



Chapter 1: Introduction

CHAPTER HIGHLIGHTS

- The Regional Multimodal Plan
- The Region
- The MPO
- The Transportation Modes
- Outline of MTP Chapters

The Regional Multimodal Plan

Historically, the dominant mode of travel in the region of the Killeen-Temple Metropolitan Planning Organization (KTMPO) has been the personal automobile, and a transportation planning process that focused on automobile mobility was appropriate and adequate. However, people and industries are rethinking their transportation needs, preferences, and habits. It is now critical to consider multiple options for mobility and access, and the way we plan for transportation must progress to include all transportation modes for people and freight. Transportation planning must shift from its historic focus on the automobile mode and expand to consider all modes within an **integrated transportation system**.

The vehicle for accomplishing the transportation planning task for an integrated transportation system is this **Regional Multimodal Plan**. The change in names from the previous Regional Thoroughfare Plan to



this Regional Multimodal Plan reflects the greater emphasis that this update places on planning for all transportation modes. There are two significant characteristics of an integrated transportation system to be considered in this Plan. First, the integrated transportation system is **regional**, covering the geographic area of the Killeen-Temple Metropolitan Planning Organization (KTMP) with its member jurisdictions and rural areas. Second, the integrated transportation system is **multimodal**, considering the needs and potential of existing transportation modes for people and freight, and planning for appropriate new modes.

The purpose of a plan is not to predict the future; it is to enable it.

In general terms, the Plan is a tool for defining the orderly development of the integrated transportation system so that all planning and projects are efficient, effective, and mutually supportive. The Plan has a **short-term** component to address existing transportation needs, and a **long-term** component that considers future needs defined by anticipated socioeconomic growth and the performance of the transportation system. Both components support the ultimate Plan goals of enhancing mobility, increasing the connectivity and convenience of the transportation system, supporting opportunities for economic development, and enhancing the quality of life in the region.

As a practical tool, the Plan includes a Regional Thoroughfare Plan that defines roadway functional classes and typical cross sections. The Regional Thoroughfare Plan considers the individual Thoroughfare Plans from KTMP member jurisdictions in developing its consistent and comprehensive definitions and cross sections for the full region. The Thoroughfare Plan component of the Regional Multimodal Plan is in no way intended to supersede the plans of the KTMP member jurisdictions; it is a tool to define consistent roadway standards for the entire region. This enables an orderly system of roadway types and consistent performance, and supports coordination among KTMP member jurisdictions.

The more proactive you can be, the less reactive you have to be.

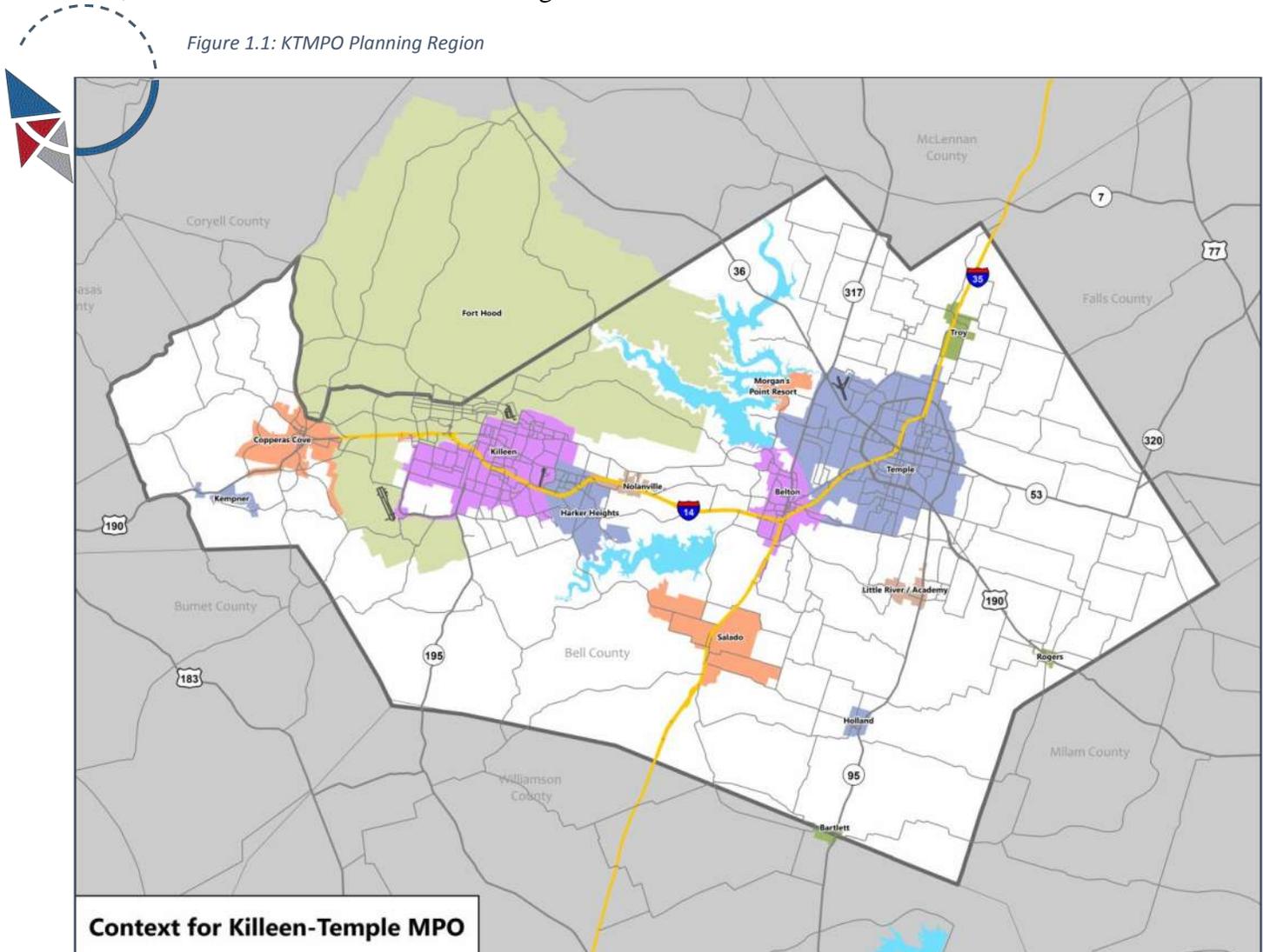
The Region

One important feature of the integrated transportation system is that it is **regional**. Regional transportation planning recognizes that the needs of the integrated transportation system are not limited to a single city or corridor, and takes a broader view to consider the needs of the whole region, including smaller communities and rural areas. To fill this need, federal regulations have established the concept of the Metropolitan Planning Organization (MPO) as a planning agency for a region, defining a planning area based on the extent of current and anticipated socioeconomic activity. This provides a vehicle for regional planning that is not constrained by city boundaries. The boundaries and context of the KTMP planning region are shown in **Figure 1.1**. The planning area includes the full extent of Bell County and portions of Coryell and Lampasas Counties. The Figure shows the boundaries for the travel demand model, which include a small sliver of McLennan County to accommodate the alignment of Stampede Rd., and a small slice of



Williamson County, so that the full extent of the City of Bartlett would fall within the study area. The main cantonment, the Robert Gray Army Airfield, and other portions of Fort Hood lie within the study area, but the north cantonment and training area lie outside.

Figure 1.1: KTMPO Planning Region



The KTMPO region includes seven larger jurisdictions which are treated in more detail based on their significance in the region and for coordination with their individual planning efforts. Each of these jurisdictions have produced their own Comprehensive Plan or Thoroughfare Plan that must be considered in building this Regional Multimodal Plan.



BELTON

Texas

Belton is located southwest of Temple at the junction of IH-35 and IH-14/US 190. Belton serves as the Bell County seat.

Commercial activity in Belton is focused downtown and along N. Main Street and E. 6th Street. Industrial uses lie along IH-35, IH-14/US 190 and E. 6th Street. Major employers are the University of Mary Hardin-Baylor and Bell County government. The US Census estimates a 2017 population of 20,900. Total employment is about 7,900.



City of Copperas Cove

Copperas Cove is located to the west of Fort Hood, straddling Coryell and Lampasas Counties. It is

best classified as a bedroom community oriented to Fort Hood, with commercial activity along Business Route 190. Retail-oriented employers at the Town Square Shopping Center are collectively the largest employer in Copperas Cove. The US Census estimate of the 2017 population is 32,800 with total employment of about 6,300.



The City of
Harker Heights

Harker Heights sits between Killeen and Stillhouse Hollow Lake. It is primarily a bedroom community with most of its commercial uses

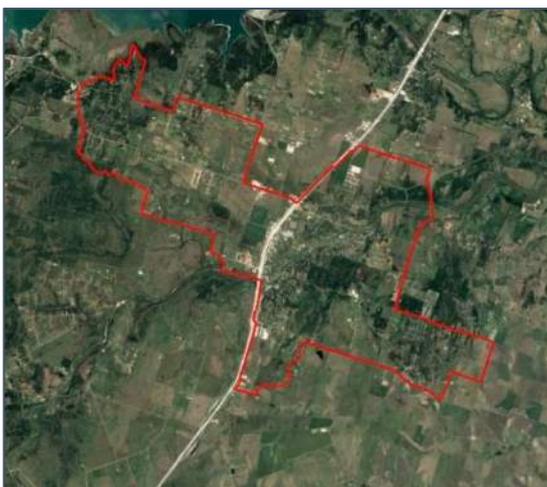
located along US 190, Business Route 190, and Knight's Way/FM 2410. The top employer sectors include Seton Hospital and the Market Heights retail area. The US Census estimates a 2017 population of 29,800. Total employment is about 7,500.



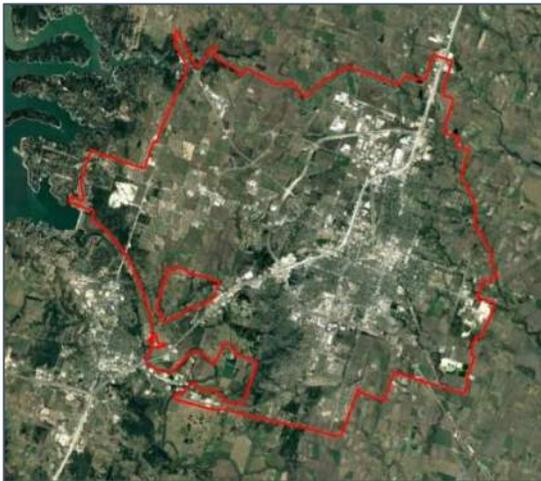
Fort Hood covers around 215,000 acres in Bell and Coryell Counties, bordering directly along Killeen and Copperas Cove. Significant units stationed at Fort Hood include III Corps, 1st Army Division West, and 1st Cavalry Division. The main cantonment with the majority of the residential area lies within the KTMPPO area, but much of the training area and the north cantonment are outside the region. Population and employment on the base vary with unit deployments, but typically are around 65,000 active duty service members and dependents and 9,000 civilian employees.



Killeen is located on US 190, bordered by Fort Hood on the north and west sides and Harker Heights on the east side. Killeen is mostly residential, with commercial activity along US 190, Business 190, and SH 195. Killeen also has an industrial park in the eastern portion of the city adjacent to US 190. The top employers are Central Texas College, Metroplex Hospital, Killeen Mall, AEGIS Communications Group, Killeen-Ft. Hood Regional Airport, and Skylark Field. The 2017 population estimate from the US Census is 143,400 and total employment is about 33,000.



The Village of Salado is located south of Belton, with development centered along IH-35 and Salado Creek. The top employers in Salado focus on the arts and tourism, with nineteen sites listed in the National Register of Historic Places. The 2017 estimate of population is 2,000 and total employment is about 1,300.



Temple is located along IH-35 and US 190 in the eastern portion of the KTMPO region. Commercial activity is located on the southern edge of the city, IH-35, and US 190. Industrial parks are located along Loop 363 and southeast of Temple. The top employers include Scott & White Hospital, Temple College, the Veteran's Clinic, Tenneco Packaging, McLane Southwest, Walmart Distribution Center, Wilsonart, Temple Mall, King's Daughters Hospital, and Draughon-Miller Central Texas Regional Airport. The US Census estimate of the 2017 population is 73,600. Total employment in Temple is about 47,100; so while Killeen has the most population of any city in the region, Temple has the most employment.



The remainder of the KTMPO region includes rural areas and eight other communities. Several of these communities have population or employment larger than the other listed jurisdictions, but the communities listed in this group have not produced their own Comprehensive Plans or Thoroughfare Plans.

Total population for the eight other communities is about 18,100 and total employment is about 3,400. In the rural area, total population is about 39,400 and total employment is about 9,000. This calculates to 89% of the regional population lying within the 15 incorporated communities and 11% in the rural area; while 94% of employment falls within the incorporated communities and 6% lies in the rural area.

The eight other communities include:

- Bartlett, straddling Bell County and Williamson County, with a 2017 population estimate of 2,800 and about 600 total employment.
- Holland in Bell County, with an estimated 2017 population of 1,100 and total employment just over 200.
- Kempner in Lampasas County, with a population of 1,100 and about 60 total employment.
- Little River-Academy in Bell County, with an estimated 2017 population of 2,000 and employment just under 350.



- Morgan’s Point Resort in Bell County, with an estimated 2017 population of 4,200 and total employment of about 240.
- Nolanville in Bell County, with an estimated population of 5,000 and 560 in total employment.
- Rogers in Bell County, with an estimated population of 1,300 and total employment of 340.
- Troy in Bell County, with an estimated 2017 population of 1,900 and an estimated total employment of 700.

The MPO

Federal law requires that a Metropolitan Planning Organization (MPO) is designated for each urban area with a population of 50,000 or more. The MPO is to provide a continuing, cooperative, and comprehensive transportation planning process that results in plans and programs that consider all transportation modes and supports metropolitan community development and social goals. The ultimate goal of the planning process is the development and operation of an integrated intermodal transportation system that supports the efficient movement of people and goods.

Federal and state legislation requires that each MPO have a long-range transportation plan covering a 25-year period. This plan is called the Metropolitan Transportation Plan (MTP). Its purpose is to develop the overall vision for multimodal planning in the region, develop a systematic and inclusive planning process, determine future needs, and develop a prioritized list of projects that will effectively address future needs in an efficient and equitable manner. The **Regional Multimodal Plan** with its Thoroughfare Plan and Bicycle/Pedestrian Plan are not directly components of the MTP, but they are complementary and feed into the MTP to support the definition and selection of transportation projects.

Preparing the MTP and the Regional Multimodal Plan are only two of the planning purposes of the Killeen-Temple MPO. KTMP also produces a Transportation Improvement Plan (TIP) for short-term investments and a Unified Planning Work Program (UPWP) to define the annual schedule of planning work performed. Mapped traffic counts in the region, GIS layers, other plans and reports, and studies for specific transportation projects are also produced and available on the MPO website at <http://www.KTMPO.org>. Public participation is welcomed throughout the process for each of these MPO products, and is guided by the Public Participation Plan, which is also available on the KTMP website, but direct public participation is not a component of Regional Multimodal Plan development.

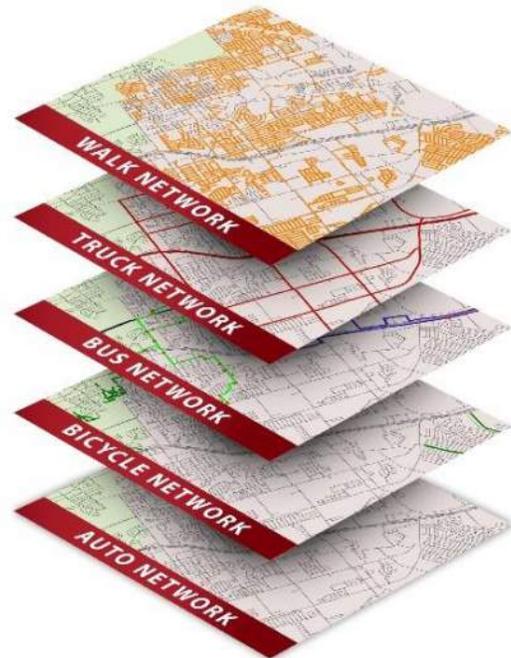
Transportation Modes

One important feature of the integrated transportation system is that it is **multimodal**. Multimodal transportation planning recognizes that the needs of the integrated transportation system in the region are not limited to the historic emphasis on personal automobiles, and takes a broader view to consider the needs



of all transportation modes for personal travel and for freight. To fill these needs, the Regional Multimodal Plan embraces multimodal transportation planning as the vehicle to develop the historically auto-oriented transportation system into a truly integrated multimodal transportation system.

The integrated multimodal system can be considered as a series of layered networks with some links shared among transportation modes, some links exclusive to one or more modes, and some modes interfacing with the system as points rather than as links. Multimodal transportation planning must consider the features of each mode individually, and must also plan for how each mode interacts with the others. While each mode in theory can operate independently, in practice the interface between modes can be vital in establishing how well each mode performs. In particular, the issue of safety in the interface between active transportation modes and motorized modes is critical. Where facilities such as protected bicycle lanes are provided, users feel much more comfortable and ridership has been seen to increase significantly.



Seven unique networks are components of the integrated multimodal transportation system in the KTMP region:



The **auto network** is currently the most robust component of the integrated system. This network places the least restrictions on its users in terms of access, barriers, and connectivity. Transportation planning and funding programs have historically had an automobile orientation. The auto network also carries by far the majority of all travel in the KTMP region, and so the traditional focus of the planning process on the automobile is entirely appropriate. The

challenge in developing the integrated multimodal network is to broaden the focus of transportation planning while at the same time preserving the regional mobility provided by the auto network.



The **bicycle network** typically shares the roads with the auto network, and bicycles are in fact classified as vehicles by state law. Bicycle riders are, however, much more vulnerable than the auto users with whom they share the road. The interface between bicycles and motor vehicles is therefore an important issue, both along the street and at intersections. Various types of bicycle facilities have been developed to address this interface, including shared lanes, bike lanes, protected bike lanes, bike boulevards, and protected intersections.



The **bus network** for the KTMPPO region is defined by the service provided to the HOP's ten fixed routes that provide service in Temple, Belton, Nolanville, Harker Heights, Killeen, and Copperas Cove. The fixed route system is served by 313 stops with a variety of amenities ranging from simple bus stop signs to intermodal stations providing indoor waiting areas and linkage to taxi, intercity bus, and AMTRAK service for the stations in Killeen and in Temple.

The HOP's paratransit service is also a component of the bus network. It operates within $\frac{3}{4}$ mile of the fixed routes in Killeen and in Temple, providing bus service and connections to qualified persons with disabilities.



The **truck network** is essentially the same as the auto network, but includes restrictions based on height and loaded weight. Some at-grade railroad crossings and bridges also place restrictions on the routes that trucks may reasonably use, and some jurisdictions have specified routes for hazardous materials. Specific routes defined in the regional network that consider the needs of freight traffic include the National Highway Network, the Freight Analysis Framework network, the Texas Highway Trunk System, and local truck-restricted roads.



While the **walk network** has historically received the least direct attention in transportation planning, it is vital to the transportation system. Every trip begins and ends as a walk trip, even if it is only to walk to access another mode of transportation. As with bicycles, walking is an active transportation mode with users who are particularly vulnerable to motorized vehicles. The safety of the interaction between the walk mode and motorized modes is therefore a critical consideration in multimodal transportation planning.



The **airport system** is not a network co-linear with the other network layers. Rather, it is an independent network that interacts with the other layers at specific points – the discrete and controlled land-side access to public airports. While this narrows the range of issues for multimodal transportation planning, the issues themselves remain the same: access, barriers, and connectivity between the airports and the rest of the networks must still be considered.



Like the airport system, the **rail system** is an independent network that interacts with the other network layers at specific points. The points of interaction are not limited to access points at rail stations; consideration must also be given to locations where the rail network crosses the road network with at-grade crossings. At-grade crossings define concerns with safety and pavement condition. Railroad grade-separated crossings may have height, width, weight, and load restrictions as well.

The rail system includes freight service run by Burlington Northern Santa Fe (BNSF) and Union Pacific, and an independent but connected freight network within Fort Hood. Passenger rail service is provided by AMTRAK using Burlington Northern and Union Pacific tracks. There is also about 6 ½ miles of abandoned rail track that lies between Belton and southern Temple which provides opportunities for re-use and can be considered in planning the integrated multimodal network.

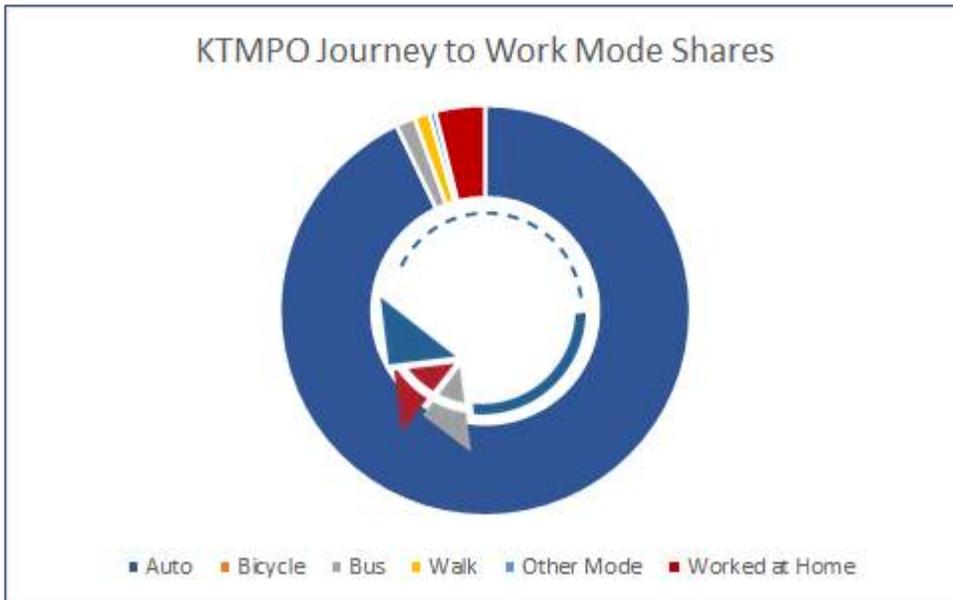


Share and Balance of Transportation Modes

The goal of a regional multimodal system is to develop complementary modal networks that interact to provide safe, convenient, and practical transportation options for all users. Within this balanced system, all transportation modes are not equal, nor are all modes equally used. The private automobile is the predominant mode of transportation in the KTMPO area. Transportation planning must recognize this fact, and take care to balance the needs and traditional accommodation of this mode while increasing the integration of all modes into the regional multimodal system.

Figure 1-2 shows the Census data for each transportation mode’s share of the total for the Journey to Work (JtW) trip. The auto mode was used by 92.9% of all trips. Transit mode share was 1.5%; walking was the travel mode for 1.2% of trips, and other modes such as taxis were used for 0.5%. The mode share for bicycle was so low that it was reported as 0.0%. The total for all non-automobile modes was 3.2%, compared to a 3.9% share for people working at home.

Figure 1-2: KTMPO Journey to Work Mode Shares

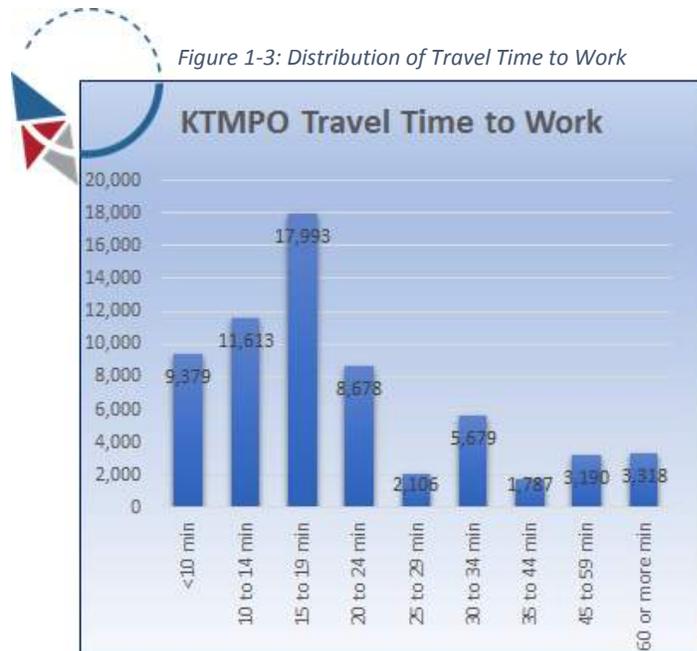


The relatively low shares for non-automobile modes can be seen as a testimony of how the region views the safety, convenience, and practicality of those forms of transportation within the existing network. One of the purposes of this Regional Multimodal Plan is to determine the gaps, barriers, and constraints in the network that must be addressed in order to balance all transportation modes. Once the balance is addressed, volumes of use of these modes may be expected to increase.

Figure 1.3 shows the distribution of travel time to work for the KTMPO region, based on Census data. A cumulative 32.9% of all work trips are shorter than 15 minutes, and 61% are under 20 minutes. While travel times by bicycle, bus, and walking would undoubtedly be longer, the data show that the majority of

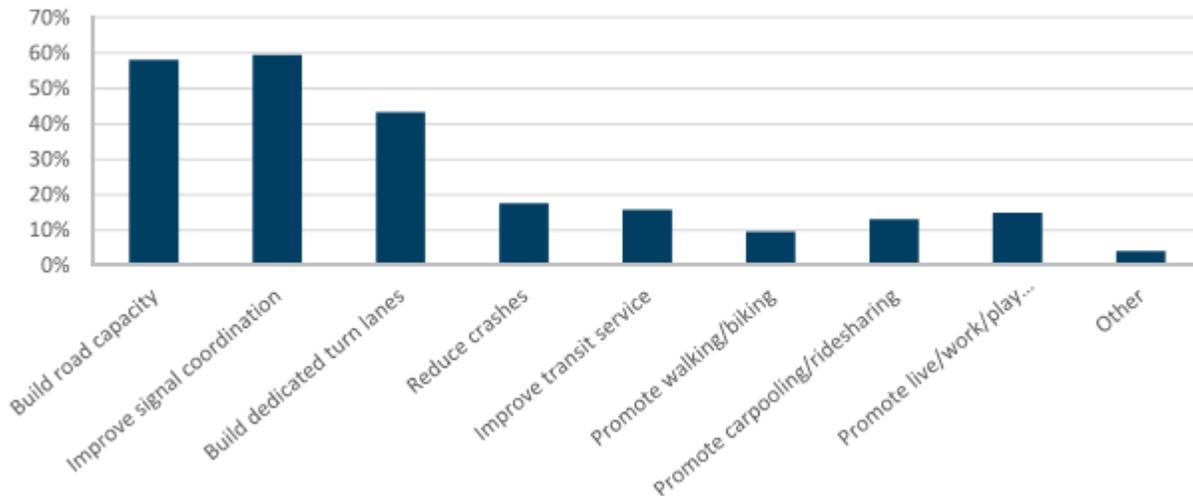


work trips can feasibly be made by other transportation modes; the issue is balancing the networks and the operating conditions so that each mode is seen as safe, convenient, and practical.



The results of surveys taken for the 2016 Congestion Management Process provide further data on how the auto and other transportation modes are perceived in the KTMP region. **Figure 1-4** charts the survey results in answer to the question “What do you believe are the most effective strategies for addressing traffic congestion?” The results show that both roadway capacity and operational efficiencies were top strategies. This is consistent with the predominance of the automobile in regional mode shares. Strategies addressing a multimodal system consistently were scored by between 10% and 20% of respondents.

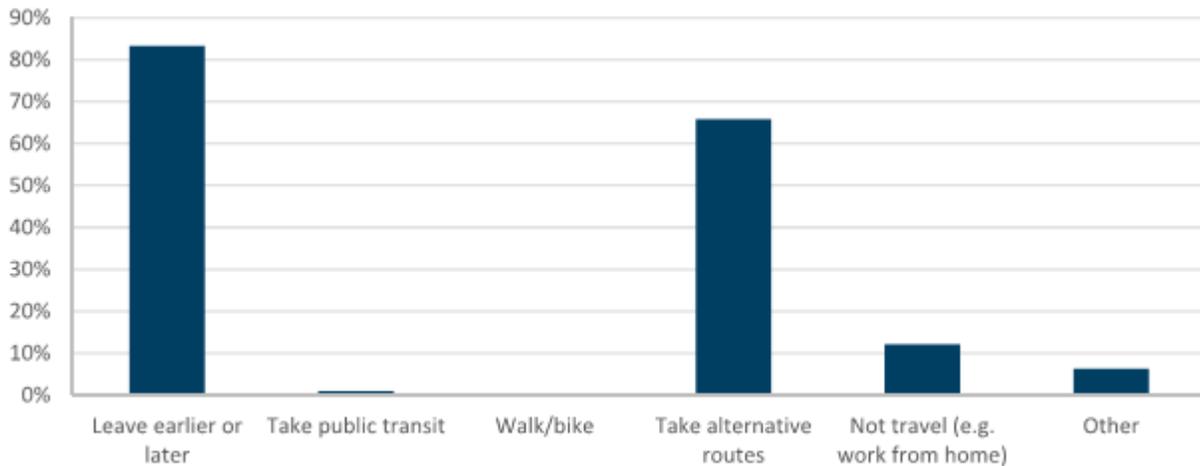
Figure 1-4: Strategies to Address Congestion





Taking this to a personal level, the survey also asked “What actions do you take to avoid traffic congestion?” The responses, shown in **Figure 1-5**, again show a reliance on strategies based on driving a personal automobile.

Figure 1-5: Actions to Avoid Congestion



Taken together, the Census data and the Congestion Management Process surveys reinforce the perception of the automobile as the predominant mode of transportation. This does not negate the consideration of other transportation modes in the regional multimodal system; but rather outlines the challenge of developing the proper and adequate balance between modes.

Outline of Regional Multimodal Plan Chapters

This first chapter to the Regional Multimodal Plan has introduced:

- The concept and function of the Regional Multimodal Plan.
- An overview of the region and its jurisdictions.
- A definition of the MPO with its establishing Federal regulations and its planning purposes.
- An overview of the transportation modes to be considered in this plan.

Subsequent chapters of the Plan will introduce additional concepts and detail the elements of the Plan:

Chapter 2 will detail the planning context of the Plan. It references the individual Thoroughfare Plans developed by KTMPPO member jurisdictions.

Chapter 3 introduces the concept of Complete Streets and associated movements designed to promote the integration of modes into an integrated system serving the needs of all users.



Chapter 4 will define the concept of Functional Classes for planning for modal networks.

Chapter 5 will provide inventories of existing facilities by transportation mode.

Chapter 6 is the regional Thoroughfare Plan for the years 2017 and 2045.

Chapter 7 will define the active transportation networks for bicycles and pedestrians.

Chapter 8 will cover the modes which are defined as group transportation: transit, carpool and rideshare, intercity bus, passenger rail, and passenger air.

Chapter 9 will detail the freight system, focusing on the truck and rail freight networks. Specialized high-value, low-weight air cargo will also be considered in this chapter.

Chapter 10 complements the concepts of Complete Streets as introduced in Chapter 3 with details on general design standards and how the component transportation modes work together.

Chapter 11 will define performance measures related to the integrated multimodal system. It will reference and support the project selection criteria used for the latest version of the MTP, but will be independent of them. The performance measures will tie to the required planning factors as defined in the FAST Act.

Chapter 12 will list potential conceptual projects for each mode based on identified needs that will be presented to the Technical Advisory Committee, and may be submitted by local jurisdictions for project development. Projects will not be ranked or prioritized in this Plan.

Chapter 13 will provide a summary of the Plan to document its processes and results in a clear but concise manner. Any action items for implementing the Plan will be detailed in this final chapter.