Sherman-Denison MPO

MOVING FORWARD: 2045 METROPOLITAN TRANSPORTATION PLAN

Approved by Policy Board on December 4th, 2019

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2045 Metropolitan Transportation Plan
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SHERMAN-DENISON
METROPOLITAN PLANNING ORGANIZATION

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SHERMAN-DENISON MPO
METROPOLITAN PLANNING ORGANIZATION
INTERMODAL URBAN TRANSPORTATION PLANNING

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1. INTRODUCTION

Introduction

The Metropolitan Transportation Plan (MTP) is a comprehensive mobility plan that determines future transportation needs for the next 25 years. The MTP is developed through a process of continuous participation by the public, member cities, and transportation entities within the region. The mobility projects identified in the 25 year plan are determined based on the goals and vision developed throughout the MTP planning process.

The Sherman-Denison Metropolitan Planning Organization (SDMPO) is the agency responsible for coordinating mobility projects and transportation planning efforts within the Sherman-Denison region. The MPO consists of two committees that oversee the efforts of planning agency; the Policy Board and the Technical Advisory Committee. The Policy Board consists of both agency leaders and elected officials in the region to guide the administrative and policy direction of mobility coordination in the region. The Technical Advisory Committee or TAC directs the technical aspects of the decision-making process. Ultimately the Policy Board approves items and/or mobility projects that are brought forward after approval by the TAC.

The MPO planning area was expanded in 2016 to include the entirety of Grayson County. The municipalities of Bells, Collinsville, Denison, Dorchester, Gunter, Howe, Pilot Point, Pottsboro, Sadler, Sherman, Southmayd, Tioga, Tom Bean, Van Alstyne, Whitesboro, and Whitewright are included in the MPO area. Figure 1 shows the boundaries of the cities within the MPO planning area.

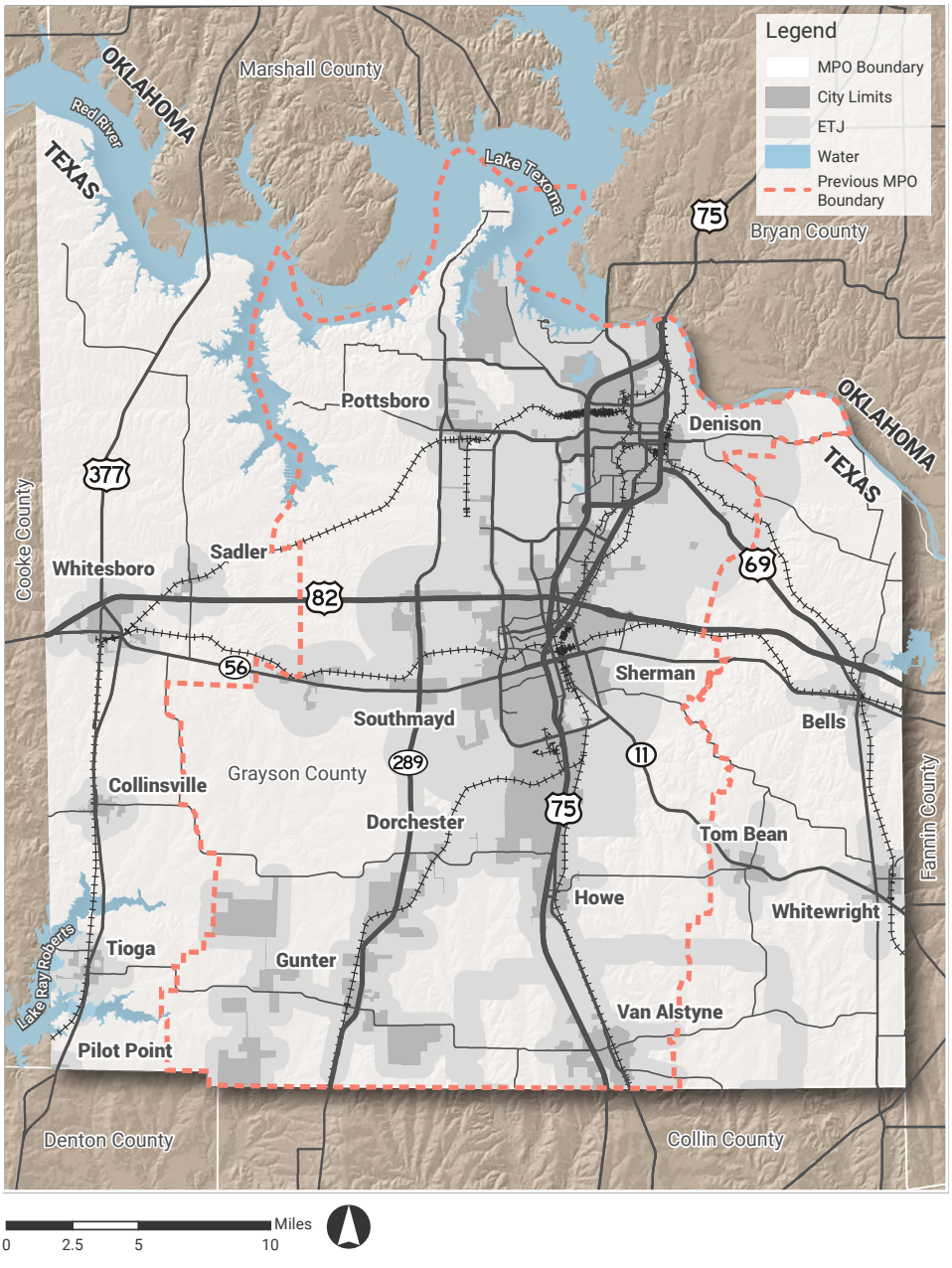


Figure 1: SDMPO Boundaries

MPOs in the United States are regional transportation agencies that have been established through federal legislation under the Federal Highway Administration (FHWA). MPOs are found in metropolitan areas that have a population over 50,000. The SDMPO was designated in 1970 to coordinate transportation improvements in the Sherman-Denison metropolitan area.

The most recent federal legislation to guide MPOs operations and the development of the MTP is the Moving Ahead for Progress in the 21st Century Act (MAP-21) and the Fixing America's Surface Transportation Act (FAST Act). MAP-21 legislation focuses on performance-based planning. The performance goals focused on safety, infrastructure condition, congestion reduction, system reliability, freight movement and economic vitality, environmental sustainability, and reduced project delivery delays.

The FAST Act was signed into law in 2015 and builds on MAP-21 by providing long-term funding for surface transportation and strives to improve mobility on America's highways, create jobs and support economic growth, accelerate project delivery, and promote innovation. The FAST Act expands the scope of consideration of the metropolitan planning process to include improving transportation system resiliency and reliability, reducing or mitigating the stormwater impacts of surface transportation, and enhancing travel and tourism.

Downtown Denison

2. MOBILITY CONDITIONS

Mobility Conditions

A closer look at the mobility in the MPO area reveals the current state of commuting characteristics, VMT, areas of congestions, crash rates and crash hot spots, and public transportation. Examining these features with finer detail allows for better prioritization of transportation projects. The travel demand model for the MPO was also updated to reflect the new demographics and network changes. The travel demand model was originally created by TxDOT's Transportation Planning and Programming Division (TP&P). The SDMPO model uses TransCAD travel demand model software to run the 4-step modeling process.

Commuting Characteristics

Understanding the commuting characteristics of the population is critical to planning for the future mobility needs in the Sherman-Denison MPO. According to the 2013 – 2017 U.S. Census American Community Survey (ACS) there are 55,939 workers over the age of 16 within Grayson County. The modal split of trips within the County identify that the majority of commuters drove in a single-occupant vehicle at 78%. The next highest modal group was those that carpool at 12.6%. Figure 2 breaks down the mode share of commuters in Grayson County.

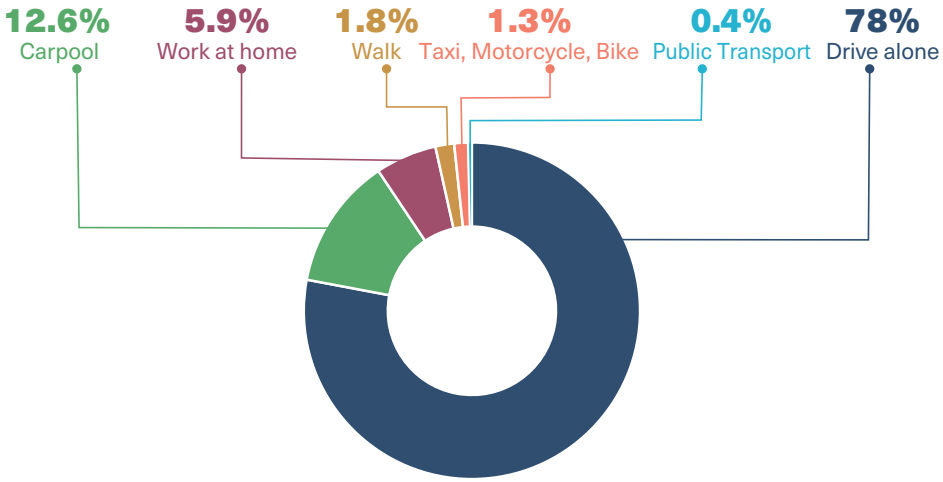


Figure 2: Grayson County Mode Share
Source: U.S. Census ACS 2013-2017

The inter- and intra-regional commuting patterns in Grayson County are unique. According to the U.S. Census 2015 O-D Employment Statistics; 22,415 employees that live in Grayson County work in the county, 25,481 that live in Grayson County work outside of the County, 18,465 employees commute into Grayson County to work from other counties. Figure 3 demonstrates these unique travel patterns for Grayson County. This high inter-regional commuting pattern is most likely due to the close proximity to the Dallas-Fort Worth region considering that most workers leaving the county travel to the south and southwest. This data confirms the importance of regional corridors in the MPO such as US 75 and US 82, thus maintaining these corridors and preventing future congestion is a priority for improving mobility within the region.

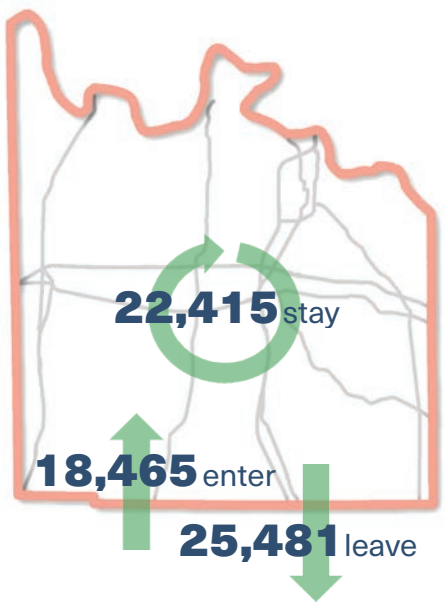


Figure 3: Regional Commuting Patterns
Source: U.S. Census LEHD Origin-Destination Employment Statistics 2015

The travel time to work for workers that reside in Grayson County is just less than the state average at 24.9 minutes compared to 26.1 minutes for the state, as seen in Figure 4. Both of these are less than the average travel times to work for Dallas and Fort Worth at 26.8 and 27 minutes respectively. The travel time to work in Grayson County being lower than the state average could be a result of the fact that 40% of workers live within 10 miles of their job and that Grayson County has fewer congested corridors and less vehicle delay than other metro areas in the State.

Vehicle Miles Traveled (VMT)

Daily Vehicle Miles Traveled is one key indicator to understand mobility growth in a particular area or geography. It is the daily number of miles traveled by all vehicles, including trucks and is calculated by multiplying the traffic volume on a roadway with the length of the roadway. Since the last MTP Update completed in 2014, VMT in Grayson County has increased from 3,494,372 to 3,824,641 in 2017.

According to the Texas Department of Transportation (TxDOT), it is projected that VMT in Grayson County will increase by 62% between 2010 and 2040. VMT can be used to help allocate resources, estimate emissions, and assess traffic impacts. VMT can also be used to help determine pavement maintenance needs and to compare traffic safety data. VMT is an important factor in transportation planning because it indicates travel demand and behavior. Figure 5 demonstrates the VMT in Grayson County for every year since 2005.

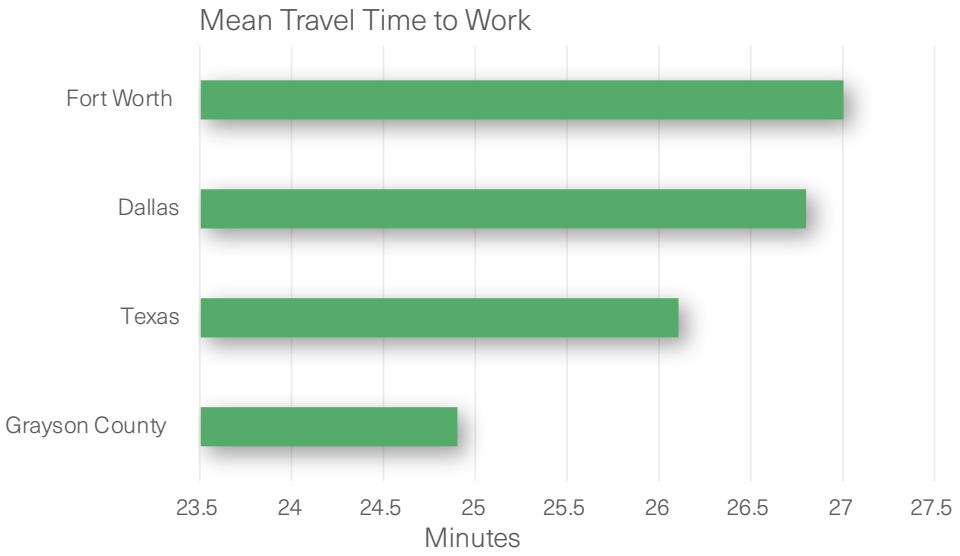


Figure 4: Mean Travel Time to Work
Source: U.S. Census ACS 2013-2017

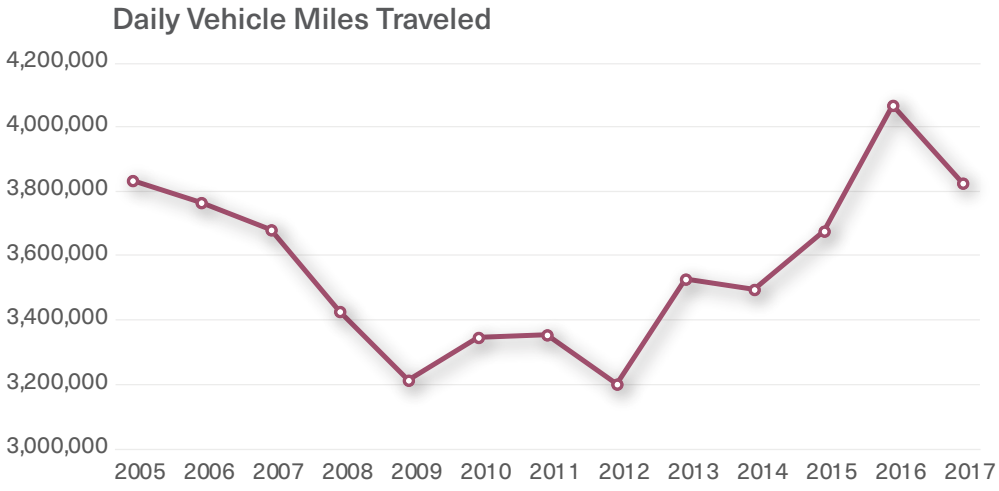


Figure 5: Daily Vehicle Miles Traveled
Source: TxDOT

Traffic Congestion & Delay

Congestion and delay is another set of key indicators that are used to understand mobility conditions in the region. Congestion is calculated by taking the traffic volumes on a roadway and dividing them by the volume capacity of the roadway. Delay is calculated by subtracting the congested travel time with the free flow travel time along a particular roadway or within a certain geography. The delay calculation helps to understand how much time it takes to travel from origin to destination.

According TxDOT, US 75 is currently the only moderately congested roadway in Sherman County, with a one-mile section between Denison and Sherman being congested.

In the future, congestion is forecasted along the majority of US 75 with sections of US 82 and FM 1417 in Sherman being moderately congested. These will be areas to watch and consider further improvements to reduce congestion and travel time.

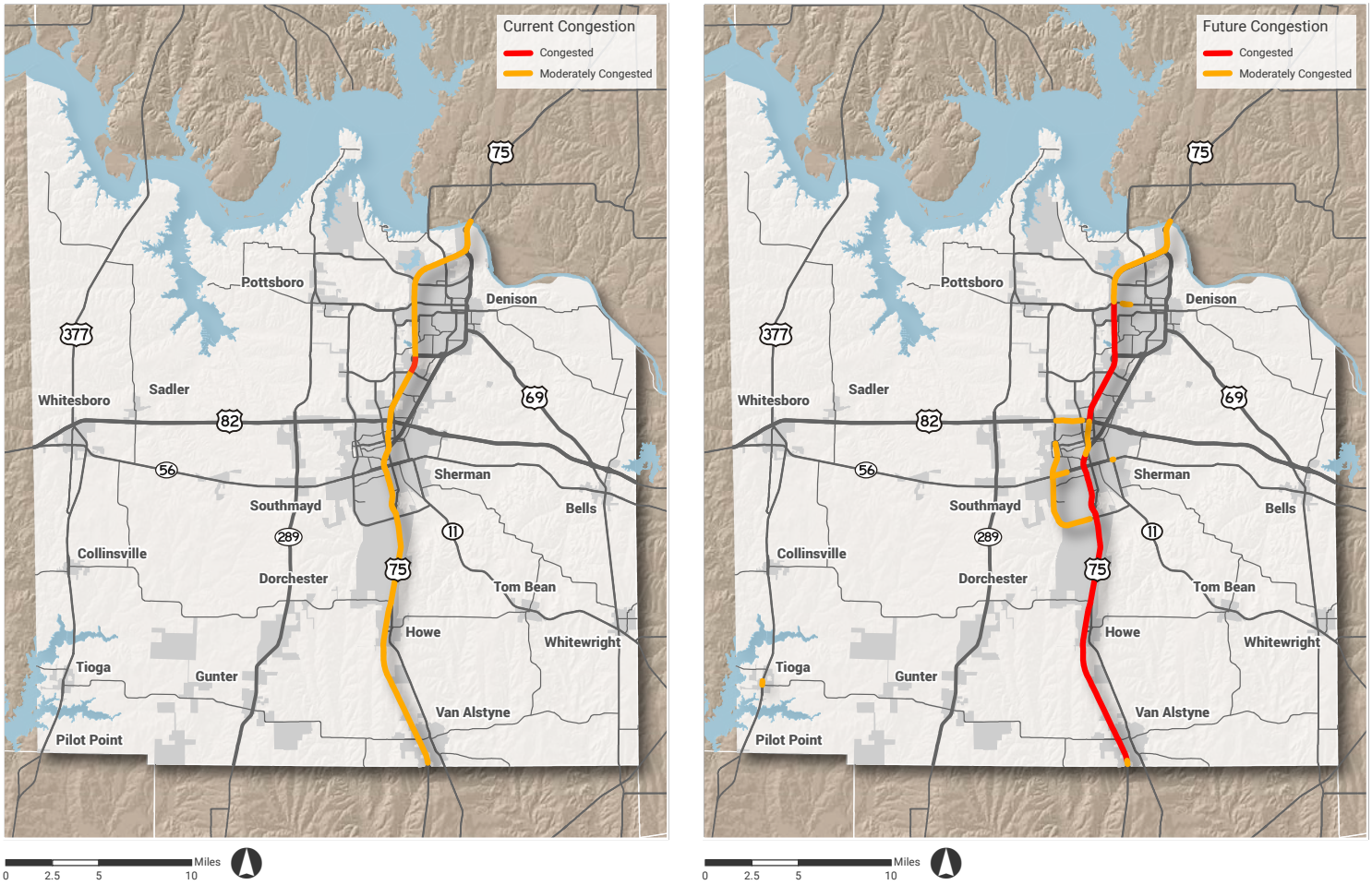


Figure 6: Current (2017) and Future (2037) Traffic Congestion
Source: TxDOT

Travel Demand Model

The regional travel demand model is a planning tool that is used by the majority of MPOs in the country to help understand the demands of growth and increases in traffic. The model is built on a set of mathematical assumptions in an attempt to simulate observed traffic patterns. The model best evaluates the impacts of future growth by comparing and analyzing traffic congestion along roadways within the region.

The SDMPO travel demand model was last updated in 2014 and is currently in the process of being updated by the TxDOT Transportation Planning and Programming (TPP) division. The model will have a base year of 2013 and a forecast year of 2045 with interim years of 2018, 2023, and 2028. It is expected that the MPO will have a working travel demand model by October 15, 2019.

The MPOs travel demand model depends on two primary inputs to accurately forecast future traffic: demographics and roadway characteristics.

Demographics

The travel demand model uses demographics as one of the key inputs to generate trips. Within the model each household determines the number of trips that are generated in a particular location. On the other hand, employment when broken up into office jobs, retail jobs, industrial jobs, and educational employment calculates the number of trips that are attracted to a particular area on a daily basis. With the increased population growth in Grayson County, particularly in the areas south of Sherman on the Collin County boundary, the demographic analysis within the travel demand model is key to understand the future traffic impacts in the region.

The demographic conditions in the County are changing. According to the U.S. Census population growth between 2013 and 2017 in Grayson County has been increasing. In 2013, the county population was 121,292 and has grown to 126,146 in 2017 with a 1% annual growth rate. The majority of the population and employment is located in the cities of Sherman and Denison with increases in population growth being seen in Van Alstyne, Howe and Gunter. Figure 7a demonstrates the distribution of population across the county, which is clustered in and around these cities. Figure 7b shows the employment clustering in urban areas, especially Sherman and Denison.

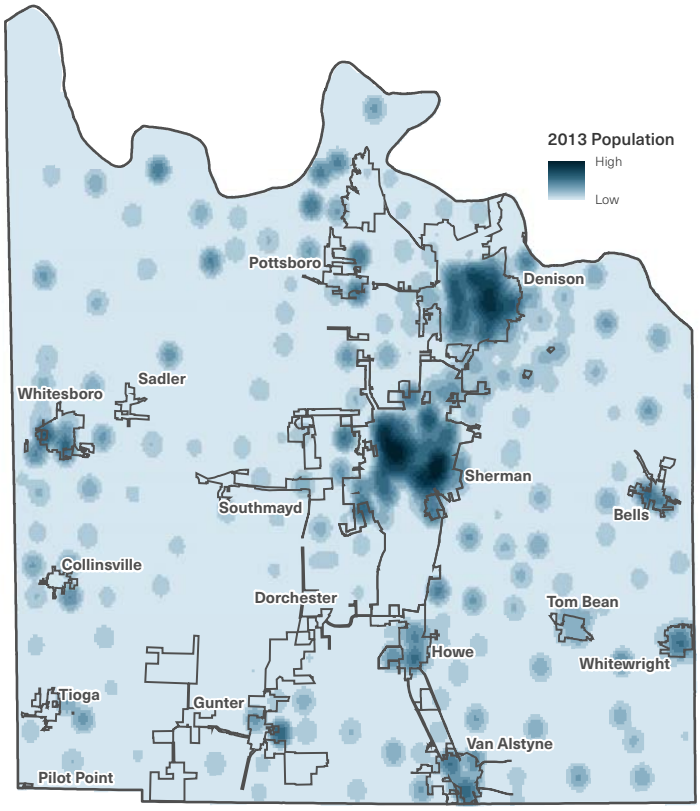


Figure 7a: 2013 Population Heat Map

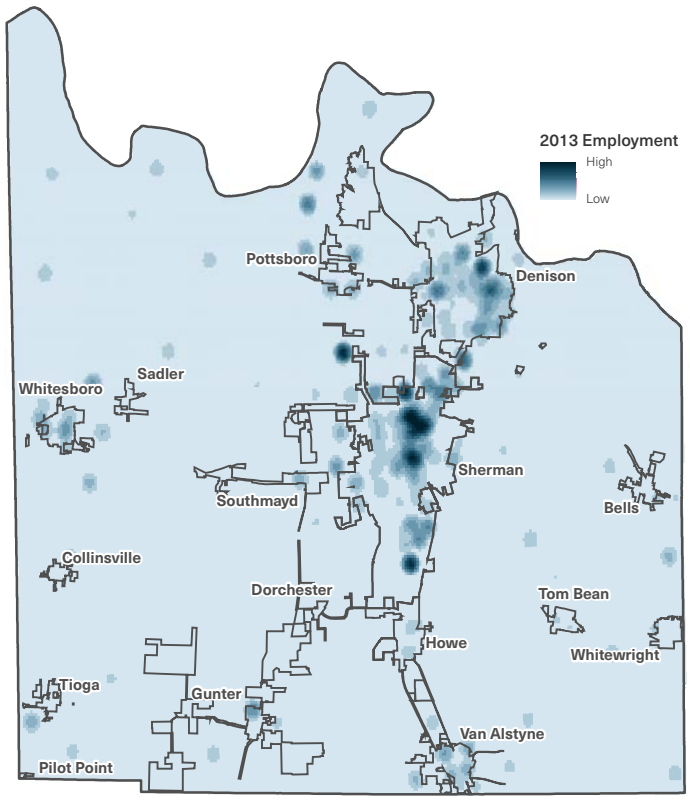


Figure 7b: 2013 Employment Heat Map

Roadway Characteristics

The roadway network is the other important input in the travel demand model to help determine traffic conditions in the future. The network determines the supply of infrastructure in the region and how much capacity is available. The capacity of each roadway is determined by its functional classification and the area type. The characteristics of a roadway in the travel demand model is also impacted by the speed. For example, a roadway that is an arterial in an urban area will have a different speed and lane capacity than a rural arterial. Typically the more rural the roadway the higher the speeds and capacities. Also, roadways that have a higher functional classification typically have higher speeds and capacities assigned to them. Local streets are not used in the travel demand model because the volumes are traditionally low and a proper analysis of the local network is difficult to accomplish using a macro-model.

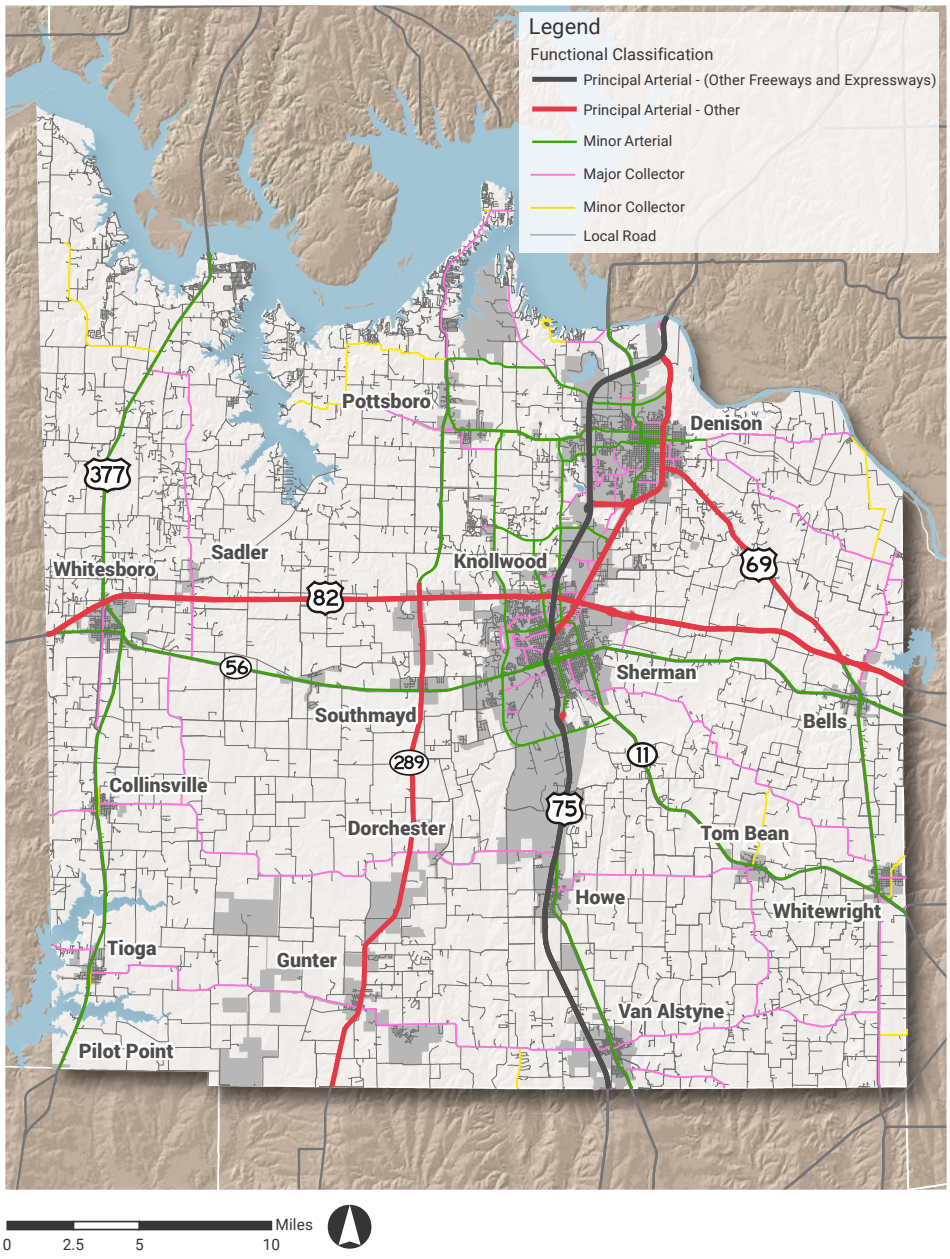


Figure 8: Functional Classification Map

Safety

Traffic safety has always been an important element for transportation professionals to address in Grayson County. It is often recommended as one of the highest mobility priorities for residents and also for transportation planners, traffic and roadway engineers, and elected officials in the region. In the United States, motor vehicle crashes are the leading cause of death. In Texas, at least one person has died every day for nearly the last 19 years on Texas roadways.

TxDOT is hoping to reduce that number by creating a goal to end all fatalities on Texas roadways by 2050.

Crashes also have a significant impact in the economy of the region, both from the overall societal cost of the crashes and also the increase in delay and congestion as a result of the specific crashes. In Grayson County between 2015 and 2017, crashes have a societal cost of approximately $400 Million a year.

These crash costs are based on tangible consequences such as economic losses and intangible consequences such as physical pain and emotional suffering from people involved in these crashes (AASHTO, 2018). These estimates cannot fully represent the losses occurred when a person is involved in either an incapacitating or fatal motor vehicle crash, but rather provide general estimates based on research developed for the Highway Safety Manual. Table 1 breaks down the cost per injury by crash severity and the total cost of crashes from 2015-2017 in Grayson County.

Table 1: Crash Costs for Grayson County
Source: FHWA, Crash Costs for Highway Safety Analysis, 2018

Crash Severity	Cost Per Injury	2015-2017 Total Crashes		Total Cost
Fatality (K)	$11,295,400	64	1%	$722,905,600
Incapacitating Injury (A)	$655,000	268	6%	$175,540,000
Non-Incapacitating Injury (B)	$198,500	875	18%	$173,687,500
Possible Injury (C)	$125,600	860	18%	$108,016,000
Non Injury (O)	$11,900	2801	58%	$33,331,900
Total	-	4868	-	$1,213,481,000

Overall Safety Performance and Statistics

CRASH RATES

Comparing crashes among different geographies or as population growth is occurring over time is done by using crash rates. The crash rate for a particular geography is calculated by multiplying the number of crashes by the vehicle miles traveled, or the amount of traffic produced in the area. This helps to understand the impact of crashes based on the amount and distance of the trips especially in areas with growing populations.

The number of crashes may increase in an area, but if VMT and population is increasing along with the number of crashes, the crash rate may remain constant. The goal is to see a reduction in crash rates in the region and ultimately see a reduction in overall crashes.

In Grayson County, the 3 year average crash rate has been trending down since 2007. The crash rate peaked in the 2007-2009 years with a 3 year average of 130 crashes per 100 million VMT. With the most recent data available the crash rate in Grayson County is at 121 crashes per 100 million VMT for the years 2015-2017.

The Grayson County crash rate is similar to Lamar County and higher than Cooke County. It is lower than the Collin County crash rate. The crash rate is also lower than the State average of 201 crashes per 100 million VMT during the same time frame, which is shown in Figure 9.

While Grayson County fares better than the state overall, it is still necessary to address the areas that are experiencing the highest crash rates, with particular interest in crashes that result in fatalities and serious injuries.

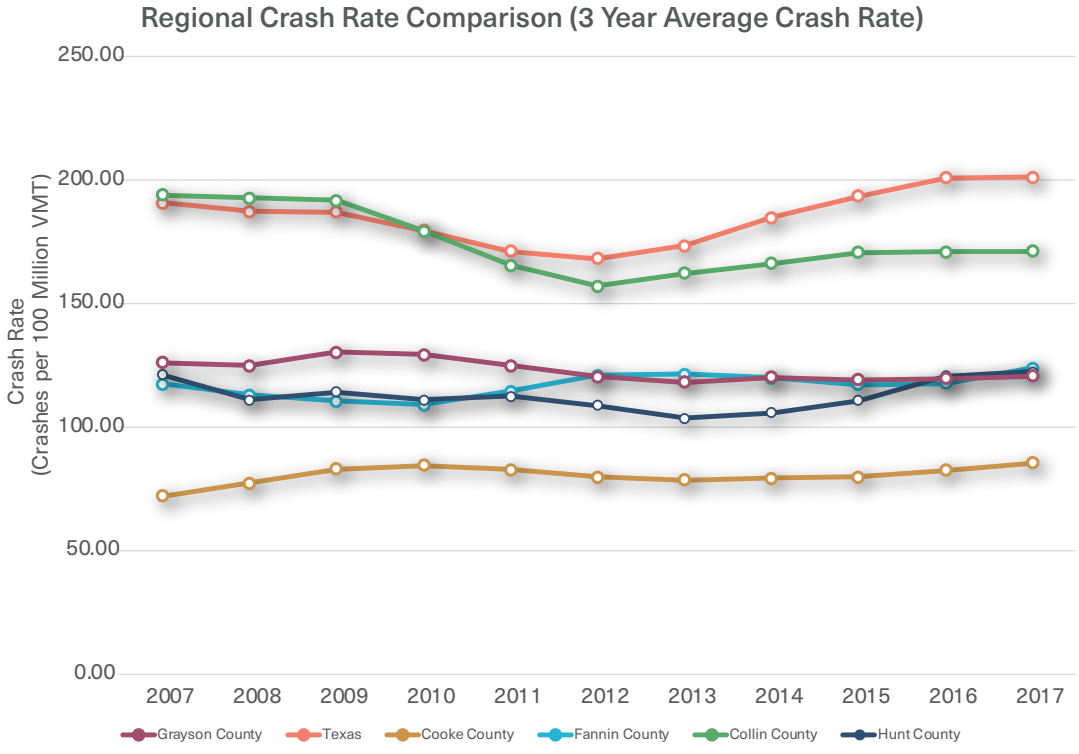


Figure 9: Regional Crash Rate Comparison
Source: TxDOT

FATAL CRASHES

Fatality crashes are the most important to understand and to prevent because of their impact on our society. In the last 5 years there have been over 100 fatality crashes with 118 fatalities on roadways within Grayson County. Figure 10 identifies the locations of the fatality crashes that have occurred in Grayson County in the last 5 years.

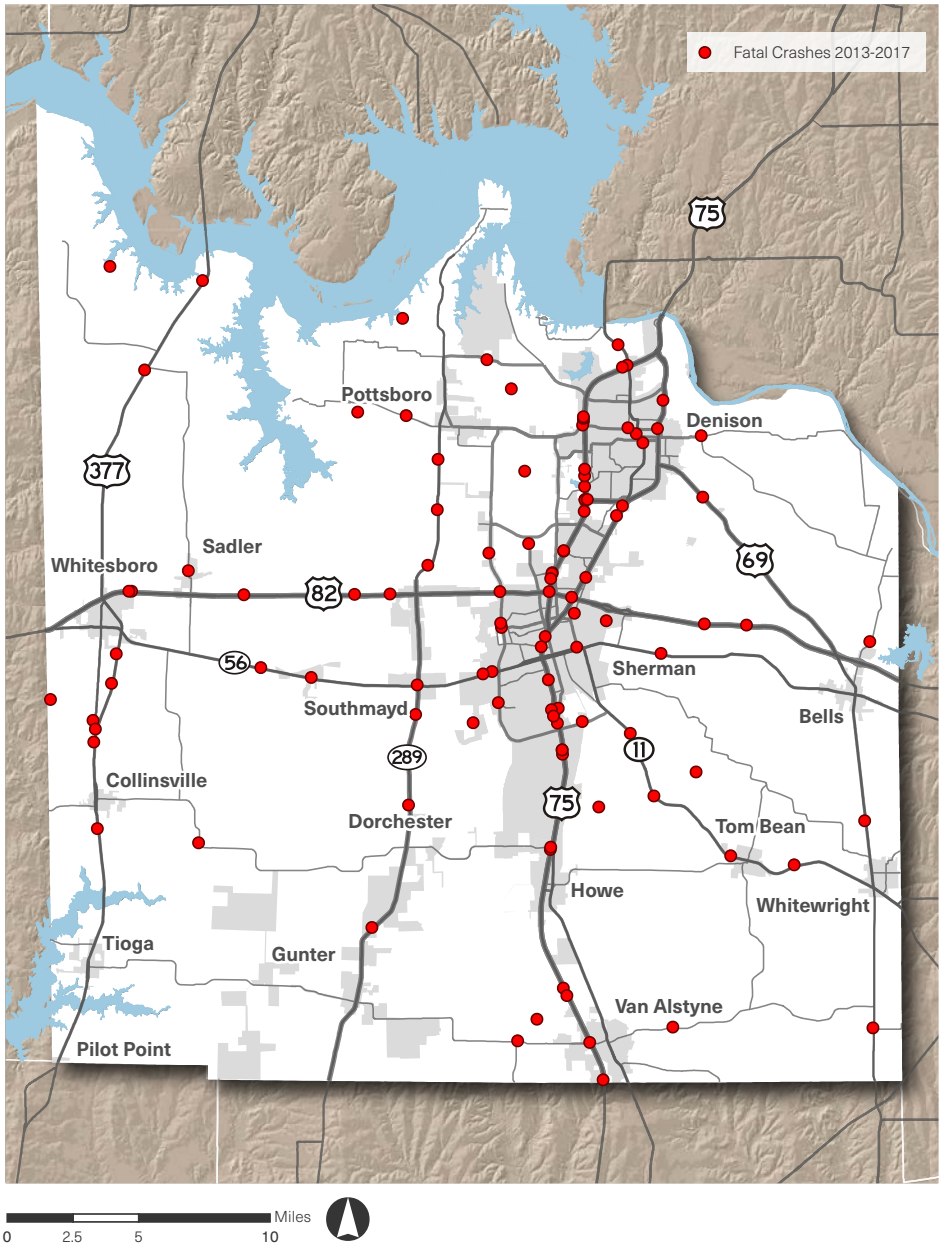


Figure 10: Fatality Crashes in Grayson County 2013-2017

INCAPACITATING CRASHES

Incapacitating injury crashes involve the serious injury of one or more people involved in that particular crash. Severe injury crashes result in tremendous physical and emotional pain and a loss in productivity. In the last 5 years there have been 466 serious injury crashes in Grayson County. Figure 11 identifies the locations of Incapacitating Injury Crashes that have occurred in the last 5 years.

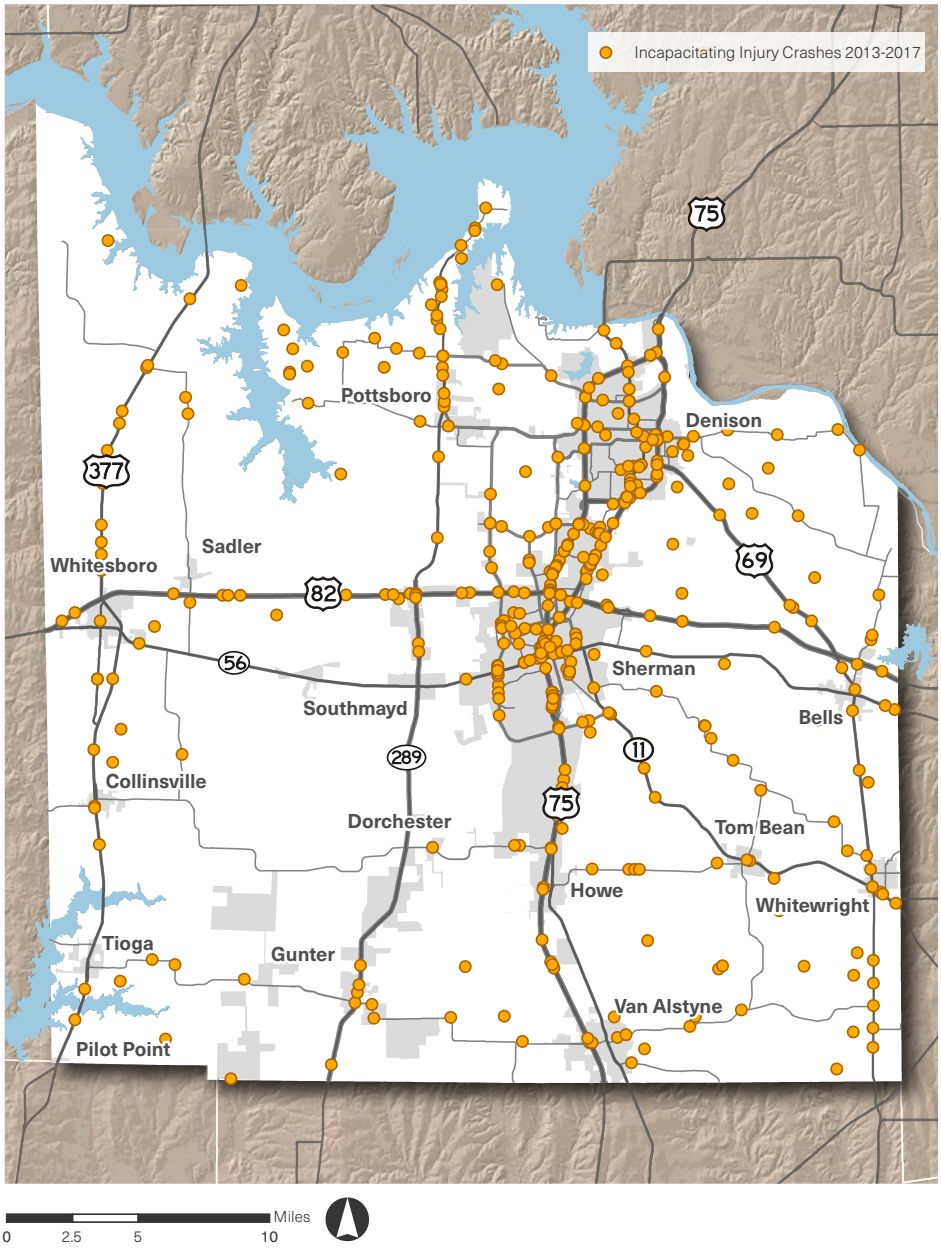


Figure 11: Incapacitating Injury Crashes in Grayson County 2013-2017

BICYCLE AND PEDESTRIAN CRASHES

In the United States, pedestrian and bicycle crashes are increasing. In some cases the increase in bicycle and pedestrian crashes is actually exceeding the increase in VMT. The increase in pedestrian and bicycle crashes may be a result of increased bicycle and pedestrian trips in mixed use and urban areas caused by changing land use patterns.

There is nothing wrong with increased pedestrian and bicycle trips, but because these are vulnerable users, keeping them protected when traveling from their origin to destinations is important. Pedestrians and bicyclist when involved in a traffic crash have a higher percentage of it resulting in an injury or a fatality. In the last 5 years there have been 121 pedestrian and bicycle crashes. Of those crashes 36% of them were either fatal or incapacitating injury crashes. That is in contrast to the overall crash percentage in Grayson County with only 7% of crashes being fatal or incapacitating injury crashes. Figure 12 identifies the locations of these pedestrian and bicycle crashes in Grayson County.

Corridor Hot Spots

Determining the crash rate along corridors in Grayson County helps to understand the roadways with greatest safety challenges. Once these corridors can be identified then potential mitigation solutions can be applied to help increase safety and reduce crashes along these corridors. Crashes in Grayson County were generally clustered around Sherman and Denison, particularly along US 75, US 82, SH 91, SH 56, and FM 1417. Reducing all crashes and severe crashes is necessary and can be achieved by implementing projects and policies in these areas that focus on increasing safety.

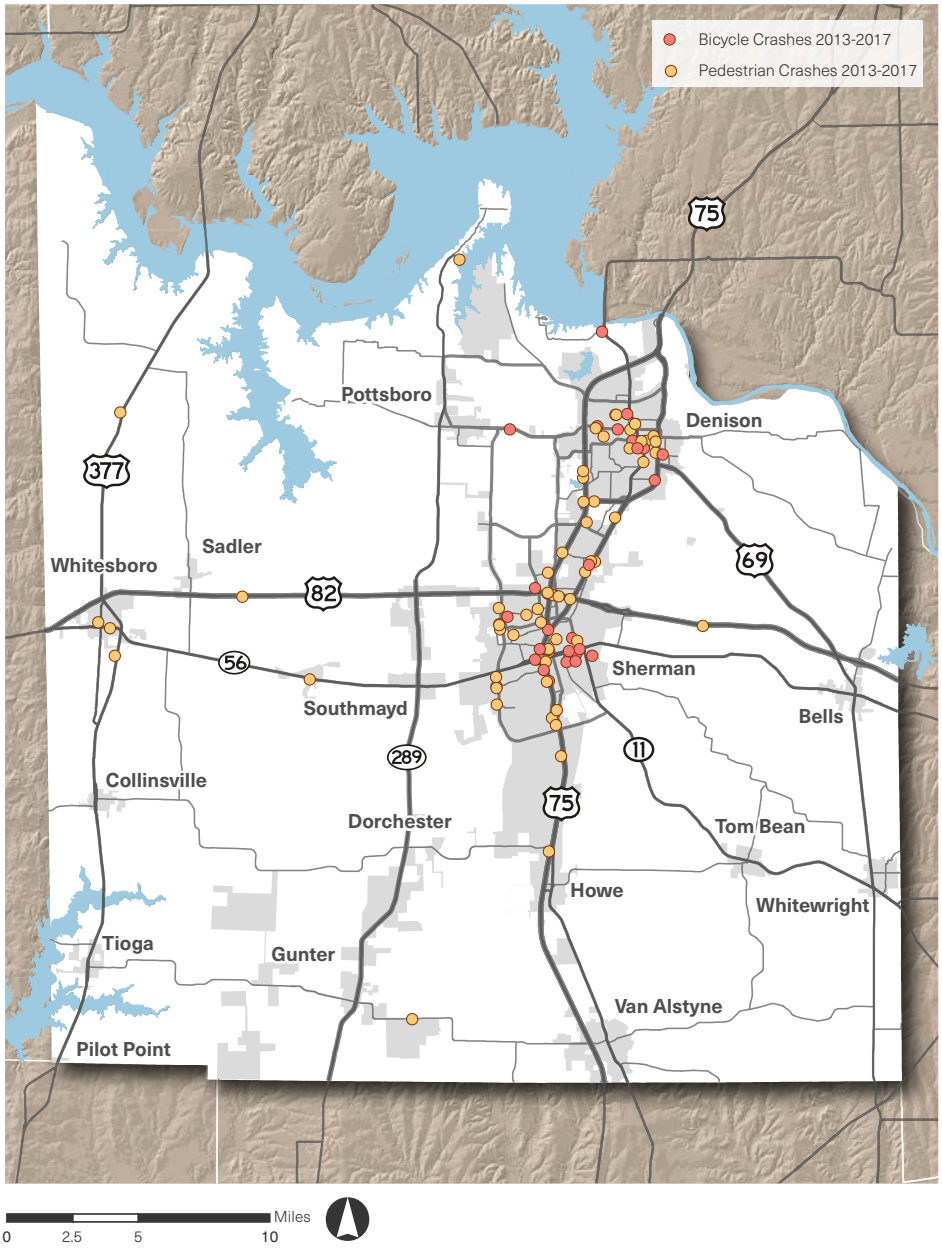


Figure 12: Bicycle and Pedestrian Crashes in Grayson County 2013-2017

Listed below are roadways that have experienced the highest amount of crashes.

- US 82 between US 75 and US 377
- US 75 between FM 1417 and FM 691
- FM 1417 between SH 56 and US 82

The identified hot spots are being addressed by the MPO through projects listed in Chapter 8.

Intersection Hot Spots

Some of highest frequency of traffic crashes occur at intersections. The severity of crashes at these intersections can range from property damage only to fatalities so it is important to understand the intersections that have the highest crash rate so that mitigation and safety solutions can be applied to assist in reducing crashes.

Listed below are intersections that experienced the highest amount of crashes.

- US 75 at FM 121 in Van Alstyne
- US 75 at Houston and Lamar in Sherman
- SH 56 at FM 1417 in Sherman
- US 75 at US 82 in Sherman
- US 75 at Travis St in Sherman
- US 75 at FM 691 in Denison
- US 75 at FM 120 in Denison

The MPO has planned and in some cases recently completed construction projects to address these hot spots. The recommended project list demonstrated in Chapter 8 addresses the safety challenges that have been indentified through this analysis.

Public Transportation

The Texoma Area Para-Transit System (TAPS) currently provides on-demand, shared-ride, curb-to-curb service in six counties including Grayson, Cooke, Fannin, Montague, Wise, and Clay. They have 16 vehicles in operation to serve the six county region. Riders must call at least 48 business hours in advance between 7 AM and 3 PM to schedule a ride. The current service provides transportation for people in the county without access to an automobile. There is not a fixed route public transportation service in Grayson County.

TAPS currently operates with a public-private partnership with Transdev to provide the on-demand services. TAPS splits their budget between urban and rural services, with 35% of the budget going to urban and 65% to rural. Routes are determined to be rural if either the origin or destination of the trip is rural. TAPS does not currently have any sales tax funding in the County. The majority of their funding comes from 5307 funding (Urbanized Area Formula Grants) for transit in the urban service areas, which is composed primarily of Sherman and Denison.

TAPS Bus
Source: TAPS

Grayson County Thoroughfare Plan

In 2018, the SDMPO Policy Board approved a new regional thoroughfare plan that combined the planning efforts of Sherman, Denison, Gunter, Howe, and Van Alstyne and provided additional guidance for municipalities in the County and municipalities without an adopted thoroughfare plan. Figure 13 shows the current thoroughfare plan for the county that was adopted in May 2018. This new plan accommodates the expected future growth in the county. In the region, US 75 and US 82 are designated as freeways that provide access within and through the county. US 75 serves as the main north-south Corridor, connecting the MPO to Oklahoma and DFW, and US 82 provides east-west connections. US 377, US 69, and SH 289 are principal arterials that offer additional north-south routes. FM 902, SH 11 and FM 121 are principal arterials running east-west across the county. An extension of the Dallas North Tollway from Collin County is also noted in the thoroughfare plan.

Most of the cities within the MPO area are located along major roadways that provide access to the rest of the region and allow people and goods to move easily. With the expansion of the SDMPO planning area to include the entire County, there are many more roadways and connections in the region to include in the planning considerations for the MTP Update.

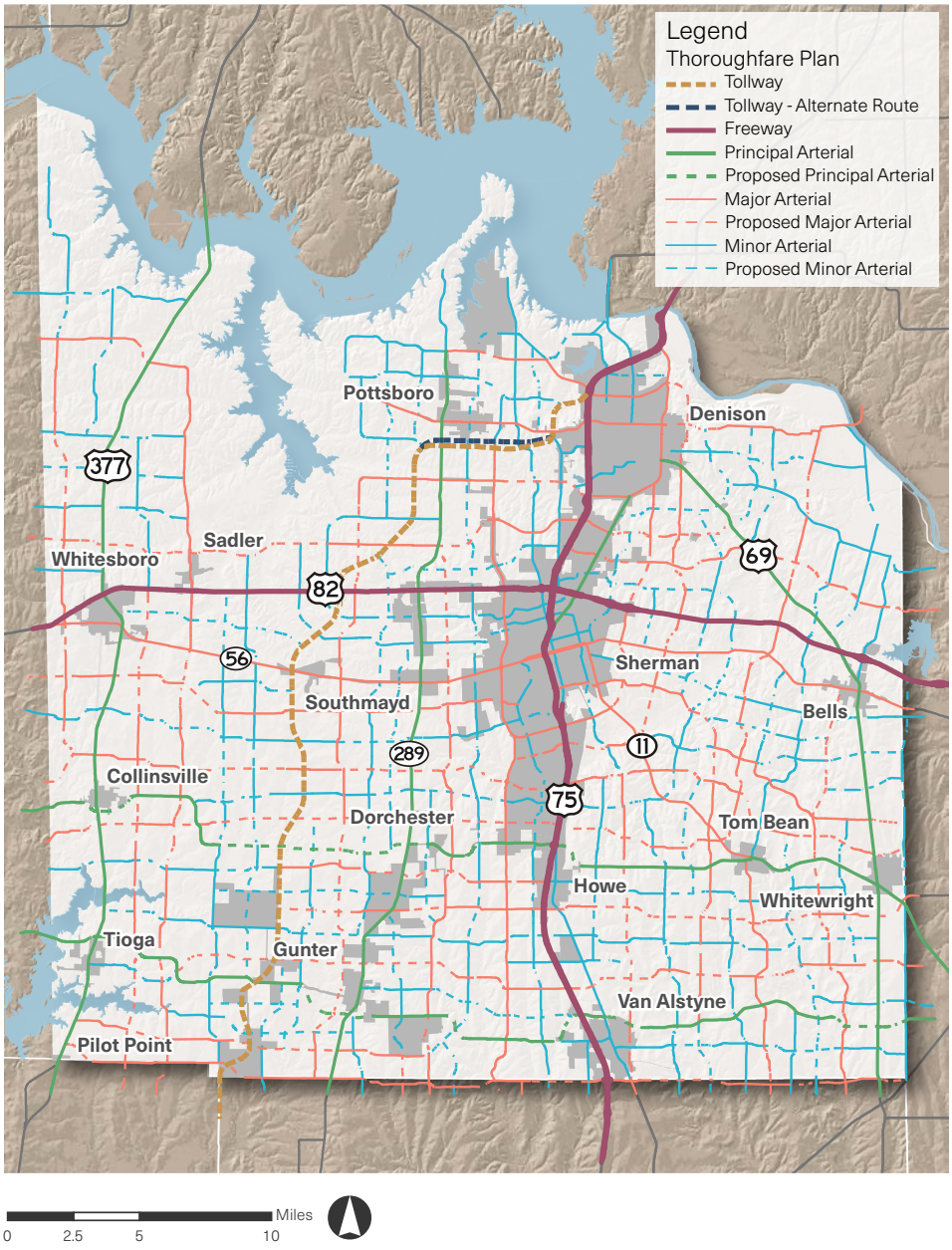


Figure 13: SDMPO Regional Thoroughfare Plan

Freight

The Grayson County Freight Mobility Plan was completed in September 2018. The plan investigated the infrastructure and economic context of the county in relation to freight movement. The study found that most of the roadways are uncongested for freight, except for US 75 and SH 289, which can become congested during peak hours. Because of this, freight can easily move through the County. US 75 has more commercial vehicle related crashes than any other corridor in Grayson County.

Figure 14 indicates the Texas Highway Freight Network routes in red. US 75, US 82, and US 69 experience higher percentages of truck traffic. US 75 and SH 91 is a critical urban/rural freight corridor. US 75 has the highest Average Annual Daily Truck Traffic with more than 6,500 combination trucks noted daily.

The County has two Class I railroads and two short line railroads, with 158 total miles of track. The two Class I railroads are owned by Burlington Northern Santa Fe (BNSF) and Union Pacific (UP), with each having a rail yard in the County. The BNSF railroad parallels SH 289 on the southern border of Grayson County and cuts across to US 75 at Dorchester and then parallels US 75 to the Oklahoma border. The UP railroad parallels US 377 at the southern border of Grayson County and cuts across to US 75 after it crosses US 82. The short line railroads are operated by Dallas, Garland & Northeastern, and Texas Northeastern Division.

Figure 14: Freight Routes

There are two airports in the county. The North Texas Regional Airport is located to the west of the City of Denison and is owned by Grayson County. It is a former Air Force base and has a 9,000 foot runway.

The Sherman Municipal Airport is located just to the southeast of downtown Sherman and is owned by the City of Sherman. It is a general aviation airport near local industries in Sherman.

Bicycle & Pedestrian Facilities

A bicycle and pedestrian plan was developed with the 2040 MTP update and adopted in October 2014. This plan focused specifically on the cities of Sherman and Denison. On-street bicycle facilities included bike lanes and bike routes. Shared-use trails and sidepaths were also included in the plan for pedestrians and bicyclists. In addition, the plan identified corridors for future study.

Since the last update, the region has seen an increase in bicycle and pedestrian projects being implemented. Sherman's Streetscapes project was selected by TxDOT in 2015 for the Transportation Alternatives Program (TAP). This project included widening sidewalks, added accessibility ramps, and building curbs and gutters in high pedestrian areas of the city.

Additional bicycle routes have also been established in Sherman with the addition of signage and pavement markings. Construction on the Katy Trail in Denison began in 2018 and will result in a paved bike and pedestrian trail throughout the city. Van Alystne has also utilized TAP funding to implement a shared use path and improvements along SH 5.

Trail in Denison

3. PUBLIC INVOLVEMENT PROCESS

Public Involvement Process

A primary component of the MTP Update revolves around a continuous, comprehensive, and cooperative public involvement process. In the effort to update the 2045 MTP for the Sherman-Denison MPO a comprehensive public involvement plan was developed with the purpose to gather input from stakeholders within Grayson County. Involving stakeholders, such as residents, business owners, property owners, agency officials, and elected officials throughout the process helped understand some of the key mobility issues and opportunities that the region is currently facing and may experience in the future.

Early on in the planning process the public involvement plan was developed to assist in the coordination of the public outreach efforts. Following the development of the public involvement plan, a series of stakeholder meetings were facilitated to understand more specific transportation issues in the region. Two public meetings were held during the MTP Update process, and an online survey was conducted to get additional feedback. The following describes in detail each of the specific efforts that were conducted.

Public Involvement Plan

Not to be confused with the MPOs Public Participation Plan, the MTP Public Involvement Plan provides details on the engagement and outreach efforts that was expected to take place throughout the course of the MTP Update process. The plan was developed at the beginning of the MTP planning process to determine the public involvement goals, the stakeholders that need to be involved throughout the process, the specific events that will be facilitated throughout the planning process, and the public involvement schedule.

Public Involvement Goals

The stated goals for the public involvement efforts for the MTP Update are as follows:

- Early and continuous involvement,
- Reasonable public availability of technical data and other information,
- Collaborative input on alternatives, evaluation criteria, and mitigation needs,
- Open public meetings where matters related to transportation policies, programs, and projects are being considered, and
- Open access to the decision-making process prior to closure.

Stakeholder and Agency Outreach

The purpose of stakeholder and agency outreach is to provide knowledgeable and invested members of the Sherman-Denison region the opportunity to provide critical insight into the region's key challenges and opportunities for solutions.

This subtask is comprised of two engagement methods: engagement of the MPO Technical Advisory Committee, and one-on-one meetings with various government agency representatives, transportation providers, commercial freight companies, and advocates for pedestrians, transit riders, cyclists and people with disabilities.

Public Involvement Events

Two (2) public meetings were held to educate the public about the plan and provide them the opportunity to give input on the plan's goals, objectives, and policies. The MPO coordinated the invitation of citizens affected, public agencies, member governments, public transportation providers, users of public transit, freight shippers, providers of freight transportation services, the Grayson County Airport, local and state emergency response agencies and TxDOT to the meetings. An email list was developed by the MPO to ensure appropriate civic groups and organizations are invited to participate. Citizens were also given the opportunity to provide written comments prior to and for ten (10) calendar days after both public meetings. Advertisement of both meetings were compliant with the MPOs Public Participation Plan.

It was critical throughout the MTP planning process that stakeholders are assured of convenient meeting times and accessible locations. Diversity and reflection of the population is also paramount. Provision for translation, sign, or other needs were used to ensure broad inclusion.

In addition, the MPO engaged the public utilizing digital means which included: Citizen surveys, survey equipment, social media posts, interactive techniques during public meetings and other public outreach activities. The survey was active to receive responses for a majority of the MTP planning process timeline.

Outreach Schedule

A detailed schedule of when the different public involvement efforts would occur was developed and shared with the MPOs Technical Advisory Committee. The public involvement efforts began in December 2018 and continued until the plan adoption in December 2019.

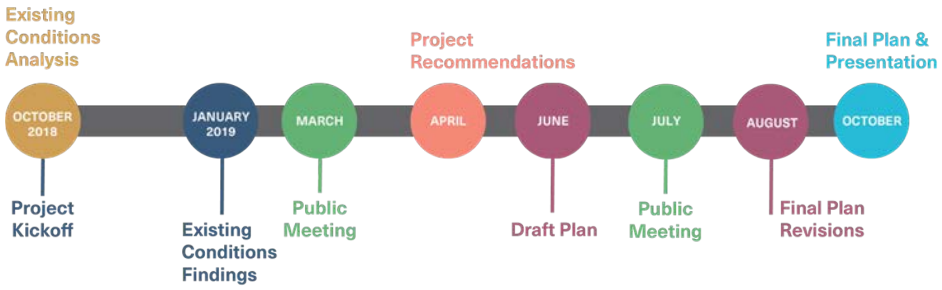


Figure 15: 2045 MTP Update Project Schedule

Stakeholder/Agency Outreach

Technical Advisory Committee Coordination

This Technical Advisory Committee (TAC) was responsible for reviewing and providing guidance to the MPO staff on technical aspects of the MTP Update. This committee was tasked with:

- Discussing mobility issues for the project area in an open forum
- Providing input on quantitative measures and assumptions
- Reviewing and interpreting the existing conditions summary
- Analyze indicators pertaining to the community's mobility (i.e. traffic congestion, bicycle and pedestrian networks, transit access throughout the project area)
- Reviewing and approving all materials, presentations, graphics, and evaluating criteria before distributed to the community;

The following is a summary of the elements of the MTP Update that were discussed during the TAC meetings.

TECHNICAL ADVISORY COMMITTEE MEETING #1 – JANUARY 16TH, 2019

- Discussion of MTP Update Goals and Process
- Discussion of the list of existing plans and studies being reviewed
- Discussion of the Public Involvement Plan
- Review of the proposed 1st Public Meeting

TECHNICAL ADVISORY COMMITTEE MEETING #2 – MARCH 20TH, 2019

- Review the presentation to be shared and the activities to get feedback at the 1st public meeting on March 21st, 2019
- Discussion of the online survey to be distributed
- Discussion of the public outreach that had been conducted and will be continued
- Discussion of the mobility trends in Grayson County

TECHNICAL ADVISORY COMMITTEE MEETING #3 – MAY 22ND, 2019

- Discussion of the results from the 1st public meeting
- Discussion of the feedback received from the stakeholder interviews
- Discussion of the upcoming public meeting to be held in July

TECHNICAL ADVISORY COMMITTEE MEETING #4 – JULY 31ST, 2019

- Review comments provided at or following the 2nd public meeting regarding the draft MTP Update
- Review the survey results
- Review the draft project list

TECHNICAL ADVISORY COMMITTEE MEETING #5 – NOVEMBER 20TH, 2019

- Review the draft MTP Update document

Stakeholder Interviews

The MPO scheduled a series of meetings with stakeholders within the MPO. These discussions were intended to understand the transportation priorities and needs of member cities and entities that are involved in the success of mobility in the region. Feedback was collected to inform the MPO to help analyze and identify opportunities through the MPO and the MTP Update to address long-term needs. In turn, this assisted in coordinating with the member jurisdictions/entities to the MPO planning process and attract more participation at the TAC and Policy Board levels.

Interviews were held with the following jurisdictions/entities:

- City of Van Alstyne
- Grayson County
- TxDOT
- Douglass Distributing
- City of Sherman
- TAPS Public Transit
- SEDCO – Sherman Economic Development Corporation
- Grayson County College

Public Meetings

1st Public Meeting – Thursday March 21, 2019

This summary includes public input shared at the first public meeting, held Thursday, March 21, 2019. The goals of the first public meeting were presented to:

- Introduce the project's goals, approach, timeline and process to the community;
- Share initial findings from the existing conditions analysis;
- Collect feedback on goals priorities.
- Provide opportunities for community members to share their mobility experiences through table sessions.

SUMMARY OF FINDINGS

This summary includes findings from the first public workshop and from the online survey which was open between late February and late July. Through the engagement methods outlined in this report, we generally found workshop participants and survey responders agreed on wanting to see business attraction and reduction of crashes as the major priorities shaping the MPO's transportation investments.

We heard that access roads and onramps continue to pose safety challenges for motorists, particularly on Highways 75 and 82. Similarly, residents stated that new roadway and school projects should incorporate best practices in safe street design to not miss out on upcoming opportunities that will transform the region's travel patterns. Both workshop participants and survey respondents agreed that traffic congestion and travel delay is not a current problem in Sherman-Denison, though traffic signals could be better optimized to ease travel. This suggests an opportunity exists to incrementally ease future congestion by focusing on optimizing traffic signal timing rather than costlier infrastructure projects. Along these lines, survey respondents rated repairing and maintaining existing infrastructure as their highest investment priority at 55% favoring, while 55% of workshop participants agreed or were neutral with the statement.

In addition, public transit was strongly identified as a high-need to support both populations with limited mobility options and to bolster economic development in the region in both the workshop and online surveys. Walking and bus travel modes were considered the second and third most important travel mode in online surveys, though only 21% of respondents would like to see more investments in bicycle and pedestrian infrastructure (whereas 40% support more funding for transit).

Public Meeting #1

OUTREACH

The project team relied on a varied approach to informing the public of the workshop. Print media and social media platforms supplemented direct outreach to civic organizations and to area stakeholders. The MPO's existing Facebook (https://www.facebook.com/sdmpo/) and Twitter pages (https://twitter.com/SDMPO) were utilized for this effort, with guidance and support from the consultant team.

February 19, 2019

Media Press Release to the Herald Democrat, KTEN News , and KXII News outlets.

February 20, 2019

Facebook and Twitter posts advertising the public meeting and sharing the community survey.

March 11, 2019

Facebook and Twitter posts publicized about the public meeting and survey. Posts were boosted through the purchasing of advertising.

March 19, 2019

Survey shared through Facebook and Twitter.

March 21, 2019

Facebook and Twitter post as a reminder of the public meeting.

MEETING AGENDA

6:00-6:30

Sign-in & Registration

6:30-7:00

Welcoming Remarks & Presentation

7:00-7:30

Workshop Station Activities

7:30-8:00

Q&A and Next Steps

WORKSHOP STATIONS

The project team designed the public meeting to both inform and solicit input from the public. Three workshop stations gave people the opportunity to share thoughts on goals, approach, and everyday experiences on the transportation network in Sherman-Denison. Their intent and results are summarized below.

CHALLENGES STATION

This station focused on gauging people's biggest challenges in the transportation network. Participants identified everyday issues with a numbered color sticker on the map -- the numbered dots corresponded with a line on the comment section to the right of each map and were color-coded by topic (roadway, intersection, transit, bikeways, and safety) where participants could describe their comment in greater detail. Each sticker placed was intended to identify issues as they move throughout the region, related to traffic congestion chokepoints, substandard pavement conditions, traffic signal delays, excessive speeding, physical barriers to walking and biking, dangerous areas with mode conflict, and other challenges.

Participants submitted 48 comments on the plotted maps. Nearly half of the comments (20) related specifically to roadways while intersections and transit each received four comments. Safety and bikeways received the second and third most comments from participants (11 and 9, respectively).

Roadway comments focused on ramps, discontinuous streets, lane reconfigurations and maintenance. Participants indicated:

- Exit ramps on US 75 are needed at Fallon Dr. and Lamberth Rd.
- Another participant asked if and when the Loy Lake Rd. ramp onto US 75 in Denison would be replaced.
- FM 121 is discontinuous through Tioga and Van Alstyne, causing congestion, and is difficult to navigate through downtown Gunter.
- FM 902 is discontinuous through Collinsville, Howe, and Tom Bean, causing congestion.
- FM 1417 East Loop needs to be completed.
- A better connection between FM 902 and SH 11 is desired in Tom Bean.
- Oversized trucks should be diverted through Whitewright and Bells downtowns.
- Lane configurations and maintenance are also desired.
- US 75 requires maintenance and should be a 6 lane divided highway.
- SH 56 is confusing at E Lamar St. and Harrison Ave. and needs a third lane added between Sherman and Bells to accommodate passing in heavy traffic.
- Another comment indicates that Spur 503 needs to be reconfigured to allow development.

Intersections comments:

- The intersection at E Taylor St. and the US 75 service road is confusing since the service road has a stop sign but E Taylor St. does not.
- The exit from US 82 to northbound US 75 is too crowded and makes it difficult for drivers to change lanes.
- A merging lane is desired on 1417 when entering the southbound travel lanes from SH 56.
- N Travis S. is congested traveling toward US 82 near the Texoma Community Center.

Public Transit comments:

- More transit is needed for outpatients, seniors, and college students since members of these groups may not have a reliable vehicle or may have mobility issues.
- Shuttles are desired for outpatients who need transportation to outpatient clinics and college students, who need more bike lanes.
- Seniors need more transportation to fulfill medical, shopping, and social needs.

Bikeway comments:

- Existing facilities are available at Pebblebrook, N/S Wood St., and Mulberry St.
- Opportunities for new connections exist in two railbeds. One of the railbeds is parallel to Texoma Pkwy and the other railbed is located along W Birge St between SH 56 and US 75.
- There is also need for trails along Moore St. to the future high school, between downtown Denison and Carpenter's Bluff Bridge, and a connection to the northeast Texas Trail.

Safety comments included general concerns for all roads in addition to specific geographic locations.

- All roads in Sherman need better lighting, signage, and street signs.
- There are many rear end collisions on US 82.
- The new high school located at FM 1417 needs to include safety improvements.
- US 75 is dangerous for trucks entering or exiting from FM 84
- A longer onramp is needed from Houston at Pecan St.
- Curves on SH 56 near Pink Hill Rd. and Friendship Rd. are dangerous due to visibility and current speed limits.
- SH 289 needs a fully lighted intersection at FM 120, a two-way exit from the southside of Brookshire's Fuel Center, and reduced speeds at intersections in south Southmayd.

Public Meeting #1

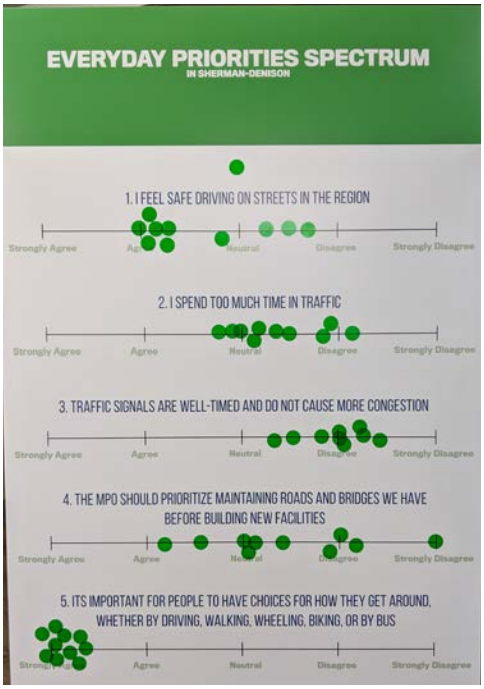
EVERYDAY PRIORITIES SPECTRUM

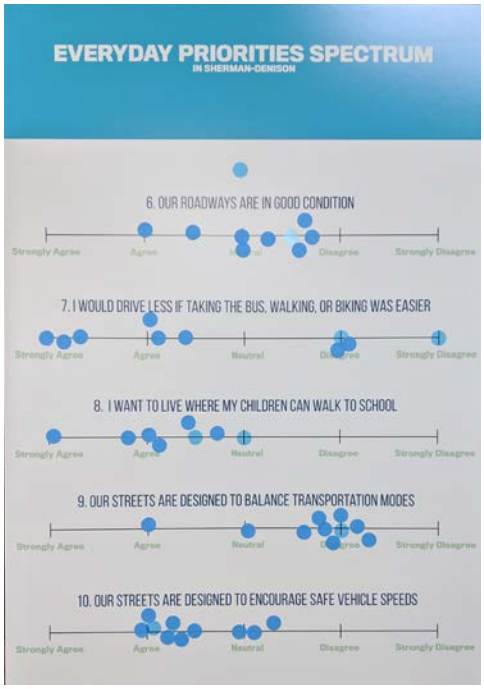
This station gauged public attitudes towards their everyday experiences utilizing transportation facilities in the Sherman-Denison MPO. Each of the bullet points were summarized on a board and facilitators were responsible for explaining each to the audience. Participants were asked to take a sticker of their choosing and select how much they agree with the statement from (strongly agree, agree, neutral, disagree, and strongly disagree).

Between eight and twelve responses were received for each of the 15 questions. Generally, people feel safe driving in the region and do not experience major traffic delays though did suggest traffic signals could be contributing to congestion. Workshop participants also tend to not feel safe biking throughout Sherman-Denison though many agreed they would drive less if taking the bus, walking, or biking was easier.

Most importantly, participants felt strongly that people should have choices for how they get around and that public transit is vital to the area though they understand that streets are not currently designed to support different mode users.

All participants agree that public transportation is important to the region and, in conjunction with biking, can play a role in supporting economic development.





Everyday Priorities Spectrum Responses

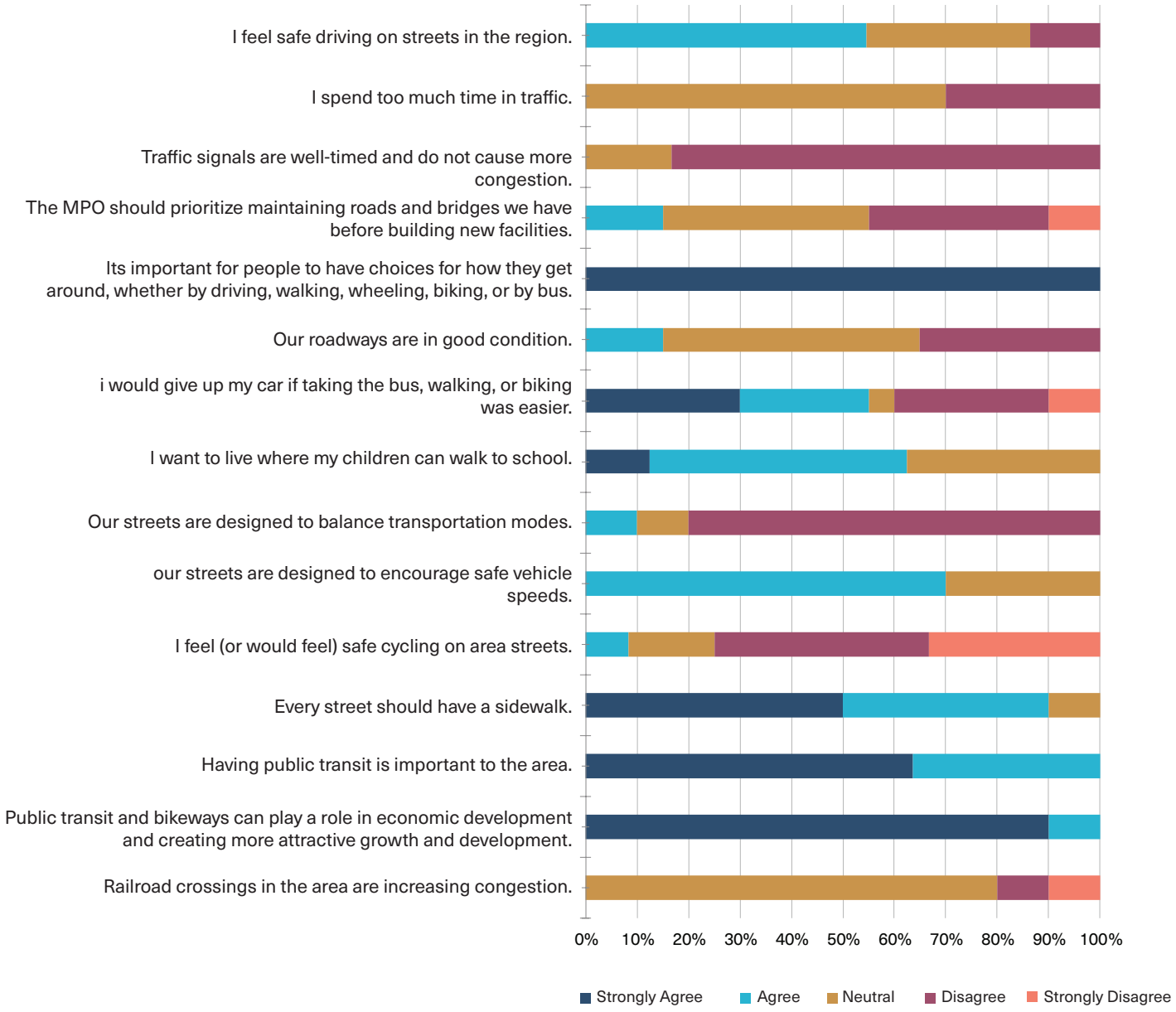


Figure 16: Everyday Priorities Spectrum Results

SURVEY STATION

Hard-copy and digital versions of the survey were on display to capture as many responses as possible. This included a table with 2 laptops and surveys on clipboards to encourage participants to partake in the survey through their preferred method.

2nd Public Meeting – Thursday July 18, 2019

The second public meeting was held on Thursday, July 18, 2019 in Denison. The primary goal of the second public meeting was to present the results of the study and the recommended projects as well as and gather feedback on the proposed bicycle plan. A presentation of the MTP process and results was given. Attendees were able to view a map of the proposed projects and provide comments about the listing. The bike plan's rural and urban components were also shown on boards. The feedback gathered at the first public meeting was also presented.

Public Meeting #2

Public Meeting #2

Online Engagement/ Survey

347 surveys were collected between Late February and Late July. 165 respondents (48%) live in Van Alstyne. The next most represented city among survey participants was Sherman with 82 (24%) respondents followed by Denison with 35 (10%) respondents. The remaining 18% of respondents were from nine different cities throughout the MPO region.

Respondents were asked to rank the importance of eight different modes of transportation on a scale from 1 to 5, with 1 being the most important. Nearly 90% of respondents ranked personal motor vehicles as the most important mode and walking was identified as an important top 3 transportation mode by over 68% of respondents.

Nearly half (47%) of respondents feel that it is "not that difficult" to get to the places they want to go, such as school, work, or shopping centers. Just over 15% of respondents feel difficulty reaching destinations.

A majority (66.3%) of respondents believe that personal motor vehicles will be their most important mode of transportation in 25 years. The next most important mode selected by respondents was passenger rail (13%), followed by bus (6.9% each).

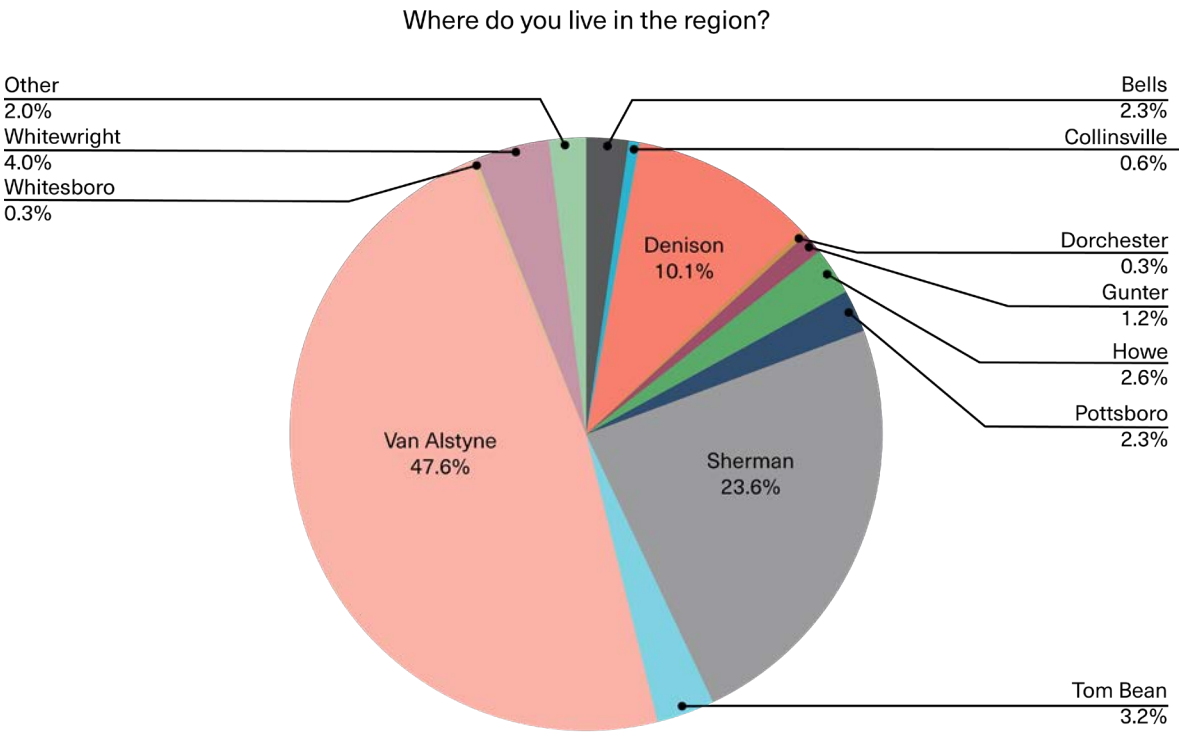


Figure 17: "Where do you live in the region?" Responses

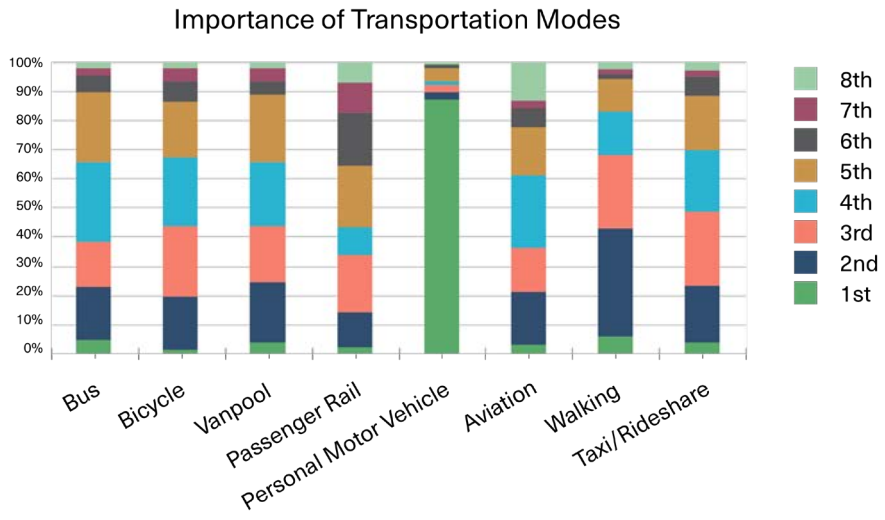


Figure 18: Importance of Transportation Modes Responses

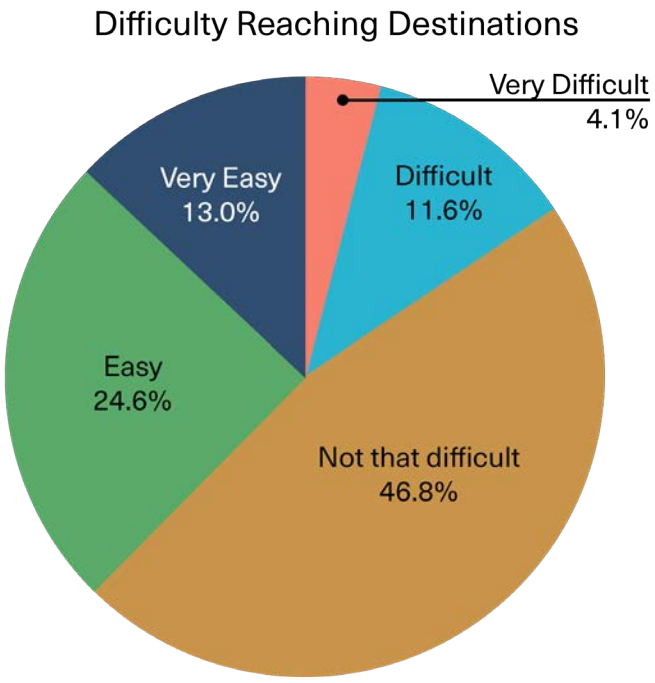


Figure 19: Difficulty Reaching Destinations Responses

Respondents were asked to select what their anticipated primary mode of transportation would be if the availability of gas was limited to them in the future. Personal motor vehicles were still ranked the highest with 20.8%, followed by passenger rail at 19.3% and taxi/rideshare at 17.9%. Active transportation modes (biking and walking) constituted less than 20% of responses (11% and 6%, respectively).

Respondents were asked to rank transportation investments on a scale of 1 to 5, with 1 being the most important. A majority (56%) of respondents ranked repairing and maintaining existing roads as the most important investment. Almost half (40%) of respondents ranked building new roads as the third most important transportation investment and over 32% of respondents ranked improving and expanding the bicycle network and trails as the 5th (or least) most important transportation investment. Repair and maintain existing roads received a ranking score of 3.2 out of 5, while improve/expand bicycle network and trails was closely ranked to improve/expand sidewalks with scores of 0.9 and 1.2, respectively.

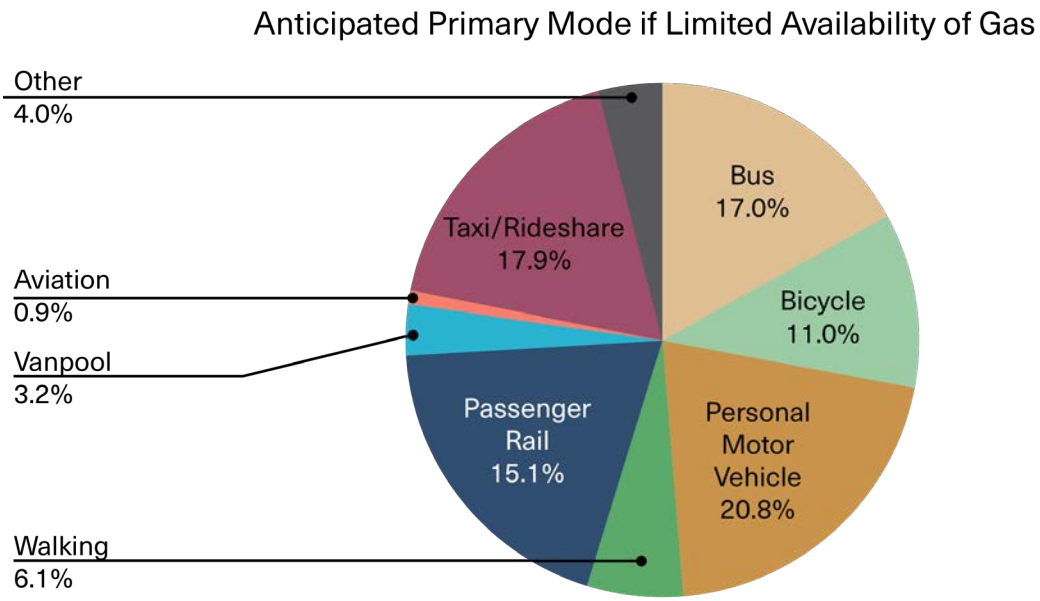


Figure 20: Anticipated Primary Mode if Limited Availability of Gas Responses

Survey respondents were also asked to rank the importance of elements the MPO should consider when prioritizing transportation investments. Attracting businesses to the region was ranked first, while boosting tourism was ranked the lowest. The average preference scores indicate that attracting businesses to the region, reducing congestion, and providing better access to jobs and shopping are the top three priorities for survey respondents with ranking scores of 2.3, 2.0, and 2.0, respectively. 6.7% of respondents answered as being diagnosed with a mobility disability or impairment.

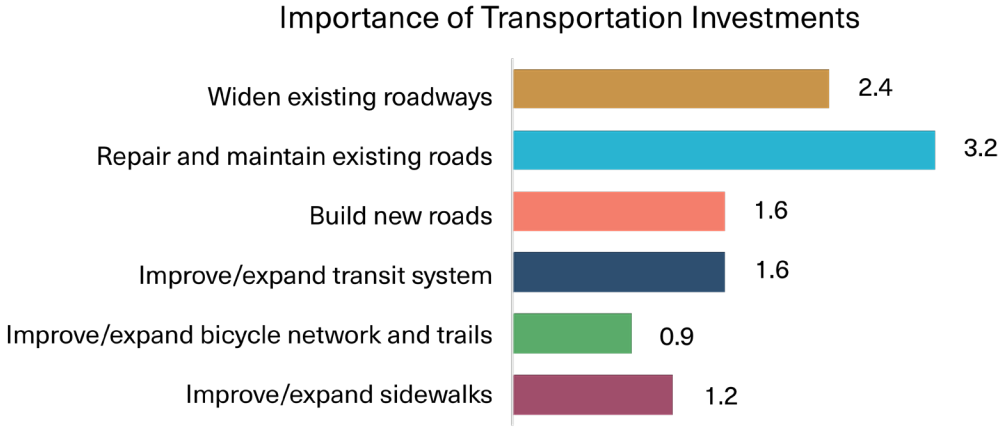


Figure 21: Importance of Transportation Investment Responses

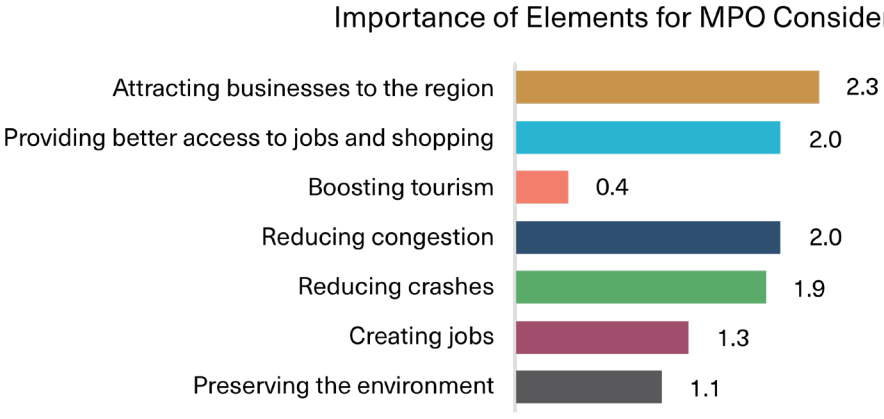


Figure 22: Importance of Elements for MPO Consideration Responses

4. GOALS & ACTION STEPS

Goals & Action Steps

The goals and action steps for the 2045 MTP provide a clear understanding of the mobility priorities for the MPO and assist in ensuring that the MTP is a performance-based plan. These goals follow the direction given from the FHWA found in the most recent MAP-21 and FAST Act legislation and are built upon the guiding principles, objectives, and policies developed in the previous MTP Update. The goals & action steps updated through this plan serve as the foundation for performance measures that are used to prioritize the projects in the transportation needs assessment.

The vision and transportation goals created in other plans in the region including the Sherman and Denison Comprehensive Plans as well as the 2017-2021 Texoma Regional Coordinated Transportation Plan were also considered in the development of the MTP goals.

Goals & Action Steps

The goals for the 2045 MTP update are detailed below with the corresponding action steps to achieve the overall vision of the MPO.

Safety

The region's transportation system should strive to reduce crashes for both motorized and nonmotorized users

Reduce vehicular crash rates

- Identify crash hot spots
- Implement projects in the areas determined to have the highest density of crashes and county-wide policies to reduce crash rates
- Identify projects that unsafe conditions on high-speed facilities such as freeways and highways including on-ramps and off-ramps
- Support efforts of TxDOT and local agencies to upgrade all road facilities to reasonable safety standards wherever potentially hazardous conditions exist, and where feasible to maintain adequate shoulders to allow emergency vehicles to bypass traffic congestion

Create comfortable bike and walking spaces

- Identify policies that improve safety for bicyclists and pedestrians within the walking shed of elementary and middle schools
- Prioritize transportation improvements that increase safety for vulnerable users such as pedestrians, bicyclists, disabled travelers, and children
- Support local agencies to incorporate safety features into the design and maintenance of transportation facilities, including lighted streets, walkways and bikeways, clearing brush and debris away from walkways and bikeways, and provision of security personnel at transit stations and centers

Promote coordination of safety initiatives

- Partner with railroads to increase awareness of railroad-crossing safety issues
- Encourage enforcement of TxDOT's access management policy for all arterial roads within the region

Preservation

The region's transportation system should preserve and enhance existing facilities while improving system efficiency and operations

Maintain existing facilities

- Invest in technologies that enhance the network improve network efficiency
- Maximize the existing transportation system by improving system operation and reducing vehicle demand
- Encourage pavement management systems in each jurisdiction to ensure an adequate level of maintenance and preservation of existing transportation facilities

Increase resiliency and reliability of system

- Improve the resiliency and reliability of the transportation system and reduce or mitigate storm-water impacts of surface transportation and reduce risk from natural disasters

Congestion Reduction

The region's transportation system should strive to improve the person-capacity of congested corridors

Reduce and prevent congestion

- Maintain reasonable levels-of-service for all modes of travel
- Maintain and improve intersection level-of-service
- Design roadway improvements along truck routes for the vehicles using the facilities
- Review corridor and network signalization to ensure traffic is flowing as smoothly as possible

Effect on Economic Development

The transportation system should strive to increase the economic vitality of the region

Encourage economic growth

- Provide transportation projects that improve both regional and neighborhood vitality
- Partner with local agencies and jurisdictions to provide enhanced transportation services such as regional transit to improve global and regional competitiveness

Ensure the freight network is reliable

- Follow the recommendations as laid out by the SDMPO freight plan

Boost tourism

- Consult with tourism partners to identify the transportation needs of visitors to the County
- Provide public transport services
- Install signage and wayfinding

Effects on the Environment

Transportation improvements should be focused on reducing environmental impacts

Protect environmental resources and exposure to hazards

- Protect air and water quality, manage storm water runoff and preserve green space in all transportation network design
- Continue to encourage the use of alternative fuels
- Review and if necessary modify environmental documents for major transportation improvement projects to ensure alternatives and mitigation measures being studied are consistent with the Metropolitan Transportation Plan
- Support local and state actions to minimize the risk of transporting hazardous materials through heavily populated, congested, and environmentally sensitive areas
- Support efforts of local agencies and TxDOT to locate new transportation systems in places that minimize environmental and socioeconomic impacts

Transportation Choices

The region's transportation system should be enhanced to improve mobility options for all transportation users

Increase overall transportation choices

- Incorporate multi-modal street improvements through context-sensitive design
- Provide adequate transportation facilities and services to serve areas of existing and planned higher-density, mixed-use development

Create connected and comfortable bicycle and pedestrian amenities

- Identify ways to include pedestrian and bicycle accommodations with roadway improvements
- Promote system-wide ADA compliance with TxDOT and local jurisdictions
- Support efforts of TxDOT and local agencies to construct continuous bicycle and pedestrian facilities that are sufficiently wide and clearly marked, and to maintain them to reasonable safety standards

Improve transit services

- A transit needs study for the area should be conducted
- Promote increased connectivity between rural and urban transit activities
- Explore Park and Ride options for commuters to the DFW area and DFW airport
- Coordinate with Texoma Area Paratransit System (TAPS) to provide on-demand transit

Performance Targets

Together with the developed performance measures described in the previous sub-section, MPOs are required to provide performance targets to ensure that mobility improvements are in fact positively affecting the established performance measures. TxDOT developed standards and targets for statewide performance measures.

On December 5th 2018, the SDMPO approved resolutions adopting performance measure targets. PM1 and PM2 were developed by TxDOT. PM3 was developed by TTI in cooperation with the MPO. These targets include:

Safety Performance Measures (PM1)

- Total number of traffic fatalities (C-1);
- Total number of serious injuries (C-2);
- Fatalities per 100 million vehicle miles traveled (C-3); and
- Total number of non-motorized fatalities and serious injuries.

Pavement and Bridge Condition Performance Measures (PM2)

- Percentage of Interstate System pavement in good or better condition;
- Percentage of Interstate System pavement in poor condition;
- Percentage of Non-Interstate National Highway System pavement in good condition;
- Percentage of Non-Interstate National Highway System pavement in poor condition;
- Percentage of Bridge Deck on the Nation Highway System in good condition; and
- Percentage of Bridge Deck on the National Highway System in poor condition.

System Performance Measures (PM3)

- NHS Travel Time Reliability -
  - Non-IH Level of Travel TIme Reliability:
    - Baseline - 99.9%
    - 2020 Target - 90.0%
    - 2022 Target - 85.0%

Prioritization of MTP Projects - Decision Lens

The prioritization of mobility projects in the Sherman-Denison region are now required to be done in a way that is performance-based. Many techniques have been developed to prioritize projects. In Texas, TxDOT has developed an online software program to assist MPOs and other agencies in prioritizing projects called Decision Lens.

The software allows for the selection of specific selection criteria and additional indicators within the selection criteria. Each of the selection criteria can then be weighted based on local preferences.

On December 5, 2018 the Sherman-Denison MPO Policy Board approved the performance measures and the weighting of each factors as demonstrated in Table 2 on the next page.

Table 2: Performance Measures and Weighting

Selection Criteria & Subcriteria	Weight	
Safety	30.75%	
Crash Count	32.50%	
Estimated Impact on Fatal and Incapacitating Injury Crashes		65.00%
Estimated Impact on Total Crashes		35.00%
Crash Rate	46.25%	
Estimated Impact on Fatal and Incapacitating Injury Crash Rate		65.00%
Estimated Impact on Total Crash Rate		35.00%
Safety Project Classification (DCIS P1)	10.00%	
Societal Cost Savings	11.25%	
Preservation	21.25%	
Bridge Condition	45.00%	
Reduction in Structurally Deficient Deck Area		60.00%
Deck Area Receiving Preventative Maintenance		40.00%
Pavement Condition	55.00%	
Reduction in Poor Lane Miles (by Ride Score)		32.50%
Lane Miles Receiving Preventative Maintenance (by Ride Score)		18.75%
Reduction in Poor Lane Miles (by Distress Score)		30.00%
Lane Miles Receiving Preventative Maintenance (by Distress Score)		18.75%
Congestion Reduction (MPO)	20.25%	
Benefit Congestion Index - Auto	22.00%	
Benefit Congestion Index - Truck	19.50%	
Normalized Congestion Index - Auto	18.25%	
Normalized Congestion Index - Truck	15.75%	
Intermodal Connector (MPO)	9.75%	
Miles of New Connectivity (MPO)	14.75%	
Effect on Economic Development	10.88%	
Economic Importance	41.25%	
National Highway System (NHS) Route		58.75%
National Highway Freight Network (NHFN)		41.25%
System Usage	58.75%	
Base ADT		62.50%
Base Percent Trucks		37.50%
Effects on the Environment	3.38%	
Right-of-way Requirements	66.25%	
Floodplain Impacts	33.75%	
Transportation Choices	6.38%	
Pedestrian and Bicycle Accommodations	57.50%	
Accesses schools, parks, large employer, multifamily or mixed-use residential, or shopping		35.00%
Population densities in surrounding area		26.25%
Access to transit stops		16.25%
Serves both bicyclists and pedestrians		22.50%
Project Included in the Bicycle and Pedestrian Plan (BPP)	42.50%	
Community Support	7.13%	
Survey Results	100.00%	

Other Mobility Planning Efforts in the Region

Sherman Comprehensive Plan 2009

The City of Sherman adopted a Comprehensive Plan in 2009 that contains goals, objectives, and action recommendations align with the MTP goals. These include:

Goal 2.2 Expanded opportunities for redevelopment and economic growth in the Downtown, while respecting the historic character. Capitalize on "placemaking" and "wayfinding" opportunities through Downtown gateway and signage improvements.

- Improve transportation access to the Downtown through well-marked visitor parking and a bus drop-off area. Convenient parking spaces and signage are required for automobiles, as well as pedestrian connections for visitors to reach local stores and other Downtown destinations.

Goal 4.1 A safe and well-maintained roadway system in Sherman.

- Improve existing roadway conditions through local infrastructure maintenance and retrofitting.
- Pursue multi-modal safety improvements in existing and planned corridors.

Goal 4.2 Expanded opportunities for walking and bicycling.

- Fund necessary infrastructure and facilities to promote alternative transportation modes.
- Increase multi-modal options at the site-specific level by making Downtown and large commercial developments more accessible for pedestrians and cyclists.
- Promote land use patterns that result in a more walkable community

Goal 4.3 Respect for community character with ongoing transportation system expansion. Anticipate potential traffic congestion and safety issues with ongoing growth and development, and make or require corresponding and timely improvements, especially in locations where intensive and/or concentrated development is proposed.

- Develop and implement street design standards that are context sensitive.
- Support intergovernmental efforts that results in significant regional roadway projects.

Goal 4.4 Enhanced and expanded public transportation options.

- Investigate other public transportation initiatives that will connect Sherman with nearby communities and allow for increased economic development opportunity.

Goal 5.4 Enhanced air quality

- Mitigate the effects of airborne pollutants in order to maintain or improve local air quality.
- Seek alternative transportation solutions to be enacted at the local and regional levels to preserve air quality. Transportation impacts represent some of the largest contributions to poor air quality, with up to 40 percent of the pollution levels resulting from nonpoint source transportation causes. As highway and air transportation connections increase to and within the region there could be subsequent impacts on local air quality.

Denison Comprehensive Plan 2018

Denison adopted a new Comprehensive Plan in 2018 with goals and actions that relate to transportation planning.

Denison will upgrade and maintain its roadway network, improve connections within developed areas of the city, expand connectivity to newer areas, and integrate infrastructure for bicycles and pedestrians.

Actions

- Connect streets across railroads, per the Master Thoroughfare Plan
- Create a master plan of multi-use trails that connect key nodes within the City, including parks, downtown, historic sites, commercial and employment centers, and residential areas.
- Plan and prioritize the following items:
    - Direct connection for vehicles from Downtown to Eisenhower State Park for tourists
    - Seamless vehicle connection from US 75 to Downtown
    - Hike and bike trail system connecting major job centers and recreational facilities
    - Bike path connections from neighborhoods to Downtown
    - Incentivize “Complete Streets” designs for new and renovated streets whenever possible
    - Develop a plan for access and driveway management along existing and new commercial corridors, including cross access requirements

2017-2021 Texoma Regional Coordinated Transportation Plan

The Texoma Regional Coordinated Transportation Plan was adopted in 2017 for Cooke, Fannin, and Grayson Counties. The primary goals of this plan consist of:

- Improve coordination for transportation services
- Improve public awareness and knowledge of transportation services
- Increase access and connectivity both inside and outside of the region
- Expanding transportation services and schedule
- Considering funding needs for transportation services

5. ENVIRONMENTAL JUSTICE, RESILIENCY, & LAND USE

Environmental Justice, Resiliency, & Land Use

Environmental justice and resiliency are important considerations as guided by the FAST Act. Environmental Justice Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations, clarified the need to involve minority and low-income populations in transportation decision making processes and the need to assess the equity of transportation investments. The Executive Order also calls for identifying and addressing disproportionately high and adverse human health environmental effects of its programs.

The Environmental Justice Analysis will attempt to determine whether potential transportation projects will have any significant impacts on a community's resources and then how to avoid, mitigate, or minimize the impacts. This chapter contains maps of the distribution of disadvantaged populations to identify areas that may require extra focus. The FAST Act requires the planning process to consider projects and strategies to improve the resiliency and reliability of the transportation system. This chapter also considers the areas that are more likely to need improvements to help with resiliency. Finally, the land use, resources, and hazards within the county are documented at the end of the chapter.

Environmental Justice

The 2045 MTP Update process should strive to include disadvantaged populations and improve the mobility and choices for these groups. Minorities, not English-proficient, disabled populations, and low income should hold particular importance in this process.

These groups can be unintentionally excluded because of a lack of access to information and outreach. It is important that the transportation decisions are not having any adverse impacts to populations with higher minority percentages, limited-english proficiency, and those with disabilities. In contrast, the transportation decisions through this planning process are striving to more include disadvantaged populations and also improve mobility and mobility choices for the people in the region that may have previously experienced more adverse effects.

Demographic Summary

Understanding the characteristics of the population is important in determining the transportation needs of the region as well as any potential environmental impacts on disadvantaged communities. With the county's proximity to the Dallas-Fort Worth region, the overall population will continue to grow, and planning will be necessary to accommodate the growth and protect disadvantaged populations. Almost 25% of the population is under the age of 18 and 18% is over 65 years old.

MINORITY POPULATION

Under Environmental Justice standards as defined by FHWA, anyone belonging to any of the following groups may be considered a minority:

- Black – a person having origins in any of the black racial groups of Africa
- Hispanic – a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race
- Asian – a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent
- American Indian and Alaskan Native – a person having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition
- Native Hawaiian or Other Pacific Islander – a person having origins in any of the original peoples Hawaii, Guam, Samoa, or other Pacific Islands

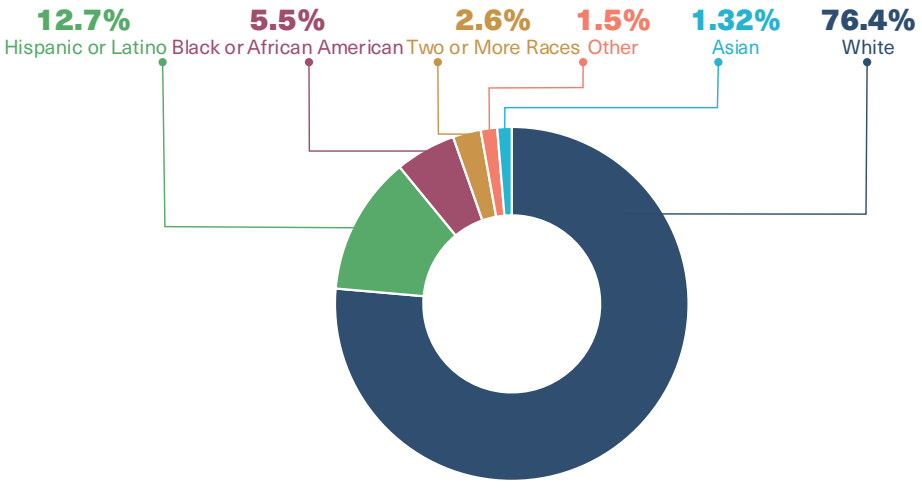


Figure 23: Breakdown of Race in Grayson County
Source: U.S. Census ACS 2013-2017

Minorities comprise almost 24% of the population in Grayson County. Texas overall has over 50% minority population. The highest concentration of minorities is in Sherman, east of US 75, and in urban areas of Denison with some block groups being over 55% minority. Figure 23 shows the distribution of races in the county. The Other category in the figure includes American Indian and Alaska Native and Native Hawaiian and Other Pacific Islander. Figure 24 shows the geogrpahic distribution of minority populations within Grayson County.

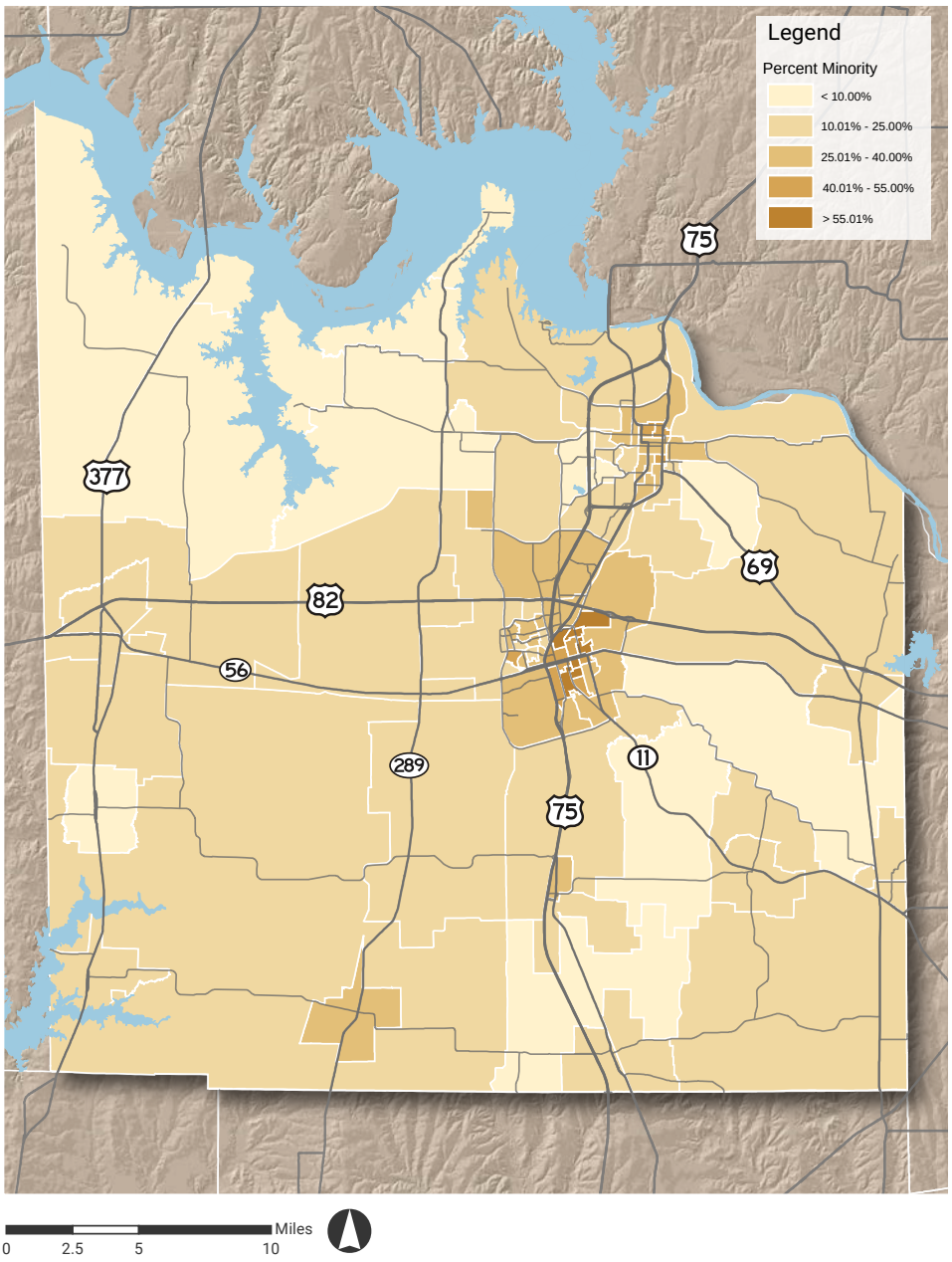


Figure 24: Percent Minority in Grayson County Map
Source: U.S. Census ACS 2013-2017

LIMITED ENGLISH PROFICIENCY

Individuals with limited English proficiency may be entitled to language assistance for particular services or benefits. Populations that are high in people who have limited English proficiency may be considered disadvantaged and important to consider in the Environmental Justice analysis. Over 8% of the population speaks English less than very well, with higher percentages around Sherman. This percentage has increased from the 2010 census by 5.7%. Figure 25 shows the distribution of populations with limited English Proficiency. The census tracts in and south of Sherman have over 10% limited English proficiency as well as the area between Sherman and Denison.

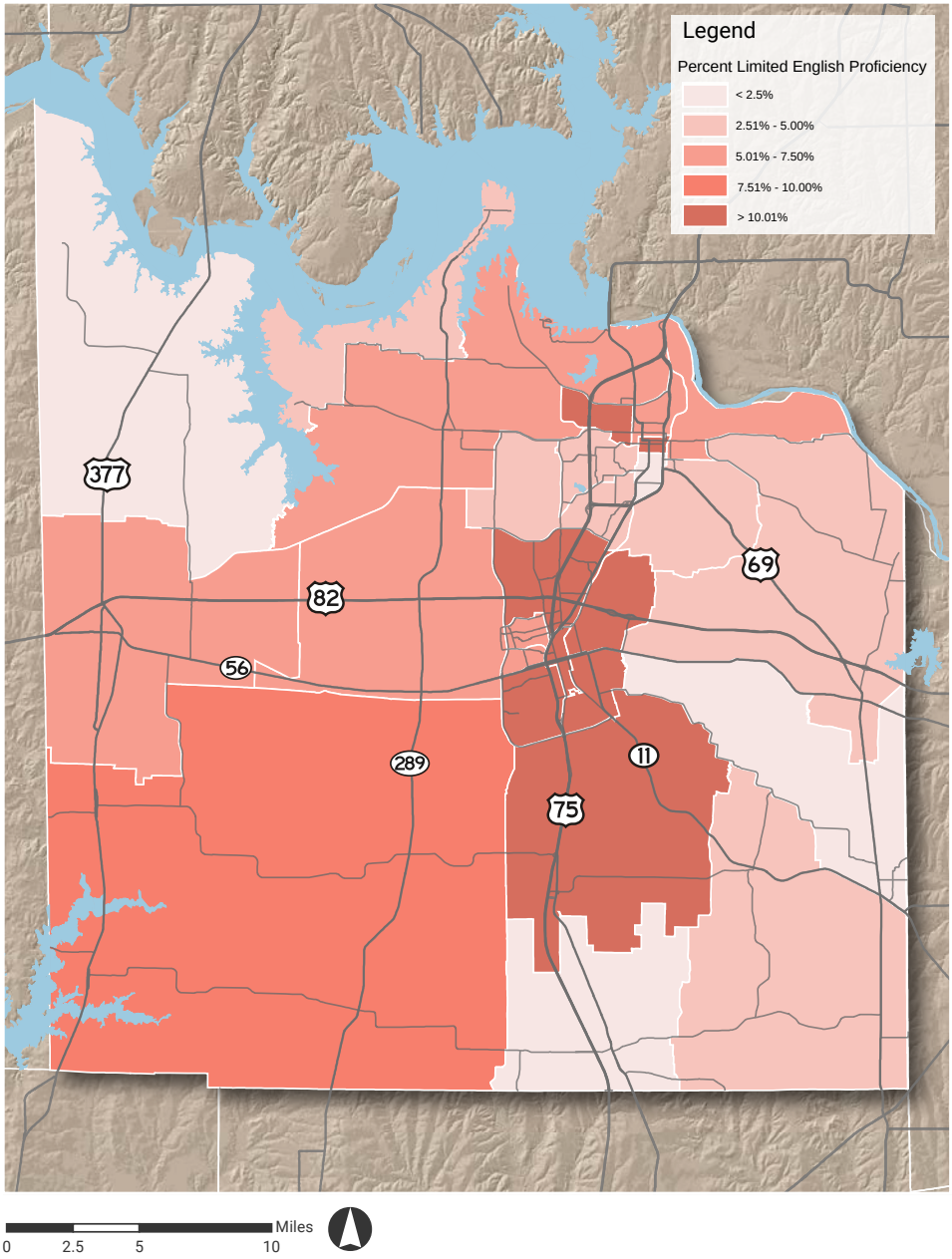


Figure 25: Percent Limited English Proficiency in Grayson County Map
Source: U.S. Census ACS 2013-2017

DISABLED POPULATION

Almost 17% of the population in Grayson County is disabled in some way. Figure 26 displays the percentage of people by Census Tract. The highest concentration is in Denison and the northern half of the county has higher percentages. People with a disability may have limited mobility which will impact their ability to use services such as public transit and bicycle and pedestrian facilities. The American with Disabilities Act created Federal legislation to protect persons with disabilities.

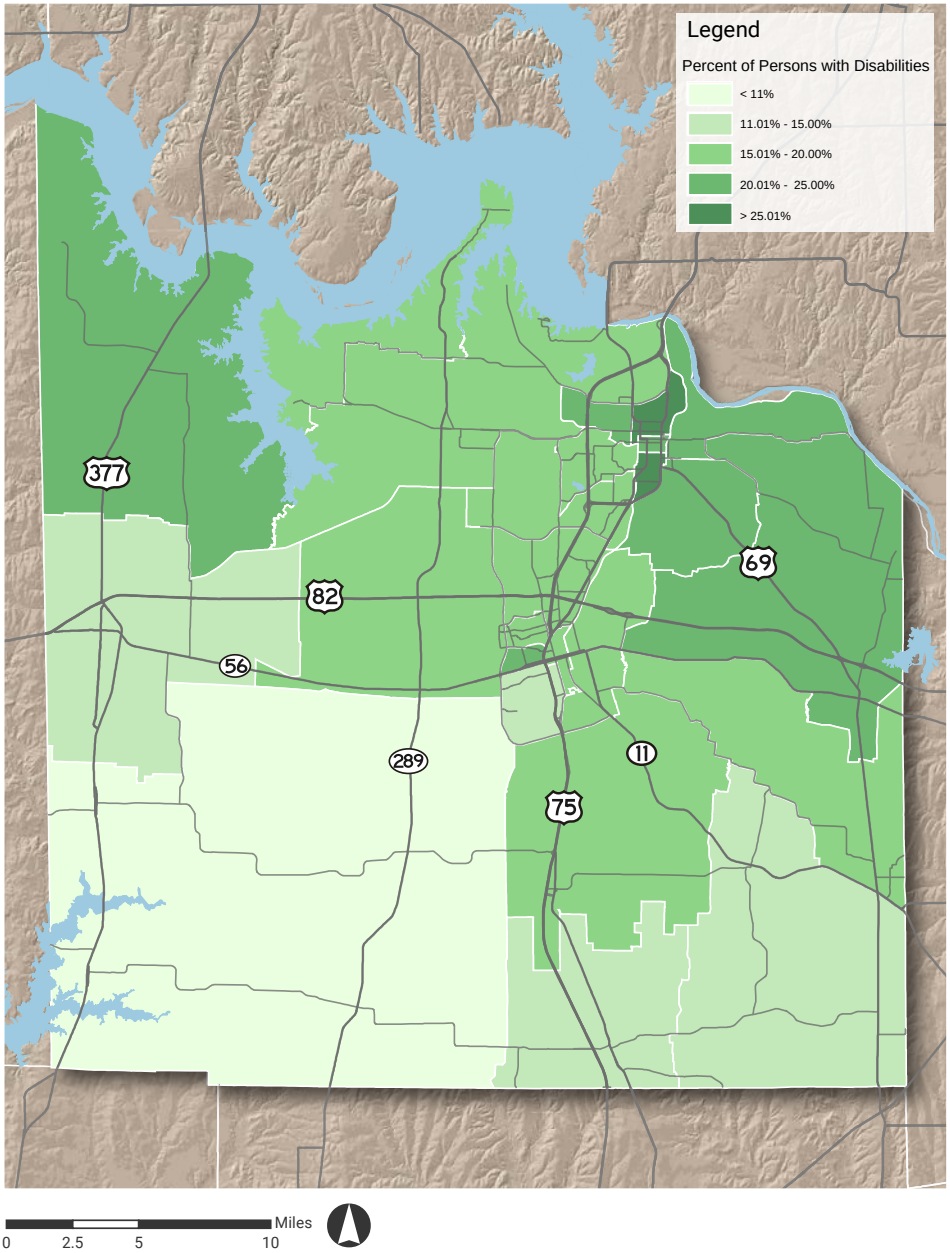


Figure 26: Percent Disabled in Grayson County Map
Source: U.S. Census ACS 2013-2017

LOW-INCOME POPULATIONS

Grayson County has a median household income of $52,683 compared to $57,051 for Texas. Lower income groups tend to be excluded from the planning process due to a lack of access to information and opportunities to contribute to the discussion. By better informing these groups and providing various avenues to contribute, Environmental Justice can be better served. In Grayson County 13.4% of people are in poverty. The highest concentration of persons in poverty is in Sherman, Denison, and Whitesboro. Figure 27 shows the percent of population below poverty.

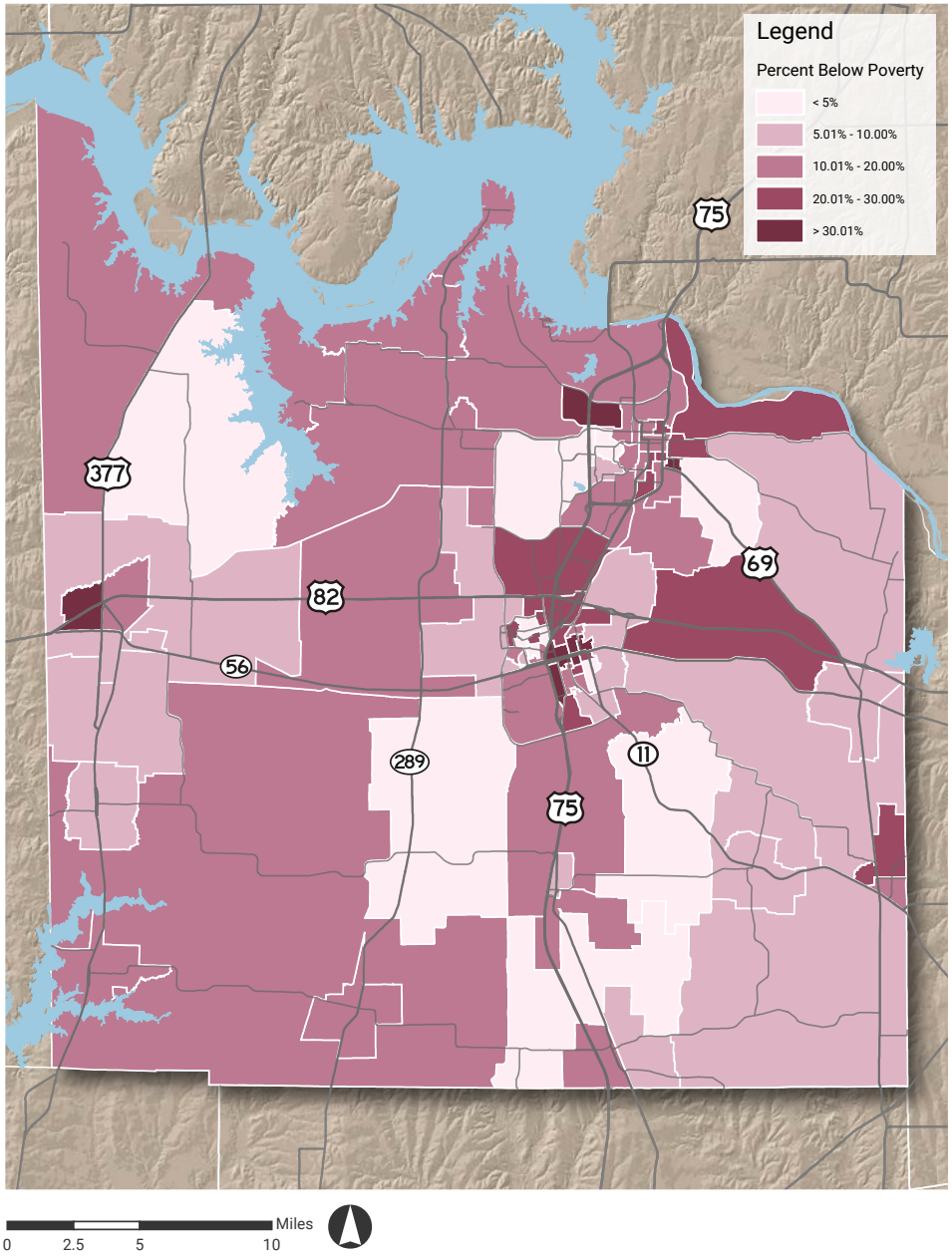


Figure 27: Percent Low Income in Grayson County Map
Source: U.S. Census ACS 2013-2017

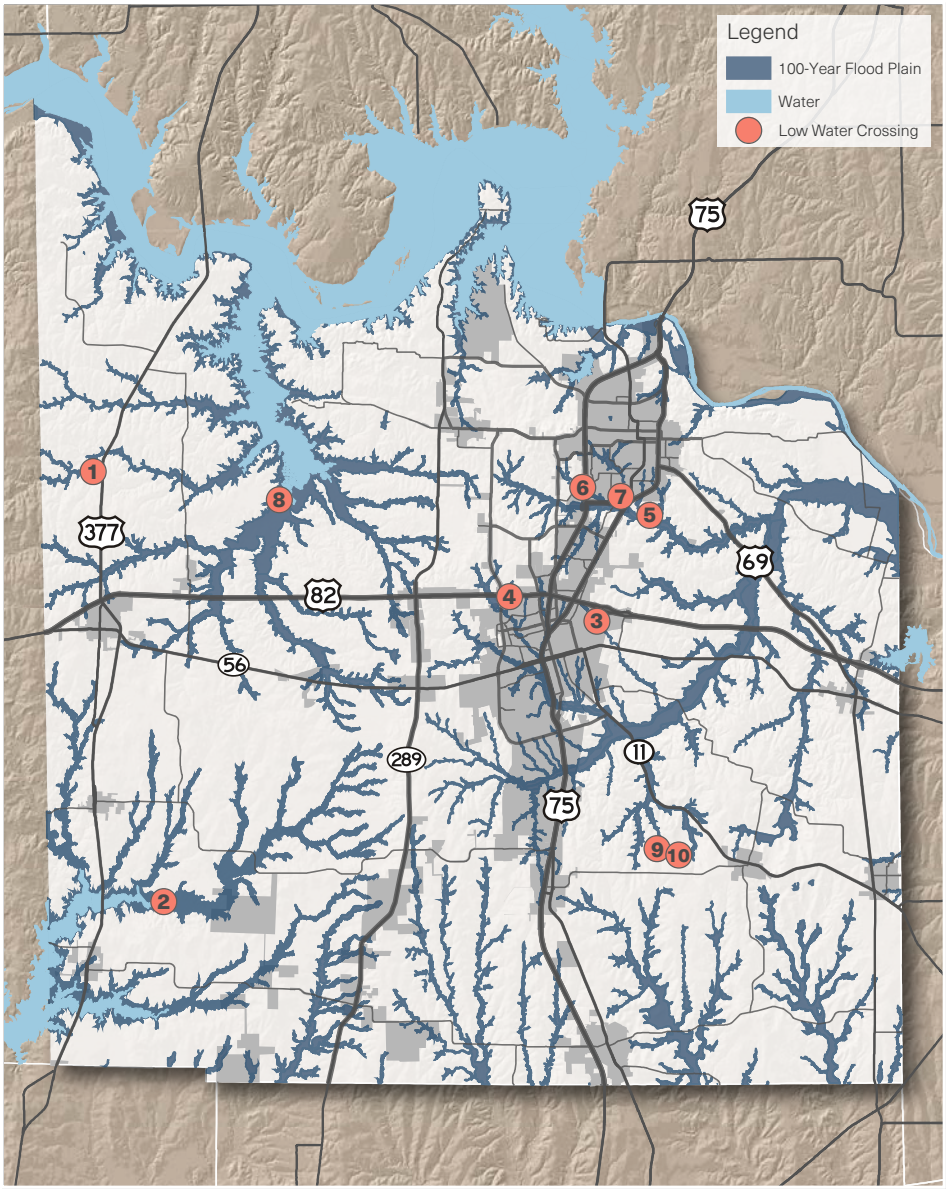
Resiliency

A new addition to the MTP Planning process as defined in the updated federal requirements within the FAST Act involves ways to consider projects/ strategies to improve the resilience and reliability of the transportation system. Transportation resiliency is determined by how a system can respond to a catastrophic event.

Natural disasters are not uncommon in this part of Texas. In Grayson County, tornadoes, ice/snow storms, and flooding can cause serious damage to homes and businesses in the region. From a mobility perspective, tornadoes are difficult to anticipate and to prepare for. However, the damage can cause significant delays if damage occurs on freeways and major thoroughfares within the region. There have been 6 tornadoes touch down in Grayson County in the last 5 years. Snow and ice storms can also cause delays in moving people and goods through the region. TxDOT anticipates snow and ice storms by distributing de-icing sprays on bridges before freezing precipitation is expected.

The ability for the region to respond to these events is essential. The projects that move forward from planning to construction should mitigate potential issues that may result from potential events such as weather or others affecting system performance. One way for the MPO to begin improving the mobility system is by addressing flooding.

Flooding is one of the natural challenges that can typically be mitigated and planned for through the reduction of low-water crossing and the improvement of bridges in the region. Figure 28 shows the 100-year floodplains and low water crossings in the County. These are areas that are especially vulnerable and may have restricted access in the event of significant flooding.



ID	Location	ID	Location
1	Knight Road at Sandy Creek Draw	6	Loy Lake Road at Loy Creek
2	Horseshoe Road at Range Creek	7	Flowers Drive at Waterloo Creek
3	Tuck Street at Calf Creek	8	Bennet Lane at Big Mineral Creek
4	Cypress Grove Road at Post Oak Creek	9	Mary Fitch Road at Cedar Creek
5	Fannin Avenue at Iron Ore Creek	10	Mary Fitch Road at Cedar Creek

Figure 28: Low Water Crossings in Grayson County
Source: TNRIS

There are ten low water crossings that should be monitored during flooding events. These crossings may benefit from being raised to avoid the low water or to provide alternative routes. Figure 29 shows the location of the properties within the flood plain in Grayson County. When serious flooding occurs, these properties may be more likely to experience damage, but may also be more difficult to reach in these situations.

Increasing the ability of the transportation network to bounce back after natural disasters is critical in all areas of the MPO. Keeping the freight network passable will benefit the County and the region financially. Grayson County provides necessary access to areas south from Oklahoma and will need to maintain this route in the event of a disruptions from disasters. Coordination with emergency response in the County and state agencies is necessary for ensuring a quick and appropriate response during natural disasters. The MTP Update will address ways that the SDMPO can limit these delays and consider improvements to the transportation network in Grayson County. See Chapter 8 for a list of all the funded projects between now and 2045.

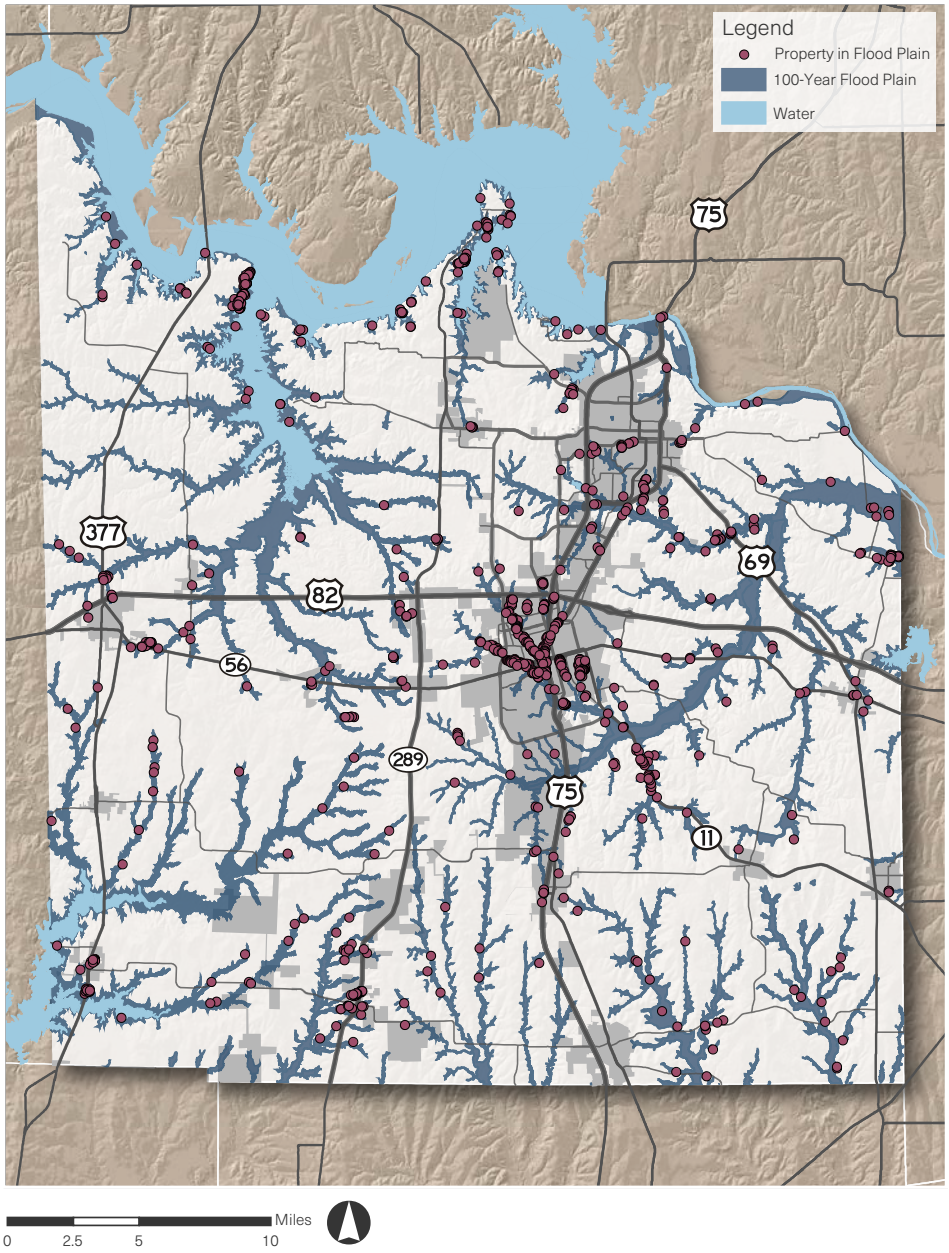


Figure 29: Properties in 100 Year Flood Plain in Grayson County
Source: FEMA

Land Use

Figure 30 shows the locations of environmental hazards. Reducing people's exposure to these sources is necessary for ensuring their health and safety. There are various sources of water and air pollution throughout the County as well as many sites that release toxic materials or create hazardous waste. These sites are monitored by the EPA. The majority of these sites are located in urban areas, particularly in Sherman and Denison. People that are more exposed to these hazards are more likely to be a part of disadvantaged populations and the issues of environmental justice should be considered. These sites need adequate access in the event of an emergency. The County also has many environmental resources including parks, lakes, and wildlife management areas. The access to these resources may be improved with new transportation projects.

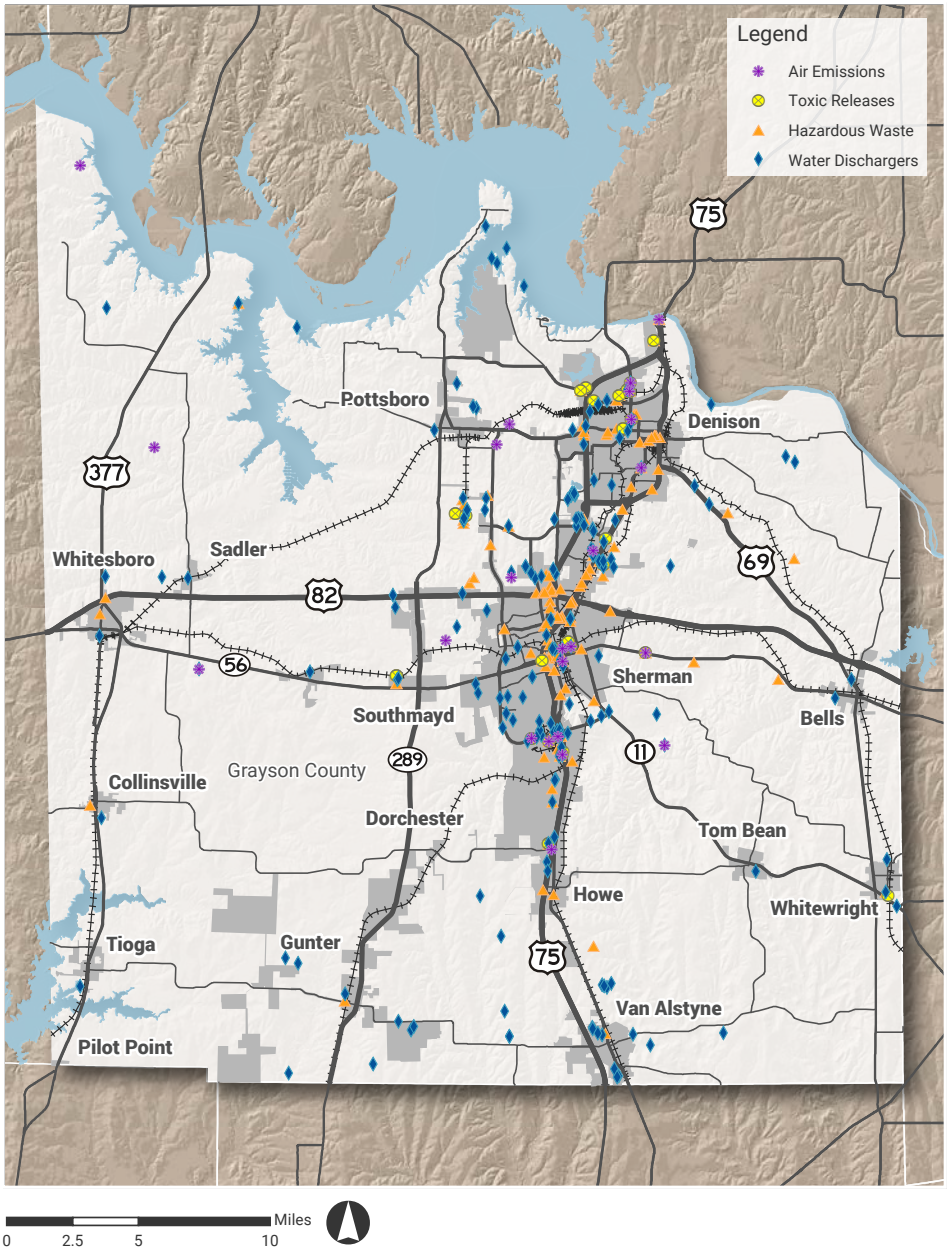


Figure 30: Environmental Hazards in Grayson County
Source: EPA

6. MOBILITY ANALYSIS

Roadway Improvements

At this point in time roadways in Grayson County are the most important in moving people and goods within and through the region on a daily basis. The majority of travel occurs in trucks and automobiles on roadways within the County. This also results in the largest funding sources for mobility being directed toward the regions roadways.

The majority of lane miles within the region are found on local roadways however the majority of traffic occurs on freeways, highways, and arterials within the County.

Limited Access Freeways

The only consistent limited access freeway in Grayson County is US 75. There is a portion of limited access freeway along US 82 as it goes through the City of Sherman and on Spur 503 in Denison, although it is no longer warranted. The primary need for improvements on these limited access freeways includes widening in certain sections, pavement improvements, and most importantly the upgrade of the on- and off-ramps to a design of 70 miles per hour.

Toll Facilities

There are currently no toll facilities operated within Grayson County. The Grayson County Regional Mobility Authority (RMA) is currently preparing for the implementation of the Grayson County Tollway that would extend the Dallas North Tollway (DNT) into Grayson County. Figure 31 displays the current proposed alignment of the Grayson County Tollway that would connect the DFW region through Grayson County to the City of Denison. As growth continues north from DFW, the need for this new facility will increase.

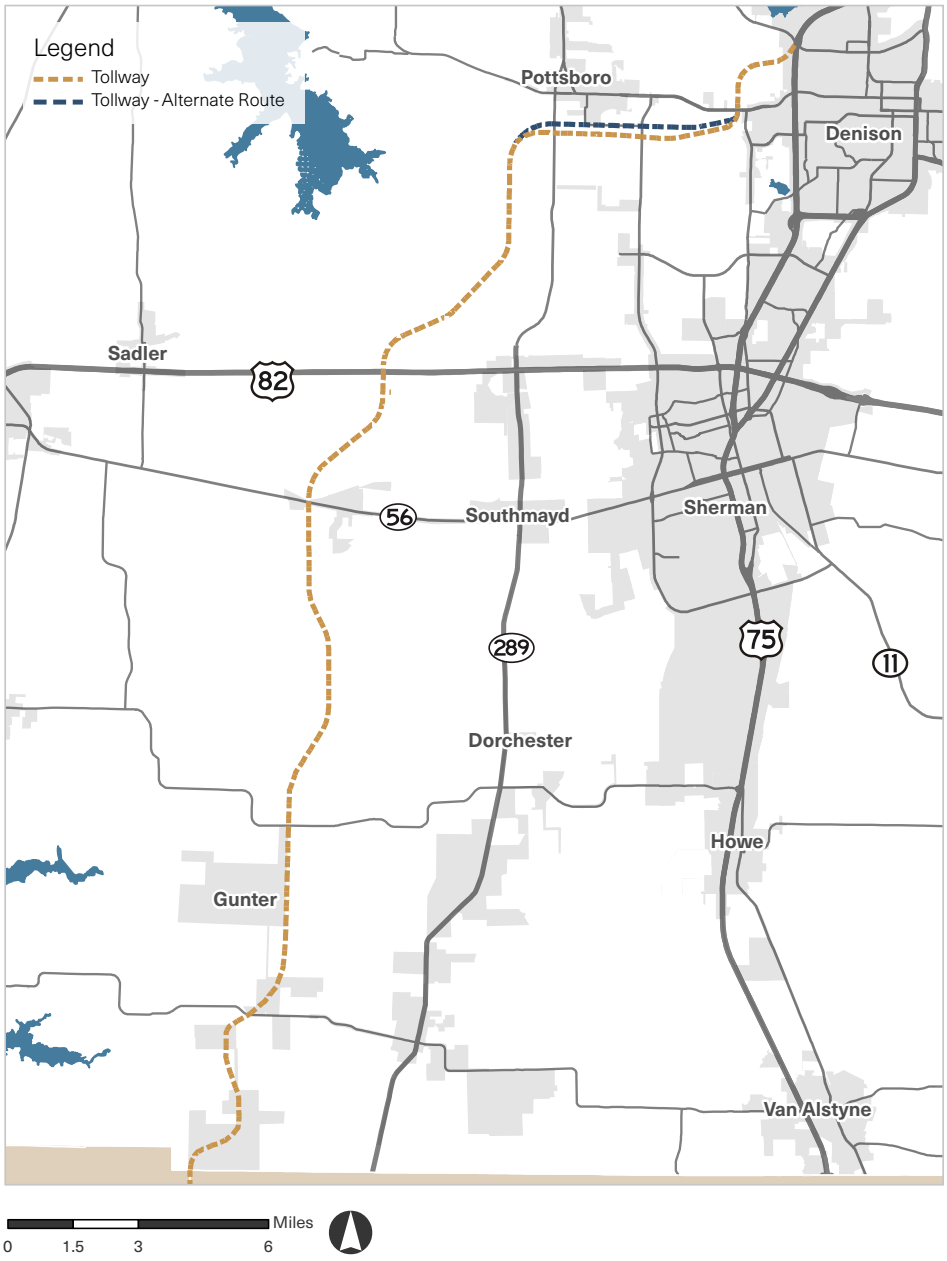


Figure 31: Grayson County Tollway Alignment

Arterials

Within the MPO area there are three types of classified arterials; Principal Arterials, Major Arterials, Minor Arterials. Principal and Major arterials types anticipate a future build out requiring 6 lanes with 110 feet of right-of-way. Within the County, principal arterials differ from major and minor arterials because they have controlled access with right turn lanes.

Principal arterials provide regional connectivity between cities and towns within Grayson County. There are currently six designated principal arterials: Texoma Parkway, SH 289, US 69, US 377, FM 902, and FM 121. With the exception of Texoma Parkway, these principal arterials generally provide regional connections in rural contexts.

Through the MTP planning process it was determined that improving east west connectivity on FM 121 and FM 902 were important. In addition, improving the alignment of these two roadways were important such as smoothing out the 90 degree turns and to improve the design speed to increase mobility and safety along these rural corridors.

With regards to major and minor arterials in the region, the urban arterials are the most congested. FM 1417 in Sherman currently experiences a high amount of traffic and safety concerns that are being address by the City of Sherman and TxDOT as it is redesigned and to be reconstructed. In Denison, FM 691 is in the process of being improved and reconstructed to a 4-lane roadway with a raised median.

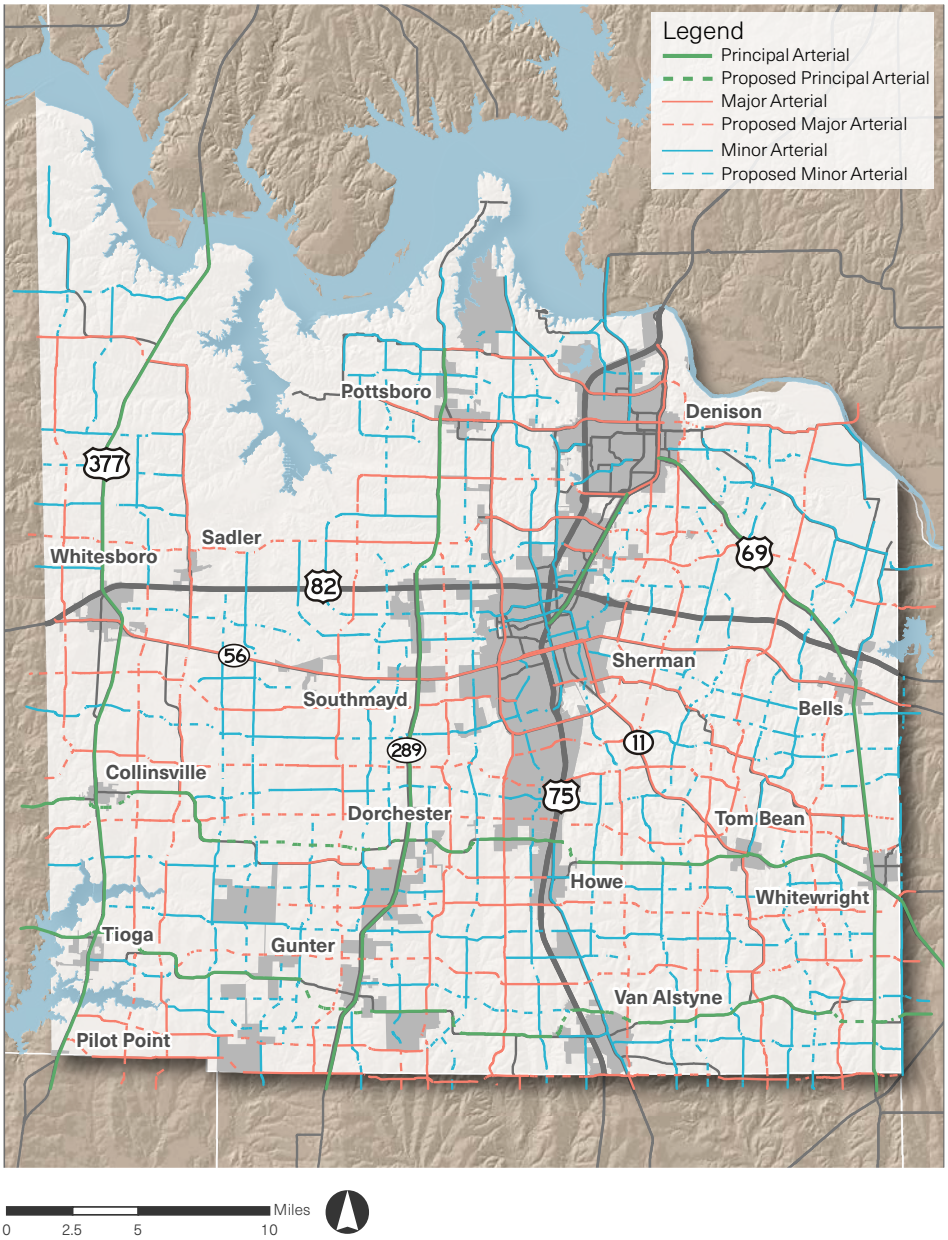


Figure 32: Grayson County Principal, Major, and Minor Arterials

Collectors

Collectors in the region provide an essential task to connect regional traffic to local destinations. They typically experience less traffic and have lower design speeds. Typically collectors are funded and constructed by municipalities in existing neighborhoods, or they are funded as a result of new development. In many cases new development projects will dedicate right-of-way for collectors and/or arterials and provide a rough proportionality of the cost relating the impact of the new development on the mobility network. The purpose of this cost sharing is to try to reduce the burden that new roadway facilities have on the municipalities.

Intersection Improvements

The majority of crash occurrences in the region occur at intersections. They can also be the location of a high concentration of congestion. Due to these factors it is important to consider intersection improvements to improve mobility and improve safety in the region.

The biggest challenge in the region with regards to intersection improvements are found at the junction of US 75 and US 82. At this location, specifically along the frontage roads that parallel the two highways, congestion and delay are the biggest challenge. Improving the operation of the signals at this intersection and defining new design options are some of the ways that congestion can be improved at this location. These improvements are included in the TIP and are funded.

Bicycle and Pedestrian Infrastructure

A detailed chapter focused on bicycle and pedestrian improvements are found in Chapter 7. In the last MTP update, bicycle and pedestrian improvements were limited to the cities of Sherman and Denison. For this MTP update, the entire MPO area including all of Grayson County was included in the bicycle and pedestrian recommendations.

Downtown Whitewright

Public Transit

Transit is an important part of the mobility services in the region. Transit serves people that may not be able to drive due to physical constraints or those that may not own a car by choice or because of income limitations. This is a necessary service that is typically provided in metropolitan areas. TAPS will continue to provide transit service in the Sherman-Denison region moving into the future. Currently they provide on demand service; plans to provide fixed route service will largely be dependent on the desires of the local municipalities to fund this service.

On Demand Service

Currently, TAPS on demand service is maxed out and they are at capacity for their system every day. This is largely due to funding sources that they can access to provide services. Urban transit trips consist of 35% of the trips with the other 65% of trips having a rural origin or destination. TAPS currently has to deny many rides in urban areas to ensure that the budget is balanced. Additional funding sources can be provided by municipalities to increase the capacity of the service. Other entities such as non-profits can also assist in increasing the amount of on demand urban trips that TAPS can provide on a daily basis.

With the new census to be conducted in 2020 it is likely that the urbanized area will increase and services will have to be provided to a larger area with the same funds.

Fixed Route Service

The services provided by TAPS are limited by local contributions. The agency would be able to receive more state and/or federal funds though if there were a higher local match. Since 2016, there has been a 20% ridership increase. If the local match increases, then reinstating fixed routes becomes more viable. TAPS is currently doing market analysis with the Texoma Council of Governments (TCOG) on different service options and where possible fixed routes would go if the service were to be funded. There is a gap in this service for people in the County that need transportation to work and services. The colleges in the County, Grayson College and Austin College, are also impacted by the limited availability of public transport for students. Coordinating with TAPS to support their services and determining if the re-establishment of fixed-route services is the best course of action will be beneficial for residents and visitors of the County.

Regional Transit

Even though there are no current planning efforts by any agencies in the region to provide regional transit south to Dallas-Fort Worth or north to Oklahoma, it is a consistent comment that is reflected in the public outreach during the MTP process. Providing a regional connection between the Sherman-Denison region and DFW could provide additional mobility options for the over 25 thousand people that travel south to DFW on a daily basis. A more detailed regional transit study would need to be conducted to determine the feasibility of such a service. However as growth continues north of DFW into Grayson County, this demand for a regional connection may increase.

Freight Movement

Freight movement is critical through the County for the economic vitality of the region. Truck freight is a major traffic generator. The Grayson County Freight Mobility Plan was completed in September 2018 to address freight movement in the County. The plan includes an overview of the freight infrastructure in the county, assets inventory, economic analysis, recommendations, and funding opportunities. This plan can be referenced for a more detailed analysis of the freight network in the County. Overall, the County has lower pavement ratings than the rest of the state. Seven bridges in the County are in poor condition and twenty-three are load restricted. Seven bridges in the County are below the Federal minimum clearance of 13 feet 6 inches.

US 75 has the highest truck traffic and commercial motor vehicle crashes within the County. Grayson County has a much lower rate of commercial vehicle crashes involved than the State overall, but the same rate of fatal commercial vehicle involved crashes.

Generally, freight moves easily through Grayson County. The Freight Plan identified that increasing mobility and reliability, particularly on US 75, was a priority as well as remedying bridges with low vertical clearance, improving east-west connectivity, and improving safety. Rail priorities included investigating options to improve rail efficiency on the regional short line rail network and increasing utilization of rail yards. No major priorities were identified for air cargo. The plan has two categories of recommendations: transportation related solutions and economic development-related solutions.

The transportation solutions include:

- Continue to engage freight stakeholders
- Reduce the impacts of oversize/ overweight vehicles
- Pursue strategic land use and “smart growth”
- Support infrastructure connections to other markets

The economic development recommendations include:

- Increasing rail access and traffic
- Leveraging the airport for growth
- Study manufacturing and logistics-based development opportunities
- Prioritizing workforce development

Railroad in Sherman

7. BICYCLE & PEDESTRIAN PLAN

Bicycle & Pedestrian Plan

Bicycling and walking are increasingly popular mobility alternatives in the region, especially for trips under 3 miles where dedicated facilities have been built. These walking and bicycling trips consist of a large portion of the total trips, particularly in urban areas. The cities within Grayson County consist of both traditional established neighborhoods as well as more recently developed communities within and out to the fringes of their city limits.

The cities and towns in Grayson County have local destinations that could easily be accessed by bicycle and pedestrian facilities – considered "active transportation." These destinations include but are not limited to work places, shopping centers, school campuses, libraries, entertainment, parks and recreation facilities. Evidence exists that more recent developments have better incorporated these alternative modes; but, so far, most are disconnected from any citywide system, and not yet fully functional as active transportation corridors.

Availability and access to contiguous and connected bicycle and pedestrian facilities can provide an added level to the quality of life for any given area – as well as quantifiable economic benefits. While there currently is not a dedicated local funding source for these types of facilities, the Sherman-Denison MPO is now planning more comprehensively for such facilities, and exploring ways to designate funding for inclusion of these connections.

In 2014, the SDMPO Bicycle and Pedestrian Plan was focused primarily within the core cities of Sherman and Denison. This 2019 update to the Bicycle and Pedestrian Plan comprises the entire Grayson County geography including rural routes throughout the County. The updated plan also identifies elements of perceived user demand based on land use and travel behavior relating to trips under 5 miles. This plan incorporates elements that were identified in the 2040 MTP and each city's recent comprehensive plan.

Bicycle and pedestrian access to and from elementary and secondary schools has been identified as well. Gaps in the existing sidewalk system connecting to these schools became evident during the identification of existing sidewalks within ½ mile of every campus in each school district. Cities that have been made to be more walkable and bikeable are benefiting from non-motorized mobility that younger generations indicate are desirable attributes in places they choose to live, study, work and play.

For the evaluation of roadway suitability for bicycling, the first step was identification of existing roadways with posted speed limits of 30 miles per hour and below. These roads are typically more conducive to bicycle mobility – with little more than wayfinding and prescribed routine maintenance needed. Existing roadways with posted speed limits of 35 MPH and greater can also provide for safe cycling routes but usually require separated facilities such as bike lanes, cycle tracks, or sidepaths with off-street connections where available right-of-way exists.

Bike Lane in Sherman

Bicycle and Pedestrian Plan Background

Past Planning that Supports Bicycling and Walking

Both the cities of Sherman and Denison are planning for a future more conducive to transportation alternatives and more active, healthier populations. This section provides a summary of recent multimodal efforts in the Sherman-Denison area, including area plans and a summary of newspaper articles through early 2019. Both cities' planning documents identify multimodal projects and regional bikeway connections. Sidewalk improvements associated with more-recent developments reveal a commitment to enhanced walkability. Even though many segments remain disconnected, improved connections between trip origins and destinations appear achievable over time, and can form a strong base upon which to build for achieving a vision of complete streets in a more sustainable future for the region. Past plans by TxDOT, SDMPO, and the cities of Sherman and Denison contain elements applicable to pedestrians and people who ride bicycles. This section summarizes the various references to these.

2009 CITY OF SHERMAN COMPREHENSIVE PLAN

Chapter 4 focuses on transportation, with one finding from the public engagement process is that many residents cite "the convenience of Sherman's street network as one reason to live in the City." Bicycle and pedestrian facilities can meet both practical transportation needs and recreational needs, especially for an aging population paired with the presence of the College. Key planning considerations for bicycle- and pedestrian-friendly goals include:

- Investing in necessary infrastructure and facilities to support alternative transportation modes.
- Making Downtown and large auto-oriented commercial developments more accessible, safe, and hospitable for pedestrians and cyclists.
- Promoting development and redevelopment patterns that result in parks, schools, and convenience shopping and services within reasonable walking and biking distances of residential areas.
- Working toward a more extensive and interconnected trail network within the community.

2018 CITY OF DENISON COMPREHENSIVE PLAN

Recommendations specific to active transportation include redeveloping Main Street and Burnett Street to be high-activity, pedestrian-friendly streets and to preserve and utilize existing major waterways as primary linkages for a community-wide trail system. Since the core of the City features a dense, connected street grid characterized by a higher rate of walking and biking than new parts of the City, widening streets and/or adding travel lanes should be avoided unless absolutely necessary. Another recommendation is to utilize any project that involves reconstruction of an existing street as an opportunity to add bicycle and/or pedestrian facilities as well as eliminate unused driveways and consolidate active driveways to reduce the risk of collisions between different mode users.

The Comprehensive Plan also includes a Pedestrian and Bicycle Plan; the plan includes a facilities recommendations map and bikeway cross sections with design recommendations.

To prioritize the plan's recommended Actions, the City identified "10 Big Ideas" as starting points, which include creating a network of multi-use trails to promote recreation and tourism and developing standard street cross sections that create "complete streets" throughout the City to serve future vehicle, pedestrian, and bicycle needs.

2017 CITY OF SHERMAN PARKS, RECREATION, AND OPEN SPACE MASTER PLAN

Based on the Needs Assessment survey and the Ten-Year Priority List, hike and bike trails or multi-use trails were identified by the public as the number one priority from this plan. A Bike/Pedestrian Plan can be used to guide the City in acquisition of property for trail construction and evaluation of future and existing thoroughfares for on-street bike lanes.

One of the primary uses of greenbelts and open space is for hike and bike trail corridors and preservation of open space, although the City currently does not have an extensive trail system in a Greenbelt or Creek Corridor. These trails can become destination trails to adjacent cities and internal to Sherman provide pedestrian trails to retail areas, and to connect parks to other parks and public areas. When property adjacent to creeks and floodplains is developed, floodplain property should be dedicated to the City for Open Space and Greenbelts.

The Ten-Year Action Plan/Priority List indicates hike and bike trails as the number one facility priority for 2017-2019 at an estimated cost of $300,000/mile with possible funding sources from bonds, grants, and private donations.

2017 – 2021 TEXOMA COUNCIL OF GOVERNMENTS REGIONAL COORDINATED TRANSPORTATION PLAN

According to the mail-out survey, which was sent to 3,000 residents within the region and returned 155 responses as of November 18, 2016, many respondents suggested that the "most important problem affecting transportation in the Texoma region is a lack of adequate sidewalks or bike routes."

In fact, lack of adequate sidewalks or bike routes was the most important problem according to former transit riders and respondents that never use transit in the Texoma region.

VISION 2020 FOR DOWNTOWN DENISON

The plan states that sidewalks shall be well-maintained and recommends exploring what, if any, ordinance changes would need to be enacted to allow the sale of merchandise on sidewalks. Some residents would like to see hosted and self-guided historical walking tours available, although these activities are geared more towards visitors rather than enhancing the pedestrian network and safety of current residents.

The only mention of bicycling in this document include one survey question and one respondent answer. Survey Question 13 asked respondents to rank four methods of transportation according to what they thought would be the most helpful for bringing people downtown; 30% of respondents ranked "creating bicycle paths and post signs to protect cyclists" first, behind the 39% of people and 42% of people who ranked "work with Choctaw Casino and local lodging to shuttle people to downtown" and "designate parking for events with shuttle to destination," first, respectively. The fourth method was to "enhance existing TAPS shuttle opportunities," which was ranked first by 29% of respondents

2012 DENISON DOWNTOWN STREETSCAPE MASTER PLAN

The existing conditions section of the plan indicates that all of the streets within the study area are wide travel lanes that encourage higher vehicular speeds, creating an unbalanced proportion of right-of-way (ROW) area by placing a higher emphasis on vehicular use rather than pedestrian or bicycle use.

A public survey asked respondents to select from a list of 27 options the items that believed to be most important to enhance Downtown Denison's streetscape. The walkability of downtown was ranked third, the separation of pedestrians from traffic was ranked 14th, bike racks were ranked 20th followed by designated bike lanes and wider sidewalks ranks 21st and 22nd, respectively.

This plan also includes its own Bike Plan, which identifies access points and travel routes cyclists can use to get downtown if bike lanes cannot be accommodated within current road profiles. The plan recommends providing bike racks along Main Street and the suggested bicycles routes.

Other recommendations include replacing sidewalks to be ADA compliant, installing raised pedestrian crossings along Main Street, and other street furniture amenities and pedestrian-friendly landscaping.

2045 MTP Bicycle and Pedestrian Planning Process

The bike plan is substantiated through both gauging bicycle demand and conducting a level of comfort analysis. The demand analysis seeks to identify where bicycle and pedestrian facilities would be most impactful in the Sherman-Denison area by evaluating where people are commonly walking and biking to or likely to do so through transit-dependency characteristics collected from the U.S. Census Bureau, TxDOT, and local government sources. The level of comfort analysis, conversely, focuses on evaluating existing roadway and traffic conditions, classifying streets and rights-of-way as either high, mid, or low comfort facilities. In addition, many of the recommended improvements to the bicycle and pedestrian system in Grayson County is a direct result of local planning efforts.

BIKE DEMAND ANALYSIS

High-demand areas are defined by two primary factors listed below, for the purpose of this Plan, and will inform prioritization of the bike network. This analysis also identifies areas that may not be covered in the 2014 proposed bike network but would be well-suited for bicycle and pedestrian facilities based on the findings in this analysis.

POPULATION DENSITY

Many trips originate at people's homes. Investing in densely populated areas allows local governments to maximize dollars by impacting the most amount of people in a given area and influence travel behavior from the start.

ATTRACTORS (DESTINATIONS)

Attractors are considered destinations where people are traveling to and can include parks, schools, universities, colleges, civic buildings, employment centers and public spaces. Areas with high-concentration of destinations are important to consider when investing in bicycle and pedestrian facilities, as people may be nudged toward active travel choices, given the right conditions. Identifying high-concentrations of employment allows the MPO and cities to prioritize bicycle and pedestrian investments in areas where this trip could be substituted with an active transportation mode.

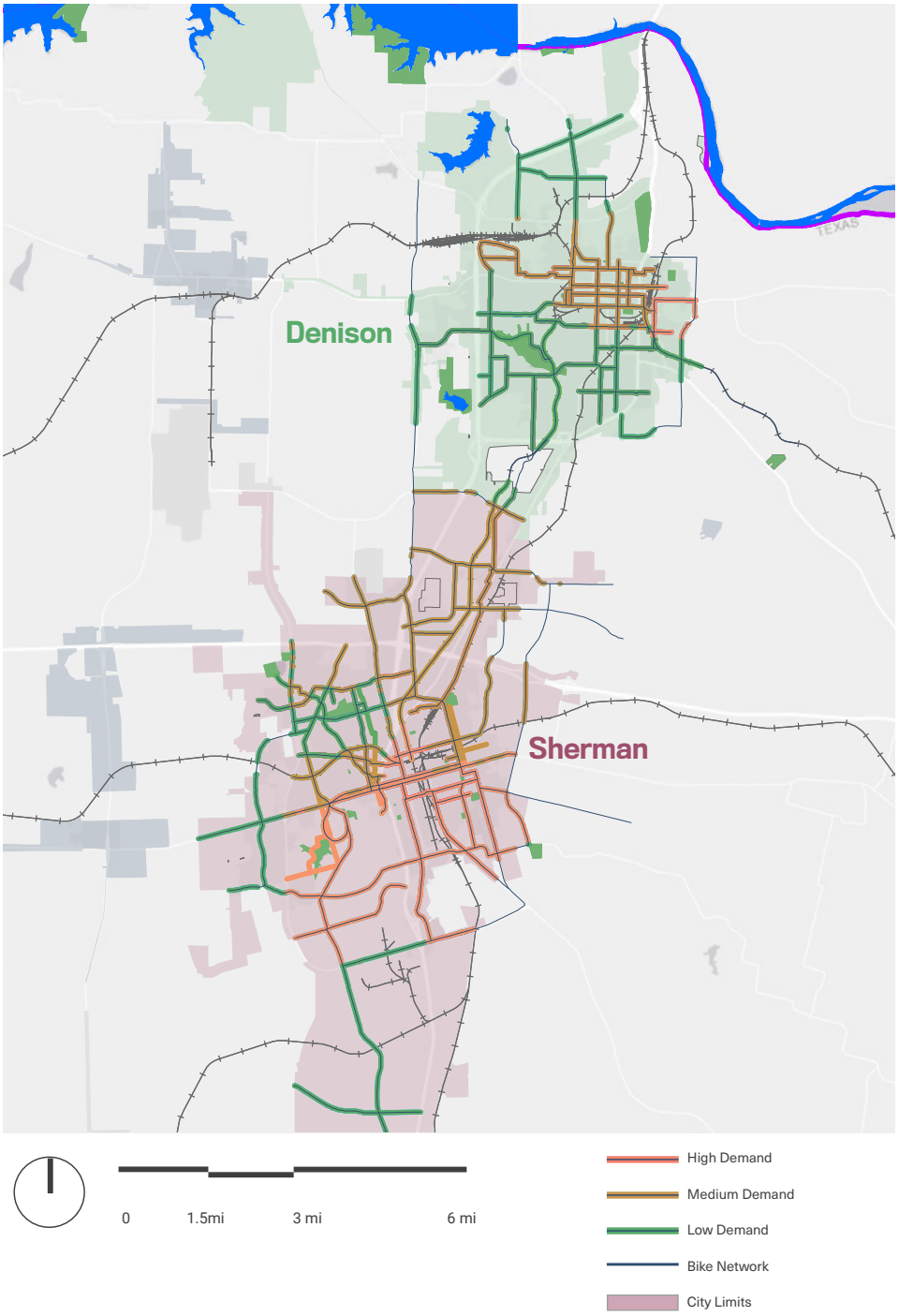


Figure 33: Bicycle Demand Map

LEVEL OF COMFORT ANALYSIS

Low-stress bicycle networks are able to support bicycling for people of all ages and abilities and can entice more people to ride who may be interested but concerned. For this analysis, level of comfort is determined following the Mineta Transportation Institute's methodology that includes roadway speeds, traffic volumes, vehicle lanes, and lane widths, in addition to other local traffic factors. High-stress locations pose a safety risk to cyclists, pedestrians, and motorists alike -- though people on foot and bikes are most vulnerable.

- Crash volumes
- Roadway Speeds
- Traffic Volumes
- Vehicle Lanes
- Lane Widths
- Pinchpoints / Overpasses / Underpasses
- Railroad Crossings

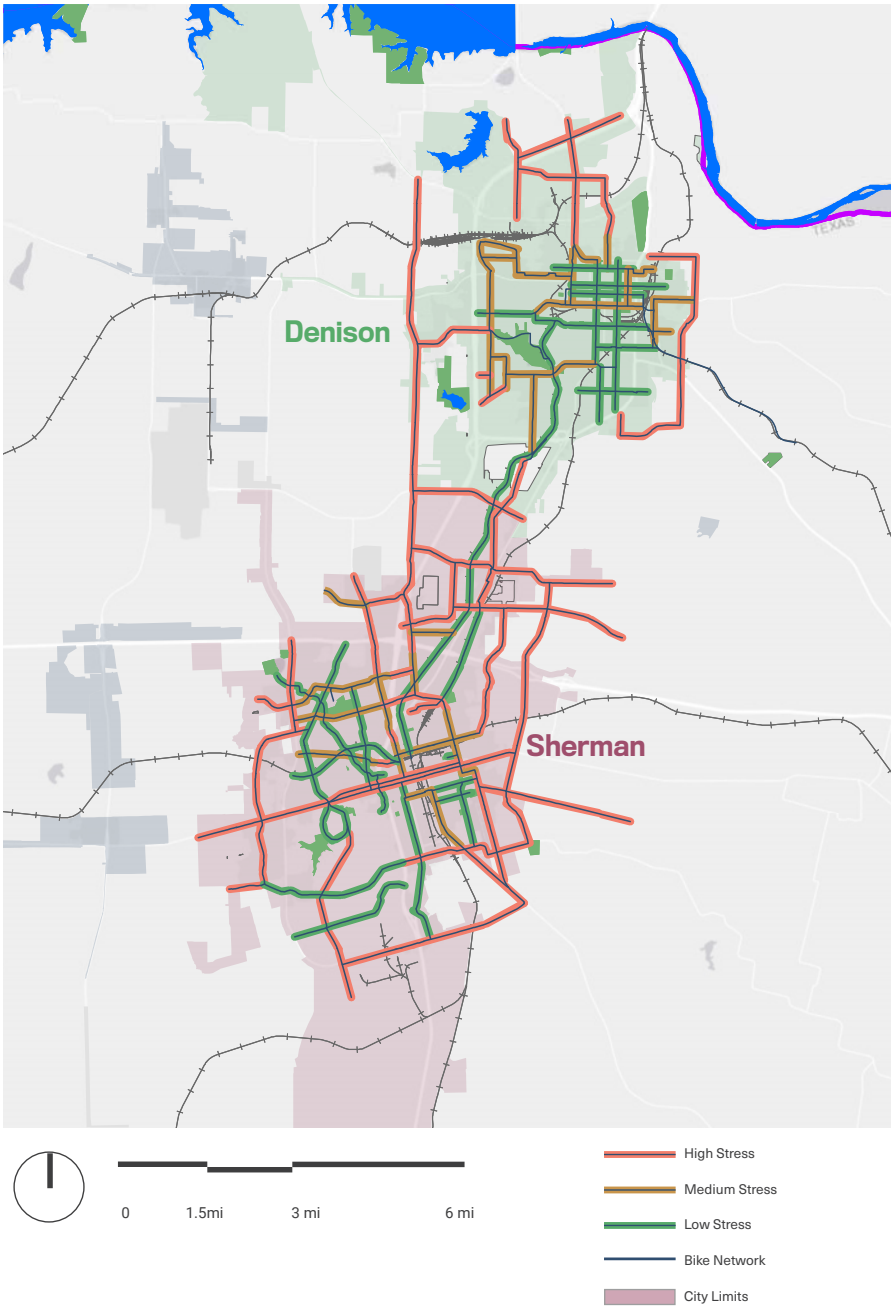


Figure 34: Bicycle Level of Comfort Map

EXISTING PLANNING EFFORTS

Current planning efforts for bicycle and sidewalk improvements have been increasing in the region. The City of Sherman has been working on improving the sidewalk connectivity in and around the downtown. The City of Van Alstyne has also been improving sidewalk connections. Denison's specifically addressed bicycle and pedestrian needs in their last Comprehensive Plan and is about to begin the construction of the Katy Trail. Using the current planning efforts as a starting point is important to ensure that the MPO's Bicycle and Pedestrian Plan is consistent with the efforts that are being conducted in the region.

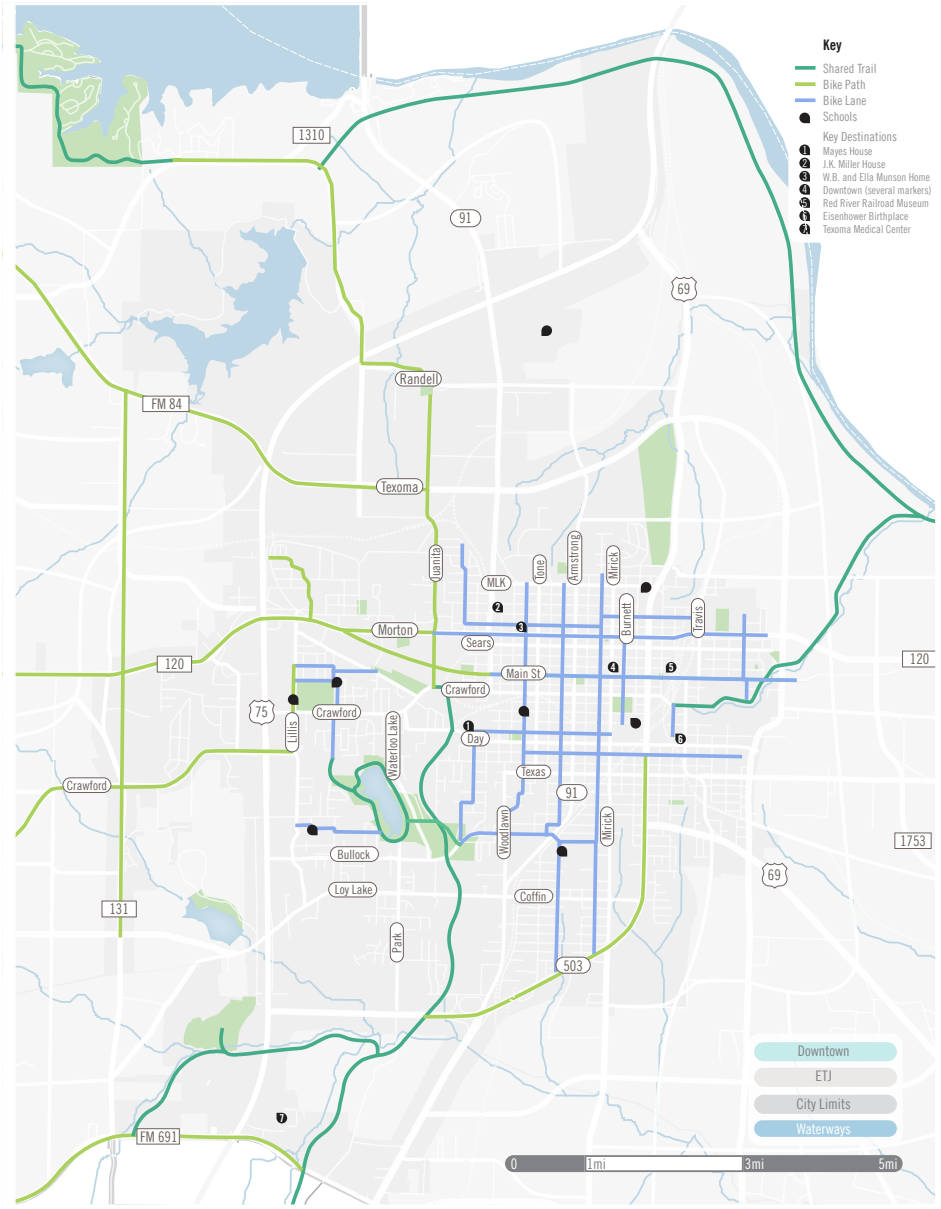


Figure 35: Denison Pedestrian and Bicycle Plan

Bicycle and Pedestrian Best Practices

Pedestrian Accommodations

Young families of today are expressing stronger interest in having non-motorized access to routine destinations, including safe routes to schools. Students who walk or ride bicycles to school have been determined by the Centers for Disease Control and Prevention (CDC) to be more alert, healthier and score better on test scores. Areas around college campuses can routinely benefit from investments that enhance access to commercial services and retail operations. Employees who arrive via active transportation modes are much more alert, have fewer sick days, and are generally more productive. Health costs are often reduced when employees maintain more active lifestyles.

Within more urbanized areas, contiguous sidewalks must also be a guiding principle for pedestrian safety and access. Generally speaking – safe, convenient and easy to follow routes allow both those who choose to walk or bicycle and those who rely on walking or bicycling to transit or other destinations to arrive safely and with reasonable expectation of contiguous connectivity.

Integration and interconnectivity are key guiding principles for ensuring the availability of transportation alternatives. By adopting these principles as key components of any future transportation improvements, eventual interconnectivity is more likely. Pedestrian or bicycle accommodation is an essential part of inclusive mobility for the traditionally underserved or underrepresented populations. Mobility and access are the simplest objectives of any bicycle and pedestrian plan.

Sidewalks are recommended along both sides of all urban and suburban arterial and collector streets; however, in the short and mid-term, in order to gain connectivity over a larger area, and when implemented as a project separate from overall street reconstruction, installing sidewalks along only one side of most streets is an acceptable near- and mid-term strategy. While ideally all city streets would include sidewalks, for this Plan, selected residential streets that support safer access to schools, parks, and workplaces from residential areas should be added to the citywide network.

Early in any project development process, several factors should be considered when determining whether to include new sidewalks on a project. When any of the following factors are present within TxDOT right-of-ways, TxDOT requires that sidewalks be included on any project:

- Facility is part of a locally adopted sidewalk planning document;
- There is evidence of pedestrian traffic (either pedestrians are observed, there is a beaten down path, or significant potential exists for pedestrians to walk in the roadway);
- Facility is located on a route to a school or a transit route;
- Where pedestrian generators/ attractors exist, new sidewalk construction should be included.

Clear zones for pedestrians should not include street lights, utility poles, sign posts, fire hydrants, mailboxes, parking meters, bus benches, bike parking, dining tables and chairs, newspaper boxes, or any other object that could impede pedestrians, including those with disabilities.

Commercial driveways should be consolidated where feasible to reduce the number of pedestrian/motor vehicle conflict points. In addition, sidewalks crossing driveways must conform to the adjacent sidewalk in width, cross slope, and grade. Where roadway grade is greater than 5 percent, the sidewalk may exceed 5 percent but must be less than or equal to the roadway grade. The cross slope maximum is 2 percent. For pedestrian paths not adjacent to public right-of-way, the maximum grade without railings is 5 percent, and the maximum ramp grade with handrails and landings is 8.3 percent. (Applies also to Shared Use Paths.)

Lighting at intersections and pedestrian crossing areas should be provided. Other areas where lighting should be prioritized include where there is a high concentration of dawn, dusk or nighttime pedestrian activity (schools, community centers, entertainment, shopping, and places of worship).

Intersection design for pedestrian travel is an essential part of roadway design, and must consider the pedestrian crossing the road. Key elements in creating pedestrian crossings include crosswalks, curb ramps, pedestrian signal heads at signalized intersections timed for expected users (if not automated, a manual call button must be accessible from or at the sidewalk), reducing the crossing distance of 4+ lane roads, pedestrian refuge islands, and lighting for intersection visibility. The curb radii at intersections are frequently designed to enhance motorized throughput, making these same intersections more daunting for pedestrians to cross.

Consideration should be given to shorter crossing distances for the pedestrians by including pedestrian refuge islands for phased roadway crossing; and tighter intersection radii which may be retrofitted through application of parking lanes with curb extensions. Other types of pedestrian crossings include midblock crossings, underpasses and overpasses. Wayfinding signage should also be placed where appropriate.

Bicycle Accommodations

TYPES OF BICYCLISTS

Different types of bicycle facilities serve essentially three types of bicyclists, each who potentially has different needs in terms of bike facility design.

Group A (Advanced) cyclists are generally confident and can operate within existing roadway space under most traffic conditions. Space on the roadway can typically be shared when a 14'+ wide outside lane is present. Group A will typically occupy a lane if less than 14' in width as allowed by state law, or prefer to ride along smooth shoulders when available. Group A cyclists tend to prefer direct access to destinations, typically riding as fast as they are able, and prefer to encounter few delays such as signals or stop signs. A relatively small percentage of people who ride bikes fall into this category; however, State law gives these cyclists full rights to use most roadways except limited-access highways, anywhere in Texas.

Group B (Basic, less experienced adult and teenage bicyclists) and Group C (Children) are generally more concerned about safety, and prefer protected or off-street paths that help minimize interaction with motorized traffic. These cyclists prefer to ride on streets with bike lanes and light traffic – unless the bikeway is either buffered from motorized traffic – as in a buffered bike lane, or is a protected facility such as a cycle track, a bike lane located behind parked cars, or sidepath behind a curb. Almost all people who ride bicycles are in Groups B or C.

BICYCLE FACILITY TYPES

NEIGHBORHOOD BIKEWAY

Neighborhood bikeways are on-street facilities where traffic volumes and speeds are low enough for people driving and people bicycling to share a lane. These facilities are indicated by either signage and/or pavement markings, such as sharrows. Generally, neighborhood bikeways are implemented on two-lane roadways with designed speed limits below 30 miles per hour.

Neighborhood Bikeway

BUFFERED BIKEWAY

A buffered bikeway is an on-street facility dedicated to separating modes through a striped buffer. These facilities provide a higher level of comfort compared to the neighborhood bikeway typology and are typically reserved for streets with higher speeds and larger traffic volumes. Buffers typically range between 2-5 ft. and can be paired with colored paint markings to enhance visibility and reduce mode conflict.

SEPARATED BIKE LANE

Separated bike lanes are on-street facilities similar to buffered bikeways, but instead of a striped buffer a permanent barrier, such as a curb or planter, clearly separates this dedicated street space for people on bikes from vehicular traffic lanes. This type of facility typically provides the highest level of comfort for people on bikes and is generally implemented along streets with higher speeds, larger traffic volumes, multiple vehicle travel lanes, and/or with specific conditions such as traffic congestion or high bicycle volumes.

Separated Bicycle Lane

CONVENTIONAL BIKE LANE

Conventional bike lanes are on-street facilities that are simply marked by a painted stripe to indicate dedicated space for people on bikes. This type of facility is implemented along streets where right-of-way is constrained and traffic volumes and speeds do not necessitate buffered or separated .

Bicycle Lane

OFF-STREET TRAIL

Off-street trails are fully separate facilities outside of the roadway network. Trails may either be shared or provide separate biking and walking paths and could be implemented in existing greenscape or reclaim obsolete or underutilized public rights-of-way, such as abandoned railroad beds or utility corridors, to provide more direct connections and/or recreationally scenic paths.

Class I Trails

- A Class I trail shall be constructed on abandoned railroad corridor, easements and city/state having sufficient right of way to have a separate shared use path.
- The proposed trail improvements would typically have a minimum 30' wide cleared right of way.
- The proposed trail design would include a 14' wide subgrade preparation, this can include cement or lime stabilization as necessary, with 8' wide ditches that have a side slope of 4:1 for ease of access and maintenance.
- Depending on project needs and the County's requirements, the existing damaged bridges would be repaired or replaced, and new handrails would be installed.
- Installation of a 12' wide crushed aggregate base (4" thick) on the prepared 14' wide sub grade as per TxDOT Specification "Item 247- Flexible Base".
- Installation of a 10' wide wearing surface (asphalt, concrete, or crushed aggregate fines, etc.) at a minimum thickness of 2" on top of the new 12' wide base.
- The trails installed on top of the bank within existing state/city right of way shall have a minimum of 12' wide cement or lime treated stabilized subbase (typically a 3% mixture) which is 6" thick for ease of maintenance and 12' wide crushed aggregate base which is also 6" thick. A 10' wide wearing surface (asphalt) which is 2" thick shall be installed above the base.

Bicycle Trail

Class II Trail

- A Class II trail shall be constructed where not enough City/State right of way is possible for a separate shared used path, but individual bike lanes for one way travel in each direction.
- On City streets and high-speed, high volume roads the proposed trail would include a 10' wide bike lane/cycle track separated from roadway by a 2' wide buffer lane or 6" tall concrete curb on low volume city streets, county roads, and low volume state highway a 10' wide shoulder could be used as a bike lane.

Class III Trail

- City streets and county roads where sufficient right of way may not be available, the proposed trail would typically be a Class III bikeway, or the County can investigate the acquisition of right-of-way or easements to establish a separated Class I trail.

BIKEWAY SIDE PATH

Side paths are fully separate facilities where people biking and/or walking have their own dedicated space immediately adjacent the roadway network. These side paths may either be shared between people walking and biking or consist of separate bike paths and sidewalks, depending upon available public right-of-way. Side paths provide a high level of comfort for people biking and are typically implemented adjacent to roadways that have traffic speeds set at or above 40 miles per hour. Side paths often must also account for managing conflict between people walking and biking by utilizing pavement markings and signage to orient users.

The diagram below illustrates a decision-making process to assist local governments and member cities in the Sherman-Denison MPO when deciding what type of bikeway to install. Low stress (high-comfort) bike facilities will likely be designed to encourage a wider demographic in using the facility.

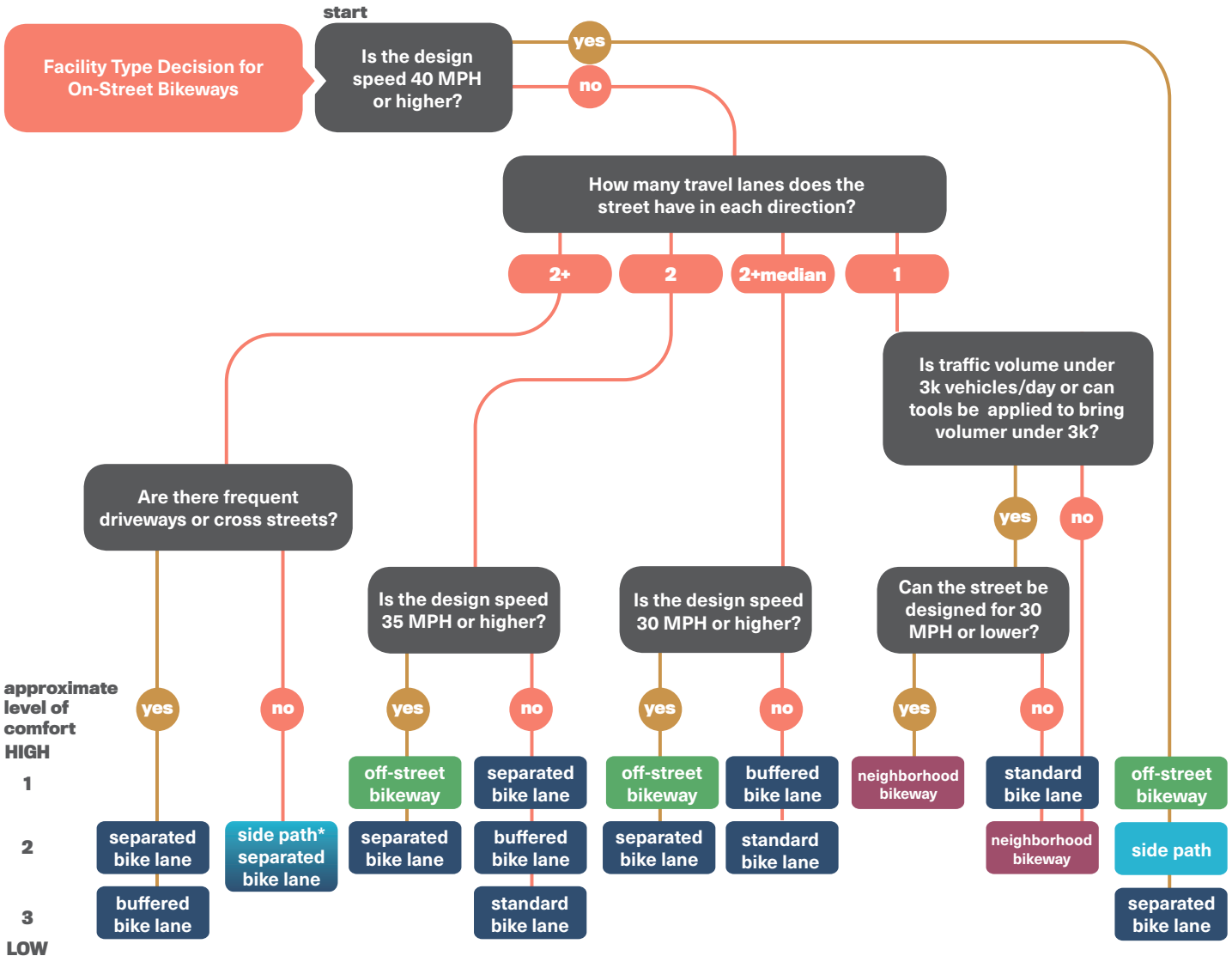


Figure 36: Bikeway Type Decision Making Process

URBAN AND RURAL CONTEXT

In the previous plan, the focus on bicycle and pedestrian improvements was limited only to the cities of Sherman and Denison. With the expansion of the Sherman-Denison MPO boundary in 2016, the bicycle and pedestrian plan update involved planning for bicycle facilities in both the urban, suburban, and rural areas of the region.

The types and choices of facilities for bicycle and pedestrian mobility varies depending on the context whether it is urban or rural. In the rural context, pedestrian and bicycle facilities have different design needs than in urban areas. Vehicle traffic can be an important factor on what type of facility is needed. In the urban context, a roadway network is much more robust and there can be many more options for bicycle and pedestrian infrastructure.

Urban Context

Rural Context

Bicycle and Pedestrian Recommended Improvements

Sidewalk Recommendations

Almost every trip that we make involves walking. Accommodating pedestrian traffic is an essential element of the mobility system. In the Sherman-Denison MPO, pedestrian needs are most important in areas with the highest population and employment densities. Within urban areas, pedestrian infrastructure is provided by constructing sidewalks, off-street trails, or side paths. Improving the quality of sidewalks and expanding the pedestrian network to remove potential gaps is a key goal of the MPO.

Pedestrian facility evaluation was limited to determining sidewalk gaps within ½ mile from public schools. For this study, an inventory was undertaken of existing sidewalks to determine barriers to students walking to school.

An overall map of existing conditions was created to facilitate visual evaluations of current land uses and development patterns throughout both Sherman and Denison. Findings included:

- Schools located in some areas with high proportion of low income residents have insufficient infrastructure for safe walking.
- No formal bicycle infrastructure currently exists, or appears to be programmed in any of the upcoming roadway projects in the current MTP or Transportation Improvement Program (TIP).
- No local wayfinding was found to be established in either Sherman or Denison.

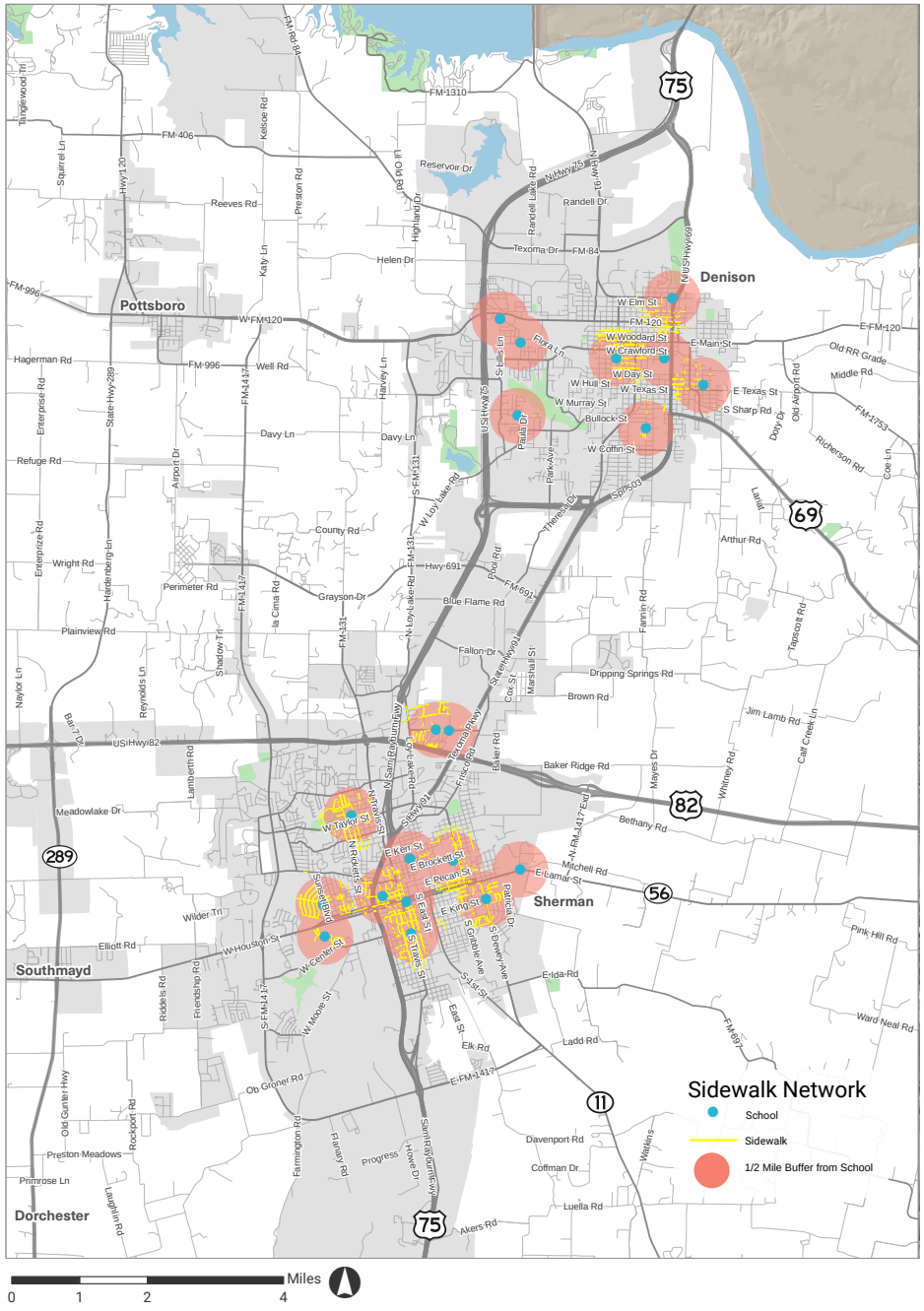


Figure 37: Urban Bicycle Network

- Most major employers are sited on large open campuses that are generally accessible only by automobile or people on bicycles willing to brave rush hour traffic on traditional roadways.
- A large utility corridor bisects the west side of Sherman that could be a candidate for development as a greenway shared use path (trail) that connects between large parks.
- Several unused or abandoned railroad corridors extend from both cities, including a major potential connector between Sherman and Denison.
- Local 30-MPH streets in both cities can be signed with wayfinding networks that foster riding longer distances with clear directions to facilitate navigation around imposing barriers.
- A network of potential collector and arterial reconfigurations were identified to guide further study as roadway upgrades are undertaken.
- A variety of roadway intersections were identified to guide further evaluation during routine reconstruction or upgrade projects.

Pedestrian Crossings and Sidewalks in Sherman

Bikeway Recommendations

URBAN RECOMMENDATIONS

To meet the range of different existing street contexts within Grayson County, several bicycle facility types are proposed to balance the provision of bicycle facilities with vehicular travel and storage lanes. A level of comfort analysis was conducted to inform the bikeway facility recommendations in this plan. Low-stress bicycle networks are able to support bicycling for people of all ages and abilities and can entice more people to ride who may be interested but concerned.

Where available, off-street trails are indicated based on the current planning efforts by the cities of Sherman and Denison Parks departments. These trails maintain complete separation from vehicle traffic and follow abandoned rail lines, utility corridors, or natural water sheds.

On-street bikeways are indicated on roadways with low traffic volumes and speeds. These facilities can take the form as an on-street bikeway, or a separated bike lane. They provide an important connection for bicycle mobility in urban areas.

Side paths are improved sidewalks that can accommodate both bicyclists and pedestrians. They are generally adjacent to roadways that have higher volumes and speeds.

The regional connections can be off-street trails or side paths that provide a regional network within the County.

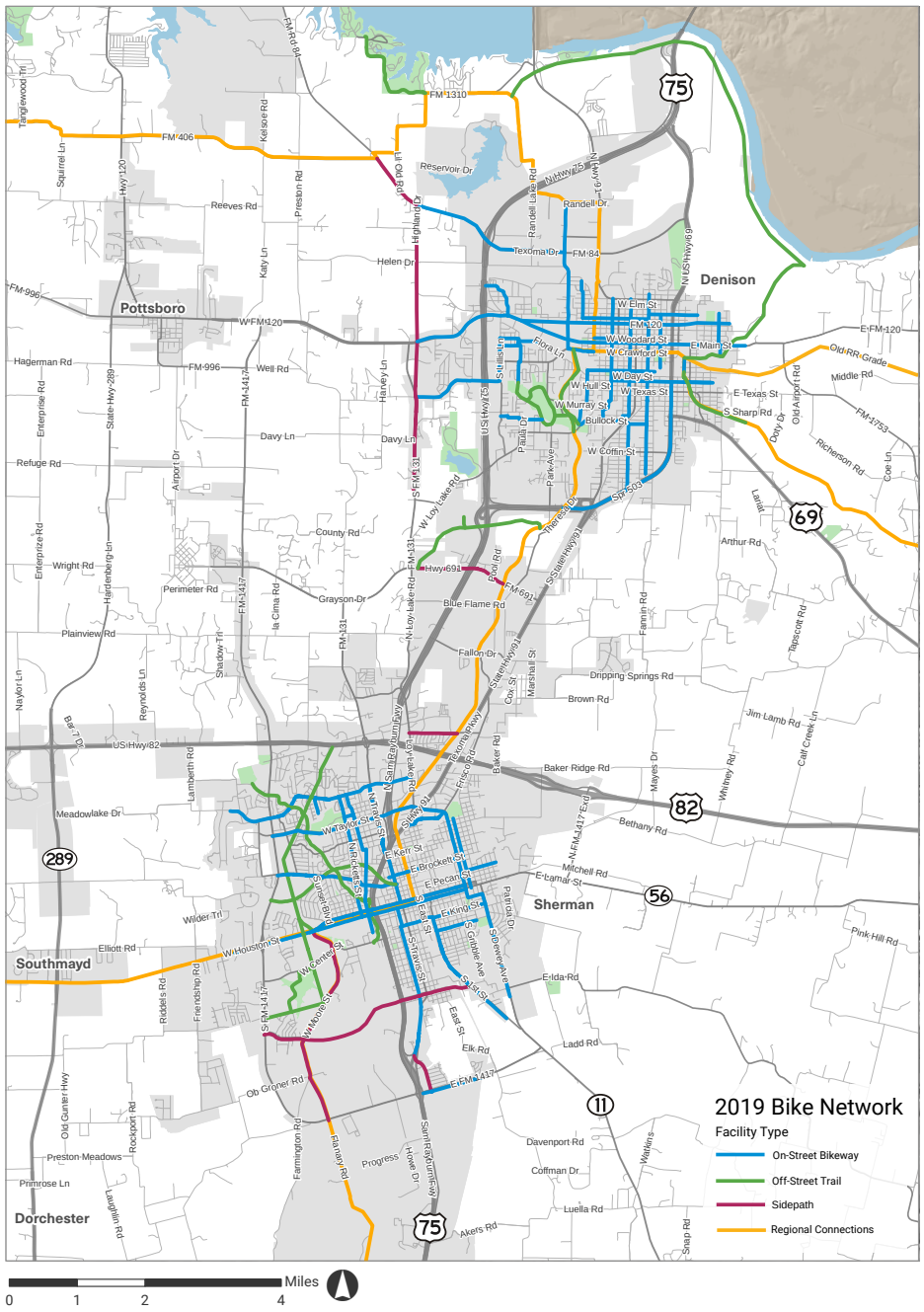


Figure 37: Urban Bicycle Network

RURAL RECOMMENDATIONS

In rural areas of the MPO it is recommended that the State Bicycle Tourism Trail Study (State Plan) previously conducted by TxDOT be followed for bicyle routes, as shown in Figure 38. In a few locations preferred routes were identified that vary from the State Plan based on available railroad corridors, utility easements, or state, county, and city right-of-ways.

The following regional connection routes are recommended:

1. A Class I trail starting from Acheson Street in Denison following south along an abandoned Union Pacific railroad corridor to Bells and continuing west into Fannin County and ultimately connecting to the Northeast Texas Trail. This section of trail aligns with the State Plan. Alternatively, it could diverge at Bells from the abandoned Union Pacific railroad as a Class II trail south along US 69 and FM 160 into Collin County and connect to the Northeast Texas Trail.

2. A Class II trail starting from Locust Street in Whitesboro following south along Highway 377 to the intersection of the Grayson and Denton County Line.

3. Class III trail starting from E Lamar Street in Sherman heading north to Denison and continuing east crossing through Pottsboro and going south connection to Highway 56.

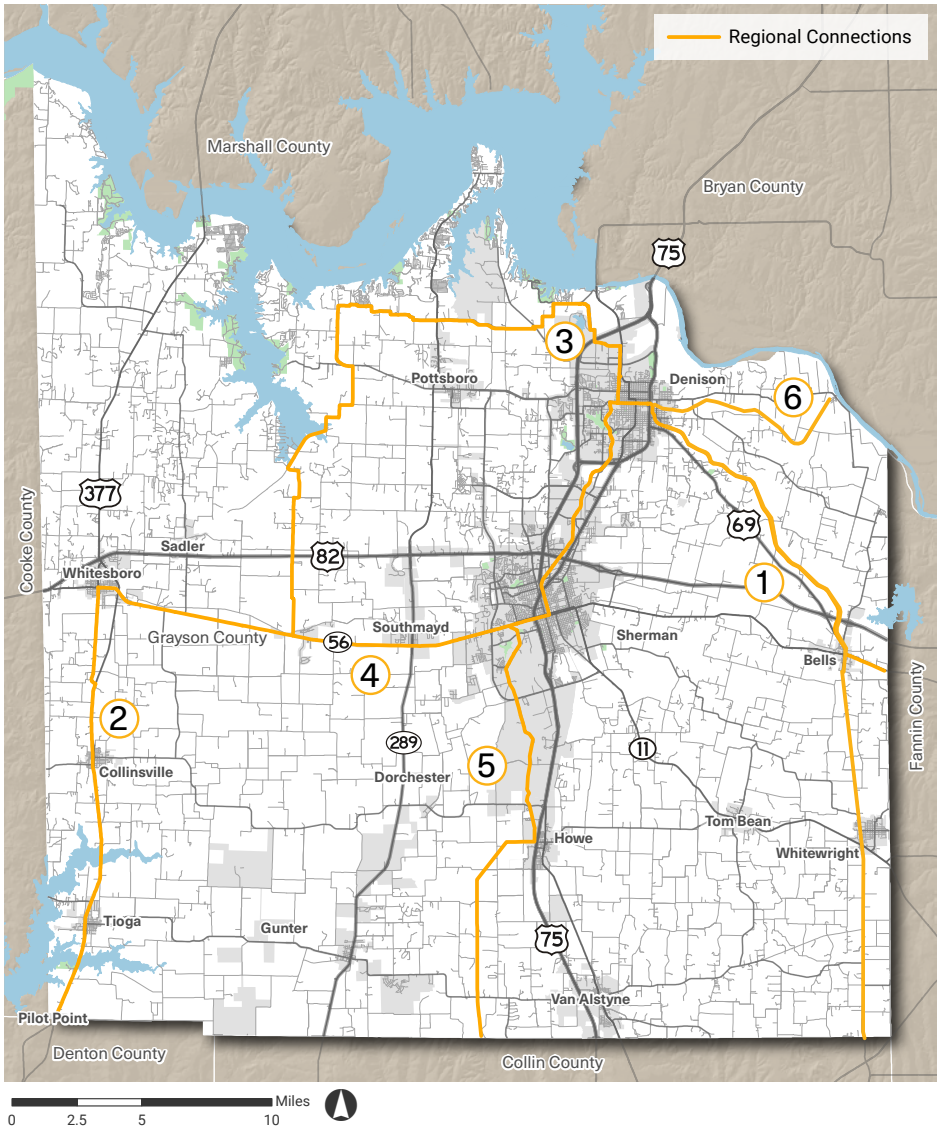


Figure 38: Regional Bicycle Connections

4. A Class I trail starting from Main Street in Whitesboro continuing east along Highway 56 to Houston Street in Sherman.

5. A Class I trail starting from Flanary Street in Sherman heading south and passing through Howe. The route passes into Collin County west of Van Alstyne and ultimately connects to the Northeast Texas Trail.

6. A Class I trail starting from Crockett Avenue in Denison moving east along an abandoned railroad corridor to the state line at Caprenters Bluff Rd. The trail parallels the State Plan route along Highway 120.

Policy Recommendations

Bicycle and pedestrian transportation, a key component in a regional transportation system, is frequently referred to as Active Transportation. From a policy standpoint, it is recommended that the cities and the MPO adopt formula-based funding indexed to anticipated demand, as well as local and regional nonmotorized mobility goals. A policy of inclusion, with emphasis in areas focused on criteria-based environmental justice, can guide decisions to a more uniform standard of recommended goals that can serve as the foundation for an active transportation network. These goals include:

- Establish a Bicycle and Pedestrian Advisory Committee consisting of local stakeholders to work with city and MPO technical and planning staff.
- Adopt policies, programs, and projects identified in this MTP Chapter.
- Improve safety and mobility for active transportation.
- Plan for and promote bicycle and pedestrian transportation, access, safety, and education.
- Incorporate sustainability and livability objectives during any MTP project selection process.
- Include additional weighting or emphasis as appropriate and consistent with policy objectives including, but not limited to, demand management, environmental justice, social equity, environmental preservation, or consideration of transportation options and accessibility to other modes.
- Encourage or incentivize both long and short term bicycle parking facilities at destinations including at work places
- Promote incorporation of a complete streets policy, with context sensitive solutions, and other relevant initiatives that apply to roadway planning, design, implementation, and maintenance.
- Ensure that policies require roadways to safely accommodate all users including bicyclists, pedestrians, transit riders, older individuals, children, disabled persons, and motorists.
- Enhance safety for active travel by promoting education and training opportunities for bicyclists, pedestrians, motorists, and professionals who are designing and implementing roadway facilities, implementing safety infrastructure projects.
- Promote enforcement of traffic laws to reduce bicycle and pedestrian-related conflicts.
- Increase active transportation in the Sherman-Denison MPO region as an alternative to motor vehicle trips.
- Increase active travel for all trip purposes through consistent support of programs and infrastructure projects that address the six E's: Engineering, Education, Enforcement, Encouragement, Equity and Evaluation.

8. FINANCIAL PLAN & MOBILITY PROJECTS

Financial Plan & Mobility Projects

The FAST Act is consistent with previous bills such as MAP-21, that require MPO's to create a long-range transportation plan that is fiscally constrained. Due to this requirement, the cost of the planned projects in the MTP cannot exceed the amount of funding the MPO is expected to have available. The constrained plan however is not limited by projects that leverage funding from other sources to extend the available MPO funds.

This financial plan and project list includes the expected resources that the MPO will have over the next 25 years and what projects will be completed with those funds. The prioritization section of this chapter describes how the projects were developed for the Transportation Improvement Program (TIP), Unified Transportation Program (UTP), and long-range projects (MTP Projects). There are also additional projects that are desired, but not funded, which are known as unmet needs.

Revenue and Expenditure Projections

Methodology

The Sherman-Denison MPO currently obtains the majority of its funding through federal programs, the State Highway Fund, and non-traditional funding sources including the Transportation Mobility Fund (TMF), transportation bonds, and local funds. This funding amount is determined largely by current and projected regional population and vehicle miles traveled compared to other regions of the State. As a result, funding levels are not expected to increase substantially over the life of this plan.

These funding levels will not be sufficient to implement many of the projects identified as a part of this study, thereby leaving potential transportation needs remaining unfunded.

In order to mitigate this funding shortage, alternative funding sources that can be generated using other methods need to be identified. It is important to note that the purpose of the Sherman-Denison MPO 2045 MTP is to provide a reasonable expectation of future funding. The composition of any future voter referenda to support transportation improvements will be a topic of discussion for the MPO and its municipalities and will ultimately be decided on by voters.

The Sherman-Denison MPO has worked closely with its local partners and with the local TxDOT district to expand its ability to fund projects by leveraging other funding sources to pay for projects that are needed in the region.

HIGHWAY REVENUES

Every year, TxDOT develops a 10-year planning document to guide the state's transportation development, called the Unified Transportation Program (UTP). The UTP is intended to provide a connection between the Statewide Transportation Improvement Program (STIP) and the Statewide Long Range Transportation Plan (SLRTP), and authorizes projects for construction, development, and planning activities. The UTP lists projects that have been planned for construction or development within the first 10 years of the 24-year SLRTP.

Available funding for fiscal years 2020-2029 totals approximately $76.9 billion, which is allocated to 12 different categories as shown in Table 2. Categories 2, 3, 4, parts of 10, and 12 are project-specific, while categories 1, 5, 6, 7, 8, 9, parts of 10, and 11 are allocation-based. Projects funded through category 2 are categorized into metropolitan and urban projects and are denoted as 2M and 2U, respectively.

Table 3: UTP Funding

Funding Category	2020 UTP Funding Authorizations
1 - Preventive Maintenance and Rehabilitation	$13,926,300,000
2 - Metro and Urban Area Corridor Projects	$11,481,710,000
3 - Non-Traditionally Funded Transportation Projects	$5,330,350,000
4 - Statewide Connectivity Corridor Projects	$11,220,550,000
5 - Congestion Mitigation and Air Quality Improvement	$2,213,510,000
6 - Structures Replacement and Rehabilitation	$3,586,560,000
7 - Metropolitan Mobility and Rehabilitation	$4,588,130,000
8 - Safety	$4,031,750,000
9 - Transportation Alternatives	$910,500,000
10 - Supplemental Transportation Projects	$594,550,000
11 - District Discretionary	$3,233,380,000
12 - Strategic Priority	$15,740,000,000
Total	$76,857,290,000

Based on the listing of projects within the draft 2020 UTP, the MPO can anticipate over $249 million in capital and operating funding over the next 10 years for 10 projects. These projects and their descriptions are shown in Table 4.

Table 4: Draft 2020 UTP Projects

		US 75	US 75	US 75	US 82	US 75	FM 121	FM 902	FM 902	FM 1417	Various
	CSJ	0047-02-150	0047-03-087	0047-18-083	0045-18-041	0047-13-033	0901-19-201	0901-19-202	0901-19-203	2455-01-031	0901-19-187
1	Preventative Maintenance and Rehabilitation	$-	$-	$-	$-	$-	$-	$-	$-	$14,196,102	$-
2	Urban Corridor	$14,553,938	$12,506,062	$-	$937,200	$13,800,000	$1,874,400	$1,891,440	$776,800	$940,000	$4,000,000
3	Local	$7,000,000	$5,750,000	$-	$1,262,800	$4,710,000	$2,525,600	$2,548,560	$1,023,200	$2,000,000	$-
4	Urban Connectivity	$1,920,000	$13,750,000	$21,700,000	$-	$2,660,000	$-	$-	$-	$-	$-
5	CMAQ	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-
6	Bridge Program	$9,367,000	$6,563,360	$-	$-	$-	$-	$-	$-	$-	$-
7	Metropolitan Mobility and Rehabilitation	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-
8	Safety	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-
9	Transportation Alternatives	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-
10	Supplemental Transportation Projects	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-
11	District Discretionary	$-	$-	$-	$-	$-	$-	$-	$-	$500,000	$4,000,000
12	Strategic Priority	$38,569,500	$30,043,500	$-	$-	$27,770,000	$-	$-	$-	$-	$-
		$71,410,438	$68,612,922	$21,700,000	$2,200,000	$48,940,000	$4,400,000	$4,440,000	$1,800,000	$17,636,102	$8,000,000
										Draft 2020 UTP Total:	**$249,139,462**

TRANSIT REVENUES

The majority of transit funding that TAPS receives is provided through FTA Section 5307 (Urbanized Formula for Areas with Less than 200,000 Population). Based on the FY 2019-2022 Statewide Transportation Improvement Program (STIP), Texoma Area Paratransit System is programmed to receive the funding shown in Table 5.

Given that Section 5309 grants are discretionary and to be conservative in estimating future transit revenues, only Section 5307 funding was projected for the SDMPO region.

Table 5: 2019-2022 STIP Transit Funding

Year	Federal		State		Other Source Funds	Total
	Section 5307	Section 5339	Section 5307	Section 5339		
2019	$510,112	$150,000	$236,495	$0	$101,279	$997,886
2020	$535,618	$175,000	$289,595	$0	$76,379	$1,076,592
2021	$0	$0	$0	$0	$0	$0
2022	$0	$0	$0	$0	$0	$0

BICYCLE AND PEDESTRIAN REVENUES

TxDOT administers the Transportation Alternatives (TA) funds for locally sponsored bicycle and pedestrian infrastructure projects in communities less than 200,000 in population. Since the last MTP update completed in 2014, MPO partner agencies have been successful in acquiring federal funding for bicycle and pedestrian projects through the Transportation Alternatives (TA) Program. Two TA call for projects have occurred since the last MTP, with a new call for projects currently underway in 2019. The past TA call for projects occurred in 2015 and 2017.

In the past call for projects, the City of Sherman received federal funding for the Phase II of the Sherman Streetscapes project with funding for $458,574; the City of Van Alstyne received $685,330 for a bike and pedestrian trail along Highway 5 from North Park to the high school, and; the City of Denison received $919,914 in funding for the Katy Trail.

The success in acquiring these additional funds for bicycle and pedestrian projects is associated with the coordination of the municipalities and the MPO. These projects are supported by the MTP through bicycle and pedestrian plan, which is a chapter in this MTP.

Alternative Funding Sources

As a part of the financial plan for the SDMPO 2045 MTP, several funding mechanisms were investigated as potential alternative sources of revenue for SDMPO and the region.

COUNTY SALES AND USE TAX

The current state sales tax is set at 6.25%. Counties may impose an additional sales and use tax up to 1.5% after a successful voter referendum and approval by county commissioners. However, the sum of all local sales taxes may not exceed 2%. By law, tax revenues must be used to first replace any property tax revenue lost resulting from the adoption of the sales and use tax, and second, reduce the county's debt.

Any revenues in excess may be used to fund anything which the county's general revenue may fund. In counties that are pursuing a county sales and use tax, county commissioners should be encouraged early on to develop a plan to allocate excess tax revenues to address transportation needs, e.g. county road maintenance.

In Grayson County, Dorchester and Sadler are the only two municipalities that have imposed a 1.0% city sales and use tax, while all of the other municipalities have imposed a 2% city sales and use tax. Unless the municipalities lower their city sales and use tax rates, Grayson County will not be able to consider increasing the sales and use tax rate in the County to generate additional funds.

TRANSPORTATION UTILITY FEES

Transportation utility fees are charged to residences and businesses based on estimated usage of, or impact to, the adjacent transportation system, similar to how stormwater utility fees are billed. While the implementation of transportation utility fees does not require any changes in Texas legislation, it requires significant public education to ensure that residents, business owners, and elected officials understand the fee and the projects that the fee will fund.

TRANSPORTATION IMPROVEMENT BONDS

TxDOT accelerates funding and construction of capital projects by utilizing bonds. Prior to bond authorization, the bill must pass a voter referendum and legislative approval. Following this, TxDOT, through consultation with MPOS, localities, and corridor associates, identifies and prioritizes projects to be funded through the bonds. The Texas Transportation Commission then has the final vote on bond-funded projects.

LOCAL VEHICLE REGISTRATION FEES

In addition to the state's annual vehicle registration fees, which vary by vehicle type and weight, Grayson County collects a local vehicle registration fee of $10. Local vehicle registration fees in Texas range from $0 in Borden, Crane, Gaines, Kennedy, Kent, King, Loving, McMullen, Sterling, and Ward Counties, to $21.50 in Bexar County. However, the majority of Texas municipalities' collect $10 to $11.50 for each vehicle registration. Texas lawmakers require that local regional mobility authorities administer the additional revenue, provided only road and bridge projects are funded.

LOCAL MOTOR FUEL TAXES

The State Highway Fund is funded primarily by state motor fuel taxes, which are currently 20 cents per gallon for gasoline and diesel.

VEHICLE MILEAGE FEES

Several reports evaluating the performance of vehicle mileage in Texas have been published. The research conducted as a part of these studies identified several challenges and opportunities for vehicle mileage fees. Public acceptance is one of the biggest obstacles to the successful implementation of a vehicle mileage fee system.

Public concerns include those related to privacy, administrative costs, and fee enforcement. Additionally, the public is generally adverse to increased taxation, and without adequate outreach efforts, may view vehicle mileage fees as another tax collection mechanism. While significant challenges exist, the research shows that simplifying the fee collection process would work best in Texas. A robust public education effort would also increase the likelihood of public acceptance.

TOLLING

TxDOT has successfully implemented tolling as a project-specific funding source to address the gap between needs for additional roadway capacity and available funding from the State Highway Fund. The Dallas North Tollway currently ends at US 380 and is proposed to be extended north to Denison. The proposed alignment can be found previously in this plan in Figure 31.

PUBLIC-PRIVATE PARTNERSHIPS

Public-private partnerships are a relatively new method of project delivery where the private sector delivers facilities and services that could be provided by the public sector for compensation. These contractual agreements make use of existing funding programs, such as tolling, pursued by private corporations or entities in partnership with the public sector. As a result, the public sector does not incur any borrowing, can utilize the expertise of the private sector, and can accelerate project construction. TxDOT utilizes a version of public-private partnerships called Comprehensive Development Agreements (CDAs).

Project Prioritization

TxDOT has begun to utilize an online software program called Decision Lens to help MPOs and other agencies prioritize projects. Decision Lens is a decision-making software that uses multi-criteria decision making. It is used in many fields to assist in planning, prioritization, and resource allocation. Figure 39 demonstrates the performance-based planning and programming that TxDOT is able to encourage with the use of Decision Lens. Decision Lens uses Performance Metrics: Data Integration System (PM-DIS) to pull data directly from TxDOT sources such as DCIS, CRIS, RHINO, PMIS, and PONTEX. This includes data such as crashes, pavement condition, congestion, bridge condition, and highway and freight routes. PM-DIS provides a data-driven baseline from which to start evaluating projects.

The SDMPO used Decision Lens in the MTP planning process to prioritize projects that were received during two call for projects in 2018 and early 2019. A total of 51 projects were submitted. If available, project CSJ numbers were entered into PM-DIS and if a CSJ number was not available the project limits were input into PM-DIS along with the project description. PM-DIS used this information and keywords to transfer the necessary information to Decision Lens. PM-DIS extracts the project attributes and transforms them into project criteria ratings. The ratings are loaded into Decision Lens which then determines a final score based off of the chosen criteria and weighting.

The criteria used matches the performances measure and weighting approved by the MPO. Community support was an additional criteria that was added to Decision Lens for this process. This was determined from the feedback received in the online survey. Figure 40 shows the original results from Decision Lens. The different colored bars demonstrate the score that a project received for the criteria. The results from Decision Lens were then divided by the percent of TxDOT funds allocated to the project to arrive at the final score, as shown in the following formula:

$$\text{Final Score} = \frac{\text{Result from Decision Lens}}{\text{1 - Local Contribution (Percent)}}$$

The table is the final result of the project prioritization.

Figure 39: TxDOT Performance-Based Planning Process

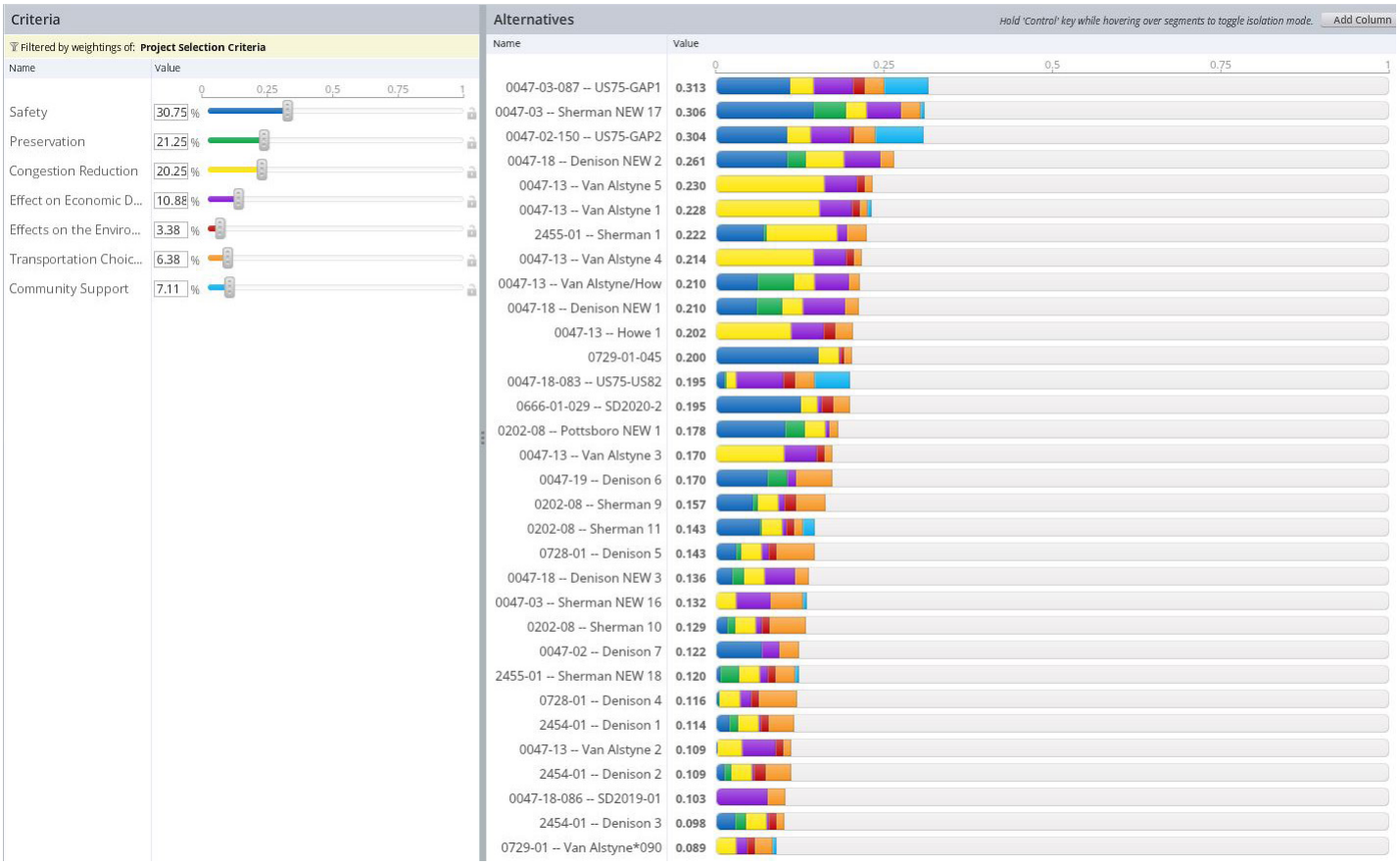


Figure 40: Decision Lens Raw Results

Table 6: Weighted Decision Lens Results

City	Highway	From	To	Description	Estimated Cost	Final Score
Gunter	FM 121	Block Road	SH 289	Construct 2 lane segment of FM 121 Bypass	$3,600,000	0.469142
Sherman	US 75	0.651 MI S of Center Street	FM 1417	Widening from 4 lane to 6 lane	$68,612,922	0.340034
Sherman	US 75	SH 91	0.651 MI S of Center Street	Reconstruct and widening from 4 lane to 6 lane	$71,410,438	0.330136
Sherman	US 75	FM 902	FM 1417	Reconstruct and widen from 4 lane to 6 lane	$43,000,000	0.305825
Denison	US 75	Fallon Dr	Loy Lake Rd	Reconstruct and widen from 4 lane to 6 lane (Spur 503 modifications included)	$79,500,000	0.261454
Van Alstyne	US 75	at Farmington Road		Construct 4 lane interchange	$14,000,000	0.230257
Sherman	FM 1417	at SH 56		Reconstruct Interchange and widen from 2 lane to 4 lane	$2,950,000	0.221734
Van Alstyne	US 75	at Hodgin Road		Construct 6 lane interchange	$10,000,000	0.214458
Sherman	US 75	At US 82		Widen frontage roads and reconfigure ramps	$21,000,000	0.211884
Van Alstyne/ Howe	US 75	Collin County Line	FM 902	Reconstruct and widen from 4 lane to 6 lane	$48,900,000	0.210366
Denison	US 75	SH 91	Fallon Dr	Reconstruct and widen from 4 lane to 6 lane	$49,500,000	0.209734
Howe	US 75	at Hall Cemetery/ LB Kirby		Construct new interchange	$11,900,000	0.201586
Denison	FM 691	SH 91	Theresa Drive	Reconstruct and widen from 2 lane to 4 lane	$4,550,000	0.197060
Pottsboro	SH 289	Spur 316	FM 406	Reconstruct and widen from 2 lane to 4 lane	$11,810,000	0.178465
Van Alstyne	US 75	at Spence Road		Construct 6 lane interchange	$10,000,000	0.170257
Denison	Spur 503	US 75	SH 91	Reconstruct and widen from 4 lane to 6 lane; remove service roads	$13,600,000	0.169605
Tom Bean	FM 902 Bypass	Joe Bob Ln	SH 11	Construct 2 lane segment of FM 902 Bypass around Tom Bean	$1,800,000	0.160127

Table 6 Continued

City	Highway	From	To	Description	Estimated Cost	Final Score
Sherman	FM 131	Taylor Street	College Street	Reconstruct and widen from 2 lane to 4 lane	$4,815,000	0.156692
Pottsboro	SH 289	FM 120	Spur 316	Reconstruct and widen from 2 lane to 4 lane	$3,480,000	0.155639
Howe	FM 902 Bypass	US 75	FM 902	Construct 2 lane segment of FM 902 Bypass	$4,440,000	0.148970
Sherman	FM 131	North Creek	FM 691	Reconstruct and widen from 2 lane to 4 lane	$3,750,000	0.142569
Denison	FM 120	Juanita Drive	Tone Avenue	Reconstruct and widen from 2 lane to 4 lane	$4,500,000	0.142511
Denison	US 75	Loy Lake Rd	FM 120	Reconstruct and widen from 4 lane to 6 lane	$49,500,000	0.136125
Sherman	US 75	FM 1417	W. Travis St.	Construct North B Exit Ramp	$1,995,000	0.132435
Sherman	FM 131	US 82	Taylor St.	Reconstruct and widen from 2 lane to 4 lane	$3,350,000	0.129375
Denison	Spur 503	SH 91	Acheson St	Reconstruct and widen from 4 lane to 6 lane; remove service roads	$18,100,000	0.122435
Sherman	FM 1417	SH 56	US 75	Reconstruct and widen from 2 lane to 4 lane	$24,000,000	0.119848
Denison	FM 120	York Avenue	Juanita Drive	Reconstruct and widen from 2 lane to 4 lane	$4,201,900	0.116073
Denison	FM 131	Seymore Bradley	Davy Lane	Reconstruct and widen from 2 lane to 4 lane	$4,400,970	0.113710
Van Alstyne	FM 3133 Bypass	Chapman Road	US 75	Construct 2 lane segment of FM 3133 Bypass along County Line Road	$8,100,000	0.110645
Whitesboro	US 82	Shawnee Trail	US 377	Construct Frontage Road from Shawnee Trail to US 377 and reverse ramps	$2,200,000	0.111000
Denison	FM 131	Davy Lane	Crawford Lane	Reconstruct and widen from 2 lane to 4 lane	$3,239,900	0.108611
Denison	FM 131	FM 691	Seymore Bradley	Reconstruct and widen from 2 lane to 4 lane	$5,030,000	0.107089
Denison	FM 131	Crawford Lane	FM 120	Reconstruct and widen from 2 lane to 4 lane	$4,100,000	0.097836
Van Alstyne	FM 121 Bypass	Lincoln Park Road	US 75	Construct 2 lane segment of FM 121 Bypass along Spence Road	$4,400,000	0.08851
Sherman	US 82	SH 289	FM 1417	Construct Frontage Roads	$19,347,000	0.086990
Sherman	FM 131	US 82	North Creek	Reconstruct and widen from 2 lane to 4 lane	$1,500,000	0.085580
Van Alstyne	FM 121 Bypass	US 75	Hinton Lane	Construct 2 lane segment of FM 121 Bypass	$4,400,000	0.078063
Sherman	SH 56	Friendship Road	Case Road	Reconstruct and widen from 2 lane to 4 lane	$1,550,000	0.074576
Sherman	FM 1417	at OB Groner / W Travis		Reconstruct Interchange	$1,225,000	0.074460
Dorchester	FM 902	at Railroad		Construct bridge over railroad crossing	$2,500,000	0.072647
Tioga	FM 121 Bypass	Kardum Lane	FM 922	Construct 2 lane segment of FM 121 Bypass Along Airport Road around Tioga	$8,780,000	0.072076
Van Alstyne	SH 5 Bypass	County Line Road	Judd Road	Construct 2 lane segment of SH 5 Bypass along Lincoln Park Road	$12,200,000	0.071431
Collinsville	FM 902 Bypass	Batey Road	Jordan Creek	Construct 2 lane segment of FM 902 Bypass around Collinsville	$7,320,000	0.065940
Sherman	US 75	at Loy Lake Road		Construct U Turn Lane Bridge	$2,500,000	0.065111
Whitesboro	US 82	US 377	SH 56	Construct Frontage Road and reverse ramps	$4,400,000	0.063566
Sherman	FM 1417	Luella	SH 11	Widen Existing Roadway	$9,051,500	0.061704
Grayson County	GCT	Preston Road	US 75	Construct 2 lane segment of Dallas North Tollway	$11,550,000	0.059073
Grayson County	GCT	SH 289	Preston Road	Construct 2 lane segment of Dallas North Tollway	$8,800,000	0.059073
Grayson County	GCT	FM 902	US 82	Construct 2 lane segment of Dallas North Tollway	$33,500,000	0.059073
Grayson County	GCT	FM 121	FM 902	Construct 2 lane segment of Dallas North Tollway	$14,000,000	0.059073
Grayson County	GCT	US 82	SH 289	Construct 2 lane segment of Dallas North Tollway	$24,100,000	0.053370
Tom Bean	FM 2729	at SH 11		Construct 2 lane segment	$1,500,000	0.052835
Howe	US 75	at Spur 381		Ramp Reversal	$3,200,000	0.052421
Gunter	FM 121	SH 289	FM 121	Construct 2 lane segment of FM 121 Bypass	$6,200,000	0.051263
Howe	US 75	at Farmington		Ramp Reversal	$3,200,000	0.04955
Sherman	FM 131	at US 82		Reconstruct Interchange	$4,002,000	0.049051
Dorchester	SH 289	at FM 902		Construct turning lanes	$250,000	0.043940
Sherman	US 82	at Preston Club		Reconstruct Interchange	$662,500	0.032407

Based on the prioritization results and projected available funding, the projects were then sorted in to the TIP, UTP and MTP which can be found in Tables 7, 8, and 9.

Table 7: SDMPO TIP Projects

FY	Highway	From	To	Description	Total Cost	MPO Cost
2020	US 75	FM 1417	SH 91	US 75 from FM 1417 to SH 91 (Called "The Gap") and the US 75/US 82 interchange; Does not include the $26.4 million currently allocated for the FM 1417 projects	$161,723,360	$27,060,000
2020	VA	FM 121	Grayson County Line	Construct new 2 lane highway	$8,000,000	$4,000,000
2022	FM 691	SH 91	Theresa Drive	Reconstruct and widen from 2 lane to 4 lane	$4,550,000	
2022	FM 131	FM 691	Seymore Bradley	Reconstruct and widen from 2 lane to 4 lane	$5,030,000	
2022	SH 289	FM 120	Spur 316	Reconstruct and widen from 2 lane to 4 lane	$3,480,000	
2022	FM 121	Block Road	SH 289	Construct 2 lane segment of FM 121 Bypass	$3,600,000	$1,533,600
2022	FM 902 Bypass	US 75	Bennett Road	Construct 2 lane segment of FM 902 Bypass	$4,440,000	$1,891,440
2022	FM 902 Bypass	Joe Bob Ln	SH 11	Construct 2 lane segment of FM 902 Bypass around Tom Bean	$1,800,000	$776,800
2022	US 82	Shawnee Trail	US 377	Construct Frontage Road from Shawnee Trail to US 377 and reverse ramps	$2,200,000	$937,200

Table 8: SDMPO UTP Projects

FY	Highway	From	To	Description	Total Cost	MPO Cost
2020	US 75	FM 1417	SH 91	US 75 from FM 1417 to SH 91 (Called "The Gap") and the US 75/US 82 interchange; Does not include the $26.4 million currently allocated for the FM 1417 projects	$161,723,360	$27,060,000
2020	VA	FM 121	Grayson County Line	Construct new 2 lane highway	$8,000,000	$4,000,000
2022	FM 691	SH 91	Theresa Drive	Reconstruct and widen from 2 lane to 4 lane	$4,550,000	
2022	FM 131	FM 691	Seymore Bradley	Reconstruct and widen from 2 lane to 4 lane	$5,030,000	
2022	SH 289	FM 120	Spur 316	Reconstruct and widen from 2 lane to 4 lane	$3,480,000	
2022	FM 121	Block Road	SH 289	Construct 2 lane segment of FM 121 Bypass	$3,600,000	$1,533,600
2022	FM 902 Bypass	US 75	Bennett Road	Construct 2 lane segment of FM 902 Bypass	$4,440,000	$1,891,440
2022	FM 902 Bypass	Joe Bob Ln	SH 11	Construct 2 lane segment of FM 902 Bypass around Tom Bean	$1,800,000	$776,800
2022	US 82	Shawnee Trail	US 377	Construct Frontage Road from Shawnee Trail to US 377 and reverse ramps	$2,200,000	$937,200
2024	US 75	Collin County Line	FM 902	Reconstruct and widen from 4 lane to 6 lane	$48,900,000	$13,800,000
2027	US 75	SH 91	Loy Lake Rd (Denison)	Reconstruct and widen from 4 lane to 6 lane	$99,500,000	$18,000,000
2029	US 75	FM 902	FM 1417	Reconstruct and widen from 4 lane to 6 lane	$43,000,000	$12,000,000
2030	FM 1417	SH 56	Travis/OB Groner	Reconstruct and widen from 2 lane to 4 lane	$25,000,000	$2,900,000
2030	FM 3133 Bypass	Chapman Road	US 75	Construct 2 lane segment of FM 3133 Bypass along County Line Road	$8,100,000	$3,100,000

Table 9: SDMPO MTP Projects

FY	Highway	From	To	Description	Total	MPO Cost
2020	US 75	FM 1417	SH 91	US 75 from FM 1417 to SH 91 (Called "The Gap") and the US 75/US 82 interchange; Does not include the $26.4 million currently allocated for the FM 1417 projects	$161,723,360	$27,060,000
2020	VA	FM 121	Grayson County Line	Construct new 2 lane highway	$8,000,000	$4,000,000
2022	FM 691	SH 91	Theresa Drive	Reconstruct and widen from 2 lane to 4 lane	$4,550,000	
2022	FM 131	FM 691	Seymore Bradley	Reconstruct and widen from 2 lane to 4 lane	$5,030,000	
2022	SH 289	FM 120	Spur 316	Reconstruct and widen from 2 lane to 4 lane	$3,480,000	
2022	FM 121	Block Road	SH 289	Construct 2 lane segment of FM 121 Bypass	$3,600,000	$1,533,600
2022	FM 902 Bypass	US 75	Bennett Road	Construct 2 lane segment of FM 902 Bypass	$4,440,000	$1,891,440
2022	FM 902 Bypass	Joe Bob Ln	SH 11	Construct 2 lane segment of FM 902 Bypass around Tom Bean	$1,800,000	$776,800
2022	US 82	Shawnee Trail	US 377	Construct Frontage Road from Shawnee Trail to US 377 and reverse ramps	$2,200,000	$937,200
2024	US 75	Collin County Line	FM 902	Reconstruct and widen from 4 lane to 6 lane	$48,900,000	$13,800,000
2027	US 75	SH 91	Loy Lake Rd (Denison)	Reconstruct and widen from 4 lane to 6 lane (Spure 503 modifications included)	$99,500,000	$18,000,000
2029	US 75	FM 902	FM 1417	Reconstruct and widen from 4 lane to 6 lane	$43,000,000	$12,000,000
2030	FM 1417	SH 56	Travis/OB Groner	Reconstruct and widen from 2 lane to 4 lane	$25,000,000	$2,900,000
2030	FM 3133 Bypass	Chapman Rd	US 75	Construct 2 lane segment of FM 3133 Bypass along County Line Road	$8,100,000	$3,100,000
MTP	US 75	SH 91	Fallon Dr	Reconstruct and widen from 4 lane to 6 lane	$49,500,000	$12,000,000
MTP	US 75	Loy Lake Rd	FM 120	Reconstruct and widen from 4 lane to 6 lane	$49,500,000	$12,000,000
MTP	FM 1417	Travis/OB Groner	US 75	Reconstruct and widen from 2 lane to 4 lane	$24,000,000	$12,000,000
MTP	Spur 503	US 75	SH 91	Reconstruct and widen from 4 lane to 6 lane; remove service roads	$13,600,000	$12,000,000
MTP	US 82 Frontage Roads	FM 1417	SH 289	Construct Frontage Road and reverse ramps	$19,347,000	$6,000,000
MTP	Spur 503	SH 91	Acheson	Reconstruct and widen from 4 lane to 6 lane; remove service roads	$18,100,000	$12,000,000
MTP	SH 289	Spur 316	FM 406	Reconstruct and widen from 2 lane to 4 lane	$11,810,000	$11,810,000
MTP	US 82 Frontage Roads	US 377	SH 56	Construct Frontage Road and reverse ramps	$4,400,000	$4,400,000
MTP	SH 56	Friendship	Case	Reconstruct and widen from 2 lane to 4 lane	$1,550,000	$1,550,000
MTP	FM 121 Van Alstyne North Bypass	US 75	Hinton Ln	Construct 2 lane segment of FM 121 Bypass	$4,400,000	$4,400,000
MTP	FM 2729	SH 11		Construct 2 lane segment	$1,500,000	$1,500,000
MTP	FM 121 Gunter West Bypass	SH 289	FM 121	Construct 2 lane segment of FM 121 Bypass	$6,200,000	$6,000,000
MTP	FM 902 Bypass	Batey Rd	Jordan Creek	Construct 2 lane segment of FM 902 Bypass around Collinsville	$7,320,000	$3,000,000
MTP	FM 121 Bypass (Tioga)	Kardum Ln	FM 922	Construct 2 lane segment of FM 121 Bypass Along Airport Road around Tioga	$8,780,000	$3,000,000
MTP	GCT	Preston Road	US 75	Construct 2 lane segment of Dallas North Tollway	$11,550,000	
MTP	GCT	SH 289	Preston Road	Construct 2 lane segment of Dallas North Tollway	$8,800,000	
MTP	GCT	FM 902	US 82	Construct 2 lane segment of Dallas North Tollway	$33,500,000	
MTP	GCT	FM 121	FM 902	Construct 2 lane segment of Dallas North Tollway	$14,000,000	
MTP	GCT	US 82	SH 289	Construct 2 lane segment of Dallas North Tollway	$24,100,000	

Table 10: Unmet Needs Project List

City	Highway	From	To	Description	Estimated Cost
Van Alstyne	US 75	at Farmington Road		Construct 4 lane interchange	$14,000,000
Van Alstyne	US 75	at Hodgin Road		Construct 6 lane interchange	$10,000,000
Howe	US 75	at Hall Cemetery/ LB Kirby		Construct new interchange	$11,900,000
Van Alstyne	US 75	at Spence Road		Construct 6 lane interchange	$10,000,000
Sherman	FM 131	Taylor Street	College Street	Reconstruct and widen from 2 lane to 4 lane	$4,815,000
Sherman	FM 131	North Creek	FM 691	Reconstruct and widen from 2 lane to 4 lane	$3,750,000
Denison	FM 120	Juanita Drive	Tone Avenue	Reconstruct and widen from 2 lane to 4 lane	$4,500,000
Sherman	US 75	FM 1417	W. Travis St.	Construct North B Exit Ramp	$1,995,000
Sherman	FM 131	US 82	Taylor St.	Reconstruct and widen from 2 lane to 4 lane	$3,350,000
Denison	FM 120	York Avenue	Juanita Drive	Reconstruct and widen from 2 lane to 4 lane	$4,201,900
Denison	FM 131	Seymore Bradley	Davy Lane	Reconstruct and widen from 2 lane to 4 lane	$4,400,970
Denison	FM 131	Davy Lane	Crawford Lane	Reconstruct and widen from 2 lane to 4 lane	$3,239,900
Denison	FM 131	Crawford Lane	FM 120	Reconstruct and widen from 2 lane to 4 lane	$4,100,000
Sherman	FM 131	US 82	North Creek	Reconstruct and widen from 2 lane to 4 lane	$1,500,000
Dorchester	FM 902	at Railroad		Construct bridge over railroad crossing	$2,500,000
Van Alstyne	SH 5 Bypass	County Line Road	Judd Road	Construct 2 lane segment of SH 5 Bypass along Lincoln Park Road	$12,000,000
Sherman	US 75	at Loy Lake Road		Construct U Turn Lane Bridge	$2,500,000
Sherman	FM 1417	Luella	SH 11	Widen Existing Roadway	$9,051,500
Howe	US 75	at Spur 381		Ramp Reversal	$3,200,000
Howe	US 75	at Farmington		Ramp Reversal	$3,200,000
Sherman	FM 131	at US 82		Reconstruct Interchange	$4,002,000
Dorchester	SH 289	at FM 902		Construct turning lanes	$250,000
Sherman	US 82	at Preston Club		Reconstruct Interchange	$662,500
Van Alstyne	FM 121 Bypass	Lincoln Park Road	US 75	Construct 2 lane segment of FM 121 Bypass along Spence Road	$4,400,000
				Total	$123,518,770

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TNRIS, Low water crossings

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