Inventory looked at a full network of arterial concepts, this study focuses on six test case corridors, including the MoKan right-of-way (ROW). Some of the concepts laid out in this Plan come from locally adopted plans, while others have been identified through the process of developing this Plan. Outcomes of this study included recommendations for long-term improvements to US 79, SH 95, FM 973, FM 685/Cameron/Dessau, FM 1100-Pflugerville Parkway Corridor and MoKan. Recommendations included operational and HOV uses along the corridors and identified context sensitive concepts for MoKan to optimize auto, transit, and ped/bike trips along the extent of the corridor.

Georgetown Williams Drive Study

In recent years the City of Georgetown and its community members have undertaken several studies to spur the redevelopment of the Williams Drive corridor, both as a gateway and as an entire corridor. This study is the first to consider both transportation and catalytic development sites, prioritizing the safe and convenient travel of vehicles, transit riders, bicyclists, and pedestrians along with development visions. It is the culmination of a yearlong community planning process. It proposes context sensitive multimodal operational improvements, streetscape changes, and mixed-use development concepts that will transform how people travel and live within and along the corridor.

The Williams Drive Study was informed by several local plans, policy documents, and guidelines. Specific recommendations and concepts were developed within the context of CAMPO's Platinum Planning Program that prioritizes multimodal transportation, mixed land use, housing choices, environment, economic development, and equity.

Luling Transportation Study

The purpose of the Luling Transportation Study ("Study") was to evaluate transportation conditions and needs in Luling, to identify potential improvements, and to set an implementation plan for one or more recommended improvements. Four goals were identified in the study:

1. Identify needed safety improvements
2. Enhance mobility in downtown for local and through traffic
3. Evaluate feasibility of an alternate route for through traffic
4. Promote the unique character of downtown and economic development opportunities

The Study also adopted recommendations to improve the movement of trucks through the community while maintaining the economic health of its economy. Near-term improvements were also recommended as they could complement the new traffic patterns expected, and because the projects could be pursued either concurrently or in sequence.

Public Involvement

Community and stakeholder outreach for the 2045 RTP has been a multi-year process that gathered feedback from the public on the various modes of transportation that are represented in this Plan. Since 2016, CAMPO has conducted studies on active transportation, incident management, arterials, transportation demand management, and transit. Each study included extensive public and local government outreach and allowed for stakeholders to contribute ideas and needs for future improvements to individual modes of transportation.

Many of the project sponsors, such as local governments and regional transportation agencies who submitted projects for this Plan, played an integral role throughout this planning process. Project sponsors participated in charettes and informed the studies on future employment and activity centers, travel patterns, infrastructure needs, and growth. Input from the public, local governments, school districts, regional agencies, and other stakeholders was used to create various recommendations and ideas that contributed to many of the projects submitted for consideration in the 2045 RTP.

Round 1 – Fall 2019

Community outreach for the 2045 Plan began in Fall 2019 and included online and in-person participation opportunities. This first round introduced the 2045 Plan as a whole and explained how this Plan is a culmination of the multimodal planning efforts from the past several years. Twelve in-person open houses and pop-up events were held throughout the six-county region in November 2019. Several events were held in areas with high foot traffic to capture input from community members who may be less likely to attend an open house. An online open house used the same information and survey as the in-person open houses. The first round of community outreach saw 510 survey responses.

Reserve for graphics

Current key findings from the survey include:

- Majority of respondents use a personal vehicle as their primary transportation
- Nearly half of respondents include walking and biking in their travel
- Six percent of respondents list public transit as their primary transportation
- Less than 15 percent of respondents list public transit as their secondary mode of transportation
- More than half of respondents plan or hope to use public transit more frequently in the future
- Sixty-one percent of respondents plan or hope to bike and walk more frequently in the future
- Nearly half of respondents plan or hope to use their personal vehicle less often in the future
- Majority of respondents expressed need for ‘more options’ and ‘greater accessibility’

Placeholder: A summary of the second round of public outreach will be included in the final document.

Chapter 3: Fiscal Constraint

Financial Plan

The 2045 RTP's financial plan demonstrates how the projects recommended by the Transportation Policy Board meet fiscal constraint. Fiscal constraint refers to revenues for construction and project implementation that are reasonably expected over the timeframe of the plan. Demonstrating fiscal constraint is a federal requirement in developing RTPs and shows a region's expected ability to fund the projects in the plan.

In addition to the fiscally constrained list of projects, the RTP also identifies projects in an illustrative, or unconstrained list. Projects on this list include those in consideration for planning purposes and those for which funding cannot reasonably be expected. In subsequent RTPs, illustrative projects may move to the fiscally constrained list if further planning work has been completed and funding identified. Additional resources could also be secured by local jurisdictions through policy direction, allowing projects to move to the constrained portion of the plan.

Fiscal Constraint

The Fiscally Constrained portion of the RTP identifies expected financial resources for projects, programs, and services in the plan. Fiscal Constraint is based on a snapshot in time for reasonably expected financial resources over the 25-year plan horizon. The resources to implement the plan come from local, state, and federal sources. Local resources are those generated by cities, counties, and transportation agencies including CTRMA, Capital Metro, and CARTS primarily through taxes, registration fees, and user fees. The local portion of the total is anticipated to be around \$27.6 billion. State and federal resources include grants and collected gasoline taxes primarily, which are allocated by TxDOT to CAMPO for distribution. This portion of the total is anticipated to be \$10.8 billion. The total sum for the Fiscally Constrained list of projects is approximately \$38.4 billion over the plan horizon.

In order to obtain federal certification, the RTP estimate of fiscal constraint must meet the following requirements:

“A financial plan that demonstrates how the adopted transportation plan can be implemented, indicates resources from public and private sources that are reasonably expected to be made available to carry out the plan, and recommends any additional financing strategies for needed projects and programs. (23 U.S.C. 134 (j) (2)).”^[1]

The test of what is “reasonably expected to be made available” requires neither commitments nor intentions to commit to spending; rather it requires a demonstration of the capacities of the sources of funds that have been used in the past, or may be reasonably expected to be used in the future to fund transportation programs and projects.

CAMPO calculated its fiscal constraint for the 2045 RTP by combining a model of local government-based estimates and non-local government resources as noted above. Local governments and agency forecasts were developed based on publicly available financial reports and in concert with representative financial and transportation staff. A review of local government bond referendums in the CAMPO region dedicated to transportation between 2010 and 2019 was also included as a guide for potential future bonds. State and federal forecasts were calculated based on TxDOT's Unified Transportation Program (UTP) for years 2020-2029. For 2030-2045 state and federal funds, the Transportation Revenue Estimator and Needs Determination System (TRENDS) model was used.

TRENDS was developed by the Texas A&M Transportation Institute to establish a standard system for Texas MPOs to forecast state and federal funds beyond the timeframe of the UTP. A final category of federal funds was identified by Capital Metro as the expected Federal Transit Administration portion of the agency's major capital projects in the plan. Appendix X summarizes the methodology for the calculations and assumptions used.

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Chapter 4: RTP Project List Development

2045 RTP Project Selection Methodology

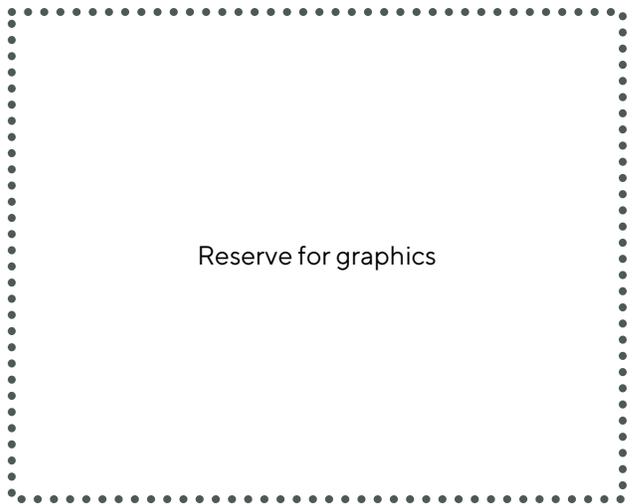
By Federal guidelines, the RTP includes all regionally significant transportation projects expected to be implemented by 2045. With the level of resources available determined through fiscal constraint, one of the key steps of the RTP is the consideration of projects and means for their evaluation. Under Federal funding authorization known as the FAST ACT, project development and planning guidance includes the requirement that it be performance based, with goal-based metrics used in consideration of project selection. Therefore, candidate projects for the 2045 RTP are subject to a screening and selection process. The selection nomination process then proceeds for public comment and culminates with adoption by the CAMPO TPB, through a process outlined in the Public Involvement chapter.



The development of the RTP began in earnest with the development of foundational Goals in Spring of 2019 by subcommittee of the Policy Board. Once draft goals were in place, the project application process was developed in the Summer and Fall of 2019 with input from the CAMPO Technical Advisory Committee as an extension of the 2019-2022 TIP, with the updated draft goals from the Spring, but a more preliminary screen level of analysis for potential projects reflecting the conceptual stage of many of the projects. Staff worked with regional applicants in a continuation of the CAMPO

Platinum Planning Process in development of the Call with the policy goal of a more project inclusive application process to expand the possible projects. Reference information and plans referenced were robust and thorough in order to meet FHWA requirements appropriate for performance-based planning and project detail needed at the RTP stage. Examples of source data used for the development of applications that could be used by applicants was provided, but applicants were also encouraged to submit their own gathered data and supporting materials.

To nominate projects for inclusion in the 2045 RTP, transportation project and program sponsors planning or implementing regionally significant transportation projects were invited to submit project applications as a part of the 2045 RTP Call for Projects. Over 600 project nomination applications came from 20 local jurisdictions and transportation agencies, including TxDOT. The Call for Projects included categories for roadway, transit, active transportation, TDM, ITS projects, and an “Other” category. Any jurisdiction or agency anticipating use of federal funding for any portion of a project between years 2025 and 2045 is required to participate in the selection process in order to enable regional discussion of needs and means.



Central to the 2045 Plan is the determination of projects' status as regionally significant. As previously noted, projects must be regionally significant in order to be included in the RTP. Similarly, projects receiving federal pass-through funding administered by CAMPO also need to meet the regional significance threshold. Projects can qualify as regionally significant based on multiple, mode-specific characteristics as practiced by CAMPO. CAMPO's definition of regional significance expands upon the more general FHWA definition, below.

The CAMPO defines regional significance for each project category as:

Roadway Regional Significance:

- Roadways and intermodal connectors included in the federally adopted National Highway System (NHS)
- Roadways identified as minor arterials or higher in the Federal Regional Functional Classification System or are expected to be re-classified as an arterial or higher when open for public use.
- Grade-separated interchange projects on regionally significant roadways
- Frontage roads
- Roadways that serve as a connection to/or between existing or planning regional activity centers and corridors.

Transit Regional Significance:

- Rail Transit
- Commuter Routes
- Bus Rapid Transit
- Other limited or skip stop routes
- Park and Rides
- Vanpool Programs

Active Transportation Regional Significance:

- Connections illustrated in the Tier I, Tier II, or Vision Network of the 2045 Regional Arterials Plan
- Projects that connect or serve regional activity centers and corridors
- Long-distance corridors that connect multiple communities and jurisdictions
- Safe Routes to School
- Safety and operation projects
- Other projects that allow active transportation connectivity to other regional modes

**Regional Significance:
FHWA Definition**

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

All transportation improvements submitted by project sponsors were evaluated for regional significance. Most projects submitted for review were determined to be regionally significant. In addition to regional significance, if an applicant submitted a project on a facility or in an area, they do not have jurisdiction over, they were required to get written concurrence from the entity that has authority over the facility or area.

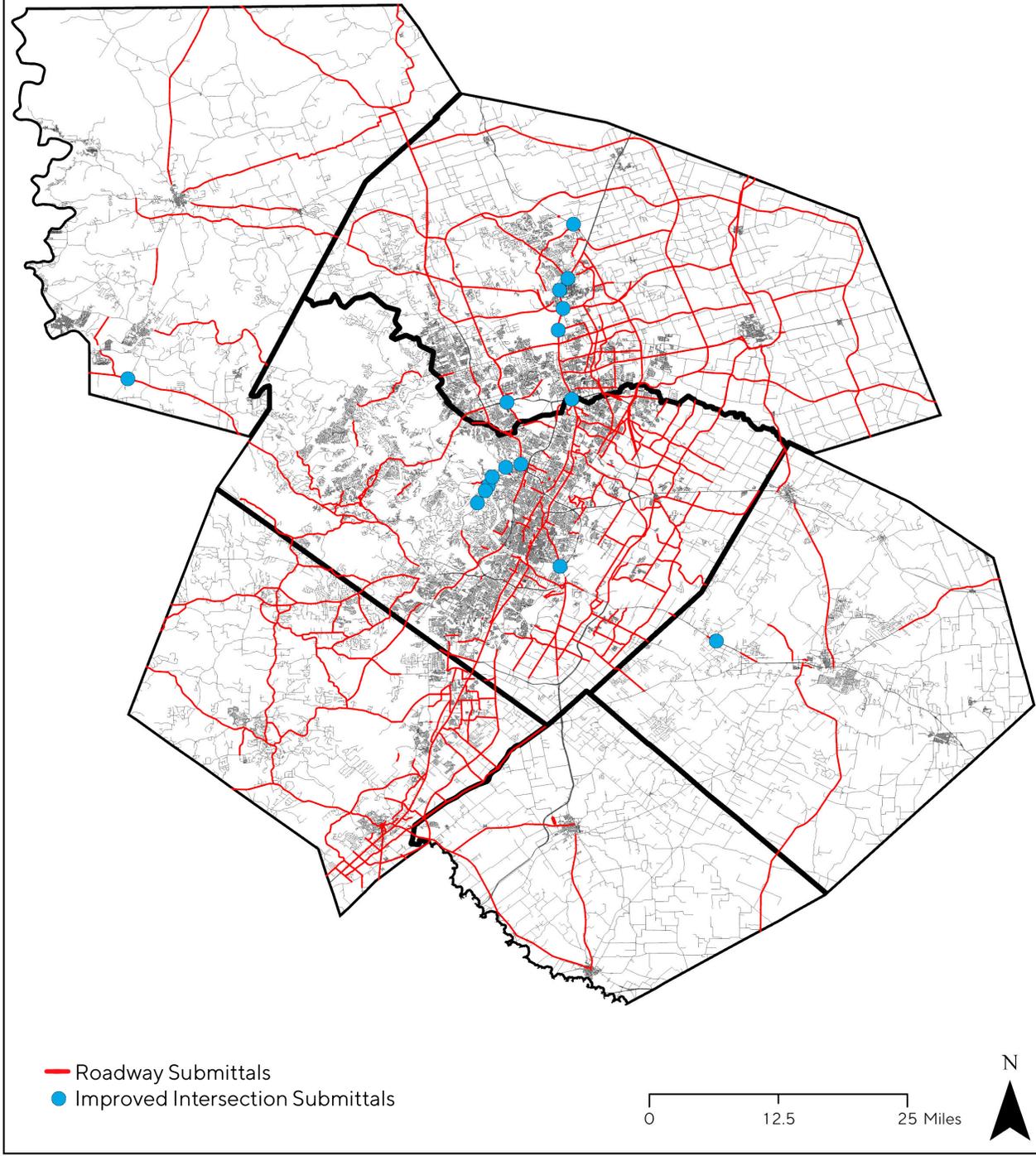
Next, CAMPO leveraged existing regional and local plans and studies to develop project evaluation criteria for each mode. Applicants submitted projects with self-assesses metrics associated with each of the 2045 goals and objectives (Safety, Mobility, Stewardship, Economy, Equity, Innovation). Upon determining that projects were regionally significant, the project team reviewed the self-assessments and referenced plans and data specific to the proposed projects. Over 250 projects were reviewed by CAMPO, concurring or revising the score considering the appropriate criteria for each mode and the plans and materials provided and made available. Scoring projects enabled the creation of a prioritized, fiscally constrained project list based on the project rankings. First, projects approved in the TIP timeframe were included, then projects nominated as locally funded were included. Lastly projects were ranked based on their MPO-reviewed score with the highest ranked projects selected in order, by cost, until the total resources available were met. Any projects 100% locally funded (i.e. not seeking federal or state funding assistance) or considered illustrative (projects not included within the plan timeline or needing other funding to be considered under fiscal constraint) were not reviewed. A full list of each mode’s scoring criteria can be found in [Appendix XX](#).



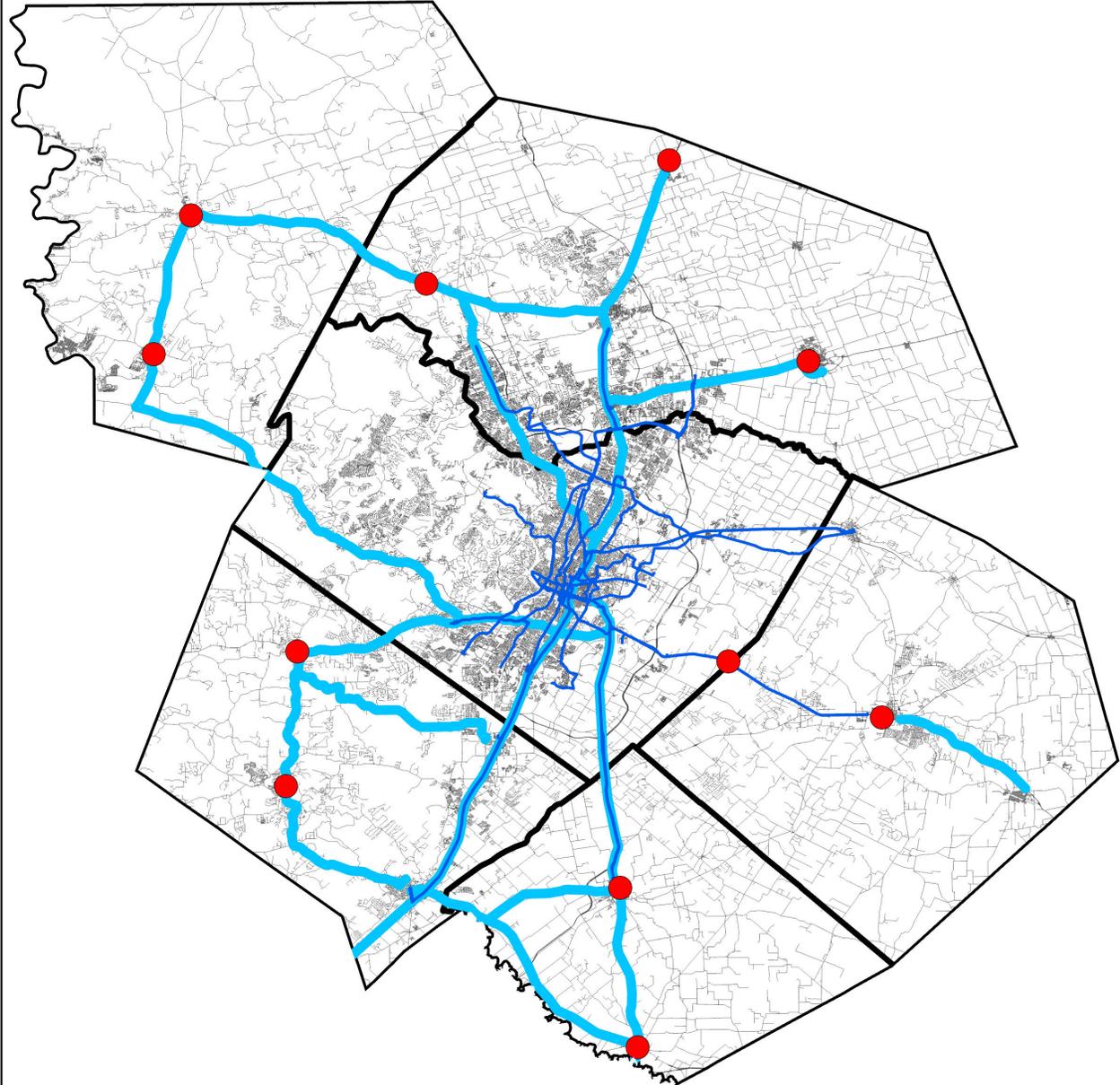
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The draft list of recommended projects is [Appendix XX](#). Maps have been included for each mode in this chapter.

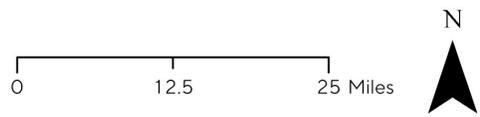
2045 RTP Roadway Submittals



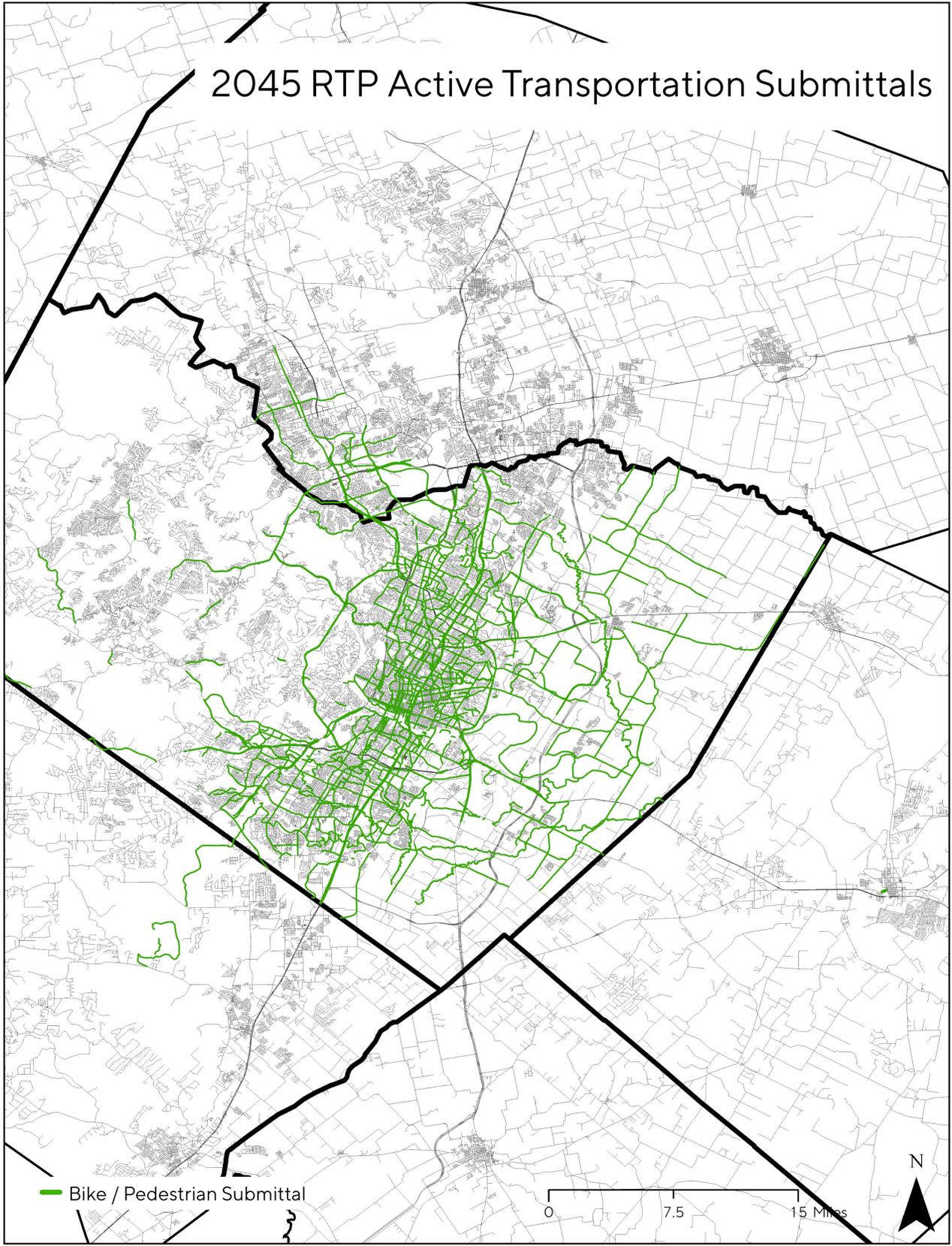
2045 RTP Transit Submittals



- Capital Metro Route Submittal
- CARTS Route Submittal
- CARTS Station Submittal



2045 RTP Active Transportation Submittals



2045 Travel Demand Model DRAFT Results

Section in development.

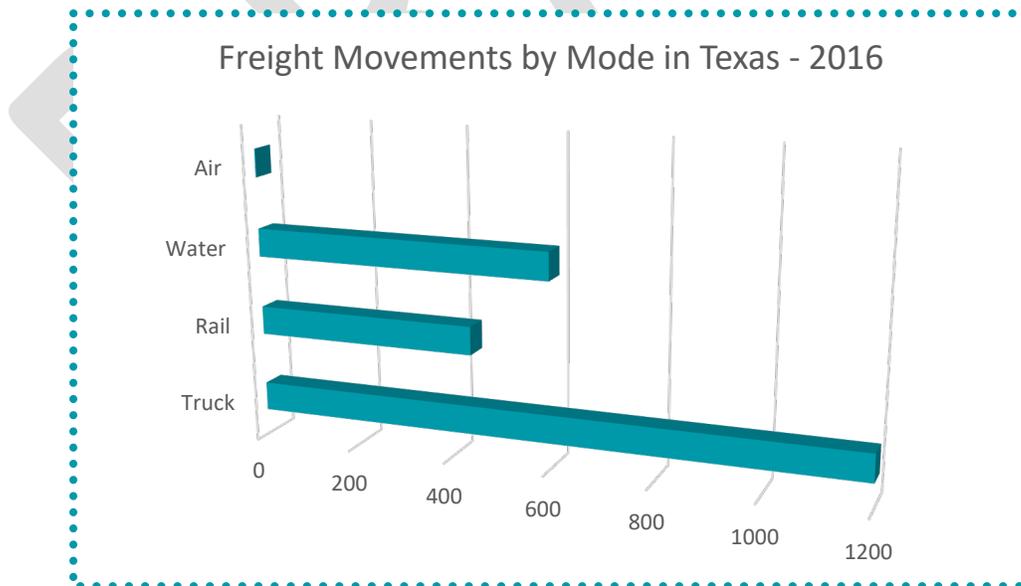
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Chapter X – The Mobility Economy

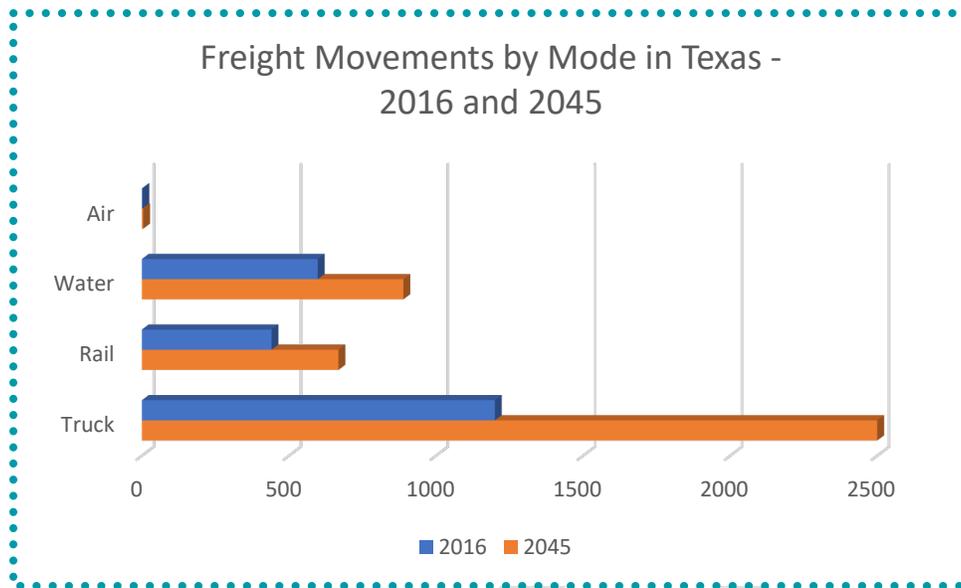
The transportation network is one of the most important contributors to a region’s economic success as it moves not only people but also goods to/through a region. Ensuring the Capital Area remains economically successful is one of the goals of the 2045 RTP. To achieve this goal, the 2045 RTP has listed out objectives to ensure the network provides efficient travel times, access to opportunity, and enhances quality of life. Components of the Capital Area’s mobility economy include industrial freight, consumer and commercial air traffic, and technological advances that allow for harmonious connectivity that is vital for long-range transportation planning considerations and the Capital Area’s continued competitiveness in the national and global economy.

Freight

A robust and effective transportation system that moves goods effectively serves as one of the key drivers for a region’s economic success. The 2018 Texas Freight Mobility Plan states that in 2016 the amount of goods that moved through Texas via truck, rail, water, and air totaled 2.2 billion tons. As the figure below shows, the majority of goods were moved by trucks, followed by water, rail, and air. Although there are no water ports in the Capital Area, much of the goods that are imported and exported are delivered by sea to their destinations via the ports of the Houston Region, Corpus Christi, and Victoria. Rail and highway connections such as IH 35, IH 10, US 290, US 183, SH 123, and SH 71 are critical to providing this last “miles” link to these shipping channels. CAMPO and the TxDOT Austin District are working toward improvements to these critical connections, especially routes such as US 290 and SH 71, as there is currently no total limited access connection between Houston and Austin. Further study is needed on the interconnectivity of freight movements in the Capital Area including growing warehousing and distribution centers. A potential output of CAMPO’s future workplans may further analyze freight impacts.



As more people move to the Capital Area and Texas, the movement of goods will also increase substantially. By 2045, the movement of goods in Texas is expected to be 4.0 billion tons. Trucks alone will carry 2.5 billion tons which is 300 million tons more than all freight movement in 2016.



Truck

As the amount of goods being delivered by truck more than doubles in 25 years, the roads those trucks travel on will need to improve their performance to keep pace with growth. **As the figure below shows,** the roads identified by TxDOT that compose CAMPO’s freight network are the most heavily traveled roads in the region. In the case of IH 35, they are also some of the most congested in the state as well as the nation.

Several efforts are underway, with more planned for the future, to improve performance on the region’s freight network. Currently, TxDOT and CAMPO are partnering to improve incident management in the region which will aim to limit traffic disruptions from vehicular accidents and other incidents on the roadways. Additionally, agencies throughout the region are working to improve the ITS infrastructure to provide drivers better information on incidents, special events, and expected travel times. Future efforts include the Capital Express Project which aims to add non-tolled managed lanes on both directions of IH 35 to improve travel times and facilitate HOV and transit usage on the interstate.

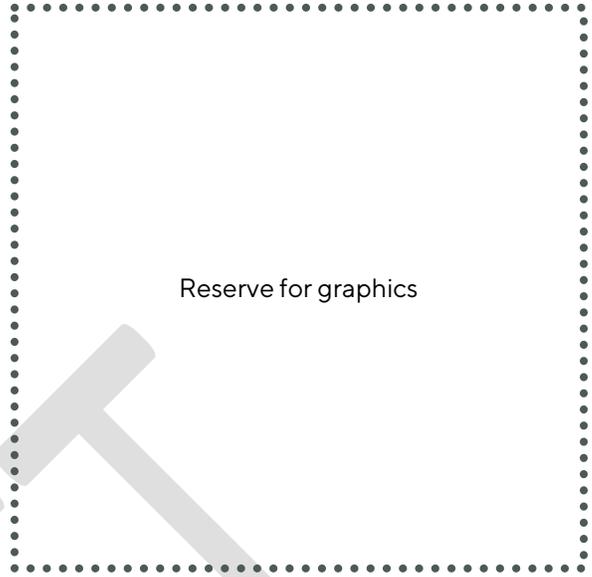
Rail

As the region's only Class I railroad, Union Pacific operates **X** miles of railroad and **X** trains riding those rails each day. With the expected increase in rail freight, the CAMPO region will see a corresponding increase in the number and length of trains through the region daily. This can pose challenges in safety and time for drivers, cyclists, and pedestrians as they potentially encounter longer waits for trains to pass at-grade railroad crossings.

The Rail Division of TxDOT completed a Central Texas Grade Crossing Study in May 2018 which identified the most hazardous crossings and potential improvements in Hays, Travis, and Williamson Counties. These improvements include upgrading warning devices, implementing quiet zones, and grade separations.

In May 2018, CAMPO awarded \$15.2 million to the City of Kyle to relocate a Union Pacific rail siding whose location crossed a major thoroughfare. This location resulted in an almost complete shutdown of traffic within Kyle in the event of a stopped train on the siding.

In partnership with TxDOT, local agencies, and Union Pacific, more efforts like the ones detailed above will better prepare CAMPO region residents to navigate the challenges anticipated with the growth in freight rail.



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Air

While the percentage of freight traveling through air is very small compared to the overall movement of freight in Texas, that low percentage still totals 1.8 million tons of goods annually. Such an amount requires numerous trucks to retrieve those goods from the airport and deliver them to their final destination.

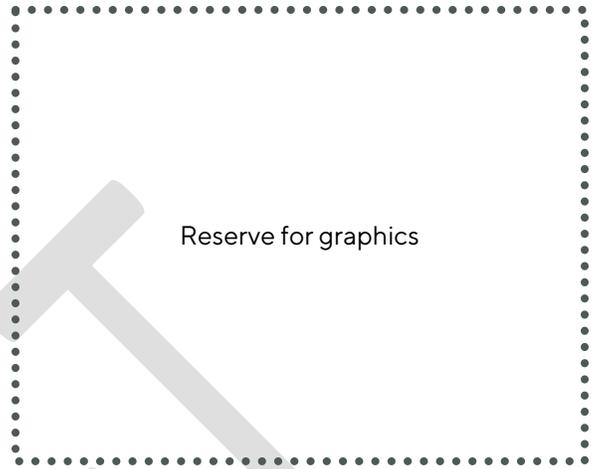
Additionally, according to the 2040 Master Plan of Austin-Bergstrom International Airport (AUS), the number of passenger boardings should total 13.2 million by 2037, more than double its 2016 total of 6.2 million passengers.

The growing amount of passenger and freight traffic through AUS means growing congestion on the roads surrounding the airport. Already, all of the segments of US 183 immediately adjacent to AUS are identified in this document's Congestion Management Process as being in the top 75 of the most congested segments in the region. Currently, CTRMA is working to address some of this congestion through a complete reconstruction of the SH 183 corridor.

An additional challenge to the growth in passenger and freight traffic comes from AUS's planned improvements which potentially include the building of additional runways. Among the alternatives listed in its 2040 Master Plan, the additional runways could necessitate a realignment, tunneling under, or a taxiway over major roadways including SH 71, SH 130, FM 973, or US 183. Coordination between multiple transportation partners including TxDOT and CAMPO would be needed to advance any of these concepts.

Transporting passengers and employees to and from AUS via the public transit system occurs today via Capital Metro's frequent Route 20 service. With the expected increases in passengers at AUS detailed above, Capital Metro is engaged in efforts with the City of Austin to plan a high-capacity transit system expansion including a direct connection known as the Blue Line between AUS, downtown Austin, and other destinations.

Addressing these varied challenges will require extensive coordination among the City of Austin, Capital Metro, CAMPO, and TxDOT.



Internet Retail

The growing presence of e-commerce has a direct impact on roadway traffic in the region. Vans and trucks from retailers and distributors are a constant presence on the region's roads. In 2016, Amazon opened an 855,000 square foot warehouse, called a fulfillment center, to facilitate decreased delivery times to its customers. The City of Pflugerville is also in discussions with a private sector developer to build a 3.8 million square foot logistics/distribution center to deliver goods that were bought and sold over the internet.

The presence of these facilities results in an increased number of medium and heavy-duty trucks on the region's roads. However, the explosive growth in the industry and the lack of publicly available data has left transportation agencies lacking data on the industry's impact to the region's transportation network. In preparation for the next Regional Transportation Plan, CAMPO plans to bridge this gap in data and further study how e-commerce, distribution centers, fulfillment centers, warehousing districts, and related freight infrastructure affect the region's transportation system.

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Future Transportation Technologies: Electric and/or Autonomous Vehicles

Cities across the county have changed as new transportation innovations become available. By 2045, travel behaviors are expected to change significantly due to emerging technologies like autonomous vehicles (AV), electric vehicles (EV), connected vehicle technology, ridesharing platforms, and new technologies that are likely still to come. Planning for the transportation future of a region with the uncertainties of ever-evolving innovation can be both a challenge and an opportunity.

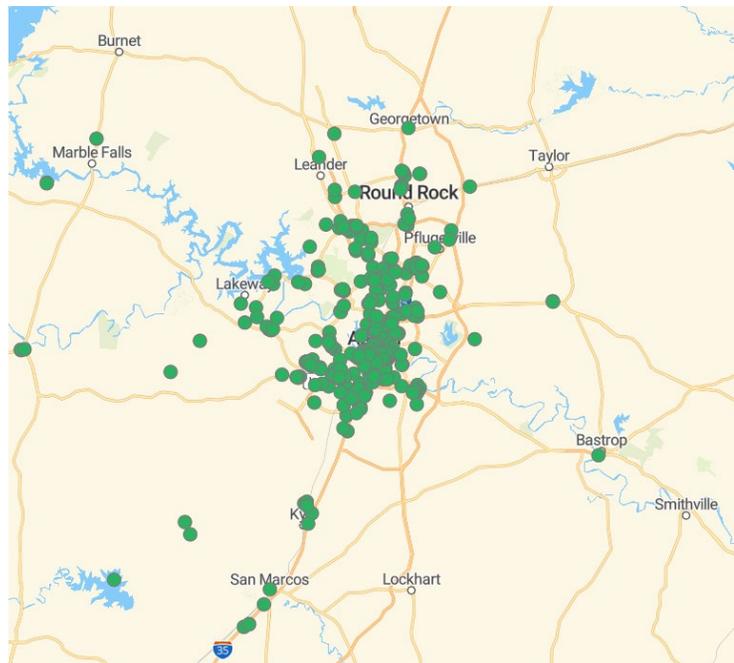
Future Technology Considerations		
	Benefits	Limitations
Autonomous (AV)	<ul style="list-style-type: none"> • AV may allow expanded mobility options for the aging population or those who are otherwise unable to drive. • Autonomous and automated vehicle technologies include important safety features that can benefit all road users. • AV technology may reduce the demand for parking infrastructure 	<ul style="list-style-type: none"> • Evidence suggests a rise in single occupant vehicle trips with more AVs on the road • AV technology predicted to encourage sprawl, allow shifts to even more distant destinations. The megaregion’s average travel distance has been increasing in recent years. • May reduce demand for air travel as the burden of long-distance driving is lessened.
Connected (CV)	<ul style="list-style-type: none"> • Sharing of regional and local real-time safety information via connected vehicle technology contributes to the Regional Incident Management Study’s goal to reduce secondary crashes and to provide accurate and timely traveler information. • Already provides important safety features that assist with congestion management (e.g. lane departure) 	<ul style="list-style-type: none"> • Connected vehicle technology eventually requires integrated infrastructure, a significant investment of time and resources. • Potential concerns about system resilience in power outages.
Electric (EV)	<ul style="list-style-type: none"> • EVs have the potential to provide zero-carbon transportation with a renewable power grid. Gasoline powered vehicles do not. 	<ul style="list-style-type: none"> • Decreased revenues from state and federal gas tax, which currently help fund transportation investments, maintenance and programs • Federal tax incentives insufficient to allow continued market penetration

One concern is how these new technologies will impact land-use decisions. Will the way we travel cause urban development patterns to change or enable them to become more efficient? Studies completed in the Capital Area to-date have conservatively concluded that technological advances in single-occupancy vehicles may equate to slightly higher vehicle miles traveled. Whether the Capital Area will develop in a more compact or dispersed manner remains to be determined.¹

In addition to cutting-edge automobile technology, certain technological advancements create services that may allow people the option to forgo car ownership altogether. There are currently several types of these services being offered in the Capital Area, but the most prevalent continue to be transportation network companies, ride-hailing, and ridesharing. Ride-hailing services are primarily provided through the private sector with some oversight by local governments. Similarly, the ridesharing services allow customers to operate a shared, public vehicle at their convenience. This type of service was popularized by Car2Go and ZipCar—both private companies—with expansion in 2018 and 2019 into other micro-mobility options like scooters, mopeds, and bicycles. The advancement of these on-demand services remains in constant evolution, as does the regulation and liability that surrounds them. Private funding mechanisms and profit structures are also undetermined. As promising and innovative as these services seem, they continue to emerge/contract at different paces, as evidenced by the rideshare service Car2Go’s abrupt departure from the Austin service area in 2019.

The future of transportation brings further questions regarding right-of-way design, as different services and technologies require different spatial elements. For example, electric vehicles require charging stations to ensure enough power to get drivers and passengers to their destinations. Ridesharing companies need designated spaces to store their vehicles while they’re not being used. Ride-hailing companies require flexibility to allow passengers to get in/out of vehicles so that frequent stopping does not disrupt the flow of traffic. The rise of the autonomous vehicle poses a very interesting dialog on the future of right-of-way design as they could potentially eliminate the need for parking.

The regional impact of new and emerging autonomous, electric, and connected vehicle technologies remains uncertain, but responding to and planning for their potential impacts continues to be an important consideration for transportation policy and investment prioritization.



Planned and existing EV charging stations (Courtesy Dept. of Energy)

¹ https://www.caee.utexas.edu/prof/kockelman/public_html/TRB21silolUMAustin.pdf

Vulnerable Populations and Environmental Justice Effects

This section is waiting to see the results from the 2045 model.

When creating the 2045 Regional Transportation Plan, the Capital Area MPO uses the Platinum Planning Program to ensure that the planning process has fair treatment and meaningful involvement vulnerable populations such as seniors, persons with disabilities, minorities, low-income, zero-car households, and persons with limited English proficiency.

- How will the 2045 Plan effect the EJ population?
- Regional Toll Analysis (Appendix XX)

DRAFT

Chapter X – Performance Measures and 2045 Policies

Measuring how safe and reliable people and goods are able to reach destinations are key components of the Regional Transportation Plan. Performance metrics allows for quantifiable analysis to showcase how well a region’s transportation network has improved and what it needs to focus on for future growth. CAMPO utilizes performance measures and metrics prescribed by the United States Department of Transportation’s (USDOT) National Highway Performance Program (NHPP) and Texas Department of Transportation (TxDOT). The CAMPO Transportation Policy Board uses these federal and state policies to create the standards in which CAMPO operates.

National Highway Performance Program

The NHPP was established under the Moving Ahead for Progress in the 21st Century Act (MAP-21) and continued under the Fixing America’s Surface Transportation (FAST) Act, to improve the nation’s mobility challenges. The NHPP is a performance-based transportation planning process that requires MPOs to adopt performance measures and metrics set by the Federal government and the State (TxDOT) in order to provide more transparency in the selection and prioritization of transportation projects.

Texas House Bill 20 and Unified Transportation Program (UTP)

At the state level, Texas House Bill 20 requires the Texas Department of Transportation (TxDOT) to use performance-based transportation planning to evaluate projects that are candidates to be included in the Unified Transportation Program (UTP), TxDOT’s ten-year programming document that guides transportation projects through development and construction stages. All transportation projects must go through the UTP process and Texas House Bill 20’s performance metrics to be able to utilize State funding.

CAMPO 2045 Policies and Performance Measures

Every RTP cycle, CAMPO staff and the Transportation Policy Board review and modify these standards. Since the 2040 Regional Transportation Plan, the CAMPO Transportation Policy Board established two new goals: Equity and Innovation. These goals were created to ensure CAMPO specifically addresses access to opportunities, technological advances, and being able to have a flexible transportation system that has positive impacts on communities and the human environment. Each of the 2045 Policies and Performance Measures are chronicled with their corresponding Plans and/or Studies in **Table XX**.

National Performance Requirements		
Performance Measure		Metric
PM 1	Highway Safety Improvements	Five-year rolling averages for the number of fatalities
		The rate of fatalities per 100 million vehicle miles traveled
		Number of serious injuries
		Rate of serious injuries per 100 million vehicle miles traveled
		Number of non-motorized fatalities and non-motorized serious injuries
PM 2	Pavement and Bridge Conditions	A summary listing of pavement and bridge assets and their condition
		Identification of asset management objectives, measures, and performance gaps
		Lifecycle cost and risk management analysis, financial plan, and identification of investment strategies
PM 3	System Performance	Reliability and predictability
	Freight	National performance management research data set
		Truck travel reliability index
	CMAQ	Annual hours of Peak Hour Excessive Delay per capita
		Percent of non-single occupant vehicle travel
		Total emissions reductions
TAM	Transit Asset Management	Regular maintenance
		Inspections
		Tracking asset condition over time
		Planning for maintenance and replacement costs
		Replacing each asset at the appropriate time

2045 Regional Transportation Plan Goals, Policies, and Studies Alignment

Policy	RATP	RIMS	RACI	TDM	CMP
Encourage implementation of pedestrian facilities with resurfacing, new construction, major rehabilitation, and other maintenance projects of regionally significant roadways at the major arterial functional classification or higher.	X		X		X
Encourage implementation of bicycle facilities with resurfacing, new construction, major rehabilitation, and other maintenance projects of regionally significant roadways at the major arterial functional classification or higher.	X		X		X
Consider transportation improvements that increase person-carrying capacity, rather than vehicle-carrying capacity of the regional transportation system.		X	X	X	X
Use transportation investments to support continued reduction of per capita vehicle miles traveled.	X		X		X
Expand the public transportation, and other, transportation systems to keep up with the region’s mobility needs over time.		X	X	X	X
Facilitate preservation of right-of-way that is adequate to accommodate the planned functional classification of the roadway as shown in the CAMPO long range plan. Adequate right of way shall be determined by locally adopted standards or engineering discretion, or along state system rights-of-way, consistent with standards promulgated by TxDOT, and should generally fall within the width ranges shown in the CAMPO Plan.		X	X	X	X
Any existing roadway to which additional tolled capacity is added shall continue to be maintained and improved and to provide the same amount or more non-tolled capacity as the roadway currently provides. To the extent that it is within the authority of the toll operator and the CAMPO Transportation Policy Board, the non-tolled capacity shall have the same number or fewer traffic control devices as the current roadway except where law and/or safety requires otherwise.		X	X	X	X
The initial operation of any Central Texas Regional Mobility Authority (CTRMA) tolled facility shall allow non-tolled use by public buses and paratransit.		X	X	X	X
Develop a transportation system that minimizes impacts on the 100-year flood plain, aquifer recharge and contributing zones, and other environmentally sensitive areas while providing for regional mobility.	X		X		

Policy	RATP	RIMS	RACI	TDM	CMP
Reduce vehicle emissions through implementation of transportation investments and other activities.	X	X	X	X	X
Develop a transportation system that incorporates context-sensitive design principles into the design of transportation projects.	X		X		
Target 50 percent of available CAMPO discretionary federal funding (STP-MM) to support the planning and development of activity centers using the three metrics (population, employment, and street grid connectivity) outlined in the CAMPO Regional Activity Centers Analysis for well calibrated/balanced land use and mobility. (The same project may address both the 15 percent bicycle and pedestrian, and the 50 percent Centers target policies.)	X		X		X
Target 15 percent of available CAMPO discretionary federal funding (STP-MM) to bicycle and pedestrian projects through the CAMPO TIP process. (The same project may address both the 15 percent bicycle and pedestrian, and the 50 percent Centers target policies.)	X		X		
Consider reducing the cost of moving goods and enhancing the region as an effective freight transportation center as priorities when evaluating projects for funding under the CAMPO Transportation Improvement Program.	X	X	X	X	X
Support development of high density, mixed-use activity Centers in the locations shown on the Regional Activity Centers Analysis.	X		X		X
Work with local jurisdictions to encourage clustering of shipping activities near freight transportation termini, modal shifts, and accommodating the safe and efficient flow of heavy-duty vehicles.	X	X	X	X	X