

# Transportation OUTLOOK

2035

Creating a Blueprint for the Sherman-Denison Region's Future

November 18, 2009

Metropolitan Transportation Plan  
For the  
Sherman-Denison  
Study Area

Prepared by the Sherman-Denison  
Metropolitan Planning Organization

# Metropolitan Transportation Plan For the Sherman-Denison Study Area

**Prepared by: the Sherman - Denison Metropolitan Planning Organization**

*This plan was produced with funds made available through the Federal Highway Administration, the Federal Transit Administration, and the Texas Department of Transportation.*

*All opinions, findings, and conclusions presented in the Plan reflect the views of the Plan authors. The contents do not necessarily reflect the policy views of the Federal Highway Administration, the Federal Transit Administration, or the Texas Department of Transportation.*

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*"The preparation of this report has been financed in part through grant[s] from the Federal Highway Administration and Federal Transit Administration, U.S. Department of Transportation, under the State Planning and Research Program, Section 505 [or Metropolitan Planning Program, Section 104(f)] of Title 23, U.S. Code. The contents of this report do not necessarily reflect the official views or policy of the U.S. Department of Transportation."*

*"This report was funded in part through grant[s] from the Federal Highway Administration [and Federal Transit Administration], U.S. Department of Transportation. The views and opinions of the authors [or agency] expressed herein do not necessarily state or reflect those of the U. S. Department of Transportation."*

## **Executive Summary**

Transportation is a vital part of our communities and our daily lives. It helps shape economic health and quality of life within our area and has a direct impact on jobs, recreation, and in general, lifestyles of today's population. During the course of the years, the movement of people and goods has always been a necessity; the only item that continues to change is how this is accomplished.

With the advance of technology, environmental concerns, and increased needs - meeting the challenges of sufficient and safe mobility will depend on a coordinated planning process. Thus, transportation planning is progressively becoming more and more important. It is the process by which strategies evolve for developing, operating, maintaining, and financing long-term goals.

Transportation planning is a collaborative process that is accomplished in this area through the Sherman-Denison Metropolitan Planning Organization (MPO) along with other key government organizations and interested stakeholders. The MPO is responsible for developing, in cooperation with the State and affected transit operators, a long-range transportation plan.

This long-range transportation plan called the Metropolitan Transportation Plan (MTP) provides the base for planning activities and projects that will occur within the MPO area through the year 2035. This plan is part of the continuing, cooperative, and comprehensive transportation planning process.

The major recommendations of this plan are summarized below:

1. A financial plan designed to span 25 years was prepared to demonstrate the expected funding available for transportation improvements. Projects funded for **2010-2020** amount to **\$85,731,257**. Using historical trends, an annual average of **\$6,112,395** will be available for highway and roadway improvements. Of this amount, **\$24,789,626** is expected for system maintenance and rehabilitation, **\$60,564,310** for miscellaneous landscape construction and **\$377,321** for the district discretionary program.
2. Major roadway improvements proposed within the Sherman-Denison MPO area are included under Chapter 11 - Financial Plan and Funding Projections.
3. Within the Transit element, funding projections indicate estimated annual funds in the amount of **\$1,000,000**.



## **CHAPTER 1.0 INTRODUCTION**

From its earliest days as small settlements in the Texoma region the cities of Sherman-Denison-VanAlstyne-Howe-Pottsboro fortunes have been tied to transportation. From historical roads, followed by railroads followed by, highways, and a county airport have all shaped the Texoma area. Transportation has influenced the local economy, the pattern of development in the region, and the general quality of life. The plans we make today for our transportation systems will certainly impact our future community.

It is with recognition of both this great challenge and great opportunity that the Sherman-Denison MPO is developing *Transportation Outlook 2035 'Creating a Blueprint for the Sherman-Denison Region's Future*, the region's long-range transportation plan.

*Transportation Outlook 2035 'Creating a Blueprint for the Sherman-Denison Region's Future* describes how the region will manage, operate and invest in its multimodal transportation system over the next three decades. The plan describes goals and objectives for the region, policies to help the region make progress toward the goals, and actions to support the policies, including implementation of specific transportation investments.

The plan views transportation in terms of the movement of people and goods, not just vehicles. While the plan is divided into sections corresponding to specific transportation modes (e.g. highways, public transportation, pedestrian transportation, and freight), it stresses the interrelationships between these modes and promotes the integration of the individual facilities and services into a system that efficiently and cost-effectively meets the access and mobility needs of the region.

**GOAL:** *The Metropolitan Transportation Plan's goal is to create an integrated, multi-modal transportation network to better serve the citizens in the Sherman-Denison-VanAlstyne-Howe-Gunter-Pottsboro Metropolitan Area.*

### **1.1 What is *Transportation Outlook 2035 'Creating a Blueprint for the Sherman-Denison Region's Future*?**

*Transportation Outlook 2035 'Creating a Blueprint for the Sherman-Denison Region's Future* is the Metropolitan Transportation Plan (MTP) for transportation systems and services in the Sherman-Denison, VanAlstyne, Gunter, Howe and Pottsboro Metropolitan Area. Serving as a guide for the expenditure of state and federal funds through the year 2035, the Plan addresses regional transportation needs that are identified through forecasting current and future travel demand, developing and evaluating system alternatives, and selecting those options which best meet the mobility needs of the region. The plan is prepared by the Sherman-Denison Metropolitan Planning Organization (MPO).

The purpose of **the MTP** is to define the goals, identify the needs, and recommend strategies for improving the regional transportation system. The ‘transportation needs’ to be addressed include traditional topics, such as improving mobility and supporting goods movement, as well as some less conventional needs such as maintaining air quality, preserving existing infrastructure, and enhancing safety.

As the foundation of regional transportation activities, **the MTP** reaffirms the tradition of a continuing, comprehensive, and cooperative (3C) planning process. First, and foremost, the development of the MTP is a *continuing* process. The assessment of area needs and strategies is a dynamic and ongoing process. The MTP will be updated every five years in order to meet the transportation needs as they continue to change over time. The programs that are the results of the MTP will be programmed on a continuing basis.

Secondly, **the MTP** is a *comprehensive* planning document that addresses a multitude of projects within our region. It is a multimodal plan that includes discussions in needed improvements in various modes of transportation. The MTP begins the process of evaluating the current conditions and possible improvement to goods movement while maintaining air quality in the area. To be effective, the MTP is also comprehensive in its area of coverage. The plan examines issues at a regional scale because transportation issues will vary within our communities. Decisions made in one community could impact areas beyond



**Map 1.1 MPO Study Area**

its jurisdictional limits.

Thirdly, **the MTP is** a *cooperative* venture that incorporates public input and review during the entire process. Ongoing review and consultation with local, federal, and state governments, as well as the local public transportation (Texoma Area Paratransit System - TAPS) agency and its users.

## **1.2 STUDY AREA**

Grayson County was formed from a part of Fannin County in 1846. Grayson County lies near the northern boundary of the Gulf Coastal Plain. The elevation of Grayson County varies from 935 feet above sea level (0.35 miles West and 0.30 miles north of the intersection of FM Road 120 and FM Road 131) to less than 500 feet above sea level (Choctaw Creek and Red River channels in the NE part of the county). The average elevation of the county is 715 feet above sea level.

Rainwater drains almost entirely into the Red River. The southern part of the county drains southward into the Trinity River system. Divide between the two rivers is generally defined by a line extending from Whitesboro to Howe and then eastward to Whitewright.

Study area for the MPO is comprised of the Sherman, Denison, Van Alstyne, Howe, Gunter and Pottsboro urbanized area (which will be referred hereafter as the Sherman-Denison urban area), as shown in Map 1.1 and covers 554 square miles.

## **1.3 FEDERAL LEGISLATION**

In 1962 the importance of transportation planning was recognized by the Congress and legislation was passed requiring all urban areas to adopt a transportation planning process. This was followed by similar legislation in 1964 requiring mass transit planning. The Federal-Aid Highway Act passed in 1973 required the Governor of each state to appoint a Metropolitan Planning Organization (MPO) to assume responsibility for the local planning process in conjunction with the state. This was followed by the development of planning rules for both the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA). These joint rules required all urban areas with population greater than 50,000 to adopt a continuous, cooperative and comprehensive transportation planning process.

On August 10, 2005 (PL 109-59) the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) was signed into law. Once again the continuous, cooperative and comprehensive transportation planning process (3 "C" process) was emphasized. SAFETEA-LU builds on the initiatives established in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and the Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21). Among the most significant continuing provisions affecting the Sherman-Denison urban area are the following:

Local officials, in cooperation with the State and transit operators, remain responsible for determining the best mix of transportation investments to meet metropolitan transportation needs.

- ✚ MPO's are responsible for adopting the plan; Governor and MPO approve transportation improvement program.
- ✚ A 20-year planning perspective, air quality consistency, fiscal constraint, and public involvement established under SAFETEA-LU.

SAFETEA-LU continues the funding guarantees of TEA-21 that linked highway funding with the receipts generated by transportation excise taxes by redirecting to the Highway Account of the Highway Trust Fund, the 2.5 cents per gallon of the gasohol tax currently deposited into the General Fund, and the dedication of an additional \$1 billion a year of Highway Trust Fund dollars, over and above each year's estimated receipts into the Highway Trust Fund, to improve highway infrastructure performance and maintenance.

## **1.4 PLAN DEVELOPMENT PROCESS**

There are three primary products produced by this process: the Unified Planning Work Program (UPWP), the Metropolitan Transportation Plan (MTP), and the Transportation Improvement Program (TIP). These three documents are interrelated, with each of the resulting products being a critical component of the other two products. The MTP provides the plan for the region's transportation needs, the TIP implements the projects and programs of the MTP, and the UPWP outlines the tasks necessary for the development of the MTP and the TIP. The development of all three products is conducted in accordance with the MPO's adopted Public Involvement Plan and each is approved by the MPO's governing body called the Transportation Policy Board (TPB).

### **1.4.1 Unified Planning Work Program**

The UPWP outlines proposed tasks and estimated costs associated with conducting the region's transportation planning and research for the year. This document is prepared annually by the staff of the MPO with the coordination of TxDOT and approved by the TPB. The UPWP is implemented by the MPO & TxDOT. By its nature, the UPWP determines the constitution of the other two primary documents, the MTP and the TIP. It does this by delineating the specific tasks and subtasks necessary for the developing these documents and by providing an outline for their design. The UPWP also affects their development by identifying other research, planning, and administrative activities. The results from these efforts have impacts – either individually or collectively – on the design and conclusions of the MTP and the TIP. The UPWP is updated annually.

### **1.4.2 Metropolitan Transportation Plan**

The MTP is a long-range transportation planning document that provides a twenty-year framework for addressing the region's transportation needs. It affords an overview of the existing system, identifies existing needs, forecasts future needs, and defines strategies to help the region meet those needs. In addition, the MTP ensures that the transportation system does not contribute to the degradation of the area's air quality. Furthermore, the system must meet established financial constraints, which is to say that the cost of implementing the solutions has to be realistic and cannot exceed expected financial resources. The MTP influences both the TIP and the UPWP. It includes the projects and programs that will be programmed and implemented by future TIPs, and identifies activities that will become tasks in future UPWPs. The MTP is updated at least every five years.

### **1.4.3 Transportation Improvement Program**

The TIP is a short-range programming document, which allocates funding for all transportation and transit projects and activities within the study area. The TIP must include all roadway and transit projects that receive federal funds. The TIP schedules the first four (4) years worth of MTP projects and programs for implementation. It is updated at least every two years.

### **1.4.4 Process for Amending and Updating the Metropolitan transportation plan**

Amendments to the Metropolitan transportation plan may occur either as part of the comprehensive update which occurs every five years, annual TIP-related update, or at other times as needed. The comprehensive update is a federal mandate. The comprehensive review consists of re-examining the basic assumptions behind the Plan and the resulting project lists. Amendments to the Plan requiring a comprehensive update consist of reassessing:

- ✚ Land use, demographic and economic forecasts
- ✚ Projected traffic and travel deficiencies
- ✚ Plan project lists
- ✚ Revenues
- ✚ Costs
- ✚ Other aspects of the vision and plan

These types of updates require financial constraint. Amendments to the Plan requiring a comprehensive update would need to be adopted by the Transportation Policy Board, after opportunity for general public review and comment.

A comprehensive update is normally initiated by staff on a timetable that ensures the continuation of a 20 year horizon for the Plan, and that meets the update time requirements. On those other rare occasions when a comprehensive or semi-comprehensive update might be requested by the TPB (due to unforeseen changes in major projects, etc.) or due to drastic and immediate changes in land uses/demographics/economics, staff would develop a timeline to conduct the update in a timely manner.

The following outlines an anticipated process for Plan amendments:

- # Receive a formal jurisdictional request for Plan amendment
- # Importance and feasibility of the project or modified project
- # State if additional revenues are available to cover the project or modified project
- # If sufficient additional revenues cannot be projected, submit recommendations for which long range plan projects to redesignate as non-plan projects; any agreements with other jurisdictions or agencies to redesignate projects should be so noted
- # Submit justification for the amendment

MPO staff would finalize the project's appropriateness of the proposed amendment, review the financial constraints and air quality constraints, and make a recommendation for Transportation Policy Board action.

### **1.5 BACKGROUND:**

The Transportation Division of the Texoma Council of Governments provides the staff for the MPO which was designated on May 10, 1973. The Transportation Policy Board (TPB) is the decision-making body of the MPO, consisting of one representative from each of the following:

<u>Organization</u>	<u>Current representative</u>
City of Sherman	Mayor
City of Denison	Mayor
Small Cities (Rotating)	Pottsboro Mayor
Grayson County	County Commissioner
TxDOT	District Engineer

These representatives are selected by their respective organizations.

*Transportation Outlook 2035 'Creating a Blueprint for the Sherman-Denison Region's Future* is the sixth major update of the metropolitan transportation plan. The first transportation plan for the Sherman-Denison area was done by the Texas Department of Transportation (formerly known as the Texas Highway Department) in cooperation with the U.S. Department of Transportation and Federal Highway Administration. This plan was for the period between 1973-1990. The second Metropolitan Plan was prepared by the MPO in 1989 for the 1990-2010 period. The third Metropolitan Transportation Plan was prepared by the MPO in 1994 for the 1995-2015 period. The fourth Metropolitan Transportation Plan was prepared by the MPO in 1999 for the 2000-2025 period. The fifth installment covering years 2005 – 2030 was adopted in 2004.

### **1.6 STUDY ORGANIZATION:**

Figure 1.1 (next page) shows the flow chart for the participating groups in the metropolitan planning process. As mentioned earlier, the Transportation Policy Board (TPB) consists of the Mayors for the cities of Sherman and Denison, a Grayson County Commissioner, a rotating small cities representative (Currently Pottsboro Mayor) and TxDOT's Paris District Engineer.

The TPB is responsible for the policy decisions of the MPO. All plans developed by the MPO have to be approved by the TPB before final submission. The MPO works closely with the local TxDOT office in the transportation planning process. The local cities (Sherman, Denison, Van Alstyne, Howe, Pottsboro & Gunter) provide information on existing conditions and future work to be conducted on existing systems in their respective cities. Local citizens provide input on existing traffic conditions and probable future traffic conditions from a citizen's point of view (used in Delphi Technique). In order to facilitate citizen participation and in accordance with U.S.C. Title 23, Section 134(h) (6), the Metropolitan Planning Organization for the Sherman-Denison Urban Transportation Study adopted Public Participation Plan as part of the approval sequence of the Metropolitan Transportation Plan. As much information as practical was collected and combined with data obtained from various traffic studies to project traffic counts for the year 2030 and to identify congestion levels and areas likely to be congested. This information was then used by the MPO staff and TxDOT's Sherman-Denison Urban Transportation Study Office to arrive at the Metropolitan Transportation Plan (MTP) for the year 2030.

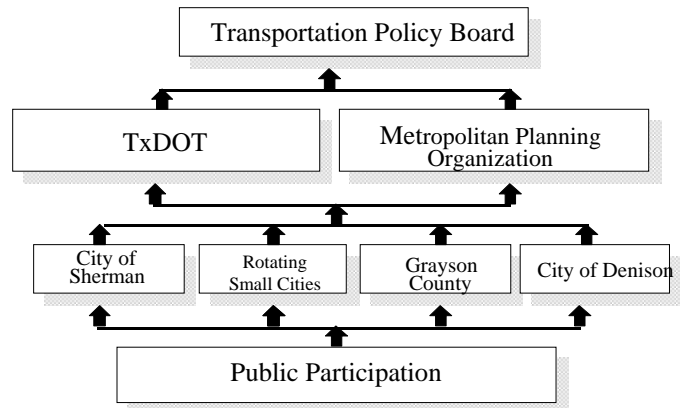


Figure 1.1 Flow Chart - Participating Groups

## 1.7 PUBLIC INVOLVEMENT - Public Involvement in Transportation Planning

The goal of the Sherman-Denison MPO public involvement policy (reference Public Participation Plan at [www.sdmo.org](http://www.sdmo.org)) is to secure an active and representative participation from all segments of the community in planning and decision-making pertaining to study area issues, goals, problems, alternatives and solutions. The MPO will consult “as appropriate” with “State and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation” in developing the Metropolitan Transportation Plan. Additionally, to achieve this goal, the MPO commits to:

- ✚ Recognizing the importance of proactive citizen involvement to implementing planning recommendations
- ✚ Identifying affected and interested public, with special efforts to communicate with Environmental Justice target populations
- ✚ Tailoring public involvement techniques as appropriate to the diverse needs of the public and the variety of planning elements
- ✚ Taking all reasonable actions to secure participation and input from Environmental Justice target populations, including:
  - ✚ Disseminating information using means that are appropriate to the target audiences
  - ✚ Holding meetings in neighborhood-based ADA accessible locations when feasible
  - ✚ Evaluating public involvement processes and procedures periodically so that adjustments can be made for maximum effectiveness
- ✚ Consult “as appropriate” with “State and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation” in developing long-range transportation plans.



Public participation is enhanced by making transportation plan information more accessible and easier to understand with the use of visualization techniques such as artist renderings, audio-visual slide/Power Point presentations, 3D computer modeled images, computer simulation, drawings, flowcharts, websites, maps, models, videos and visual preference surveys.

### Record of Public Participation

The Public Participation process included:

- ✚ Initial draft listing of projects was presented at the February 5 & 11, April 1, 2009 MPO Transportation Policy Board meeting, open to public review and comment.
- ✚ In a regularly scheduled meeting of the MPO Transportation Policy Board (June 3, 2009), the Draft 2035 Metropolitan Transportation Plan (MTP) update was approved for general release and public comment. Citizens were given the opportunity to review and comment on agenda items at each Policy Board Meeting from February through November 2009.
- ✚ The MPO conducted a series of public meetings (June 24, 2009 – Sherman, July 14, 2009 – Denison, August 11, 2009 -- Van Alstyne) for the public to review and comment on the detailed information contained in the draft 2035 MTP. Notice of the meetings was placed in the *Herald – Democrat* and public information boards at KXII-TV and KTEN-TV. Public notices of the meeting were posted at the Grayson County Courthouse and mailed to every City Hall within the study area. Press releases mailed to over two hundred fifty stakeholders. Press coverage was received in the local newspaper and television stations.
- ✚ The public was given ten (10) calendar days to submit comments on the draft prior to its adoption.
- ✚ The draft 2035 MTP was made available during regular business hours at the Sherman-Denison MPO office, TxDOT – Area Office and the MPO’s website ([www.sdmpo.org](http://www.sdmpo.org)) prior to the final approval by the policy board.
- ✚ In a scheduled meeting of the MPO Policy Board (Wednesday, November 18, 2009), the final 2035 MTP was approved for submission to TxDOT. Citizens were once again given the opportunity to review and comment on the draft prior to the final approval by the board.
- ✚ Copies of the approved 2035 MTP remain on file during regular business hours at the MPO office for public access and review, and on the MPO website ([www.sdmpo.org](http://www.sdmpo.org)).
- ✚ The approved 2035 MTP will remain on the website for ongoing reference by the public.

## **1.8 ANNUAL LISTING OF OBLIGATED PROJECTS**

By December 31 of each year an Annual Listing of Obligated Projects is published on the SDMPO website ([www.sdmpo.org](http://www.sdmpo.org)) in order to inform the public of projects obligated for the previous year. The annual listing specifically includes all transportation projects for which federal funds have been obligated. Cost information that is shown in the listing is consistent with the funding categories identified in the TIP. This requirement in SAFETEA-LU is intended to increase the transparency of government spending on transportation projects and strategies in metropolitan areas to state and local officials and to the public at large.



## **Chapter 2**

### **Metropolitan Transportation Planning Process**

Identifying future transportation needs and finding alternative projects and solutions to cater to such needs are defined as the Metropolitan Transportation Planning Process. The needs are based on base values of population and economic factors such as household income, number of vehicles, employment figures, dwelling unit counts, land use, and traffic volumes on the road network. These values are used to model traffic flow for the years 2015 and 2030 using modeling software. Once the model is established, methods to alleviate congestion, if any, are formulated. Projects are then prioritized according to the need and available funds. The Metropolitan Transportation Plan is updated every 5 years as long as the Sherman-Denison urbanized area remains as an air quality attainment area, as defined by the Clean Air Act. For a non-attainment area, the update is once every 4 years. The Metropolitan Transportation Plan (MTP) provides the public a metropolitan strategy from which transportation improvement projects may be selected. SAFETEA-LU requires the MTP to consider the following 8 emphasis areas:

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency, including through services provided by public and private operators;
2. **Increase the safety of the transportation system for motorized and nonmotorized users;**
3. **Increase the security of the transportation system for motorized and nonmotorized users;**
4. Increase the accessibility and mobility of people and for freight, including through services provided by public and private operators
5. Protect and enhance the environment, promote energy conservation, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;
6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight, including through services provided by public and private operators;
7. Promote efficient system management and operation; and
8. Emphasize the preservation of the existing transportation system, including services provided by public and private operators.

These planning factors are discussed in more detail in Chapter 13.

#### **2.1 OVERVIEW OF SAFETEA-LU:**

The development of *Transportation Outlook 2035 'Creating a Blueprint for the Sherman-Denison Region's Future* was prompted in part by recent changes in federal transportation policy. In August 2005, Congress passed the Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) just months after the

Transportation Policy Board had adopted the previous metropolitan, or long-range, transportation plan. SAFETEA-LU maintains many of the core policies and programs initially established in the pivotal Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and its successor the Transportation Equity Act of the 21st Century of 1998 (TEA-21). SAFETEA-LU retains a primary focus on preservation of the existing system first, and maintains the requirement of fiscal constraint, which emanates from principles of responsible governance, and of coordinated intermodal planning. These are all important principles that significantly departed from previous policies that primarily focused on expanding roadway capacity and completing the Interstate system.

SAFETEA-LU builds upon those principles, but it also includes a number of new provisions. The U.S. Department of Transportation issued federal guidance early in 2006 requiring that all metropolitan transportation plans, and transportation improvement programs become compliant with the new law by July 1, 2007. These new provisions have been addressed through the development of *Transportation Outlook 2035 'Creating a Blueprint for the Sherman-Denison Region's Future*. Following the adoption of, the metropolitan transportation plan will be updated every five years.

Regardless of the legal purpose for the plan, each update provides an opportunity to re-evaluate regional transportation policies and practices, and to develop a plan that reflects current understanding of the region's transportation investment needs and financial realities. *Transportation Outlook 2035 'Creating a Blueprint for the Sherman-Denison Region's Future* carries forth the spirit and direction of previous plans by recognizing that the central purpose of transportation investment is to improve the quality of life for citizens of the region. Within this context, transportation is recognized not as an end itself, but rather the means of accomplishing our region's social, economic, and environmental goals.

*SAFETEA-LU was signed into law in August 10, 2005. This legislation authorizes highway, highway safety, transit and other surface transportation programs for the 5 year period 2005-2009.*

***SAFETEA-LU continues a strong fundamental core formula program emphasis coupled with targeted investment, featuring:***

***Safety*** – SAFETEA-LU establishes a new core Highway Safety Improvement Program that is structured and funded to make significant progress in reducing highway fatalities. It creates a positive agenda for increased safety on our highways by almost doubling the funds for infrastructure safety and requiring strategic highway safety planning, focusing on results. Other programs target specific areas of concern, such as work zones, older drivers, and pedestrians, including children walking to school, further reflect SAFETEA-LU's focus on safety.

***Equity*** –The new Equity Bonus Program has three features – one tied to Highway Trust Fund contributions and two that are independent. First, building on TEA-21's Minimum Guarantee concept, the Equity Bonus program ensures that each State's return on its share of contributions to the Highway Trust Fund (in the form of gas and other highway taxes) is at least 90.5 percent

in 2005 building toward a minimum 92 percent relative rate of return by 2008. In addition, every State is guaranteed a specified rate of growth over its average annual TEA-21 funding level, regardless of its Trust Fund contributions. Selected States are guaranteed a share of apportionments and High Priority Projects not less than the State's average annual share under TEA-21.

***Innovative finance*** – SAFETEA-LU makes it easier and more attractive for the private sector to participate in highway infrastructure projects, bringing new ideas and resources to the table. Innovative changes such as eligibility for private activity bonds, additional flexibility to use tolling to finance infrastructure improvements, and broader TIFIA and SIB loan policies, will all stimulate needed private investment.

***Congestion Relief*** --Tackling one of the most difficult transportation issues facing us today – congestion – SAFETEA-LU gives States more flexibility to use road pricing to manage congestion, and promotes real-time traffic management in all States to help improve transportation security and provide better information to travelers and emergency responders.

***Mobility & Productivity*** – SAFETEA-LU provides a substantial investment in core Federal-aid programs, as well as programs to improve interregional and international transportation, address regional needs, and fund critical high-cost transportation infrastructure projects of national and regional significance. Improved freight transportation is addressed in a number of planning, financing, and infrastructure improvement provisions throughout the Act.

***Efficiency*** – The Highways for LIFE pilot program in SAFETEA-LU will advance longer-lasting highways using innovative technologies and practices to speed up the construction of efficient and safe highways and bridges.

***Environmental Stewardship*** – SAFETEA-LU retains and increases funding for environmental programs of TEA-21, and adds new programs focused on the environment, including a pilot program for nonmotorized transportation and Safe Routes to School. SAFETEA-LU also includes significant new environmental requirements for the Statewide and Metropolitan Planning process.

***Environmental Streamlining*** – SAFETEA-LU incorporates changes aimed at improving and streamlining the environmental process for transportation projects. These changes, however, come with some additional steps and requirements on transportation agencies. The provisions include a new environmental review process for highways, transit, and multimodal projects, with increased authority for transportation agencies, but also increased responsibilities (e.g., a new category of "participating agencies" and notice and comment related to defining project purpose and need and determining the alternatives). A 180-day statute of limitations is added for litigation, but it is pegged to publication of environmental actions in the Federal Register, which will require additional notices. Limited changes are made to Section 4(f). There are several delegations of authority to States, including delegation of Categorical Exclusions for all states, as well as a 5-state delegation of the USDOT environmental review authority under NEPA and other environmental laws. The air quality conformity process is improved with changes in the frequency of conformity determinations and conformity horizons.

## **2.2 Transportation Equity for the Region**

Civil rights legislation has been well established in this country for many years. But recently it has been applied specifically to the provision of transportation facilities. When exploring this issue we are required to watch for two unintended outcomes. The first is whether the negative impacts of the transportation system, such as displacement, pollution, or destruction of existing environments, are more likely to occur in lower income or minority communities. The second is whether the benefits of transportation, mobility and accessibility to and from desired destinations, are inordinately allocated away from low income and minority populations. In short, we must strive for equity; no segment of the population should have an unfair share of the benefits or costs of transportation in the region.

We must increase our focus on low income and minority communities, who have traditionally been less involved in the planning process. They have had fewer opportunities to evaluate the impact of certain projects and help alleviate inequity when it occurs. To this end, we must increase our effort to include them in our public involvement process. This involvement must overcome barriers of language, education, and other factors so that they have a better opportunity to participate fully in the public decision making process that impacts their community.

## **2.3 Preserving Aging Infrastructure**

Every investment we make in transportation, whether it be for a new road, a new bus, or a traffic signal, ages over time. Some of our infrastructure is quite new, while other parts are considerably older. As the size of the transportation system grows, there is a greater amount of infrastructure that has to be repaired or replaced over time. Deferring needed maintenance is never a good idea. Not only does this generally increase the long-term costs of maintenance, it can reduce the quality and efficiency of the transportation system. However, keeping up with required maintenance limits the amount of transportation funds that can be used to support new projects and services.

## **CHAPTER 3**

### **ENVIRONMENTAL MITIGATION AND TRANSPORTATION PLAN CONSISTENCY**

#### **3.1 Environmental Mitigation and Environmental Resources**

Environmental mitigation strategies are defined by policies, programs, actions and activities that, over time, will serve to avoid, minimize, rectify, reduce or compensate for (by replacing or providing substitute resources) the impacts to or disruption of elements of the human and natural environment associated with the implementation of a long-range transportation plan. The human and natural environment includes, for example, neighborhoods and communities, homes and businesses, cultural resources, parks and recreation areas, surface water and groundwater resources, forested and other natural areas, agricultural areas, endangered and threatened species and the ambient air.

Environmental mitigation strategies and activities are intended to be regional in scope, at policy or strategy-level not project-specific, even though actual mitigation may address potential project-level impacts. Environmental mitigation strategies and activities are developed in consultation with federal, state and tribal wildlife, land management and regulatory agencies during metropolitan transportation planning processes and are reflected in all adopted transportation plans (MTP, TIP, and TUMP).

Concepts for implementing environmental mitigation can take many forms depending on the types of resources and level of transportation impacts on the region. Other factors such as agency consultation, funding, availability of land, growth and development also determine where, when and how mitigation occurs. This chapter provides general recommendations for types and locations of regional environmental mitigation strategies.

Some example mitigation strategies are:

- Wetland and upland conservation and restoration
- Detention and sediment basins
- Use of buffer strips along streams and rivers
- Enhancement of parkland or recreation areas for a community
- River clean-ups
- Habitat and animal connectivity strategies to prevent fragmentation
- Watershed based strategies
- Implementation of effective planning and zoning strategies to promote greenspace conservation

Before the process of developing effective long-term mitigation strategies begins for any potential transportation project, TxDOT assesses environmental conditions. As an example, all projects that disturb soil will have storm water pollution prevention plan items. Currently TxDOT is working on a schedule to monitor all storm sewer outfalls for pollution. Also as part of this effort, TxDOT contacts local cities and schools to educate the public on things to look for as far as storm water pollution. All TxDOT employees are instructed to look for possible

violations on State ROW and report to supervisors for action. Planting items are now added to most projects to create stable slopes and plant mitigation is followed based on environmental report for each project.

## **Consultations**

As dictated by federal mandates, the SDMPO coordinates and consults with a number of public, private and non-profit agencies and organizations on plans and programs, including the 2035 Metropolitan Transportation Plan and the TIP. They include agencies that are responsible for land use management, natural resources, environmental protection, conservation and historic preservation. Coordination and consultation occurs as necessary in formal and informal settings, on long and short-term bases, and thru individual interviews and group discussions. These organizations are part of our 'stakeholders/interested parties' list and are contacted as part of our outreach process. The following are some of the agencies and organizations with which SDMPO has interacted in the past and will interact in the future.

- Federal and state transportation departments
- Federal and state environmental agencies
- Federal and state natural resources agencies
- US Army Corps of Engineers
- Federal and state emergency management agencies
- Federal, state and local homeland security agencies
- State historic preservation offices
- State departments of agriculture
- Public transit service providers
- Local elected officials
- Local government planning commissions
- Local government public works and engineering departments
- Local government environmental services departments
- Local government public safety departments
- Regional and local water and sewer districts or departments
- Soil and water conservation districts
- Resource conservation and development districts
- Flood control districts
- Local park districts
- Local recreation departments
- Local health departments
- Local watershed planning groups
- Local government economic development offices
- Local agencies for children, seniors and the disabled
- Local school districts, colleges and universities
- Local hospital associations
- Local business and community/neighborhood associations
- The United Way

- Native American Tribes
- Cherokee Nation
- Choctaw Nation of Oklahoma
- Texas Department of Transportation
- Local County & Municipal Airports
- Texas Parks & Wildlife
- Texas Railroad Commission
- Bureau of Economic Geology
- County Extension Agent
- Texas Co-Operative Extension
- Local Historical Commission
- Freight Shippers
- Black & Hispanic Churches
- Trade and industry associations, such as chambers of commerce, the Hispanic Chamber of Commerce, Homebuilders associations, Realtors, and Farm Bureau Federation chapters
- Civic associations, such as the NAACP, the Urban League, the Sierra Club, the League of Women Voters, and Citizens for Civic Renewal
- Current mail out list totals 245 entities

Through consultation with resource agencies, SDMPO and TxDOT work to develop the best strategies for mitigating environmental impacts within our study area. Environmental resource agencies are also invited to review and comment on the Metropolitan Transportation Plan and other major documents during the development phase as well as during the public involvement phase.

Environmental data from resource agencies ensures regular updates to regional maps and further identification of potential areas of conflict. This allows for better communication during project development and potential avoidance or mitigation of negative impact to natural resources. This does not mean that sites will be completely avoided, however. Project partners are encouraged to provide summaries about any areas that may be impacted, so that relevant information can be highlighted in SDMPO's GIS database, including names and agency contacts to access more information concerning the site. As projects are planned, relevant and detailed information about the wetland can be carefully considered.

### **3.2 Consistency of Transportation Plan with Planned Growth and Development Plans**

Transportation and land use policies have a symbiotic relationship – each is dependent upon the other. Transportation facilities should be constructed to service areas with existing demand, and land should be developed most intensively where there are adequate transportation facilities. Transportation planning decisions should incorporate sound local and regional land use planning objectives which promote consistency of transportation plan and transportation improvement programs with State and local planned growth and economic development patterns.

As part of the process, during the TIP prioritization process, proposed transportation projects may be evaluated using a land use criterion as necessary.

The SDMPO consults as needed with local land use planning agencies within the study area. An effective local comprehensive planning process may be developed in the future to include model ordinances for several land use planning projects with transportation impacts. The involvement of local land use decision-makers such as elected officials, administrators, planning commissioners and planning staff is essential. Discussions may be focused on the land use/transportation relationship, population and commuting patterns, tools and technical assistance regarding the transportation planning process.

Ongoing consultation with water and wastewater utilities is also needed to identify existing and projected service areas, which can encourage residential, commercial, and industrial growth and thus the need for transportation improvements. These growth projections can then be considered in the modeling process for long range transportation planning. Another example of ongoing consultation would be a group composed of all the soil and water conservation districts within the study area. It would serve as a forum to share information on the region's natural resources and best management practices on water quality planning issues. Another avenue of consultation during the policy planning process may include Groundwater Committee, composed of community water suppliers, health agencies and organizations involved in conservation, environmental protection and natural resources.

Finally, increased consultation with economic development organizations within the study area could be conducted to learn more about plans for development and re-development, their relationships with local governments and planning agencies; and how their input on transportation improvement needs might be improved. This activity could translate into additional needs for consultation with local governments and school districts to determine their degree of interaction on planning and development issues.



## Chapter 4 Land Use, Demographics & Travel Demand

The last 30 years have brought significant changes to the Texoma area. We expect the next 30 years will bring even more. In order to effectively manage, operate and plan the region's transportation system, we need to understand how the region is growing and developing, how travel characteristics are changing, and how the transportation system is performing.

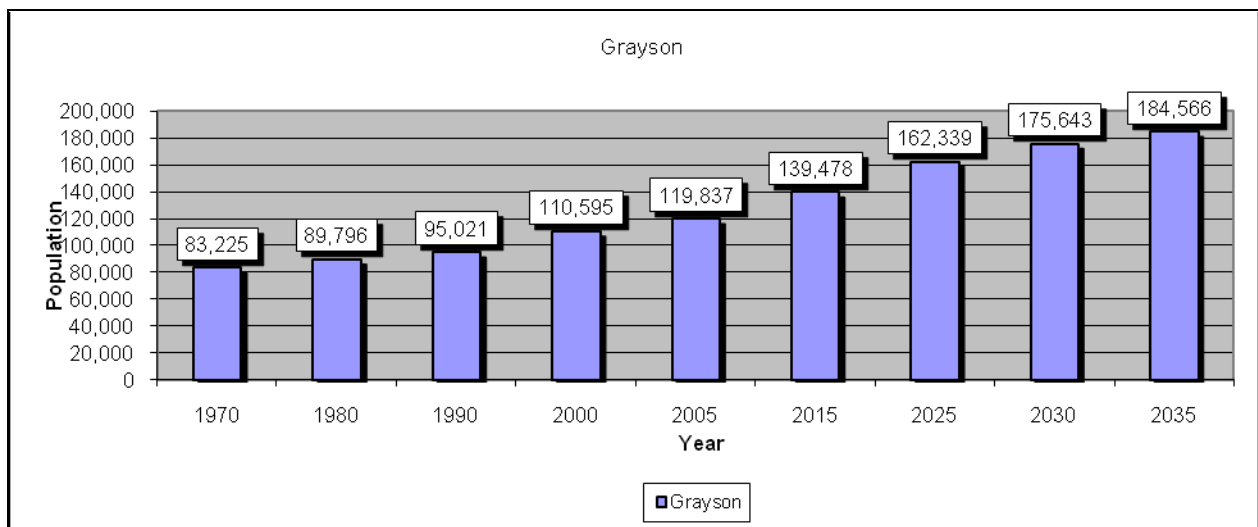
The decennial census provides demographic data that allows us to look back at how the region has changed over the last 30 years. The Sherman-Denison MPO has prepared forecasts that allow us to look forward 30 years to anticipate how the region is likely to change over time.

### 4.2.1 Population

#### Population Projections Methodology

With consideration of Census Bureau and Texas State Data Center projections/estimates for the Grayson County/SDMPO Study Area, SDMPO developed population projections and extrapolated them to the year 2035 (Graph 4.1). Based on historical population percentages of the county, the MPO numbers were then determined and disaggregated to the county level using MPO projection percentages for Grayson County and cities within the study area, both of which are tracking well with the projections.

**Graph 4.1**



Source: U.S. Census Bureau and SDMPO

The remainder of growth was assigned to Grayson County (this methodology used the assumption that population trends in the 1990s for Grayson County would continue through 2035). The resulting population growth projections are illustrated in Table 4.2.

**Table 4.2**

	1990	2000	2005	2015	2025	2030	2035
Sherman	31,596	35,082	37,892	43,228	49,315	53,051	55,747
Denison	21,505	22,773	24,547	28,061	32,012	34,437	36,187
VanAlstyne	2,090	2,502	2,702	3,083	3,517	3,783	3,975
Pottsboro	1,177	1,579	1,705	1,946	2,220	2,388	2,509
Howe	2,173	2,478	2,676	3,053	3,483	3,747	3,937
Gunter	898	1,230	1,316	1,408	1,507	1,612	1,694
<b>Total</b>	<b>59,439</b>	<b>65,644</b>	<b>70,838</b>	<b>80,779</b>	<b>92,054</b>	<b>99,018</b>	<b>104,050</b>

Source: Texas State Data Center and SDMPO

Since 1970 Grayson County has experienced a population increase of 27,370 new residents, an increase of 32.9 percent. Over the next 30 years, an additional 65,048 residents will be added, an increase 58.8 percent, for a total population of over 175,643 people. The increase reflects a continued moderate, yet steady, rate of growth for the region. Figure 4.2 shows the trends in regional population between 1970 and 2030. Extending these projections through the year 2035, Grayson County could expect a population of 184,566. An increase of 66.9% from the 2000 Census.

Demographics and land use play an important role in the transportation planning process. The land use data shows the trend of future transportation patterns. This, coupled with the existing traffic counts, helps the planners to project future land use and travel patterns. By arriving at future travel trends, planners are able to provide alterations to the existing system or provide new systems to accommodate the new travel trend. Future travel trends are obtained from a traffic model developed by the Programming and Planning Division of TxDOT in Austin, TX.

The traffic model requires information on the existing demographic conditions. This is considered as the base data. The demographic base data consists of information on population, employment, entertainment and any other activity that results in a high trip generation. In the development of the traffic model, the base data is used with the traffic counts obtained at numerous locations by TxDOT. The model is validated by developing theoretical values that are equal to the actual existing traffic counts. Once the model is validated, it is used to project traffic counts for the year 2030. The projected counts from the model provide information on future congestion levels, helping the planners to develop plans to reduce them. The base data on demographics was obtained from the 2000 Census on population and housing. State Data Center population estimates (or projections) were used to project future traffic patterns.

The 2030 network is based on a population estimate of 83,815 which was obtained from the State Data Center. As mentioned earlier, information on employment, income, housing and

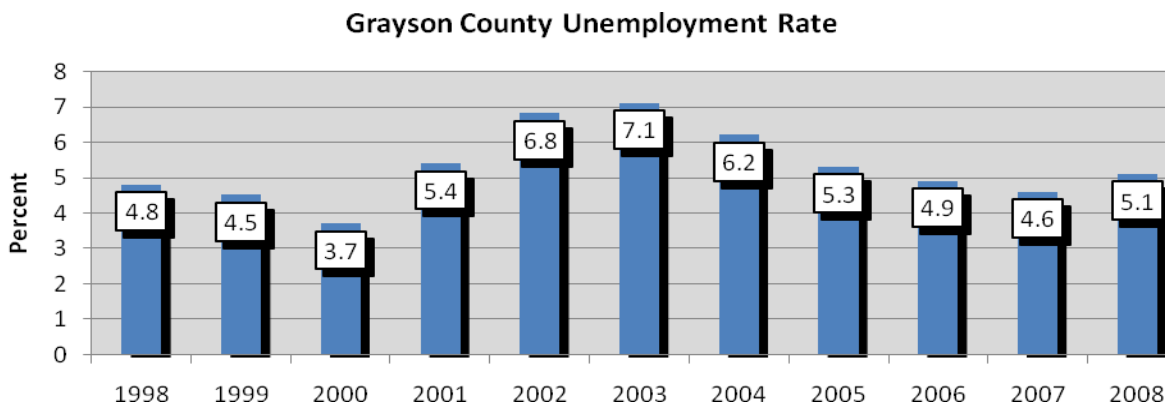
special traffic generators were used in the model obtained from the 2000 Census on population and housing.

#### 4.1 EMPLOYMENT & ECONOMY:

##### *Sustaining Economic Development*

Economic development is necessary to ensure the prosperity of the region, maintain a necessary tax base, and employ the residents of the region. Economic development also generates demand for transportation and other infrastructure. The key to a sustainable economy is to support economic growth in a manner consistent with the goals and plans of the region. This can be done in several ways: supporting employment in places where infrastructure already exists; integrating new infrastructure into economic development plans in priority development areas; and ensuring that facilities are implemented in a predictable manner to assist private sector planning. It also requires a dialogue between the public and private sector to ensure that the goals and needs of each group are understood and considered as transportation, land use, and community planning are undertaken.

**Graph 4.2 - Unemployment Rate**



**Source: US Department of Labor Bureau of Labor Statistics**

The growth of an area is directly proportional to its economy. Economy is influenced by factors such as population, income and employment. These factors are used in the traffic demand model to evaluate future transportation trends.

The Sherman - Denison urbanized area has experienced steady growth over the last four decades. The closure of Perrin Air Force Base in the early 1970's resulted in the loss of some population (see table 4.10 on page 24).

In the 70's, IBM, Texas Instruments, Folgers and Oscar Mayer opened branches in Sherman. This helped to balance the offset created by the closure of Perrin Air Force Base. The proximity of the Sherman-Denison urban area to Dallas and the presence of a large lake (Lake Texoma)

attract residents from Dallas to visit the Texoma area increasing the local employment and economy.

**Table 4.4 - Total Personal Income (TPI) & Earnings**

	2001	2002	2003	2004	2005	2006
Truck Transportation	19,856	20,067	22,776	22,551	25,069	29,399

Source: Regional Economic Information System (1969-2006)

Table 4.1 (in appendix) shows the employment totals for the years 1993 through 2003. The employment total is found to fluctuate in the 50,000 - 56,461 range with the highest being in 2003. As a result there is a fluctuation in the wage and salary category. The number of proprietors for the region has increased from 10,135 to 11,083, an increase of 9.4%. This indicates that more people are moving into the region. This is directly reflected by the increase in construction from 2,897 in 1993 to 4,438 a 53.2% increase in 2003 (see Table 4.1) and an increase in Gross Construction Sales of 29.2% as shown in Table 4.2 (in appendix). These increases resulted in greater demand for retailers.

In the spring of 2003, ground was broken for the Sherman Town Center, a 700,000-square-foot center anchored by Home Depot, Cinemark, J.C. Penney and Target. It is currently the largest retail shopping center between Dallas and Oklahoma City. The center is located near the intersection of Loy Lake Road and U.S. Highway 75. The success of the Town Center prompted the opening of an additional facility in the Fall of 2006, Sherman Commons. Sherman Commons is anchored by Academy Sports and Kohls. Graph 4.3 shows unemployment for the area ranging from a high of 7.1% in 2003 to the current level of 5.1% (2008). Table 4.1 shows a decrease of -1.3% in retail trade and Table 4.2 shows an increase of +4.9% in Gross Sales (Wholesale & Retail). The success of the retail hub at US 75/82/Loy Lake has generated additional retailers, fast food chains (Johnny Carrino's, Taco Cabana, Cracker Barrel, Jalapeno Tree, Long John Silvers, etc.) and motels to the metropolitan area; all recognizing the new residents in the area.

Just a little over 2 miles north on US 75, located on the north east side of the intersection of US 75 and FM 691 in Denison, the new Texoma Medical Center (TMC), relocating from the city's north side, will be built. The new facility will feature 252 beds, all of which will be in private rooms. It will also feature new state-of-the-art emergency room and intensive care unit, and is expected to be completed by the spring of 2010. The hospital will be a part of increased development at the intersection, which will also bring a number of restaurants and hotels to area. The north west side of the intersection will include a 150 room hotel and a 17,500 square foot conference center as well as a shopping center. Cross Development, a retail development company, will be focusing in retail recruitment. They have enlisted the services of the Dallas based Staubach Company to help recruit more businesses to the shopping center. Already situated within the area is CIGNA a health service company currently employing 800 people.

With the improving economy, the new retailers will lead in the creation of additional jobs in the area. Table 4.4 shows a dramatic increase of +48.06% in 2006 from the base year of 2001 in the

trucking business. Additionally, the inclusion of Grayson County into the Dallas Commercial Zone in 1994 should further increase the trucking business in the area, boosting the economy even more.

For several years Dallas residents have found the Texoma area to be an escape from the busy lives. Many residents purchased property and spent their weekends in the area. This trend altered slightly when these weekend residents decided to stay permanently and travel to Dallas to work. Considering the total population of the MPO's area, this Dallas work based population is a very small percentage, but clearly depicts a trend.

In the 60's and 70's, Plano & McKinney were small cities with very little activity. Dallas residents who wanted a quiet life moved to these towns and traveled to Dallas to work, which resulted in the growth of these two cities. As Dallas continues to grow larger, this northward migration will most likely continue, creating a larger Sherman - Denison - Howe - Van Alstyne (Van Alstyne was recently included in our study area) urbanized area over the next 20 years.

#### 4.2 POPULATION:

**Table 4.5 - Population**

	1960	1970	1980	1990	2000
Sherman	24,988	29,061	30,413	31,596	35,082
Denison	22,748	24,923	23,884	21,505	22,773
Howe	680	1,359	2,072	2,173	2,478
Van Alstyne	1,608	1,981	1,860	2,090	2,502
Pottsboro	640	748	895	1,177	1,579
Gunter	n/a	647	849	898	1230
City Total	50,664	58,719	59,973	59,439	65,644
Grayson	73,043	83,225	89,199	95,021	110,595

Source: US Census Bureau

urban area as mentioned in section 4.1. Table 4.5 shows the population for Sherman, Denison, Howe, Van Alstyne, Pottsboro and Grayson County for the last five decades and Table 4.6 gives the total population and population per square mile for the combined Sherman-Denison areas and the county.

**Table 4.6 – Population 2000**

	Square Miles	Population	Pop. / Mile <sup>2</sup>
Grayson County	979.55	110,595	112
Urban Area	32.0	57,855	1,807

Since 1960, the population of the Sherman, Denison urban area & Grayson County has continuously increased.

Grayson County, as a whole, has seen a steady growth in population since 1960. This increase was partially due to

the new settlements around Lake Texoma and outside the

Since then, the population has been gradually increasing. By 1990 the county experienced a growth of 51.4%.

Tables 4.7 through 4.9 give the normal, medium and high population projections for the metropolitan area and the county. These projections, adjusted by MPO staff, were obtained from the State Data Center.

**Table 4.7 Normal Projection 0.0 Migration**

	1970	1980	1990	2000	2005	2015	2025	2030	2035
Sherman	29,061	30,413	31,596	35,082	35,610	36,559	36,911	36,781	36,133
Denison	24,923	23,884	21,505	22,773	23,116	23,732	23,961	23,876	23,453
Howe	1,359	2,072	2,173	2,478	2,515	2,582	2,607	2,598	2,553
Van Alstyne	1,981	1,860	2,090	2,502	2,540	2,607	2,632	2,623	2,578
Pottsboro	748	895	1,177	1,579	1,603	1,645	1,661	1,685	1,807
Gunter	647	849	898	1,230	1,328	1,363	1,377	1,371	1,341
Total	58,719	59,973	59,439	65,644	66,712	68,488	69,149	68,934	67,865
Grayson	83,225	89,796	95,021	110,595	112,286	115,360	116,482	116,073	114,035

**Table 4.8 Medium Projection 0.5 Migration**

	1970	1980	1990	2000	2005	2015	2025	2030	2035
Sherman	29,061	30,413	31,596	35,082	36,154	38,317	39,994	40,548	41,110
Denison	24,923	23,884	21,505	22,773	23,469	24,873	25,962	26,321	26,685
Howe	1,359	2,072	2,173	2,478	2,554	2,706	2,825	2,864	2,904
Van Alstyne	1,981	1,860	2,090	2,502	2,578	2,773	2,852	2,892	2,933
Pottsboro	748	895	1,177	1,579	1,627	1,725	1,800	1,825	1,850
Gunter	647	849	898	1,230	1,269	1,350	1,412	1,468	1,526
Total	58,719	59,973	59,439	65,644	67,651	71,744	74,845	75,918	77,007
Grayson	83,225	89,796	95,021	110,595	114,081	121,339	126,895	128,676	130,482

**Table 4.9 High Projection 1.0 Migration**

	1970	1980	1990	2000	2005	2015	2025	2030	2035
Sherman	29,061	30,413	31,596	35,082	36,686	39,773	42,486	44,896	47,443
Denison	24,923	23,884	21,505	22,773	23,814	25,818	27,534	30,556	33,910
Howe	1,359	2,072	2,173	2,478	2,591	2,809	2,996	3,088	3,183
Van Alstyne	1,981	1,860	2,090	2,502	2,616	2,387	3,025	3,226	3,440
Pottsboro	748	895	1,177	1,579	1,651	1,790	1,909	2,049	2,199
Gunter	647	849	898	1,230	1,289	1,408	1,508	1,549	1,591
Total	58,719	59,973	59,439	65,644	68,647	73,985	79,458	85,364	91,766
Grayson	83,225	89,796	95,021	110,595	115,894	126,541	135,550	139,236	144,883

Source: Texas State Data Center

Table 4.10 shows the change in Grayson County population since 1965. The closure of Perrin Air Force Base in 1970 is reflected by the negative 1972 population figures.

**2000-2035 are estimates based on State Data Center information, MPO staff and consultant projections**

The city projections were obtained by interpolating the city totals to equal the projected county values provided by the state data center. The following formula was used.

$PCT = ABS(((GPT - GPYT)/GPT + 1) * CT)$   
**PCT:** PROJECTED CITY TOTAL  
**GPT:** GRAYSON PROJECTED TOTAL  
**GPYT:** GRAYSON PREVIOUS YEAR TOTAL  
**CT:** CITY TOTAL

**EX:** = ABS(((95021 - 89796)/95021) + 1) \* 31596  
 = ABS(33333.39594405) = 33333

**4.3 GROWTH TRENDS:**

**Population:**

- ✚ Most of the population growth will occur near the lake and west & east of Denison city limits.
- ✚ Moderate growth will be observed in the rural areas.
- ✚ Inside the city limits of Sherman, Denison, Howe, Van Alstyne & Pottsboro a fair growth of population will occur, with Pottsboro and Van Alstyne experiencing the highest growth.

**Employment:**

- ✚ Retail employment will grow along the U.S.75 corridor in VanAlstyne, Howe, Sherman and Denison with a higher percentage near Lake Texoma. Retail growth in Sherman will be largely concentrated along US 75 & Taylor, US 75 & US 82, and US 75 and Loy Lake. In Denison, the concentration will be along the intersection of US 75 and FM 120 as well as US75 and FM 691. In VanAlstyne, the concentration will be along the intersection of US 75 and FM 121.
- ✚ Employment growth in manufacturing will be higher east and west of FM 1417 near its intersection with US 75.
- ✚ Employment growth in construction will be widespread with higher percentages concentrated around Lake Texoma.

**Table 4.10 Population Change**

Yr.	Population	% Change
65	78,150	1.30%
66	79,050	1.20%
67	80,100	1.20%
68	81,050	1.30%
69	82,100	1.30%
70	83,225	1.40%
71	83,500	0.30%
72	81,900	-1.90%
73	82,100	0.20%
74	82,650	0.70%
75	83,200	0.70%
76	83,600	0.50%
77	84,300	1.10%
78	86,100	2.10%
79	87,850	2.00%
80	89,796	2.20%
90	95,021	5.80%
0	110,595	16.30%
5	115,894	4.70%
15	126,541	9.20%
25	135,550	7.10%
30	139,236	2.70%
35	144,883	1.04%



#### 4.4 INCOME:

Economy in this region could be divided into three stages (Marwin & Associates; Study on Economy conducted in 1967). First phase was the pioneer settlement period during the early settlement in 1870. This was followed by agriculture and railroad based economy which lasted into '30's. From 1940 to this day, the economy is more industrial based. Table 4.11 illustrates the per capita income from 1929 to 1999 and the percent change per year.

**Table 4.11 - Per Capita Income**

Year	Per Capita	% Chge		% Yr Chg
1929	\$422			
1940	\$339	-20%	'29-'40	-1.80%
1950	\$1,158	242%	'40-'50	2.40%
1959	\$1,762	52%	'50-'59	5.80%
1966	\$2,471	40%	'59-'66	5.70%
1980	\$7,367	198%	'66-'80	14.10%
1990	\$12,201	66%	'80-'90	6.60%
1999	\$18,862	55%	'90-'98	6.10%
2002	\$23,274	23%	99-01'	11.50%
2003	\$23,732	2%	02-'03	1.02%
2004	\$24,652	4%	03-'04	1.04%
2005	\$23,424	-5%	04-'05	0.95%
2006	\$27,591	18%	05-'06	1.18%

Source: Regional Economic Information System  
Bureau of Economic Analysis

Negative change during the '29-'40 period is due to the great economic depression. From 1940 to 1999 the income has been increasing rapidly with a large increase from 1966. This is due to the new comers to the region such as Johnson & Johnson, Texas Instruments, Folgers, and Fisher. While several manufacturing plants have recently closed (i.e. LOF, Johnson & Johnson, Oscar Myer), the emerging retail sector will pick up some of the slack.

Based upon average increase of 6.9% for the last 40 years (real + inflation), the per capita income forecast for the next 25 years in increments of 5 years is listed in Table 4.12.

**Table 4.12 - Per Capita Income Projection**

2000	2005	2010	2015	2020	2025	2030	2035
\$20,620	\$27,733	\$37,302	\$50,171	\$67,476	\$90,751	\$122,060	\$164,170

Source: MPO Staff Projections

#### 4.4.1 AUTO AVAILABILITY:

In 2000, Grayson County had a total of 42,849 households and the number of households that had no autos was 2,650. Households with 1 or 2 autos was 32,016. Households with 3 or more autos were 8,183 (see Appendix 'A' Page 102).

A significant trip purpose made within the Sherman-Denison transportation system is the work trip. Employment is an important factor in determining the viability of a transportation system. Long-term employment indicates a potential need to upgrade the current transportation system.



The Sherman-Denison study area has a paratransit system. The ridership shows increased viability of the system. In late 2009 the Texoma Area Paratransit System (TAPS) began a demonstration fixed route system connecting the two local colleges (Austin and Grayson) to retail centers within the Sherman area. It may take time for the system to mature and become part of the trips generated within the MPO boundary.

#### **4.5 CONNECTION TO REGIONAL VIEW**

The Sherman-Denison urban area is focused on issues within its region. However, it also must be concerned with issues beyond its borders. Transportation must be planned not only to allow for flexibility and convenience within the Sherman-Denison urban area corridor, but also for transportation into and through the area. The two major factors that need to be addressed in a regional view of the Sherman-Denison urban area are the presence of US 75 and the northward growth of towns to the south of the Sherman-Denison urban area along US 75.

##### **4.5.1 US HIGHWAY 75**

US 75 brings numerous vehicles into and through the Sherman-Denison area. US 75 is also heavily used by locals trying to find the quickest way to get from place to place. The traffic through the Sherman-Denison area on US 75 is impacted by a variety of factors. Two of the major causes of congestion are local growth and the use of I 45/US 75 as a route of truck traffic from Houston to Dallas on northward. The passage of NAFTA in 1994 has also greatly increased this traffic. This is an impracticable burden on a roadway that is part of a system designed thirty years ago to meet the needs of that time.

The population in the cities to the south of the Sherman-Denison urban area (McKinney and Allen) is projected to be 325,264 by the year 2030 (Texas State Data Center/MPO staff). The population for the same area was 40,598 in 1990 (US Bureau of the Census, 1990). This is a 801.18% increase in the number of people living close to, and feasibly using US 75.

##### **4.5.2 THE DALLAS AREA**

The DFW metroplex is also a factor that needs to be addressed. Growth continues to push northward, both residential and industrial growth will expand faster along US 75. The Dallas metropolitan area is only 60 miles from the Sherman-Denison urban area. According to Loyola University, Chicago sociologist Kenneth Johnson and U.S. Department of Agriculture demographer Calvin Beale, who have recently researched population trends, the rate of growth in most rural areas is more rapid now than at any other time in the past twenty years (*Planning Commissioner's Journal*, 1998). With the improvement of transportation and communication systems, it has become possible to live in a rural area, benefit from the social, cultural, and environmental advantages, and still enjoy the economic advantages of more urbanized areas. With the current trend to leave the inner city and move out to less densely populated areas, towns such as Allen and McKinney have seen rapid growth over the last ten years and are likely to see more rapid growth in the next 10 to 20 years. The city of Frisco, which added 15,424 new residents between 2000 and 2003 (according to the State Data Center), pushed their population 800.5% percent above the 1990 census count to 49,138 persons. This growth will invariably spill into Grayson county and the Sherman-Denison area. Table 4.13 shows the population estimates and projections for the region south of Sherman-Denison urban area.

**Table 4.13 - Population Figures for the Area South of the Sherman - Denison Study Area**

Area	1990 Census	2000 Census	2030 Population Projection	% of Growth **
Collin County	264,036	491,675	1,166,645	237.28%
McKinney	21,283	53,275	225,933	424.09%
Allen	19,315	43,622	99,331	227.71%
Frisco	6,138	34,028	227,911	669.77%
Source: Data estimates obtained from North Central Texas Council of Governments, 2003. County projections from Texas State Data Center (TSDC), 2003. City projections MPO staff. *This scenario has been prepared by TSDC as an <b>approximate</b> average of the zero (0.0) and 1980-90 (1.0) scenarios. ** Growth from 2000 Census				

The most likely place for this growth will be to the north along US 75. US 75 corridor offers several advantages that make moving away from the city centers an outwardly better choice. A few of these benefits are: easy highway access, plenty of free parking, and corporate identity for business and industry; large homes, a safe environment, and less traffic congestion for residences; and lower land prices for both industrial and residential uses. The US 75 corridor in north Collin and south Grayson County offers a pleasant rural setting, a convenient transportation system, and plenty of room to spread out. However, there are also prices to pay for outward growth. Rapid expansion would affect the Sherman-Denison urban area in various ways. A few of the consequences are a decline in environmental quality and natural resources, and an increase in auto dependency and traffic congestion.

**4.5.3 LAND USE/TRANSPORTATION INTERACTION**

There is no single force influencing urban form more than transportation. Widespread highway construction during the 1960s and 1970s decreased the cost (both in time and money) to transport persons and goods between urban areas. Automobiles assisted in the relocation of employment and residences to the periphery of urban areas and led to the subsequent suburbanization of the economy. Land use policies and plans of the time guided and encouraged this new pattern of development. Zoning ordinances, serving to protect incompatible uses, potentially conflicting urban arrangements, and preserve the environment by limiting densities, created patterns of development dependent on the automobile. As a result, the changes in land development made possible by better accessibility to activities increased the demand for vehicle trips on the transportation infrastructure. Previous policies answered the demand by building new or expanding existing facilities. Current investment and environmental concerns have led many to consider alternates to capacity enhancements and instead concentrate on achieving patterns of development that reduce the amount of trips by concentrating on the relationships between urban form and travel behavior.

The following sections will attempt to document some of the major empirical research findings demonstrating the relationship between land use and travel behavior and the impact of the built

environment on the daily movement of individuals. Urban form and demographic variables play a considerable role in the determination of travel behavior. Stated in another manner, when presented with the need to travel between locations, individual travel choices are impacted by both urban form and demographic factors.

Land use characteristics play a major role in determining the travel behavior of individuals. However, land use in isolation of other demographic and economic variables may not possess the same relationship on travel behavior as it does in conjunction with other factors. For example, it is not reasonable to anticipate that increased employment densities will yield significant reduction in single-occupant vehicle (SOV) travel without accompanying policies designed to affect the cost and availability of parking or the availability of alternative modes of transportation (Frank and Buchanan, 1997). Therefore, entities not only need to consider current development policies, but other supportive policies designed to implement a more efficient transportation network.

#### **4.5.4 LAND USE IMPACTS ON TRAVEL BEHAVIOR**

Several land use variables have been linked to travel choice through numerous research efforts. Variables studied include: population density, household density, employment density, mixing of land uses, jobs-housing balance, and design strategies. Overwhelmingly, residential and employment density variables are considered to be the most frequently used indicators between urban form and travel choice (Guiliano, 1989). Some of the reasons for its widespread use as a land use variable is that the analysis of density is methodically straightforward and more conceptually simplistic than other measures such as pedestrian friendliness or land use mix. Density influences travel demand through shorter trips, more non-motorized trips, and high-occupancy motorized trips. Collectively, these factors seek to lower per capita Vehicle Miles Traveled (VMT).

The mixing of land uses is also referred to as clustered development, clustering of land uses, concentrated activity centers, urban villages, or suburban village centers. These terms all attempt to describe the diversity of land uses, but also a variety of housing, working environments, travel options, and socio-cultural composition. Mixed-use developments allow compatible land uses to locate in close proximity to one another and thereby decrease the travel distances between activities (Parker, 1994). Other studies have found that evening the distribution of land use categories will reduce trip distances and increase use of alternative modes of transportation (Frank, 1994).

Jobs-housing balance refers to the distribution of employment in relation to the distribution of households in an urban area (Guiliano, 1990). Achieving a jobs-housing balance has been shown to provide shorter commute distances, decrease traffic congestion, and reduce the number of trips (Nowlan and Stewart, 1991; Cervero, 1993; Frank 1994). Barriers to the achievement of a balance include exclusionary zoning practices, use of traditional revenue enhancing development patterns, increasing numbers of multiple-worker households, gender differences within households that affect travel choices, and trip costs that are relatively small compared to housing

costs (Cervero, 1989; Shefer, 1991; and Giuliano, 1991). As a result, some believe there is a weakening connection between a jobs-housing balance and travel choice.

In recent years, the use of various design techniques has been shown to positively affect the relationship between urban form and travel choice. Prominent strategies of design include neo-traditional (NTD), transit-oriented (TOD), pedestrian-oriented (POD), New Urbanism, pedestrian pockets, and the compact city. An interconnecting street network, mixture of uses, bicycle and pedestrian paths, and grid patterns of land use often characterize neo-traditional neighborhoods. Transit-oriented and pedestrian-oriented development resembles neo-traditional neighborhoods except that they often incorporate higher densities and have a distinct orientation to alternative modes of transportation. Utilizing design principles such as, transit-based commercial cores, mixing of land uses, varying densities and housing stock, prominent civic and cultural space, and qualities of traditional neighborhoods outlined above, these strategies have gained recognition as methods to reduce automobile dependency. Several studies have shown how design strategies can reduce VMT, trip numbers, trip length, and increase the use of alternative modes of transportation (Friedman, Gordon, Peers, 1992; McNally and Ryan, 1993; Kulash, 1974; Cambridge Systematics, 1992, Middlesex-Somerset-Mercer, 1992). Those advocating such design characteristics hold it as widespread belief that entities may be able to redesign suburbia to function more efficiently.

Although the advocates of the land use/transportation connection believe that urban form will strongly influence travel behavior, there are skeptics who maintain that land use planning and management have too weak a connection to trip choice to matter. Skeptics claim that some land use variables, such as density, are merely casual factors for travel behavior and a proxy for other factors of urban form which are economically based (Frank, 1994). For example, Gordon and Richardson contend that decentralization reduces trip time and congestion, and that pricing policies and fuel taxes are more efficient mechanisms for cutting gas consumption than changes in land use policy (1991).

Table 4.14 summarizes some of the most prevalent findings regarding the relationship between land use and travel behavior.

**Table 4.14 - Empirical Research Findings Documenting the Relationship between Land Use and Travel Behavior.**

Source	Land Use Strategy	Findings
Dunphy and Fisher, 1994.	Density	Doubling residential density will result in 10 to 15% reduction in per capita driving.
Frank, 1994.	Density	Employment densities above 75/acre will reduce SOV travel and increase trips by transit and walking, population densities above 15 persons/acre will increase trips by walking and transit.
Holtzclaw, 1994.	Density	An area with twice the residential density has 16% lower automobile ownership, 25 to 30% less driving per family, and a 25 to 30% reduction in VMT in density ranges of 1.8 to 101.
Newman and Kenworthy, 1990.	Density	Doubling the density of a city reduced per capita gasoline consumption by 25 to 30%.
Ewing, Haliyur, Page, 1994.	Mixed-use Development	Mixed-use communities generate between 2.3 and 2.8 vehicle hours of travel compared to 3.4 for auto-oriented suburban communities.
Cervero, 1988	Mixed-use Development	Land composition is the primary site factor influencing the levels of solo commuting, centers with a 20% higher total office floor space will have a 2.4% higher share of solo commuters.
ULI, 1983.	Mixed-use Development	Concentrated development increased the use of nearby transit facilities by 9% in suburban areas and 30% for downtown.
Cervero, 1993	Jobs-Housing Balance	A 3 to 5% greater use of walking, bicycling, and transit is associated with a balance in jobs and housing.
Nowlan and Stewart, 1991.	Jobs-Housing Balance	During the morning rush hour period, high densities have resulted in 70 fewer trips for each increase of 100 people and 120 fewer trips for each addition of 100 dwelling units.
McNally and Ryan, 1993.	Design	Neo-traditional networks generate approximately 10.5% fewer miles of AM peak travel, 27% fewer total hours, and are 15.5% shorter in trip length than conventional neighborhoods.
Cambridge Systematics, 1992.	Design	TODs produce a reduction of VT by 7.7% and VMT by 13.6%; the TOD alternative predicts 25% fewer home-based vehicle trips and 10% greater transit usage.
Middlesex-Somerset-Mercer, 1992.	Design	PODs would produce 18% fewer daily vehicle trips.
Kulash, 1974. Source: Buchanan, 1995.	Design	Grid street designs produce a 43% reduction in VMT at the community scale than cul-de-sac arrangements.

#### 4.5.5 TRAVEL BEHAVIOR IMPACTS ON URBAN FORM

As previously documented, research has shown the relationship between land use and transportation services. This relationship, however, is not mutually exclusive. Travel choice and urban form are dynamic factors that mutually influence each other. Trying to unravel which came first is no longer a debate, as the understanding that these systems operate simultaneously becomes more prevalent.

One of the most beneficial factors to more efficient patterns of land use is the increase in accessibility and ease in reaching desired activities. Good accessibility offers the potential for "maximum contact with minimum effort" (NTI, 1998). Two types of accessibility that affect travel choice are residential accessibility and destination accessibility.

- ✚ Residential Accessibility: Ease of access from place of residence to activities.
- ✚ Destination Accessibility: Ease of access from non-home based sites, such as between work, shopping, and recreational destinations. Destination accessibility is significant because it affects the ability to link efficiently link trips.

The effect of accessibility on transportation facilities is described in Section 4.5.6 below.

#### 4.5.6 OTHER FACTORS AFFECTING THE LAND USE/TRANSPORTATION CONNECTION

There is a host of other demographic and economic variables exhibiting an impact on travel choice. These factors include income, auto ownership, age, gender, license availability, cost and availability of parking, and the relative utility amongst modes. The basic relationships between selected demographic variables and travel behavior are described in Table 4.15

**Table 4.15 - Relationship between Selected Demographic Variables and Travel Behavior**

Variable	Impact on Travel Behavior
Income	Higher income groups tend to make more trips and longer trips than lower income groups.
Auto Ownership	Increases in vehicles per household increase the number and length of the trips
Age	The number of trips increases as one ages until individuals reach the mid-40s, then trips decrease.
Gender	Females tend to make more trips and longer trips per day than males.
Household Size	The larger the household size, the larger the number and length of trips.

Source: Office of Highway Information Management, 1994.

#### 4.5.7 FACILITY AND LAND USE CHANGES

The increased access to land, provided by a well-configured transportation network, induces land use changes. Therefore, certain portions of a city experience a relative locational advantage to other areas. Individual desires to minimize travel and developers awareness of standard travel behavior are contributing factors that give rise to urban form. Accessibility shapes regions

through improved location, premiums placed on land resulting from location, limitations to the amount of available land, benefits of industry agglomeration, and the "value capture" associated with the increased value of prime sites added to the public service. The following sections will discuss some of the relationships between facilities and changes in urban form.

### Land Use and Land Value Relationships

The opportunity for access to land uses via automobile has led to the dispersed and segregated use of land within urban areas. As a result, the relationship between location, intensities, and land value tend to be harder to measure than with other modes of transportation. The auto-dominated environment of North Texas, however, still exhibits the characteristics associated with clustering and agglomeration of activities around major access points, such as freeway or major arterial interchanges. Studies have demonstrated this relationship between land use and land value and the location of transportation facilities. For example, major new roads attract commercial uses, barring zoning restrictions, and change the value of land within the surrounding area (National Transit Institute (NTI), 1998). When residential uses are considered, locations too close to major facilities lowers property values, whereas the existence of a safe buffer increases them (NTI, 1998). Table 4.16 documents the relationship of research findings on land use and land value relationships.

**Table 4.16 - Research Findings on Land Use/Land Value Relationships**

Author	Date	Type of Facility	Conclusions
Payne, Maxey, Blayney, Dyett	1980	Beltway	No strong evidence exists to suggest that beltways improve a metropolitan region's competitive advantage. Difference in housing development patterns between beltway and non-beltway cities were not significant
Ashley and Bernard	1965	Highway	Major development at interchanges was caused by relative decreases elsewhere.
Mohring	1961	Highway	Increase of land value near highway was balanced by relative decreases elsewhere.
Adkins	1959	Expressway	Value of land closest to the expressway increased 300 to 600 percent. Land farther away experienced smaller increases in value.

Source: NTI, 1998

### Effect of Freeway Capacity Enhancements on Land Use

Research on capacity improvements of highway and freeway facilities demonstrate that rates of building activities for residential and commercial development increased more rapidly after the completion of capacity enhancements (Hansen, Gillen, Puvathingal, 1998). This study, however,

did not show that this pattern was consistent across the study area. Results seemed to have the strongest and lasting influences on commercial, rather than residential, property (NTI, 1998). Major conclusions from the California study indicate the following (NTI, 1998):

- ✚ Urban highway capacity expansions stimulate land development in nearby areas.
- ✚ All land uses types are affected.
- ✚ The dynamics of the impact vary: Housing – attenuates over time; commercial – impacts build over time.

### **Effect of New Facilities**

The effects of new roads across regions tend to be redistributive. For example, a study of economic productivity in California found that increased highway spending in one county correlated with higher economic output in that county and lower economic output in the surrounding counties. However, there is no empirical evidence to date to demonstrate that new highways induce growth at the regional level.

There is strong evidence to suggest that new highways induce demand by prompting structural changes over time within metropolitan areas. New facilities either redirect growth to more accessible corridors or encourage individuals to switch from alternative modes of transportation to the automobile. A recent study found that every 10% increase in lane-miles induced an immediate 2% increase in VMT, increasing to a 9% increase within two years after the lane-miles were added (Hanson, 1995). Another study by the Surface Transportation Policy Project (STPP) analyzed data from the Texas Transportation Institute (TTI) and determined that metropolitan areas that invested heavily in road capacity expansion fared no better in easing congestion than metropolitan areas that did not. Trends continued to show that areas that increased lane capacity spent roughly \$22 billion more on road construction and had slightly higher congestion costs per person, wasted fuel, and travel delay (STPP, 1998).

### **4.5.8 IMPLEMENTATION MECHANISMS**

Implementation mechanisms to change urban form are based on empirical relationships between land use and urban form and political and environmental factors leading to the presence or absence of alternative modes of transportation. The strategies documented above can be implemented into local or regional policy through use of existing subdivision regulations, zoning ordinances, and comprehensive plans. Table 4.17 documents the various land use strategies discussed in this section and suggests implementation mechanisms to achieve the results produced.



**Table 4.17 - Land Use Strategies and Proposed Implementation Mechanisms**

Land Use Strategy	Existing Implementation Policy	Proposed Mechanism for Change
Residential Density	Zoning Ordinance, Comprehensive Plan, City Thoroughfare Plan	Policies to restrict road supply, restrictions placed on inner city road supply, average speeds established at 30 km/h, provisions for alternative transportation, higher density zoning, encouragement for pedestrian and bicycle uses, development of mixed use zoning, implementation of growth management plans, infill and redevelopment policies, density bonuses
Employment Density	Zoning Ordinance, Comprehensive Plan	Higher density commercial zoning, minimum mix and density requirements, increase open space requirement
Land Use Mixing	Zoning Ordinance, Comprehensive Plan	Incentive zoning, tax incentives, higher density mixed use zoning, implementation of zoning swap programs, linked activities concentrated within activity centers, internalize facilities and services, encourage transit usage and development of alternative options, infill and redevelopment
Jobs-Housing Balance	Zoning Ordinance, Comprehensive Plan	Infill and redevelopment, encourage mixed use zoning, provision of financial incentives to developers, create employment/residential centers, higher density mixed use zoning, housing and population intensification
Design	Zoning Ordinance, Comprehensive Plan, Subdivision Regulations	Encourage development of interconnected street networks, infill and redevelopment, higher density requirements, embed principles of neo-traditional design in subdivision regulations and comprehensive plans, provide provisions for pedestrian facilities within zoning regulations, increase availability of alternative modes of transportation

Source: Frank and Buchanan, 1997.

Although all of the policies suggested might not be applicable to the Sherman-Denison region at the present time, the implementation mechanisms present alternatives for consideration as the region continues to grow. Furthermore, use of these strategies will be increasingly important as environmental concerns, such as air quality, become more pertinent to the region.

#### **4.5.9 ACCESS MANAGEMENT**

Access management is a relatively new approach to addressing traffic congestion, safety problems, and loss of street capacity. Techniques designed to manage access decisions encompass a broad range of practices designed to provide efficient, safe, and timely movement of vehicles. These programs often involve addressing the location and design of public streets and private driveways, as well as subdivision and site design practices. Coordination between land use and transportation policies is often necessary to protect public investment in a transportation infrastructure increasingly limited by traffic problems, decreasing right-of-way, rising construction costs, and revenue shortfalls.

As will be described in chapter 6, the functional classification system is designed to balance mobility with land access and maintain traffic flow. The impacts of uncontrolled or excessive

access include: congestion, high accident rates, increased energy consumption, capital investment degradation, local business deterioration, and increased travel times and delays. Access management depends on the careful coordination of site design, land use planning, and thoroughfare design. Benefits to this coordination include (Layton, 1996):

- ✚ Improvement of the safety, public health and welfare – over 50% of the accidents on arterials are access related.
- ✚ Increase of capacity and reduction in congestion by controlling left and right turns, lateral friction, and speed of access and egress. Capacity can be increased by 25-35% with access control.
- ✚ Extension of the functional life of existing highways, by preserving or increasing their capacity, reducing the need for new capital construction to meet increasing system demands.
- ✚ Assurance of consistent and equitable treatment for all; local properties and business activities, and arterial street operations and access are treated equally and consistently.
- ✚ Protection of the economic vitality of abutting properties and private investments in arterial corridors – congestion, delays and unsafe conditions will drive prospective clients and shoppers to other less congested locations.
- ✚ Reduction of travel time and delay, by 40-60% as a result of fewer stops, and less deceleration and acceleration.
- ✚ Decrease in the amount of energy consumption by 35-50%, also through reduced stops and fewer deceleration and acceleration cycles.
- ✚ Reduced costs to travelers, commercial shipments, and services.

Effective access management regulates the provision and control of access to adjacent properties through policies, statutes, regulations, standards, and guidelines. Comprehensive strategies employ consistent control in the location, design, and operation of all intersecting roads, streets, and driveways. A successful access management strategy requires land use and site development regulations, access design and spacing standards, access permit procedures, and the adoption of an access management policy. The Center for Urban Transportation Research (CUTR) defined nine policies cities should consider in preparing access management guidelines and policies (CUTR, 1997).

## **Chapter 5.0**

### **Environmental Issues**

The environmental issues facing Grayson County are overwhelmingly determined by its location immediately north of the Dallas / Fort Worth Metroplex. As of the time of this writing, Grayson County remains essentially pristine, enjoying clean air, water and land. The Metroplex, on the other hand, is significantly challenged in each of these media and, in the case of air and land pollution issues, continues to deteriorate. The degree to which the environmental problems of the Metroplex will be avoided or allowed to be duplicated locally will be the primary environmental policy issue facing the County over the life of this Plan.

#### **5.1 Air Issues**

The primary four counties in the D/FW Metroplex (Dallas, Tarrant, Collin, and Denton) are currently designated as a non-attainment area (with a “serious” ranking in low-level ozone pollution) under the Federal Clean Air Act. The State Implementation Plan (SIP) to clean the air in the Metroplex continues to fail in spite of the Texas Commission on Environmental Quality (TCEQ) efforts to the contrary. One recent TCEQ approach, to *de facto* increase the size of the D/FW non-attainment area to neighboring counties in spite of their actual contribution to ozone formation, was defeated by a regional coalition of governments, economic development organizations, businesses and citizen groups. Grayson County was originally targeted by the TCEQ for inclusion in this attempt to administratively broaden the non-attainment area. However, being presented with overwhelming evidence of the fact that Grayson County is “down-wind” of the ozone generating processes in the Metroplex and a united government/business/citizen front, the State dropped Grayson County from inclusion in its proposal. As the State SIP continues to not improve the air quality in the Metroplex it is, at the time of this writing, becoming more likely that the EPA will eventually take-over the process there. The possible impact on Grayson County in this scenario cannot be determined at this time as approaches to cleaning the air in the Metroplex will be a function of EPA policy, which is yet to be established and is subject to national political realities.

Additionally, Grayson County air quality will clearly be the beneficiary of near-term national and State efforts to assure cleaner burning automobiles and cleaner burning gasoline. Moreover, as of the time of this writing, most major gasoline vendors in the County have already added Phase I vapor recovery systems to their tanks, having done so at the time of tank installation and upgrades.

Violations of the Texas Clean Air Act by local entities in Grayson County are minor and have mostly been confined to cases of brush and wood products being burned in an illegal manner. Many older citizens maintain illegal trash burn barrels on their property. Such violations are decreasing rapidly as local entities learn the Texas criminal laws on this subject and local enforcement and education programs become more common.

## **5.2 Water Issues:**

While many other areas of the state face significant water issues, Grayson county and specifically the communities served by the MPO have an adequate supply of water from the 89,000 acre Lake Texoma. The cities of Sherman and Denison pump an average of 14 million gallons of water per day with an availability of 122 million gallons per day.

In the more immediate future, Grayson county is likely to be impacted to some degree by the implementation of the Texas Pollutant Discharge Elimination System (TPDES). On September 14, 1998, the State of Texas assumed authority for the administration of the National Polluted Discharge Elimination System. The State, working through the TCEQ's TPDES program, now has authority for the regulation Statewide of all discharges of pollutants to surface waters of the State, with the exception of discharges associated with oil, gas, and geothermal exploration and development (these are regulated by the Railroad Commission of Texas).

Perhaps the most important aspect of TPDES to local governments is the upcoming implementation of Phase II of the Municipal Storm Water Regulations in which municipalities with populations under 100,000 having separate storm water collection systems will be impacted. Under the Phase II Rule, all regulated small municipal separate storm sewer systems will be required to develop and implement a storm water management program. Elements in this program will include:

- ✚ Public education and outreach;
- ✚ Public involvement;
- ✚ Illicit discharge detection and elimination;
- ✚ Construction site runoff control;
- ✚ Post-construction storm water management in new development and redevelopment; and,
- ✚ Pollution prevention and good housekeeping of municipal operations.

The cities of Denison and Sherman and Grayson County are proposed to be automatically designated under the Storm Water Phase II Rule to be included in this program. Other local governments in Grayson County may also meet the criteria for inclusion.

## **5.3 Land Issues:**

As of the time of this writing, Grayson County faces several important environmental issues concerning land use, including the possible location of a new publically owned landfill to serve citizens and businesses in the region. Other environmental land issues of regional importance include the control of illegal dumping and the impact of changing land uses associated with population expansion.

The one landfill serving Grayson County is owned by USA Waste Management, Inc., a large multi-national corporation. The Regional Solid Waste Management Plan and State inventories

show that this facility, which is occasionally operated as a landfill and at other times as a transfer station.

In order to create a lower-priced long-range alternative to the use of this facility, in 1996 a group of governments from Grayson and Cooke Counties joined with Greater Texoma Utility Authority (G.U.T.A.) to explore the possibility of sitting a new publically-owned landfill in the region. By early-1999 a site had been purchased in Western Grayson county, an approximate 1,000 acre plot southwest of the intersection of Highway 56 and Old Sandborn Road (seven miles west of Highway 289).

The Texoma Area Solid Waste Authority (TASWA) was officially formed in 2000 by the cities of Denison, Gainsville and Sherman, Texas and by Cooke and Grayson Counties to provide a solid waste disposal and recycling facility for its member cities, counties and other communities in the Texoma Region.

A second land-based environmental issue concerns the identification and deed recording of former landfills and illegal dumps. Thirty-two sites have been identified by the State in the tri-county region (18 in Grayson County alone) as being the sites of former permitted landfills.

A second tier of sites consists in an additional 36 locations in the region that have been identified as places where illegal dumps operated in the past.

Under State law [Health and Safety 363], Councils of Governments around the State have conducted an inventory of closed landfills and illegal dumpsites, and will notify owners of property over these sites of the presence of these dumps, and provide notice to the county records office for notations to be placed on land records. Working through the TCEQ and the Texas Association of Regional Councils, the twenty-four regional planning commissions in the State hired staff at Southwest Texas State University to perform the preliminary computer work associated with this project. The identification and mapping of these former landfills and dumpsites was completed by August 2001 by Texoma Council of Governments.

The sites of former landfills are restricted from certain land uses as described in Subchapter T, 30 Texas Administrative Code 330.951. Owners of sites holding former landfills may expect their property values to reflect their status following the mandatory public notice procedures established by the State Legislature in Health and Safety 363.

A final environmental issue concerning primarily land (but also affecting water and air use) is the growth in local enforcement of State criminal environmental laws affecting land. Portions of the Health and Safety Code (mostly Chapters 341, 343, 361, and 365), Subchapter E, Chapter 7 of the Texas Water Code, and other State statutes define various criminal acts that are subject to response by police officers in the State. There are approximately 75 laws that define misdemeanor and felony level crimes affecting the environment. Grayson joins Cooke and Fannin counties in having commissioned peace officers assigned to work environmental cases. These cases include such items as enforcing illegal dumping by citizens seeking to save on

landfill fees, commercial dumping by developers and maintenance companies, dumping of hazardous waste by small businesses, illegal burning of waste, and related crimes. As is true across Texas, increased emphasis on developing local abilities to combat environmental criminals is a growing area of public policy attention. Grayson county hosts one of the longest-standing environmental enforcement programs, funded locally and through the help of the TCEQ, and it is reasonable to anticipate that the program will grow locally.

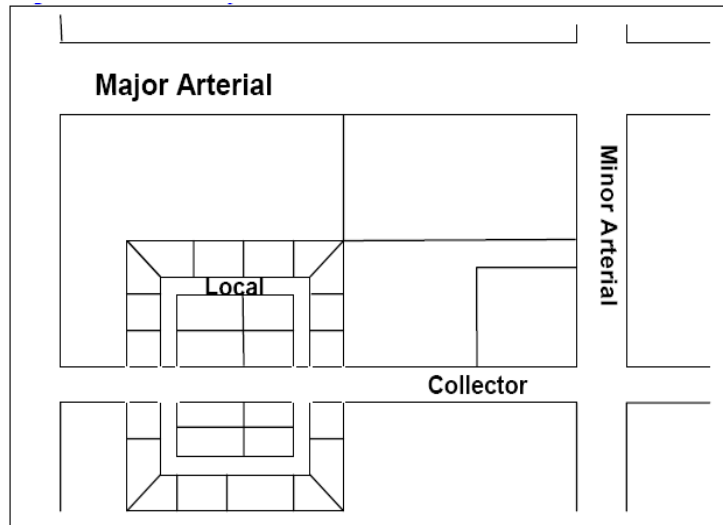
**Chapter 6**  
**Transportation Network**  
**& Major Street/Highway Plan**

**Roadway Network - Use and Traffic Volume**

The solution to a problem cannot be found until that problem has been defined and understood. Thus, the first step in attempting to solve transportation problems is an inventory of the existing transportation system. From this inventory actions for positive change may arise out of the analysis.

**Functional Classification**

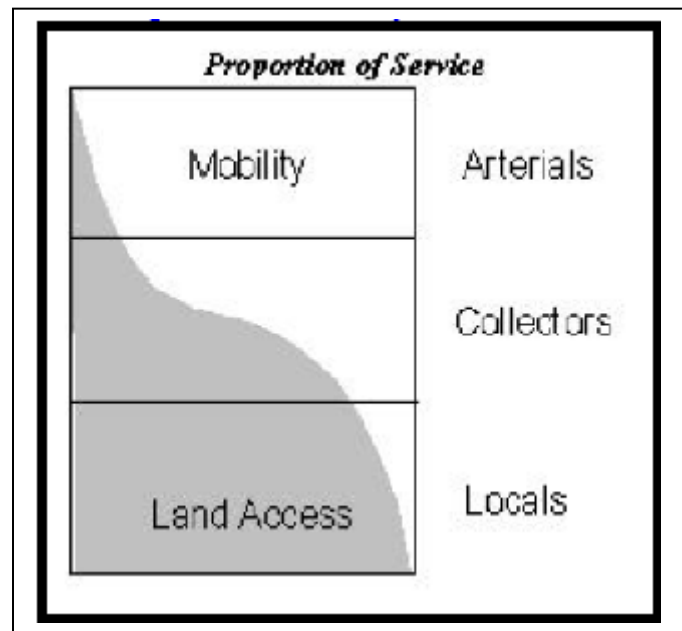
A complete functionally designed system provides a series of different travel options in which there are in six recognizable steps: start of the trip, transition, distribution, collection, access, and end of the trip. Each of these six steps makes up a typical trip and creates what is called the 'hierarchy of movement'. This is demonstrated in Figure 6.1.



**Figure 6.1: Hierarchy of Movement**

Functional classification is a term by which streets and highways are grouped according to the character of service they are intended to provide. This recognizes that a trip is not served independently by a single road or street, but moves through a network of different types of roadways for different purposes. This system divides streets into three basic classes: locals, collectors, and arterials.

Each class provides varying degrees of access and movement and distributes or collects traffic for the adjacent class. Access and mobility are the two major considerations when classifying street and highway networks. Figure 6.2 shows the



**Figure 6.2: Mobility vs Access**

relationship between traffic mobility and land access in a functionally classified system.

The streets in the Sherman-Denison urbanized area are classified into groups (see Table 6.1) of similar function and purpose as follows:

- a) Urban Principal Arterial System
- b) Urban Minor Arterial System
- c) Urban Collector System
- d) Urban Local System

**Table 6.1 - Functional Classification Characteristics**

Functional Classification	Level of Mobility	Level of Accessibility	System Relationships
Interstate or Freeway	Connects urban and rural service, connects urban subregions, connects urban areas.	There is no direct land access. Used for long trips at high speeds.	Other interstates or freeways, principal arterials.
Principal Arterial <sup>1</sup>	Connects two or more subregions, compliments freeways in high volume corridors.	There is no direct land access, except for major traffic generators. Used for medium to long distance trips at moderately high speeds. Carries highest traffic volumes within the urban area. Access is subordinate to traffic movement.	Freeways, other principal arterials, and high volume collectors
Minor Arterial	Connects adjacent subregions, connects activity centers within a subregion, provides intra-community continuity, ideally does not penetrate into neighborhoods.	Restricted land access to major and minor traffic generators in industrial and commercial areas. Used for moderate to short length trips at moderate speed.	Principal arterials, other minor arterials, facilities that place more emphasis on land access than higher classifications.
Collector	Connects neighborhoods, connects land uses with transportation facilities	Unrestricted land access to residential neighborhoods, commercial, and industrial areas. Used for collection and distribution to arterial facilities at moderate to low speeds.	Arterials, other collectors, local streets, and private driveways providing direct land access.
Local	Connects facilities within neighborhoods, connects land uses within transportation facilities.	Unrestricted land access. Used for collection and distribution to collector facilities at low speeds.	Collectors, other local facilities, and private driveways providing direct land access.
<sup>1</sup> Includes both divided and undivided principal arterial mileage. Source: ITE, 1992; Layton, 1996; U.S. DOT, 1997			



## 6.1 Traffic Analysis :

### 6.1.1 Travel Demand Forecast Model Development

Travel Demand Modeling is the process used to determine street facility needs in the future. Modeling is performed by the Texas Department of Transportation using TRANPLAN modeling software. Modeling utilizes socioeconomic data (population, income, dwelling units and employment by Standard Industrial Code) to forecast the number of trips from one given destination to another. This data is collected in small study areas called Traffic Analysis Zones (TAZ's). The Sherman-Denison MPO Study Area has 264 TAZ's.

This plan update is based on an updated model. The SDMPO staff provided TxDOT with base year data and network in 1994. The SD MPO contracted in 1994 with J.T. Dunkin to provide Year 2015 forecast of population, income, employment and dwelling units by Traffic Analysis Zone to be used by TxDOT in the MPO model. A 2030 control total for the Sherman-Denison study area was generated by growing the 2015 demographic totals using the same percent per year growth rate that was used by the consultant from a 1994 base year condition. The new 2030 demographics were then distributed to the Traffic Analysis Zones. These projections were then extrapolated to provide a Year 2030 forecast to be utilized in the model update.

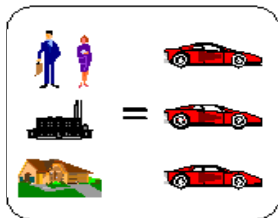
**Table 6.2 - Travel Volume**

CLASSIFICATION	FHWA RECOMMENDED %	% of VMT	SD-MPO %
Principal Arterial System	5 - 10%	40 - 65	8.24
Minor Arterial System	5 - 20%	15 - 25	12.03
Collector Street System	5 - 10%	5 - 10	16.77
Local Street System	65 - 80%	10 - 30	61.6

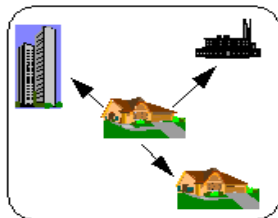
Current functional classifications/December 1, 2004 TPB minutes

Table 6.2 gives the state's guideline ranges of travel volume (VMT- see Glossary for a more detailed explanation) and the recommended percent of total miles of each of the four street classifications. Maps 6.1 through 6.3 (see appendix) show the state approved functional classification for streets in the Sherman-Denison urbanized area.

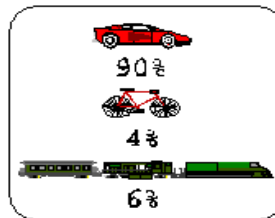
#### 1. Trip Generation



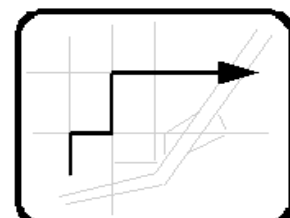
#### 2. Trip Distribution



#### 3. Mode Choice



#### 4. Traffic Assignment



Travel demand modeling utilizes the following four step process:

**a. Trip Generation**

Trip Generation provides the number of trips in a 24-hour period in a Traffic Analysis Zone (TAZ). TAZs are the primary unit of analysis within the travel demand forecasting process. Land use and demographic data are collected, maintained, forecasted and analyzed at the TAZ level to identify characteristics of the trip-makers. The geographic area of a TAZ can vary from several blocks to several square miles. In a downtown area, TAZs are generally one city block, while in rural, undeveloped areas; TAZs may be a combination of several census tracts. The criteria used in the delineation of TAZs include consistency with the census tracts or census blocks, relatively homogeneous land use of a zone, and coincidence with the physical boundaries. These zones are classified into four area types by TxDOT during the modeling process: Central Business District (CBD), Urban, Suburban, and Rural.

**Trip Generation is obtained from the following general categories of trips.**

- ✚ Home Based Work
- ✚ Home Based Non-Work
- ✚ Non-Home Based
- ✚ Truck and Taxi
- ✚ External Through
- ✚ External Local

**These categories of trips are influenced by the number of trips each TAZ will produce and the number each will attract.**

The Production Variables are:

- ✚ Household Size
- ✚ Household Income
- ✚ Income Quartile
- ✚ Dwelling Units
- ✚ Auto Ownership

The Attraction Variables are:

- ✚ Employment
- ✚ Dwelling Units
- ✚ Area Type
- ✚ Special Generators

## b. Trip Distribution

Trip Distribution is the process that determines how the trips produced in one TAZ is distributed with the other TAZs. The distribution is based on the attractiveness and accessibility of the TAZ. This is determined by using a gravity model calibrated for the urban area.

## c. Mode Choice

The personal trips made between each TAZ are divided into auto and transit trips using a mathematical model.

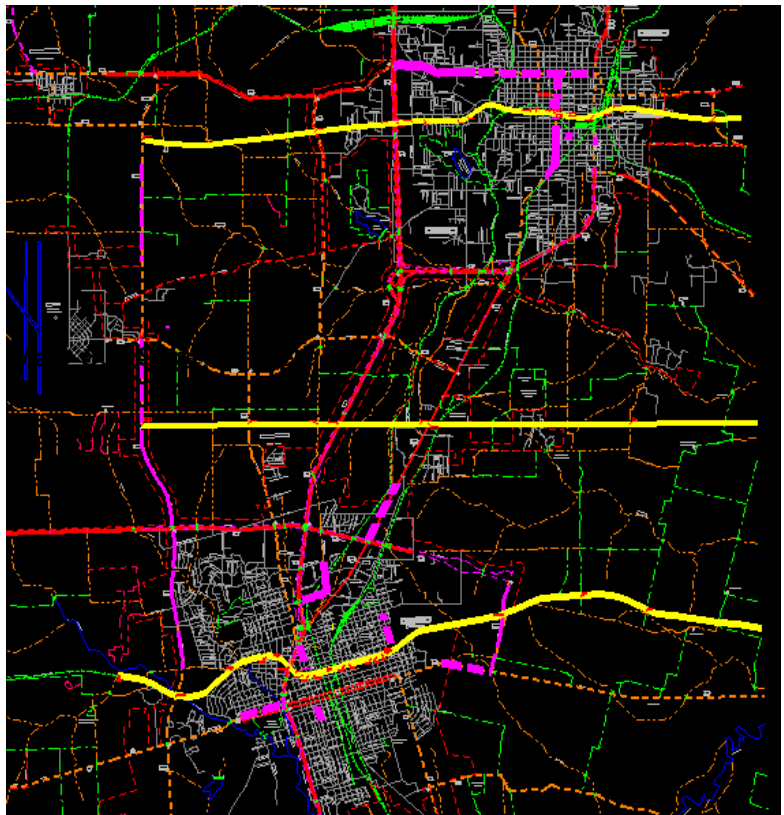
## d. Traffic Assignment

Once the Trip Distribution is determined, the route that each trip will take from one TAZ to another is determined. This is characterized by the relative time it takes to travel down each path, and the design capacity of each street link.

Once the validation is completed, traffic assignment is run for the base year (1994) and model year (2030). Build and no-build scenarios are run for the model year. This will facilitate analysis on how the proposed improvements will affect the traffic and air quality and compare these with the "no-build" or "do-nothing" option.

### 6.1.1 Modeling Process:

**6.1.1.1 Identification of Congested Corridors and Intersections:** A Delphi Technique was adopted and implemented. Input was obtained from the MPO's Policy Board and citizens of the metropolitan area. Presentations on the Metropolitan transportation plan were made on the following dates and public input was requested. The dates are: February 5, 2009, February 11, 2009, April 1, 2009, June 3 & 24, 2009, July 14, 2009, August 11, 2009, November 18, 2009



- FM 1417 from FM 691 to FM 120
- Spur 503 & SH 91 & US 69 & US 75 - Flow Impediment

- ✚ Morton (120East)
- ✚ FM 120 to Lake Texoma
- ✚ FM 996
- ✚ US 75 & FM 120 intersection
- ✚ Travis & Lamberth intersection
- ✚ Travis & Taylor
- ✚ US 75 & Taylor
- ✚ Texoma Pkwy & Taylor
- ✚ US 75 & 82 Intersection
- ✚ Loy Lake Road & HWY 82
- ✚ Loy Lake Road in Sherman

**6.1.1.2 Screenline Method:** Three screenlines were created by the TXDOT for the metropolitan area. One screenline passed through Denison, another through Sherman and the third between Sherman and Denison. Map 5.4 shows the locations of the three screenlines. Traffic counts were obtained from these screenlines and analyzed.

**6.1.1.2.1 Denison Screenline:** Traffic counts for the Denison screenline for the years 1988 through 1992 were obtained. The 1988 values were treated as the base values. The subsequent year counts were compared **Table 6.3 - Traffic Count Method**

with the base year counts. From the Denison screenline, the following locations were found to have a positive percent change in traffic count.

- ✚ South-Scullin avenue between Morgan Street and Owing Street
- ✚ Crockett Avenue between Owing and Crawford
- ✚ US 75, 0.6 miles south of FM 120
- ✚ Edwards Drive south of Crawford Street
- ✚ Crockett Avenue between Owing and Crawford

Corridor	Location	Level of Service
US75 B	S OF WOODLAKE ROAD NO VAUGHN DR. TO US75-69	C-D C-D
75-A	NORTH OF SPUR 506	C-D
FM1417	SOUTH OF US 82	C-D
FM 131 FM 120 to US 75	SOUTH OF NEW US 82	C-D
FM 84 Lake area to US 69 - 75	EAST OF US 75 BY-PASS EAST OF STATE 75-A EAST OF US 69 & 75	E E C-D
HWY. 69	EAST DENISON CITY LIMITS NORTH OF IRON ORE CREEK	E C-D
SH 11	SHERMAN MUNICIPAL AIRPORT SOUTH OF FM 1417 INT NORTH OF LUELLA	C-D C-D C-D

**6.1.1.2.2 Central Screenline :** The following locations were found to have a higher percentile count for the year 1992.

- ✚ Loy Lake Road north of US 75
- ✚ US75, 1.6 miles north of US 82
- ✚ Theresa Drive north of Fallon Drive
- ✚ County Road 3 miles east of US 75

**6.1.1.2.3 Sherman Screenline :** The following are the locations with a positive count change with respect to the base year.

- ✚ US 75 at T&P Railroad
- ✚ Elm Street at T & P Railroad
- ✚ Cleveland at T & P Railroad
- ✚ FM 1417, East of Sherman at T & P Railroad
- ✚ County Road, 0.75 miles east of FM 1417 at T & P Railroad.

**6.1.1.3 Traffic Count Study Method:**

A traffic count study was conducted in May, 1994. The corridors listed in Table 6.3 were identified as congested.

**6.1.1.4 Traffic Model:**

TxDOT's modeling department provided a no-build scenario network by altering the 2005 system network (UP, Scheme 05-05-1). The no-build system assumes that no additional work will be done on the existing system in spite of any population and employment changes. A 2030 population projection of 93,924 was used for both this no-build scenario and the following build scenario in order to retain consistency. This population was obtained by interpolating between Grayson County values provided by the State Data Center and the current MPO area population. According to the no-build scenario, the following corridors were found to carry a higher traffic volume as compared to the road's designed capacity (V/C ratio).

- ✚ Travis
- ✚ Lamberth
- ✚ Loy Lake Road (Sherman)
- ✚ FM 1417
- ✚ Ross
- ✚ Taylor
- ✚ Harrison
- ✚ FM691
- ✚ Hwy 56
- ✚ Washington
- ✚ Gallagher
- ✚ FM 120
- ✚ Armstrong
- ✚ Mirrick

In Sherman congestion can be easily observed down Lamberth, Taylor, Hwy 56 and Washington which connect the residential areas with the business areas. Ross, Harrison, Armstrong, and Mirrick in Denison and Gallagher in Sherman were also found to be congested. These are connectors within the respective business areas. FM 1417 was also found to carry a higher V/C ratio. FM 1417 provides an alternate route around Sherman and is a feeder to US 82 and Hwy 56. All of the above roads identified by the model were also identified in the Delphi technique or screenline method or traffic count study method.

The "build" scenario network provided by TxDOT (UP, Scheme 15-15-1LRP) consists of the 1993 network plus all network additions. The 2005 24-hour vehicle trip table was factored by .83 to account for the decrease in projected 2015 population from the original 2005 forecast (pop. 74,889) to the current 2015 population projection of 62,500. Growth rates for all external stations and special internal growth areas were factored separately and incorporated into the trip table. The factored trip table was then assigned to each of the networks.

## 6.2 TRANSPORTATION PLAN COMPONENTS

### 6.1 Street and Highway Plan

#### 6.1.1 MTP's Relationship to cities of Sherman and Denison's Thoroughfare Plans

While the SDMPO does not develop thoroughfare plans for the cities within its study area, it does coordinate its metropolitan transportation plans with them. SDMPO's approach to the implementation of highway and street projects has been to balance competing interests, and extend the existing thoroughfare system for Sherman and Denison. The main premise of this philosophy is that it is not practical to "build our way out of congestion" by constructing new through lanes along each roadway that becomes congested. The best opportunity to address the ever-increasing demand on the region's road network is to look at options from a systems perspective, meaning that changes to one part of the system will affect other portions of the system, either positively or negatively.



Map 6.5 Major Roadways

SDMPO has identified a system of roadways (Map6.5) that share the burden of supplying traffic capacity for the area. The metropolitan transportation plan adopted by SDMPO in 2004 is an all

encompassing plan that identifies the future highway system for the Sherman-Denison urban area. The metropolitan transportation plan shows the anticipated improvements to the roadway system that would address future transportation demands for vehicular travel. The metropolitan transportation plan delineates the ultimate roadway system based on the following types of facilities: minor thoroughfares, major thoroughfares, commercial arterials, and freeways and expressways. It is from this plan that SDMPO is able to select highway project improvements.

SDMPO's metropolitan transportation plan is implemented through federal, state, and local highway construction programs. Smaller-scale projects (minor thoroughfares) are accomplished through development by individual cities. The larger-scale projects, such as major thoroughfares and freeways, are accomplished through TxDOT's programs. Local funding will typically be used on streets that are within the individual cities' network, while federal and state funds are the primary source for funding major improvements on the State's roadway system.




The priority of projects for construction through either a local construction program or the state program come through the project ranking exercise accomplished in the development of the MTP. The MTP relies on the Thoroughfare Plan because that is the primary inventory of projects to be evaluated for prioritization. The specific projects are then screened for importance based on SDMPO's goals.

### **6.1.2 Horizon Year Recommendations**

As required by federal law, SDMPO has categorized its MTP projects into horizon years and are financially constrained. Horizon years are no more than ten years apart and are considered to begin on October 1st. The projects respond directly to projected travel demand, MPO policy decisions, and available funding. Tables with detailed information about each project are included for the two horizon years (2010-2020, and 2021-2035) as well as a map that highlights the location of the various projects. Because of overlap and the limited amount of detail that can be provided on a small-scale map, not all projects are shown on the map.

#### ***2020 Roadway Network***

This network includes all of the existing major streets and highways, new roadway improvements, and new construction projects which should be completed by September 30, 2020. Most of these projects will be fully or partially funded the state or federal. **Projects for Major Construction** table on page 62 provides information about each project. Notable projects include:

-  SH 91 @ UP RR Construct Overpass
-  FM 1417 from SH 11 to 56
-  Various On & Off System Bridge replacement



## **2035 Roadway Network**

The roadway projects in the 2035 network include those projected to be in the 2020 network and several additional roadway reconstruction and widening projects that are proposed for completion between October 1, 2020 and September 30, 2035. **Projects for Major Construction** table on page 63 provides information about each project. Revenues anticipated from federal, state and local sources will fund these projects. Projects for Major Construction (Chapter 11 - table on page 94) summarize information on each project. Selected notable projects are:

- ✚ FM 1417 from SH 56 to US 82 reconstruct to 5 lane undivided
- ✚ FM 1417 from US 75 to SH 11 reconstruct to 5 lane undivided
- ✚ FM 1417 from FM 691 to US 75 reconstruct to 5 lane undivided
- ✚ FM 691 from US 75 to Grayson County Airport reconstruct to 5 lane undivided

### **6.2 Evaluation of Major Projects:**

#### **FM 1417/ US 75:**

The intersection of US 75 and US 82 has been congested due to traffic exiting US 75 for access to US 82 East, Lowe's Home Improvement Center or Wal-Mart and the US 75 and Hwy 56 intersection. This congestion could be relieved by extending FM 1417 from SH 11 and then to US 82. Also this would be the first step in creating a complete loop around the two cities. Providing a loop using FM 1417 will relieve most of the congestion caused in the inner streets of Sherman, like Loy Lake Road. This was observed in the build scenario network of the model done by TxDOT.

#### **Fallon Drive Ramps:**

In the Fall of 1998, Fallon Drive between SH 91 and US 75 was opened to through traffic. While this new extension has improved traffic flow in the vicinity, access to Fallon Drive from US 75 is limited to frontage road traffic. The closest access point to the frontage road is a ramp located 1.1 miles south on the north bound lane and 1.0 mile north on the south bound lane. By adding access ramps closer to the Fallon Drive overpass, out of region travelers would have quicker access to the Mall.

#### **FM 120 East and FM 1753:**

As mentioned in chapter 3, the increase in population in the eastern side of Denison has caused a higher traffic flow down FM 120 East and FM 1753. These corridors should be reconstructed with the provision of shoulders to accommodate the future predicted traffic flow.



**FM 131:**

Before the completion of FM 1417, FM 131 was heavily used by students traveling from Sherman, Denison and Lake area to the Grayson County College. After the completion of FM 1417, traffic down FM 131 was reduced. However, this corridor is preferred by the commuters as a shorter and safer route compared to FM 1417. By reconstructing the road and adding shoulders, more commuters will be attracted to travel down FM 131 thereby reducing traffic down FM 1417. With the opening of the Sherman Town Center in the spring of 2004, traffic increased near the intersection of FM 131 and US 82. By adding turning lanes at this intersection, the traffic flow would be greatly improved.

**SH 11:**

Residents of the town of Luella extensively use SH 11 to reach Sherman for shopping, entertainment or work. SH 11 connects to US 69 becoming an alternate route to Paris, Texas. Traffic moves slowly down this corridor due to the poor road condition. Reconstructing this facility would provide a smoother flow of traffic.

**FM 691:**

This road is extensively used by students going to Grayson County College and traffic to the North Texas Regional Airport and the offices surrounding it. FM 691 is a two lane road except in front of the college where it becomes 4 lane. Trucks going to the airport (coming from US 75) take US 82 west and FM 1417 north to reach FM 691. Since the airport is expected to expand and have more traffic in the future, the access to the airport should be able to handle the traffic. By making FM 691 4 lanes from US 75 to the airport a good and safe access road could be created.

**BRIDGE AT SL & SF RR:**

A new bridge should be constructed at the St. Louis San Francisco Railroad to connect the west frontage road on north and south sides of the railroad. Also, the existing turnaround lanes at this location should be realigned.

**US75 @ Ray Yards:**

In an effort to improve the traffic flow and safety factor to the public, the installation of frontage roads over Ray Yards in Denison is recommended.

**SH 91 @ UPRR OVERPASS:**

SH 91 will be one of the main corridors to the future Denison High School. Enrollment at this new school will increase after it officially opens. It is critical to have timely EMS, Fire and

Police response. Construction of an overpass at this railroad crossing is needed for improved mobility for the general public but more importantly the EMS and Fire services for the area around the project.

### **Future Considerations**

Several important considerations may affect the development of the transportation infrastructure within the Sherman-Denison urban area in future years. Some of these considerations include: the impact of projects external to the Sherman-Denison urban area boundaries; the interaction between land use and transportation facilities; changes to the characteristics and location of major modes other than highways (airports and rail); the impact of transit on the transportation options of area residents; and the movement of freight throughout the region. The impacts these considerations will generate on the Sherman-Denison urban area will be dependent upon the future choices and needs of both the Sherman-Denison urban area population and those residing within close proximity. As technology continues to expand the reach of citizens and as the American society continues to become more mobile, the influence of outside factors on the future of the Sherman-Denison urban area will become increasingly apparent.

### **FM 691/US 75 INTRSECTION<sup>1</sup>:**

With a significant level of development planned and anticipated at this intersection including the Texoma Medical Center, a hotel/ conference center, proposed Town Center and ancillary development, the traffic volume will greatly increase and test existing capacity. A corridor study conducted in the Fall of 2008 looked at short and long-term needs for the road, helped the public officials and local community identify the desired “look and feel” of the facility and the right-of-way, and develop a general approach to access management that will achieve the safety, operational efficiency, and capacity of FM 691 that can be implemented through a partnership of Grayson County, TxDOT, the Cities of Sherman and Denison, and the Grayson County Regional Mobility Authority. A rural four-lane roadway with the ability to expand to six-lanes in the future was recommended for the section of FM 691 between the future SH 289 extension and FM 131/Loy Lake Road. An expandable four-lane to six-lane urban roadway section is recommended between FM 131/Loy Lake Road and SH 91. The rural roadway section will require between 140 and 160 feet of right-of-way while the urban roadway section would be able to fit within a right-of-way width of approximately 120 feet.

As part of the long-term solutions to the US 75/FM 691 intersection, three conceptual ramping configurations along US 75 were recommended. The ramping solutions build on the planned ultimate ramping scheme south of FM 691 that has been developed conceptually by TxDOT.

### **US 75 RAMP ALTERNATIVES<sup>1</sup>:**

Many of the safety and congestion issues associated with the planned development can be alleviated by changing the ramping configuration of US 75. The primary issue is the high volume of traffic interaction, much of it weaving, in the short distance between the ramps and to

and from FM 691. Altering the ramping configurations could provide the following benefits to both US 75 and the FM 691/US 75 interchange:

- Improve local access to proposed developments;
- Minimize safety and operational impacts to the interchange and local roadways; and,
- Improve regional movement along FM 691 and US 75.

However, in order to ensure safety and maximize vehicle operations it is important to follow a methodology that is in line with TxDOT guidelines. The following methodology was followed in developing conceptual ramping options:

- Provide necessary distance between ramps and access road;
- Maintain proper weaving distances between ramps;
- Maximize interchange operation; and,
- Maintain existing access to properties.

To the north of FM 691, the at-grade Spur 503 direct-connect ramps create an obstacle to moving the southbound exit and northbound entrance ramps. TxDOT has a minimum distance between an entrance and exit ramp to allow entering and exiting vehicles to weave across safely. With the existing ramping distance between the ramps for FM 691 and Spur 503 less than 1800 feet apart, if the FM 691 ramps were moved north, the minimum weaving distance would be violated. In order to move the FM 691 ramps to the north, the ramping configuration must be reversed from a diamond configuration to an X-ramp configuration.

#### **FM 691 EXTENSION TO SH 289 <sup>1</sup>:**

With the potential extension of FM 691 to future SH 289, FM 691 becomes more of a major east-west connection to the major north south roadways such as US 75 and SH 91. It is expected that additional developments along future SH 289, the North Texas Regional Airport and Grayson County College will increase the traffic load on FM 691 requiring additional capacity. The mobility goals center on safety, circulation, access to retail centers, residences, the North Texas Regional Airport and Grayson County College. The extension of State Highway 289 will affect development in the area and the future requirements for FM 691. From its current terminus at SH 56, SH 289 is being extended to FM 120 in Pottsboro. It will be adjacent to and west of the Airport. It will provide ready access to more than 160-acres of property on the west side of the Airport for intermodal, aviation and industrial development.

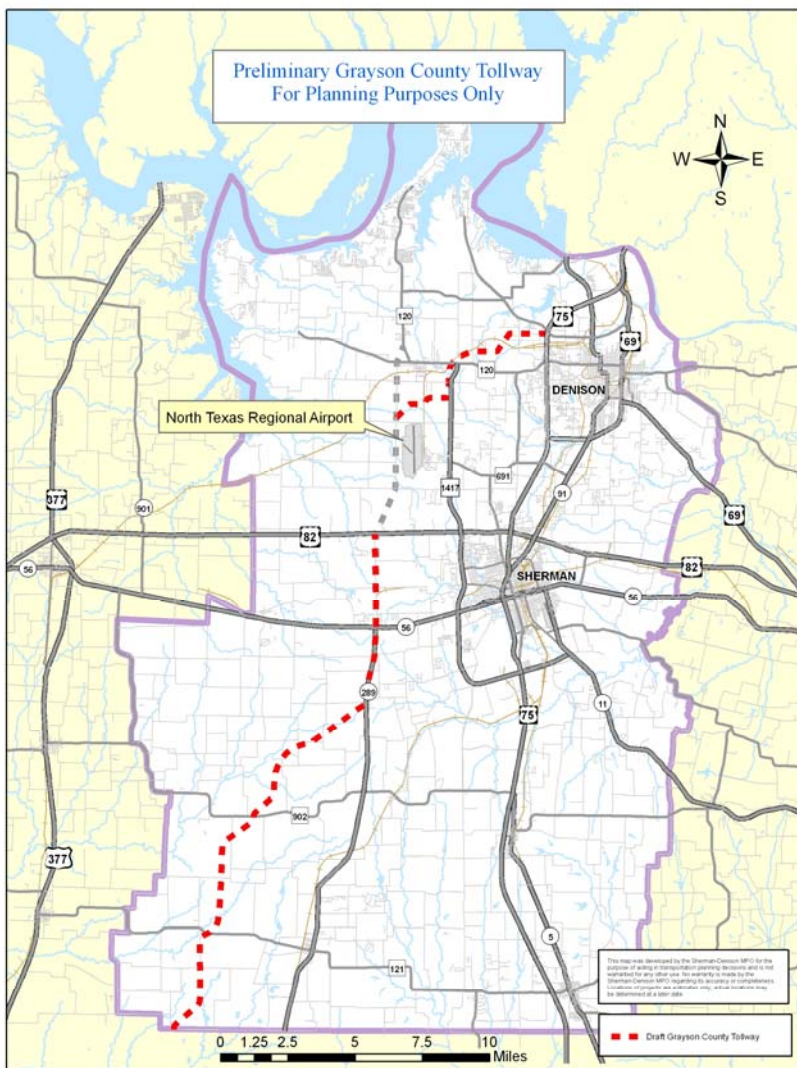
1. Kimley-Horn and Associates, Inc. December 2008 – *FM 691 Corridor Plan*

#### **GRAYSON COUNTY TOLLWAY (GCT) an extension of DALLAS NORTH TOLLWAY (DNT) IN GRAYSON COUNTY:**

(Source: Texas Department of Transportation – Texas Turnpike Authority Division/ excerpts from the Feasibility Analysis June 2008)

Initial planning is underway for the Dallas North Tollway (DNT) extension from US 380 to the Grayson County line. This extension would be approximately 13.5 miles long. The North Texas Tollway Authority (NTTA) has selected a Corridor Manager for this Phase 4 extension, to ensure

that all necessary development tasks, from environmental clearances to detailed design and construction are identified and executed. The date of the opening of this extension has not yet been determined.



This map was produced by the Sherman - Denison MPO

Map 6.5a shows the preliminary sketch plan of the proposed Grayson County Tollway.

In December 2005, the Texas Transportation Commission (TTC) approved \$85 million to assist Grayson County in building new roadway infrastructure. The first project to be developed under this grant is the expansion of SH 289 from its present terminus at SH 56 to FM 120. This new highway will pass just west of the North Texas Regional Airport and will provide direct access to this facility. A toll road has been proposed to provide a seamless connection from the planned DNT extension to SH 289 just south of the expansion project, which is now under construction.

## **Existing Conditions**

Grayson County is located 60 miles north of Dallas in the North Texas region. It is a growing area as development continues to spread northward from the Dallas-Fort Worth area. In addition to the proposed connection between the DNT and the proposed SH 289 expansion project, there are presently three major north-south routes through Grayson County. They are U.S. Routes 75 and, U.S. Route 377, and State Highway 289.

❑ **U.S. Route 75** runs from Dallas to the Canadian border. From Dallas, through Grayson County it is a limited access expressway. It is the major highway from the Dallas-Fort Worth area to Sherman, Denison and the Grayson County region. Beginning in Dallas, US 75 is four lanes in each direction going north. At Plano, it is three lanes in each direction until it reaches McKinney, where it continues with two lanes in each direction through Grayson County. In Grayson County, 2005 traffic volumes on US 75 ranged from 39,500 vehicles per day in the vicinity of FM 121 to over 58,000 vehicles per day between SH 56 and US 82.

❑ **State Highway 289** begins in Dallas near State Spur 366 (Woodall Rodgers Freeway) and goes north to State Highway 56. Through Grayson County it is a two-lane rural highway with a bidirectional left-turn lane in and near Gunter. Traffic volumes in 2005 were from 3,500 vehicles per day between FM 121 and FM 902 and 4,300 vehicles per day south of FM 121.

❑ **U.S. Route 377** begins in Del Rio, Texas and runs in a northeasterly direction into Oklahoma. Through Grayson County it is a two-lane rural highway. It passes through Whitesboro, Collinsville and Tioga. South of FM 121, 2005 traffic volumes were approximately 7,400 vehicles per day. Near US 82, the 2005 volume was about 2,000 vehicles per day.

❑ **The Dallas North Tollway** is an existing toll road going from Dallas (at Harry Hines Boulevard) to Legacy Drive (east of The Colony, Texas). It is three lanes in each direction to this point. The roadway then becomes North Dallas Parkway, which is a four-lane divided highway north to Main Street (FM 720). It is then a two-lane rural road to its termination at El Dorado Parkway.

## **Proposed Toll Road**

The proposed Grayson County Tollway (GCT) will begin at the termination of the DNT extension at the southern County Line and will extend to U.S. Route 82, a distance of approximately 22 miles. It will pass to the west of Gunter and join the SH 289 alignment near the intersections of Old Scoggins Road and Preston Meadows Road. When it connects with State Highway 56 it will become Grayson County Toll Road. The new road will then turn east and part with SH 289 in the area of Refuge Road and connects with U.S. Highway 75, north of Denison near Highway 84 and U.S. Highway 75.

Preliminary planning indicates that the typical section will be a four-lane divided mainline (two lanes in each direction) and continuous two-lane dual frontage roads (two lanes in each direction).

Preliminary plans indicate five diamond interchanges at US 82, SH 56, SH 289, FM 902 and FM 121.

Tolling would be totally electronic utilizing transponders and video tolling. There would be no cash tolls and no toll plazas. Preliminary plans call for three mainline toll gantries and four ramp toll gantries.

*NOTE: Because of state and federal law and funding restrictions, the MPO must now consider the possibility of tolling any future projects.*

### **Future Plans**

Grayson County has been growing, in population, at an average annual rate of approximately 1.4 percent per year. The estimated 2005 population was 116,000 and this is projected to grow to over 150,000 by the year 2040. The Sherman-Denison metropolitan area was the fourth-ranked area in employment growth rate (3.4 percent) from November 2005 to November 2006. The area has an abundant water supply, is an Air Quality Attainment Area, and is relatively close to a Dallas-Fort Worth area that is continuing to grow in a northward direction.

The North Texas Regional Airport is about to begin an ambitious expansion program that involves the development of 200 acres of prime property. It is a satellite of the Dallas/Fort Worth Free Trade Zone #39. The Airport authority is presently negotiating with a well-known investment/development firm to market the expansion program.

The Texoma Medical Center has announced plans to build a new 220 bed hospital with a capital investment of \$220 million, which is scheduled to open in 2010. New developments are planned for Lake Texoma including a 2,400 acre residential development with 4,000 new homes, two new golf courses, and a 5-Star resort hotel. This lakeside program is predicted to involve a total investment of \$1 billion over a ten-year period.

A Pennsylvania-based manufacturing company will soon begin operation in a 500,000 square foot building in Sherman that had been vacant for four years. The operation will make a capital investment of \$143 million and provide 140 new jobs by 2011.

Construction will begin soon on the extension of SH 289 from SH 56 to US 82 and then north to just west of the Airport and on to FM 120 and a connection to US 75.

**Table 6.4 - Projects for Major Construction, Major rehabilitation, Bridge Construction & Repair and Signals**

## Sherman -Denison 2035 Long Range Plan

2010 - 2020 (10 Year)

Map Code	Project ID #	Project	Limits (From - To)	Description	2009 Dollars	Total Project Cost (YOE)	
124	SDHWY124	US 75 Ramp Rev	From US82 to Loy Lake road in SB direction	Reverse existing ramp configuration	\$ 2,538,180	2,538,180	
115	SDHWY115	CS	Canyon Grove Rd to US 82 WB FR	New Location non-freeway	\$ 333,971	333,971	
129	SDHWY129	FM 131	At US 82 frontage roads	Construct turn lanes	\$ 634,545	634,545	
114	SDHWY114	US 75	At Loy Lake Road	Widen Existing Bridge Overpass	\$ 6,161,016	6,663,755	
126	SDHWY126	US 75	Loy Lake Rd to FM 691	Build New Ramps	\$ 8,088,964	8,749,023	
134	SDHWY134	Theresa Dr.	FM 691 to SP 503	Upgrade existing facility to include wider lanes and improved shoulders	\$ 6,051,990	6,807,666	
130	SDHWY130	SH 91	At UP RR	CONSTRUCT OVERPASS OF UP RAILROAD, ELIMINATING AT-GRADE CROSSING	\$ 9,411,962	10,179,978	
127	SDHWY127	FM 120	FM 996 to SH 289	Construct 4 lanes with raised median	\$ 10,923,382	12,287,319	
128	SDHWY128	FM 120	SH 289 to FM 406	Construct 4 lanes with raised median	\$ 13,029,228	14,656,110	
117	SDHWY117	FM 131	Lamberth St to Taylor St	Widen from 2-lane to 4-lane	\$ 2,665,857	2,998,727	
33	SDHWY033	US 69	At MKT RR	Replace bridge and approaches	\$ 13,230,392	14,309,992	
118	SDHWY118	FM 131	US 82 to Lamberth	Widen from 2-lane to 4-lane	\$ 3,339,924	3,907,239	
15	SDHWY015	On-Off System BR	Various Locations	Replace bridge and approaches	\$ 2,000,000	0	
21	SDHWY021	Safety Projects	Various Locations		\$ 850,000	994,380	
Total					\$ 79,259,411	85,060,884	
					\$ 85,700,000	\$79,259,411	\$85,060,884

**Table 6.5 - Projects for Major Construction, Major rehabilitation, Bridge Construction & Repair and Signals**

## Sherman-Denison 2035 Long Range Plan 2021 - 2035 (15 year)

Map Code	Project ID#	Project	Limits (From - To)	Description	2009 Dollars	Total Project Cost
131	SDHWY131	FM 1417	US 82 to Taylor	Widen non freeway	\$ 6,669,540	\$ 11,105,274
132	SDHWY132	FM 1417	Taylor to SH 56	Widen non freeway	\$ 6,854,805	\$ 11,413,754
119	SDHWY119	FM 131	North Creek Drive to US 82	Widen from 2-lane to 4-lane	\$ 3,473,755	\$ 5,784,057
068a	SDHWY068a	US 75 uu	0.5 Mi South of Center Street to Travis St	RECONST EXIST 4 LNS & ADD 2 ADDITIONAL LANES FOR 6 LANE URBAN*	\$ 56,197,050	\$ 93,572,219
69	SDHWY069	US 75 uu	0.3 mi S. of FM 1417 to 0.5 Mi S. of Center Street	RECONST EXIST 4 LNS & ADD 2 ADDITIONAL LANES FOR 6 LANE URBAN*	\$ 61,137,450	\$ 101,798,348
90	SDHWY090	US 75 EFR	At Choctaw Creek	Replace bridge and approaches	\$ 2,000,000	\$ 3,745,962
Total					\$ 136,332,600	\$ 227,419,616
			\$	273,000,000		



**Table 6.6 - Pavement Management Projects**

**Pavement Management Projects**

Project ID#		Cost
SDHWY065	State Maintenance and Upgrade	<b>\$87,015,281</b>

**Table 6.7 - NHS Projects**

**NHS Projects**

Project ID#	Project	Project Limits	Type of Work	Total Project Cost (YOE)
SDHWY067	US 82	From 0.626 miles east of SH 91 to FM 1417 East	Construct 4 lane section with flush median	\$16,118,400
SDHWY122	US 75	From FM 902 to Shepherd Dr.	Reconstruct Roadway	\$44,687,777
SDHWY123	US 75	From Shepherd to FM 1417	Reconstruct roadway	\$38,858,937
SDHWY136	US 75	@ Bledsoe Drive	Construct Overpass and ramps	\$48,573,671
<b>Total</b>				<b>\$148,238,785</b>

**Table 6.8 Unfunded Projects**

# 2035 Long Range Plan

## Unfunded Projects

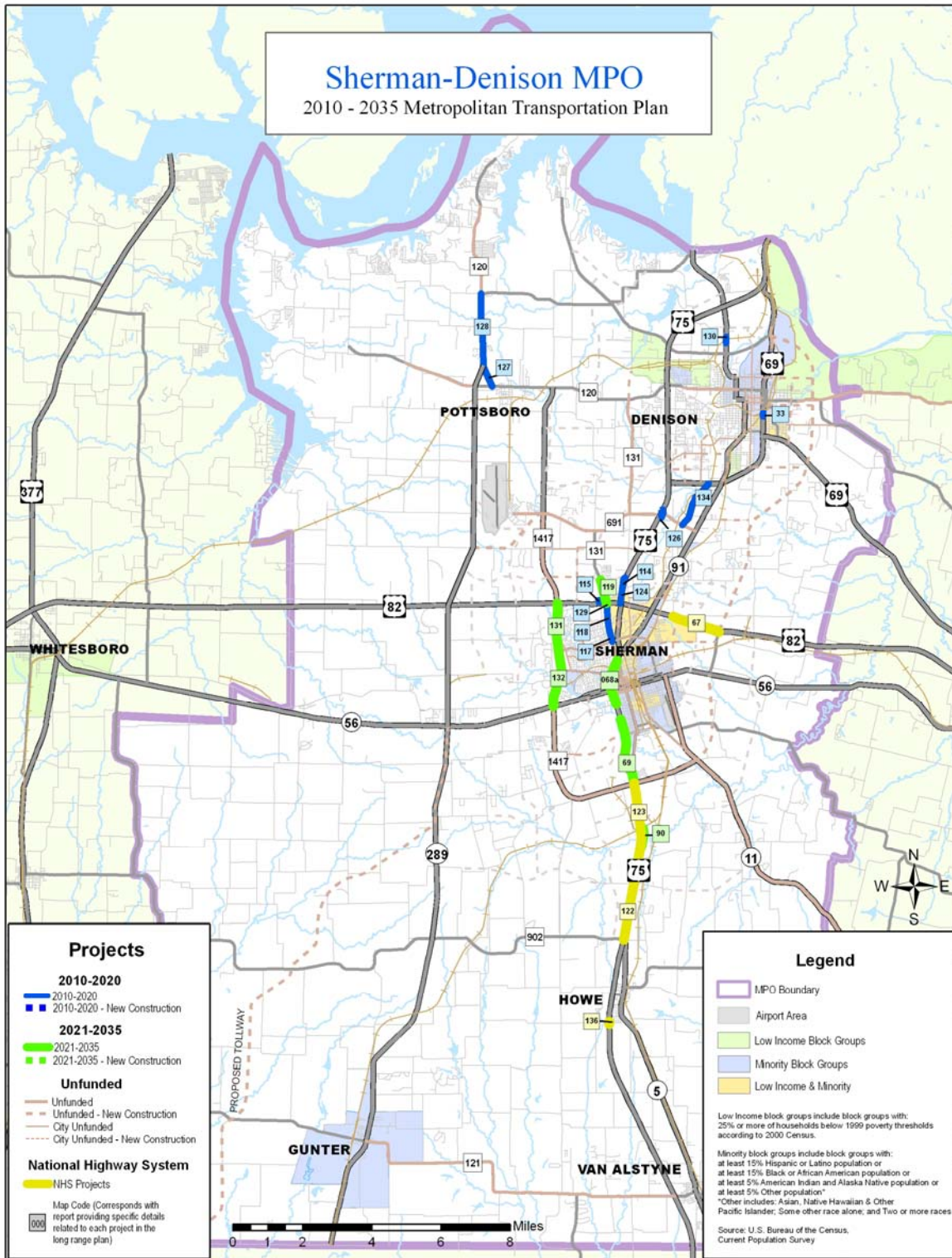
Map Code	Project ID#	Project	Limits (From - To)	Description	2009 Dollars	Total Project Cost (YOE)
7	SDHWY007	FM 1417	SH 11 to SH 56	Widen Non Freeway	\$ 28,079,554	46,754,521
69a	SDHWY069a	US 69	1745' S of FM 84 to 1136' N of FM 84	Rehab Roadway	\$ 4,000,000	6,660,294
28	SDHWY028	FM 120	From Denison to Carpenters Bluff	Reconstruct existing Facility and add shoulders	\$ 15,000,000	24,976,103
35	SDHWY035	FM 691	From SH 91 to 0.517 miles west of FM 1417	Reconstruct to 4 lanes with raised median	\$ 36,000,000	70,124,418
78	SDHWY078	FM 996	From SH 289 to 0.17 miles west of Willow Springs Rd.	Reconstruct existing Facility and add shoulders	\$ 15,000,000	29,218,507
93	SDHWY093	FM 120	At SH 91	Construct Left turn lanes	\$ 1,000,000	1,872,981
22	SDHWY022	FM 1417	From FM 691 to US 82	Reconstruct to 4 lanes with raised median	\$ 18,526,500	47,489,055
27	SDHWY027	FM 131	From FM 120 to FM 691	Rehab existing roadway and add shoulders	\$ 4,000,000	7,791,602
30	SDHWY030	US 75	AT Lamberth	Build new ramps	\$ 4,000,000	8,764,493
70	SDHWY070	FM 1417	From US 82 to FM 84	construct 4 lanes with raised median	\$ 45,000,000	129,751,586
86	SDHWY086	FM 121	From 1.0 Mi West of US 75 to SH 289	Rehabilitate and add shoulder	\$ 25,000,000	72,084,214
4	SDHWY004	FM 1417	From US 75 to SH 56	4 lanes with raised median	\$ 42,014,000	0
19	SDHWY019	FM 120	From FM 406 to 30 feet north of Elks Blvd.	Reconstruct to 4 lanes with raised median	\$ 40,292,000	0
18	SDHWY018	SH 11	From SH 56 to SH 160	Reconstruct existing facility	\$ 2,838,980	0
133	SDHWY133	Grayson County Tollway	From: County Line Road To: US 82	New Toll facility	\$ 442,782,153	
120	SDHWY120	FM 120	York Street to US 69	Widen from 2-lane to 5-lane	\$ 6,051,990	
135	SDHWY135	FM 691	FM 1417 West to SH 289	New facility 4 lane divided arterial	\$ 10,000,000	
Total					\$ 739,585,177	

**Table 6.9 Unfunded Projects - From Sherman thoroughfare plan. For reference purposes only**

Project ID#	Project	Project Limits	Type of Work	Total Project Cost (YOE)
SDHWY016	Grand Avenue	from SH 91 to Grand Ave O/P	Reconstruct city Street	\$169,180
SDHWY020	Loy Lake Road	from SH 91 to US 82	Improve and add 2 lanes	\$2,356,000
SDHWY024	Frisco Road	from Gallagher to SH 91	Reconstruct	\$340,066
SDHWY031	Fallon Drive	from US 75 to FM 1417	2 lane undivided	\$5,650,513
SDHWY032	Taylor	from FM 1417 to Frisco Road	Improve and Widen	3,310,180
SDHWY037	Grant	from Washington to Lamberth	Rehabilitate existing roadway	\$145,652
SDHWY038	McGee	from Grant to Travis	Rehabilitate existing roadway	\$236,885
SDHWY039	First St.	from Cherry to SH 11	Rehabilitate existing roadway	\$80,029
SDHWY040	Rusk	from Washington to Cherry	Rehabilitate existing roadway	\$78,428
SDHWY041	Crockett	from Washington to Cherry	Rehabilitate existing roadway	\$76,828
SDHWY042	Walnut	from RR to Cherry	Rehabilitate existing roadway	\$75,227
SDHWY043	Montgomery	from RR to Cherry	Rehabilitate existing roadway	\$59,222
SDHWY049	Mulberry	from Rusk to Montgomery	Rehabilitate existing roadway	\$59,222
SDHWY050	Cherry	from Rusk to Montgomery	Rehabilitate existing roadway	\$59,222
SDHWY051	Jones	from Rusk to Montgomery	Rehabilitate existing roadway	\$59,222
SDHWY052	Pecan	from Rusk to Montgomery	Rehabilitate existing roadway	\$57,621
SDHWY053	Wall	from Rusk to Montgomery	Rehabilitate existing roadway	\$56,021
SDHWY059	Washington	from FM 1417 to US 75	Improve and widen	\$1,719,880
SDHWY060	Gallagher	from Loy Lake to Frisco Road	Improve and widen	\$1,203,536
SDHWY061	Travis	from Taylor & US 75 intersection through CBD to US 75	Improve and widen	\$3,769,600
SDHWY062	Park	from Park east and extending up to Lake Road	2 lane undivided	\$431,172
SDHWY075	Park Lane	from US 75 to FM 1417 west	2 lane undivided	\$4,045,252
SDHWY077	Sunset	Extend up to Center Street	2 lane undivided	\$1,012,158
SDHWY081	Elm Street	from College to Cherry	improve and widen	\$1,708,100
SDHWY104	Rex Cruise	extend to Taylor	New Construction	\$208,278
SDHWY105	Tuck	from Ross east to proposed FM 1417	New Construction	\$1,501,950
SDHWY108	Plain View Road	from Fallon Dr. to US 82	New Construction	\$1,282,135
SDHWY109	North Creek Dr.	from US 75 to FM 1417	New Construction	\$1,484,280
SDHWY112	N S Collector	from US 82 to Lamar	New Construction	\$1,253,156
				\$32,489,014

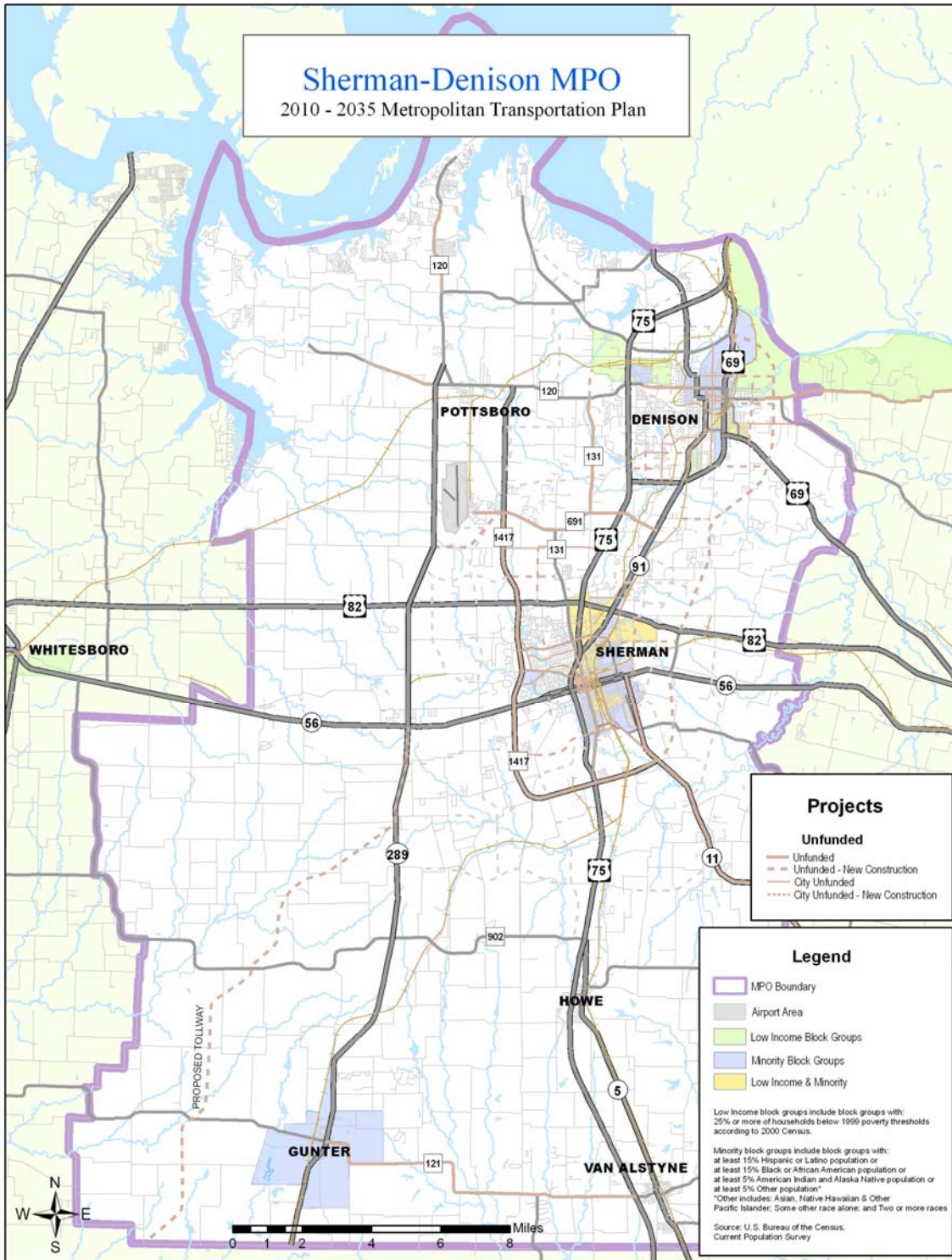
**Table 6.10 Unfunded Projects - From Denison thoroughfare plan. For reference purposes only**

<b>Project ID#</b>	<b>Project</b>	<b>Project Limits</b>	<b>Type of Work</b>	<b>Total Project Cost (YOE)</b>
SDHWY036	Loy Lake	from US 75 to SH 91	Rehabilitate existing roadway	\$640,230
SDHWY045	MLK	from Tone to US 69	Rehabilitate existing roadway	\$136,049
SDHWY046	Park	from Spur 503 to Verna	Rehabilitate existing roadway	\$243,287
SDHWY047	Burrett	from Gandy to Crawford	Rehabilitate existing roadway	\$43,216
SDHWY048	Rusk	from Gandy to Crawford	Rehabilitate existing roadway	\$44,816
SDHWY054	Woodard	from Armstrong to Austin	Rehabilitate existing roadway	\$86,441
SDHWY056	Chestnut	from Armstrong to Austin	Rehabilitate existing roadway	\$82,465
SDHWY057	Barrett	from Woodard to Crawford	Rehabilitate existing roadway	\$33,612
SDHWY058	Fannin	from Gandy to Crawford	Rehabilitate existing roadway	\$33,612
SDHWY063	Texas Street	from FM 1753 to 7th Street	Reconstruct existing facility & add shoulders	\$356,874
SDHWY071	Thatcher	from SH 91 to FM 1417	2 lane undivided	\$3,769,600
SDHWY072	Martin Luther King	Extending to FM 1417 East	2 lane undivided	\$2,730,604
SDHWY076	Crawford St.	Extending to Fm 1417	2 lane undivided	\$2,356,000
SDHWY079	Armstrong	from FM 120 to Spur 503	improve and widen	\$2,875,768
SDHWY080	Mirick	from Washington to SH 91	improve and widen	\$1,178,000
SDHWY094	Mirick	from FM 84 to Martin Luther King	New Construction	\$339,822
SDHWY096	Coffin St.	from Park Ave. to Gerard Lane	New Construction	\$347,130
SDHWY097	Devoignes Rd.	from US 69 north to proposed Martin Luther King	New Construction	\$1,288,496
SDHWY099	Shannon Road	from east of SPRR to Fannin Ave	New Construction	\$404,863
SDHWY100	Highland Park	extend to US 75	New Construction	\$419,479
SDHWY101	Hull St.	Widen and build new street from Lang Ave. to Lillis Lane	New Construction	\$637,258
SDHWY102	N S Collector	from Highland to FM 120	New Construction	\$477,943
SDHWY103	Hyde Park	from Loy Lake Rd to Spur 503	New Construction	\$615,334
				\$19,140,899



Map 6.6





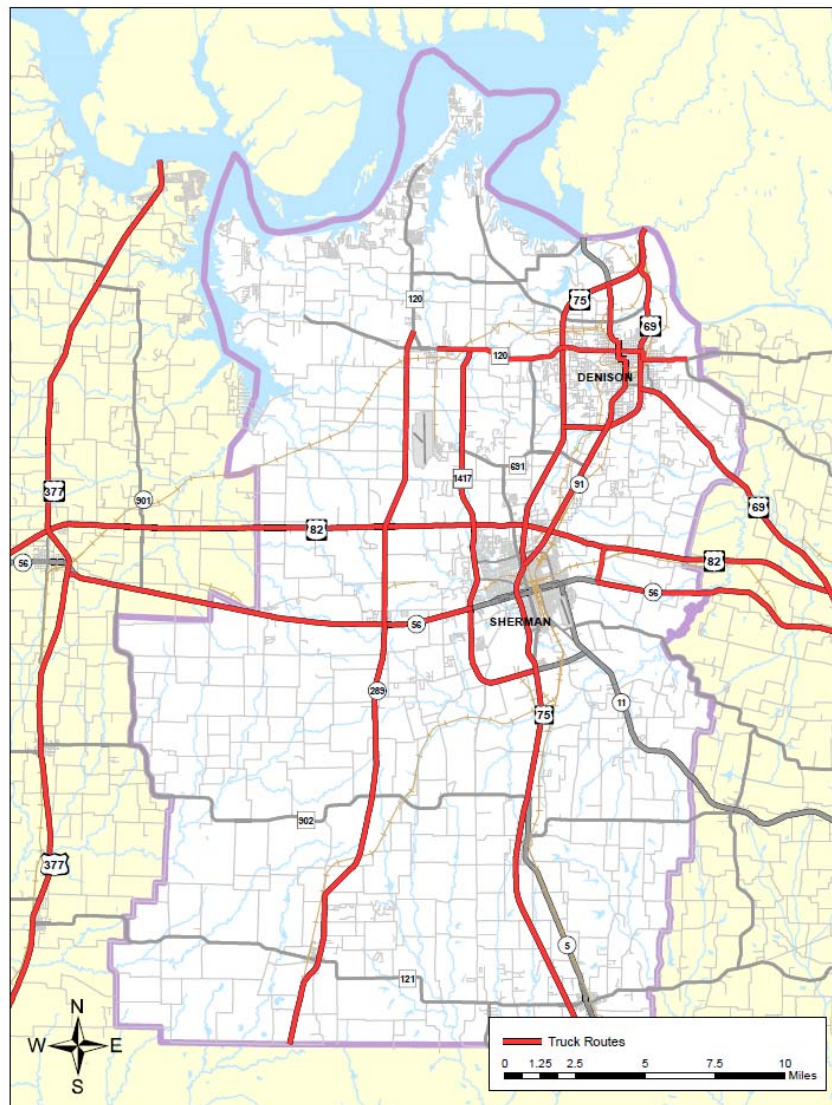
Map 6.7

## Chapter 7 Freight Transportation Plan

The movement of goods within and through Grayson County is related to the strength of the local economy. In a sluggish economy, the movement of goods will slow. MPOs are required by legislation (SAFETEA-LU) to plan in such a way that promotes economic vitality, enhances connectivity, and increases accessibility and mobility options for people and goods. Analyzing the movement of goods in the region, identifying problems, and working to improve such problems is one way to support the flow of goods in our region while meeting all legislative requirements.

As mentioned in previous chapters, economy of a country depends on the efficient movement of goods. A primary source of freight transportation in USA is by trucks, rail, air, water and pipeline. In the S-D metropolitan area, the primary freight transportation is by trucks followed by rail. The choice depending on the type of freight, size of freight, length of transportation, speed, access and cost involved.

A recent study conducted by TxDOT produced some interesting findings relevant to Texas and freight.



Map 7.1 Truck Routes

They include the following:

- ✚ Truck traffic is projected to grow at a greater rate than all other traffic types.
- ✚ Truck traffic will require significant highway investments in capacity and pavement rehabilitation.
- ✚ Texas, being a border state and a Gateway in the NAFTA corridor is projected to be the state with the highest highway investment needed.
- ✚ Texas alone will carry 42 percent of all Latin American truck traffic in 2020. It will have 42 percent of additional capacity needed and 49 percent of the pavement needs to accommodate Latin American trade.

### 7.1 Truck Transportation:

**Table 7.1 - Freight Transportation**

Mode	Receiving %	Shipping/ Distributing %
Air	2	6
Truck (own or Lease)	25	41
Truck (Common Carrier)	51	37
Truck(Contract Carrier)	11	7
Rail	10	3
Other	1	6

Location of the metropolitan area results in the movement of trucks coming south from Oklahoma and other northern states and trucks going north from Texas. Table 7.1 shows the percentage of truck usage in the MPO area based on a study conducted in 1983. As rail and air transportation in the area has reduced considerably over the last 10 years, the percentage of truck transportation has increased further.

Source: In house study - 1983

Approximately 1979 trucks were found to be based in the metropolitan area from a 1991

survey. Big industries located in the region such as Texas Instruments, Folgers and Fisher also contribute a large percentage of truck transportation in the region. Retailers such as Super Wal Mart and wholesaler outlets such as Sam's club have their own fleet of trucks. Major truck transportation in the Sherman-Denison MPO area is along US 75, Texoma Parkway(SH91), Hwy 56, Hwy 82, FM 1417 and FM 120. Map 7.1 shows the frequently used truck routes in the Sherman-Denison metropolitan area. Existing infrastructure is able to meet the trucking needs except for a few locations where truckers have experienced difficulties. One such problem is the bottleneck at Hwy 56 and FM 1417 intersection. Also trucks traveling on US 75 going to the Grayson county airport have to take HWY 82 west and FM 1417 north to reach FM 691 to reach the airport. MPO worked closely with the Chamber of Commerce towards including the Grayson county (which includes the MPO area) in the commercial zone of Dallas. This will improve the trucking business in the area as the truckers will be able to provide highly competitive prices. Table 4.4 (pg 21) shows an increase of 23.59% from the base year in the trucking business. Heavy truck traffic was noticed along Travis street causing concern to the



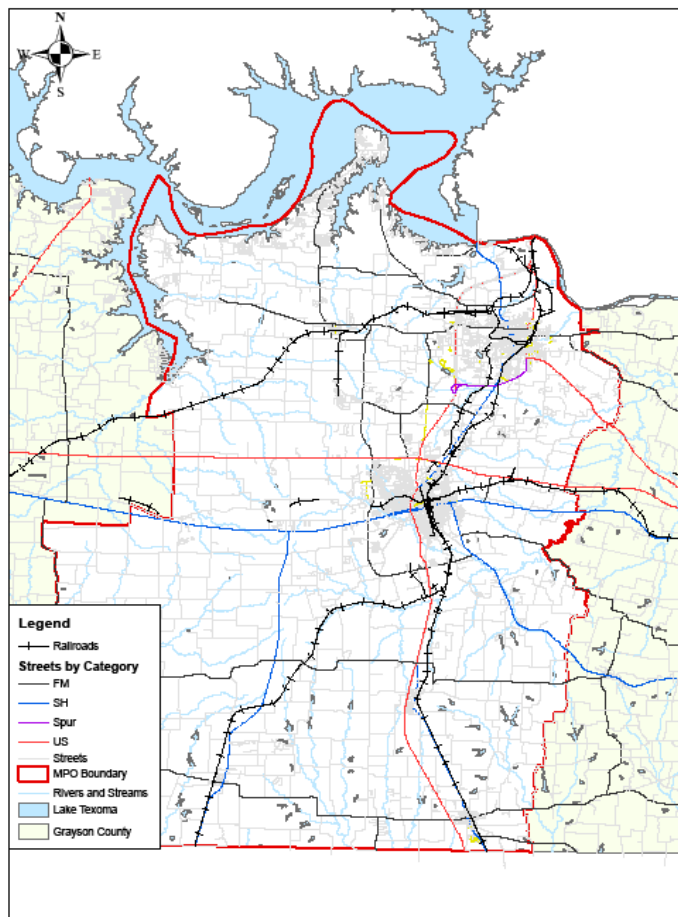
Travis residents. Additionally, truck drivers are increasingly using US 75 north to Oklahoma from Dallas. Indeed US 75 at the Red River has 20% more traffic than I 35 (NAFTA Highway) at the Red River. Apparently drivers can transverse US 75 to points north faster than I 35 which requires them to drive through Oklahoma City and Tulsa. In this light we are seeing more and more trucks at the US 75/US 82 interchange. This has caused trouble as high speed truck traffic south bound exits US 75 to go west on US 82 which patrons of the Super Wal-Mart are also using the same frontage road. North bound trucks exiting US 82 are stacking up waiting to go under US 75 then over US 82 before they can continue north on US 75. The completion if US 82 in 2004 has increased the traffic on this east/west corridor thus adding to the volume already carried on these two major roads.

**7.1.1 Long Term Plans:**

- ✚ Work towards eliminating problems such as the bottleneck at HWY 56 and FM 1417 intersection.
- ✚ Work towards easy access to the airport and other industries in the area.
- ✚ MPO will work on projects similar to the commercial zone project to make the local trucking business lucrative.
- ✚ MPO will explore the possibility of using alternate fuels in the trucks based in the region.

**7.2 Rail Freight Transportation:**

At the present time, there are no passenger rail services in the MPO study area. However, there are currently four major railroads that operate in the metropolitan area. The four major lines are, Union Pacific Railroad



**RAILROAD FACILITIES**

Co., Texas Northeastern Railroad, Southern Pacific Railway, Burlington Northern Railroad.

### **7.2.1 Long Range Efforts:**

- ✚ MPO will work towards reviving the rail system in the metropolitan region. This could be accomplished by meeting with various rail industry representatives and reviewing their plans for the MPO region.

### **7.3 Air Freight Transportation:**

According to the North Texas Regional Airport Master Plan, the FAA indicates the Boeing 727 - 200 can operate at 150,000 lbs., and the Boeing 747 - 100 can operate at 600,000 lbs. (The maximum takeoff weight for a Boeing 727 - 200 is 210,000 lbs., and the Boeing 747 100 is 710,000). Usable runway at the North Texas Regional Airport is 9000 feet long and 150 feet wide with 1000 feet of concrete at each end and the rest asphalt. Early in 2010 the main runway will be rehabilitated. The runway, once completed, will have 3,900' of concrete on the south end and 1,000' of concrete on the north end, for a total of 4,900' of concrete and 4,100' of asphalt.

**Chapter 8  
Public Transportation Plan**

**8.1 Air Transportation:**

North Texas Regional Airport is connected to US 75, 4.5 miles to the east, and to US 82, two miles south, by farm-to-market roads 1417 and 691. The airport lies midway between Sherman and Denison, Texas. Occupying 1,410 acres, the airfield contains over 440 acres of industrial complex containing more than 45 buildings with an additional 325 acres shovel ready for development.

North Texas Regional Airport is classified in the Federal Aviation Administration’s (FAA) National Plan of Integrated Airport Systems (NPIAS) as a D-IV general aviation airport. The Airport has more than 56-acres of concrete parking apron and a 9,000' x 150' runway that is capable of supporting large transport aircraft up to 600,000 pounds. The 9,000' runway is the third longest public runway in the North Texas region. Only D/FW International and Alliance Airports have longer runways.

The North Texas Regional Airport Board hired Coffman Associates to update the Airport Master Plan, which was completed in July 2003. At that time, the airport had 145-based aircraft as opposed to 112 in 2001. As of March 2009, the airport has 168-base aircraft. An increase of 11.3% in just five years. Table 8.2 presents historical based aircraft at North Texas Regional Airport and the active aircraft in the United States. Updating airport master plan in 2010.

**Table 8.1 - North Texas Regional Airport Based Aircraft Share of U.S. Active Aircraft**

Year	Base Aircraft	US Active Aircraft	Market
			Share %
1998	75	204,710	0.0366
1999	75	211,122	0.0355
2000	86	217,533	0.0395
2001	112	215,942	0.0519
2002	145	214,350	0.0676
2003	151	215,130	0.0702
2004	151	215,910	0.0699
2005	152	216,690	0.0701
2006	156	217,470	0.0717
2007	160	218,250	0.0733
2008	164	219,462	0.0747
2009	168	220,674	0.0761
Constant Share Projection			
2010	179	221,886	0.0807
2011	190	223,098	0.0852
2012	202	224,310	0.0901
Increasing Share Projection			
2012	202	224,310	0.0901
2022	278	231,416	0.1201

**Source: North Texas Regional Airport**

Although U.S. Active aircraft have declined, based aircraft at North Texas Regional Airport has increased from 67 in 1990 to 112 in 2001, then the shift to 168 in 2009. The growth of based aircraft has outpaced the nation's active aircraft over the last several years.

Historical		Forecast		
Category	Current	Short Term	Intermediate Term	Long Term
<b>Annual Operations</b>	<b>44,400</b>	<b>52,400</b>	<b>64,850</b>	<b>84,450</b>
Intinerant				
General Aviation	19,575	22,275	27,000	33,750
Air Taxi	200	300	500	1,000
Cargo	0	1,900	3,150	6,250
Military	200	200	200	200
<b>Total Itinerant</b>	<b>19,975</b>	<b>24,675</b>	<b>30,350</b>	<b>41,200</b>
<b>Local</b>				
General Aviation	23,925	27,225	33,000	41,250
Military	500	500	1,000	2,000
<b>Total Local</b>	<b>24,425</b>	<b>27,725</b>	<b>34,000</b>	<b>42,250</b>
<b>Annual Instrument Approaches</b>	<b>170</b>	<b>250</b>	<b>450</b>	<b>1,250</b>
<b>Based Aircraft</b>				
Single Engine	115	112	133	162
Multi-engine/Turboprop	26	33	41	50
Jet	19	17	22	30
Helicopter	6	3	4	5
<b>Total Based Aircraft</b>	<b>168</b>	<b>165</b>	<b>200</b>	<b>250</b>

**Source: North Texas Regional Airport**

North Texas Regional Airport is located only 60 miles from the Dallas/Fort Worth Metroplex. The Metroplex is home to 12 reliever airports and thousands of general aviation aircraft. It is one of the busiest general aviation centers in the world. In the future, based aircraft at North Texas Regional Airport will be impacted by the northward growth of the Metroplex. As the growth moves northward, aviation demand will shift north as well. The extension of SH 289, to be completed in late 2009, will also aid in growth. Moreover, many of the Dallas area airports are congested and some aircraft owners will likely seek alternative to these airports.

Improvements over the next 5-years include:

1. \$5.9 million of earthwork and drainage improvements to the Airport completed in December 2008

2. Construct hangar taxiway - completed
3. Expand Terminal building/expand parking lot – FY 2012
4. Overlay, level and strengthen all taxiways - Completed FY 2009
5. Reconstruct, rehabilitate and strengthen Runway 17L-35R - FY 2010
6. Replace VASI-4 with PAPI-4 on Runway 17L-35R - FY 2010
7. Rehabilitate Aircraft parking Aprons - FY 2011
8. Extend utilities to West side of Airport -- Completed FY 2009
9. Develop Westside commercial/industrial park (200 acres) ongoing

Improvement cost range from \$16 Million to \$22 Million and will be paid through grant funds received from FAA and TxDOT Aviation Division.

Improvements over the next 6 to 10 year include:

1. Construct Cargo Apron
2. Construct Cargo Sort Facility
3. Construct cargo access road/parking lot
4. Construct Rail Sort Facility
5. Construct Rail Spur to new rail sort facility
6. Construct hanger access taxiways

#### Air Freight Transportation

The North Texas Regional Airport has the potential to serve cargo operators. Given the airport's location near the Dallas/Fort Worth (DFW) Metroplex, a strong local business base, availability of an on airport rail spur along with the Foreign Trade Zone designation, and the extension of SH 289, North Texas Regional Airport is an ideal location for a regional cargo hub facility. The airport's runway length is suitable for large commercial cargo aircraft such as the DC-8, DC-9, Boeing 727, 747 and 767 aircraft. In addition, North Texas Regional Airport is located outside the busy Class B airspace structure of the DFW Metroplex. The airport could serve as a regional hub for through-freight and maintenance operations.

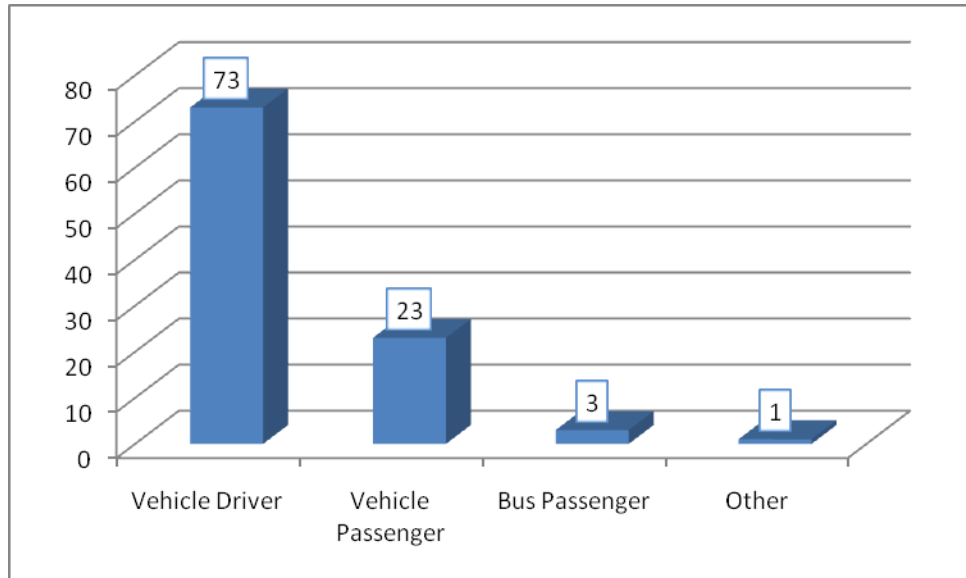
#### **8.2 Intercity Public Transportation:**

Both intra city and intercity transportation of the public is limited compared to larger urbanized areas. While north-south intercity transportation is reasonably available on scheduled intercity Greyhound bus service, there is no scheduled bus service operating on the east-west corridor (U.S. Highway 82). There is also no rail passenger service available to Sherman - Denison area. Intercity public transportation is provided among those communities of Grayson, Cooke, and Fannin counties by daily (Monday - Friday) demand-response transportation provided by the Texoma Area Paratransit System, Inc. under an FTA Section 5311 contract with the Texas Department of Transportation. This service also provides medical-related transportation to medical centers in the Dallas - Ft. Worth area under contract to the Texas Department of Health, Medical Transportation Division. Local taxi companies in Sherman and Denison provide

transportation to destinations outside the urbanized area on a case by case basis. To improve accessibility for residents wishing to use intercity bus service, TAPS purchased land and provided a facility at their main operating center for Greyhound. New rural and urban public transit are directly connected to intercity bus services.

### 8.3 Intra city Public Transportation:

Graph 8.1a shows (a) the number of persons traveling by Bus in Texas and 7.1b (b) the percentages of persons with one or more vehicle and persons with none in metro area. 7.51% of the metropolitan population does not have an automobile thus it is very important to have an intra city public transportation system.



**Graph 8.1a TEXAS**  
**Source: Texoma Area Paratransit System (TAPS)**

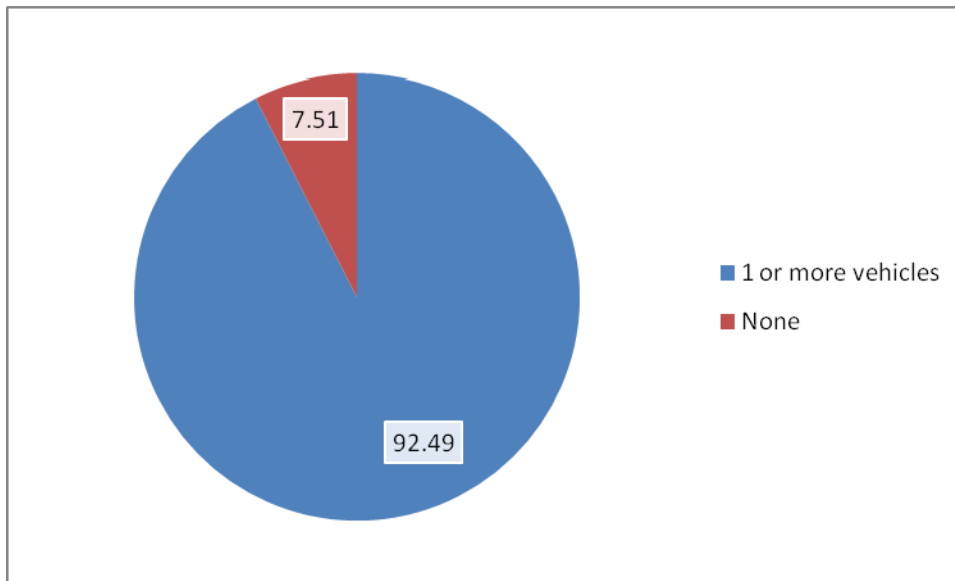
Intra city public transportation is provided primarily by private taxi services and the Texoma Area Paratransit System, Inc. (TAPS) operating as a sub-contractor to the Texoma Council of Governments using operating and capital funds provided by FTA Section 5307 grants supplemented by state Public Transit Funds. This demand-response service operates Monday through Saturday throughout the urbanized area and is coordinated with transportation service provided surrounding rural areas by TAPS' Section 5311 rural operations. This contractor also provides supplementary transportation services under FTA Section 5310, Elderly and Disabled transportation in the service area (MHMR, JTPA, etc.). TAPS and each taxi company provide the only Intermodal transfer service for Greyhound in Sherman and Denison. TAPS also feeds small numbers of passengers to Greyhound from other communities in their seven county service area.

TAPS provided more than 333,000 passenger trips in 2002-2003 of which nearly 40% were in the urban area. Graph 8.2 shows the user percentages of TAPS.

Like most other similarly small urban areas, Sherman - Denison has been served by various public bus systems in the past, most recently operated by the cities themselves. Also like most other small urbanized areas these bus systems ceased to operate during the 1970's or earlier.

**8.4 Demand-Response Public Transportation:**

During the 1970's Sherman and Denison, like most small communities in Texas, each developed a limited mini-bus program to meet some of the needs of a growing transportation dependent elderly population. Most of the mini bus systems were operated with



Graph 8.1b METROPOLITAN AREA  
Source: (a) Urban Travel in Texas. TTI - (b) US Census Bureau

volunteers, supplemental city funding, and funds raised by the occasional bake sale or other fund raising activities. Operating primarily in conjunction with senior centers, these programs were administered in more recent years by the Texoma Council of Governments and its Area Agency on Aging. When additional federal funding became available, these mini-bus programs were consolidated under an FTA Section 9 grant in the urbanized area at about the same time rural programs were being consolidated under a Section 18 grant organizational structure. Today, the Texoma Council of Governments contracts with TAPS to operate a demand-response public transportation service for the urbanized area. That system's ridership has seen steady growth over the years and now provides more than 330,000 passenger trips annually. The Texoma Council of Governments leases its fleet of 15 vehicles to TAPS to operate. Most of these vehicles are equipped with lifts or ramps to handle wheelchair passengers.

**8.5 Elderly and Disabled Transportation:**

In addition to using the 15 Section 5307 vehicles, TAPS also operates 50 Section 5310 and Section 5311 vehicles to support all area transportation needs. Along with TAPS, the elderly and disabled transportation needs are partially served by vehicles purchased under the FTA's Section 5310 Grant Program. These vehicles are purchased and operated by non-profit organizations selected on a district wide basis. Currently Mental Health and Mental Retardation services of

Texoma operates five vans under this program. Title XIX (Medicaid) funds are used to supplement transportation operations for medical purposes.

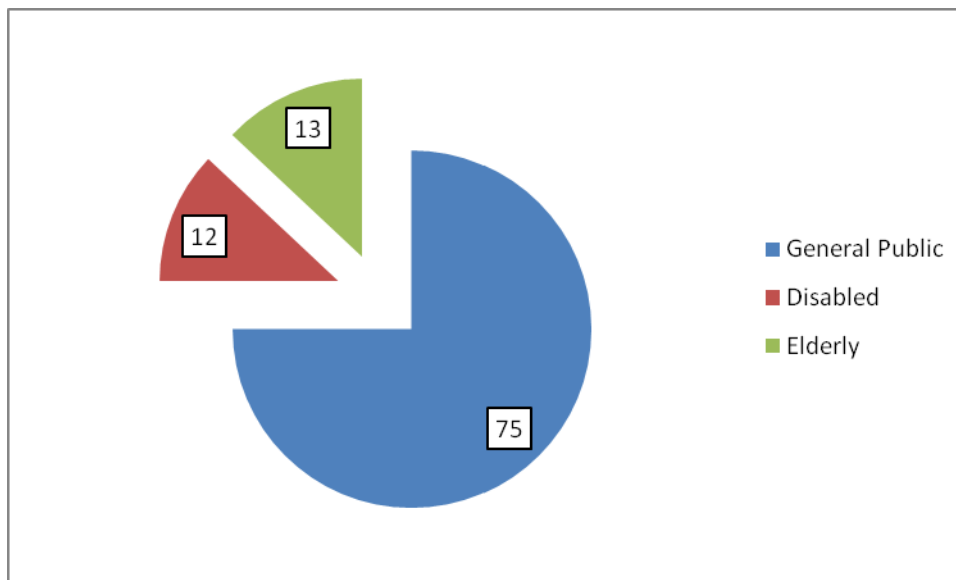
### 8.6 Short to mid Range Improvements:

Due to the unprecedented growth of population in the metroplex area, and the potential for an increasing number of commuters from the Sherman-Denison study area, the MPO completed a consulting effort to study the feasibility of developing commuter services to Plano, Texas. The study was completed prior to the end of the year 2002 included three primary tasks:

**8.6.1.1 Task One: Transit Demand and Needs Assessment**

**8.6.1.2 Task Two: Develop detailed financial plan.**

**8.6.1.3 Task Three: Public Involvement.**



Based upon study results, TAPS initiated bus service to connect Grayson County residents with DART Light Rail and bus service in Plano. This service is now providing about 10,000 passenger trips per year. This service will continue to develop and expand.

Graph 8.2 TAPS User Percentages  
Source: Texoma Area Paratransit System (TAPS)

### 8.6.2 Welfare to Work:

The Welfare to Work program is a major part of TEA-21. The Personal Responsibility and Work Opportunity Act of 1996 (PRWOA) replaced the Aid to Families with Dependent Children program with block grants to the states. PRWOA became effective in 1997 and creates a five-year, lifetime limit on welfare benefits (*Surface Transportation Policy Project (STPP) Progress, 1997*). Therefore, people who are currently dependent on government assistance will be looking for work.

An article in the same publication stated that the Administration estimates 94% of welfare recipients do not have access to a vehicle (*Surface Transportation Policy Project (STPP) Progress, 1997*). These individuals will be dependent on a public transportation system or some



other form of transportation until they are able to obtain transportation on their own. Our local transit provider, working through the MPO, will continue to investigate use of and apply for welfare to work program funds to extend and increase commuter service in rural areas not currently being served.

### **8.7 Long Range Efforts:**

In addition to improving the efficiency of presently provided transportation services, the MPO will continue to fully integrate public transportation in all transportation and development related planning and projects. As the growth of the Dallas metroplex continues to march north along the U.S. Highway 75 corridor, new opportunities and challenges are already being presented. For example, although the Sherman - Denison urbanized area is presently in attainment of air quality standards, plans and strategies need development now to insure the urban area does not become a non-attainment area. Alternative fuels; more accessible, acceptable and affordable public transportation; commuter transportation services such as TAPS' link up with DART; employer sponsored van pools; and improved public transportation connections with other modes (Love Field, DFW, Greyhound, Amtrak) are all transportation issues requiring investigation and planning now if they are to be implemented in the mid to long range period. Much of the impetus to raise these issues to a priority high enough to demand they be addressed will come outside the urbanized area and will not be directly controlled by the cities, the Texoma Council of Governments, or the MPO.

### **8.8 Passenger Rail:**

Sherman-Denison MPO area does not have a passenger rail facility. MPO will explore the possibility of having a passenger rail. MPO is currently in the process of gathering information from the local travel agents on the number of rail passengers from the metropolitan area. The closest facility is in Gainesville with the recently inaugurated Heartland Flyer which travels between Fort Worth and Oklahoma City.

### **8.9 Regional Coordinated Plan:**

Regional Public Coordination Transportation Plan explores opportunities for improving existing public transit services as well as establishing transit service in locations where it currently does not exist across the region. The Regional Coordination Study was a recent region-wide feasibility assessment of implementing coordination and developing institutional structures to carry out these recommendations.

Before any project receives state or federal funds, it must fit into the policy goals of the Regional Transportation Plan prepared by the Sherman-Denison Metropolitan Planning Organization (MPO). Although this plan is developed looking forward 5 years, it is recommended that this plan be updated annually to address changes in the region as well as new SAFETEA-LU (Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users) requirements. A

full update is required by TXDOT every two years. The Regional Transportation Plan is not a wish list but a plan with recommended projects that have a reasonable chance of being funded.

Statewide Public Coordination - Transportation Department staff will support the Texas Transportation Commission efforts in coordinating and planning regional public transportation services in response to the 78th Legislature's House Bill 3588. Staff will work with representatives from urban, rural, and specialized transportation providers; Department of Health and Human Services, Texas Workforce Commission; Texas Department of Transportation; Federal Transit Administration; and other interested parties to develop a Regional Coordination Plan. Funding from the Texas Department of Transportation will be utilized to help support this initiative.

Public Transportation Coordination and System Feasibility - This task provides for a myriad of public transportation planning activities including, but not limited to, the following: coordination with metropolitan, urban, and rural public transportation stakeholders; technical assistance, (transit) model maintenance; assistance with planning activities that focus on service initiation and/or increased service; assistance for improving the efficiency and effectiveness of current systems; continued development of analysis tools (e.g., transit user benefit software); and the pursuit of additional discretionary funding. Assistance with service initiation, increased service and efficiency and effectiveness could include travel demand forecasts, service planning, community consensus building, market analysis or follow-up studies to public transportation elections.

In addition to the list above, Public Transportation Department staff will support the ongoing efforts of the MPO plans, including air quality conformity, and the Regional Coordination Project, as well as respond to miscellaneous requests for assistance, as appropriate. Request for assistance are received throughout the year from transportation professionals located in- and out-of-state, as well as from the public.

Participants in the Texoma Region's coordination process have a history of working together; part of this is due to our relative geographic isolation, where frequently working together is the only way to accomplish what needs done.

As a function of our location in the state, sparse population, and tight transportation budgets, the group was not able to identify significant overlaps in service.

A list of unmet needs, however, identified the following:

- ✚ A lack of service to major job training/educational facilities
- ✚ Inadequate route service in the cities of Kentucky Town, Whitewright, Tom Bean, Ladonia, Callisburg, Gunter, Tioga, Collinsville, Bonham
- ✚ Aging 5310 vehicles

- ✚ Need for a central place to wait for rural passengers awaiting their return trip Need for a centralized transportation information system
- ✚ Need for travel training
- ✚ Rural senior citizens and people with disabilities suffer from a lack of reliable transportation
- ✚ Accessible taxis

From this information, and from the identified barriers and constraints, the regional group developed a list of proposed coordination projects. While many of them relate more to consolidated programs for items that are direct provision of transportation (consolidated fuel purchase, for example), the group identified three projects that could be funding through JARC or New Freedom funds:

Proposed JARC projects:

- Service to job training/education programs
- Funding the cost of rural trips to job training/education programs

Proposed New Freedom projects:

- Development of regional Mobility Manager position

The group will pursue funding opportunities for the above proposed projects, and will work to examine the appropriateness of other items outlined in this report.

The Regional Transportation Coordination Plan for the Texoma Region was approved by the boards of participating entities.

## **Chapter 9**

### **Pedestrian Transportation Plan**

Pedestrian facilities in the Sherman -Denison urbanized area vary from the use of sidewalks to the one pedestrian overpass, just west of Piner Middle School which spans over US 75. Walking and jogging has, for the most part, been for recreational purposes rather than for transportation. This is visible in those areas which pedestrians are more prevalent such as in residential neighborhoods, commercial areas, near schools and at parks.

Like most of the US urban areas, the Sherman-Denison urbanized area has a higher affinity towards automobile transportation. As a result of this love affair with automobiles, sidewalks have not been used or built for the last few decades. But with the interest in energy conservation and concern in environmental issues, alternate modes of transportation have catapulted into focus.

#### **9.1 Pedestrian Transportation Goals:**

- ✚ Construct new pedestrian walkways or improve existing walkways.
- ✚ Provide ramps at intersections to meet with the Americans with Disabilities Act and maintain or improve existing facilities.
- ✚ Improve pedestrian safety.

#### **9.2 Types of Pedestrian Walkways and Existing Facilities:**

Pedestrian walkways can be broadly classified as primary walkways and residential access walks. The primary walkways span a long distance and are located in areas of high pedestrian traffic. The pedestrian generators are usually hospitals, malls, grocery stores and department stores. The "Hike & Bike" trails also fall under the primary walkways category. Presently the metropolitan area has a trail around Fairview Park in Sherman. Consideration should be given to include trails or walkways to Baker and Hawn Park in Sherman and Waterloo Park in Denison.

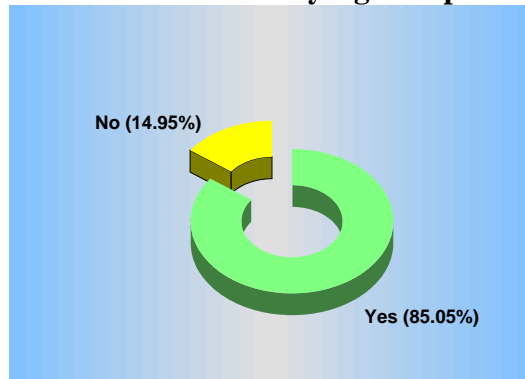
#### **9.3 Pedestrian Transportation Long Range Plans**

- ✚ Identify high pedestrian traffic areas and provide sidewalks. Ex: The shoulder of FM 1417 from FM 691 to Hwy 56 is widely used for jogging and residential area roads such as Lamberth, Taylor, Washington and Lamar have a high pedestrian population. None of the above roads have sidewalks.
- ✚ Identify needs, if any, for the construction of pedestrian overpasses over US 75.
- ✚ Study needs of pedestrian traffic on collectors and arterials. If needed, work towards inclusion of wheelchair access ramps.

## 9.4 Bicycle Transportation Long Range Plans

As part of the 2015 Metropolitan Transportation Plan (MTP), mandated by the Intermodal Surface Transportation Surface Efficiency Act (ISTEA) of 1991, and continuing with the Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21) of 1998, the MPO identified bicycle and pedestrian mobility as an important factor in congestion management and air quality management. In early 1995, the MPO formed a Citizens Advisory Committee (CAZ) to formulate recommendations regarding bicycle and pedestrian mobility. In order to find how the Sherman-Denison urban area felt about a Bicycle and Pedestrian path, a survey was conducted in late 1995. The streets connecting neighborhoods with schools, parks and stores were identified and analyzed for feasibility of adding a bike/pedestrian path. While the overwhelming majority (85.05%, See Graph 9.1) felt that adding a bicycle and pedestrian path with curb dividers and safety signs would improve safety, the analysis of the existing roadway system showed that only a few roads could accommodate a bike/pedestrian path without costly widening operations.

**Graph 9.1**  
**Would adding a bicycle and pedestrian path**  
**with curb dividers and safety signs improve safety?**



Source: Bicycle and Mobility Plan 1998

The report concluded that any ‘future’ widening operations should incorporate bicycle lanes and sidewalks to have an effective Bike/Pedestrian system. “Operating a Bike/Pedestrian system under existing conditions will be very difficult”.

## Chapter 10 Management System

Management Systems originally required by the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) became optional under TEA-21. The MPO determined that the management systems are still deemed necessary and will be continued in conjunction with the State's Management Systems. Operations and management strategies as required under SAFETEA-LU should adequately address the preservation, improvement and enhancement of existing multi-modal transportation systems. This chapter speaks to these requirements. Components of an efficient and safe transportation infrastructure are; Pavement Management System (PMS), Bridge Management System (BMS), Safety Management System (SMS), Congestion Management System (CMS), Public Transportation Facilities Management System (PTMS), Intermodal Transportation Facilities Management System (IMS). Efficient management of the above system results in the smooth movement of people and goods resulting in the growth of the region and country.

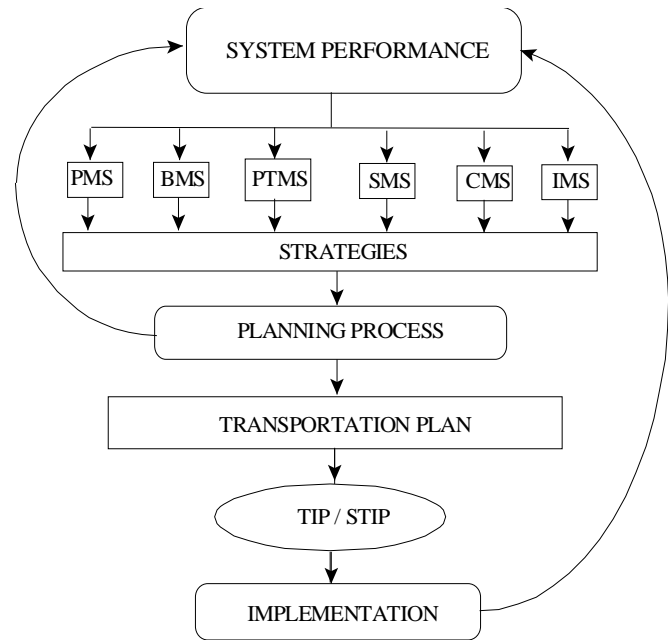


Figure 2.1 Flow of Information  
Source: Federal Register

The following diagram, taken from the Federal Register, attempts to explain the "linkage" or flow of information and coordination between the different planning elements contained in the original ISTEA. The system performance is analyzed and evaluated considering the six management systems and strategies developed. These are incorporated in the planning process to be included in the transportation plan. Any recommendations made are included in the Transportation Improvement Plan (TIP) and the State Transportation Improvement Plan (STIP), after which, approval is obtained and the plan is implemented. The six management systems are:

- ✚ *Pavement Management System (PMS)*
- ✚ *Bridge Management System (BMS)*
- ✚ *Public Transportation Management System (PTMS)*
- ✚ *Safety Management System (SMS)*
- ✚ *Congestion Management System (CMS)*
- ✚ *Intermodal Transportation Facilities Management System(IMS)*

### **10.1 Pavement Management System (PMS):**

MPO is working with the local TxDOT office on the PMS plan. Sections of corridors that need rehabilitation or reconstruction have been identified by the local TxDOT office. These are included in the plan. After the rehabilitation and reconstruction, all corridors will be monitored closely by the MPO and TxDOT. MPO will work towards hiring a consultant to study the corridor system or use TxDOT's infrastructure to do the same. Most cities within the study area, working through the MPO, are conducting an annual inventory of their respective network.

### **10.2 Bridge Management System (BMS):**

Local TxDOT has an inventory on the bridges in the MPO area. This information will be included in the MPO's database which is coupled with GIS and TransCAD. MPO will aid the local TxDOT office in the network analysis and optimization of the bridge inventory. Local TxDOT office and the MPO identified bridges that need rehabilitation and is included in the plan. MPO and TxDOT will closely monitor these bridges and will develop a system to predict deterioration of bridge elements, determine least-cost maintenance, repair and rehabilitation strategies using life cycle costs.

### **10.3 Safety Management System (SMS):**

MPO and the local TxDOT will work to identify potentially unsafe sections of the corridors. MPO has information based on a 1983 study on the locations of maximum truck accidents. These locations will be studied by the MPO to identify the problem. All major intersections will be evaluated for safety and suitable measures will be adopted. MPO will also study the safety of pedestrians and bicyclist in the area. MPO will work with the Department of Public Safety on the drunken driving issue and promote awareness in the local community.

### **10.4 Congestion Management System (CMS):**

ISTEA requires metropolitan area's above 250,000 population to adopt a congestion management system plan. Sherman-Denison MPO study area has a population of 64,789 and is required to identify the congested areas. Congested areas were identified through "Delphi Technique", traffic counts and a list of congested corridors is listed in chapter 5. MPO will continue to observe the corridors that were identified by the modeling process to be congested in the future. Periodic traffic counts will be taken on existing traffic count locations and the expected-to-be-congested locations. This will be done with the help of TxDOT as the MPO does not have the necessary resources and infrastructure to accomplish this.

### **10.5 Public Transportation Facilities Management System (PTMS):**

Public transportation is discussed in detail in chapter 7. A consultant was hired by the MPO to study the existing transportation system and provide data on transit demand in the urbanized area

and assess the need for public transportation. The study was delivered in early 1995. It found that the demand is sufficiently high in Sherman to warrant a more efficient route service.

#### **10.6 Intermodal Transportation Facilities Management System (IMS):**

MPO will work towards identifying the linkages between the different modes of transportation existing in the area. MPO will work towards reviving the rail and air transportation in the area and work towards providing an efficient linkage between the different modes of transportation.



## **Chapter 11**

### **Financial Plan**

Federal regulations require the financial component of the MTP to be “fiscally constrained.” The definition of “fiscal constraint” is the ability to demonstrate that the requested projects total cost does not exceed that amount which can be reasonably expected to be made available to for the funding of projects within the MPO. For any projected shortfall in available funds, the MTP must include proposed alternative funding or financing sources. This process is repeated for both highway projects and transit projects. For the highway element, this process results in two project listings. Those projects which can be constructed within the available dollars are placed on the short and long-range plan lists. Those projects, which fall outside of the available funding limits, are placed on the regionally significant – unfunded list. For the transit element, each provider’s federal, state and local funding projection is provided. SAFETEA-LU encourages the MPO to review and reaffirm “fiscal constraint” in the development of transportation plans and programs as they are updated and amended. Part of this process includes the documentation of total project cost (i.e., construction, right-of-way, utilities, etc.) versus construction cost only in MTP plans. MPO staff met with TxDOT area staff to review projects and make necessary adjustments where needed. This MTP update reflects those changes.

#### **11.1 HIGHWAY ELEMENT**

Transportation improvements in the Sherman-Denison study area have historically been in the form of highways. The elongated geographical layout of our region leads to a dependency on automobile travel as the primary means of movement from point to point. Highways in this region receive funding from one of two major areas, federal and state. Local funding is minimal. This funding has historically been organized into over thirty different funding categories, each with its own requirements and specifications. Under the new TxDOT structure there are now twelve. Some large projects come to the region with their own project specific funding. For the purposes of forecasting future funding, all of these categories are grouped together.

##### **11.1.1 HISTORICAL BACKGROUND**

The Sherman-Denison study area relies primarily on state and federal funding to implement regional transportation improvements. Over 26 million dollars of projects were listed as unfunded due to financial constraints. ISTEA legislation and its successors have expanded the planning period from 20 years to 25 years and at the same time have increased the amount of return on tax dollars collected in the State of Texas. These factors should result in an overall increase in the amount of total funding available for programming.

During the project planning and selection in the *2035 metropolitan transportation plan*, cost estimates were developed for each project proposed. These cost estimates have been reviewed over the last five years and have been refined. In some cases, the cost estimates have changed substantially. In each case, the cost estimates have been prepared using the best estimating techniques available.

The process of forecasting future available financial resources is not preset. There are many variables, which could be included in such an analysis. The methodology presented below attempts to account for those variables, which can be reasonably forecasted.

### **11.1.2 METHODOLOGY**

#### **METHODOLOGY**

The methodology for determining the fiscal constraint figure for the next planning period is described in detail in this section. The process consists of the following steps:

- ✚ Review historical expenditures;
- ✚ Adjust historical expenditures to current dollars utilizing the Consumer Price Index;
- ✚ Compute future expenditure projections;
- ✚ Determine appropriate placeholders for specific funding categories; and
- ✚ Compute total fiscal constraint, amount available for programming, and total funding for the short and long range plans.

Each of these steps is detailed in the following sections.

#### **REVIEW HISTORICAL EXPENDITURES**

Historical expenditure figures were obtained from TxDOT for the period 1998 to present. These figures were broken out into the following categories: Engineering, Contingencies, ROW, maintenance and construction.

#### **ADJUSTING HISTORICAL EXPENDITURES TO CURRENT DOLLARS**

The total historical expenditure figure computed in the above step included a mix of funds from a ten year period. In order to gain the most accurate picture of what impact those expenditures might have in the future, the figures had to be adjusted to the current dollar value. The factor selected for this conversion was the Consumer Price Index (CPI). Each year's historical funding was then adjusted by this factor to bring historical dollars to current dollars (2008).

#### **COMPUTE FUTURE EXPENDITURES**

Once all historical figures were adjusted to current dollars, an average annual expenditure was computed. This average annual expenditure figure then had to be adjusted to future dollars and the total for the twenty-five year planning period computed using a 4% inflation factor. The results of these computations are contained in Table 11.1.

**Table 11.1 Average Annual Expenditures**

Type of Expenditure	Avg.-Funding/Year (TPC*)	Total Funding (YOE*)
<b>SHORT RANGE (2010-2020)</b>		
Construction	\$4,976,365	\$69,797,530
Engineering, Contingencies, ROW	\$1,236,029	\$15,933,727
<b>TOTAL</b>	<b>\$6,112,395</b>	<b>\$85,731,257</b>
<b>LONG RANGE (2021-2035)</b>		
Construction	\$4,976,365	\$229,331,881
Engineering, Contingencies, ROW	\$949,362	\$43,750,602
<b>TOTAL</b>	<b>\$5,925,727</b>	<b>\$273,082,483</b>

\*Total Project Cost (TPC) Year of Expenditure (YOE)

The total above represents the total amount of federal and state dollars forecasted to be available for programming during the planning period.

### **DETERMINE APPROPRIATE PLACEHOLDERS FOR SPECIFIC FUNDING CATEGORIES**

Placeholders for specific project types are used to make the completion of routine projects easier. The amount for each placeholder was computed by analyzing the historical average annual expenditure figures in those categories. (See Table 11.2)

**Table 11.2 Construction Placeholder**

Category	Placeholder	Annual Average Amount
1	Preventive Maintenance	\$24,789,626
3	Urban Mobility	\$2,134,097
6	Structure Rehab (Bridge)	\$850,167
8	Safety	\$260,296
9	Enhancements	\$96,393
10	Miscellaneous	\$297,464
11	District Discretionary	\$377,321
12	Strategic Priority	\$960,627
Local		TBD

\*Please see Table -- in Appendix A for a complete list of categories.

The total amount of funding available for inclusion in the short and long-range plans is the difference in the totals computed in the above steps. The total amount is listed in Table 3 below. The total available is also broken down into available funding for the short and long range plans.

**Table 11.3 Total Funding Available**

<b>Funding Categories</b>	<b>Amount</b>
Total Funding for Short-Range Plan (10 yr. Plan)	\$85,731,257
Total Funding for Long-Range Plan (11 – 25 yr. Plan)	\$273,082,499
Total Funding Available for Projects	\$358,813,757

### **11.1.3 CONCLUSIONS**

The fiscal constraint figures formulated in this section represent the best possible forecast of available resources for use within the Sherman-Denison study area. They are based upon funding from all available sources to include Federal, State and Local dollars. The total amount available represents a proportionate increase over the last five year MTP period.

### **11.2 TRANSIT ELEMENT**

Federal funds for transit capital and planning assistance are made available through the Federal Transit Administration. These funding programs are financed through the federal gasoline tax currently going to the Mass Transit Account of the Highway Trust Fund as well as from general fund reserves. These are discussed below. The small, urbanized transit systems receive federal funding from the Governor’s Apportionment. Although annual Federal Registers show an allocation for each city, this is not the basis on which cities receive their funds. The current practice is for the agency to submit an estimate of need to TxDOT-Public Transportation Division (PTN); then, through a negotiated process with all of the cities, individual grant amounts are determined.

Most transit systems operate on federal and state funds and provide a local match. These figures are always subject to changes in policy and procedure. The methodology below is a combination of suggested practices from TxDOT-PTN and local knowledge.

#### **11.2.1 FEDERAL FUND PROJECTIONS**

**Section 5307 Formula Grants:** This program provides a block grant to local transit agencies for operations and capital improvements. These funds can also be used to support preventive maintenance and planning activities. Funding is distributed annually to the Sherman-Denison Study Area by a formula based on population, population density, and transit revenue miles of service. The estimated annual transit operation amount is \$500,000. A total of \$12,500,000 is projected to be available for Section 5307 between 2009 and 2035 for the Sherman-Denison Study Area.

**Section 5309 Discretionary Bus/Bus Facilities Grants:** This program provides discretionary funding for capital improvement projects such as the purchase of buses, the construction of park-and-ride lots, or the construction of operating and maintenance facilities. These funds are allocated by FTA throughout the country on the basis of need. The federal share of these projects is up to 80 percent but actual share typically is much lower. Because of their discretionary

nature, Section 5309 funding for area transit projects varies from year to year. For this 2035 Metropolitan Transportation Plan Update analysis, the SDMPO assumed that TAPS would receive an estimated annual amount of \$50,000. A total of \$1,250,000 is projected to be available for Section 5307 between 2009 and 2035 for the Sherman-Denison Study Area.

It is further recommended that a capital acquisition/replacement plan be formulated for current and additional equipment that will become part of the assets in coming years. The intent of this part of the process is to identify any surplus or shortfall in federal funds for capital needs. We have chosen to not complete this plan because of the history in this region of staying within the available federal funds.

### **11.2.2 STATE FUND PROJECTIONS**

The history of state funding levels makes this projection particularly challenging. The state follows a biennial funding cycle with the apportionment containing funds from a variety of sources. Through FY 1997, the urbanized area's population determined its share of state funds. In FY 1998, this changed to its pro rata share of state funds for urbanized areas in the previous biennium, less any amount returned at the end of the first year. Given the unpredictable history of state funds, TxDOT-PTN has no specific projection methodology to suggest. MPO Staff analysis of the funding history reveals that state funding is closely proportional to federal funding levels, largely due to inflation.

The process for projecting state funds for the Sherman-Denison region closely follows that of the federal fund projections. The estimated annual transit operation amount is \$325,000. A total of \$8,125,000 is projected to be available between 2009 and 2035 for the Sherman-Denison Study Area.

### **11.2.3 LOCAL FUND PROJECTIONS**

Local funding is very difficult to project. Many factors influence the budgeting and investment decisions made by governments. In general, the transit provider is required to acquire local funds to meet set match requirements. These amounts vary from one type of cost to the next, so an average is used for planning purposes. It is also reasonable to predict that local funding levels would increase at a rate consistent with the federal funding levels. Recent history shows state funds generally tracking federal. Likewise, local funds probably should track federal, because it is the federal dollar that must be matched, not the state dollar. The estimated annual transit operation amount is \$125,000. A total of \$3,125,000 is projected to be available between 2010 and 2035 for the Sherman-Denison Study Area.

**Table 11.4 - Public Transportation Funds**

	<b>Estimated Annual</b>	<b>25 Year Forecast*</b>
<b>Section 5307 Federal Transit Funds</b>	\$500,000.00	\$19,900,000.00
<b>Texas Public Transportation Funds</b>	\$325,000.00	\$12,900,000.00
<b>Local Transportation Funds</b>	\$125,000.00	\$5,000,000.00
<b>Section 5309 Federal Transit Funds</b>	\$50,000.00	\$2,000,000.00
<b>Total</b>	<b>\$1,000,000.00</b>	<b>\$39,800,000.00</b>

Source: SDMPPO, Revised June, 2007

\* Funds are assumed to increase at an annual inflation rate of 4%.

#### **11.2.4 CONCLUSIONS**

Local transit operations will slowly progress from demand response to fixed-route as population density increases. This makes the task of predicting future need impractical. The transit operator in this region has a practice of providing the maximum amount of service possible within the available federal, state and local funds. With this history in mind, it is difficult to predict a situation in which there would exist a shortfall of funds. As the available funds increase, so will the level of service provided.

## **Chapter 12**

### **Environmental Justice**

The Sherman-Denison MPO has established a specific focus on Environmental Justice within its Unified Planning Work Program (UPWP). The UPWP mentions enhancing Community Involvement and Assessing Minority Needs as two of the three strategies to be implemented as elements in Fiscal Years 2010 2011 UPWP. The UPWP also states that, “Greater emphasis will be placed in ensuring Environmental Justice issues are addressed and a complaint procedure is included into the public involvement process.”

The Federal Highway Administration and the Federal Transit Administration have also communicated the importance of specific strategies to assure meaningful involvement of minority and low-income populations in transportation planning activities as well as targeted planning to minimize/mitigate adverse affects on these populations against the impact of transportation projects. Thus, it is not only the desire of the MPO to continue and enrich its efforts in working towards overall community inclusion in planning initiatives but it is also the shared intent of the federal funding entity.

Effective public involvement is important to the Sherman-Denison MPO. This effort to enhance its efforts is a mainstay of the overall community planning process. The proposed approach to an Environmental Justice Assessment of transportation planning in the Sherman-Denison study area is based on three basic steps:

1. Identifying the block groups in the planning area that have high concentrations of minority and low-income residents;
2. Identifying the block groups in which planned or proposed transportation projects are located; and,
3. Assessing whether minority residents and low-income residents are benefitting from a proportional share of the projects.

A block group is categorized as a high minority group if:

- ✚ The Hispanic population is 15 percent or higher, or
- ✚ The Black population is 15 percent or higher, or
- ✚ The American Indian and Alaska Native population is 5 percent or higher, or
- ✚ The Asian/Pacific Islander population is 5 percent or higher.

A block group is categorized as a low-income tract if:

- ✚ The proportion of the resident population with a household income at or below the poverty level is 25 percent or higher according to the 2000 US Census

27 of the 85 block groups in the planning area (31 percent) are “Minority” and 11 block groups (12.9 percent) are “Low-Income.” This is the first time the proposed criteria for assessing Environmental Justice were applied to a transportation planning effort. There are 70 proposed projects in the Plan Update. The first step was to identify the block group or groups where each project is located. The second step was to determine which projects were in block groups having high concentrations of minority populations and which projects were located in block groups having high concentrations of low income populations. The final step was to calculate the share of projects located in high minority and low-income groups. Table 12.1 summarizes these results. Maps 12.1 through 12.3 (in appendix) provide low income and minority population locations within the MPO study area.

**Table 12.1 - Project Distribution**  
**Percentage of Projects Located in Minority and Low-Income Block Groups**

Phase Year	Total Projects	Projects in Minority Block Groups		Projects in Low-Income Block Groups		Projects in Block Groups that are both Minority & Low-Income		Total EJ Projects*	
		#	%	#	%	#	%	#	%
2010-2020	14	1	7.1%	0	0.0%	4	28.6%	5	35.7%
2021-2035	6	3	50.0%	0	0.0%	2	33.3%	4	66.7%
NHS	4	0	0.0%	0	0.0%	1	25.0%	1	25.0%
Unfunded	69	31	44.9%	5	7.2%	19	27.5%	44	63.8%
Total	93	35	37.6%	5	5.4%	26	28.0%	54	58.1%

\* Total EJ Projects does not equal the sum of all categories because it is possible for a project to cross multiple block groups and be represented under two categories.

\* Total EJ Projects does not equal the sum of all categories because it is possible for a project to cross multiple block groups and be represented under two categories. A listing of specific projects is located in Table 12.2 in the appendix.

The results are mixed across the various time periods. In the near-term (2010-2020) 7.1 percent of the proposed projects are located in minority blocks groups. This compares favorably to the fact that minority block groups comprise 21.6 percent of all block groups in the planning area, suggesting they are benefitting from a proportionate share of the projects. A different conclusion is reached concerning the low-income block groups where 0.0 percent of the proposed projects are located. This compares somewhat unfavorably to the fact low-income tracts comprise 3.4 percent of all block groups in the planning area.

In the longer term (2021-2035), the share of projects in minority block groups and low-income block groups is also favorable. Approximately 50.0 percent of the proposed projects are in minority block groups and 0.0 percent of the proposed projects are located in low-income block groups. While this represents a general assessment of Environmental Justice in the context of the Metropolitan Transportation Plan, it is an important step in the MPO’s desire to develop and implement a meaningful approach to addressing the Metropolitan Transportation Plan’s impacts,



both positive and negative on low-income and minority populations. *To this end, the MPO utilizes a GIS consultant to provide technical and analytical assistance related to Environmental Justice. The MPO's Work Program includes continued activities related to Environmental Justice and thus the MPO contracts with the GIS consultant on an ongoing basis. The consultant will further assist the MPO in designing and implementing advanced methodologies to ensure optimal participation of minority and low-income persons in the transportation planning process.* The Sherman-Denison MPO is committed to the principals of Environmental Justice and will be able to more fully address these issues as the procedures and methodologies become more refined.

## Chapter 13

### Discussion of the “Eight Factors” to be considered in the planning process

#### 13.1 Support the economic vitality of area - global competitiveness, productivity, efficiency.

- ✚ Aggressively market transit services.
- ✚ Transit needs study (possible commuter route to Plano) to be initiated.
- ✚ Effective market of rural transportation program.
- ✚ Continued coordination between TxDOT District planners and the MPO.
- ✚ Provide proactive public involvement process to determine public needs and wants.
- ✚ Assist cities in determining their future community development, housing initiatives, economic development and other community services projects and ensuring transportation plans are compatible.

Work with appropriate agencies and other affected stakeholders to improve access to airports, intermodal facilities, and major freight distribution routes, to improve the movement of freight within and through the region by all appropriate modes.

#### 13.2. Increase safety of transportation system for motorized and non-motorized users.

- ✚ Improve turn lanes and widen streets where feasible.
- ✚ Review signalization to ensure traffic is flowing as smoothly as possible.
- ✚ Promote the safer use of the transportation system.
- ✚ Advance transportation safety improvement projects in our project-funding process;
- ✚ Participate in efforts to improve personal safety on the transportation system.
- ✚ Support public agencies and private interest groups, to educate the public on safety-related issues such as drunken and drugged driving awareness and defensive driving.
- ✚ Work with affected stakeholders to plan transportation facilities that are compatible with surrounding neighborhoods;
- ✚ Support efforts of TxDOT and local agencies to upgrade all road facilities to reasonable safety standards wherever potentially hazardous conditions exist, and to maintain adequate shoulders, where feasible, to allow emergency vehicles to bypass traffic congestion;
- ✚ Support efforts of TxDOT and local agencies to construct bicycle and pedestrian facilities that are sufficiently wide and clearly marked, and to maintain them to reasonable safety standards; and encourage them to construct continuous bicycle and pedestrian facilities;
- ✚ Support the efforts of railroads to increase awareness of railroad-crossing safety issues;
  
- ✚ Support the efforts of responsible agencies to increase recreational boating safety at Lake Texoma (such as intoxication laws and licensing requirements for boaters);
- ✚ Support the efforts of 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 maintaining security personnel at transit stations and centers.

- ✚ Improve safety for motorists, cyclists, and pedestrians via:
  - ✚ evaluation of intersections with high accident volumes or high severity rates for potential improvements.
  - ✚ where feasible, connect sidewalks within and between neighborhoods within the MPO area.
  - ✚ when roads are upgraded to include widening, consideration should be given to incorporate bicycle lanes and sidewalks to have an effective Bike/Pedestrian system.
- ✚ Encourage enforcement of TxDOT's access management policy for all arterial roads within the MPO.
- ✚ To ensure safety in the planning process, crash data will be considered as part of the Metropolitan Transportation Plan (MTP) and Transportation Improvement Program (TIP) prioritization process
- ✚ Transit agency should work with local drivers' education programs to inform and educate new drivers on proper vehicle operations around transit vehicles.

SDMPO's analysis of roadways within the study area is a critical element which will be incorporated via TxDOT's State Highway Safety Plan (SHSP). The use of safety conscious planning is a component of this process. Through participation efforts during the public involvement process, SDMPO ensures outreach to and input from local and regional safety stakeholders including, but not limited to; transit providers, elected officials and staff from departments of environmental services, police, fire, emergency services and planning.

### **13.3. Increase security of transportation system for motorized and non-motorized users.**

- ✚ In light of the tragic events of September 11, 2001, enhancing the security of our transportation system is expected to be one of the highest priorities of transportation agencies.
- ✚ Security could be addressed as part of ongoing improvement in transportation design, construction and operation. This could include efforts ranging from addressing security in bridge design to assessing evacuation and quarantine in emergency preparedness and response. The MPO will work with TxDOT to promote this approach.
- ✚ Traffic incident management is another example which could address security. Concern for public safety spurs improvement in traffic incident management. Improvement in traffic incident management includes field surveillance and communication capability so that accidents can be quickly identified, responded to, and lives can be saved. The same surveillance system can help improve security as well as safety, if operators are trained how to look for potential security concerns, and where and how to communicate these concerns.
- ✚ MPO may suggest the conducting of risk assessment of our critical infrastructure. Through this assessment, involved agencies can identify where investments can be made to improve security. Potential security investments could include the ability to improve traffic incident management and existing infrastructure design.

- # Most importantly, the MPO will work in partnership with agencies to promote security. The principle of partnership is that security could be addressed in cooperation with other organizations. Individual transportation agencies have a responsibility that can only be met through close cooperation with others.
- # Support efforts of State of Texas Governor's Division of Emergency Management, TxDOT, other state agencies, local governments and private sector transportation partners to insure that public and private transportation systems and assets vital to our region are identified by the Department of Homeland Security as Critical Infrastructure;
- # Support efforts of State of Texas Governor's Division of Emergency Management, TxDOT, other state agencies, local governments and private sector transportation partners to secure funding to protect and secure those public and private transportation systems and assets identified as Critical Infrastructure, the incapacity or destruction of which would have a debilitating impact to our region and country.
- # Support efforts of the State of Texas Governor's Division of Emergency Management, local governments and local first responder agencies to reduce the impact and consequence of major incidents involving transportation systems.
- # Encourage efforts to train relevant transportation personnel on the National Incident Management System ["NIMS"] and to coordinate emergency response support following the Incident Command System.
- # Support proposals to increase the capability to develop and coordinate the release of accurate alerts, warnings and other emergency information to the public immediately prior to an impending emergency, during and after the emergency event, including without limitation, prioritization of projects which provide for intelligent roadway signs that provide public warnings, instructions and information updates during an emergency or evacuation.
- # Encourage collaboration and coordination with the State of Texas Governor's Division of Emergency Management, local council of governments and the local government emergency management programs and their personnel for TxDOT and MPO security and safety planning.
- # Encourage efforts to include the MPO and TxDOT in emergency management exercises and drills conducted by local government emergency management programs and the State of Texas Governor's Division of Emergency Management.
- # To support overall emergency preparedness activities for the area, advance proposals to coordinate resource management efforts with the local council of governments and local government emergency management programs, including without limitation, a proposal to provide a list of available resources (i.e., portable signs, portable generators, special purpose vehicles, etc., to local emergency managers).

#### **13.4. Increase the accessibility and mobility options available for freight and to people.**

- # Evaluate fixed route transit services in addition to the current Demand Response
- # Extension of bus service to outlying areas to give access to bus service to more persons.
- # Increase connectivity between rural and urban transit activities.
- # Work with freight providers to ensure their concerns are being addressed.

- # Improve the transportation availability, accommodating people of all physical abilities, ages, and economic situations.
- # Provide adequate transportation facilities and services to areas of existing and planned higher-density, mixed-use development.
- # Meet the transportation needs of all parts of Sherman - Denison MPO's planning region.
- # Develop a public transportation system that is complete and comprehensive and provides at least an acceptable minimum level of mobility throughout the region.
- # Participate in public and private-sector efforts that bring together affected stakeholders to discuss and reach a substantial and effective agreement on land-use issues;

**13.5. Protect and enhance the environment, promote energy conservation, and improve the quality of life.**

- # Continue to encourage the use of alternative fuels using the City of Sherman's fleet conversion as an example.
- # Explore the Park and Ride options for commuters to the DFW area and DFW Airport.
- # Ensure transportation plans are in harmony with land use plans.
- # Review land use plans with 'existing' land uses.
- # Study growth around Lake Texoma and Hagerman National Wildlife Refuge.
- # Study possibility of connecting Lake Texoma/Eisenhower State park with Eisenhower Birthplace.
- # Study possibilities of connecting City parks with each other and then to Lake Texoma.
- # Decrease community's dependence on oil for transportation.
- # Less pollution in shared rides because of fewer vehicles required to move same number of persons, better pollution control management by transit system versus private vehicle owners ( in disposal of oil, Freon, antifreeze, etc.).
- # City of Sherman has initiated Propane (alternate natural gas) use in city maintenance vehicles. Encourage others to do the same.
- # Advance proposals for transportation enhancement activities in our funding process (these activities integrate transportation facilities into their surrounding communities in an environmentally sensitive way);
- # Review environmental documents for major transportation improvement projects and recommend study of alternatives and mitigation measures that are consistent with the Metropolitan Transportation Plan.
- # Support efforts of local agencies and TxDOT to mitigate impacts to wetlands and other water resources in the provision of transportation facilities;
- # Support efforts of appropriate regulatory agencies to consider the effects of airport operations on the environment and surrounding communities;
- # 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 shield excessive noise through land-use planning;
- # Encourage local jurisdictions to follow the recommendations in the comprehensive land use plans prepared by local entities for the use of land around the county airports, in order

to minimize community exposure to hazard and noise, prevent impairment of airport operational safety, and guide and control future development to restrict land use that is incompatible with airport operations;

- ✚ Support efforts of local agencies and TxDOT to locate new transportation systems in places that minimize environmental and socioeconomic impacts.
- ✚ Support and provide data as needed to local agencies and TxDOT as they prepare environmental justice analyses on transportation projects and programs in the MTP.

### **13.6. Enhance the integration and connectivity of the transportation system across and between modes for people and freight.**

- ✚ Ride sharing and van pooling programs.
- ✚ Marketing, planning, fare reduction, improved equipment, more frequent schedules, longer hours and expanded routes.
- ✚ *Issues will be discussed in the Intermodal Management System; some of the specific issues are:*
  - Prepare access map to airports, recreation areas, monuments and historic sites and detail major freight routes.
  - Study methods of increasing Grayson County Airport use.
  - Survey freight haulers.
  - Look at sites for possible future Intermodal facilities
  - Decisions which improve public transportation increase the opportunities for work, school, and other activities to those dependent upon bus service including persons with disabilities.
  - Improve work force mobility.
- ✚ Provide adequate highway and transit capacity connecting different urbanized areas within the region.
- ✚ Develop, where feasible, an adequate bicycle component in the region's transportation system.
- ✚ Work with our transit operator and planning agencies, and the general public to determine the need for improvements.
- ✚ Continue to work with TxDOT, local jurisdictions, planning agencies, and agencies in neighboring regions, to address the problems posed by interregional travel.

### **13.7. Promote efficient system management and operation.**

- ✚ Marketing to convince people to move from cars to bus.
- ✚ Re-design transit routes to better serve customers and attract new riders.
- ✚ Determine areas where congestion might exist: see Congestion Management System.
- ✚ Continue to seek public input into congested areas and alternatives to receiving them.
- ✚ Work with TxDOT on procedures and implementation of appropriate management systems by dates as required in the federal regulations.

- ✚ Maximize the efficiency of the existing transportation system by improving system operation and minimizing vehicle demand.
- ✚ Achieve coordination among local general plans while maintaining diversity of individual jurisdictions.
- ✚ Recommend that local jurisdictions include Sherman - Denison MPO in their lists of reviewing agencies when updating their general plans;
- ✚ Monitor major local development proposals in conjunction with local transportation planning agencies, to gauge potential impacts on the transportation system and, where appropriate, recommend changes in project design to make more efficient use of the transportation system.
- ✚ Work with local jurisdictions, other planning agencies, and other affected stakeholders to identify, analyze, and address the problems posed by recreational travel;

### **13.8. Emphasize the preservation of the existing transportation system.**

- ✚ Ensure capacity is available in new subdivision and industrial park areas, especially collectors and arterials.
- ✚ Participate with Chambers of Commerce, commercial carriers, developers, etc. in developing overall land use and metropolitan transportation strategies. TxDOT has most right-of-way needed for their plans.
- ✚ Promote an adequate level of maintenance and preservation of our existing transportation facilities
- ✚ Advance needed maintenance and preservation projects in our project-funding process, to maximize the chances for obtaining state and federal funds for maintenance and preservation purposes;
- ✚ Periodically refine our cost estimates of system preservation needs with the assistance of local agencies and TxDOT.
- ✚ Create a shared vision among Sherman - Denison MPO jurisdictions on growth and development in the region, leading to a substantial and effective agreement on land-use patterns and the region's urban form.

## Chapter 14

### Linking Climate Change and Transportation Planning

There is general scientific consensus that the earth is experiencing a long-term warming trend and that human-induced increases in atmospheric greenhouse gases (GHGs) are the predominant cause. The combustion of fossil fuels is by far the biggest source of GHG emissions. In the United States, transportation is the largest source of GHG emissions, after electricity generation. Within the transportation sector, cars and trucks account for a majority of emissions.

Opportunities to reduce GHG emissions from transportation include switching to alternative fuels, using more fuel efficient vehicles, and reducing the total number of miles driven. Each of these options requires a mixture of public and private sector involvement. Transportation planning activities, which influence how transportation systems are built and operated, can contribute to these strategies.

In addition to contributing to climate change, transportation will likely also be affected by climate change. Transportation infrastructure is vulnerable to predicted changes in sea levels and increases in severe weather and extreme high temperatures. Long-term transportation planning will need to respond to these threats.

In an effort to link Transportation Planning and Climate Change the Sherman-Denison Metropolitan Planning Organization will consider the existing eight factors and their planning functions which serve as de facto goals for the planning process including: economic vitality, safety, security, mobility, environment, connectivity, efficiency and preservation. While climate change is most directly related to the environment and energy conservation planning factor (factor 5) is related to each of the eight factors, if indirectly, as illustrated in the table below.

**Table 14.1: Applicability of Federal Planning Factors to Climate Change (23 CFR 450.206(a) and 450.306(a))**

Planning Factor	Applicability of Climate Change Considerations
(1) support the economic vitality of the [United States, the States, nonmetropolitan areas, and] metropolitan area[s], especially by enabling global competitiveness, productivity, and efficiency;	In addition to a physical threat, climate change also poses an economic threat. Climatic changes can damage natural environmental assets as well as manmade assets. Weather-related natural disasters can cause damage worth billions of dollars. These losses have a direct toll on local, regional, and national economies. At the same time, the development of new technology to reduce and prepare for climate change offers economic development opportunities. New transportation technologies can generate new economic activity as they are developed and exported.



<p style="text-align: center;"><b>Planning Factor</b></p>	<p style="text-align: center;"><b>Applicability of Climate Change Considerations</b></p>
<p>(2) increase the safety of the transportation system for motorized and nonmotorized users;</p>	<p>A safe transportation system protects users from hazards, including hazards resulting from climate-related stresses on the system. Transportation agencies need to protect the system from potential floods and perform routine maintenance and replacement on infrastructure components affected by extreme temperatures and storms.</p> <p>Other safety enhancements can actually reduce GHG emissions. Enhancements that reduce the risk of crashes and smooth traffic flow reduce GHG emissions from congestion. In some cases, slowing vehicle travel speeds can contribute to improved fuel efficiency and improved safety.</p>
<p>(3) increase the security of the transportation system for motorized and nonmotorized users;</p>	<p>A secure transportation system ensures the protection of critical infrastructure and exposes users to less risk. Infrastructure protection is going to require assessing risk from climate-related stresses on the system.</p> <p>Transportation agencies need to consider security as part of a broader consideration that incorporates planning for natural disasters, emergency response and preparedness and infrastructure preservation.</p>
<p>(4) increase the accessibility and mobility of people and freight;</p>	<p>While accessibility and mobility have often been interpreted as synonymous with more travel by car and truck, these goals can also be achieved with reduced vehicle travel. Multimodal transportation systems can be coordinated with land use patterns such that people and goods need to travel shorter distances and make fewer trips by car and truck. In fact, travel by private car is inherently inaccessible for many low-income, elderly, and young people. The systematic provision of other options both improves mobility for these populations and helps to reduce GHG emissions.</p>
<p>(5) protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns</p>	<p>Mitigating climate change is essential in order to protect the environment from long term shifts in weather patterns. Reducing GHG emissions is virtually equivalent to conserving energy, since most GHG emissions come from the burning of fossil fuels. One of the chief ways that transportation agencies can reduce GHG emissions is to reduce the total amount of on-road travel. When transportation improvements are coordinated with planned growth patterns, the need to travel (and especially the need to travel by car) can be reduced.</p>
<p>(6) enhance the integration and connectivity of the transportation system, across and between modes [throughout the State], for people and freight;</p>	<p>One of the chief ways that transportation agencies can reduce GHG emissions is to reduce the total amount of on-road travel. Shifting passenger trips from cars to public transportation, biking, and walking, and freight trips from</p>

Planning Factor	Applicability of Climate Change Considerations
	trucks to rail (and possibly ships) can help to reduce onroad travel. To the extent that agencies can provide more modal choices and improve the ease of transfers between modes, passengers and shippers are more likely to choose an alternative mode for at least part of each trip.
(7) promote efficient system management and operation	The energy efficiency of the transportation system depends in part on the efficient operation of the system. Travel times can be improved and congestion reduced in many cases through better incident management, realtime information distribution, and traffic flow engineering. Reduced congestion translates to improved fuel efficiency and reduced GHG emissions.
(8) emphasize the preservation of the existing transportation system	The transportation system, like other assets of our built environment, is threatened by climate change. Adaptive responses to increased heat, rising sea levels, and higher incidences of flooding must be considered in order to preserve the system.

Source: FHWA Integrating Climate Change into the Transportation Planning Process Final Report July 2008

By incorporating these planning factors within the planning process, the MPO recognizes the impact of transportation on climate change. To address this issue and support the state and federal efforts in this area, the MPO establishes the following actions:

- ✚ Support programs and efforts that focus on minimizing fuel consumption, black carbon emissions, and single-occupancy vehicle trips as well as address the environmental and health costs associated with non-renewable fuel emissions
- ✚ Encourage transportation research and projects that explore innovative solutions to greenhouse gas (GHG) emissions using advanced technology, economically feasible options, and proven results for reducing emissions both in the short and long-terms
- ✚ Encourage research and projects that explore innovative solutions for responding to changing land and water patterns, including flooding and loss of coastline caused by increased frequency and severity of meteorological events which may affect components of the transportation system infrastructure
- ✚ Encourage efforts that focus on risk and response assessment, including prediction tools, products and strategies for potential maintenance, system planning, safety management and emergency preparedness issues arising from global climate change
- ✚ Encourage practices and policies that shorten delivery time and provide alternatives for goods movement through environmentally-friendly methods that reduce fuel consumption, such as coordinated intermodal transport
- ✚ Examples of Actions with Beneficial Climate Change Impacts:
  - Tolling/Managed Lanes/Congestion Pricing/HOT lanes
  - HOV lanes

- Park-and-Ride Facilities
- Transit Investment (Operational improvements and Service expansion, Public Outreach)
- Rideshare programs (Vanpools, Carpools, Websites that set up rideshare trips, Incentives to companies that have carpool programs)
- Parking Pricing (Parking fees at municipal facilities, Addition of parking meters, Parking incentives for HOVs, hybrids)
- Land use planning (Mixed-use development, high density development around commercial centers and transit ("transit-oriented development"), supporting pedestrian and bicycle activity)
- Bicycle Facilities (Bike lanes or paths, bike racks, integration with transit, promotional campaigns)
- Pedestrian Facilities (Crosswalks, Sidewalk connectivity)
- VMT fees
- Fuel-economy based vehicle registration fees
- Vehicle retirement/buyback programs
- Adjusted work practices (Telecommuting, Compressed Work Hours/Flextime)
- Incentives to reduce vehicle use (Free transit days, transit-use prizes, voluntary no-drive days)
- Signalization improvements
- Incident Management (Faster response time to remove breakdowns and accidents)
- Intelligent Transportation Systems/Traffic operations centers
- Planting trees to sequester Carbon emissions
- Alternative Fuels/Hybrids (Transit vehicles, Municipal vehicles)

## APPENDIX A: Employment/Economy

**Table 4.1 – Employment**

Description	1993	1994	1995	1996	1997	2001	2002	2003
Total	49,203	50,578	52,277	53,628	55,977	56,381	56,185	56,461
Wage & Salary	39,066	40,443	41,994	43,151	45,232	45,930	45,383	45,378
Proprietors	10,137	10,135	10,283	10,447	10,745	10,451	10,802	11,083
Mining	472	485	496	506	434	337	357	249
Construction	2,897	2,869	2,831	3,123	3,516	4,257	4,147	4,438
Mfg.	10,195	10,320	10,540	10,842	11,020	8,848	7,622	6,853
Transportation and Warehousing	n/a	n/a	n/a	n/a	n/a	1,174	1,214	1,294
Wholesale	1,201	1,293	1,334	1,324	1,414	1,093	1,099	1,114
Retail	8,573	9,443	10,116	10,271	10,695	7,392	7,203	7,109

Source: Regional Economic Information System (1969-2003) May, 2005

**Table 4.2 - Gross Sales**

Description	Gross Sales (\$000,000)		Change 2005-2006	Percent Change 2005-2006
	2005	2006		
Construction	175.0	226.1	51.1	29.2%
Trade (Wholesale & Retail)	1,725.5	1,809.8	84.3	4.9%
Services	242.5	250.2	7.7	3.2%

Source: Susan Combs Texas Comptroller of Public Accounts - Research Division

**Table 4.3 - Unemployment Rate**

Description	2007 (000)	2008 (000)	% Change
Civilian Labor Force	58.0	57.9	(.2)%
Employed	55.3	54.5	(1.5)%
Unemployed	2.7	3.5	29.6%
Unemployment Rate	4.6	6.0	30.4%

Source: Texas Workforce Commission/BLS Sherman MSA, 2008

	1970	1980	1990	2000	2005	2015	2025	2030	2035
Sherman	29,061	30,413	31,596	35,082	37,892	43,228	49,315	53,051	56,685
Denison	24,923	23,884	21,505	22,773	24,547	28,061	32,012	34,437	36,279
Howe	1,359	2,072	2,173	2,478	2,676	3,053	3,483	3,747	4,184
Van Alstyne	1,981	1,860	2,090	2,502	2,702	3,083	3,517	3,783	4,049
Pottsboro	748	895	1,177	1,579	1,705	1,946	2,220	2,388	3,041
Gunter	647	849	898	1,230	1,672	2,173	2,607	3,128	4,068
Total	58,719	59,973	59,439	65,644	71,194	81,544	93,154	100,534	108,306
Grayson	83,225	89,796	95,021	110,595	119,837	139,478	162,339	175,643	183,832

1.275% = Projection based on Census 1990 vs. 2000 trend of 1.64% annual increase and Texas State Data Center 2000 – 2008 annual increase estimate of .91%.

### Census Block Group (EJ) – Study Area Detail

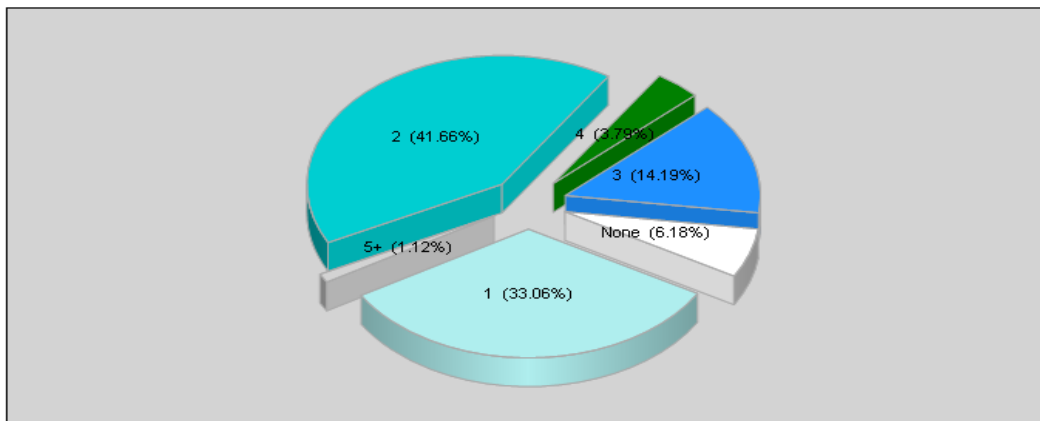
Total Block Groups within Study Area = 88		
Category	Number	Percent
Minority	19	21.6%
Low Income	3	3.4%
Both Low Income & Minority	8	9.0%

### Grayson County

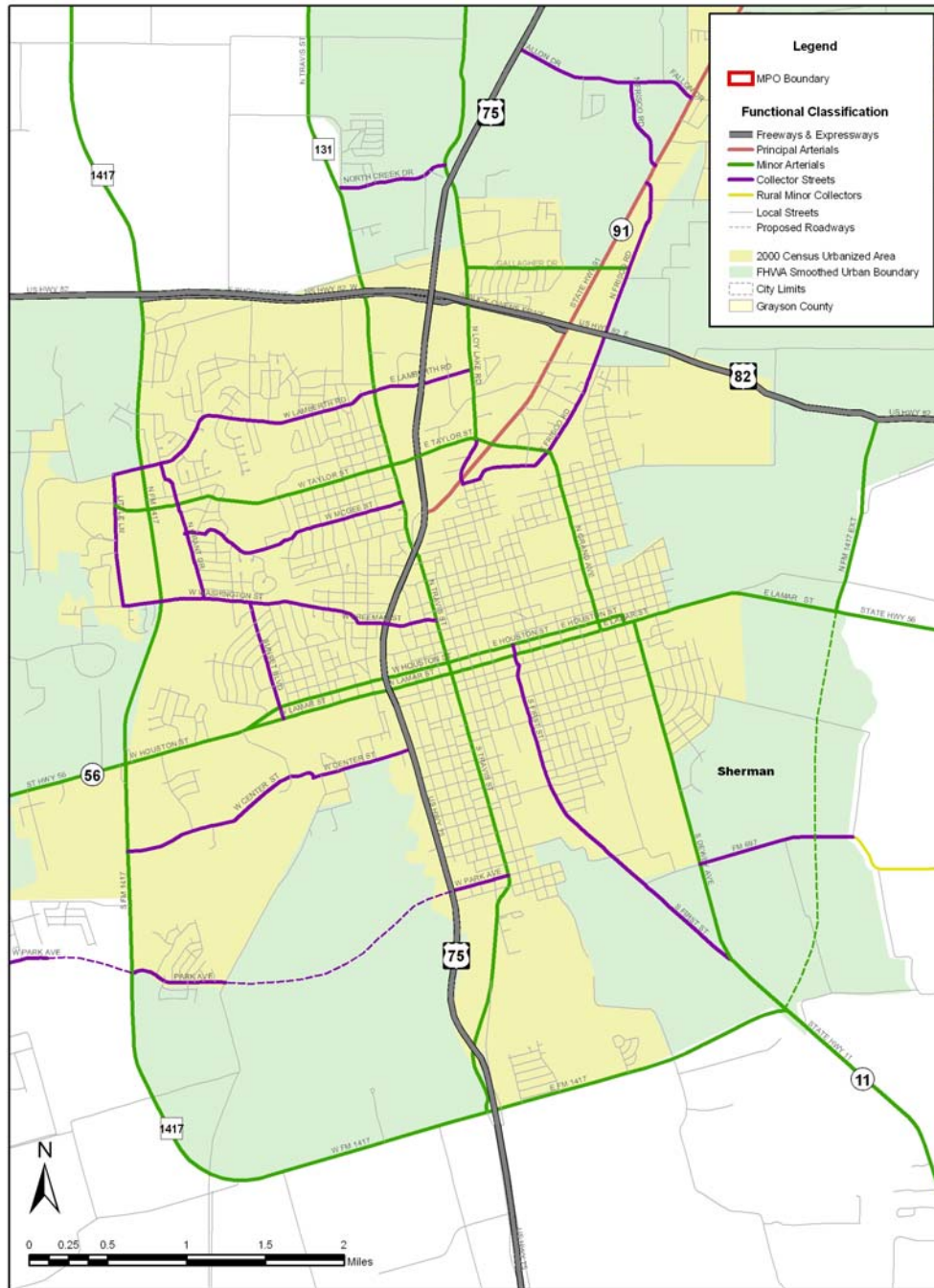
#### Households by Vehicles Available in 2000

Number of Vehicles	Number	Percent
Total Households :	42,849	N/A
No Vehicles :	2,650	6.185%
One Vehicle :	14,165	33.058%
Two Vehicles :	17,851	41.66%
Three Vehicles :	6,079	14.187%
Four Vehicles :	1,623	3.788%
Five or More Vehicles :	481	1.123%
Total Vehicles :	77,285	N/A
Mean Vehicles Per Household :	1.80	N/A

Sources: U. S. Census 2000, Summary File 3, Table H44 and H46. Data based on a sample.

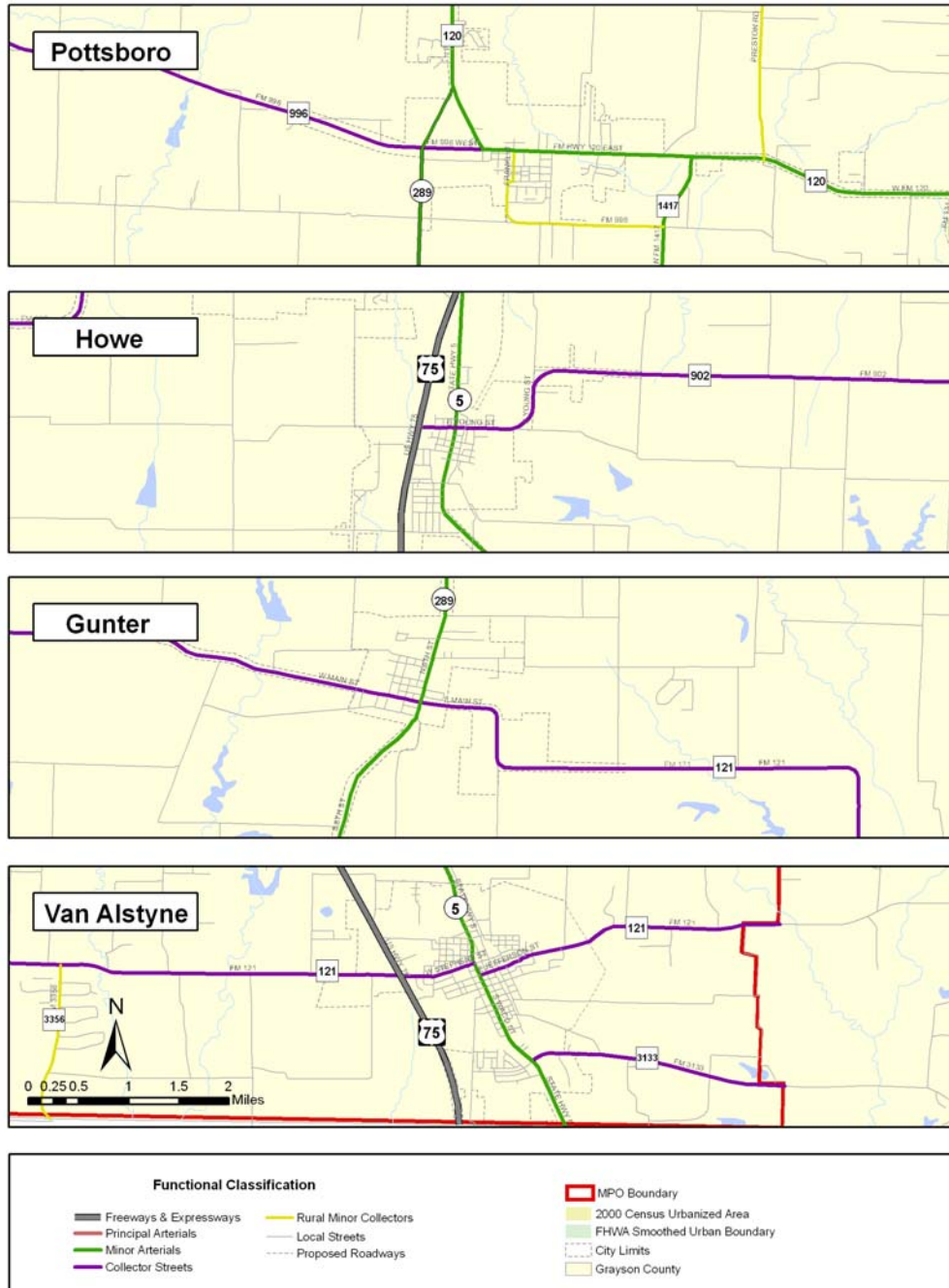






Map 6.2 Sherman

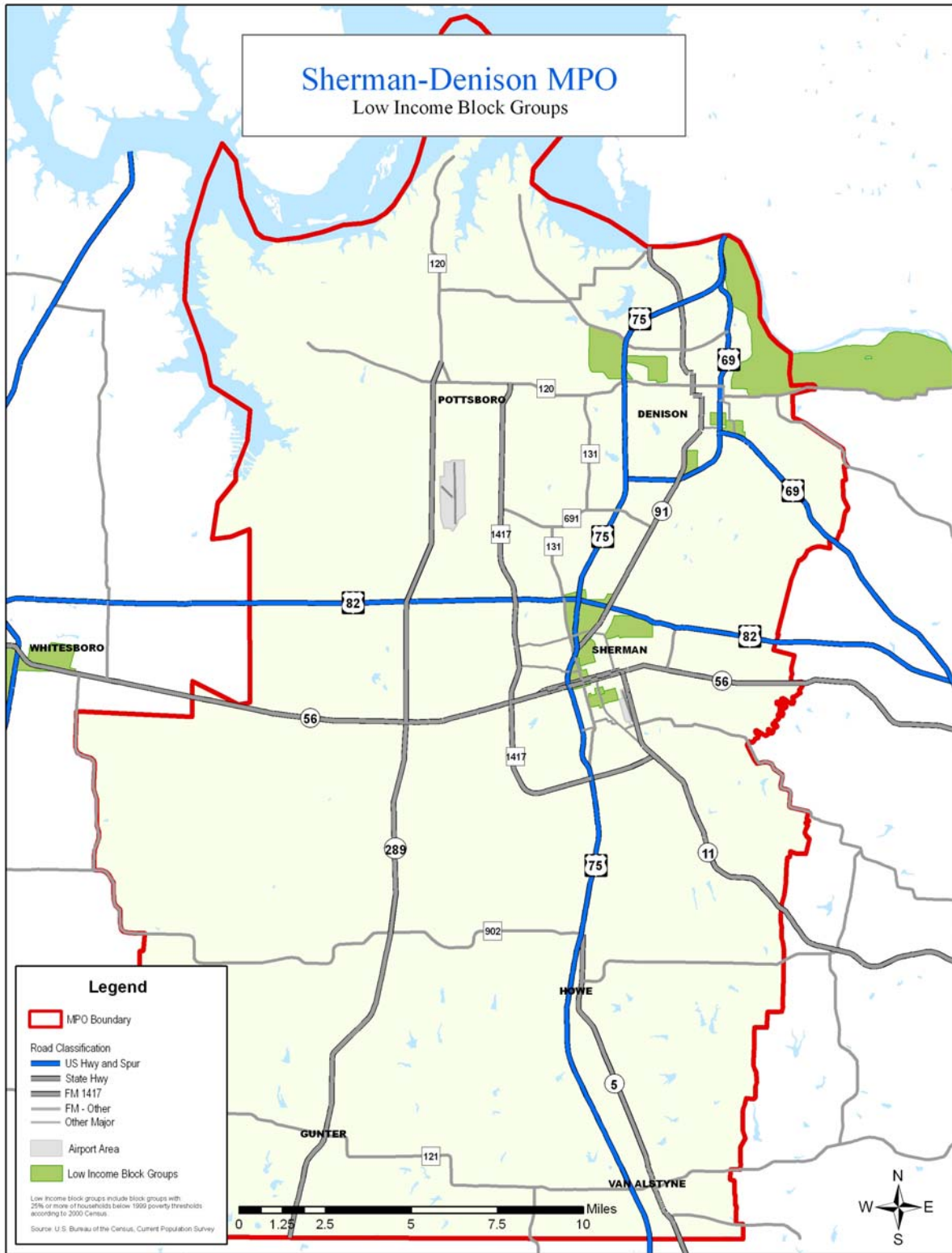




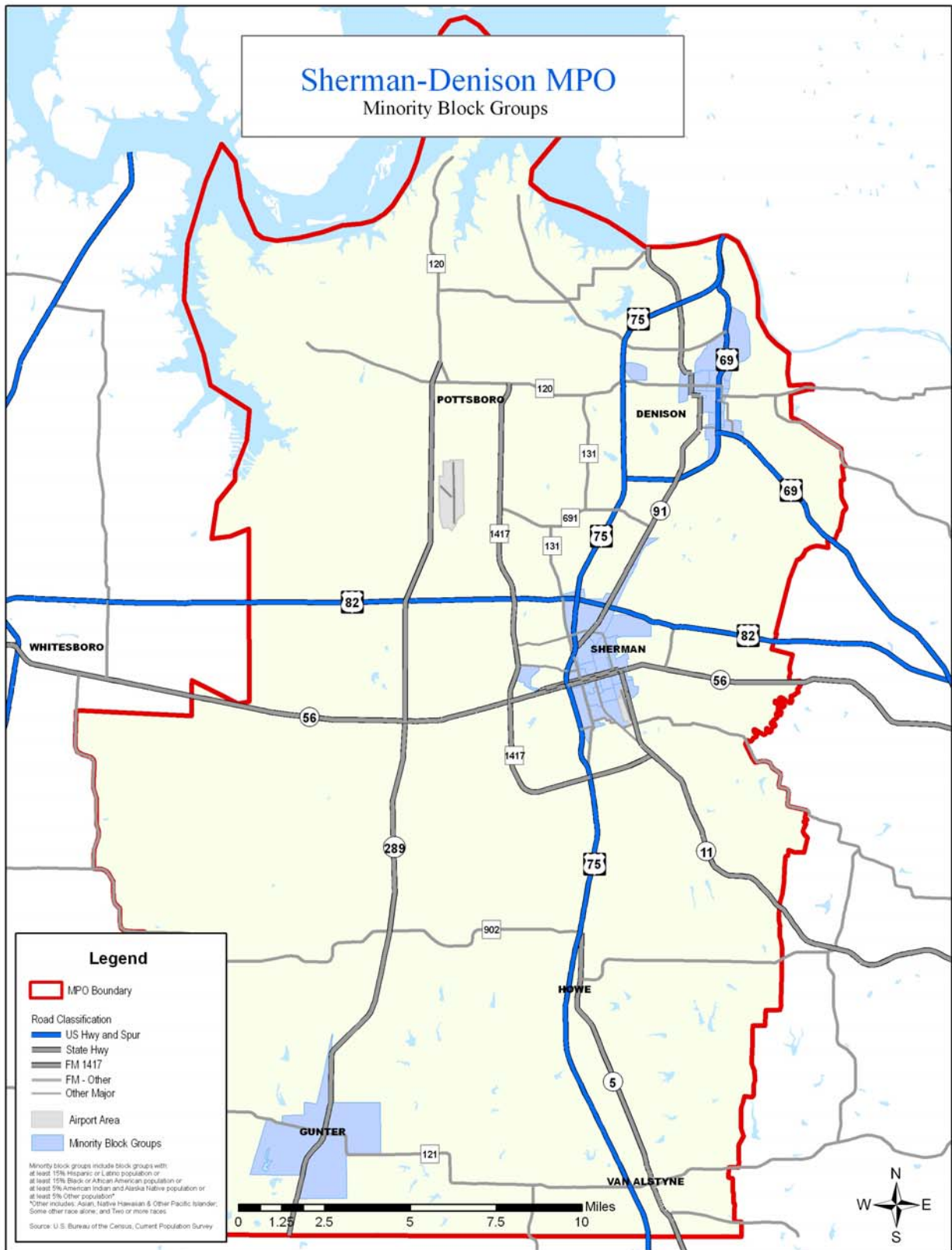
Map 6.3 Pottsboro, Howe, Gunter, Van Alstyne



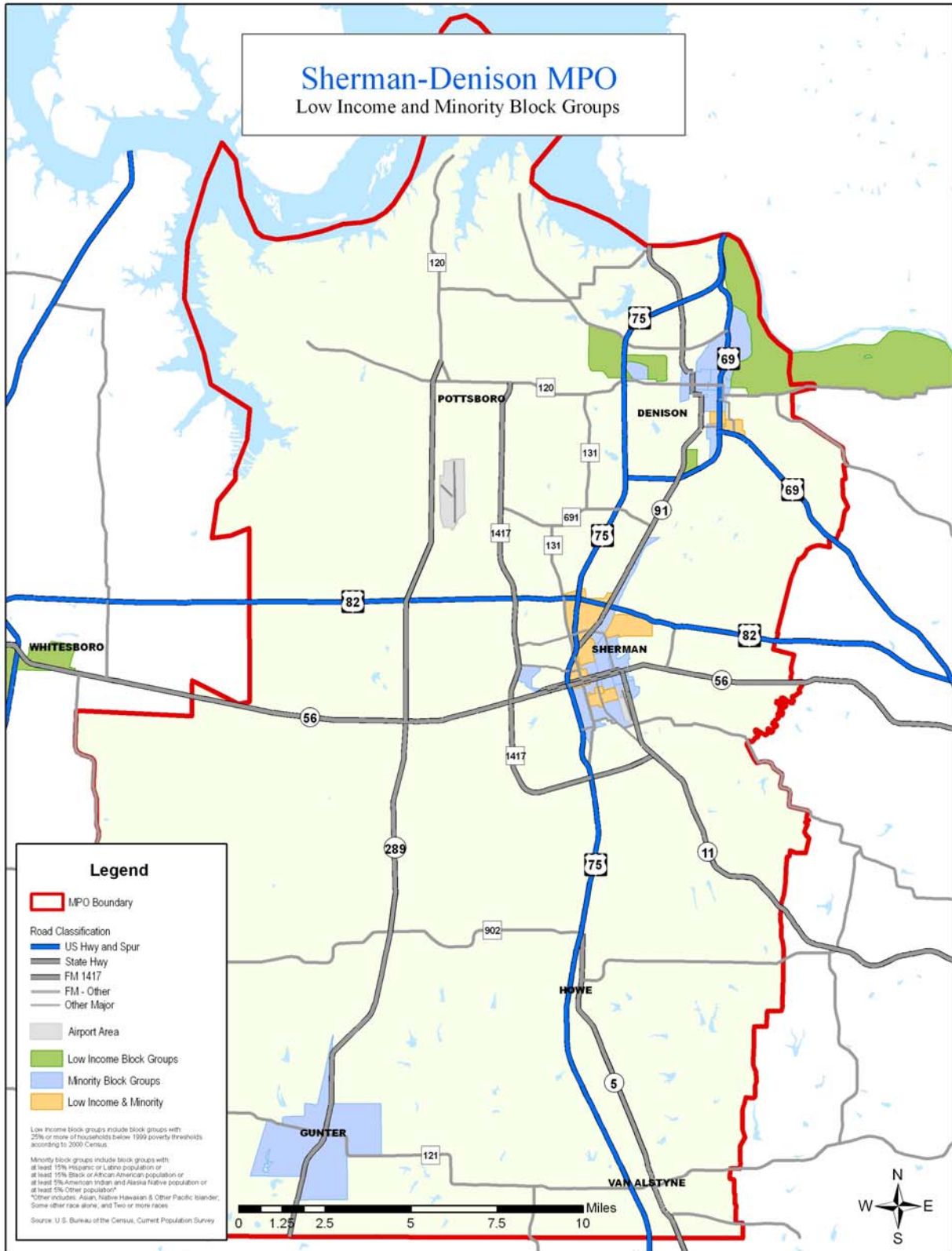
## Appendix C: Environmental Maps



Map 12.1 Environmental Justice



Map 12.2 Environmental Justice



**Map 12.3 Environmental Justice**

**APPENDIX D: Table 12.2 EJ Projects**

**MPO TIP Project ID**

<b>2010-2020</b>	Minority Block Groups	SDHWY033
	Low-Income Block Groups	-
	Block Groups that are both Minority & Low-Income	SDHWY118; SDHWY117; SDHWY124; SDHWY129

<b>2021-2035</b>	Minority Block Groups	SDHWY068a; SDHWY069; SDHWY132
	Low-Income Block Groups	-
	Block Groups that are both Minority & Low-Income	SDHWY119; SDHWY068a

<b>NHS</b>	Minority Block Groups	-
	Low-Income Block Groups	-
	Block Groups that are both Minority & Low-Income	SDHWY067

<b>Unfunded</b>	Minority Block Groups	SDHWY007; SDHWY016; SDHWY018; SDHWY024; SDHWY032; SDHWY039; SDHWY045; SDHWY047; SDHWY048; SDHWY050; SDHWY054; SDHWY056; SDHWY057; SDHWY058; SDHWY059; SDHWY060; SDHWY061; SDHWY062; SDHWY69a; SDHWY070; SDHWY072; SDHWY076; SDHWY079; SDHWY080; SDHWY086; SDHWY093; SDHWY094; SDHWY105; SDHWY112; SDHWY120; SDHWY133
	Low-Income Block Groups	SDHWY028; SDHWY070; SDHWY072; SDHWY079; SDHWY097;
	Block Groups that are both Minority & Low-Income	SDHWY020; SDHWY030; SDHWY032; SDHWY039; SDHWY040; SDHWY041; SDHWY042; SDHWY043; SDHWY049; SDHWY050; SDHWY051; SDHWY052; SDHWY053; SDHWY060; SDHWY061; SDHWY081; SDHWY097; SDHWY105; SDHWY112

## **APPENDIX E: *TRANSPORTATION GLOSSARY***

**Alternative Fuels** -Any motor fuel other than ordinary gasoline which generally results in lower level of air pollutants (i.e. reformulated gasoline, natural gas and liquid propane).

**Americans with Disabilities Act of 1990 (ADA)**-Federal Law which requires accessible public transportation services for persons with disabilities, including complementary or supplemental Paratransit services in areas where fixed route transit service is operated. Expands definition of eligibility for accessible services to persons with mental disabilities, temporary disabilities, and the conditions related to substance abuse. The Act is an augmentation to, but does not supersede, Section 504 of the Rehabilitation Act of 1973 which prohibits discrimination on the basis of disability against otherwise qualified individuals in programs receiving federal assistance.

**Arterial** - A street classification for roadways serving major traffic volumes other than highways.

**Attainment Area** -An area considered to have air quality at least as good as the U.S. Environmental Protection Agency (EPA) health standards used in the Clean Air Act. An area may be an Attainment Area for one pollutant and a Non-Attainment Area for others. Non-attainment areas are areas considered not to have met these standards for designated pollutants.

**Average Daily Traffic** - The average number of vehicles passing a fixed point in a 24-hour time frame. A convention for measuring traffic volume.

**Base Year**-An analysis or study's baseline or lead off year. The year to which other years are compared to.

**Bikeway**-A facility intended to accommodate bicycle travel for recreational or commuting purposes. Bikeways are not necessarily separated facilities; they may be designed and operated to be shared with other travel modes.

**Bus Lane**-A lane reserved for bus use only. Also known as a "diamond lane." See also "HOV."

**3C "Continuing, Comprehensive, Cooperative"**-Refers to the requirement set forth in the Federal Highway Act of 1962 that transportation projects in urbanized areas be based on a "continuing, comprehensive transportation planning process carried out cooperatively by states and local communities." ISTEA's planning requirements broaden the framework for such a process to include consideration of important social, environmental and energy goals and to involve the public in the process at several key decision making points.

**Carbon Monoxide, (CO)**-A gas without color and odor which is toxic because too much of it can dangerously reduce oxygen in the bloodstream.

**Census Tract** - Census tracts are small, relatively permanent statistical subdivisions of a county which are delineated for all metropolitan areas and other densely populated counties by local census statistical area committees following Census Bureau guidelines.

**Central Business District (CBD)**-The most intensely commercial sector of a city.

**Clean Air Act (CAA)**-1970 Federal Act designed to improve air quality.

**Clean Air Act Amendments (CAAA)**-1990 amendments to the Clean Air Act which aim to substantially reduce air pollutants by specified target dates. This federal regulation classified the Houston-Galveston area as a nonattainment area for the pollutant ozone.

**Clean Fuels**- Blends and/or substitutes for gasoline. Compressed natural gas (CNG), methanol, ethanol, and others are considered clean fuels. Also known under heading, "Alternative Fuels."

**Collector/Distributor Street**-A road generally parallel to an expressway which collects and distributes traffic at access points to the expressway involving through lanes.

**Conformity**-Process to assess the compliance of any transportation plan, program, or project with air quality control plans. The conformity process is defined by the Clean Air Act.

**Congestion Management System (CMS)**-ISTEA requires that each Transportation Management Area (see definition of TMA) develop a CMS that provides for effective management of new and existing transportation facilities through the use of travel demand reduction and operational management strategies. Unless a part of a CMS, future highway projects which significantly increase capacity for single occupant vehicles (SOVs) may be ineligible for federal funding.

**Congestion Mitigation and Air Quality Improvement Program (CMAQ)**-A \$6 billion program which helps implement projects designed to reduce emissions in areas not meeting federal health standards for air quality.

**Coordination**-When agencies share responsibilities related to transporting clients: carrying others' clients, arranging with other agencies to carry clients, or sharing vehicles or vehicle support services including maintenance, etc. Example: a provider whose major activity is transporting elderly clients may make midday schedule space to serve clients of an AFDC, WIC, or substance abuse prevention program.

**Demand-Responsive**-Descriptive term for a service type, usually considered Paratransit, in which a user can access transportation service which can be variably routed and timed to meet changing needs on a semi-daily basis. Compare with Fixed-Route.

**Demography**-Characteristics of a total population—characteristics can include, but are not restricted to: ethnic makeup, age distribution, education levels, and occupation patterns.

**Elderly and Handicapped (E&H)**- Anachronistic designation for special transportation planning and services.



**Employer Trip Reduction (ETR) programs** - Employer-designed programs which minimize employee commuting levels. These programs are federally required in severe non-attainment areas.

**Enhancement Activities**-Refers to activities conducted in relationship to a particular transportation project which "enhance" the existing or proposed project. Examples of such activities include provision of facilities for pedestrians or cyclists, landscaping or other scenic beautification projects, historic preservation, control and removal of outdoor advertising, archeological planning and research, and mitigation of water pollution due to highway runoff.

**Environmental Impact Statement (EIS)**-Report which details any adverse economic, social, and environmental effects of a proposed transportation project for which federal funding is being sought. Adverse effects could include air, water, or noise pollution; destruction or disruption of natural resources; adverse employment effects; injurious displacement of people or businesses; or disruption of desirable community or regional growth.

**Environmental Protection Agency (EPA)**-EPA is the source agency of air quality control regulations affecting transportation.

**Expressway**-A divided arterial highway for through traffic with controlled access, the intersections of which are usually separated from other roadways by differing grades.

**Federal Highway Administration (FHWA)**- A part of the U.S. Department of Transportation. FHWA is responsible for approving and funding all federal aid for any highway project or program.

**Federal Transit Administration (FTA)**- A part of the U.S. Department of Transportation. FTA is responsible for approving and funding all federal aid for transit programs or projects.

**Fixed-Route**-Term applied to transit service which is regularly scheduled, operating over a set route.

**Headway** - A transportation term meaning the time between vehicles on the same route.

**High-Occupancy Vehicle (HOV)** - A vehicle with two or more occupants. Freeways and other roads carrying large traffic volumes may have lanes designated for HOV use such as vanpools, carpools, and transit. HOV lanes may be designated for use by carpoolers, vanpools, and buses. The term HOV is also sometimes used to refer to high occupancy vehicle lanes themselves.

**Highway**-Term applies to roads, streets, and parkways, and also includes rights-of-way, bridges, railroad crossings, tunnels, drainage structures, signs, guard rails, and protective structures in connection with highways.

**Home-Based Work Trip** - A trip for the purpose of one's employment, with their trip end being one's home.

**Infrastructure**-A term connoting the physical underpinnings of society at large, including, but not limited to, roads, bridges, transit, waste system, public housing, sidewalks, utility installations, parks, public buildings, and communications networks.

**Intelligent Vehicle Highway-System (IVHS)**-A computer/communications technology that provides the motorist with information about road conditions as well as monitors and controls vehicle operation on roadways.

**Intermodal**- Refers to the connections between transportation modes.

**Intermodal Surface Transportation Act (ISTEA) of 1991**-A federal mandate that restructures funding for highway and transit programs. The Act also requires that transportation plans and programs developed by metropolitan planning organizations be comprehensive and Intermodal. In addition, the Act requires comprehensive regional long-range transportation plans extending to the horizon year of 2015.

**Interstate System** - That system of highways which connects the principal metropolitan areas, cities, and industrial centers of the United States. The interstate system also connects at suitable border points with routes of continental importance in Canada and Mexico. The routes of the interstate system are selected by joint action of the state highway department of each state and the adjoining states, subject to the approval of the U.S. Secretary of Transportation.

**Land Use**-The way specific portions of land or the structures on them are used, i.e., commercial, residential, retail, industrial, and so on.

**Local Street**-A street intended solely for access to properties contiguous to it.

**Long Range**- Refers in transportation planning to a time span of more than five years. The TIP referred to in the glossary is typically regarded as a short-range program. ISTEA has changed the TIP from a five-year to a three-year document.

**Long Range Transportation Plan** - See Metropolitan Area Transportation Plan.

**Metropolitan Planning Organization (MPO)**-The organizational entity designated by Federal law with lead responsibility for developing transportation plans and programs for urbanized areas of 50,000 or more in population. Development of the Metropolitan Area Transportation Plan is the MPO's primary responsibility.

**Mobility**-The ease with which desired destinations can be reached.

**Model** -A mathematical and geometric projection of activity and the interactions in the transportation system in an area. This projection must be able to be evaluated according to a given set of criteria which typically include criteria pertaining to land use, economics, social values, and travel patterns.



**Multimodal** - Refers to the diversity of options for the same trip; also, an approach to transportation planning or programming which acknowledges the existence of or need for transportation options.

**National Ambient Air Quality Standard (NAAQS)**-Federally mandated maximum levels (i.e. federal health standards) for air pollutants such as ozone.

**National Environmental Policy Act (NEPA)**-Federal act requiring a study on any environmental impact a federally funded or permitted project might cause.

**National Highway System (NHS)**-A classification of roads authorized by ISTEA which are comprised of Interstate Highways and roads designated as important for interstate travel, national defense, Intermodal connections, and international commerce. Federal funds are designated for projects on the NHS system.

**Natural gas**-A chemical (methane) used for fueling vehicles which burns cleaner than more conventional vehicle fuels (gasoline and diesel). Natural gas is often used in either a compressed form (CNG) or liquefied form (LNG).

**Network** - A graphic and/or mathematical representation of multimodal paths in a transportation system.

**Nitrogen oxides (Nox)**-A pollutant produced during fossil fuel combustion which contributes to ground-level ozone.

**Non-attainment area**- A designation by the Environmental Protection Agency of any place in the United States failing to meet national air quality standards (NAAQS). The Houston-Galveston area is a non-attainment area for ozone.

**Origin** -The point or locale where a trip begins.

**Origin-Destination Survey (O-D Survey)**- A survey typically undertaken of travelers (motorists or transit passengers) to identify travel patterns, habits and needs.

**Ozone** -A gas which in excess quantities at ground-level is a pollutant and irritant. Ozone is created when nitrogen oxides (NO<sub>x</sub>) react with volatile organic compounds (VOCs) in sunlight. Also known as smog.

**Paratransit**- Alternatively known as special transportation when applied to social services systems. Applies to a variety of smaller, often flexibly-scheduled and routed nonprofit oriented transportation services using low capacity vehicles to operate within normal urban transit corridors or rural areas. These services usually serve the needs of persons whom standard mass transit services would serve with difficulty, or not at all. Common patrons are the elderly and persons with disabilities.

**Paratransit Van**-A van specially modified to carry disabled passengers.

**Peak Hour**-The 60 minute period in the a.m. or p.m. in which the largest volume of travel is experienced.

**Pedestrian Walkway**-Secured walkway provided as an alternate to auto travel.

**Person-Trip** - A trip made by one person from one origin to one destination.

**Planner**-In the transportation field, a title likely having to do with the management and analysis of data which directly supports qualitatively oriented, strategic, or "macro" decision making.

**Privatization**- Concept or theory having to do with for-profit business supplying goods and services for government, public programs or systems, with the intent of enhancing cost efficiency.

**Provider** - An agency that causes clients to be transported, as opposed to an agency whose role is limited to funding programs.

**Public Involvement** - The active involvement of the public in the development of transportation plans and improvement programs. The Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21) requires that state departments of transportation and MPOs "shall provide citizens, affected public agencies, representatives of transportation agency employees, private providers of transportation, and other interested parties with a reasonable opportunity to comment on the development of the long range plan and the TIP."

**Public Road**- Any road or street under the jurisdiction of and maintained by a public authority and open to public traffic.

**Reverse Commute**-Travel from home to work or from work to home against the main directions of traffic.

**Right of Way (R-O-W)**-Priority paths for the construction and operation of highways, light and heavy rail, railroads, etc.

**SAFETEA**- Safe, Accountable, Flexible, Efficient Transportation Equity Act of 2003 authorizes highway, highway safety, transit and other surface transportation programs for the next 6 years. SAFETEA builds on the initiatives established in Transportation Equity Act for the 21<sup>st</sup> Century of 1998 (TEA-21) and the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA).

**Shuttle**-Usually a service provided with a 20-or-less passenger vehicle connecting major trip destinations and origins on a fixed-or route-deviation basis. Shuttles can provide feeder service to main transit routes, or operate in a point-to point or circular fashion.

**Single Occupant Vehicle (SOV)**-Any vehicle where the driver is driving alone to work, school, and other destinations.

**Standard Metropolitan Statistical Area (SMSA)**-A Census Bureau delineation for major metro areas in the U.S.

**Surface Transportation Program (STP)**-A federal program designed to create flexible funding for transit and highway construction. Funds may be used for a wide variety of purposes, including: roadway construction, reconstruction, resurfacing, restoration and rehabilitation; roadway operational improvements; capital costs for transit projects; highway and transit safety improvements; bicycle and pedestrian facilities; scenic and historical transportation facilities; and, preservation of abandoned transportation corridors.

**TEA-21**- Transportation Equity Act for the 21<sup>st</sup> authorizes highway, highway safety, transit and other surface transportation programs for the next 6 years. TEA-21 builds on the initiatives established in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA).

**Telecommuting** -Using a home computer or a neighborhood work center for work, effectively eliminating the need to travel to a conventional workplace.

**Teleconferencing** -Using audio, video, and/or computer connections among sites for meetings, eliminating any need to travel to the meeting site.

**Texas Department of Transportation (TxDOT)**-State agency responsible for construction and maintenance of all Interstate, U.S., and State Highways and Farm-to-Market (FM) Roads within the state.

**Texoma Metropolitan Area Transportation Plan (TMATP)**-A document which identifies existing and future transportation deficiencies and needs, as well as network improvements needed to meet mobility requirements over at least a twenty year time period. To receive federal funding a transportation project must be included in the TMATP and the Transportation Improvement Program (TIP). Formerly known as the Long Range Transportation Plan.

**Traffic District**-A geographic unit comprised of several traffic serial zones which may be used for the same purposes as traffic serial zones.

**Traffic Serial Zone**-The smallest geographically designated area for analysis of transportation activity such as data collection and travel movements within, into, and out of the urban area. A zone can be from one to 10 square miles in area.

**Transit** - Transportation mode which moves larger numbers of people than does a single automobile. Generally refers to passenger service provided to the general public along established routes with fixed or variable schedules at published fares.

**Transit Dependent** - Persons who must rely on public transit or Paratransit services for most of their transportation. Typically refers to individuals without access to personal vehicles.

**Transportation**-The act of getting persons or things from here to there, through personal or communal means. An integral and vital human need, behavior, and/or service.

**Transportation Conformity**-A requirement of the CAAA that a regional emissions analysis be conducted on transportation programs and plans to ensure that these plans meet the State Implementation Plan's air quality goals.

**Transportation Control Measure (TCM)**-Any measure designed to reduce congestion, emissions, and other traffic problems.

**Transportation Demand Management (TDM)**-Strategies for easing or reducing transportation demand, specifically aimed at diverting people from driving alone. Programs used to improve air quality and congestion by decreasing vehicle miles traveled and vehicle trips.

**Transportation Improvement Program (TIP)**-An MPO prepared document that identifies specific highway and transit projects to be implemented in an area over a three year period, i.e., this document covers the first three years of the Metropolitan Transportation Plan. To receive federal funding, a transportation project must be included in the plan and TIP.

**Transportation Management Area (TMA)**-Defined by ISTEA as all urbanized areas over 200,000 in population. Within a TMA, all transportation plans and programs must be based on a continuing and comprehensive planning process carried out by the Metropolitan Planning Organization (MPO) in cooperation with states and transit operators. The TMA boundary affects the responsibility for the selection of transportation projects that receive federal funds.

**Transportation System Management (TSM)**-That element of a TIP (Transportation Improvement Program) which proposed non-capital-intensive steps toward the improvement of a transportation system, such as refinement of system and traffic management, the use of bus priority or reserved lanes, and parking strategies. It includes actions to reduce vehicle use, facilitate traffic flow, and improve internal transit management.

**Travel Time**-Customarily calculated as the time it takes to travel from "door-to-door." For transit service measures of travel time include time spent accessing, waiting, and transferring between vehicles, as well as that time spent on board.

**Trip** - A one-direction movement from an origin to a destination.

**Trip End**-Origin or destination of a trip.

**Trip Purpose**- Reason for a trip.

**Unified Planning Work Program (UPWP)**-Annual report prepared by the MPO describing transportation planning activities which will take place within the Austin ETJ.

**United States Department of Transportation (DOT)**- Principal federal funding and regulating agency for transportation facilities. FHWA and FTA are agencies within DOT.

**Urbanized Area (UZA)**- Area which contains a city of 50,000 or more population plus incorporated surrounding areas meeting set size or density criteria.

**Vehicle Miles Traveled (VMT)**-Term used for describing the total number of miles traveled by a vehicle in a given time. Most conventional VMT calculation is to multiply average length of trip by the total number of trips.

**Volatile Organic Compounds (VOC)**-Toxic residual chemicals from fossil fuel combustion, solvents, paints, glues, and some dry cleaning processes. VOCs contribute to ozone formation and other pollutants.

## **APPENDIX F: *TRANSPORTATION ACRONYM LIST (TAL)***

<b>AASHTO</b>	American Association of State Highway and Transportation Officials
<b>ADA</b>	Americans With Disabilities Act
<b>CAAA</b>	Clean Air Act Amendments
<b>CDM</b>	Congestion/Demand Management
<b>CMS</b>	Congestion Management System
<b>DOT</b>	Department of Transportation
<b>EA</b>	Environmental Assessment
<b>EIS</b>	Environmental Impact Statement
<b>EPACT</b>	Energy Policy Act
<b>ETJ</b>	Extraterritorial Jurisdiction
<b>FHWA</b>	Federal Highway Administration
<b>FTA</b>	Federal Transit Administration
<b>HOV</b>	High Occupancy Vehicle
<b>ISTEA</b>	Intermodal Surface Transportation Efficiency Act, 1991
<b>IVHS</b>	Intelligent Vehicle Highway System
<b>MPO</b>	Metropolitan Planning Organization
<b>MUTCD</b>	Manual on Uniform Traffic Control Devices
<b>Nox</b>	Nitrogen Oxides
<b>PAPI</b>	Precision Approach Path Indicator
<b>PIP</b>	Public Involvement Program
<b>RFG</b>	Reformulated Gasoline
<b>RVP</b>	Reid Vapor Pressure
<b>SAFETEA</b>	Safe, Accountable, Flexible and Efficient Transportation Equity Act of 2003
<b>SDC</b>	State Data Center
<b>SOV</b>	Single Occupant Vehicle
<b>STIP</b>	State Transportation Improvement Program
<b>TAL</b>	Transportation Acronym List
<b>TEA-21</b>	Transportation Equity Act for the 21 <sup>st</sup> Century, 1998
<b>TDM</b>	Transportation Demand Management
<b>TIP</b>	Transportation Improvement Program
<b>TMA</b>	Transportation Management Area
<b>TMT</b>	Traffic Management Team
<b>TPAC</b>	Transportation Policy Advisory Committee
<b>TSM</b>	Transportation Systems Management
<b>TCEQ</b>	Texas Commission on Environmental Quality
<b>TxDOT</b>	Texas Department of Transportation
<b>VASI</b>	Visual Approach Slope Indicator
<b>VMT</b>	Vehicle Miles Traveled
<b>VOC</b>	Volatile Organic Compounds
<b>V-Trip</b>	Voluntary Vehicle Trip Reduction Program

## APPENDIX G: Bibliography

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## APPENDIX H: PUBLICITY/PUBLIC COMMENTS

Article published on June 4 & 21, 2009

### Sherman-Denison MPO to meet

The Sherman-Denison Metropolitan Planning Organization, charged with developing priority lists of transportation plans will conduct a series of Public Involvement Meetings to discuss the draft 2035 Metropolitan Transportation Plan.

A draft listing of the proposed 2035 projects will also be presented. The MTP involves short-term and long-term projects to meet the future transportation needs of the Sherman-Denison study area and includes public transit system projects, a press release from the MPO states.

The following is a schedule of the meetings:

Sherman - 5 p.m. Wednesday, Texoma Council of Governments Eisenhower Meeting Room - 1117 Gallagher Dr. The Texas Department of Transportation is also requesting that the current FY 2008 - 2011 Transportation Improvement Program be

amended to include a grade separation at U.S. Highway 82 and FM 1417 West. This will be discussed at this meeting only;

Denison - 5 p.m. July 14, City Hall Annex-Media Room, 430 West Chestnut;

Van Alstyne - 5 p.m. Aug. 11, Community Center - 262 North Preston.

Information concerning the Sherman-Denison Metropolitan Area MTP and TIP as well as proposed amendments is on file and available for inspection at TCOG, or at the Texas Department of Transportation, 3904 U.S. Highway 75 South, Sherman, during normal business hours. It is also available on the Web site listed below under the "Publications" link.

"All interested citizens are encouraged to give their input on the transportation issues for the Sherman, Denison, Howe, Van Alstyne and

Pottsboro area," a press release from the MPO states. "Your input is needed to build the best transportation system possible for our area, including the needs of citizens with disabilities. Oral and written comments will be accepted from the public regarding the proposed plan. Comments may be presented either at the meeting or within 10 calendar days after the meeting. Written statements or exhibits may be submitted to the Texas Department of Transportation, Grayson County Area, 3904 U.S. Highway 75 South, Sherman, TX 75090, or Texoma COG, 1117 Gallagher Dr., Suite 300, Sherman, TX 75090, Attn: Robert Wood, transportation director, and must arrive no later than 10 calendar days after the public meeting. This item will be presented only at the June 24 meeting.

www.sdmpo.org

#### NOTICE OF PUBLIC INVOLVEMENT MEETING

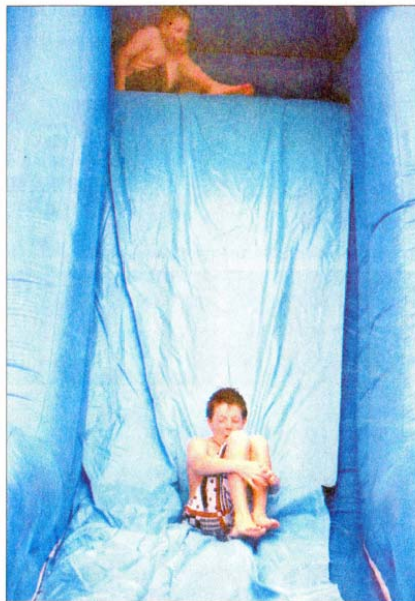
Sherman, TX — The Sherman - Denison Metropolitan Planning Organization (MPO) will conduct a Public Involvement Meeting on Wednesday, June 24, 2009 at 5:00p.m. The meeting will be held at the Texoma Council of Governments Eisenhower Meeting Room to discuss the draft 2035 Metropolitan Transportation Plan (MTP). A draft listing of the proposed 2035 projects will also be presented. The MTP involves short-term and long-term projects to meet the future transportation needs of the Sherman - Denison study area and includes public transit system projects. The Texas Department of Transportation (TxDOT) is also requesting that the current FY 2008 - 2011 Transportation Improvement Program (TIP) be amended to include a grade separation at US 82 and FM 1417 East.

Information concerning the Sherman-Denison Metropolitan Area MTP & TIP as well as proposed amendments is on file and available for inspection at TCOG, or at the Texas Department of Transportation, U.S. 3904 HWY 75 South, Sherman, Texas during normal business hours. It is also available on our web site [www.sdmpo.org](http://www.sdmpo.org) under the "Publications" link.

All interested citizens are encouraged to give their input on the transportation issues for the Sherman, Denison, Howe, Van Alstyne and Pottsboro area. Your input is needed to build the best transportation system possible for our area, including the needs of citizens with disabilities. Verbal and written comments will be accepted from the public regarding the proposed plan. Comments may be presented either at the meeting or within 10 calendar days after the meeting. Written statements or exhibits may be submitted to the Texas Department of Transportation, Grayson County Area, 3904 U.S. Highway 75 South, Sherman, TX 75090, and/or Texoma COG, 1117 Gallagher Dr., Suite 300, Sherman, TX 75090, Attn: Robert Wood, Transportation Director, AND MUST ARRIVE NO LATER THAN 10 CALENDAR DAYS AFTER THE PUBLIC MEETING.



**Herald Democrat**  
www.heralddemocrat.com  
THURSDAY, JUNE 4, 2009 50 CENTS



Water Day  
COURTESY PHOTO

### Transportation plan is endorsed at MPO meeting

BY KATHY WILLIAMS  
HERALD DEMOCRAT

Sherman-Denison Metropolitan Planning Organization endorsed the draft 25-year transportation plan Wednesday, but not before moving off items funded with federal recovery act money and adding another project.

The board also directed staff members to decide whether they could develop a project to qualify for between \$20 million and \$200 million in additional federal recovery act money. Projects approved under the TIGER program, could also be for lesser amounts with special permission. TIGER applications must be received by early September and completed within two years.

The board approved administrative changes to the current Transportation Improvement Plan, the work plan for the cur-

Transportation Plan.

Magers asked if the project to widen FM 691 at its intersection with U.S. Highway 75 could be removed from the list of major construction projects for the 2010-2020 plan. The project is included in Federal Recovery and Reinvestment Act funding. Littlefield said the project could be removed from the plan because the contract for the project will be let in September. The federal money for that project will free up the money widening FM 691 would have cost for other local projects.

Although the projects are not listed in priority order in the plan, board members, especially Magers, made it clear they would like to prioritize the ramp reversal on U.S. 75 southbound in front of Sherman Town Center and the two projects to redirect traffic away from that retail area and along Canyon Grove Road, U.S. Highway 82 and Travis Street in

No public comments received.



# APPENDIX I: State Funding Categories and Project Selection

FUNDING CATEGORIES AND PROJECT SELECTION METHODS					
FUNDING CATEGORY	STARTING POINT	PROJECT SELECTION	USUAL FUNDING PARTICIPATION		
STATEWIDE PRESENTATION AND SAFETY PROGRAM	1 - Preventive Maintenance and Rehabilitation	TxDOT District	Projects selected by Districts. Commission allocates funds through Allocation Program.	Federal 90% State 10% or Federal 80% State 20% or State 100%	
	6 - Structures <small>Federal Highway Bridge Program (HBP); Federal Railroad Grade Separation Program (RGS)</small>	TxDOT District	Projects selected by Districts. Commission allocates funds through Allocation Program. Districts select projects based on Highway Bridge Program eligibility. RGS will be a statewide program.	Federal 90% State 10% or Federal 80% State 20% or Federal 100%	
	8 - Safety <small>Federal Highway Safety Improvement Program; Federal Federal Highway-Highway Crossing Program; Safety Belt Program; Federal Railroad Grade Separation Program; Federal High Risk Rural Roads</small>	TxDOT District	Projects selected statewide by federally mandated safety indices and prioritized listing. Commission allocates funds to districts. Projects selected and approved by commission on a per-project basis for Federal Safe Routes to School Program.	Federal 90% State 10% or State 100% or Federal 100% or Federal 80% Local 20% or Federal 80% State 20%	
	2 - Metropolitan Area Corridor Projects	TxDOT District	Projects selected by MPOs in consultation with TxDOT. Commission allocates funds through Allocation Program.	Federal 80% State 20% or State 100%	
		3 - Urban Area Corridor Projects	TxDOT District	Projects selected by MPOs in consultation with TxDOT. Commission allocates funds through Allocation Program.	Federal 80% State 20% or State 100%
		4 - Statewide Connectivity Corridor Projects	TxDOT District	Projects selected by commission based on corridor ranking. Project total costs cannot exceed Commission approved statewide allocation.	Federal 80% State 20% or State 100%
	5 - Congestion Mitigation and Air Quality Improvement	TxDOT District	Projects selected by MPOs in consultation with TxDOT and funded by District's Allocation Program. Commission allocates money based on population percentages within areas failing to meet air quality standards.	Federal 80% State 20% or Federal 80% Local 20% or Federal 90% State 10%	
		7 - Metropolitan Mobility/Rehabilitation	TxDOT District	Projects selected by MPOs in consultation with TxDOT and funded by District's Allocation Program.	Federal 80% State 20% or Federal 80% Local 20% or State 100%
	9 - Transportation Enhancements	TxDOT District	Local entities make recommendations and a TxDOT committee reviews them. Projects selected and approved by commission on a per-project basis. Projects in the Safety Rest Area Program are selected by the Maintenance Division.	Federal 80% State 20% or Federal 80% Local 20%	
	10 - Supplemental Transportation Projects <small>State Park Roads, Railroad Grade Crossing Replanning, Railroad Signal Maintenance, Construction Landscaping, Landscape Cobb, Safety Rest Area, Safety Rest Area, Ribbon, Landscape Improvement, Curb Ramp Program, Coordinated Border Infrastructure Program, Comprehensive Development Agreements and Congressional High Priority Projects</small>	TxDOT District, Texas Parks and Wildlife Department, Other (federal allocation)	Projects selected statewide by Traffic Operations Division or Texas Parks and Wildlife Department, local projects selected by district. Commission allocates funds to districts or approves participation in federal programs with allocation formulas. Coordinated Border Infrastructure Program funds are allocated to districts according to the federal formula.	State 100% or Federal 80% State 20% or Federal 100%	
		11 - District Discretionary	TxDOT District	Projects selected by districts. Commission allocates funds through Allocation Program.	Federal 80% State 20% or Federal 80% Local 20% or State 100%
	12 - Strategic Priority	Commission	Commission selects projects which generally promote economic opportunity, increase efficiency on military deployment routes or to retain military assets in response to the federal military base realignment and closure report, or maintain the ability to respond to both man-made and natural emergencies. Also, the Commission approves pass-through financing projects in order to help local communities address their transportation needs.	Federal 80% State 20% or State 100%	

Selected projects shall support the department's goals and are subject to commission approval.

Preservation Programs     
  Safety Program     
  Mobility Programs     
  Supplemental Programs