METROPOLITAN TRANSPORTATION PLAN 2035

Adopted by the
Tyler Area MPO Policy Committee
December 4, 2009

Revised April 22, 2010

BWR | Right in the Center

December 4, 2009

Ms. Barbara Holly
Executive Director, Tyler Area MPO
423 W. Ferguson Street
Tyler, Texas 75702

RE: Tyler Area MPO Metropolitan Transportation Plan 2035

Dear Ms. Holly,

Bucher, Willis & Ratliff Corporation is pleased to submit the *Tyler Area MPO Metropolitan Transportation Plan 2035* to your office. This plan will help the Tyler Area MPO meet the transportation needs of the community for the next twenty-five years. It includes prioritized roadway improvement projects that are financially constrained. These projects are categorized by short-term, long-term, and illustrated projects. The plan also focuses on future needs in the areas of transit, bicycle, and pedestrian facilities. These multimodal improvements will become increasingly critical as demand for alternative modes increase.

A new component to the MTP this year is the SAFETEA-LU requirements. The Safe, Accountable, Flexible, Efficient Transportation Equity Act, or SAFETEA-LU, is a federal transportation bill that funnels funding dollars to state and local decision makers. The act places emphasis in the following areas: Safety, Equity, Innovative Finance, Congestion Relief, Mobility and Productivity, Efficiency, Environmental Stewardship, and Environmental Streamlining. To continue receiving funding dollars within the Tyler Area MPO, this update better aligned its goals and objectives to that of SAFETEA-LU.

We would like to thank your office along with the Texas Department of Transportation, Smith County, and the Cities of Tyler, Lindale, and Whitehouse for all your cooperation. The completion of this year's MTP Update is in large part due to the continued availability and assistance of these agencies.

Sincerely,

Bucher, Willis & Ratliff Corporation

Gary S. Graham, PE
Project Manager

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Prepared by:
Bucher, Willis, and Ratliff Corporation
1828 East Southeast Loop 323, Suite 202
Tyler, Texas 75701
903.581.7844

This Document Serves as an Update to the Tyler Area Metropolitan Transportation Plan 2030.
Portions of that Document were Unchanged and Appear in this Update.

Tyler Area MPO Policy Committee

Judge Joel Baker, Smith County
County Commissioner Jeff Warr, Smith County
County Road Administrator Doug Nicholson, Smith County
Mayor Barbara Bass, City of Tyler
City Manager Mark McDaniel, City of Tyler
City Engineer Carter Delleney P.E., City of Tyler
Gary Halbrooks, North East Texas Regional Mobility Authority
District Engineer Randy Hopmann, Texas Department of Transportation
City Manager Owen Scott, City of Lindale
Interim City Manager Mike Peterson, City of Whitehouse
Major Mike Turman, City of Noonday

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David Cleveland, East Texas Council of Governments
Lynn Hayes, Federal Transit Administration
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Scott Reily, Tyler Bicycle Club
Jan Wood, East Texas Trekkers
Barbara Holly, Tyler Area MPO
Heather Nick, Tyler Area MPO
Tony Filippini, Tyler Area MPO

Prepared by:

Bucher, Willis & Ratliff Corporation
Tyler, Texas

As Approved by the Tyler Area MPO Policy Committee
December 4, 2009

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1 History

A Metropolitan Transportation Plan is one of the most important tools to facilitate orderly urban and rural development, as it guides the location and type of roadway facilities that are needed to meet projected growth within an area. It enables cities and counties to determine and plan for their existing and future transportation improvement needs and to acquire adequate rights-of-way. A Metropolitan Transportation Plan is a means of assuring that basic infrastructure needs and right-of-way will be available when travel demand warrants new or improved highway facilities.

FEDERAL LEGISLATION

With the passage of the Federal Highway Act of 1962, Congress made urban transportation planning a condition for receipt of federal highway funds in urban areas with 50,000 population or more. In these urbanized areas, Metropolitan Planning Organizations (MPOs) were designated by the governor of each state to carry out this legislative requirement. This legislation encouraged "a continuous, cooperative, and comprehensive transportation planning process carried on cooperatively by the states and local communities;" thus the "3-C" planning process evolved. Subsequent highway bills further increased the need for the transportation planning process. In addition, these highway bills will undergo periodic review and reauthorization furthering the need to continue the transportation planning process. These bills include:

- Federal Aid Highway Act of 1970
- FHWA/UMTA Joint Resolutions (1975)
- Federal Aid Highway Act of 1982
- Revised FHWA/UMTA Joint Resolutions (1983)
- Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)
- Transportation Equity Act for the 21st Century of 1998 (TEA-21)
- Safe, Accountable. Flexible, and Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU)

In 1991, the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) was signed into law and provided a new perspective and emphasis on transportation planning and project development. ISTEA required that 20-year transportation plans, called Metropolitan Transportation Plans, be adopted every 5 years by Metropolitan Planning Organizations. It also required that these plans be financially constrained which means that the projects expected to be constructed or buses purchased, etc., in the 20-year planning horizon could not exceed the funds projected to be available. In 1998, the Transportation Equity Act for the 21st Century (TEA-21) was enacted, continuing the objectives set out in ISTEA with minor modifications. TEA-21 expired in 2004. The Safe, Accountable, Flexible, and Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU), was signed into law in 2005.

MPO ORGANIZATION

As a result of federal guidelines, the City of Tyler was designated as the Tyler Urban Transportation Study Metropolitan Planning Organization in 1974, and is responsible for the "3-C" (continuous, comprehensive and cooperative) planning process. The organization has transitioned into what is now known as the Tyler Area MPO.

Urban transportation planning efforts have been conducted for the Tyler urban area since the early 1960's. The first comprehensive transportation plan was released in 1966 and this plan was completed as a requirement of the Federal-Aid Highway Act of 1962. This act required long-range transportation planning be undertaken in metropolitan areas over 50,000 population where federal funds were used in highway construction. Since this original plan, various updates have been adopted. An update was released in the mid-1970's in response to an increased awareness of environmental issues. In 1988, an additional update was conducted that included the collection and analysis of large databases relative to urban activity in the Tyler area. Population and land use forecasts in this update served as the bases to project traffic demands into the year 2035. Until 1994, a comprehensive long-range transportation plan had not been released since the original 1966 report and the various updates mentioned. Through a consultant study completed in 1985, the City of Tyler developed and adopted the Master Street Plan. The Master Street Plan identified improvement needs to existing major streets in the city. During 1999 the Master Street Plan was updated with the completion of the City's Comprehensive Plan which was adopted during the fall of 1999. The Master Street Plan along with the Metropolitan Transportation Plan was updated during 2004. This document meets the "3-C" planning requirements, as it is the five year update to the previous MTP developed in 2004. This current plan will be approved in 2009 and will have a planning horizon of 2035. Another update to the MTP must be completed within five years, or no later than the end of calendar year 2014. In the event that the Tyler Area MPO is designated with an Ozone Nonattainment status, the MTP update will be required within four years, or no later than the end of calendar year 2013.

TRANSPORTATION POLICY COMMITTEE

The Policy Board consists of eleven members composed of the principal elected and appointed officials in the Tyler/Smith County area. The Policy Board's purpose is to approve and adopt transportation policies for the Unified Planning Work Program (UPWP), the Transportation Improvement Program (TIP), and the Metropolitan Transportation Plan (MTP).

TECHNICAL ADVISORY COMMITTEE

The Technical Advisory Committee consists of 25 members with knowledge and expertise in various transportation fields. The Technical Committee's purpose is to advise the Policy Committee on the development of the Unified Planning Work Program (UPWP), the Metropolitan Transportation Plan (MTP), and the Transportation Improvement Program (TIP). All official action of adopting policies, endorsing the UPWP, approving the MTP, and adopting the TIP resides with the Policy Committee. The Policy Committee may direct the Technical Committee to present alternatives for its consideration, with accompanying recommendations and supporting rationale.

MPO STAFF

The Tyler Area Metropolitan Planning Organization staff provides administrative support to the Policy Committee and the Technical Advisory Committee. MPO Staff is also responsible for coordinating, developing and maintaining all required transportation planning documents.

METROPOLITAN PLANNING AREA/BOUNDARY

The long-range transportation plan requires analyzing the existing transportation network in terms of current and projected future needs and developing a program of projects to address these needs. In order to accomplish this, the plan must outline a transportation study area. The MPO Boundary has been approved by the Governor to address transportation planning for the Tyler urbanized area, which was revised in 2004. The MPO planning region for the Tyler urbanized area includes the City of Tyler and several other developing areas such as Gresham, Lindale, Hideaway, New Chapel Hill, Noonday and Whitehouse. The study area is intended to include those areas outside the main urban area most likely to experience urbanization during the 25-year planning horizon.

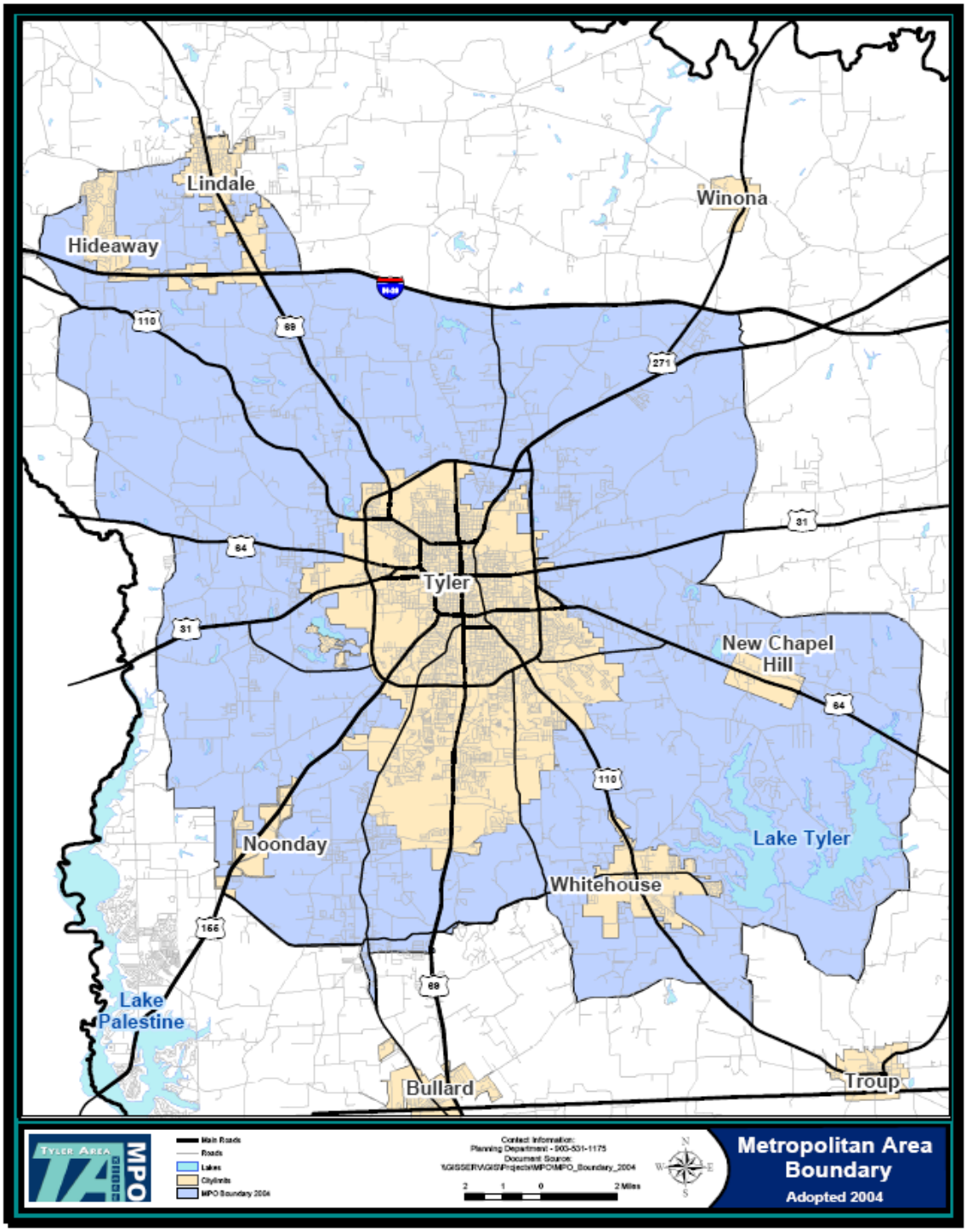


FIGURE 1-1 TYLER AREA MPO BOUNDARY

2 MTP Vision and Goals

One of the products of the MPO is the development of this Plan. The information generated through the transportation planning process is made available to city staff and officials to assist them in developing transportation policies and programs. The transportation process is an on-going process of evaluating data, needs and programs for future growth and development. The purpose of this Plan is to provide a framework for rational development of transportation improvements within the Tyler Metropolitan Study Area.

SAFETEA-LU 2005 PLANNING FACTORS

Transportation planning is a process of projecting future transportation needs, investigating and evaluating alternative actions for meeting those needs, assessing the financial ability of the community to implement those actions, and recommending reasonable strategies based on needs and available resources. Elected officials and others in decision-making roles need access to this information to help them develop policies, programs, and projects. The transportation planning process is continuous. Conditions affecting the transportation system, such as population growth, land use patterns, employment changes, traffic volumes, etc., are monitored. Alternate means for alleviating congestion are identified, and decisions are made on which projects are to be carried out. The proposed projects are evaluated in relation to expected funding levels, prioritized, and listed in order of importance to the community. All transportation modes for the entire metropolitan area are studied and addressed in a comprehensive manner. The transportation planning process is structured to include cooperative input and direction from participating cities, counties, agencies, and the public. This results in the development of a plan, which encompasses the 3-C planning process.

After the initial Plan is developed and adopted, the Plan must be continuous through on-going review of transportation projects and continual monitoring of basic elements of the Plan. These provisions were, and still are, intended to:

- Prevent the development of conflicting plans by different governmental entities;
- Prevent duplication of effort by providing a single focus of regional transportation planning through the designated Metropolitan Planning Organization; and,
- Provide an organized system to establish priorities for project funding.

GOAL AND OBJECTIVES

The overall goal of the plan is ***to develop a safe, efficient, and economically feasible multi-modal transportation system that will accommodate the mobility needs of all people and goods traveling within and through the Tyler area over the next 25 years.***

Specific objectives were developed to accomplish this goal. Transportation system projects developed and recommended for implementation through the Metropolitan Transportation Plan

should meet one or more of these objectives. The following objectives were identified for the MTP:

- To promote the efficient use and preservation of existing transportation systems and their infrastructure;
- To develop roadway facilities that ensure network continuity throughout the Tyler area are planned and classified based on function and relative importance, including providing a proper balance of freeways, expressways, major and minor arterials, collectors and local streets in coordination with the City of Tyler's Master Street Plan.
- To improve safety on the existing transportation system by developing projects that reduce hazards and improve driving conditions;
- To develop a network of bicycle facilities that is safe and accessible for residents and provides important connections between residential areas and major developments;
- To develop adequate thoroughfares for improved east-west movement through the Tyler area and preserve existing neighborhoods by discouraging through traffic on local and collector streets;
- To develop improved pedestrian facilities, such as sidewalks and trails, that connect residential areas to major developments, schools, and transit services;
- To provide for improved transit services, including local bus service, commuter bus service, and long distance rail transportation;
- To develop Tyler Pounds Field into a regional Hub for air transportation and improve mass transit access to the airport;
- To maintain consistency with adopted land use plans and ordinances;
- To accommodate future land development and provide an adequate level of accessibility to the roadway system without significantly deteriorating level-of-service;
- To encourage transportation investments and policies that result in a higher level of security for motorists, transit users, pedestrians, and bicyclists;
- To obtain a regional roadway network where arterials meet minimum Level of Service (LOS) requirement of D and roadways classified as collectors and below operate at a LOS C or better;
- To support transportation projects/activities that will protect the environment and promote energy conservation; and,
- To promote the development and preservation of the area's rail system to support commercial businesses and maintain existing rail right-of-way limits.

REGIONAL TRANSPORTATION PLANNING PROCESS

The Tyler Area MPO Boundary is located within Smith County, a member of the East Texas Council of Governments (ETCOG). ETCOG was established in 1970 and is a voluntary association of various governments including counties, cities, schools districts, and special

districts. Services provided by the Council of Governments include: 9-1-1 emergency call system, peace officer training, homeland security planning, environmental grant funding, business finance programs, and rural transportation services.

MPO TRANSPORTATION PLANNING PROCESS

Unified Planning Work Program (UPWP)

The UPWP is prepared on a biannual basis to identify all work to be executed by the Tyler Area MPO. The document is divided into five sections: Administration and Management Activities, Data Development and Maintenance, Short Range Planning, Long Range Planning, and Special Studies.

Transportation Improvement Program (TIP)

The TIP is the short range implementation plan with a four year planning horizon. The plan provides the guide to the Federal Highway Administration, Federal Transit Administration, the Texas Department of Transportation (TxDOT), and local officials for budgeting funds and planning design and construction of transportation and transit improvements for the near future. All projects come out of the long-range plan known as the Metropolitan Transportation Plan. The TIP may be amended as funding levels change or transportation needs change. Amendments to the TIP, updating or adjusting amounts, of listed projects, let dates, project numbers, and similar amendments will not require approval by the Tyler Area MPO Policy Committee following concurrence by TxDOT.

Metropolitan Transportation Plan (MTP)

The Metropolitan Transportation Plan is a long range and comprehensive study of the metropolitan area. This long range plan prepares transportation improvements with a 25 year planning horizon and is fiscally restrained to realistic funding forecasts over the same period. The plan uses economic and demographic forecasting, traffic models, employments data, and other regional data to construct a forecast of transportation needs in the area.

3 Public Participation Plan

CURRENT POLICY

In accordance with the Texas Department of Transportation guidelines, the MPO organizational structure provides for a Policy Committee and a Technical Advisory Committee for the purpose of continuing the transportation planning program. The Policy Committee provides the policy direction necessary for continuing the transportation planning process in a coordinated and cooperative manner as outlined in the agreement with the Texas Department of Transportation (TxDOT). The responsibilities of the committee include an annual review of the adopted transportation plan and improvement programs, appropriate action on recommendations of the Technical Advisory Committee, meeting as necessary to perform its functions, and holding a public meeting at least once a year to discuss the status of transportation planning in the Tyler metropolitan area. The Tyler Area MPO Policy Committee is currently comprised of eleven (11) voting members as defined by the MPO Policy Committee By-laws.

Metropolitan Planning Organizations are required to provide a proactive public involvement process. The Tyler MPO has an adopted public involvement process which was followed for the development of this plan. The process requires that the MPO provide for citizen input at least six months prior to the adoption of a Metropolitan Transportation Plan. It also requires two public hearings, one of which must be conducted 30 days prior to the adoption of the plan. Finally, a public review and comment period of 10 days must be provided.

PUBLIC INVOLVEMENT

Public involvement was an important component of the Plan and included several activities to involve public agencies and stakeholders throughout the plan development process. Public involvement activities centered on obtaining meaningful input from key stakeholders on transportation issues in the area. The MPO Technical Committee guided the overall plan development and provided technical expertise throughout the process.

4 Demographics and Land Use

OVERVIEW

A transportation plan can only be effective if it examines the changing socioeconomic patterns of the region the plan will cover. Socioeconomic characteristics such as population, households, and employment patterns help characterize an area. The study of where people live and work is essential in transportation planning because the transportation network must be able to accommodate changing commuting patterns and habits of the population.

For the purposes of the Tyler Area Metropolitan Planning Organization (MPO) Long-Range Transportation Plan, total population, households, median income, employment, and land use patterns are all important characteristics that will be examined in this chapter. Traffic Analysis Zones (TAZs) will be used as a tool to graphically represent population and employment densities. TAZs are defined as areas of largely homogenous activity served by one or more major roadways. In addition, the population groups covered under the Civil Rights Act and which represent traditionally underserved populations as determined by the U.S. Department of Transportation will also be examined in the Environmental Justice section of the Metropolitan Transportation Plan (MTP) document.

POPULATION AND HOUSEHOLDS

Areas of residential land uses generate travel by producing trips through the activities occurring in these locations. Employment areas generate travel by attracting trips. The travel that occurs between trip generators takes place on one of the transportation modes available to the traveler. Accurate estimates of demographic data are imperative to understanding current conditions and forecasting how this travel will occur in the future. Thus, population and households are key items for the transportation planning process. Historical population and household data from the U.S. Census are shown in **Figure 4-1**.

The Tyler Area MPO has developed forecast of population and household for use in developing the long range transportation plan. These forecasts are outlined in this section.

Population Trends

Population has continued to increase in both the City of Tyler and Smith County. Growth in county population is much higher over the last 3 decades compared to the increase within Tyler City.

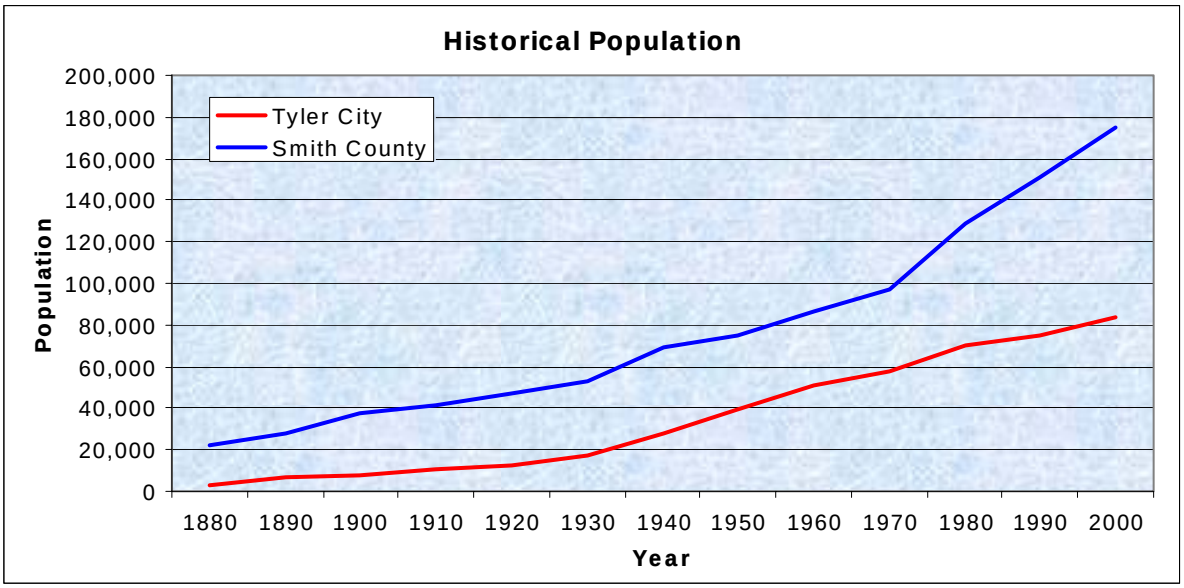


FIGURE 4-1 CITY OF TYLER AND SMITH COUNTY HISTORICAL POPULATION

Forecast Population

Table 4-1 summarizes the forecast population for the Tyler metropolitan planning area (MPA) and Smith County. For the Tyler MPA, nearly 40,000 residents is anticipated to be added to the estimated 2007 population of 155,594; a yearly increase of approximately 0.9%. A slightly higher annual percentage population increase of 1.0 is forecasted for Smith County.

TABLE 4-1 FORECAST POPULATION FOR TYLER AREA MPO AND SMITH COUNTY

	2002	2007	2012	2020	2030	2035
Tyler MPA*	146,500	155,594	164,669	171,832	185,962	194,998
Smith County	181,826	198,875	211,038	220,356	240,474	253,313

Source: Tyler Area MPO Demographic and Employment Inputs for Travel Demand Forecast, January 2009

MPA – Metropolitan Planning Area

Figure 4-2 depicts the distribution of population by TAZ calculated in terms of the number of persons within the TAZ divided by the TAZ area in acres.

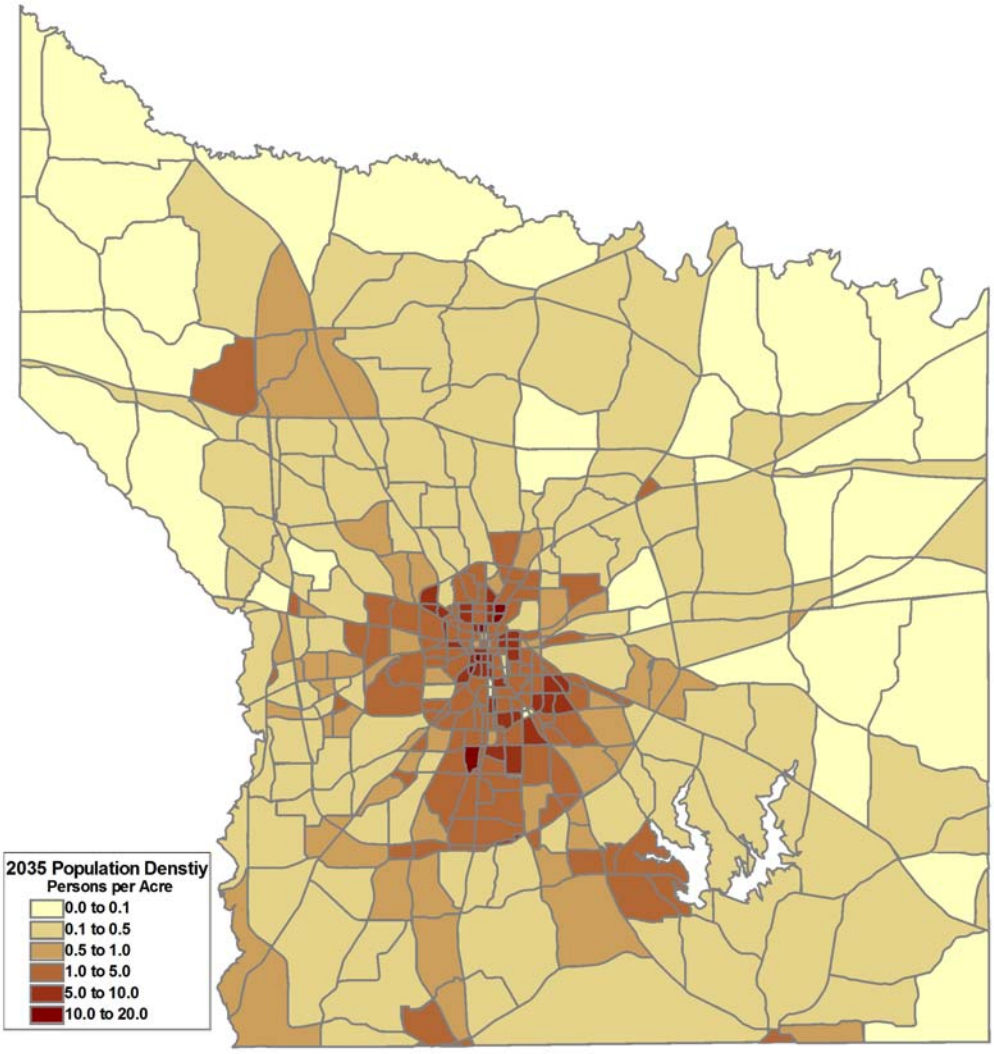


FIGURE 4-2 YEAR 2035 POPULATION DENSITY

Forecast Households

Table 4-2 summarizes the forecast household for the MPA and Smith County. An additional 16,914 households is expected to add to the 61,052 households estimated in 2007 within the MPA. This assumes a yearly increase of 1.0%. A slightly higher annual percentage household increase of 1.1 is forecasted for Smith County.

TABLE 4-2 FORECAST HOUSEHOLDS FOR TYLER AREA MPO AND SMITH COUNTY

	2002	2007	2012	2020	2030	2035
Tyler MPA		61,052	64,902	68,041	74,119	77,967
Smith County	68,614	77,083	82,116	86,077	94,675	100,124

Source: Tyler Area MPO Demographic and Employment Inputs for Travel Demand Forecast, January 2009
MPA – Metropolitan Planning Area

INCOME

The median household income measures the distribution of the total number of households and families , including those with no income. The following discussion on household and family incomes in Tyler and Smith County is excerpted from *Tyler 21 Comprehensive Plan*.

Tyler's median household and family incomes are lower than the county's and the state's as **Table 4-3** indicates. For single-person households who typically have lower median incomes than family households, the county has a smaller percentage than the city Moreover, the city has a larger number of households living in poverty. Disparities between household and family incomes reflect the difference between households with one earner and those with more than one.

TABLE 4-3 CENSUS AND ESTIMATED MEDIAN HOUSEHOLD AND FAMILY INCOMES - 1999 AND 2005[a]

	Median Household Income, 1999	Median Household Income, 2005*	Median Family Income, 1999	Median Family Income, 2005*
Tyler	$34,163	$31,514	$43,618	$45,644
Smith County	$37,148	$37,964	$44,534	$48,177
Texas	$39,927	$42,139	$45,861	$49,769

Source: U.S. Census Bureau
** U.S. Census Bureau's 2005 American Community Survey estimate*
a Table is extracted from Tyler 21 Comprehensive Plan

The Census Bureau estimates presented in **Table 4-4** suggest that income disparities grew in Tyler during 1999-2005. Over 51% of Tyler's households had incomes of less than $35,000 in 1999; by 2005, this total had risen to 53%. The percentage of households earning more than $50,000 also rose slightly between 1999 and 2005 from 33% to 34%, while the percentage of households earning $100,000 per year during this period rose from 10% in 1999 to 11% in 2005. Tyler's income levels are somewhat lower than Smith County's and Smith County in general has more households in the middle income ranges than Tyler.

TABLE 4-4 HOUSEHOLD INCOMES - 1999 AND 2005[a]

Household Income	Percentage of Tyler Households in 1999	Percentage of Tyler Households in 2005*	Percentage of Smith County Households in 1999	Percentage of Smith County Households in 2005*
Less than $10,000	12.5	14.7	10.4	11.1
$10,000 to $19,999	16.3	17.2	14.9	15.3
$20,000 to $34,999	22.0	21.5	21.8	19.9
$35,000 to $49,999	15.7	11.9	17.0	14.2
$50,000 to $74,999	14.9	16.2	18.0	17.9
$75,000 to $99,999	8.1	7.3	8.8	10.4
$100,000 and above	10.4	11.2	9.1	11.3

Source: U.S. Census Bureau
** U.S. Census Bureau's 2005 American Community Survey estimate*
a Table is extracted from Tyler 21 Comprehensive Plan

Forecast Median Household Income

The Tyler Area MPO has developed forecast of median household income for use in long range transportation planning. Median household income is forecasted to increase by about $5013 or 13.1% of 2007 median household income as **Figure 4-3** suggest.

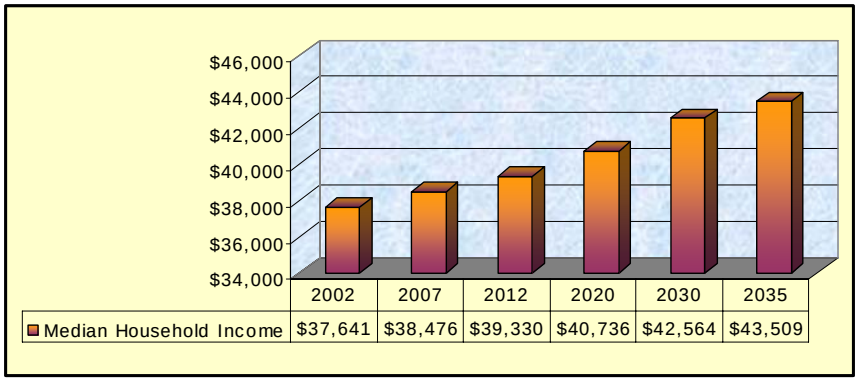


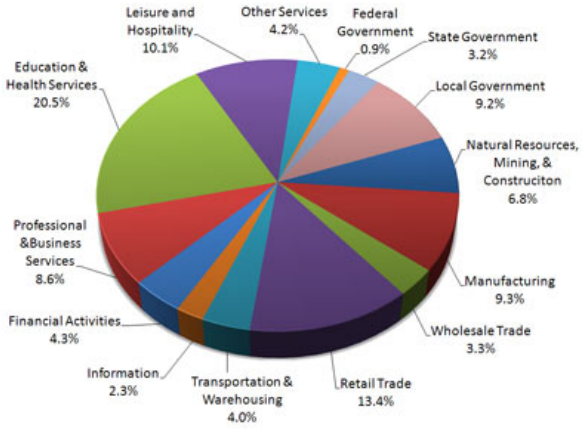
FIGURE 4-3 FORECAST MEDIAN HOUSEHOLD INCOME

EMPLOYMENT

A major factor that is used as a determinate for land use impacts on transportation is employment. The location and concentration of jobs in a region can produce severe constraints on transportation facilities. Increases in the employment base of an area can be used as a gauge of the growth of the area and emerging needs for access to and from the workplace.

Employment by Industry

According to the Tyler Economic Development Council, the Tyler/Smith County economy is more diverse today than it has ever been. The region is no longer dependent on one or two drivers for economic support. The pie chart in Figure 4-4 details the Tyler Metropolitan Statistical Area (MSA) employment by business sector.



Source: Tyler Economic Development Council

FIGURE 4-4 EMPLOYMENT BY BUSINESS SECTOR

Major Employers

Based from 2007 business data, the Tyler Economic Development Council has published the major employers in Tyler MSA as presented in **Table 4-5**.

TABLE 4-5 MAJOR EMPLOYERS IN TYLER MSA (2007)

Company Name	Product / Service	Employees†
East Texas Medical Center*	Medical Care	3,650
Trinity Mother Frances*	Medical Care	3,567
Tyler Independent School District	Education	2,572
Brookshire Grocery Company*	Grocery Distribution	2,190
Trane Co.*	Air Conditioning Units	1,949
Wal-Mart	Retail	1,670
Carrier Corporation	Air Conditioning Units	1,201
Suddenlink*	Cable, Internet Services, and Phone	1,057
Tyler Junior College	Education	998
The University of Texas at Tyler	Education	854
CB&I	Engineering Contracting	853
City of Tyler	Government	785
Smith County	Government	773
Target Distribution Center	Retail Distribution	735
Tyler Pipe	Cast Iron Pipe, Iron Fittings	703
UT Health Center at Tyler	Medical Care/Research	580
Southside Bank*	Banking Services	505
John Soules Foods	USDA Meat Processing	461
Loggins Meat Company, Inc.	Meat Packing	275

† Full-time equivalents
** Company has headquarters in Tyler, TX*

Employment Forecast

Table 4-6 presents a summary of projected employment by three broad categories, namely: Basic, Retail, and Service. Basic employment category generally consists of industrial uses. Retail category generally includes commercial uses while service category generally consists of office uses, including institutional uses. Trip generating characteristics are significantly different for the land uses in these categories.

Total employment is projected to grow annually by roughly 0.9%. The spatial distribution of employment is shown graphically in **Figure 4-5**.

TABLE 4-6 FORECAST EMPLOYMENT BY CATEGORY FOR SMITH COUNTY

	2002	2007	2012	2020	2030	2035
Basic Employment	25,908	27,917	28,238	29,841	32,772	34,164
Retail Employment	18,331	19,768	20,772	22,000	23,977	25,018
Service Employment	47,976	52,709	55,046	57,828	63,124	66,001
Total Employment	92,215	100,394	104,056	109,669	119,873	125,183

Source: Tyler Area MPO Demographic and Employment Inputs for Travel Demand Forecast, January 2009
MPA – Metropolitan Planning Area

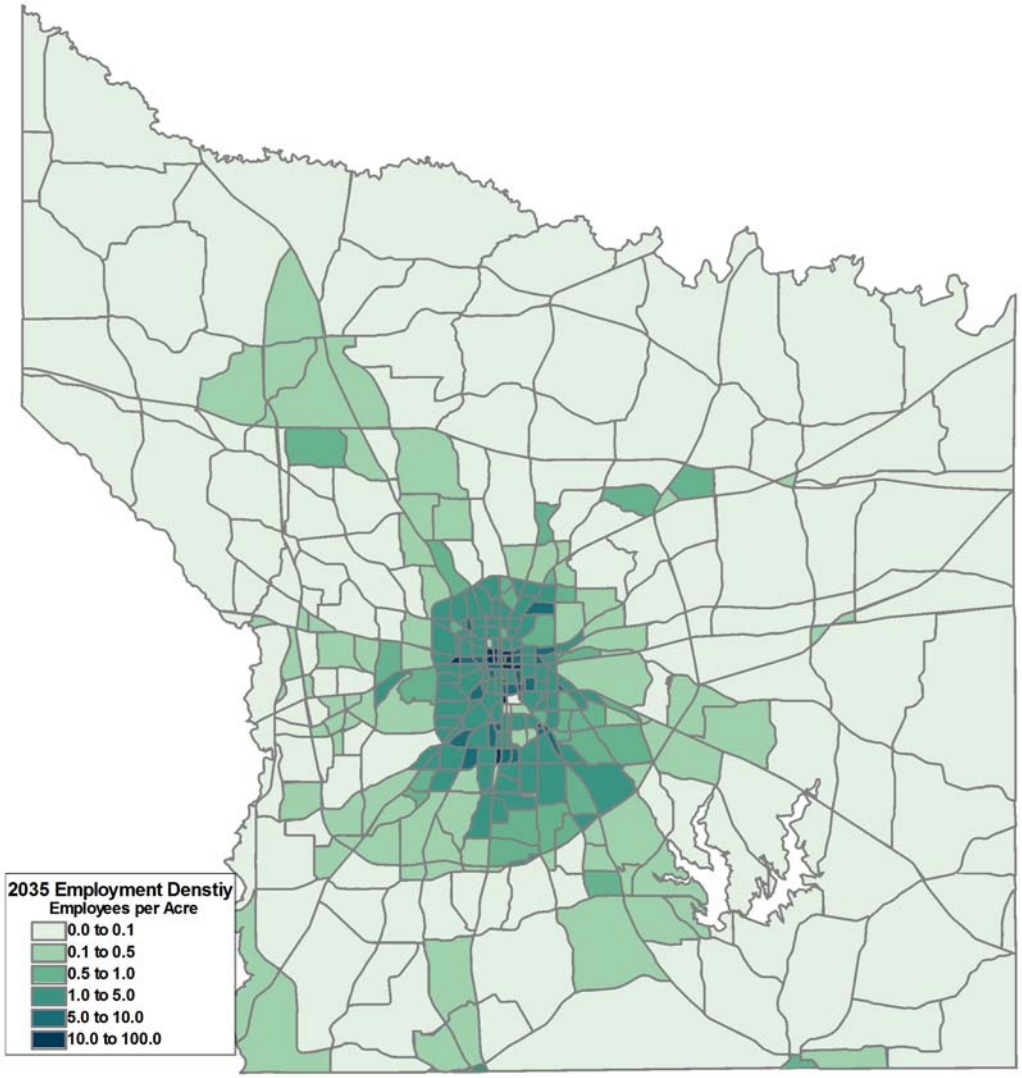


FIGURE 4-5 YEAR 2035 TOTAL EMPLOYMENT DENSITY

EXISTING LAND USE

The land uses and development patterns that make up a region provide insight into the community's economic health, environmental awareness, and transportation requirements. With regard to planning and providing for transportation facilities and services, activities that occur in each of the various land uses across the Tyler metropolitan planning area and Smith County form the basis of travel demand through the trips they generate. The transportation system provides the means through which this demand is met and as such is the mechanism through which commerce flows and personal mobility occurs. Expanded or new transportation facilities and services, accompanied with other types of expanded or new infrastructure, allow a community to expand into new areas as development occurs. As such, land use and transportation are inextricably linked.

City of Tyler

Figure 4-6 depicts the existing land uses in the City of Tyler. Tyler encompasses more than 50 square miles. Land use development initially has been in a radial pattern extending from the downtown with development being influenced by both natural and man-made features.

As the chart in **Figure 4-7** indicate, 58 percent of developed land is occupied by residential uses and the majority of housing units are single-family homes. By 2006, there were 25,289 single-family residential properties in Tyler, including lots with vacant residential structures and land platted and intended for new single-family dwellings. Other residential properties in 2006 included 1,572 duplexes, 33 triplexes, and 54 quadriplexes, along with over 8,000 units in multi-family apartment complexes and 115 parcels associated with mobile home units.

The *Tyler 21 Comprehensive Plan* noted that Tyler has over 3 million square feet of retail space, located primarily on Broadway south of Fifth Street and along South Loop 323. The Burns and Noble's *2006 Tyler Retail Market Survey*, reported 40 commercial strip centers, ranging in size from 16,000 square feet to 215,000 square feet and over 90% occupied. Additional retail space includes Broadway Square Mall at 622,980 square feet on the corner of Loop 323 and South Broadway and single-tenant buildings such as Wal-Mart and Target. It is expected that over the next five years, growth will support an additional 520,000 to 580,000 square feet of shopping center-inclined retail. This represents an average annual increase of 105,000 to 117,000 square feet per year, which is close to what was absorbed in Tyler in 2005. Because of associated surface parking, retail space occupies more land than the building square footage alone.

Office uses in Tyler are generally located along downtown and South Tyler. In 2006, Tyler had 49 office buildings that contained over 2 million square feet of office space. Thirty-two of these buildings (1.2 million square feet) were located in South Tyler near South Broadway Avenue, Old Bullard Road, Troup Highway, and Loop 323. Seventeen (824,000 square feet) were concentrated in the downtown area around the square, South Broadway, and Front Street. Other smaller office uses are found throughout the city, such as near the medical centers and along portions of Loop 323.

Few mixed-use projects exist in Tyler, but some recent development has incorporated a combination of commercial and residential uses. These projects were constructed under the

Planned Commercial Development (PCD) zoning category, with adjacent residential zoning. By 2006, over 524 acres, or 1.6% of the city's land area, had been zoned for PCD uses.

For industrial land uses, a limited number of large and small manufacturers are located within the city limits. With respect to agricultural uses, there are no true agricultural uses within the city limits of Tyler.

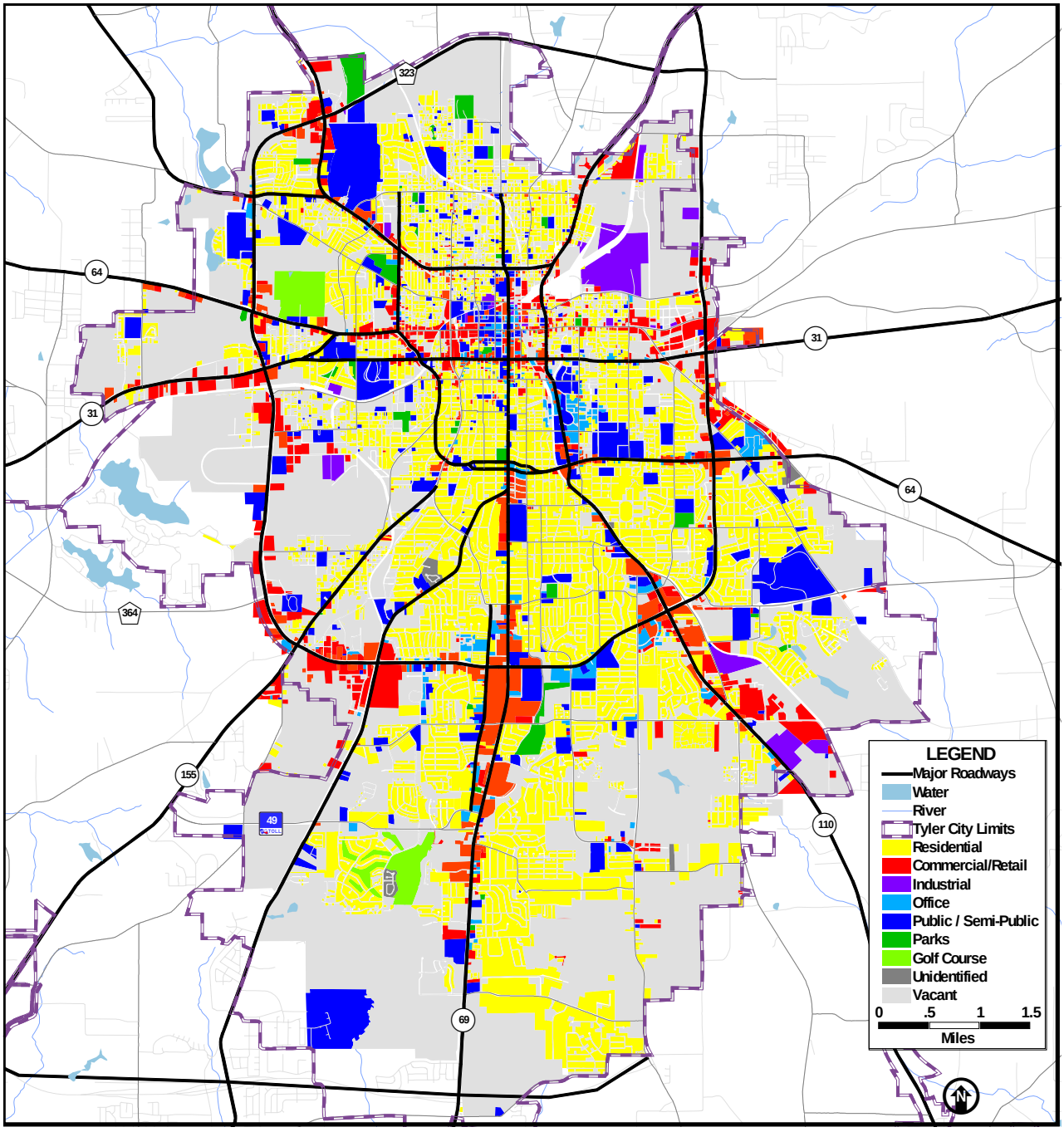


FIGURE 4-6 CITY OF TYLER EXISTING LAND USE MAP

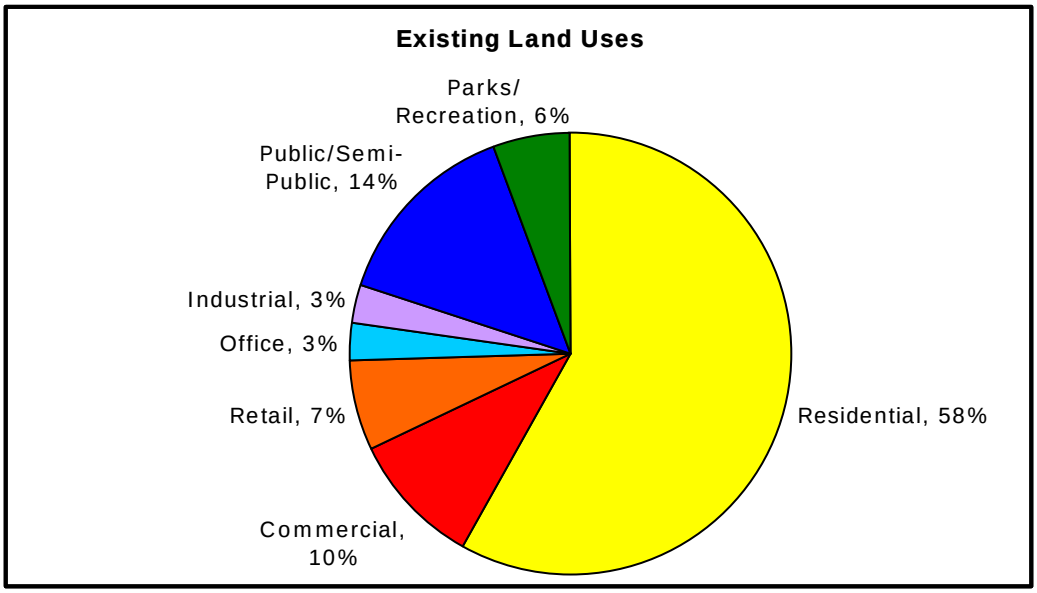


FIGURE 4-7 LAND USE DISTRIBUTION OF EXISTING DEVELOPED LAND

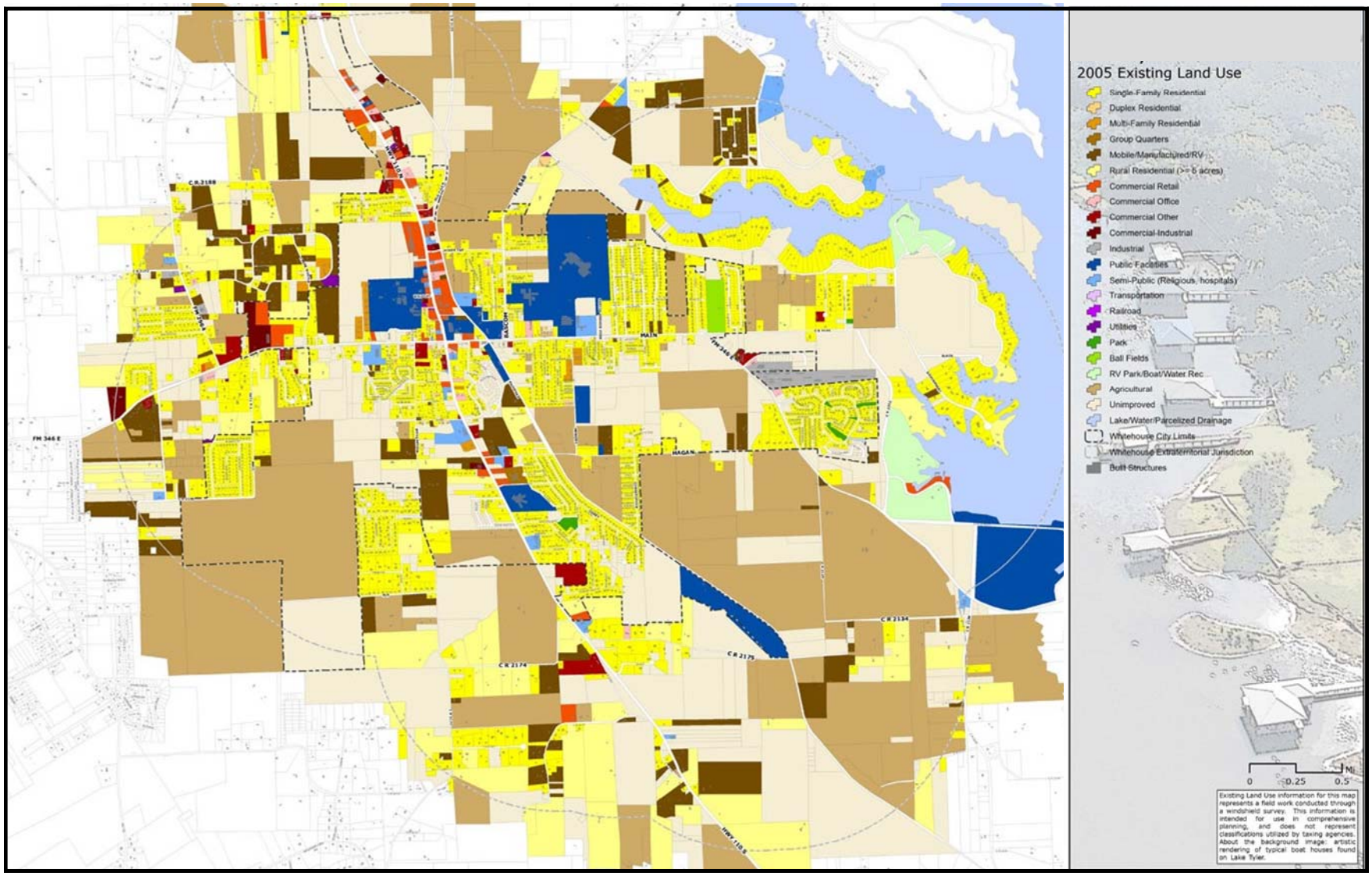
City of Whitehouse

In June 2006 the City of Whitehouse adopted its *Vision 2020 Comprehensive Plan*. The Plan laid out a vision that any citizen or developer would be able to use it and understand what the City wanted to achieve by 2020.

In developing the comprehensive plan, an inventory of existing land uses was undertaken in in late 2005. The land use survey utilized high-level aerial photography available at the time and windshield survey visits as the foundation for its classifications. The survey represents land use by ownership parcel. Where one or more land uses were observed on a single parcel, the dominant or principal land use was recorded. The resulting inventory of land uses is depicted in **Figure 4-8**.

The 2005 land use survey revealed that with the exclusion of land reserved for right-of-way, 47% of the City of Whitehouse has been developed for some urban use. The remaining 53% includes land which is either unimproved or involved in low intensity agricultural uses such as cattle grazing or crop production. For improved land within the City Limits, 68% (1,024 acres) is developed for residential use. The other major land use component is public/ semipublic which accounts for 23% (353 acres) of total developed land. Commercial and industrial uses account for only 9% (143 acres) of all improved land.

Land within the ETJ has been developed in a far less intense manner. By acre, 86% (2,444 acres) is utilized for residential uses including many residential lots exceeding five acres in size. Relative to other cities, Whitehouse's ETJ includes a disproportionately large amount of public/semi-public land uses accounting for 10% (286 acres) of improved land. Much of this land has been developed by the City of Tyler for recreational or public works purposes in association with Lake Tyler. Industrial or commercial activities account for 4% (107 acres) of the improved land within the ETJ.



Source: City of Whitehouse Vision 2020 Comprehensive Plan

FIGURE 4-8 CITY OF WHITEHOUSE EXISTING LAND USE MAP

SPECIAL GENERATORS

Special generators are major employers, institutions or facilities that generate a large traffic volume. **Table 4-7** presents a list of special generators in the MPO planning area including the University of Texas, Tyler Junior College, shopping centers, the downtown area, the hospital districts and schools. In reviewing the street network, it is necessary to consider the traffic generators in the study area and how they influence traffic flow and traffic volumes.

TABLE 4-7 SPECIAL GENERATORS

Major Employers	Shopping Centers
Black Sheep Inc French Carrier Air Conditioning LaGloria Oil and Gas Loggins Meat Co. Flowers Baking Co. Kelly Springfield Tire Brookshire Grocery Howe-Baker Engineers Celebrity Time Square Plaza Trane Air Conditioning Target Distribution Center Tyler Pipe U.S. Post Office Distribution Center	Quarter Shopping Center Broadway Square Mall Foley's Plaza Sam's Wholesale Club Old English Village Walmart/Super 1 Foods Broadway Crossing Center Off Broadway Shopping Center Green Acres Shopping Center Wal-Mart Super Center/Target Store
High Schools and Colleges	**Civic/Governmental**
John Tyler High School Robert E. Lee High School T.K. Gorman Schools Texas College University of Texas at Tyler Tyler Tyler Junior College	Tyler Rose Garden and Harvey Hall City Hall Complex Rose Stadium/Mike Carter Field Tyler Public Library Smith County Courthouse TxDOT District Offices I.S.D Administration Building
Training Centers/Medical Facilities	**Recreation**
Regional Training Development Center Trinity-Mother Frances Hospital East Texas Medical Center UT Health Center East Texas Medical Center Health South Rehabilitation Center	Bergfeld Park Willowbrook Country Club Lindsey Park Fun Forest Park Holleytree Country Club Tyler Rose Rudman Park Southside Park Faulkner Park

5 Environmental Issues

OVERVIEW

Transportation is not just about moving people and goods. Transportation helps shape an area's economic health, quality of life, land use and future growth. Performance of the transportation system affects concerns about air quality, environmental resource consumption, social equity, safety, and security.

This chapter of the MTP outlines relevant environmental issues and considerations for transportation planning in the Tyler metropolitan planning area.

AIR QUALITY

The Clean Air Act (CAA) requires the United States Environmental Protection Agency (EPA) to set limits on how much of a particular pollutant can be in the air anywhere in the United States. National Ambient Air Quality Standards (NAAQS) are the pollutant limits set by the EPA; they define the allowable concentration of pollution in the air for six different pollutants:

- Carbon Monoxide;
- Lead;
- Nitrogen Dioxide;
- Particulate Matter;
- Ozone, and
- Sulfur Dioxide.

The Clean Air Act specifies how areas within the country are designated as either "attainment" or "non-attainment" of an air quality standard, and provides EPA the authority to define the boundaries of non-attainment areas. For areas designated as non-attainment for one or more NAAQS, the Clean Air Act defines a specific timetable to attain the standard and requires that non-attainment areas demonstrate reasonable and steady progress in reducing air pollution emissions until such time that an area can demonstrate attainment. Each state must develop and submit a State Implementation Plan (SIP) that addresses each pollutant for which it fails to meet the NAAQS. Individual state air quality agencies are responsible for defining the overall regional plan to reduce air pollution emissions to levels that will enable attainment and maintenance of the NAAQS. This strategy is articulated through the SIP.

Early Action Compact

Ozone concentrations measured at the Gregg County Airport near Longview have exceeded both the 1-hour and 8-hour NAAQS for ozone. In 1996, the Tyler/Longview/Marshall (TLM) area became a Flexible Attainment Region and a mechanism for developing strategies to attain the 1-hour ozone standard was implemented under a Memorandum of Agreement (Flexible Attainment Region Memorandum of Agreement, September 16, 1996). The TLM area receives

funding from the Texas legislature to address ozone air quality issues. These resources have funded studies through the East Texas Council of Governments (ETCOG) under the technical and policy direction of the North East Texas Air Care (NETAC) organization. In 1999, the consulting firm ENVIRON completed an ozone modeling study for two 1-hour ozone episodes that included future year modeling for 2007 and an evaluation of local emission reduction strategies. In May 2002, a SIP for Northeast Texas that demonstrated attainment of the 1-hour ozone standard by 2007[1] was submitted.

In 1997, the EPA promulgated an 8-hour NAAQS for ozone that was more stringent than the previous 1-hour standard. The 8-hour ozone NAAQS was challenged in court and was eventually upheld in 2002 by the U.S. Supreme Court. EPA designated all five NETAC counties as 8-hour ozone attainment areas on April 15, 2004.

On December 20, 2002, local governments in a five county area of Northeast Texas (Gregg, Harrison, Rusk, Smith, and Upshur counties) entered into an Early Action Compact (EAC) with the EPA and Texas Commission on Environmental Quality (TCEQ). The purpose of the EAC was to develop and implement a Clean Air Action Plan (CAAP) that would reduce ground level ozone concentrations throughout the five county area to comply with the 8-hour ozone standard by December 31, 2007 and maintain the standard beyond that date. The EAC included a series of milestones to guide progress toward the development of the CAAP as shown in **Table 5-1**.

TABLE 5-1 KEY MILESTONE DATES FOR THE NORTHEAST TEXAS EARLY ACTION COMPACT

Date	Item
December 31, 2002	Signed EAC agreement
June 16, 2003	Identify/describe potential local emission reduction strategies
November 30, 2003	Initial modeling emission inventory completed Conceptual model completed Base case (1999) modeling completed
December 31, 2003	Future year (2007) emission inventory completed Emission inventory comparison for 1999 and 2007 Future case modeling completed
January 31, 2004	Schedule for developing further episodes completed Local emission reduction strategies selected One or more control cases modeled for 2007 Attainment maintenance analysis (to 2012) completed Submit preliminary Clean Air Action Plan (CAAP) to TCEQ and EPA
March 31, 2004	Final revisions to 2007 control case modeling completed Final revisions to local emission reduction strategies completed Final attainment maintenance analysis completed Submit final CAAP to TCEQ and EPA
December 31, 2004	State submits SIP incorporating the CAAP to EPA
December 31, 2005	Local emission reduction strategies implemented no later than this date
December 31, 2007	Attainment of the 8-hour ozone standard

[1] Excerpt from the draft report on "Conceptual Model of Ozone Formation in the Tyler/Longview/Marshall near Nonattainment Area" prepared for East Texas Council of Governments by ENVIRON International Corporation, August 2008.

In exchange for early implementation action for the 8-hour ozone standard, EPA deferred the effective dates of designation for those areas that would have been designated nonattainment for the 0.08 parts per million 8-hour ozone NAAQS. The deferral of the effective date had the effect of also deferring the application of specific CAA requirements in these EAC areas, including the New Source Review (NSR) and Conformity Programs. The EAC program concluded in the spring of 2008. At that time, the EPA designated as 'attainment' those EAC areas that had attained the ozone NAAQS and affirmed a nonattainment designation for the one area that had not attained the NAAQS for ozone.

Ozone Status and Trends

Figure 5-1 shows the locations of three active Continuous Air Monitoring Stations (CAMS-19, CAMS-82, and CAMS-85) in the Tyler/Longview/Marshall (TLM) area of Northeast Texas. The TCEQ operates these stations to monitor compliance with the National Ambient Air Quality Standards (NAAQS) for ozone. Historically, the highest ozone concentrations have been recorded at the Longview monitor (CAMS-19) located at the Gregg County airport. Ozone monitoring commenced in 1995 at Tyler Airport (CAMS-86) although the monitor was relocated within the airport in 2000 due to construction and assigned a new number (CAMS-82).

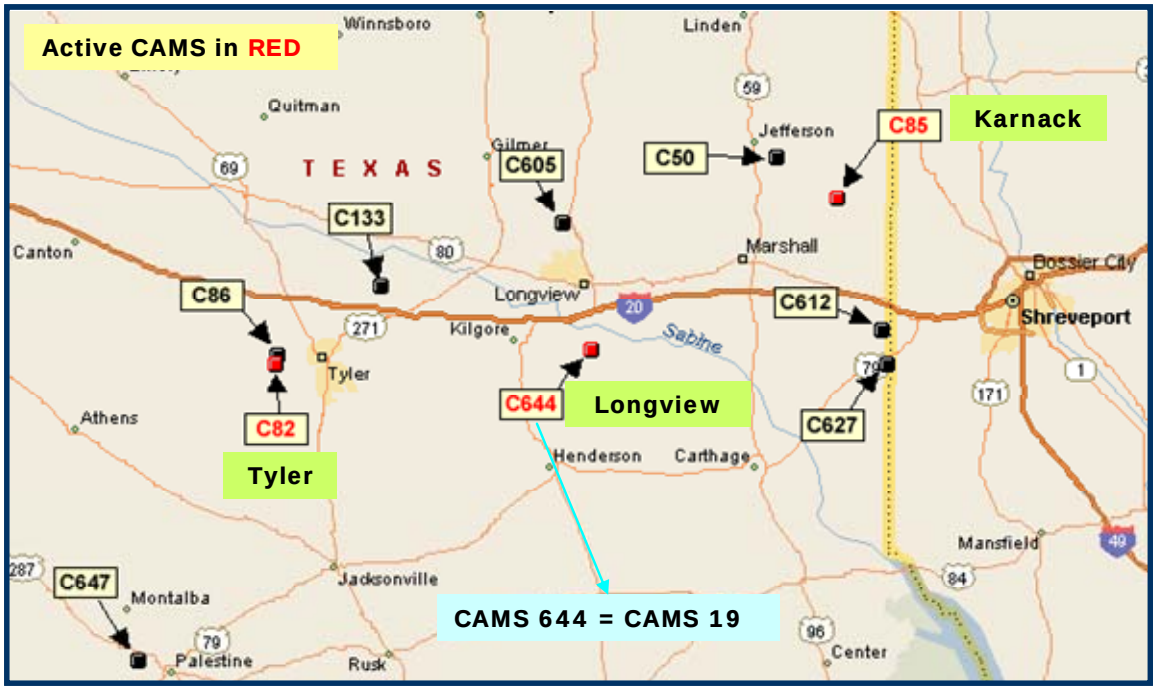


FIGURE 5-1 CONTINUOUS AIR MONITORING STATIONS (CAMS)

The annual 4th highest 8-hour ozone values at monitors in Northeast Texas for recent years are listed in **Table 5-2** and shown in graphical form in **Figure 5-2**. The resulting 2005-2007 8-hour design values are shown in **Table 5-3**. The ozone data for the last four years show that 2005 was a relatively high ozone year in Northeast Texas; the 2005 ozone values for the Longview monitor increased the three year averages used to calculate the 2004-2006 design values to the point where this monitor was out of compliance with the 8-hour standard at the end of 2006. On the other hand, the lowest 4th high ozone values in the last decade at the Northeast Texas monitors occurred in 2008. The 2005-2007 design values are all 84 ppb or less, which means that all Northeast Texas monitors, including Longview, were in compliance with the 8-hour ozone standard of 0.08 ppm as of the end of the Early Action Compact on December 31, 2007.

TABLE 5-2 ANNUAL 4TH HIGHEST 8-HOUR OZONE VALUES (ppb) FOR NORTHEAST TEXAS

Year	Longview	Tyler	Karnack
2002	84	84	88
2003	82	79	80
2004	83	81	77
2005	88	83	84
2006	84	82	78
2007	81	77	69
2008	71	72	68

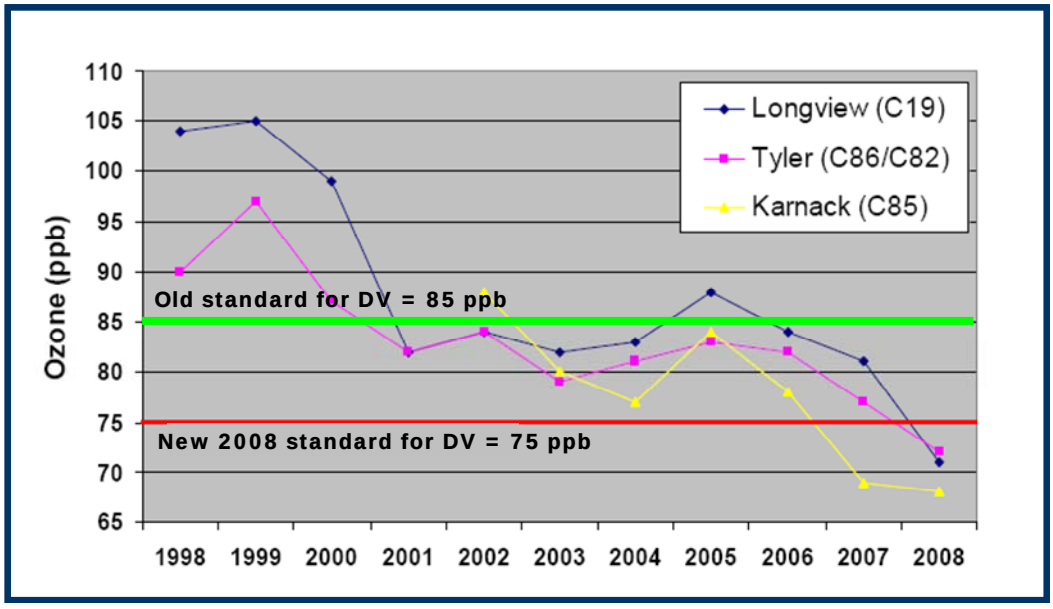


FIGURE 5-2 ANNUAL 4TH HIGHEST 8-HOUR OZONE TRENDS

Ozone Attainment Status and New Ozone Standard in 2008

EPA's National Ambient Air Quality Standard for ozone includes both a 1-hour average standard and an 8-hour average standard. The 1-hour standard limits the frequency with which the daily maximum 1-hour average concentration can exceed 0.12 ppm to once per year (averaged over three years) while the 8-hour standard sets a maximum level (0.08 ppm) for the three year running average of the annual fourth-highest daily maximum 8-hour average concentration.

EPA designated all five NETAC counties as 8-hour ozone attainment areas on April 15, 2004.

Table 5-3 and **Figure 5-3** present current 8-hour ozone design values for Northeast Texas monitors that were used to determine attainment status on December 31, 2007. All three TCEQ CAMS monitors had 8-hour ozone design values less than 85 ppb, indicating that the Tyler-Longview-Marshall area was in compliance with the 8-hour ozone standard, thereby meeting its final milestone under the Early Action Compact.

TABLE 5-3 8-HOUR OZONE DESIGN VALUES (ppb) FOR NORTHEAST TEXAS

Years	Longview	Tyler	Karnack
2002-2004	83	81	81
2003-2005	84	81	80
2004-2006	85	82	79
2005-2007	84	80	77
2006-2008*	78	77	71

**2008 data has been validated by TCEQ*

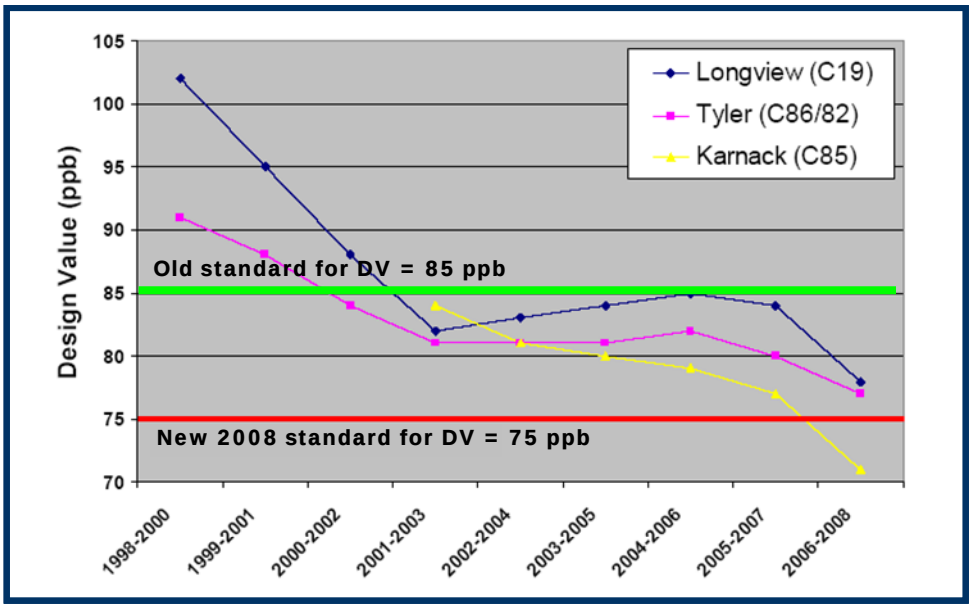


FIGURE 5-3 ANNUAL 8-HOUR OZONE DESIGN VALUE TRENDS

In March 2008, the EPA promulgated a new, more stringent 8-hour ozone standard of 75 ppb. Based on the 2005-2007 data shown in **Table 5-3**, none of the three Northeast Texas monitors attains the 75 ppb standard. The ENVIRON International Corporation[2] report quoted a May 15, 2008 presentation to the NETAC Technical and Policy Committee that the EPA is likely to require states to recommend designations of attainment status based on 2006-2008 air quality data; states will be required to make attainment designation recommendations by March 2009. EPA expects SIPs to be due in March 2013, with attainment dates ranging from 2013-2020 depending on the severity of the ozone problem in a given nonattainment area.

Transportation Planning and Air Quality

The primary causes of ozone in the environment are nitrogen oxides (NOx) and volatile organic compound (VOC) emissions from industrial facilities and electric utilities, motor vehicle exhaust, gasoline vapors, and chemical solvents. According to the U.S. Department of Energy (DOE), transportation-related carbon dioxide emissions (a VOC) account for one third of total carbon dioxide emissions worldwide. A 2006 Federal Highway Administration publication indicated that the U.S. contributes 45% of the total worldwide vehicle emissions. That is why the Clean Air Act Amendments of 1990 contained a focus on the reduction of vehicle emissions through transportation planning.

Emissions from automobiles and trucks are one source of ground level ozone and therefore future traffic volumes and congestion levels may impact attainment status in the Tyler region. In developing transportation programs and policies, efforts should be taken to ensure that these environmental impacts are considered and that transportation planning is compatible with federal and state air quality requirements.

There are several methods to control ozone including annual inspections of automobiles to measure tailpipe exhaust and the installation of special nozzles on gas pumps that collect vapors. Additionally, other methods include educating the public about carpooling or various rideshare programs and active promotion of the Tyler Transit system. By increasing ridership on the transit system this will aid in the decrease of ozone and automobile emissions.

As part of Northeast Texas' Clean Air Action plan a number of enforceable and voluntary measures were identified to control emission levels in the region. Initiatives that are currently being undertaken to help control on road vehicle emissions include:

- DOE "Clean Cities Program" voluntary on-road vehicle emission reductions. The East Texas Clean Cities Coalition (ETCCC), coordinated by the East Texas Council of Governments (ETCOG), has successfully obtained a Clean Cities Designation for the region from DOE. ETCCC promotes the use of alternative fuels to gasoline and diesel, such as propane, natural gas, ethanol, and biodiesel. Funding for clean-fueled propane vans for local transit agencies with 23 propane-fueled vans placed in service by the end of 2005.

[2] Draft report on "Conceptual Model of Ozone Formation in the Tyler/Longview/Marshall near Nonattainment Area" prepared for East Texas Council of Governments by ENVIRON International Corporation, August 2008.

- Eighteen new lower emitting propane light heavy-duty (Class 2b) vans were purchased in 2003 and 2004 for the ETCOG's Rural Transportation Program (10 vans), the City of Longview (7 vans), and Tyler Transit (1 van). The average miles per year driven by these vehicles is 36,820.
- Public awareness program. The East Texas Council of Governments (ETCOG) runs an annual public education and ozone awareness program for the five county Tyler-Longview-Marshall area. The program includes the following elements: an ozone watch and warning communications network between local governments and industries to communicate ozone action day forecasts issued by the TCEQ; a NETAC website (http://www.netac.org); production and distribution of public service announcements; school programs and teacher training workshops; distribution of public information and educational materials; and an Annual Ozone Season Kick-Off meeting for Northeast Texas.

ENERGY CONSERVATION

Transportation is inextricably linked to energy consumption, but several measures can be planned and implemented to reduce the amount of energy consumed for transportation purposes.

Some energy conservation occurs as older vehicles in the transit and private vehicle fleet are replaced with more fuel-efficient vehicles. Other measures take advantage of incentives or mandates developed through the planning process. For example, travel demand management (TDM) techniques such as carpooling, vanpools, flexible work hours, and alternative mode can be utilized to reduce vehicular travel and energy consumption associated with it. Transportation system management (TSM) can also assist with reduced energy consumption using techniques.

Investments in alternative modes may reduce vehicle trips and their associated energy needs.

ENVIRONMENTAL JUSTICE

The intent of Environmental Justice (EJ) is to avoid, minimize, or mitigate disproportionately high and adverse effects on minority and low-income populations; and ensure the full and fair participation by all potentially affected communities in the transportation decision-making process. The federal government has identified environmental justice as an important goal in transportation, and local and regional governments must incorporate environmental justice into transportation planning.

The legal foundation for environmental justice considerations is Title VI of the Civil Rights Act of 1964, which prohibits discrimination in any program receiving federal assistance. The Civil Rights Restoration Act of 1987 broadened the scope of Title VI, clarified the intent, and expanded the definition of the terms "programs and activities" to include all programs and activities of Federal aid recipients, sub-recipients and contractors, whether such programs are Federally assisted or not.

In 1994, an Executive Order (Number 12898) directed every Federal agency including the U.S Department of Transportation (DOT) to identify and address the effects of all programs, policies, and activities on "minority populations and/or low-income populations". This Order was consistent with Title VI in considering fundamental environmental justice principles affecting low income and minority populations. The three fundamental environmental justice principles are:

- To avoid, minimize or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects on minority populations and low-income populations.
- To ensure the full and fair participation by all potentially affected communities.
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

In 1997, the U.S. DOT issued an Order that summarized and expanded on environmental justice requirements. The U.S. DOT Order applies to all transportation planning policies decisions, and activities undertaken, funded, or approved by Federal Highway Administration (FHWA), Federal Transit Administration (FTA) and Metropolitan Planning Organizations (MPO) among other U.S. DOT components. The FHWA and the FTA have jointly issued policy guidance on how environmental justice concerns can be incorporated into metropolitan transportation planning.

EJ & Transportation Planning in Tyler

As the agency responsible for coordinating the regional transportation planning process, the Tyler Area MPO shall make sure that all segments of the population have been involved with the planning process. The Tyler Area MPO objectives that relate to the public transportation system, the protection of the natural environment and social systems, and the public involvement process support environmental justice. This support should be evident throughout the transportation planning process, including those processes for the metropolitan transportation plan, transportation improvement program, and specific project planning.

The 2035 MTP update undertook the following process to incorporate the three environmental justice principles:

- Identify minority and low-income populations.
- Ensure public outreach effort reaches out to minority and other underrepresented groups.
- Overlay environmental justice maps with the recommended long range transportation improvements to broadly assess potential adverse impacts or disproportionate allocation of long range transportation investments towards minority and/ or low-income populations.

Environmental Justice Populations

For Environmental Justice analysis, the whole of Smith County is included. The geographic unit of analysis used is the Census Block Group as defined in the U.S. Census Bureau.

Minority Census Block Groups

An EJ area is defined as a census block group (CBG) that has high concentration of minority and/or low-income populations when compared to the overall planning area. The minority population of individual CBGs in the Smith County ranges from 0.9% to 97.5%. Minority EJ CBGs are determined by the minority (non-white) percentage of the population in a CBG. Any CBG with a minority population percentage equal to or greater than 50% is considered a minority EJ area. Of the planning area's 125 CBGs, 28 have a minority population equal to or greater than 50%. These CBGs are selected for EJ analysis, and are shown in **Figure 5-4**. As observed on the map, CBGs having high minority population are in Tyler and are generally inside Loop 323. One census block group located east of Loop 323 along TX 31 and partly within the metropolitan planning area has nearly 60% minority.

Low-Income Census Block Groups

The Department of Housing and Urban Development's (HUD) definition of low-income in Title 24 CFR 5.603(b) is adopted to determine which census blocks in the county have high concentrations of low-income households. HUD defines low-income as "a family whose annual income does not exceed 80 percent of the median income for the area." The distribution of median household incomes (in 1999 dollars) across all census block groups in Smith County is about $34,700. The criteria for determining a low-income census block group is determined as those CBG with household median income of 80% of $34,700 or $27,760 and below. Of the planning area's 124 CBGs, 26 CBGs have median incomes less than $27,760 and therefore qualify as low-income EJ areas. The census block groups selected for EJ analysis are shown in **Figure 5-4**. As observed on the map, census block groups having high low-income population are generally located in Tyler inside Loop 323.

Environmental Justice Analysis

Looking at **Figure 5-4**, one can observe that the minority and low-income census block groups are closely related. That is, they are concentrated in Tyler largely inside Loop 323. The Tyler planning area follows the trend in the majority of U.S. Cities in having a low-income and high minority city core with more affluent and mostly white suburbs.

The Tyler Area MPO is committed to avoiding disproportionately adverse impacts on minority and low-income populations, as well as disproportionate adverse impacts on the elderly, persons with disabilities, and those without private automobiles for inclusion in public involvement efforts and for transportation needs assessments. Tyler Area MPO uses several techniques to ensure underserved populations are involved in the transportation planning process. Techniques include staff presentations to community groups, providing public notices, and advertising in newspapers that serve minority populations. The MTP update will consider environmental justice impact by superimposing EJ maps with the recommended long range transportation improvements.

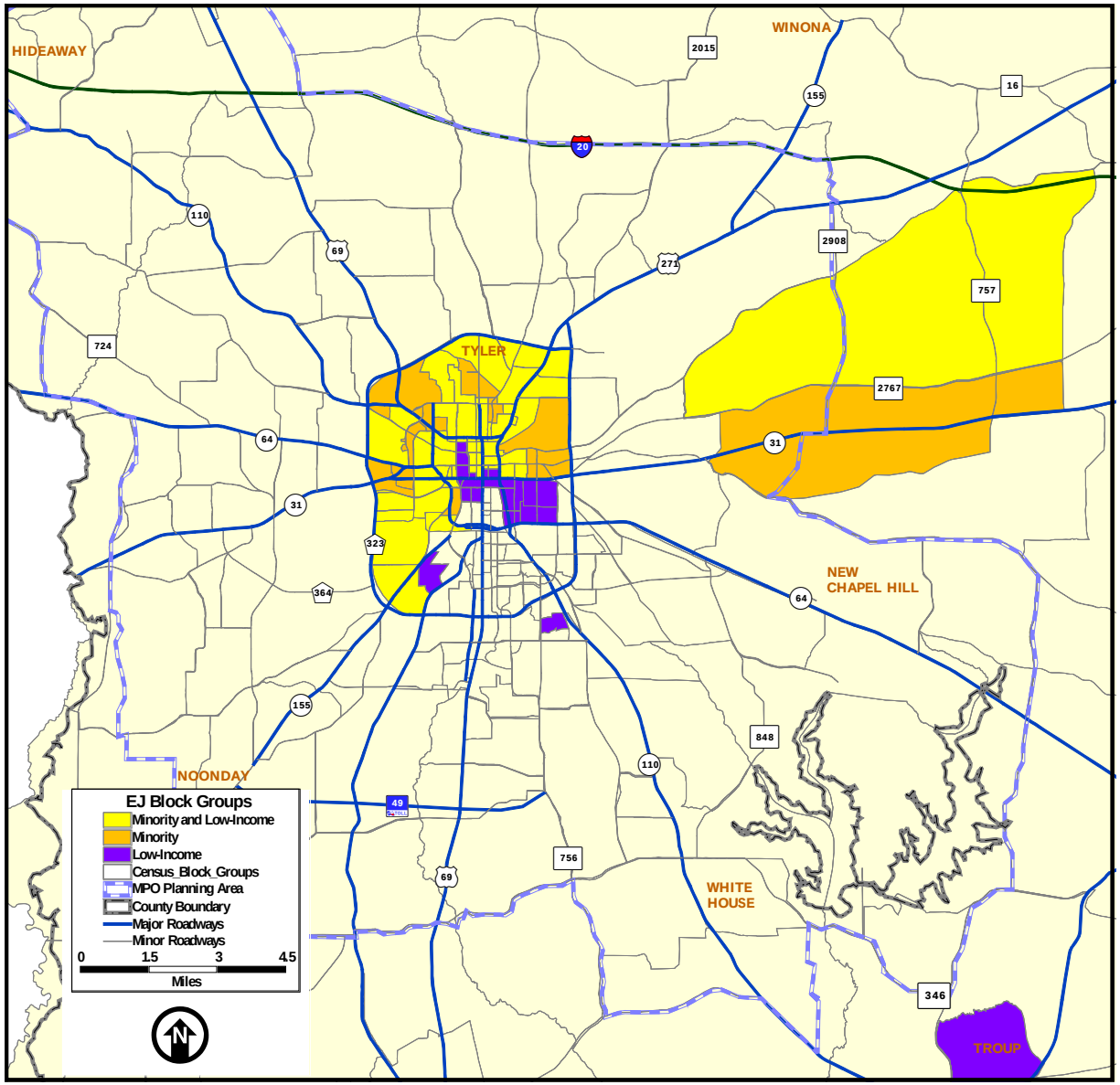


FIGURE 5-4 ENVIRONMENTAL JUSTICE AREAS

ENVIRONMENTAL DEVELOPMENT CONSTRAINTS AND MITIGATION

SAFETEA-LU requires Metropolitan Transportation Plans to be developed, *as appropriate,* in consultation with State and local agencies regarding land use management, natural resources, environmental protection, conservation, and historic preservation. The consultation shall involve, *as appropriate*, comparing available plans, maps or inventories. SAFETEA-LU also requires MTPs to include a generalized discussion of potential environmental mitigation activities and potential mitigation areas, including activities that may have greatest potential. The mitigation discussion shall be developed in consultation with Federal, State and Tribal wildlife, land management, and regulatory agencies.

This section of the MTP outlines some of the development constraints in the metropolitan planning area that will be considered when evaluating the recommended long range transportation improvements. Also included in this section is a brief discussion on potential environmental mitigations.

Historic Preservation Locations

The City of Tyler through the Tyler Historical Preservation Board recognizes and preserves the City's historic landmarks through a voluntary owner participation program. As displayed in **Figures 5-5 (a)**-**(b)** and **Table 5-4**, there are 68 sites designated as historic landmarks on the Local Register of Historic Places in the City of Tyler. In addition, there are a number of sites that are eligible or already designated as properties on the National Register of Historic Places and/or Texas Historic Landmark Register. Currently 18 sites and five districts have been designated as properties on the National Register of Historic Places.

The majority of sites are located in the older sections (within Loop 323) of the city including several in the Central Business District. Of the 68 properties listed in the register, there are a mixture of churches, schools, private residential properties, offices, a park, a cemetery, and a service organization building. Tyler's first historic district, the Charnwood Residential District, was listed in the National Register of Historic Places in August of 1999. This was soon followed by other National designations of historical districts including the Azalea Residential Historical District, and the Short-Line Residential District.

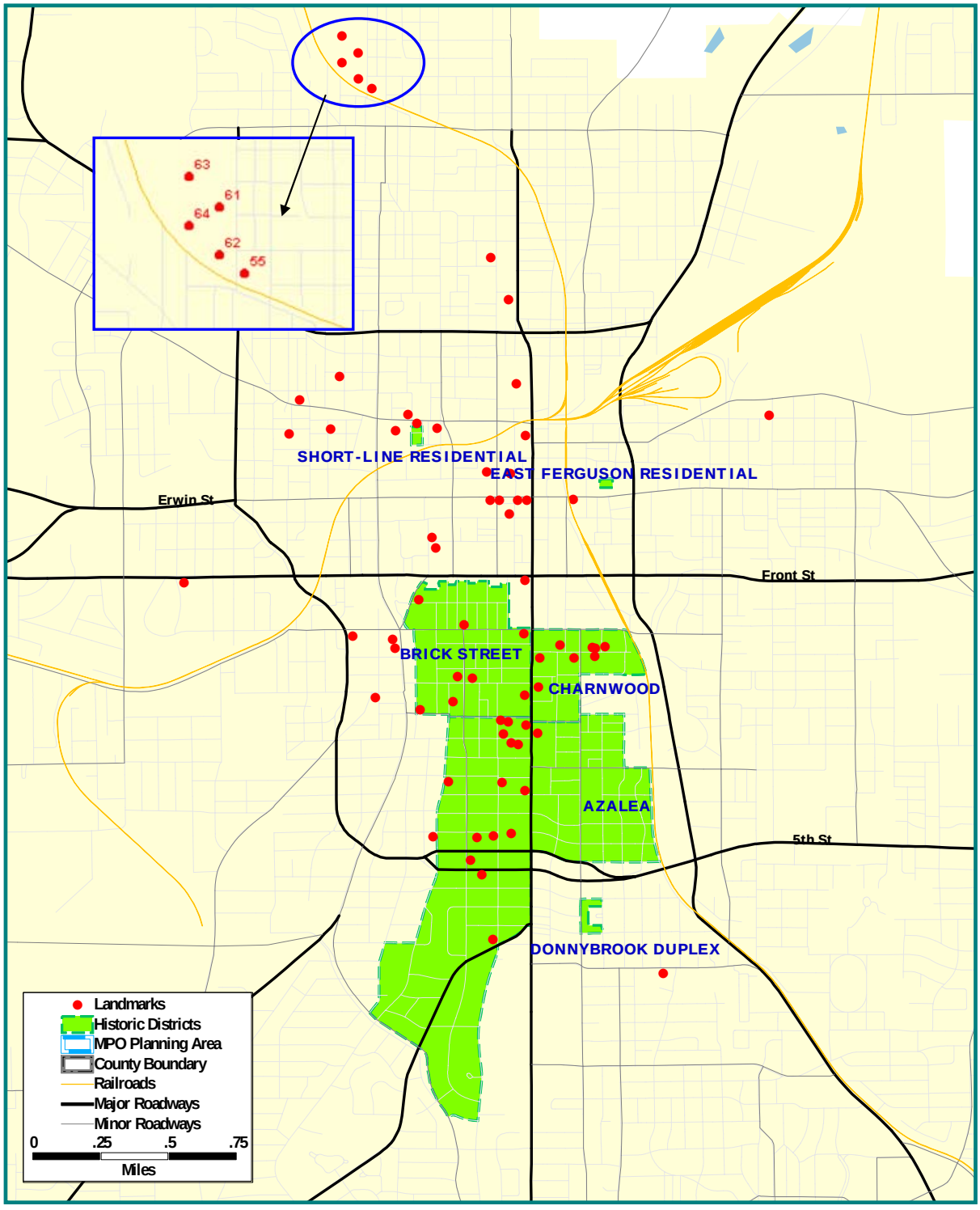


FIGURE 5-5(a) HISTORIC LANDMARK SITES

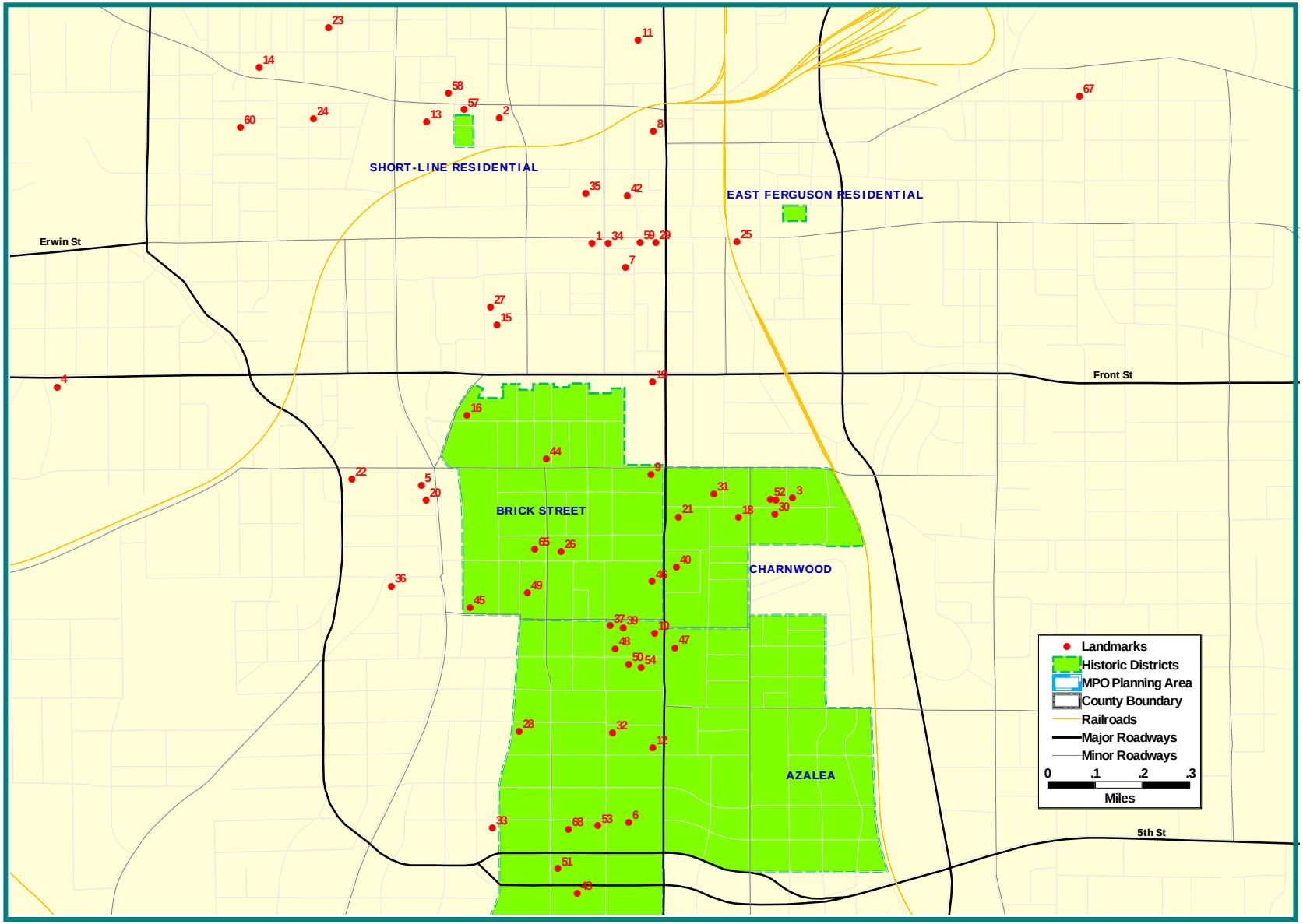


FIGURE 5-5(B) HISTORIC LANDMARK SITES

TABLE 5-4 HISTORIC LANDMARK SITES

Map ID	Name	Address	Year Built
1	Marvin United Methodist Church	300 W Erwin St	1890
2	St James Christian Methodist Episcopal Church	408 N Border Ave	1891
3	Ramsour House	504 E Charnwood St	1862
4	Tyler Municipal Rose Garden	420 Rose Park Dr	1952
5	Bonner-Whitaker-McClendon House	806 W Houston St	1878
6	Bergfeld Park & Amphitheatre	1510 S College Ave	1913
7	Carnegie Library Building	125 S College Ave	1913
8	Swann-Moore Dennard Building	408 N Broadway Ave	1903
9	Ramey-Grainger House	605 S Broadway Ave	1932
10	Woman's Building	911 S Broadway Ave	1859
11	Goodman-LeGrand House	624 N Broadway Ave	1931
12	Judge The Florist	1215 S Broadway Ave	1846
13	Oakwood Cemetery	400 N Palace Ave	1854
14	Patterson House	1311 W Oakwood St	1906
15	Woldert House	604 Woldert St	1930
16	Barton-Vanderpool House	440 S Vine Ave	1884
17	McCord-Blackwell House	1320 N Bois D'Arc Ave	1911
18	Littlejohn House	313 E Charnwood St	1934
19	Cathedral of the Immaculate Conception	423 S Broadway Ave	1888
20	Bonner House	625 S Vine Ave	1904
21	Connally-Musselman House	700 S Broadway Ave	1939
22	Tyler Little Theatre	1014 W Houston St	1911
23	Florence House	700 N Moore Ave	1866
24	Bethlehem First Baptist Church	1121 W Lollar St	1881
25	1881 Smith County Jail	309 E Erwin St	1908
26	Gary Elementary School	730 S Chilton Ave	1884
27	Woldert-Spence-Heaton Manor	611 W Woldert St	1931
28	Birdsong House	518 W Mockingbird Ln	1888
29	B.W. Rowland-Liebreich Building	100 & 104 W Erwin St	1863
30	Morrell-Pinkerton House	415 E Charnwood St	1932
31	Willett-Bryant House	621 S Fannin Ave	1931
32	Saleh-Witt House	1208 S College Ave	1927
33	Fair House	1505 S Robertson Ave	1907
34	Arratt-Odd Fellows Building	220 (1/2) W Erwin St	1911
35	First Baptist Church	301 W Ferguson St	1888
36	Mathis-Albertson House	823 S Palace Ave	1926
37	Lindsey-Owen House	902 S College Ave	1935
38	Pollard House	801 Troup Hwy	1932
39	Witherup House	212 W Dobbs St	1908
40	Boren House	806 S Broadway Ave	1895
41	Lindsey House	416 E Charnwood St	1933
42	U.S. Post Office and Courthouse	211 W Ferguson Ave	1940
43	James House	322 W 5th St	1890
44	Smith-Butler House	419 W Houston St	1929
45	Childers House	625 W Dobbs St	1898

Map ID	Name	Address	Year Built
46	Fitzgerald House	815 S Broadway Ave	1929
47	James S Hogg Middle School	920 S Broadway Ave	1928
48	Campbell-Richardson House	922 S College Ave	1902
49	Virginia and R.K. Bonner House	922 S College Ave	1894
50	Roy G. Robertson Farmhouse	204 Lindsey Ln	1934
51	Ulmer House	1608 S Chilton Ave	1885
52	Hanson-Cooper House	412 E Charnwood St	1931
53	McKinney House	1503 S College Ave	1929
54	White House	116 Lindsey Ln	1931
55	Thomas Jefferson Sr and Annie Mae Givens House	2209 Grand Ave	1941
56	City Park Spring Pool	200 W Queen Ave	1950
57	Moses P. Timms Home	704 W Oakwood St	1955
58	Moses P. Timms Educational Building	711 W Oakwood St	1946
59	S. H. Kress Building	116 W Erwin St	1941
60	Alpha Kappa Alpha Service Building	1400 Lollar St	1924
61	Texas College (J. C. Martin Hall)	2404 Grand Ave	1944
62	Texas College (President's House)	2404 Grand Ave	1940
63	Texas College (Gus F. Taylor Gymnasium)	2404 Grand Ave	1950
64	Texas College (D. R. Glass Library)	1400 Lollar St	1938
65	Bradford House	2015 S College Ave	1888
66	Chilton-Taylor House	727 S Chilton Ave	1908
67	Pleasant Hill Missionary Baptist Church	502 N Horace Ave	1904
68	Haynes-Briton	400 W 3RD ST	1935

Floodplains and Wetlands

Building of roadways in or through floodplains, wetlands, or other sensitive areas is discouraged. However, when it is determined that no other alternative choice is feasible and a roadway expansion is necessary, the expansion will be undertaken only if it can be demonstrated that the improvement will have no negative impacts upon the environment or that negative impacts that are created will be mitigated.

The Tyler metropolitan planning area has several lakes and creeks that create environmental constraints and should be considered when making decisions regarding transportation improvements in the region. **Figure 5-6** maps the major lakes and creeks in the area. Lake Tyler, Lake Tyler East, and Hide Away Lake are major lakes. West Mud, Black Fort and Willow Creeks are major creeks that are subjected to the 100 and 500 year floods.

Wetlands are areas that are inundated by surface or ground water frequently enough to support vegetation or aquatic life that requires saturated or seasonally soil conditions. The U.S Army Corps of Engineers performs field investigations to identify “jurisdictional” wetlands – those considered a part of “waters of the United States”. Permits are required for activities impacting federally identified wetlands under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899. The extent of floodplain areas identified by the Federal Emergency Management Agency is indicative of where wetlands are more likely to be found, although all of the floodplain areas are not necessarily considered to be jurisdictional wetlands.

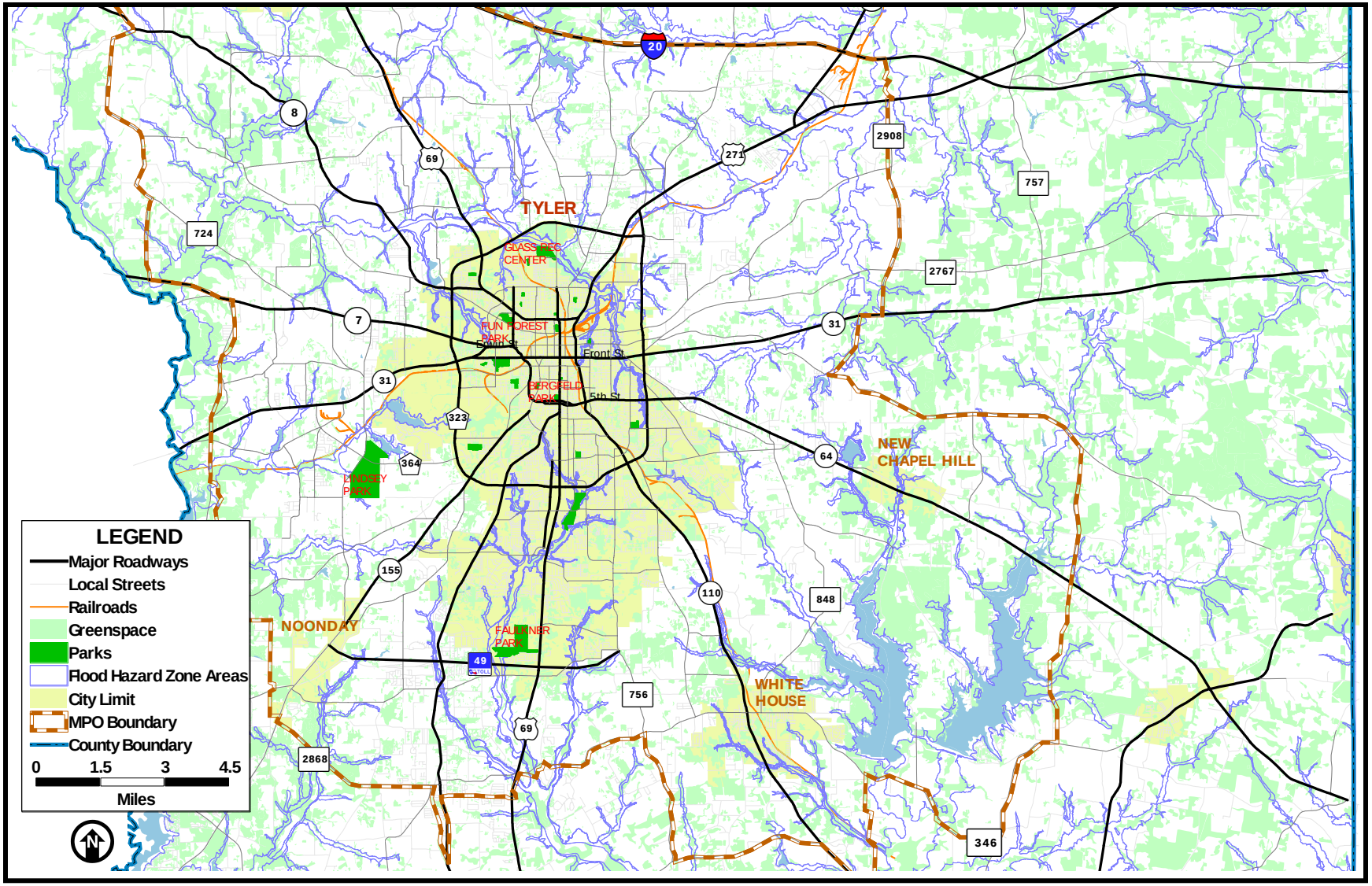


FIGURE 5-6 ENVIRONMENTAL FEATURES AND DEVELOPMENT CONSTRAINTS

Parks and Recreation

Parks and recreation facilities are an important feature in the Tyler area. Many citizens' enjoy walking, jogging, bicycling, hiking and participating in a variety of park and recreational activities. Parks with hiking and walking trails continue to be a major attraction to a large percentage of the population.

The City of Tyler's Parks and Recreation Department is responsible for the development, maintenance, and operation of city-owned parks and recreation facilities. The City has over 1,000 acres of parkland comprised of 26 parks located throughout the City. A list of all of the parks and recreation facilities is provided in **Table 5-5**. A brief description of a few of the major parks is provided below.

- **Bergfeld Park** is one of the oldest and most utilized parks in the metropolitan planning area due to its central location. The park covers one city block bordered by S. Broadway Avenue, W. Second Street, S. College Avenue and W. Fourth Street. It encompasses over eight acres and includes restrooms, tennis courts, picnic areas, a playground and an outdoor amphitheater. A variety of community activities are often held at Bergfeld Park.
- **Fun Forest Park** is located at Glenwood Boulevard and Garden Valley Road. It encompasses nearly 32 acres and has basketball and tennis courts, a spray ground, restrooms, and an Olympic size swimming pool. This park is also adjacent to the Senior Citizen's Center and serves a large geographic area.
- **Lindsey Park** is located at Spur 364 and Greenbriar Road. The park has an area of four hundred 53 acres, but less than a quarter yet has been developed. This park has the largest facility for soccer and softball, with restrooms and concession stands, picnic areas, a pavilion and basketball court.
- **Southside Park** is located at Donnybrook and Shiloh Road. The park is 49 acres in size and has a large playground, picnic areas, fitness trail and covered pavilions. Southside is also adjacent to the Greenbelt Parkway.
- **Rose Rudman Park** (Greenbelt Parkway) is located along West Mud Creek from Loop 323 to Reick Road. It has biking and walking trails, outdoor exercise trails, and rest areas.
- **Faulkner Park** is located on W. Cumberland Road adjacent to S. Broadway Avenue. The park encompasses 120 acres and features jogging and nature trails, mountain bike trail, lake, ballparks, tennis courts, concessions, and restrooms.

TABLE 5-5 PARKS AND RECREATIONAL FACILITIES

Facility	Acreage	Location	Amenities
Bergfeld	8.3	1510 S. College	Restrooms, tennis courts, fountain, picnic areas, amphitheater, playground
Caldwell	5.0	300 Bois d'Arc	Softball and soccer fields, basketball court, restrooms, picnic area, playground
Children's	0.5	900 S. Broadway	Gardens, story ring, sculptures
City	1.9	200 W. Queen	Basketball court, picnic area, playground, covered shelter
County	26.0	Morningside Drive	Picnic area, playground, hard surfaced play area
Crescent	1.3	1560 Crescent	Picnic areas, playground
Faulkner	120.0	W. Cumberland	Ball parks, jogging, tennis courts, concessions, restrooms, spray ground, nature trail, lake, mountain bike trail
Fun Forest	31.7	2000 Forest Avenue	Pool, spray ground, tennis and basketball courts, restrooms, Senior. Citizen Center
Gassaway	6.7	3102 W. Martha	Playground, basketball court, picnic area, restrooms
Golden Road	37.0	2300 McDonald	Restrooms, playground, parking, soccer fields, baseball fields
Goodman Museum	7.9	624 N. Broadway	Picnic area, museum and arboretum
Greenbelt Parkway (Rose-Rudman)	60.0	450 Shiloh	Walking and bike paths, outdoor exercise trails, rest areas
Herndon Hills	2.0	2802 Brookhollow	Playground, picnic area, basketball court
Hillside	2.4	1111 E. Erwin	Restrooms, playground, picnic area, basketball courts, shelter, ball fields, recreation center
Lincoln	2.8	1710 N Confederate	Restrooms, playground, picnic area, basketball court, ball fields, shelter
Lindsey	453.0	12557 Spur 364	Soccer and softball fields, restrooms, playground, picnic areas, basketball court
Mike Carter Field	54.5	400 Fair Ground	Restrooms, picnic area
Nobel E. Young	39.0	3125 Seaton Street	Shelter, restrooms, playground, bike trail, picnic area, basketball court, skate park
Northside	5.0	NWN Loop 323	Air strip for model airplanes
Oak Grove	3.8	1525 N. Carlyle	Under construction: Playground, basketball court, playground, ball field
P.T. Cole	4.7	1001 S. Vine	Restrooms, playground, tennis courts, shelter, soccer fields
Pollard	9.1	610 Amherst	Restrooms, shelter, picnic areas, playground, football fields, tennis courts
Scott	2.8	1710 N Confederate	Restrooms, playground, picnic area, basketball court, ball fields, shelter
Southside	49.4	455 Shiloh	Handicapped playground, picnic area, basketball court, fitness trail, restrooms
South Tyler Trails	50.0	455 Rieck	Hike, bike and jog trail
T.R. Griffith	2.6	2810 N. Carter	Playground, picnic areas, basketball court
Tyler Rose	27.0	400 Road Park	Picnic tables, gardens, gazebo
W.E. Winters	9.0	910 S. Peach	Restrooms, playground, pavilion, hike/bike trails, basketball
Windsor Grove	5.5	415 S. Lyons	Picnic area, nature trails
Woldert	52.9	701 W. 32nd Street	Pool, spray ground, playground, picnic areas ball fields, tennis courts, recreation center courts

Major Utilities

There are several major transmission lines and easements that cross through the study area. These easements must be taken into consideration when planning for future transportation growth and expansion. In addition, the location of existing utilities must be known and taken in account when proposing roadway improvements or new roadway locations.

Potential Mitigation Discussion

The consideration and recommendations made during the planning process are preliminary in nature. Detailed environmental analysis conducted through the National Environmental Policy Act (NEPA) does not apply to long range transportation plans. With exceptions for regional ambient air quality, offsetting environmental impacts during the long range planning process is not required. While detailed environmental analysis is not required, it is important to consult with environmental resource agencies during the development of a long range transportation plan. This interagency consultation provides an opportunity to compare transportation plans with environmental resource plans, develop a discussion on potential environmental mitigation activities, areas to provide the mitigation, and activities that may have the greatest potential to restore and maintain the environment.

Detailed environmental analysis of individual transportation projects occurs later in the project development process as the improvement approaches the preliminary engineering stage. At this stage, project features may be narrowed and refined, and the environmental impacts and environmental mitigation strategies can be appropriately ascertained. Usually, a variety of environmental documentation, permit and mitigation needs are identified and environmental findings are closely considered and evaluated. Special environmental concerns, however, may differ widely by project and location. As environmental studies are conducted and undergo public and interagency review, needed mitigation plans are specified and committed to within the environmental documents on the particular transportation project or activity. Environmental management systems then are used to monitor, and ensure compliance with, the environmental mitigation commitments.

Potential environmental mitigation activities may include: avoiding impacts altogether, minimizing a proposed activity/project size or its involvement, rectifying impacts (restoring temporary impacts), precautionary and/or abatement measures to reduce construction impacts, employing special features or operational management measures to reduce impacts, and/or compensating for environmental impacts by providing suitable, replacement or substitute environmental resources of equivalent or greater value, on or off-site. Where on-site mitigation areas are not reasonable or sufficient, relatively large off-site compensatory natural resource mitigation areas generally may be preferable, if available. These may offer greater mitigation potential with respect to planning, buffer protection and providing multiple environmental habitat value (example: wetland, plant and wildlife banks).

Mitigation activities and the mitigation areas will be consistent with legal and regulatory requirements relating to the human and natural environment. These may pertain to neighborhoods and communities, homes and businesses, cultural resources, parks and recreation areas, wetlands and other water sources, forested and other natural areas, agricultural areas, endangered and threatened species, and the ambient air.

For this MTP update, maps of environmental development constraints discussed earlier will be superimposed with the recommended long range transportation projects to identify any potential environmental issues. This will be discussed under the Roadway System chapter.

GIS Screening Tool

The U. S. Environmental Protection Agency Region 6 has developed a tool for environmental assessment identification and prioritization to provide a more systematic approach to making environmentally sound decisions. This tool is called GIS Screening Tool (GISST). It is designed to better understand the potential importance of single and cumulative effects and to facilitate communication of technical and regulatory data with industry, the public, and other stakeholders.

Most GIS tools are identification tools which simply shows where certain features are on the landscape. The user gets a map and then must decide what constitutes 'greater' or 'lesser' environmental concerns or vulnerability. GISST on the other hand is a prioritization tool. Given several options, GISST can identify which option has the least potential impact or is more vulnerable. Stakeholders and agency representatives know up front, what constitutes 'greater' or 'lesser' environmental concern (both vulnerable areas and impacts), relatively. Thus, GISST becomes an effective communication tool and can aid to streamline projects or program needs.

The Tyler Area MPO intends to utilize the GISST for future environmental project assessment.

6 Roadway System

OVERVIEW

Roadways make up the backbone of the transportation system. Cars and trucks use the roadway system for mobility. Transit buses utilize roads for their routes. Bicyclists often travel directly on roads, especially in corridors with delineated bike lanes or designated bike routes. Even pedestrians utilize sidewalks that are often constructed in roadway rights-of-way. The most effective roads, called multimodal corridors, often accommodate all of these travel modes.

This chapter presents an overview of the existing conditions of streets and highways in Tyler and Smith County. It depicts the corridors currently experiencing increasing levels of traffic congestion. The chapter outlines the development of a regional travel demand model, which serves a useful tool for analyzing and prioritizing needed future roadway improvements.

EXISTING CONDITIONS

Existing Roadway System

The Tyler area is served by one interstate (IH 20) and several US and State Highways that provide the basic framework of transportation facilities in the area. The Texas Department of Transportation (TxDOT) maintains the Interstates, US, and state roadways located in this area, and the respective incorporated cities and Smith County maintain the roadways that are not part of this system. Primary study area roadways range from a six-lane to two-lane local roadways. Existing travel lanes for the roadway network are shown in **Figure 6-1.**

Interstate Highways

IH 20 is the only interstate facility serving the area, extending east and west across Smith County and forming most of the northern boundary of the study area. It is a controlled access facility that traverses the northern part of Smith County. IH 20 connects Tyler westward to Dallas and eastward to Shreveport, Louisiana. Access to and from IH 20 is provided by grade-separated interchanges, and frontage roads on both the east and west sides of the freeway.

IH 20 is a four-lane divided highway with a posted speed limit of 70 mph during the day and 65 mph at night. The frontage roads throughout most of the study area are one-way with 2 to 3 lanes in each direction. There are portions of IH 20 that do not have frontage roads.

US Highways

US 69 (Broadway) and US 271 are the two US Highway facilities serving this area. US 69 traverses the city north-south and US 271 originates within the City and extends to the north-east. Both roadways are surrounded by commercial development within the study area.

US 69 (Broadway) is a major arterial that ranges from a four-lane dived highway to a six-lane with a Continuous Center Turn Lane (CCTL). The posted speed limit along US 69 ranges from 55 mph (outer study area) to 30 mph. There are inside and outside shoulders in the more rural

parts of the facility (southern section) where the facility is divided by a grass median and there are outside shoulders in the northern section of the facility.

US 271 is a divided four-lane principal arterial that extends northeast from Gentry Parkway.

State Highways

There are many state highways located within the study area – Texas 323 (Loop 323), Texas 49 (Loop 49), Texas 64, Texas 31, Texas 155, Texas 110 (Troup Highway), Texas 124 (Old Henderson Highway), Spur 364, and Spur Texas 248. TxDOT maintains these roadways. Each of the roadways is discussed below.

Texas 323 – Texas 323 serves as the Tyler Loop. It is surrounded by substantial retail and commercial development along the southern, eastern, and western sides. Much of the northern portion is yet to be developed. The speed limit along the Loop varies from 45 mph to 55 mph. The roadway varies from a four to six-lane roadway with either grass median, concrete median or continuous center turn lane. Both the number of lanes and median configuration vary depending on the roadway location within the study area.

Toll 49 – Toll 49 serves as Tyler's new outer loop, which when completed will form a 32-mile loop around the south and west sides of Tyler. The outer loop plan will connect to I-20 on the Northwest and Northeast sides of Tyler. The 2-lane section from SH 155 to FM 756 has been constructed and is operating as a toll road facility. The toll way is being constructed in two phases. The first phase will be a 2 lane roadway that supports the current traffic volumes using the facility. As these volumes grow, the facility will be expanded into a 4 lane divided expressway.

Texas 64 – Texas 64 traverses the city from the northwest to southeast. Texas 64 changes names to Fifth Street and Glenwood as it traverses the city. The roadway varies from a two-lane to a four-lane asphalt roadway with speed limits ranging from 35 mph to 45 mph. Within the study area, the roadway is surrounded by a mixture of commercial, retail, and residential properties.

Texas 31 – Texas 31 traverses the city from the west to east. This highway is also called Chandler Highway and Front Street. To the west of Loop 323, this roadway varies from four to six lanes, however to the east this roadway is an undivided two-lane principal arterial. Development along this corridor consists of a mixture of residential and commercial uses.

Texas 155 – Texas 155 extends southwest from Tyler toward Palestine. It is also known as Frankston Highway. The roadway varies from a four-lane to six lane asphalt roadway that is surrounded by a mixture of retail and residential land uses. The speed limit varies from 35 mph to 55 mph.

Texas 110 – Texas 110 is the southeastern extension of US Highway 271. This roadway segment is a six-lane road with a continuous center turn lane. The speed limit varies from 45 to 50 mph with a mixture of commercial and residential land uses.

Texas 124 – Texas 124, also known as Old Henderson Highway, only extends through a very small portion of the eastern portion of the study area. The roadway is a two-lane asphalt roadway that is surrounded by a mixture of commercial along with a few residences. The speed limit on this segment of roadway is 40 mph.

Spur Texas 248 – Texas 248, also known at University Boulevard, is one of the primary access routes to The University of Texas at Tyler. The roadway extends eastward from the study area. The road varies from a four-lane roadway to a two-lane road both with a continuous center turn lane and the speed limit ranges from 45 mph to 60 mph.

Spur Texas 364 – Texas 364 one of the primary access routes to Tyler's Lindsay Park. This popular park features a softball complex, soccer fields, basketball courts, playground, picnic area, pavilions, restrooms, and disc golf course. Texas 364 is a four-lane road at Loop 323 that quickly transitions to a three-lane road with one westbound lane and two eastbound lanes. As the roadway extends westward the pavement transition again to a two-lane road. A continuous center turn lane is provided in front of Lindsay Park. The speed limit is 60 mph.

Farm-to-Market and Ranch-to-Market Roads

There are a number of Farm-to-Market (FM) roads serving the study area. The facilities primarily provide connections between major highway facilities and residential and commercial centers and recreational areas. TxDOT maintains these FM facilities including FM 2493 (Old Jacksonville Highway) and FM 14 (State Park Highway).

These FM roadways are generally two to four-lane facilities. FM 2493 provides a link into the City of Tyler for many people living in the southwestern part of the county. The majority of the remaining FM roadways provide access to those residents living in the more rural parts of the county.

Local Roads

The local street network consists of residential and neighborhood streets. These streets are primarily two-lanes and typically have a speed limit of 30 mph. There are a few sections having a four-lane cross section.

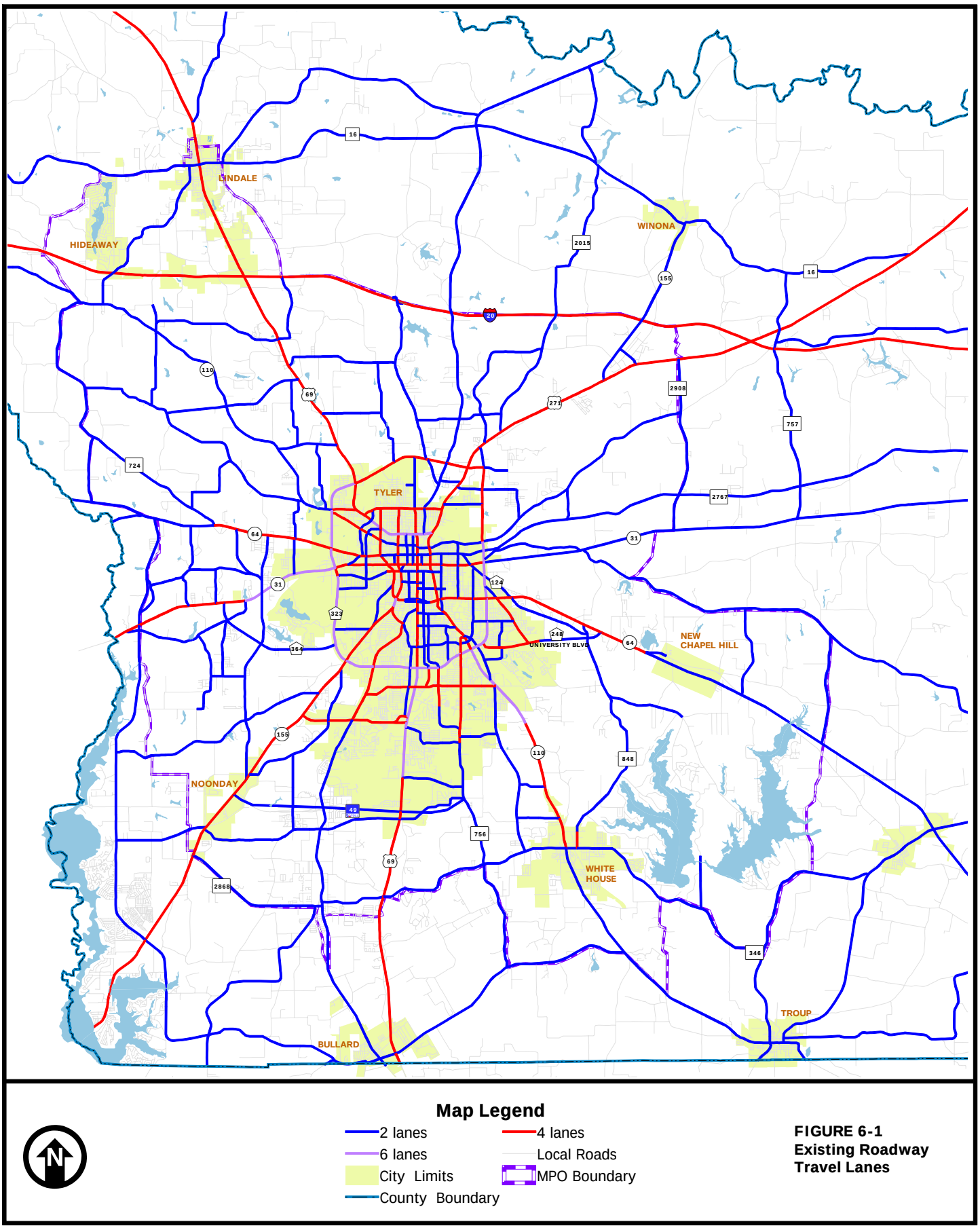
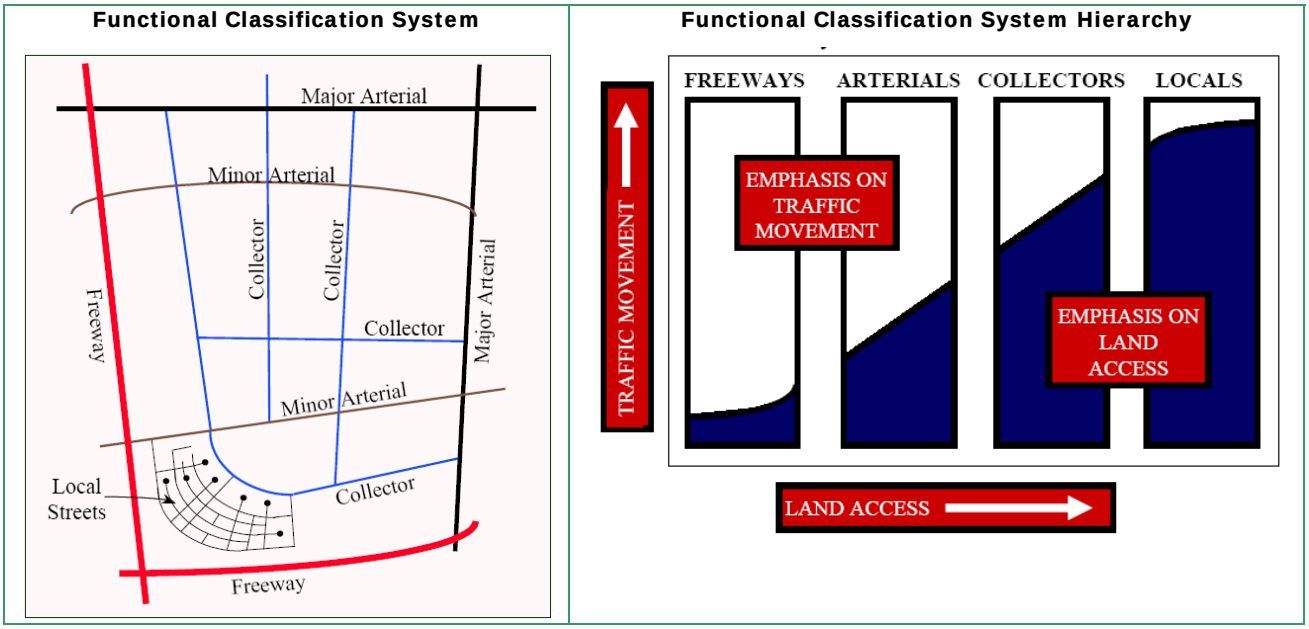


FIGURE 6-1
Existing Roadway Travel Lanes

Roadway Functional Classification

Functional classification is the process by which streets and highways are grouped into classes, or systems, according to the characteristics of the vehicular traffic they are intended to serve. All streets and highways are grouped into one of these classes, depending on the character of the traffic (i.e., local or long distance) and the degree of land access that they allow. Classification is based on each roadway's functional role in the overall network, including traffic movement and access. These classifications may change over time, as the function of roadways changes to serve different land uses or other transportation facilities. As an area becomes more developed, roads that have previously been classified in one category may be reclassified to a higher category.

The functional classification system is a hierarchical organization of streets and highways that facilitates the safe and efficient operation of vehicles along different types of facilities. As indicated in **Figure 6-2**, a functional roadway system facilitates a progressive transition in the flow of traffic from the provision of access to the provision of movement. Freeway and arterial facilities are at one end of the spectrum, primarily providing the function of moving vehicles. Collector and local streets are at the opposite end of the spectrum, providing access to property. **Figure 6-2** also shows schematically how various street classifications relate to each other in terms of movement and access.



Source: City of Tyler Master Street Plan, adopted April 2005

FIGURE 6-2 FUNCTIONAL CLASSIFICATION SYSTEM AND HIERARCHY

The City of Tyler's functional classification system is based on the City's Master Street Plan (MSP), which was originally developed in 1985 and updated in 1999 and 2005. To reflect current conditions, a contract is underway to update the MSP. The City of Tyler's current functional classification system, as shown in **Figure 6-3**, classifies the City's roadway network into the following categories:

Freeways/Expressways

These facilities include interstate highways, freeways, expressways, and (selected) loops and provide for the rapid and efficient movement of large volumes of traffic between regions and across the urban area. Direct access to abutting property is not an intended function of these facilities. Design characteristics support the function of traffic movement by providing multiple travel lanes, a high degree of access control, and few or no intersections at grade.

These facilities include interstate highways, freeways, tollways, expressways, parkways and loops, and provide for the rapid and efficient movement of large volumes of traffic between regions and within one region. Direct access to abutting property is not an intended function of these facilities. Design characteristics support the function of traffic movement by providing multiple travel lanes, a high degree of access control, and a few or no at-grade intersections. In the Tyler area, the Texas Department of Transportation develops and maintains these types of facilities. They include Interstate 20, which travels in an east-west direction through the north Tyler ETJ, and Loop 49, portions of which are currently under construction. The current phase I construction of Loop 49 is a 2-lane roadway. Phase II development of this facility is a 4-lane divided expressway.

Arterial Streets

Arterials primarily provide for traffic movement, with a minor function of providing direct access to abutting property. Major arterials typically serve as connections between major traffic generators and land use concentrations, and facilitate large volumes of through traffic traveling across a community. Minor arterials typically serve as connections between local and connector streets and the major arterials, and facilitate the movement of medium level traffic volumes over shorter distances within the community. Because direct access to abutting property is a secondary function of major arterial streets, access should be carefully managed to avoid adverse impacts on the movement along these facilities.

Collector Streets

Collector streets provide for a balance of the traffic movement and property access functions. Traffic movement is often internal to local areas and connects residential neighborhoods, parks, churches, etc., with the arterial street system. As compared to arterial streets, collector streets accommodate smaller traffic volumes over shorter distances.

Local Streets

Local streets function to provide access to abutting property and to collect and distribute traffic between parcels of land and collector or arterial streets.

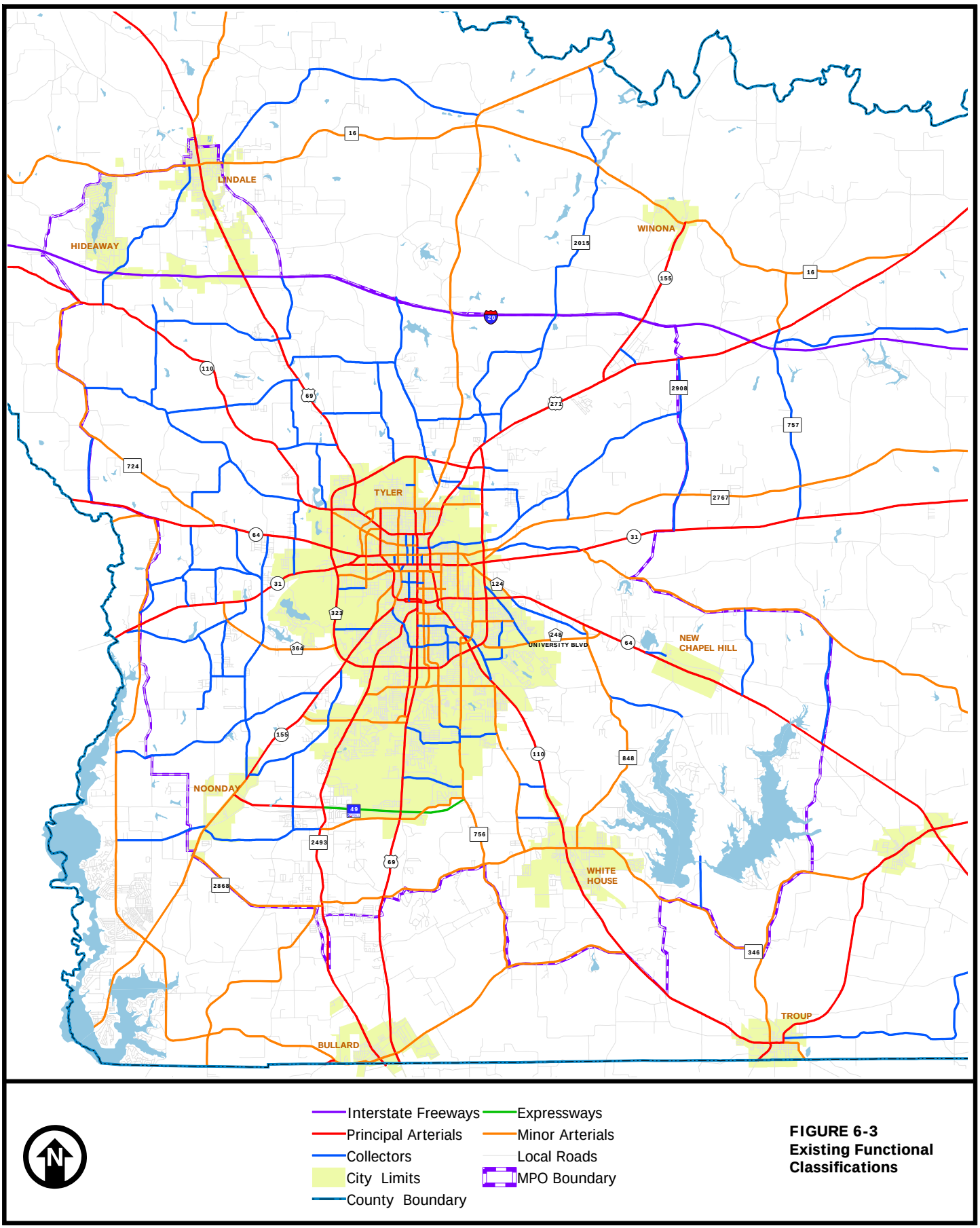


FIGURE 6-3
Existing Functional Classifications

While street classification reflects the functions that roadways serve as part of the street and highway network, roadway design standards are related to traffic volume, design capacity and level-of-service. **Table 6-1** presents the typical traffic volume levels that various recommended roadway cross section standards are designed to carry at an acceptable level-of-service as defined in the current Master Street Plan.

TABLE 6-1– TRAFFIC VOLUME RANGES BY FUNCTIONAL CLASSIFICATION

Functional Classification	Volume Ranges (vpd, vehicles per day)
Local Streets	<2,500
Residential Collectors	2,500 to 5,000
Major Collectors	5,000 to 8,500
Minor Arterials	8,500 to 24,000
Major Arterials	24,000 to 36,000
Freeways/ Expressways	>36,000

Source: City of Tyler Master Street Plan, adopted April 2005

Existing Traffic Control

Facilitation of traffic flow on the roadway network is provided through the application of traffic control devices such as traffic signals, traffic signs, and pavement markings. Of these, traffic signals have the greatest impact on the traffic flow and roadway capacity. There are over one hundred fifty signalized intersections within the study area. Majority of these signals are located within Loop 323 and are located at major intersections along arterials and collector streets. There are approximately 30 signals along Loop 323, 20 signals along South Broadway (south of Front Street) and 16 signals in the downtown area (Broadway and Erwin Streets). Locations of existing traffic signals within the study area are shown in **Figure 6-4**. In addition to traffic signals this map identifies all the closed loop subsystems in the City, which are a series of signalized intersections which include equipment and communication devices to coordinate traffic flow along an arterial.

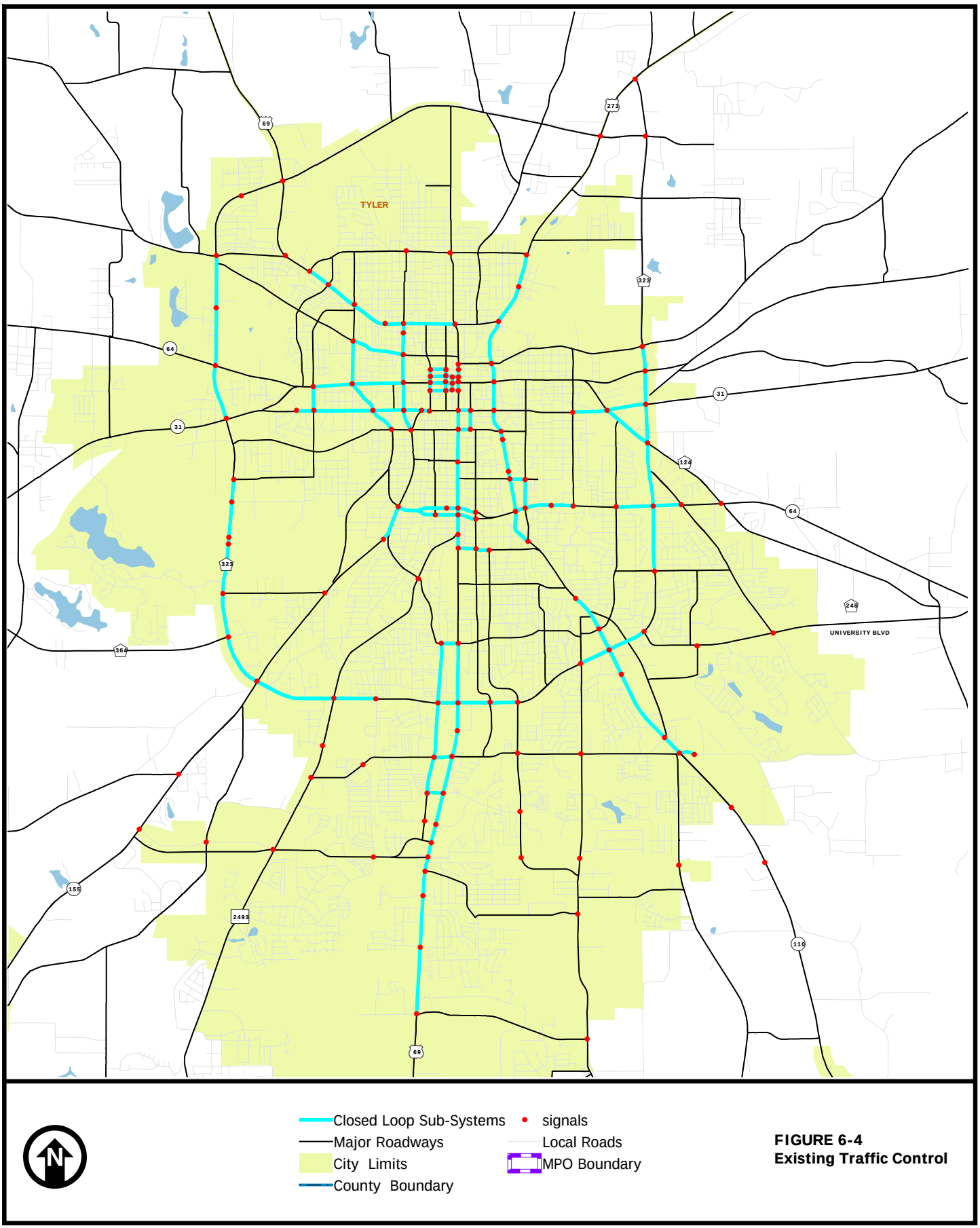


FIGURE 6-4
Existing Traffic Control

Roadway Level of Service

A common measurement of traffic operational performance or of congestion on a road corridor is "Level of Service" (LOS). In its simplest form, roadway Level of Service can be compared to a grading scale from "A" to "F", where "A" represents excellent performance and "F" indicates failure. Level of service can be explained in terms of vehicular traffic flow, maneuverability, delays, driver comfort, average speed, and the ratio of traffic volume to a roadway's maximum traffic capacity. It is typically reported for the peak traffic hour (rush hour) of a typical weekday.

Many communities around the country try to maintain LOS C or D, or better for their roadway systems, although it is acceptable with some locations, such as a busy downtown area, to operate at an even lower level of service. Many communities also use their level of service standard to develop and prioritize projects to improve transportation facilities and services as well as to regulate growth and development.

TABLE 6-2 – ROADWAY LEVEL OF SERVICE

Level of Service	A	B	C	D	E	F
Traffic Flow	Free-flow conditions, extremely favorable signal progression	Reasonably free-flow, good signal progression	Influence of traffic density is noticeable, fair signal progression	Influence of traffic density is severe, unfavorable signal progression	Unstable flow, poor signal progression & frequent cycle failures	Forced or breakdown, stop-and-go condition
Delays	Very low vehicle delays	More vehicles stop and experience higher delays than LOS A	Significant number of vehicles stop at signals but acceptable delays	Longer delays	Limit of acceptable delay	Unacceptable delays
Maneuverability	Almost completely unimpeded	Slightly restricted	Noticeably restricted	Severely restricted	Extremely unstable	Almost none
Driver Comfort	High	High	Some tension	Poor	Extremely poor	Extremely poor
Average Speed	Speed limit	Close to speed limit	Close to speed limit	Some slowing	Significantly slower than speed limit	Significantly slower than speed limit
Volume to Capacity Ratio[1]						
Two-Lane Roadways	0.10	0.25	0.40	0.60	1.00	>1.00
Multi-Lane Roadways	0.35	0.50	0.65	0.80	1.00	>1.00
Freeways	0.35	0.50	0.70	0.85	1.00	>1.00

Level of service can be explained in terms of vehicular traffic flow, delays, maneuverability, driver comfort, average speed, and the ration of traffic volume to a roadway's maximum traffic capacity. It is typically reported for the peak traffic hour of a typical weekday.

1 Source: Adapted from Highway Capacity Manual, Transportation Research Board 2000

Current Congested Corridors

The current roadway level of service for the Tyler MPO has been prepared. For the purposes of this discussion LOS A, B, or C can be described as "not congested", LOS D is "becoming congested", and LOS E or F is "congested".

Figure 6-5 shows that during peak periods, traffic congestion exists on some roadways in the Tyler metropolitan planning area. These conditions correspond to LOS E and F, which imply that vehicular demand is near or greater than the carrying capacity for these facilities. Congested roadway segments include:

- Sections of US 69 north of Loop 323 and south of Marsh Farm Rd; SH 110 northwest of Loop 323 and south of CR 2110, US 271 north of Loop 323, US 31 east of Loop 323;
- Sections of Houston St, Fleishel Ave, Donnybrook Ave, Broadway Ave, 5th St, Spur 124, Troup Hwy, Spur 248, FM 2964 south of Roy Rd, FM 766 south of CR 2297, & Spur 364.

Conditions on these streets have deteriorated to a point in which congestion relief is warranted through operational or capital improvements.

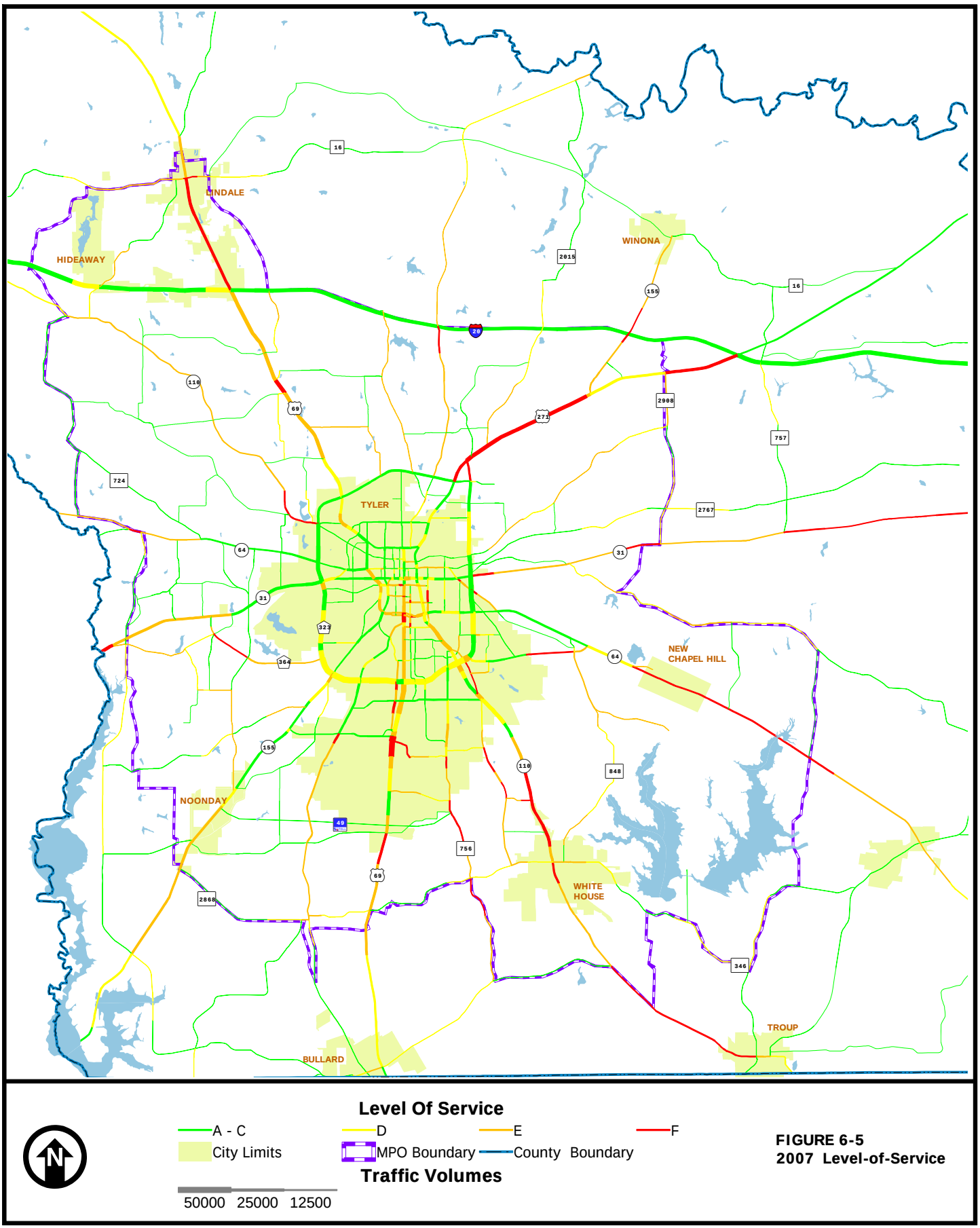


FIGURE 6-5
2007 Level-of-Service

TRAVEL DEMAND MODEL

Travel demand models are critical planning tools that are used to assess transportation network performance, forecast future conditions, and test recommended transportation alternatives. The regional travel demand model encompassing the Tyler metropolitan area and Smith County has been updated to reflect current data on the roadway system, traffic operating conditions, land use, and socioeconomic data. Refinements to the Traffic Analysis Zones (TAZ) were implemented during the update of demographic and employment data recently completed for the Tyler Area MPO. **Figure 6-6** depicts the refined TAZ for the study area.

Regional Travel Demand Model Input Data

The regional travel demand model for the Tyler Area MPO estimates traffic volumes using two socioeconomic variables: households and employment. Employment data is further divided into basic, retail, service, and some special generators categories to account for the differences in the amounts and types of trip making associated with these employment types. Table 6-3 summarizes the current and forecasted socioeconomic data used as input into the model. Detailed discussion on the methodology employed in deriving the socioeconomic forecasts are found in the report "Demographic and Employment Inputs for Travel Demand Forecast" prepared by Alliance Transportation Group, Inc. for the Tyler Area MPO dated January 2009.

TABLE 6-3– CURRENT AND FORECASTED SOCIOECONOMIC DATA

		Metropolitan Planning Area	Smith County
Population	2007	155,594	198,875
	2035	194,998	253,313
	Annual Growth Rate	0.9%	1.0%
Households	2007	61,052	77,083
	2035	77,967	100,124
	Annual Growth Rate	1.0%	1.1%
Basic Employment	2007	23,715	27,917
	2035	28,518	34,164
	Annual Growth Rate	0.7%	0.8%
Retail Employment	2007	19,763	19,768
	2035	24,530	25,018
	Annual Growth Rate	0.9%	0.9%
Service Employment	2007	45,389	52,709
	2035	56,507	66,001
	Annual Growth Rate	0.9%	0.9%
Total Employment	2007	88,887	100,394
	2035	109,555	125,183
	Annual Growth Rate	0.8%	0.9%

Source: Tyler Area MPO Demographic and Employment Inputs for Travel Demand Forecast, January 2009

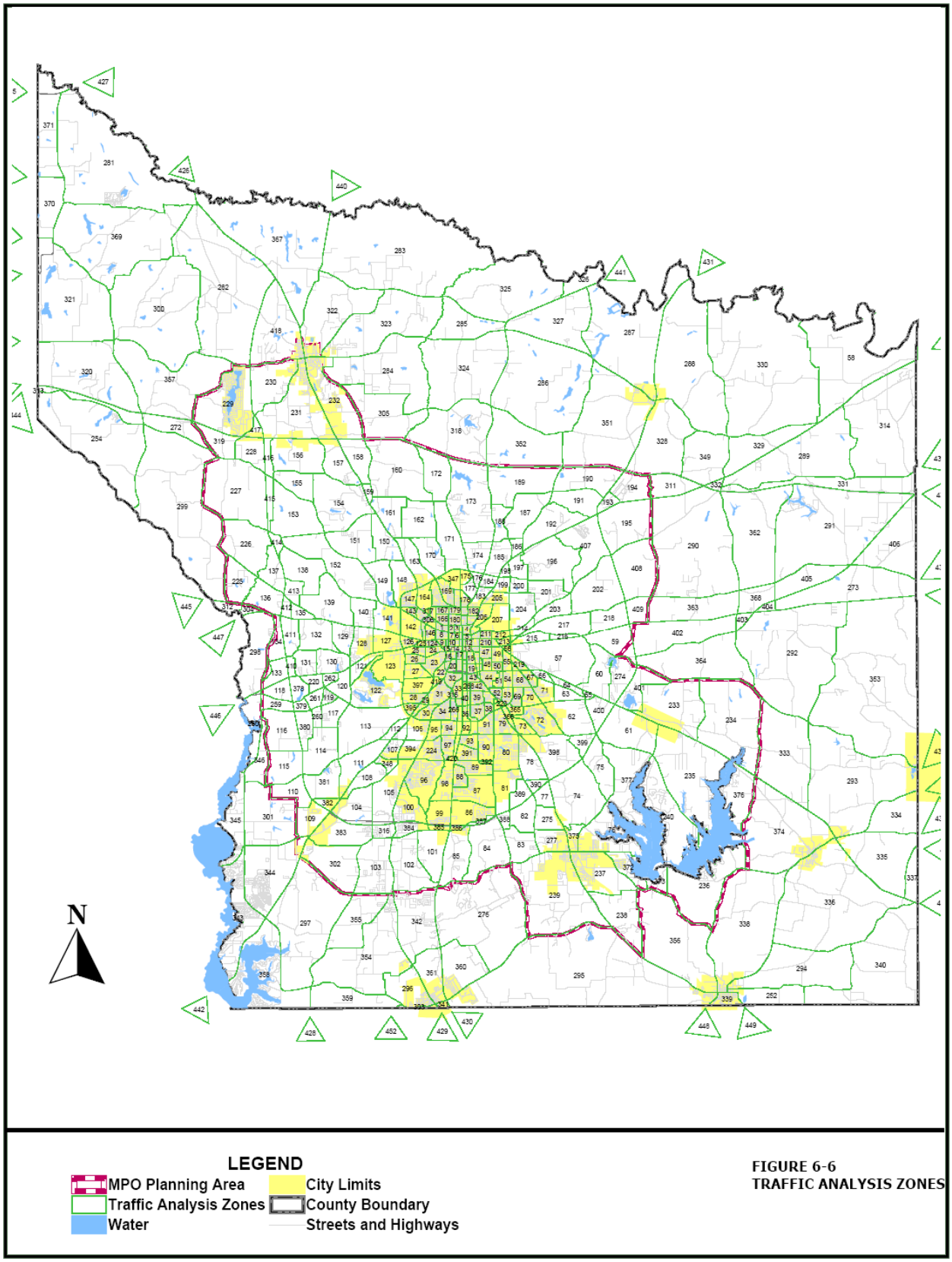


FIGURE 6-6 TRAFFIC ANALYSIS ZONES

Regional Travel Demand Model Process

The model process, shown graphically in **Figure 6-7**, uses estimates of household and employment data and the existing roadway network as input variables. Most travel demand models use what is often referred to as the four-step sequential process, consisting of:

1. Trip Generation
2. Trip Distribution
3. Mode Choice
4. Trip Assignment

The Tyler metropolitan planning area has a relatively low percentage of daily trips made using public transit. Because of this, the regional travel demand model that encompasses the entire Smith County does not include a mode split element, which separates transit and automobile trips.

Trip generation module predicts the number of person trips that are generated by and attracted to each zone. The trip generation model estimates the number of trips produced by and/or attracted to a TAZ. The number of trips generated within a zone is a function of the demographic, socioeconomic, and land use characteristics of the zone. Trip generation models have three parts: trip production, trip attraction, and the normalizing or scaling process that "matches" the total number of production and attraction trip ends.

The trip distribution model links trip productions in the region with trip attractions to create matrices of interzonal and intrazonal travel, called trip tables. The critical output of trip distribution is trip length and travel orientation (suburb to CBD, CBD to suburb, etc.), and the resulting magnitude of traffic volumes. The most common form of model used for trip distribution is the gravity model. The gravity model theory states that the number of trip interchanges between two transportation analysis zones will be directly proportional to the number of productions and attractions in the zones, and inversely proportional to the spatial separation between the zones. A central assumption of the trip distribution model is that each traveler making a trip chooses a destination from all of the available destinations on the basis of the characteristics of each competing destination and the relative impedance associated with traveling to each destination. The two most significant factors for destination choice are the relative attractiveness of a zone, measured by the number of attraction trip ends, and the relative impedance between the production zone and the attraction zone, measured as a function of time. The model distributes trips in a manner directly related to the attractiveness (size) of alternate destination zones and inversely related to the impedance (travel time) associated with traveling to each competing zone.

The traffic assignment involves the process of loading vehicle trips between zones onto specific segments of the roadway network. Specific routes are computed through consideration of travel time, distance, and congestion. The resulting traffic forecasts and related data are some of the most commonly used outputs from the entire modeling process. Therefore, a great deal of effort is spent to make these forecasts as accurate as possible. Inevitably, even after model validation, estimated link volumes will differ from ground counts.

It is important to note that the model is a tool that can be used to assist with the evaluation of potential roadway improvements. While the model provides valuable information, it is not

sensitive to all aspects of the planning process. Model results should be considered in the context of other information, such as feasibility, environmental concerns, public acceptance, cost, and other criteria.

TxDOT's Transportation Planning and Programming Division Traffic Analysis Section developed the Tyler regional model using TransCAD software by Caliper Corporation.

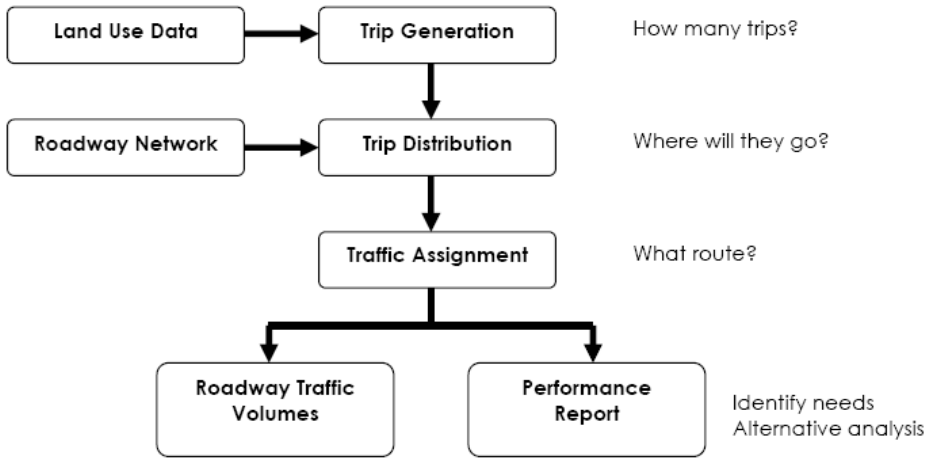


FIGURE 6-7 REGIONAL TRAVEL DEMAND MODEL PROCESS

Calibrated Base Year Model

The Traffic Analysis Section within the Transportation Planning and Programming Division of the Texas Department of Transportation (TxDOT) is responsible for developing and calibrating regional travel demand models for all MPOs in Texas, with the exception of the two largest MPOs. These are the North Central Texas Council of Governments (NCTCOG) and the Houston-Galveston Area Council (H-GAC).

TxDOT has calibrated a base year model for the Tyler Area MPO representing 2002 traffic conditions. The socioeconomic data used in calibrating the base year model is produced by Alliance Transportation Group, Inc. as part of the "Demographic and Employment Inputs for Travel Demand Forecast" study.

The 2002 year roadway network is used as the base to build the 2007 (existing conditions network), 2012 (short-term network), and 2035 (long-term network). The list of committed projects that make up the short- and long-term networks are described in subsequent sections.

Short and Long Range Traffic Forecasts

In addition to the calibrated 2002 base year model and the associated traffic for each origin zone to each destination zone (zonal O-D trips), TxDOT also developed the 2035 traffic forecast. Using the 2002 roadway network, committed projects were added to build a future network. Forecast 2035 socioeconomic data was used as input to generate the 2035 zonal O-D trips.

In order to prioritize future roadway improvements, it is necessary to establish a network representative of current or existing conditions, as well as a short-term network that will be used to test a do-nothing or no-build scenario beyond what are already committed roadway improvements. The existing network is defined for 2007 conditions while the short-term network is defined for 2012 conditions, i.e., existing plus Capital Improvement Projects (CIP) committed to be completed by year 2012.

Due to restrictions in access to the full regional travel demand model suite, an estimate of zonal O-D trips for 2007 and 2012 was obtained using the 2002 and 2035 zonal O-D trips. To better reflect growth pattern than simply a direct linear interpolation of zonal O-D trips, zonal data on households and employment were used in the estimation process. The resultant total daily origin-destination trips for the entire Smith county is summarized in **Table 6-4**.

TABLE 6-4– DAILY TRAFFIC FORECASTS FOR SMITH COUNTY

Year	Total Traffic	Change from 2002	% Change	% Annual Growth (not compounded)
2002[a]	741,087			
2007[b]	857,634	116,547	16%	3.1%
2012[b]	925,940	184,853	25%	2.5%
2035[a]	1,167,998	426,911	58%	1.7%

a traffic estimate/forecast developed by TxDOT

b traffic forecast estimated by BWR

The long-term annual uncompounded growth in traffic forecast is relatively higher than the annual uncompounded growth in households (at 1.1%) and employment (0.9%).

FUTURE ROADWAY IMPROVEMENT NEEDS

This section describes future roadway deficiencies that can be anticipated with the projected increase in population and employment in the metropolitan planning area. Recommended roadway improvements with prioritization are discussed in details under Financial Plan chapter.

Future Roadway Deficiencies Analysis

As is the case in many growing communities across the nation, Smith County, and especially Tyler, has been adding population and jobs at a faster rate than it has added new or improved roadways. Combined with increased trip-making and longer trip lengths by the traveling public, vehicular traffic is outpacing the ability to improve the roadway system. As a result, congestion has been building on the city's roadway network. This trend is expected to continue through the year 2035.

Analysis of roadway deficiencies begins with a review of the existing street/ highway network and those projects already programmed for construction. Using this “existing plus committed” network, the regional travel demand model can be used to analyze the impacts of various roadway improvement scenarios.

2012 Short-Term Network: Existing (2007) + Committed Projects to Year 2012

The model network includes all of the roadways that currently exist except residential or local streets. In addition, this network also includes projects that are far enough along in their development cycle and have funding commitments through the region's transportation improvement program to ensure they will be constructed by year 2012. These "committed" projects, when combined with the existing roadway network, make up the "existing and committed" network. Committed projects, shown in **Table 6-5**, are programmed and funded for construction in the next few years through 2012. **Figure 6-8** depicts the 2012 roadway network.

TABLE 6-5 – COMMITTED PROJECTS TO YEAR 2012

Project ID	Project Location	Project Limits
1	Loop 49 (Segments 2,3a,5)	IH 20 to SH 110
2	Towne Park Ext.	Loop 323 to SH 155
3	Sunnybrook Ext.	SH 155 to Loop 323
4	Rice Rd	Old Jacksonville Rd to SH 155
5	Old Omen Rd	University Blvd to Shiloh Rd
6	Grande Blvd	Broadway Ave to SH 110
7	Copeland Rd	Rieck to Grande Blvd
8	Old Jacksonville Hwy	Grande Blvd to FM 2813
9	FM 346	FM 756 to Hagan Rd

Source: MPO Transportation Improvement Program

2035 Long-Term Network: 2012 + Committed Projects Beyond 2012

The City of Tyler's 10-year CIP included roadway improvements anticipated for completion beyond 2012. The NET RMA also anticipates the completion of several segments of Loop 49. **Table 6-6** presents a summary and **Figure 6-9** shows the locations of those improvements.

TABLE 6-6 – COMMITTED PROJECTS BEYOND 2012

Project ID	Project Location	Project Limits	Project Description
1	Cumberland Rd Ext.	Broadway Ave to Old Jacksonville Hwy	New 4-lane section
2	Shiloh Rd	Rhones Quarter to Copeland Rd	Widening to add a center turn lane
3	Roy Rd	Paluxy Dr to Rhones Quarter Rd	Reconstruction/widening to add a center turn lane
4	Rice Rd	Old Bullard Rd to Old Jacksonville Rd	Reconstruction/widening to add a center turn lane at some locations
5*	Loop 49 (Segment 3b)	SH 31 to IH 20	New 2-lane section
6*	Loop 49 (Segment 4)	IH 20 to US 69	New 2-lane section
7*	Loop 49 (Segment 6)	SH 110 to US 271 (East Loop)	New 2-lane section

** Phase I construction of Loop 49 is a 2-lane roadway. Phase II development of this facility is a 4-lane divided expressway.*

2035 Long-Term Network: Alternative Improvement Scenarios

To prioritize improvement projects that would provide the most benefits, five alternative scenarios were evaluated. **Table 6-7** presents a summary of improvement projects included in each test scenario. **Figure 6-10** maps the locations of those improvements.

TABLE 6-7 – 2035 ALTERNATIVE IMPROVEMENT SCENARIOS

Project ID	Project Location	Project Limits	Project Description
Alternative Scenario A			
1A	Spur 364	Loop 323 to SH 31, West	Widen from 2 (or 3) to 4 lanes
2A	FM 756 (Paluxy Dr)	Jeff Davis Drive to FM 346	Upgrade to a 4-lane principal arterial
3A	SH 31, East	Loop 323, East to FM 850	Widen to a 4-lane divided principal arterial
4A	SH 155, North	IH 20, East to County Line	Widen to a 4-lane principal arterial
5A	SH 64, West	FM 724 to FM 2661	Widen to a 4-lane divided principal arterial
6A	US 69, North	Loop 323 to IH 20, West	Widen from 4 to 6-lane divided principal arterial
Alternative Scenario B			
1B	Spur 248	Old Omen Rd to SH 64, East	Upgrade to a 4-lane divided principal arterial
2B	SH 155, North	US 271, North to IH 20, East	Widen to a 4-lane principal arterial
3B	SH 31, East	FM 850 to County Line	Widen to a 4-lane divided principal arterial
4B	FM 14	MLK Jr. Blvd to Loop 323, East	Widen to a 4-lane minor arterial with CLT
5B	SH 31, West	FM 206 to FM 2661	Widen from 4 to 6 lanes
6B	SH 110, North	FM 2016 to FM 849	Widen from 2 to 4 lanes
Alternative Scenario C			
1C	FM 14	Loop 323, North to IH 20	Widen to a 4-lane minor arterial with CLT
2C	US 69 at FM 346		Intersection improvements (overpass)
3C	SH 64, East	CR 220, East to FM 3226	Widen to a 4-lane divided principal arterial
4C	SH 110	5th Street to Golden Road	Widen from 4 to 6-lane divided principal arterial
5C	SH 31, West	FM 2661 to County Line	Widen from 4 to 6 lanes
6C	SH 110, North	FM 849 to IH 20	Widen from 2 to 4 lanes
Alternative Scenario D			
1D	FM 2493	FM 2813 to FM 344	Reconstruct to a 4-lane urban arterial with CLT
2D	SH 110	Hagan Rd to Troup City Limits	Widen to a 4-lane divided principal arterial
3D	SH 64, West	FM 2661 to County Line	Widen to a 4-lane divided principal arterial
4D	IH 20 Frontage Roads	Loop 49 to CR 431	Add frontage roads to interstate
5D	US 271	Loop 323 to IS 20, East	Widen from 4 to 6-lane divided principal arterial
6D	SH 110, North	Loop 323 to FM 2016	Widen from 2 to 4 lanes
Alternative Scenario E			
1E	Loop 323	Bellwood to SH 31, West	Widen to 6 lanes with railroad underpass
2E	SH 64, East	FM 3226 to County Line	Widen to a 4-lane divided principal arterial
3E	IH 20	SH 110 to US 271	Widen from 4 to 6 lanes
4E	Loop 323 Ext.	Loop 323 Northeast to US 271	Widen to a 4-lane divided arterial
5E	FM 16	US 69 to 2.4 miles E of US 69	Widen from 2 to 4 lanes
6E	Airport Spur	Loop 49 to Tyler Airport	Reconstruct 2-lane spur to regional airport

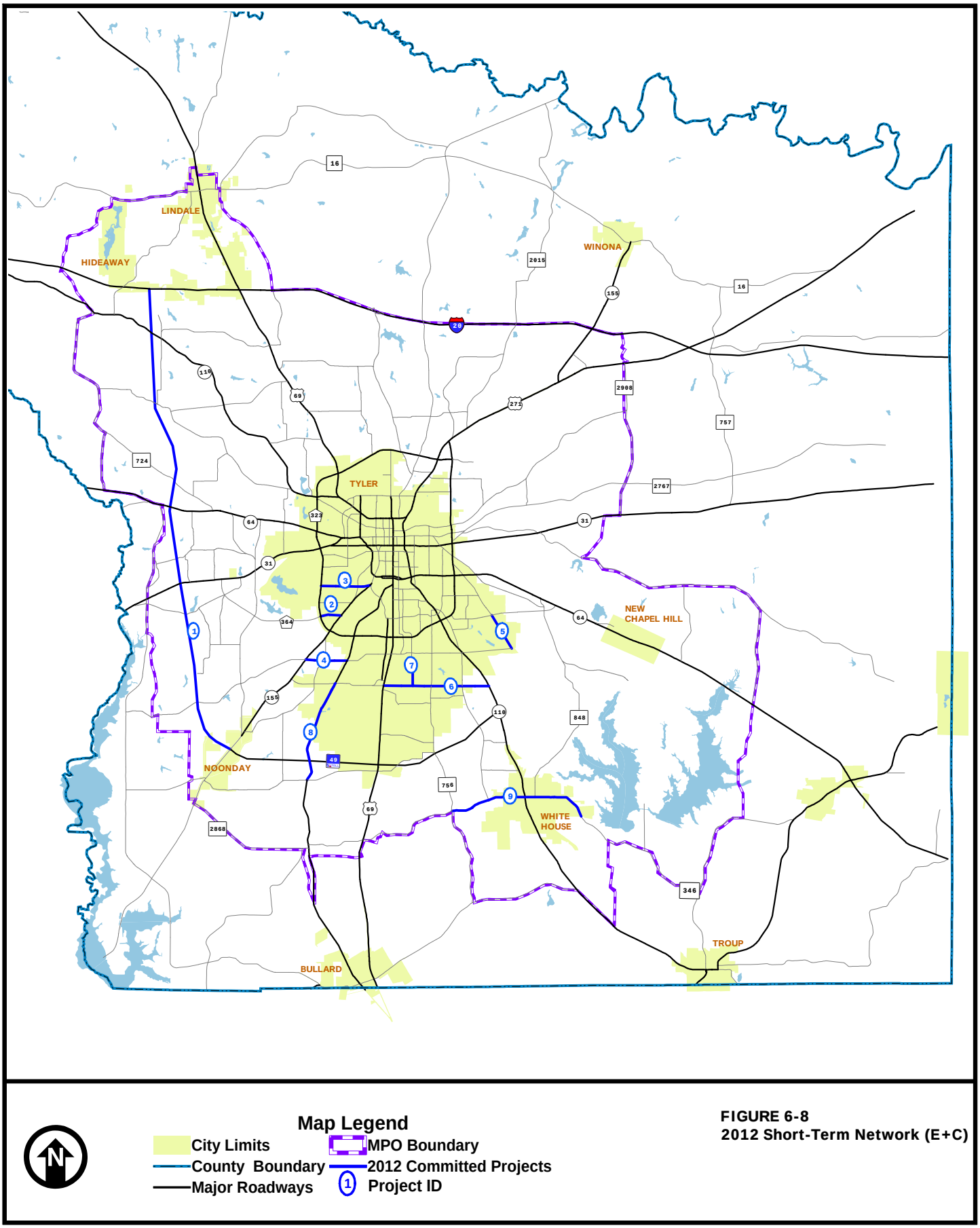


FIGURE 6-8
2012 Short-Term Network (E+C)

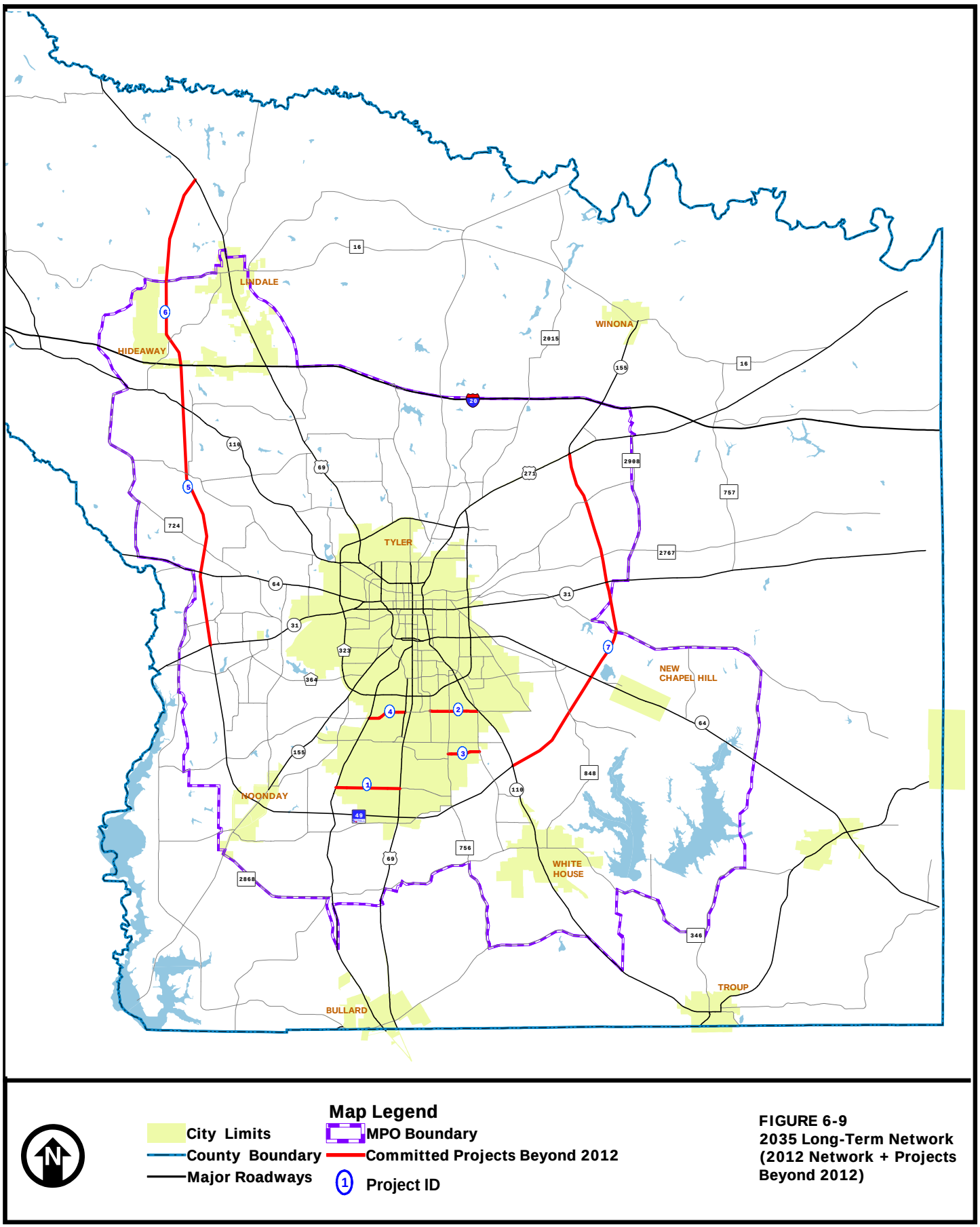
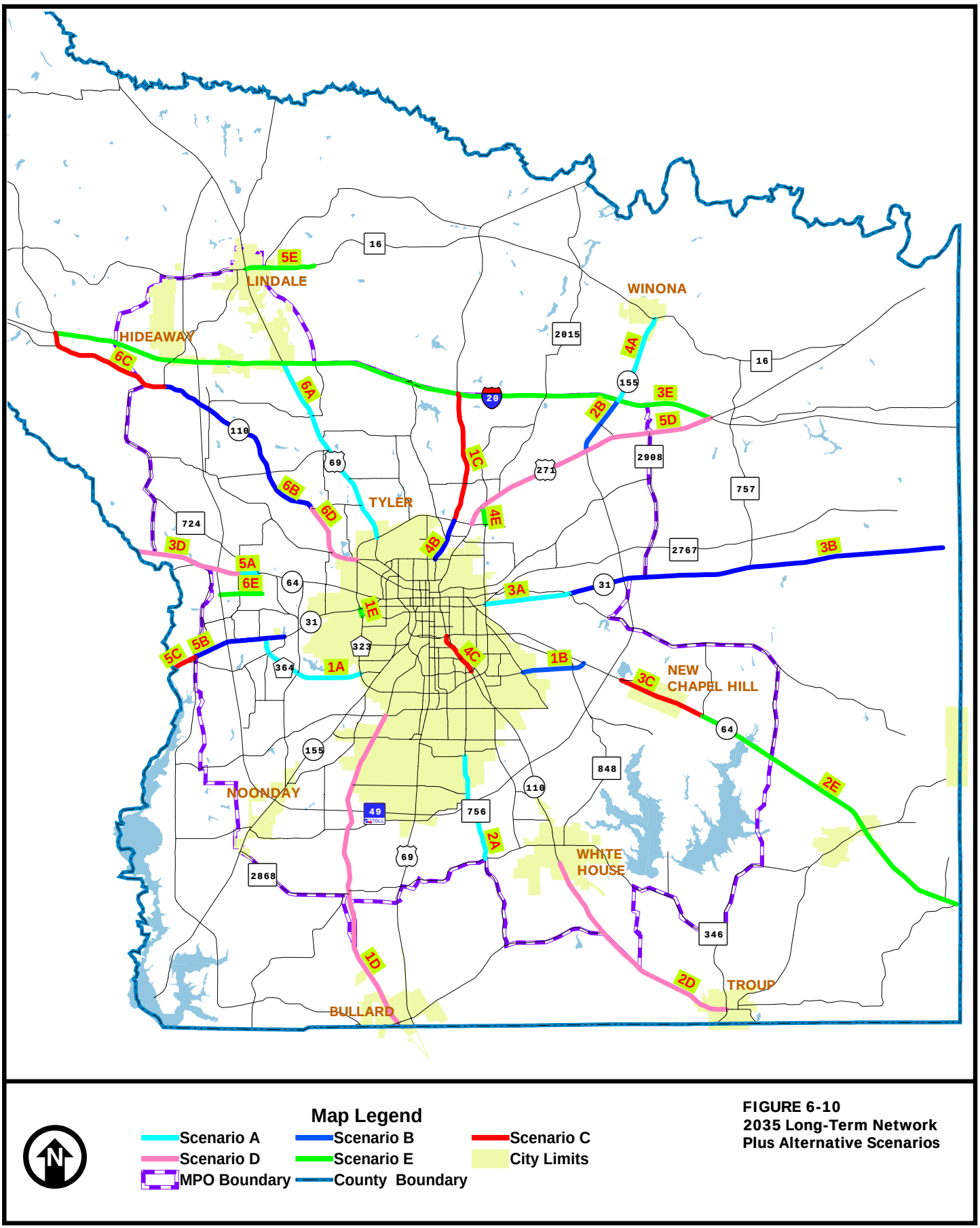


FIGURE 6-9
2035 Long-Term Network
(2012 Network + Projects Beyond 2012)



Map Legend

- Scenario A
- Scenario B
- Scenario C
- Scenario D
- Scenario E
- City Limits
- MPO Boundary
- County Boundary

FIGURE 6-10
2035 Long-Term Network
Plus Alternative Scenarios

Current and Future Roadway Congestion

As discussed earlier, traffic congestion currently exists on some roadway sections within the study area as depicted in **Figure 6-5**. An analysis of future traffic conditions indicates that congestion will increase significantly unless strategic projects are implemented in a timely manner to address the growing volume of traffic. The anticipated levels of service on the city's roadways will worsen if future growth and development is not balanced with ongoing investment in the roadway infrastructure. Future growth in the region's population, jobs, and travel will result in the need for new roadway capacity as discussed in Chapter 14.

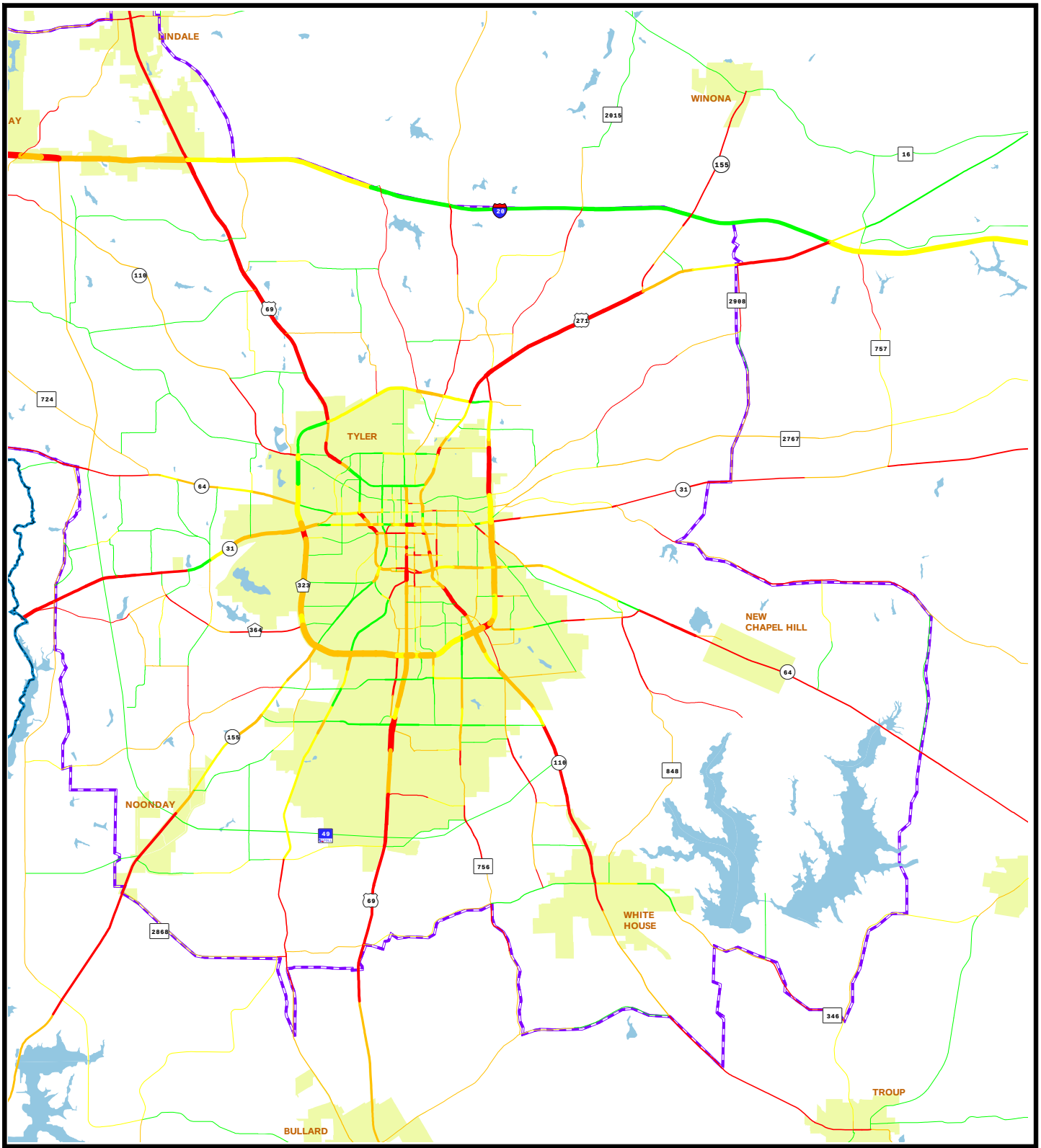


FIGURE 6-11
Level-of-Service
2012 Short-Term Network
2035 Traffic

7 Public Transportation

INTRODUCTION

An inventory was completed of existing and planned transit programs, services, and facilities within the Tyler MPO boundaries, using existing data and transportation plans. The purpose of this inventory is to provide an understanding of the programs and services currently provided in the Tyler metropolitan planning area.

EXISTING PUBLIC TRANSPORTATION SYSTEM

Today, Tyler Transit fleet consists of nine fixed route buses and nine paratransit buses. Its services are available between the hours of 6:00 AM and 8:15 PM during the weekday, with Saturday service between 9:00 AM and 6:00 PM. No Sunday service is currently available.

The basic fare is currently $0.75 for adults; $0.35 for elderly or disabled; and $0.25 for children under 12. Monthly passes are $30 (or $15 for students) and permit the passholder to ride an unlimited number of times during the month in which the pass was purchased.

To maintain its operation, Tyler Transit employs approximately 17 full-time and one part-time driver. The drivers are assigned to one of two shifts – the morning or afternoon shift. The morning shift starts at 6:00 AM and works until 1:30 PM. The afternoon shift then begin at 1:00 PM and runs until 8:15 PM.

Tyler Transit is funded through a variety of sources including:

- Operating revenue from transit fares;
- Federal funding;
- State funding for operating assistance; and
- Local funding provided by the City of Tyler

In 2005, Tyler Transit traveled close to 464,632 miles with a total of 158,836 passenger trips according to the 2007 Texas Transit Statistics report prepared by TxDOT Public Transportation Division.

History of the System

The City of Tyler established bus services on March 6, 1936. It offered six fixed routes with a six cent fare. In 1959, the City terminated its operations and a privately-owned transit company, Tyler City Lines, began to offer the service. The change reduced the number of fixed transit routes from six to four. After a number of years Tyler City Lines was purchased by another firm and the number of transit routes was again reduced from four to one — the reduction due to the declining ridership over the years. In 1977, the City of Tyler began providing an operating subsidy to the transit operator. The subsidy continued until 1981 when the City of Tyler resumed operations of the transit service. At first the system operated with a

fleet of two twelve-passenger vans on one fixed route. In 1989, a review of the transit system showed many unmet transit needs in the community and recommended expansion of the system.

The City contracted with Ryder/ATE to manage the city bus system. Transit Management of Tyler (TMT) was formed in July of 1993. TMT started operation under the trade name "Tyler Transit." In 1994, a second route was added to cover the East-West Tyler area. Paratransit services were along added to meet the needs of the disabled community in accordance with the requirements of the American with Disabilities Act.

The expansion continued in February 1999 when a third route was added and the existing routes were reconfigured. To better distinguish the routes, color coded names were given to each — the Red Line, Blue Line, and Green Line. Several transfer points were also added along the routes to allow riders to transfer between lines without having to arrive at the Bergfield Center transfer point. However, Bergfield Center remained in place as the main transfer point between all three routes. In October 2001, a fourth fixed route (the Yellow Line) was added and the lines were again reconfigured slightly.

Present Operational Characteristics

Currently, Tyler Transit offers five fixed routes as shown in **Figure 7-1**. The Yellow Line serves the southern area of the City while the Blue and Green Lines primarily serve the west and east sides of Tyler, respectively. The change to five fixed bus routes occurred when the Red Line was split into two routes. Red Line North serves the north part of Tyler and Red Line South makes stops along South Broadway Avenue. The main reason for dividing the Red Line into two separate routes was the time delay it experienced as one route. Broadway Avenue is one of Tyler's busiest corridors. As one route, the Red Line bus could not complete its route without occurring excess delay due to traffic signals and congestion.

Service frequency is best described by bus headway, or the time interval between transit revenue vehicles at a specific location. The Tyler Transit system has grown to a system that operates nine fixed route buses throughout the City of Tyler. These buses operate on a timed point system, where the bus stops and departs from the timed stop as scheduled. The transit system was designed with headways ranging from 30 minutes to 1 hour and 20 minutes. The system also features four transfer points so passengers could schedule their trips with minimum wait time. Transfer points are destinations where various routes meet at the same time to allow passengers to transfer to another bus route. Tyler Transit's main transfer point is located in Bergfeld Center. Here passengers can transfer to any of the five fixed routes offered. The remaining three transfer points are located along Red Line North route and allow riders to transfer from the Red Line North bus to either the Blue or Green lines.

In addition to its fixed routes, Tyler Transit offers paratransit services to persons with disabilities. Paratransit is an alternative mode of flexible passenger transportation that does not follow fixed routes or schedules. To use this service a rider must live within or no more than 0.75 mile outside of the Tyler's city limits. Riders simply call in a request and the paratransit buses are dispatch to their locations. This service allows persons with disabilities the freedom to access shopping centers, medical facilities, or other locations within the City.

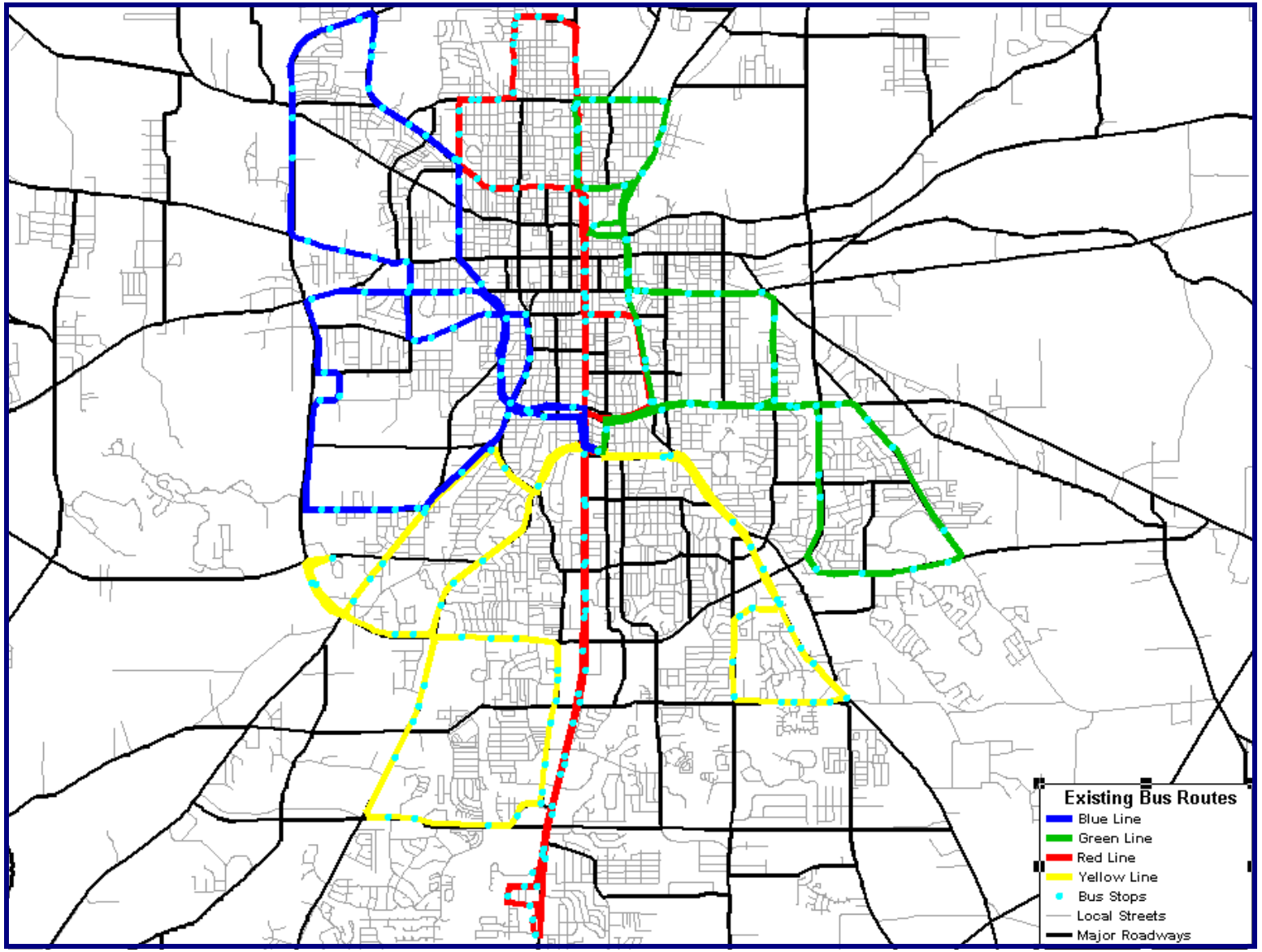


FIGURE 7-1 EXISTING BUS ROUTES

REGIONAL PUBLIC TRANSPORTATION NEEDS AND ISSUES

Greyhound Lines, Inc. has provided regional bus services to the Tyler area since 1957. Located in downtown Tyler, Greyhound offers connections to Dallas, Houston, Texarkana and Shreveport, Louisiana. In a 24-hour window the downtown station has 13 buses arriving and departing from its location. With five direct connections throughout the day, the Dallas Line has the most scheduled departures from Tyler — followed by Shreveport with three direct connections, and both Texarkana and Houston with one direct connection. Other departures to Houston, Texarkana, and Shreveport are available but require transfer(s) to reach the final destination. The station's hours of operation are from 7:00 AM to 10:00 PM seven days a week.

Together, Greyhound Lines and Tyler Transit provide the means to travel regionally and locally within Tyler's city limits. However, there is a large portion of the MPO that does not have access to a public transportation system. Cities such as Lindale, Whitehouse, and Bullard have large portions of their population traveling to and from the City of Tyler for work, school, and recreational activities. The potential for this group of commuters to use a form of public transportation is currently not being captured.

The East Texas Council of Governments (ETCOG) was designated the Rural Transit District for the 14 county region, including the Tyler MPO area, in September 1995. In accordance with Texas Transportation Code (Chapter 458), the Rural Transit District is empowered to carry out the purpose of district planning, constructing, or operating a facility or performing a service that the rural transit district is authorized to operate or perform. Before the designation, the ETCOG Area Agency on Aging (AAA) began providing Rural Public Transportation in 1990. Initially it utilized the AAA's fleet of vehicles purchased with Elderly Funds and contracting with the AAA's Elderly Transportation Contractors. ETCOG assumed direct responsibility for the delivery of Transportation Services on September 1, 2007. Today, ETCOG provide demand-response rural transportation.

The Smith County Transportation Advisory Committee (STAC) has taken an active role in looking for solutions to meet the needs of commuters within the county. The hope of STAC is to establish a regional public transportation service that promotes connectivity between the County's major communities. The committee believes through a private/public partnership this goal can be met. Currently, leaders of STAC are exploring federal and state grants that can be used to grow such partnership and develop a multi-modal hub in Tyler.

Through the process of public participation the community has shared their thoughts on where they believe the regional public transportation needs are located. Their views are summarized below in no particular order.

- The current fixed route transit system is confined to the City of Tyler limits. This restriction impacts regional transportation. By extending the fixed transit system to cover the entire MPO boundary, a greater percent of the public would benefit from the service. Consider a 24-hour, 7-day week operation.
- The current demand-response rural transportation service is limited. The hours of operation restrict the movement of people to normal business hours during the weekday and do not provide any service on the weekends. The public would benefit if this service extended its hours of operation. Consider a 24-hour, 7-day week operation.

- A high volume of Tyler's workforce commutes in from surrounding communities. A fixed route bus service between Tyler and several of these suburbs (ie. Lindale, Whitehouse) would be beneficial and help reduce roadway congestion.
- Transfer points should be added to Tyler Transit's existing fixed route system to better serve the aging community. Suggested locations include at area hospitals, doctor offices, and retirement communities.

CURRENTLY PROGRAMMED IMPROVEMENTS

For FY 2009, Tyler Transit has secured an ARRA grant with the Federal Transit Administration (FTA). The total grant amount is $1,744,631. The grant is a part of the recently stimulus package and consists of two parts. The grant's first part is approved and allows Tyler Transit to purchase five low-floor fixed route buses and four paratransit buses, as well as install 24 bus shelters with trash receptacles and sidewalk improvements. The second half of the grant funds is awaiting approval. These funds will go towards capital improvements at Tyler Transit's headquarters. Currently located at the historical train depot in downtown Tyler, the facilities features subpar sidewalks, crumbling surface water drainage system and parking area. The planned improvements involve upgrading the surrounding sidewalks to meet current ADA requirements, replacing portions of the curb and gutter and inlets to improve drainage, and reconstruction of the facility's parking lot.

A Strategic Plan for the Tyler Transit System is currently underway. Sponsored by the Tyler MPO, the study's goal is to develop a practical public transportation service expansion plan that is financially feasible and sustainable through a five year operating horizon. Results from the study are expected in early 2010. Anticipated recommendations include adjustments to the system's fixed routes, headways, and transfer points.

WELFARE TO WORK/JARC

The Federal Transit Administration, under the Job Access and Reverse Commute Program (JARC), provides funding for former welfare recipients and other low-income residents get to job locations. The program became available in 1998 to support the operations and capital expenses associated with these services. The funds can also be used to promote employer-provided transportation, on-traditional transit and transit voucher programs. The Tyler Area MPO supports the program and has had multiple recipients of the grant over the past decade.

NEW FREEDOM

The New Freedom Program encourages services and facility improvements to address the transportation needs of people with disabilities and is administered by the Federal Transit Administration. The program began with the authorization of the Safe Accountable Flexible and Efficient Transportation Equity Act, a Legacy for Users (SAFETEA-LU) and funding began in Fiscal Year 2006. This is a formula grant program for capital and operating costs and is designed to support services beyond those required by the Americans with Disabilities Act.

LIMITED ENGLISH PROFICIENCY

Background

On August 11, 2000, the President signed Executive Order 13166, "Improving Access to Services for Persons with Limited English Proficiency." The Executive Order requires Federal agencies to examine the services they provide, identify any need for services to those with limited English proficiency (LEP), and develop and implement a system to provide those services so LEP persons can have meaningful access to them. Executive Order 13166 indicates that differing treatment based upon a person's inability to speak, read, write or understand English is a type of national origin discrimination. It directs each federal agency to publish guidance for its respective recipients clarifying their obligation to ensure that such discrimination does not take place. This order applies to all state and local agencies which receive federal funds.

The U.S. Department of Transportation (DOT) issued LEP guidance in 2001 and subsequently revised and reissued in December 2005. The DOT LEP guidance consists of four steps, hence it is also referred as the four factor analysis. The four steps a recipient takes to provide "meaningful access" depends on:

1. The number and proportion of LEP persons in a recipient's area.
2. The frequency of contact between LEP person and the recipient's services.
3. The importance of the service provided to the recipient.
4. The resources available to the recipient and costs.

This framework suggests a balance between ensuring meaningful access to critical services while not imposing undue burdens on recipients. Factor 1 suggests that the greater the number and proportion of LEP individuals the greater the need. Factor 2 implies that the greater the frequency of contact, the greater the recipient obligation. LEP persons are more likely to come into contact with transit services than members of the general public. Factor 3 advocates that generally transit is more important to LEP persons, who are less likely to have alternative transportation options. After applying this framework, recipients can conclude that different language assistance measures are appropriate for different types of activities.

LEP Baseline Data

The United States Department of Justice defines LEP individuals as those "who do not speak English as their primary language and who have a limited ability to read, write, speak, or understand English." To determine LEP populations within the Tyler metropolitan planning area, data from the U.S. Census 2000 was analyzed. Census data record the presence of persons who describe their ability to speak English as less than "Very Well." A comparison of adult population (i.e., persons 18 years and older) for Tyler City, Smith County, and the State of Texas is summarized in **Table 7-1**. The table shows the percentages of adults who speak English less than "Very Well" by language category. Additionally, 1,680 households or 2.6%[1] of households within area counties reported to the Census that their household was linguistically

[1] Statistics extracted by Cubit Planning Program using Census 2000 data

isolated, meaning that all household members over the age of fourteen had at least some difficulty with English. Thus, Census data indicate the presence of LEP populations.

TABLE 7-1 ADULT SPEAKERS WHO SPEAK ENGLISH LESS THAN VERY WELL*

Census Geographies	Total Adult Population	Spanish Language Speakers	Other Indo European Language Speakers	Asian and Pacific Island Language Speakers	Other Language Speakers
Tyler City	62,103	4,231 (6.8%)	124 (0.2%)	121 (0.2%)	39 (0.1%)
Smith County	128,170	6,352 (5.0%)	246 (0.2%)	242 (0.2%)	51 (0.0%)
Texas	14,977,890	1,888,940 (12.6%)	80,794 (0.5%)	164,839 (1.1%)	18,211 (0.1%)

Data Source: Census 2000 (Table P19) for persons 18 years old and older, accessed on October 21, 2009
** The data on ability to speak English represent the Census respondent's own perception about his/her ability to speak English (United States Census 2000 Metadata)*

Cubit Planning baseline data report for Smith County included analysis of literacy data using National Center for Education Statistics based on 2003 survey data for states and counties. Its indirect literacy estimates for adults found the percentage of adults who lack basic prose literacy skills for Smith County and Texas about 13% and 19%, respectively. While literacy estimates do not differentiate between low literate English speakers and low literate LEP populations, literacy data should be considered along with other LEP indicators in determining how to best provide access to LEP populations. In conclusion, the data indicate the likelihood of LEP populations in the Tyler/Smith County area.

Table 7-2 presents the percentage distribution of the top five languages spoken by the total adult population (LEP and non-LEP) in Tyler City. The Census data indicates the presence of a Spanish language group that exceeds the Department of Justice's Safe Harbor threshold of 5% or 1,000 persons. In accordance with the Safe Harbor provisions, written translations of vital documents will be provided for the LEP language group in addition to other measures assuring meaningful access.

TABLE 7-2 TOP FIVE LANGUAGES SPOKEN BY TYLER ADULT POPULATION

Language	Percentage
English	85.7%
Spanish/ Spanish Creole	12.5%
French (Patois, Cajun)	0.2%
Tagalog	0.2%
German	0.2%

Data Source: Census 2000 (Table PCT10) accessed on October 21, 2009

Tyler Transit Limited English Proficiency Plan

Tyler Transit receives federal assistance through the U.S. Department of Transportation. As per Executive Order 13166, Tyler Transit is required to put in place an LEP plan. The baseline data analysis indicates that Tyler and Smith County has LEP populations. Tyler Transit staff is looking at developing an LEP plan for Tyler Transit. The inclusion of LEP discussion in the MTP is suggested by Transit Tyler staff.

In addition to the four factor analysis, the following guidance are useful in developing Tyler Transit's language implementation plan.

- Ways to reduce the costs of providing language assistance
  - Training bilingual staff to serve as interpreters or translators.
  - Using telephone interpretation services.
  - Using qualified community volunteers to provide interpretive services.
  - Using qualified translators and interpreters to make sure documents don't need to be corrected later.
- Guidance on oral language services
  - Recipients should consider the competency of the interpreters.
  - When interpretation is needed, it should be provided in a timely manner to be effective.
  - Recipients should determine how to make best use of bilingual staff,
  - Contracting with interpreters is effective when there is no regular need for a particular language skill.
  - Also consider using telephone interpreter services.
- Guidance on written language services
  - Translate vital written materials.
  - The number of languages into which a document should be translated depends on the four factor analysis.
- The elements of an effective implementation plan on language assistance
  - Conducting a needs assessment
  - Providing language assistance measures
  - Training staff
  - Providing notice to LEP persons
  - Monitoring and updating the plan

8 Bicycle and Pedestrian System

INTRODUCTION

Walking and bicycling are integral parts of the transportation system. People walk and bike to commute to work and school, for trips such as visiting friends, shopping, or other personal errands, and to make connections to transit or other intermodal facilities. The infrastructure system should support and encourage these types of trips.

REGIONAL TRAIL PLAN

In December 2007, the Tyler Area MPO commissioned a study to develop a Regional Trail System. This study was completed in 2009. The plan represents a comprehensive system of trail corridors that spans the Tyler MPO boundary and much of Smith County. The Regional Trail System (see **Figure 8-1**) will be a major component of the multi-modal transportation system providing alternative transportation corridors for bicyclists and pedestrians while offering off-street connections to strategic locations. The multi-modal trail system includes pedestrian, all terrain vehicles, equestrian, and high speed hike and bike trails. The Plan is the first of its kind in Smith County. It is anticipated that the Plan will lead to the ultimate development of more than 175 miles of trails.

Development of the Regional Trail Plan is an important element of the Metropolitan Planning Organizations regional planning process. The planning process engages different cities to come together for a common goal. The goal is to provide a multi-jurisdictional, interconnected system of trails, open spaces, and recreation opportunities which are distributed equitably throughout the MPO boundary, as well as providing multi-model transportation opportunities to move people, rather than just cars throughout the metropolitan area.

The Regional Trail Plan identifies the optimal location and cross section of the trails as well as locations for trail head facilities. While specific construction details are not included, the plan provides the MPO, County and each Municipality a tool to assist in the preservation of future trail corridors and trail head facilities. The plan is long term in nature and construction of the trail phases will rely heavily on regional participation and fiscal abilities. The concept of trail master planning is to first identify the locations and routes of these trails in order to ensure the preservation of the corridors while beginning implementation over a period of time.

The 20 year Regional Trail implementation plan recommended that the Plan be reviewed annually and updated every 2 years to continue to reflect the unique needs and opportunities of the region. The update should include adding constructed segments to the map, reviewing all trail segments to ensure development patterns are considered. The MPO should also encourage the member cities to work on developing urban trail plans within their boundaries to begin enhancing inner-city trails that allow for urban connections out to the regional trail system.

The proposed trail system identified in this plan will enhance the quality of life in the region and help ensure that the area is able to keep pace with the growing recreational and multi-modal needs of the citizens. The resulting benefits include increased quality of life, tourism potential, economic value, increasing property values, and pride in the residents of the area.

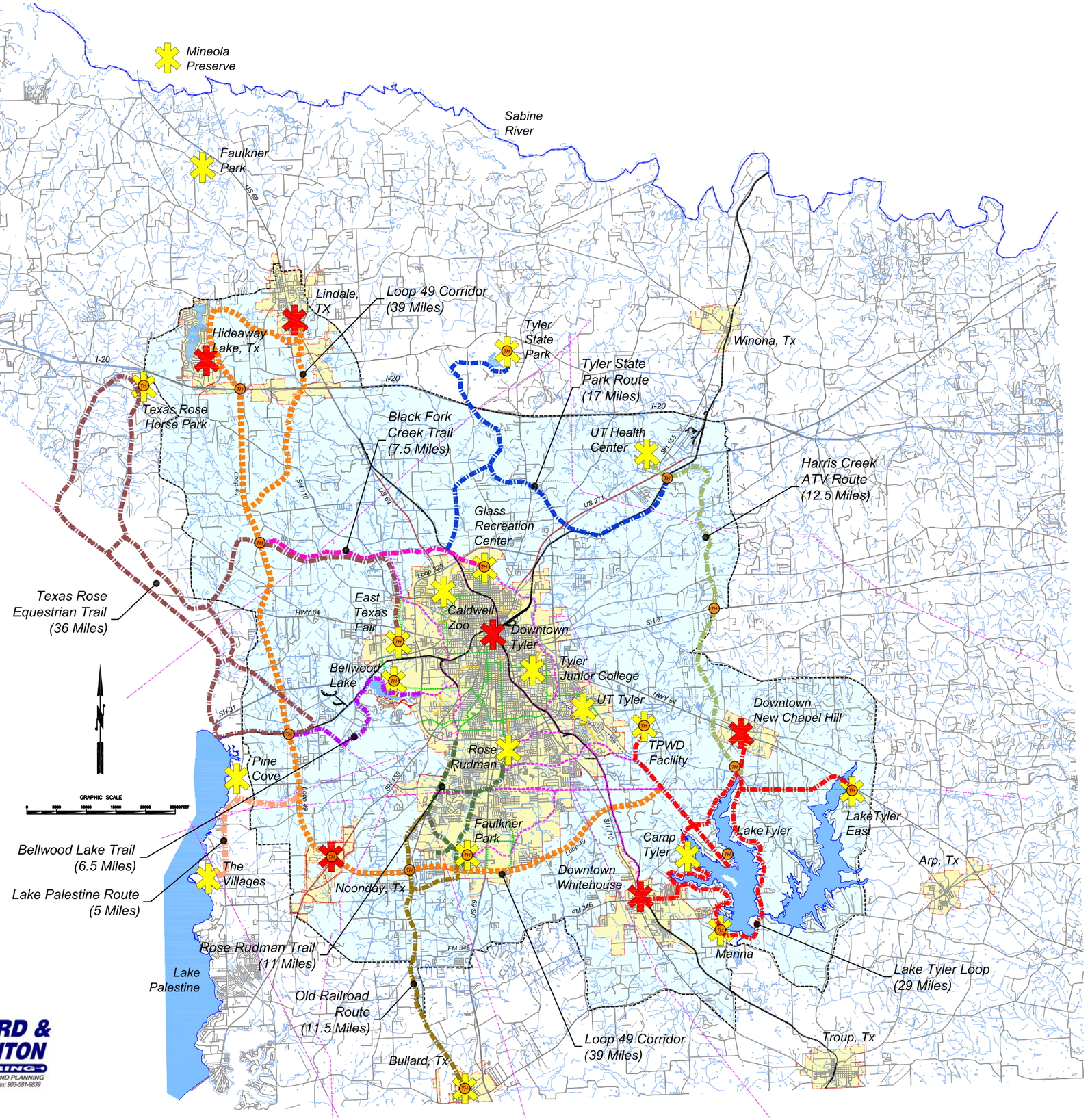
Noonday
Tyler
Whitehouse

Hideway
Lindale
New Chapel Hill

REGIONAL TRAIL PLAN

Legend

- Tyler 21 Primary Trail Route
- Tyler 21 Secondary Trail Route
- MTP Hike and Bike Trail Route
- TH — Trail Head Facility
- Tyler MPO Member City
- Point of Interest (from Steering Committee)
- City Limits
- Tyler MPO Boundary



TYLER AREA MPO

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Design Standards

The Regional Trail System is proposed as a motorized/non-motorized, shared –use, multi-modal corridor used for transportation and recreation. The trail will feature primary hard-surface trail and secondary soft-surface trail where possible. Various corridors will be either hard or soft due to terrain or other constraints. A system of trail classifications was developed to include a variety of trail types for the region. Each classification type is designed to accommodate various trail conditions. The trail classifications include:

- Gateways
- Primary
- Secondary
- Neighborhood/Interpretive (e.g., Neighborhood/Transit/Connector Trail)
- Conservation/Interpretive
- Equestrian
- All terrain vehicle
- High speed hike and bike

The Regional Trail Plan Final document dated September 21, 2009 has the details of each trail classification, including trail cross sections and amenities.

Trail Segments and Implementation Priority

The miles of trails identified within the trail system are organized into identifiable segments and priorities. These priorities will serve as a guide for the MPO, County, and Cities to use when implementing the trail plan. Each segment is named, which will identify the location of the trail within the region. The Trail Segments section of the Plan identified the following ten trail segments. Details of each trail segment is described in the Regional Trail Plan Final document.

- Lake Tyler Loop from Lake Tyler West to Lake Tyler East (29 miles)
- Harris Creek ATV Route from Harris Creek to UT Health Center/Lake Tyler (12.5 miles)
- Tyler State Route Park from Tyler State Park to City of Tyler Glass Center/ Black Fork Creek (17 miles)
- Loop 49 Corridor from City of Tyler, Faulkner Park to West IH 20/ East IH 20 (39 miles)
- Old Railroad Route from City of Tyler, Faulkner Park to City of Bullard/City Park (11.5 miles)
- Lake Palestine from Loop 49 W to The Villages at Lake Palestine (5 miles)
- Texas Rose Equestrian Trail between Texas Rose Horse Park and a loop to Lake Palestine and back to Horse Park (36 miles)
- Bellwood Lake Trail from City of Tyler, Bellwood Lake Recreation Area to Loop 49 (6.5 miles)
- South Tyler Trail from City of Tyler, South Tyler Trail to Faulkner Park (11 miles)

- Black Fork Creek Trail from City of Tyler, Willie Glass Recreation Center to Loop 49 W (7.5 miles)

The Plan includes implementation strategies and general trail implementation guide to help identify the actions to be taken and the priority. Under the Implementation section, six trails are assigned priorities. The first three priorities will begin to build a major west/east series of trails throughout the region. In order to get the most benefit from the trail construction, the Tyler MPO should strive to implement sections that are connecting rather that leaving disconnected pieces of trail systems that would therefore be underutilized. A first step for these five priorities would be to commission specific route studies on each trail segment and then begin efforts to apply for grants or presentations to various private or public groups to support funding.

The six prioritized trail segments are listed below. Details are taken directly from the Regional Trail Plan Final.

PRIORITY 1: LAKE TYLER LOOP

This is a major Tyler 21 initiative as set forth in the massive planning effort the City of Tyler just finished. This loop would allow access to all member cities by creating unlimited recreational opportunities at the lake which include mountain biking, walking, swimming, camping, running, and wildlife viewing. There are existing trail head facilities that can be utilized as part of this project, so limited construction dollars would be needed. The cities of Tyler, Whitehouse and New Chapel Hill should work together to apply for recreational trail grants and begin planning the routes for this loop. The Texas Parks and Wildlife Recreational Trails Grant program matches cities at an 80/20 percent rate. The municipalities would only be responsible for 20 percent of the match. Additionally, groups such as the Boy Scouts, Audubon, and East Texas Trekkers could work to construct various legs of the route.

PRIORITY 2: SOUTH TYLER TRAIL

This is a major Tyler 21 initiative as set forth in the massive planning effort the City of Tyler just finished. This trail extension would allow full access from Southside Park to Faulkner Park allowing for a linear trail connection through the center and south portions of the City of Tyler. There are existing trail head facilities that can be utilized as part of this project. The City of Tyler should work together with developers within the area to apply for recreational trail grants and begin planning the route for this extension. The Texas Parks and Wildlife Recreational Trails Grant program matches cities at an 80/20 percent rate. The city would only be responsible for 20 percent of the match. Additionally, groups such as the Boy Scouts, Audubon, and East Texas Trekkers could work to be partners in this project.

PRIORITY 3: HARRIS CREEK

This route offers a unique experience to the use of trails. ATV trails are growing in popularity and a substantial amount of funding exists through grants. This ATV trail will allow for a new experience not offered to the public within the region. The trail could be constructed with grants funds and then operated and maintained by a private company. All member cities as well as Smith County should work together to leverage grant funds for this project to allow for a new and different recreation opportunity.

PRIORITY 4: TYLER STATE PARK / BLACK FORK CREEK TRAIL SECTIONS

This priority offers a connection to Tyler State Park through alternative forms of transportation including walking, jogging, and biking. This connection greatly benefits the City of Tyler as its citizens are able to access the State Park via a trail system. The City of Tyler and Smith County should work together to apply for grants funds to construct this trail.

PRIORITY 5: TEXAS ROSE HORSE TRAIL

This trail offers an additional unique and different trail experience for the horse lover. This trail would be a loop to Lake Palestine utilized the Texas Rose Horse Park as the trail head facility. The Cities of Lindale, Hide-a-way and Tyler along with Smith County should work to raise private funds to assist with construction of the trail.

PRIORITY 6: LOOP 49

Loop 49 is an existing facility with a very wide right-of-way width. The cities could easily work with TxDOT to mark bike lanes and add additional paving for a high speed hike and bike path. The route of Loop 49 is in place and utilization of the existing right-of-way would make implementation of this priority easier. The MPO should work with TxDOT to facilitate the planning of these additional lanes or begin marking and signing these hike and bike routes. All member cities benefit from multi-model access along Loop 49 and should work together to implement these hike and bike facilities.

PEDESTRIAN FACILITIES

Pedestrian facilities need to be treated as a part of the transportation system that provides connections between schools, residences, recreation, shopping and employment. The pedestrian system is also necessary for providing connectivity to the transit system and parking areas.

Pedestrian improvements, like all transportation decisions, need to be prioritized. Conceivably, the most important users of the pedestrian system are school age children. Therefore, the most critical sidewalk and pedestrian system improvements are those deficiencies around schools, parks and recreation areas and their neighborhood connections. Another priority would be providing pedestrian connections in high employment areas.

Smart land-use and growth patterns are crucial factors in determining the feasibility of walking as an alternative mode of transportation. By encouraging strategies such as mixed-use development, clustering housing near retail and employment activities, and using grid or modified grid patterned street systems that provide direct pedestrian connections, the practice of walking trips will begin to replace some vehicle trips. In addition, by keeping the built environment at a “human” scale, a more comfortable pedestrian environment is created.

Sidewalks

The Tyler MPO lacks a consistent pedestrian sidewalk system. A large portion of the area’s sidewalks are discontinuous and do not meet current Americans with Disabilities Act (ADA) standards.

Historically, cities grew with a strong network of sidewalks, especially in their downtown districts. This is apparent in the cities of Tyler, Whitehouse, and Lindale. Sidewalks are present along the older arterials and collectors. However, in the late twentieth century as communities began sprawling, the construction of sidewalks declined. That trend held true in the Tyler MPO area. In recent times, the demand for sidewalks in metropolitan areas has increased as a means of commuting and for recreational uses. Attention has been given to the trend and sidewalks have been incorporated into recent projects in the area.

In the City of Tyler, sidewalks are typically provided on both sides of a roadway. Their presence is dense near the downtown district and hospital area. However, the majority of these sidewalks do not meet current ADA requirements. At many locations the pedestrian ramps are not present or if available the slope exceeds current standards. Also in some cases, the sidewalks' overall widths are too narrow. Many of the sidewalks in Lindale and Whitehouse can be described similarly.

In the southern parts of Tyler, where developments have thrived the last decade, sidewalk is more discontinuous along arterials and collectors. Although the city now requires new development to install sidewalk along the front of streets, there are still some older establishments that existed before the ordinance. These businesses are not required to install sidewalk and therefore gaps in the sidewalk network is created.

An example of a well planned pedestrian facility in Tyler can be found along Grande Boulevard. This roadway features an ADA compliant sidewalk to its north with bike lanes along its right-of-way just south. The idea was to incorporate the sidewalk and bike lanes into the city's regional trail plan and provide better connectivity between its parks. The city has received positive feedback with this project and is currently looking at other projects where integration of transportation modes can occur.

Curb Ramps

The curb ramps along the majority of TxDOT roadways meet current ADA requirements. In 2007, TxDOT replaced the curb ramps along East Fifth Street from Beckham Avenue to ESE Loop 323 to meet current standards. TxDOT also installs curb ramps at the majority of its traffic signal replacements or new installations. When existing sidewalk facilities are not located near the intersections, the curb ramps are still installed for future use. The City of Tyler Traffic Department has begun to follow the same procedures as TxDOT when installing curb ramps.

Medians and Refuge Islands

There is a planned project along Gentry Parkway, in north Tyler, to install pedestrian refuge islands. Gentry Parkway has a roadway section that is 92 feet wide. There are many people crossing the arterial along its entire length. The proposed project, that is currently being developed, will install raised pedestrian refuge islands at all the signalized intersections. Initially

these islands will be constructed only as refuge points. However the hope is to modified the signal wiring and install pedestrian push buttons and signal heads on the islands themselves. When this is installed, pedestrians will be able to cross the large pavement area in two protected movements without adding excess delay to the vehicular movements.

In terms of medians, several projects constructing medians in Tyler have occurred since the last MTP update. In 2005, raised medians were installed along South Broadway Avenue from Loop 323 to Heritage Drive. These medians eliminated many conflicts points along the segment that the existing continuous, left turn lane created. Around the same time period, medians were installed along the southern portion of Loop 323. And more recently in 2009, medians were installed along the eastside of Loop 323 and Troup Highway from Golden Road to north of Aberdeen Drive.

SAFE ROUTES TO SCHOOL

Safe Routes to School (SRTS) is a program that is aimed at getting more children to safely walk or bike to school regularly. SRTS is a national and international movement. In the United States, funding for Safe Routes to School activities has been made available by the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy of Users (SAFETEA-LU). *Future funding opportunities for SRTS will depend on either a continuing resolution of SAFETEA-LU or passage of a new transportation bill.*

SRTS implementation in Tyler has so far been limited to the SRTS project for Douglas Elementary School. Douglas Elementary School (Hillsboro Street) is surrounded by a residential development that utilizes the school, but the area lacked a clear network of sidewalks for pedestrians. TxDOT awarded the City $78,400 towards the construction of 600 linear feet of sidewalk along Hillsboro Street and a raised pedestrian refuge island at the intersection of Hillsboro Street and Gentry Parkway. Numerous students crossed the intersection daily with the help of a crossing guard; the pedestrian refuge island now allows students to cross the large roadway section in parts rather than all at once. The project also includes installation of new and improved signage and pavement markings on streets adjacent to the school.

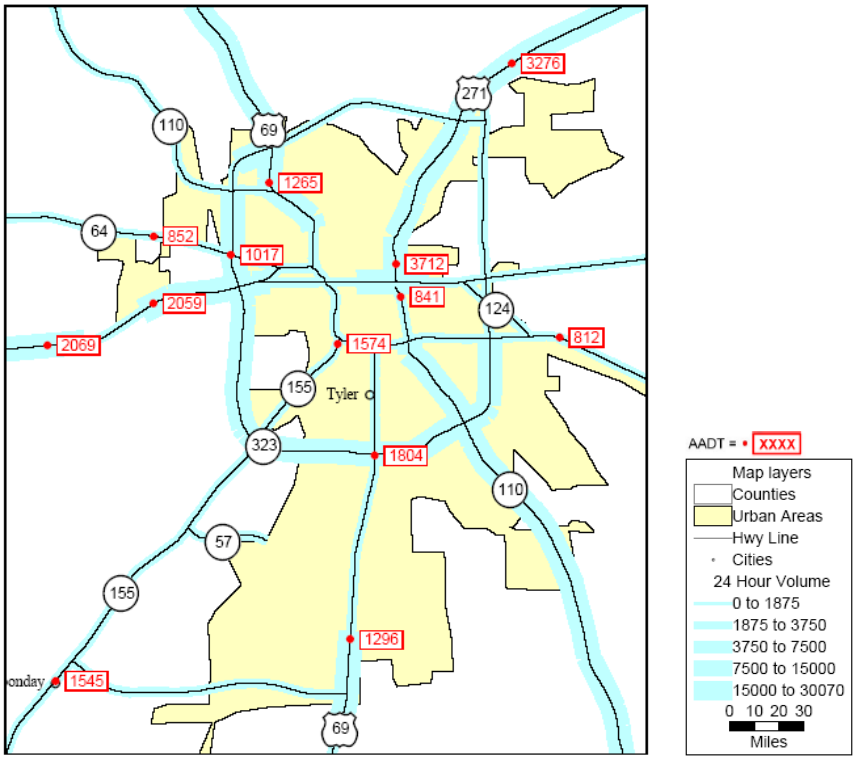
9 Freight, Rail, Air, and Intermodal Facilities

INTRODUCTION

The economic success of a region depends to a large degree on its connections to the rest of the world and its ability to facilitate the movement of people and goods across and within its boundaries. Increased competition in today's global economy rewards those regions that actively plan for and pursue seamless transportation systems, which depend on efficient connections between all modes of travel. Transportation facilities and service levels are important elements that companies consider when locating to a new area because of the cost savings and increased economic competitiveness these regions provide. Beyond the basic travel needs of Tyler and Smith County residents, there are additional travel considerations for moving freight on rail and truck and for personal inter-regional travel via bus, rail, and plane.

FREIGHT MOVEMENT

There are 21 motor freight carriers with a terminal in the City of Tyler. The majority of motor freight within this area is interstate commerce along I-20. An increase in freight traffic has been seen on the local roadway network as well. **Figure 9-1** depicts truck traffic in Tyler.



Source: TxDOT 2007 Texas Truck Flow Band Map

FIGURE 9-1 2007 TRUCK FLOW BAND MAP FOR TYLER

Coordination with private freight transportation providers, either through a task force or some other means, can provide the MPO with a wealth of information if done properly. Private companies are often hesitant to provide government entities with proprietary information. However, through their involvement they may see the virtue in sharing data, especially if it results in improvements to the transportation system that increases freight movement potential.

Freight providers tend to be very knowledgeable about bottlenecks in the systems that hinder truck and other vehicle movements. In addition, they may be aware of signal timing, signage, or geometric (e.g., turning radii) deficiencies in the system. With their involvement, the MPO can develop a detailed list of improvement needs and incorporate them into the transportation improvement program (TIP) for implementation. While long-range freight planning is necessary, short-term results are also important in engaging and maintaining interest from freight providers.

Freight movements invariably impact land uses, especially along the corridors utilized by truck and rail traffic. The level of impact is often intensified when sensitive receptors, such as neighborhoods, schools, parks, and so forth, occur along these high traffic routes. Proper long range planning and coordination with appropriate land use planners can serve to alleviate these impacts. This may include periodic designation and update of truck routes, implementation of additional limited-access roadway facilities, and other techniques.

RAIL TRANSPORTATION

The Union Pacific/Missouri Pacific Railroad provides rail service in Tyler/Smith County. Tyler generally serves as switch point, in that trains come through for the purpose of switching engines and then proceed to other destinations. Currently the railroads provide transportation primarily for various commercial businesses throughout the region. There is potential to improve the railroad services for the commercial businesses. In addition, there may be potential for some type of commuter rail service between the various communities and the City of Tyler. Existing rail lines are identified in **Figure 9-2.**

Through the authority granted to Regional Mobility Authorities (RMA) by the Texas State Legislature, the North East Texas RMA (NET RMA) is authorized to study feasibility, design plans, and construct railways in North East Texas. The NET RMA is currently looking at the possibility of several rail projects. One project includes the purchase of abandoned railroad right of way to preserve corridors for future use. New railway spurs are difficult to establish, therefore, an effort to preserve existing lines would be advantageous to the area in terms of future freight transport. Some existing railway spurs currently being considered by the NET RMA are in need of repair. The cost of such repair may not be financially feasible in today's economic climate. In such a case, the railroad right of way could be purchased and incorporated into the area's regional trail plan until funding is available. This course of action would have dual benefits – it would preserve the right of way while enhancing the quality of life through additional recreational trails. Although there are no current plans to develop new railways, the NET RMA is continually looking for innovative transportation solutions that will enhance the quality of life and improve the economic environment in North East Texas.

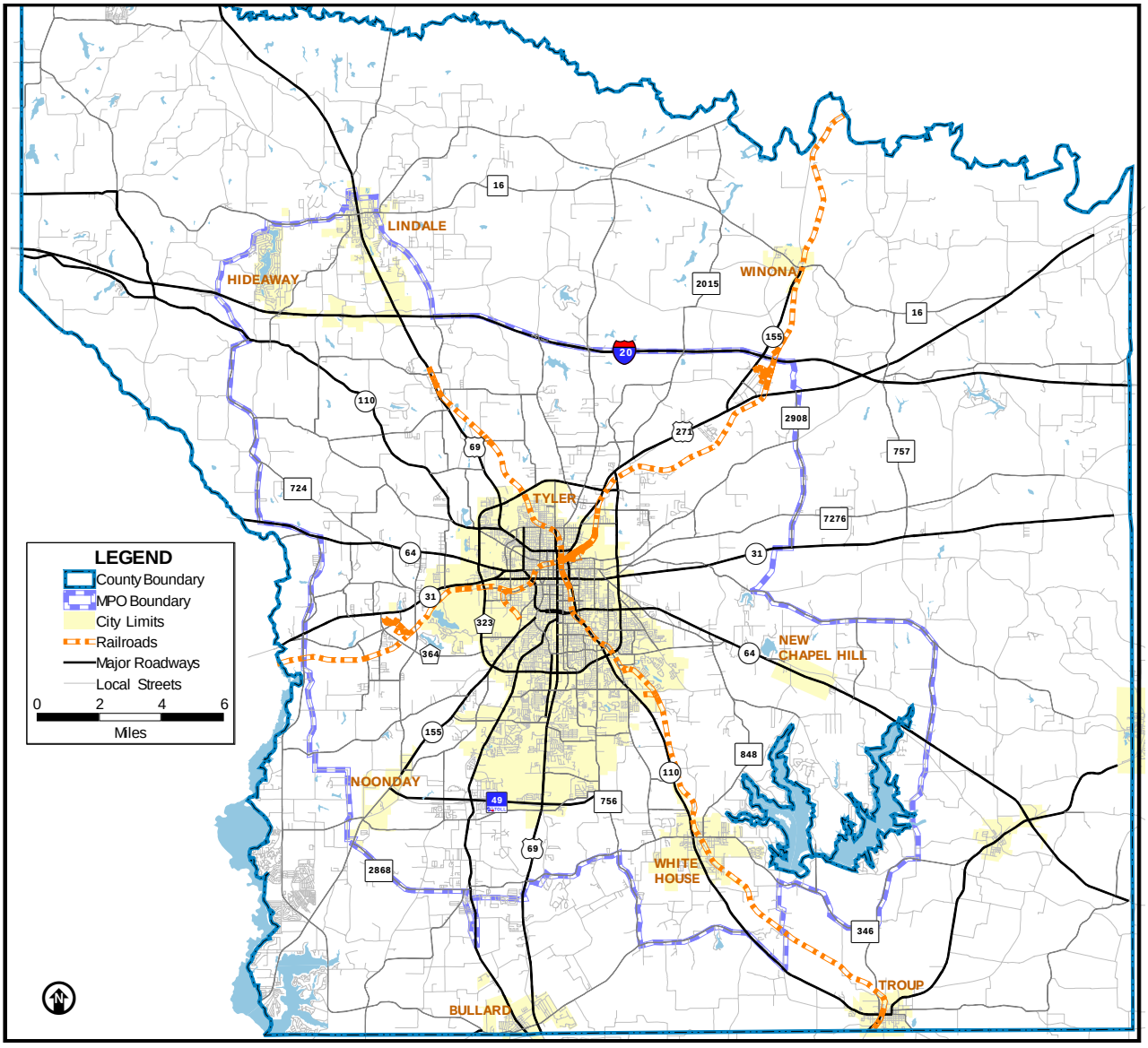


FIGURE 9-2 RAILROADS IN TYLER/SMITH COUNTY

AIR TRANSPORTATION

The Tyler Pounds Regional Airport provides commercial air service that is the gateway for East Texas to all major U.S. cities and destinations around the world. It is a publicly-owned community airport located approximately 4 miles west of Loop 323 along State Highway 64. Two air carriers provide frequent, nonstop regional service. American Airlines offers American Eagle prop and Jet service to Dallas/Forth Worth airport in Dallas with 5 daily flights. Continental Airlines operated by Colgan Air, offers 6 daily flights to Houston's Intercontinental Airport. **Figure 9-3** depicts the annual enplanements and deplanements over a ten-year period from 1998 to 2008. As shown, there was a significant decline in passengers from 2001 to 2003 and started to come back up from 2004 with a peak in 2005 of 86,183 enplanements. In 2006 enplanements dropped to 78,971 and remain relatively steady in 2007 and a slight

decrease in 2008. Besides commercial flights, Tyler Pounds Regional Airport is also open to corporate and general aviation activities.

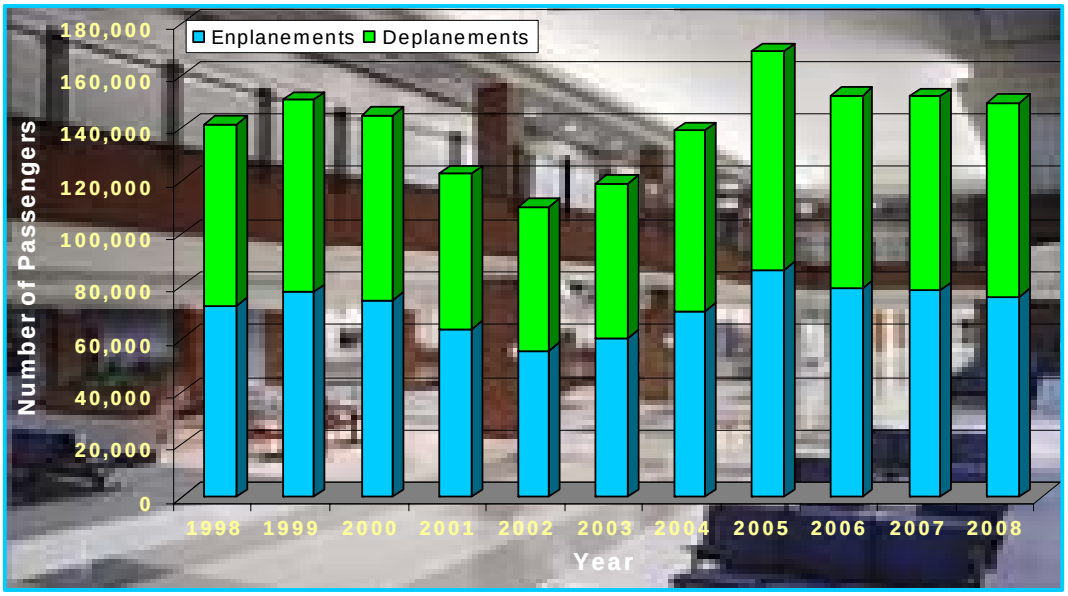


FIGURE 9-3 TYLER POUNDS REGIONAL AIRPORT ENPLANEMENTS AND DEPLANEMENTS

Tyler Pounds Field has three operating runways identified as 13-31, 17-35 and 4-22. The three intersection runway configuration was originally designed to accommodate smaller propeller-type aircraft which are more susceptible to varying degrees of crosswinds. The 150-foot wide runways have an asphalt surface with the longest runway length at 7,200 feet. The other two runways are 5,200 and 4,849 feet in length. The airport has a variety of lighting and navigational aids available to assist in the identification, approach, landing and taxing operations at night or in poor weather conditions. The taxiway system at Tyler Pounds is a series of parallel and connecting taxiways. The network consists of eight taxiways, all of which are fifty feet wide.

In addition to the airport's aircraft operating areas, there are a number of landside facilities. These include the terminal building, aircraft parking apron, hangar areas, vehicle parking and airport access road. The airport offers two types of parking with varying costs – short-term and long-term parking. Fixed based operations are also a part of the landside facilities and include passenger waiting areas, pilot lounge, aircraft sales/leasing/brokerage, fuel storage, parking, courtesy transportation, public telephone, restrooms, etc. The airport has two fixed based operators — Jet Center of Tyler and Johnson Aviation — providing the above-mentioned services.

The airport is also equipped with Aircraft Rescue and Firefighting services. These services and equipment are provided on a twenty-four hour basis for regularly scheduled aircraft, as well as unscheduled air carriers. In addition, the airport is operating an aviation training school with five flight instructors and three single engine aircrafts.

The City of Tyler opened a new terminal building to the west side of the airport in 2002. The new terminal has over 38,000 square feet, which is more than twice the size of the old terminal.

Land was acquired to provide adequate space for future terminal expansion forecasted for the next forty years.

Several construction projects to improve airport facilities has been carried out in recent years. These include improvement runway 13-31 and associated taxiways which have been rejuvenated and sealed to enhance and prolong the life of the pavement. All runway and taxiway markings within the project comply with new FAA marking standards. In 2009 the Runway Visibility Zone (RVZ) Clearing Project to clear and grub an area was completed.

The Master Plan Project is complete and was adopted by Tyler City Council on October 24, 2007.

INTERMODAL FACILITIES

Intermodal facilities refer to facilities where people or goods transfer between modes (e.g., combined commuter rail and bus stations, rail/truck freight transfer facilities, etc.). Intermodalism is the concept that binds the modes together so that people and freight movements can be made in the most efficient manner possible.

Figure 9-4 displays existing freight and intermodal facilities in the Tyler MPO area. As shown, the majority of intermodal facilities consist of major distributors in the Tyler Area, including Tyler Pipe, located northwest of Tyler along I-69, Target Distribution Center in Lindale and Southwest Foods located northeast of Tyler along US 271. Also shown on the map is Greyhound Bus Lines, which is located on Bois D'Arc Avenue in Tyler.

Air, rail, truck, and inter-city bus industries are essential components in the local economy and play a fundamental role in the Tyler transportation system. The MTP individual modal system plans represent a comprehensive effort to build a multimodal transportation system. Additional efforts are needed, however, to link these individual modes in one connected and seamless system that further supports the efficient movements of people and goods and helps the region maintain its economic competitiveness and attractiveness of the region. Since many of these planning elements involve private sector entities, it is imperative to involve them in the planning process.

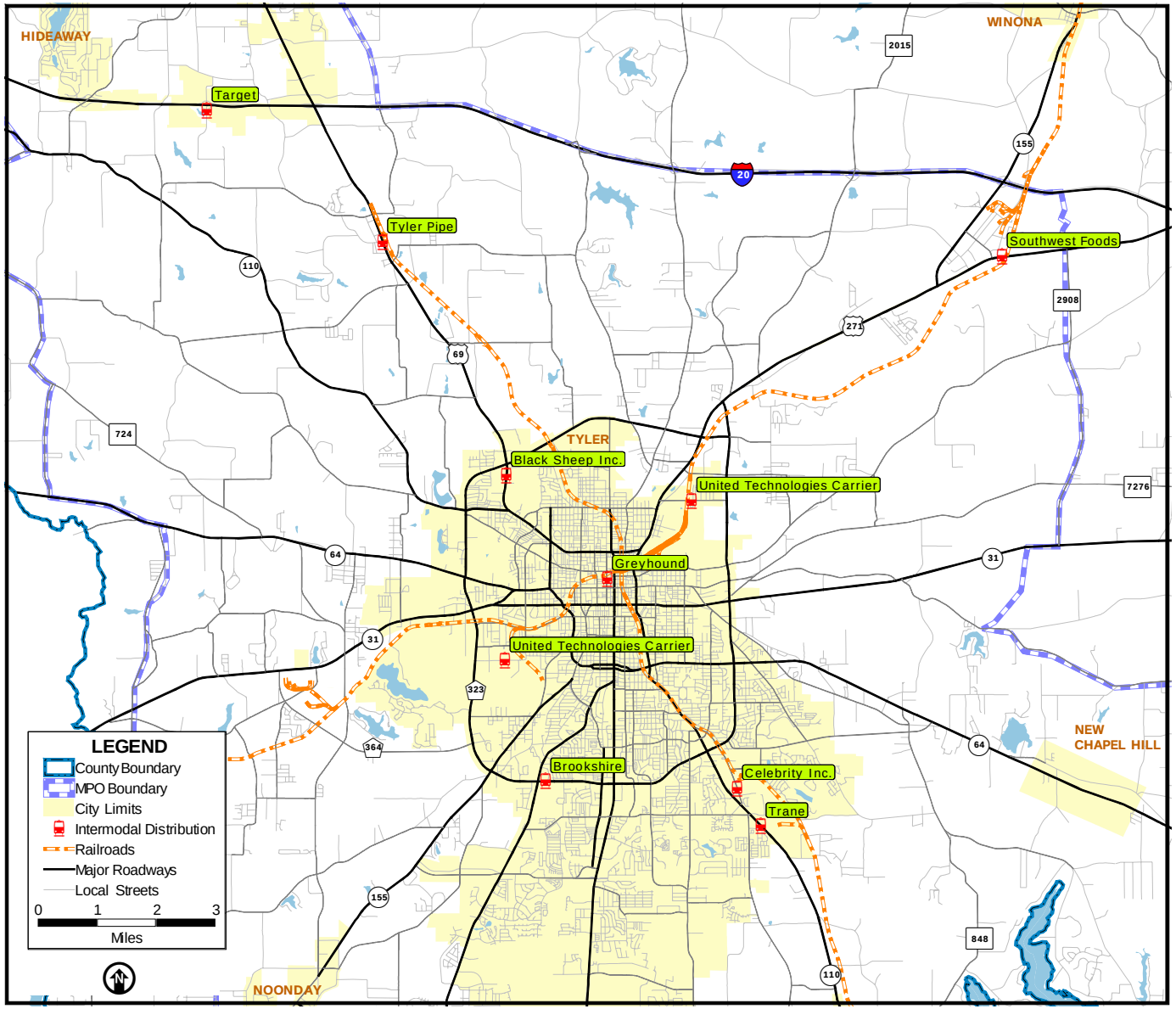


FIGURE 9-4 EXISTING INTERMODAL FACILITIES IN TYLER

10 Transportation Management and Operations

INTRODUCTION

With the costs of providing new transportation facilities and systems on the rise, federal, state, and local governments are constantly looking for ways to more effectively use their existing and future transportation systems. Two of the tools frequently employed by these agencies in an effort to reduce travel demand and improve the efficiency of their existing transportation systems are transportation demand management (TDM) and transportation system management (TSM). TDM addresses traffic congestion by reducing travel demand rather than increasing transportation capacity and focuses on alternatives such as ride sharing, flextime, increased transit usage, walking, and bicycling. TSM strategies focus on increasing the efficiency, safety, and capacity of existing transportation systems through such techniques as facility design treatments, access management programs, high occupancy vehicle (HOV) lanes, incident response plans, targeted traffic enforcement, and intelligent transportation systems (ITS).

This chapter of the Metropolitan Transportation Plan outlines the TDM and TSM strategies and processes the Tyler Area MPO has adopted and will continue to implement in future planning for an efficient and cost effective regional transportation system. For TSM strategies, ITS and access management are discussed.

TRAVEL DEMAND MANAGEMENT

Introduction

Travel Demand Management is a term used to describe how cities and regions can manage traffic congestion and reduce the number of cars on the road, while maintaining full accessibility for individual residents, employees, students, and visitors. Through the use of incentives, pricing, education, and the implementation of viable and desirable travel services, TDM encourages travelers to shift demand away from trips by personal automobile to trips by other modes of travel, or, to trips that occur at a more efficient time, route, or place. There are three components to TDM, all tightly integrated together so as to build synergies and cost efficiencies:

- **Providing actual services and travel options**. The city's transit network and bicycle system are examples of actual services/options that are provided to travelers in the area. In order to be successful, TDM must be able to demonstrate viable alternatives to the automobile for travel needs.
- **Promotion and education of alternatives**. Through marketing, incentives, and education, alternative modes of transportation are promoted to area travelers. As with consumer products, a potential life-long customer of alternative modes is always simply one good experience away.

- **Management through pricing**. Balancing the price of services with the use of services is an effective way to create balance in the demand and supply of transportation resources. For example, by managing parking supply through the use of parking fees, such as in downtown and large employers parking, excess automobile travel can be reduced. Parking pricing helps encourage more transit and shared-car travel to the priced area, and discourages automobile travel within the priced area.

The main goal of TDM is to provide more travel options to more people, in a way that is consistent with the character and quality of the community.

Potential TDM Strategies

TDM promotes programs that are designed to maximize the people-moving capability of the transportation system by increasing the number of persons in vehicles, shifting travel to non-automobile modes, influencing the time of or need to travel, and so forth. TDM programs can be voluntary, incentive-based, or mandatory, depending on the level of community desire and government oversight. At a minimum, all TDM programs should include educational and public outreach components.

Potential TDM strategies include the following:

- **Telecommuting**: part-time or full time situation in which employees work at home or another location outside the central office on one or more days a week.
- **Carpooling**: an arrangement in which two or more people share the use and cost of privately owned vehicles while traveling together to and from prearranged destinations.
- **Vanpooling**: provides transportation to a group of individuals traveling directly between their homes, which tend to be in close proximity, and their regular workplaces, which also tend to be in close proximity.
- **School Pool Programs**: a service that matches students from the same school who live in close proximity to use a single vehicle to commute.
- **Ridematching Software**: software that archives commuter profiles and matches up those who live and work in similar locations and desire to share the commute.
- **Park and Ride Lots**: parking facilitates that allow the transfer from low occupancy vehicles to carpools, vanpools, or transit services.
- **Flex Time**: alternative work schedules in which employees choose their own work schedule within set standards in order to avoid congested traffic conditions.
- **Staggered Work Hours**: alternative work schedules in which different groups of employees arrive and depart at different times to offset the congestion impacts of simultaneous trip-making.
- **Compressed Work Week**: a program where an employee works a full-time work week in four (or fewer) days, thus reducing the number of weekly trips to work.
- **Paid Parking and Carpool Incentives**: preferential parking locations, discounted parking, and other monetary incentives provided by employers to encourage drivers to participate in ridesharing.

- **Congestion Pricing**: market-based pricing strategies designed to encourage a shift of peak period trips to off-peak periods or to route traffic away from congested facilities during the peak demand periods. Congestion pricing can also encourage the use of transit or high-occupancy vehicles.
- **Bicycling**: a low-cost alternative that results in healthier, more productive employees and reduced vehicular travel, congestion, parking demand, and cost.
- **Parking Management**: strategies that utilize a variety of factors to balance the availability of parking with the availability of modal alternatives. Residential and commercial parking permits, parking pricing, shared use parking, time restrictions, and other strategies are included in parking management.
- **Public Transit Bus Pass Programs**: community or business-based transit passes that can include promotional and marketing activities oriented toward encouraging commuters to use bus and rail alternatives. Activities include bus route maps, brochures, posters, how-to classes, and free-ride days.
- **Emergency and Guaranteed Ride Home Programs**: a program where transit users are provided rides home in a daytime emergency or guaranteed at night after regular transit service has ceased.
- **Electronic and Smartcard Collection Systems**: a fare collection system that uses fare cards with magnetic strips or smartcard technology that allow for electronic payment and the expedited boarding of transit patrons.
- **Advanced Marketing and Alternate Routes for Special Events or Construction**: using the media to inform travelers of alternate routings for special events or long-term construction projects.
- **Transportation Management Organization/Coordinator**: a public or private organization or professional staff that provides information and programs to businesses and individuals to facilitate the increased alternative transportation mode use.

TDM Potential for Tyler

Currently, there is limited TDM implementation in Tyler. The few TDM implementations include bike racks on buses, the newly created mixed-use zoning, and electronic toll collection system on Toll 49 by NET RMA. However, there is potential for implementing more TDM strategies now and in the future. **Table 10-1** presents a matrix of TDM strategies and the potential for implementation in the Tyler area.

Large employers in the community add significantly to the peak hour transportation demand on the roadway system. One example of a TDM technique is to encourage work rescheduling (flextime) for some of the largest employers in the region. This technique decreases peak hour demand by spreading out commuter trips. Large businesses in many communities have implemented ridesharing programs for their employees. Many of these companies have sponsored a vanpool, either purchasing or leasing the van(s), where employees are responsible for coordinating pickup and driving responsibilities. Employers often offer employees incentive, such as preferred parking, to promote the vanpool.

As discussed in Chapter 4, there are eight employers in the Tyler area with over one thousand employees and another nine employers with over five hundred employees. Thus, there is a potential for some form of employer participation to promoting TDM.

TABLE 10-1 POTENTIAL TDM STRATEGIES FOR TYLER

Travel Demand Management Strategy	Now	Future
Telecommuting	●	●
Carpooling	●	●
Vanpooling	○	◎
School Pool	○	◎
Ridematching Software	○	◎
Park and Ride Lots	○	◎
Flex Time/Staggered Work Hours/Compressed Work Week	◎	●
Paid Parking and Carpool Incentives	○	◎
Congestion Pricing	⊗	⊗
Bicycling	◎	●
Parking Management	○	◎
Public Transit Bus Programs	◎	◎
Emergency/Guaranteed Ride Home	○	◎
Electronic Collection System	●	●
Route Notification for Special Events or Construction	◎	◎
Transportation Management Organization/Coordinator	○	○

Legend: ● high; ◎ medium; ○ low; ⊗ no potential; ● already in place

INTELLIGENT TRANSPORTATION SYSTEMS

Intelligent Transportation Systems (ITS) is a designation given to numerous applications that use smart processes and advanced technologies to improve the efficiency of the transportation system (reduce traffic congestion, freight movement, etc.), improve safety (at rail crossing, in work zones for road construction, etc.), and provide timely information to travelers (detours, approaching accidents, etc). Ultimately, ITS is expected to increase people and vehicle carrying capacity of the multimodal transportation system.

Tyler Regional ITS Architecture

ITS architecture refers to the structure or process required for the design and implementation of intelligent transportation systems. It provides a framework that integrates telecommunications and transportation systems to ensure that all network elements can work together and support each other. Use of ITS architecture can help identify projects, as part of an integrated system approach, consistent with a region's overall transportation needs.

In January 2001, the Federal Highway Administration (FHWA) issued a final rule to implement Section 5206(e) of the Transportation Equity Act for the 21st Century (TEA-21) requiring that ITS projects funded through the Highway Trust Fund conform to the National ITS Architecture and applicable standards.

To meet these requirements TxDOT initiated the development of regional ITS architectures and deployment plans throughout the State of Texas. Although not required by the FHWA final rule, TxDOT took the opportunity to also develop an ITS deployment plan for each Region. The Tyler Regional ITS Architecture and Regional ITS Deployment Plan was prepared as part of this initiative.

The Tyler Regional ITS Architecture provided the framework and prioritized the key functions and services desired by stakeholders in the Region. The ITS Deployment Plan builds on the architecture by prioritizing market packages, outlining specific ITS project recommendations and strategies for the Region, and identifying deployment timeframes so that the recommended projects and strategies can be implemented over time. Agency responsibilities for implementing and operating the systems also are a key component of the ITS Deployment Plan.

The Tyler Region is bordered by the TxDOT Atlanta District to the northeast, the TxDOT Lufkin District to the southeast, the TxDOT Bryan and TxDOT Dallas Districts to the west and the TxDOT Paris District to the north. For the Tyler Regional ITS Architecture and Deployment Plan, the study area included all eight counties that comprise the TxDOT Tyler District.

Counties included in the Tyler Region are as follows:

- Anderson;
- Cherokee;
- Gregg;
- Henderson;
- Rusk;
- Smith;
- Van Zandt; and
- Wood.

Existing ITS in the Tyler Region

The ITS Regional Deployment Plan study identified the following ITS applications that are currently in place within the Tyler Region:

- TxDOT has a permanent dynamic message sign (DMS), as well as several portable DMS, that are utilized primarily for displaying delay information.
- Closed-circuit television (CCTV) cameras have also been installed at an interchange to monitor delay, and TxDOT and the City of Longview are using video detection at several intersections in the Region.
- Highway advisory radio (HAR) along I-20 provides motorists with information on construction, lane closures, possible alternate routes and traffic conditions.

- High-water detection technology has been implemented in flood prone areas of the City of Longview to provide early notification of dangerous conditions resulting from a flooded roadway.

Regional ITS Deployment Plan

The Tyler Regional ITS Deployment Plan outlines a vision for ITS deployment, and identifies and prioritizes projects that are needed to implement the ITS architecture on a short, medium, and long-term basis. In doing so, this plan also helps the Region to prioritize funding decisions. As infrastructure is incrementally built-out over a 20-year horizon, integration among key foundation systems in the Region can occur as the system grows and expands.

The majority of ITS projects recommended for the Tyler Region were identified in the following key areas:

- Travel and Traffic Management;
- Emergency Management;
- Maintenance and Construction Operations; and
- Public Transportation Management.

The ITS Deployment Plan recommended ITS projects in the 5-year (short-term), 10-year (mid-term), and 20-year (long-term) deployment timeframes. **Tables 10-2 to 4** presents a summary of recommended ITS projects. The list in the tables include only those projects that largely affect the Tyler metropolitan planning area. A complete listing of projects that includes the entire Tyler Region— including details of probable cost, an indication as to whether funding has been identified, and an estimated duration for the project to be designed and implemented — is found in the report *"State of Texas Regional ITS Architecture and Deployment Plans for Tyler Region, July 16, 2003."*

Stakeholders in the Tyler Region invested substantial amount of effort to develop both the Regional ITS Architecture and the Deployment Plan. A plan for maintaining these important tools was a key component of the process. Stakeholders agreed that both the Regional ITS Architecture and Deployment Plan would need to be periodically reviewed and potentially updated in order to reflect current deployment status, as well as to re-evaluate priorities. They also agreed that it would be appropriate to review the plan annually. Updated status information and changes discussed will be gathered and recorded by TxDOT to be incorporated into the plan when it is updated on a two year cycle that corresponds to the Transportation Improvement Plan (TIP) update cycle. The TxDOT Tyler District was identified as the agency that should take the lead in maintaining and updating the Region's ITS Architecture and Deployment Plan, with support from a multijurisdictional committee in the Region.

TABLE 10-2 ITS SHORT-TERM PROJECTS (5-YEAR) IMPACTING TYLER METROPOLITAN PLANNING AREA

Program / Area Project	Description	Responsible Agency	Key Areas*
TxDOT Advanced Traffic Management System (ATMS) Implementation	Implement TxDOT ATMS in TxDOT Tyler Traffic Management Center (TMC)	TxDOT	TTM
TxDOT Freeway Management System Implementation Phase 1	Implement 4 closed-circuit television cameras, 2 dynamic message signs (DMS) and highway advisory radio (HAR) in the Tyler Region along the I-20 corridor	TxDOT	TTM
TxDOT Center-to-Center Communication (Statewide)	Enhance coordination with other TxDOT Districts through implementation of center-to-center communications between TxDOT TMCs	TxDOT	TTM
TxDOT Closed Loop Signal System Expansion Phase 1	Expand TxDOT closed loop signal system at signalized intersections throughout the Region	TxDOT	TTM
City of Tyler TMC/TxDOT Tyler District TMC Fiber Connection	Implement a fiber connection between the City of Tyler TMC and the TxDOT Tyler District TMC to allow video sharing and control, traffic data sharing, and other joint functions	TxDOT/City of Tyler	TTM
City of Tyler Closed Loop Signal System Expansion Phase 1	Expand City of Tyler closed loop signal system at 12 additional signalized intersections in the City of Tyler	City of Tyler	TTM
City of Tyler VIVDS Expansion Phase 1	Implement video image vehicle detection systems (VIVDS) on an additional 12 signalized intersections in Tyler	City of Tyler	TTM
Media Liaison and Coordination	Develop agreements/enhanced coordination with local media to improve information sharing and dissemination. Provide CCTV camera feeds to media.	TxDOT/City of Tyler /City of Longview	TTM
Tyler Regional Telecommunications Master Plan	Develop Regional Telecommunications Master Plan including needs analysis and recommendations	TxDOT/City of Tyler/City of Longview	TTM
East Texas 911 Center/TxDOT Tyler District TMC Connection	Install connection between East Texas 911 Center and TxDOT Tyler District TMC for CCTV camera shared monitoring and control and data sharing. This connection may be implemented through the City of Tyler TMC/TxDOT Tyler District TMC Fiber Connection project.	TxDOT/East Texas 911 Center/ Smith County	EM
City of Tyler EOC/TxDOT Tyler District TMC Connection	Operations Center (EOC) and TxDOT Tyler District TMC to allow for DMS and CCTV camera shared monitoring and control, data sharing. This connection may be implemented through the City of Tyler TMC/TxDOT Tyler District TMC Fiber Connection project.	TxDOT/City of Tyler EOC	EM

TABLE 10-2 ITS SHORT-TERM PROJECTS (5-YEAR) IMPACTING TYLER METROPOLITAN PLANNING AREA (CONTINUED)

Program / Area Project	Description	Responsible Agency	Key Areas*
DPS/TxDOT Tyler District TMC Connection	Install connection between DPS and TxDOT Tyler District TMC for CCTV camera shared monitoring and control and data sharing	TxDOT/DPS	EM
Incident Detour Plans	Develop incident detour plans for roads that would be used as detour routes during incidents along I-20	TxDOT/DPS/City of Longview/ City of Tyler/Other Cities and Counties	EM
City of Tyler Emergency Vehicle Signal Preemption	Implement signal pre-emption at City of Tyler intersections for emergency vehicles	Implementation: City of Tyler Fire Operations and Maintenance: City of Tyler Traffic Engineering Department	EM
City of Tyler Flood Detection Stations	Implement flood detection stations at arterial street locations prone to flooding in the City of Tyler	City of Tyler	MCO
City of Tyler Transit Web-based Ride Scheduling and Travel Data	Provide web-based ride scheduling and real-time travel data via the internet	City of Tyler Transit	PTM
City of Tyler Transit AVL	Install automatic vehicle location (AVL) on fixed route buses and paratransit vehicles	City of Tyler Transit	PTM
City of Tyler Transit Automatic Passenger Counters	Implement passive system to accurately count ridership	City of Tyler Transit	PTM
City of Tyler Transit/ETCOG TOC Communication	Implement a link between Tyler Transit and ETCOG to provide Tyler Transit the ability to share schedules and real time information between agencies	City of Tyler Transit/ETCOG	PTM
HAZMAT Incident Notification System	Implement incident notification system for vehicles carrying hazardous materials	DPS/Municipal Public Safety Dispatch/County Public Safety Dispatch	CVO

**TTM->Travel and Traffic Management*
EM-> Emergency Management
MCO-> Management and Construction Operations
PTM-> Public Transportation Management
CVO-> Commercial Vehicle Operations
Source: State of Texas Regional ITS Architecture and Deployment Plans for Tyler Region, July 16, 2003

TABLE 10-3 ITS MID-TERM PROJECTS (10-YEAR) IMPACTING TYLER METROPOLITAN PLANNING AREA

Program / Area Project	Description	Responsible Agency	Key Areas*
TxDOT US 69 instrumentation	Implement CCTV cameras, DMS, detectors, and HAR along US 69 in the Tyler Region to help provide information during evacuations	TxDOT	TTM
TxDOT Closed Loop Signal System Expansion Phase 2	Continue expansion of closed loop signal system at TxDOT intersections throughout the Region	TxDOT	TTM
City of Tyler Closed Loop Signal System Expansion Phase 2	Continue implementation of closed loop signal systems in the City of Tyler	City of Tyler	TTM
City of Tyler VIVDS Expansion Phase 2	Continue implementation of VIVDS at signalized intersections in City of Tyler	City of Tyler	TTM
City of Tyler CCTV Camera Implementation	Implement CCTV cameras at major intersections such as those along Loop 323	City of Tyler	TTM
City of Tyler Highway/Rail Intersection Warnings	Add highway/rail intersection warning systems that are integrated with TxDOT Tyler District TMC and City of Tyler TMC as needed	TxDOT Tyler District TMC/City of Tyler TMC	TTM
Regional 511 Advanced Traveler Information System Server	Implement advanced traveler information system (ATIS) server in the TxDOT Tyler District TMC that will collect, consolidate, and distribute traveler information to a 511 based phone system, web, and private Information Service Providers (ISPs)	TxDOT	TTM
City of Tyler Transit On-board Security Cameras	Install on-board security cameras on buses	City of Tyler Transit	PTM
City of Tyler Transit Electronic Fare Payment System	Install electronic fare payment system on fixed route buses	City of Tyler Transit	PTM

**TTM->Travel and Traffic Management*
PTM-> Public Transportation Management
Source: State of Texas Regional ITS Architecture and Deployment Plans for Tyler Region, July 16, 2003

TABLE 10-4 ITS LONG-TERM PROJECTS (20-YEAR) IMPACTING TYLER METROPOLITAN PLANNING AREA

Program / Area Project	Description	Responsible Agency	Key Areas*
TxDOT Closed Loop Signal System Expansion Phase 3	Continue expansion of closed loop signal system at TxDOT intersections throughout the Region	TxDOT	TTM
City of Tyler Closed Loop Signal System Expansion Phase 3	Continue expansion of the closed loop system in the City of Tyler	City of Tyler	TTM
City of Tyler VIVDS Expansion Phase 3	Continue implementation of VIVDS at signalized intersections in City of Tyler	City of Tyler	TTM
Regional Emissions Monitoring	Implement systems to allow emissions monitoring of vehicles and areas of concern	TxDOT/City of Tyler/ City of Longview	TTM

**TTM->Travel and Traffic Management*
Source: State of Texas Regional ITS Architecture and Deployment Plans for Tyler Region, July 16, 2003

ACCESS MANAGEMENT

Land use and transportation are mutually dependent systems. Highways and streets provide access to land enabling its development. Land development generates demands on the transportation system in the form of auto, truck, transit, bicycle, and pedestrian trips. As a result, a community's long-term development prospects can be stymied by inadequate transportation connections. On the other hand, inadequate community planning and insensitive site development can severely reduce the effectiveness of an otherwise adequate transportation system. Therefore, as long as land use and transportation responsibilities remain segmented, intergovernmental partnerships are essential, as well as private-public partnerships.

Access management is defined as the systematic control of the location, spacing, operation and design of driveways, medians, median openings, traffic signals, interchanges, and street connections to maintain safety at a roadway's full traffic carrying capacity. Implementing an access management program will encourage smooth and safe traffic flow on a community's roadways and will help communities avoid some of the traffic problems caused by uncontrolled strip development.

The Federal Highway Administration's (FHWA) official definition of access management is "the process that provides access to land development while simultaneously preserving the flow of traffic on the surrounding system in terms of safety, capacity, and speed." In practical terms, it means managing the number of driveways that a vehicle may encounter without hampering reasonable access to a property and removing slower, turning vehicles from the arterial as efficiently as possible.

Existing Policies and Practices in the Tyler MPO

Currently no cities in the Tyler Metropolitan Planning Area have an independent access management program in place. Instead the guidelines set forth by the Texas Department of Transportation (TxDOT) in their *Access Management Manual* are utilized. With the exception of Tyler, the cities located in the Tyler MPO boundaries are primarily comprised of state maintained highways. Therefore, the use of the state's access management policies is appropriate.

The City of Tyler has adopted TxDOT access management criteria for state roads but not for local arterials. The Tyler 21 Comprehensive Plan discusses the implementation of access management strategies on the local arterials. The plan recognizes access management application on most Tyler arterial roads is poor and improvement is needed. Although Tyler 21 does not directly create an access management plan for the city, it does suggest future access management criteria may include requirements such as the following:

- Joint use driveways with joint maintenance agreements for sharing of access driveways to South Broadway Avenue by adjacent developments. Where sharing is not possible in the short term, reservation of rights of way for future inter-parcel connections to be required.
- Creation of local access drives, to the degree feasible, connecting adjacent developments, with easements and joint maintenance agreements.

- Internal cross-access drives plus pedestrian access ways to connect adjacent developments with cross access easements and joint maintenance agreements.
- Building layouts to reduce walking distances between buildings.
- Parking to be sited so that users can easily access multiple buildings on foot.
- Parking designed with a series of fields grouped with trees and pathways.
- Shared parking between adjacent developments that have different hours of normal activity.
- Sidewalks and pedestrian paths to be constructed to the principal uses from parking areas, outparcels, surrounding streets, and public sidewalks.
- Delivery and loading areas to be separated from public access routes (vehicle and pedestrian) and parking areas.
- Developments meeting large size criteria to provide plazas or similar public spaces.
- Drive-through facilities to be designed as integral to buildings, not stand-alone, with safe access through clearly defined pedestrian circulation which minimizes vehicle/pedestrian conflict points.

Policies of the Texas Department of Transportation

The TxDOT *Access Management Manual* describes the application of access connection criteria on the state highway system for the following: new highways on new alignments, freeway mainlines, frontage roads, and other state system highways. The criteria are intended to provide reasonable access, while ensuring the safe and efficient operations of each roadway type.

New Highways on New Alignments

When a new highway is constructed on a new alignment, and the Commission determines that the new highway will be access controlled, direct access to the new highway will be determined prior to right-of-way acquisition and will be described in the right-of-way deeds. (For application of access connections where TxDOT controls the access, refer to *TxDOT Access Management Manual*, Chapter 2, Section 2, Application of Access Criteria).

Freeway Mainlanes

Freeway mainlanes provide no direct access to property and access to the freeway mainlanes is provided only at interchanges and ramps. The spacing of interchanges and ramps needs to allow entering and exiting vehicles to weave safely and to provide adequate acceleration/deceleration. The design of freeways is governed by the *TxDOT Roadway Design Manual*, Chapter 3.

Frontage Roads

Frontage roads are roadways that are constructed generally parallel to a freeway or other highway. Frontage roads may be considered in order to provide direct access to abutting property where (1) alternative access is not available and the property would otherwise be landlocked, (2) it is not practical for TxDOT to purchase the access, and (3) the frontage road allows for improved mobility together with the property access.

Direct access to the frontage road is prohibited in the vicinity of ramp connections, as described in the *TxDOT Roadway Design Manual*, Chapter 3. Otherwise, on roadways where TxDOT does not control the access, access connecting to the frontage road is typically permitted subject to the access connection criteria set forth in *TxDOT Access Management Manual*. (For application of access connections where TxDOT controls the access, refer to the TxDOT Access Management Manual, Chapter 2, Section 2, Application of Access Criteria).

Table 10-5 gives the minimum access connection spacing criteria for frontage roads. However, a lesser connection spacing may be allowed without deviation in certain circumstances such as to keep from land-locking a property or re-establishment of reasonable access to the state highway system under highway reconstruction/rehabilitation projects. Chapter 2, Section 5, of the *TxDOT Access Management Manual* describes land-locking and the circumstances to which deviation to the connection spacing criteria do not apply.

TABLE 10-5 FRONTAGE ROAD CONNECTION SPACING CRITERIA AS DEFINED IN TxDOT ACCESS MANAGEMENT MANUAL (MARCH 2009)[1,2]

Posted Speed (mph)	Minimum Access Connection Spacing (feet)	
	One-Way Frontage Roads	Two-Way Frontage Roads
≤30	200	200
35	250	300
40	305	360
45	360	435
≥50	425	510

1 Distances are for passenger cars on level grade. These distances may be adjusted for downgrades and/or significant truck traffic. Where present or projected traffic operations indicate specific needs, consideration may be given to intersection sight distance and operational gap acceptance measurement adjustments.

2 When these values are not attainable, refer to the deviation process as described in Chapter 3, Section 1 or Chapter 2, Section 2 of the TxDOT Access Management Manual.

While **Table 10-5** gives minimum connection spacing criteria, the critical areas with respect to the ramp pattern may need greater spacing requirements for operational, safety, and weaving efficiencies.

The distance between access connections is measured along the edge of the traveled way from the closest edge of pavement of the first access connection to the closest edge of pavement of the second access connection as the figure on the right indicates. Additionally, the access connection spacing in the proximity of frontage road U-turn lanes will be measured from the inside edge of the U-turn lane to the closest edge of the first access connection.

Other State Highways

This classification applies to all state highway system routes that are not new highways on new alignments, freeway mainlanes, or frontage roads.

Table 10-6 provides minimum access connection spacing criteria for other state system highways. However, a lesser connection spacing may be allowed without deviation in certain circumstances such as to keep from land-locking a property or re-establishment of reasonable access to the state highway system under highway reconstruction/rehabilitation projects. References to land-locking and the circumstances to which deviation to the connection spacing criteria do not apply are described in the *TxDOT Access Management Manual*, Chapter 2, Section 6.

TABLE 10-6 TxDOT MINIMUM ACCESS CONNECTION SPACING CRITERIA FOR OTHER STATE HIGHWAYS[1,2]

Posted Speed (mph)	Distance (feet)
≤30	200
35	250
40	305
45	360
≥50	425

1 Distances are for passenger cars on level grade. These distances may be adjusted for downgrades and/or significant truck traffic. Where present or projected traffic operations indicate specific needs, consideration may be given to intersection sight distance and operational gap acceptance measurement adjustments.

2 When these values are not attainable, refer to the deviation process as described in Chapter 3, Section 1 or Chapter 2, Section 2 of the TxDOT Access Management Manual.

Note the values shown in **Table 10-6** do not apply to rural highways outside of metropolitan planning organization boundaries where there is little, if any, potential for development with current ADT volumes below 2000. For those highways, access location and design will be evaluated based on safety and traffic operation considerations. Such considerations may include traffic volumes, posted speed, turning volumes, presence or absence of shoulders, and roadway geometrics.

In the case of existing access, all previously permitted access will be grandfathered as accepted access. However, property owners must coordinate with TxDOT or the municipality responsible for access permitting prior to making any property modifications that will result in changes to the traffic patterns associated with the access.

Corner Clearance

Corner clearance refers to the separation of access connections from roadway intersections. **Table 10-5** provides minimum corner clearance criteria. Where adequate access connection spacing cannot be achieved, the permitting authority may allow for a lesser spacing when shared access is established with an abutting property. Where no other alternatives exist, construction of an access connection may be allowed along the property line farthest from the intersection. To provide reasonable access under these conditions but also provide the safest operation, consideration should be given to designing the driveway connection to allow only the right-in turning movement or only the right-in/right-out turning movements if feasible.

Auxiliary Lanes

Section 7 of Chapter 2 of the *TxDOT Access Management Manual* describes the basic use and functional criteria associated with auxiliary lanes. Auxiliary lanes consist of left-turn and right-turn movements, deceleration, acceleration, and their associated transitions and storage requirements. Left-turn movements may pose challenges at driveways and street intersections. They may increase conflicts, delays, and crashes and often complicate traffic signal timing. These problems are especially acute at major highway intersections where heavy left-turn movements take place, but also occur where left–turn movements enter or leave driveways serving adjacent land development. As with left-turn movements, right-turn movements pose problems at both driveways and street intersections. Right-turn movements increase conflicts, delays, and crashes, particularly where a speed differential of 10 mph or more exists between the speed of through traffic and the vehicles that are turning right. Table 2-3 on page 2-17 of the TxDOT *Access Management Manual* provides thresholds for auxiliary lanes.

Access Management Permitting

Access management permitting is detailed in Chapter 3 Administrative Procedures of the *TxDOT Access Management Manual*. Under recently enacted state legislation, TxDOT allows cities with access management plans to control permitting of driveways on the state highway system. To be eligible, a city must present its access management plan to TxDOT for approval. Another possible approach is for cities to work in cooperation with TxDOT on the issuance of driveway permits.

Toolbox of Access Management Techniques

A variety of access management, location and design practices and policies can be used to improve the safety and operations of the roadway. These techniques can be grouped broadly into: policy and design related techniques, techniques that can be applied on new and developing corridors, and most importantly techniques that can be used for retrofit projects in built-up urban corridors.

Policy and Design Related Techniques

The *NCHRP Report 420: Impacts of Access Management Techniques* identified more than 100 individual access management techniques which were grouped according to policy and roadway design features. The NCHRP Report 420 recommends a classification system for access management techniques.

I. Policy – Management: (a) Access codes/spacing; (b) Zoning/subdivision regulations; (c) Purchase of access rights; and (d) Establishment of setbacks from interchanges and intersections.

II. Design – Operations (By Roadway Features): (a) Interchanges; (b) Frontage roads; (c) Medians –left turns; (d) Right turns; (e) Access/driveway location (mainly retrofit—consolidation, reorientation, relocation); (f) Traffic controls; and (g) Access/driveway design.

The NCHRP Report 420 classification system is one of many classification systems of grouping the variety of access management techniques. The toolbox of techniques summarized in **Table 10-7** is another classification system that reflects the 10 principles for access management

outlined in the Transportation Research Board's *Access Management Manual*. The techniques are grouped into the following six categories that include both policy and design techniques: (1) Limit the Number of Conflict Points; (2) Separate Conflict Areas; (3) Remove Turning Vehicles from Through Traffic Lanes; (4) Reduce Conflicting Volumes; (5) Improve Roadway Operations; and (6) Improve Driveway Operations. Individual techniques under each category are listed below in **Table 10-7**.

TABLE 10-7 ACCESS MANAGEMENT TOOLBOX

Limit Conflicts	
• Purchase access rights • Regulate the location, spacing, & design of driveways • Restrict the number of driveways per lot • Restrict the number of lots • Encourage adjacent properties to share access • Coordinate driveway locations on both sides of the roadway • Install a nontraversable median • Replace a continuous two-way left turn with a nontraversable median • Close a median opening	• Replace a full median opening with a directional opening • Install a separator island to prevent left-turns within the functional intersection area • Install a median divider on the cross-road • Install a divisional island to prevent entry into left-turn bay • Install a physical barrier to eliminate uncontrolled access along property frontage • Locate access opposite signalized 3-way intersection • Install channelizing island to discourage left-turn maneuver • Install narrow median with indirect left-turns
Separate Conflicts	
• Minimum corner clearance • Maximize corner clearance by locating access as far from the intersection as possible	• Designate the access for each property • Consolidate access drives
Remove Turning Vehicles from the Through Traffic Lanes	
• Provide separate left-turn entrances and exits at major traffic generators • Install a continuous two-way left-turn lane • Install a left-turn deceleration bay at existing median opening • Install a nontraversable median with left-turn bays	• Increase the length of existing turn bay • Install a right-turn deceleration bay • Install a continuous right-turn lane • Install a right-turn lane serving multiple access connections
Reduce the Number of Turning Movements	
• Provide connection between adjacent parcels • Require adequate internal circulation • Provide alternative access	• Provide a supporting circulation system • Vehicular use limitations
Improve Roadway Operations	
• Long, uniform signal spacing • Install access on the cross-road • Provide adequate sight distances • Shared access/joint access	• Internal access to outparcels • Indirect u-turn • Provide a frontage road
Improve Driveway Operations	
• Smooth vertical geometrics • Adequate driveway throat width and curb return radii • Provide adequate sight distance	• Additional egress lane • Define the ingress and egress sides of the access drive

Techniques for New Areas and Developing Corridors

Effective implementation of access management principles starts during planning for new corridors and on developing corridors. Effective local access management requires planning, as well as regulatory solutions. Local jurisdictions should establish a policy framework that supports access management in the local comprehensive plan, prepare corridor or access management plans for specific problem areas, and encourage good site planning techniques. Land development and subdivision regulations should be amended accordingly and local jurisdictions may also consider a separate access management ordinance.

The Tyler MPO would need to coordinate with all three cities to establish a model access management ordinance that defines consistent land development and subdivision regulations that support access management. Access management programs should address commercial development along thoroughfares, as well as flag lots, residential strips, and other issues related to the division and subdivision of land. Comprehensive and subarea plans provide the rationale for access management programs and can serve as the legal basis for public policy decisions.

Techniques for Retrofit Projects

Many existing roadways– in particular, older commercial strip developments– tend to be dotted with undesirable access design features. A project that applies access management design principles to existing, already built-up street corridors is sometimes called a “retrofit” project.

Retrofit projects can be complex and challenging. Along roadways where the property lines, buildings, and driveways have already been established, the benefits from any access management modifications have to be weighed against the costs and any disruptions that would be caused by modifying, moving, or eliminating driveways and median openings. Bringing such roadways into compliance may not always be a sufficiently high priority to pass the threshold for effort and funding. Nevertheless, access management policies and standards can be applied when land along existing roadways redevelops to keep the situation from further deteriorating.

Studies indicate that interviews with governmental agency staff suggest that retrofit projects tend to be combined state and local efforts, with an added degree of property owner cooperation. A retrofit access management project may be accompanied by other incentives from the local government to the property owners, such as beautification or minor discretionary code variances. The government pays the cost of modifying existing driveways, and may also pay for parking lot modifications to accommodate changes in on-site traffic circulation patterns necessitated by the driveway modifications.

It is not uncommon to find that a retrofit project cannot fully accomplish all access management objectives. Those with experience in this area offer that installing or modifying a median is commonly done, albeit in some cases strong opposition from businesses could be expected. A not well-thought out plan for median changes could result in failure. Unneeded multiple driveways can be eliminated, provided the onsite circulation pattern will accommodate the reduced number of driveways. If lot frontages are small, then some driveway spacing may remain less than desired.

There are a number of principles that can be applied to retrofit situations to support the access policy goals, including those access management principles defined under the six categories of access management techniques. Their aim is to reduce the number of access connections (conflict points) and reduce their adverse effects by applying a variety of techniques; in this way the current undesirable situation can be improved. Retrofit techniques described in this section are divided into two categories: access/driveway location and operation and roadway design. As feasible, these techniques should be applied both during permit review and as part of retrofit during reconstruction projects.

Access/ driveway location and operation retrofit techniques:

- Consolidate driveway access for adjacent properties
- Encourage connections between adjacent properties to share access
- Relocate or reorient driveways
- Encourage adjacent properties to share access
- Coordinate driveway locations on both sides of street— align opposing driveways or establish minimum offset
- Locate a new driveway opposite an intersection or driveway and install a traffic signal where warranted and properly spaced
- Maximize corner clearance by locating access as far from the intersection as possible (i.e., near the property line
- Install barrier to prevent uncontrolled access along property frontage
- Install driveway channelizing island to discourage left-turn maneuvers
- Provide separate left-turn entrances and exits at major traffic generators
- Require access on collector street (when available) in lieu of additional driveway on highway
- Install two one-way driveways in lieu of one two-way driveway
- Install two two-way driveways with limited turns in lieu of one standard two-way driveway
- Install two one-way driveways in lieu of two two-way driveways
- Install two two-way driveways with limited turns in lieu of two standard two-way driveways

Roadway design retrofit techniques:

- Replace a continuous two-way left-turn lane with a nontraversable median
- Install two-way left-turn lane
- Provide left-turn deceleration lane
- Provide right-turn deceleration lane
- Install right-turn deceleration lane to serve several driveways

11 Safety and Security

INTRODUCTION

Federal law mandates that a Metropolitan Planning Organization (MPO) such as the Tyler Area MPO must address eight planning factors during the transportation planning process. The Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) expanded the number of planning factors from seven to eight by splitting safety and security into two separate factors. The goal behind this change was to emphasize the importance of safety, and to acknowledge the special concerns regarding security in the wake of the events of September 11, 2001.

The 2030 MTP covers only the safety component. In this update, safety and security are included and are discussed separately in this chapter.

SAFETY

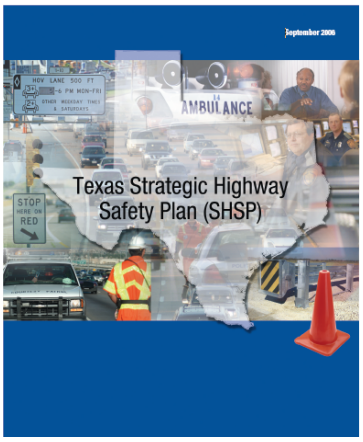
Safety has long been a primary concern of transportation system management, maintenance, and system expansion. SAFETEA-LU places a greater emphasis on safety at the planning level. One way this emphasis is reflected is in linkages to the Texas Strategic Highway Safety Plan (SHSP) produced in 2006 by the Texas Department of Transportation (TxDOT). In addition to satisfying federal requirements for highway safety planning, the SHSP served as an initial attempt to identify key safety needs and guide investment decisions intended to lead to significant reductions in highway fatalities and serious injuries on all public roads in Texas.

The "4-Es" of traffic safety: Engineering, Enforcement, Emergency services, and Education are key to improving safety for the traveling public.

- Engineering involves the built roadway and transportation infrastructure and encapsulates design standards, warrants, materials and construction practices, and signage, striping and signalization policies.
- Enforcement is aimed at modifying or influencing human behavior. Enforcement affects drivers in the following way: a law will be enforced, an offender will be detected, the adjudicatory process will be swift and certain, and punishment will follow conviction.
- Emergency services include the assemblage of ambulance companies, fire rescue services, and third party emergency response units and emergency rooms/trauma centers. Obtaining accurate post-crash diagnosis and high quality post-crash care is a critical factor in transportation safety.
- Finally, education encompasses driver licensing programs, driver remediation programs (e.g. traffic school), advanced driving courses, educational campaigns and school education programs aimed at K-12 and college level students.

Combined, the 4-Es capture the range of transportation safety related investments that are needed to improve safety within any jurisdiction.

Texas Strategic Highway Safety Plan



The Texas Strategic Highway Safety Plan (SHSP) mission is to reduce the human and societal costs of highway traffic crashes, deaths, and injuries by most effectively implementing the "4 E's" of traffic safety - engineering improvements, traffic law enforcement, public education, and emergency medical services (EMS). The SHSP calls for a multi-perspective approach to identify problems in two emphasis areas: **Serious Crash Types** and **High Risk Drivers**. A third group of safety issues referred as **Areas of Concern** were identified from the consultation process and the review of practices from other states and other documents. **Figure 11-1** presents a summary of traffic safety issues in each of the three emphasis areas. Details of the emphasis areas and safety concerns are discussed in the Plan along with the crash reduction objectives for each area and countermeasures, where available, that can help to meet those objectives.

Serious Crash Types
- Run-Off the Road
- Head On
- Intersection
- Pedestrian

High Risk Drivers
- Driving Under the Influence (DUI) of Alcohol and/ or Drugs
- Speeding (over limit and unsafe speed)
- Occupant Protection (lack of safety belt usage in serious crashes)

Areas of Concern
- Motorcycles
- Bicyclists
- Older Drivers
- Aggressive Drivers
- Commercial Motor Vehicles
- Teen Drivers
- Work Zones
- Rail/Highway Safety
- Cell Phone Usage
- Public and Policy Maker Awareness
- Enhanced Wireless 911 Reporting System

FIGURE 11-1 EMPHASIS AREAS

Transportation Safety Planning in the Tyler Area MPO will be coordinated with TxDOT to implement the recommendations of the SHSP. Such an approach will improve the level of transportation safety planning in the region and fund projects through the Transportation Improvement Program.

As a stakeholder in the SHSP, the Tyler Area MPO is committed to implementing the appropriate strategies and funding for projects that will reduce crashes in the MPO Area. One particular area of focus should be intersections. There are a number of countermeasures identified in the SHSP to help reduce intersection crashes. A few of these have been implemented or will be considered are:

- Implement engineering solutions to reduce red-light running, such as changes in signal timing.
- More strictly regulate the number and placement of driveways.
- Eliminate more blind spots on high-speed rural roads.
- Add more turn bays and acceleration lanes on high-speed rural roads.
- Enhance advanced warning at intersections.
- Improve signal coordination and timing to control speeds through intersections.
- Expand the use of red-light cameras by municipalities.
- Educate consultants and developers on driveway regulation.
- Add information on gap acceptance and intersection crash frequency to a standardized driver education curriculum.
- Encourage the use of EMS signal preemption.

The safety of the traveling public is a top priority for the Tyler Area MPO, Tyler Transit, TxDOT, the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), Smith County, and the cities in the planning area. Incorporating these strategies and other appropriate elements of the SHSP throughout the stages of the Tyler Area MPO transportation planning and programming processes will give safety issues higher visibility and greater understanding among stakeholders, elected officials and the public.

Crash Data Analysis for City of Tyler and Smith County

To help identify safety issues, traffic safety data must be analyzed. Trend analysis based upon multiple-years worth of data will give a more accurate reflection of the safety condition of a city or of a specific road segment or intersection. This helps to weed out data that may not be representative of the true safety condition. Also, graphically depicting crash data on a map can help to identify trends that may not be as obvious in spreadsheet reports.

Analysis of crash data is the foundation of transportation safety and planning and is a key component of TxDOT's roadway safety programs. On October 1, 2007, the responsibility of collecting crash data was transferred from the Texas Department of Public Safety to TxDOT. The Traffic Operations Division is responsible for the management and maintenance of the Crash Records Information System (CRIS).

CRIS is a PC-based application that contains spatial and reporting components designed to be used by TxDOT personnel to obtain and analyze crash data. Each TxDOT district has personnel licensed to have access to CRIS.

TxDOT staff extracted crash data from the CRIS database for Smith County. **Figure 11-2** shows a map of motor vehicle crashes that occurred over a three-year period from 2006 to 2008. About 60 percent of total crashes occurred within the Tyler city limits while 76 per cent of fatal crashes occurred outside of the city limits.

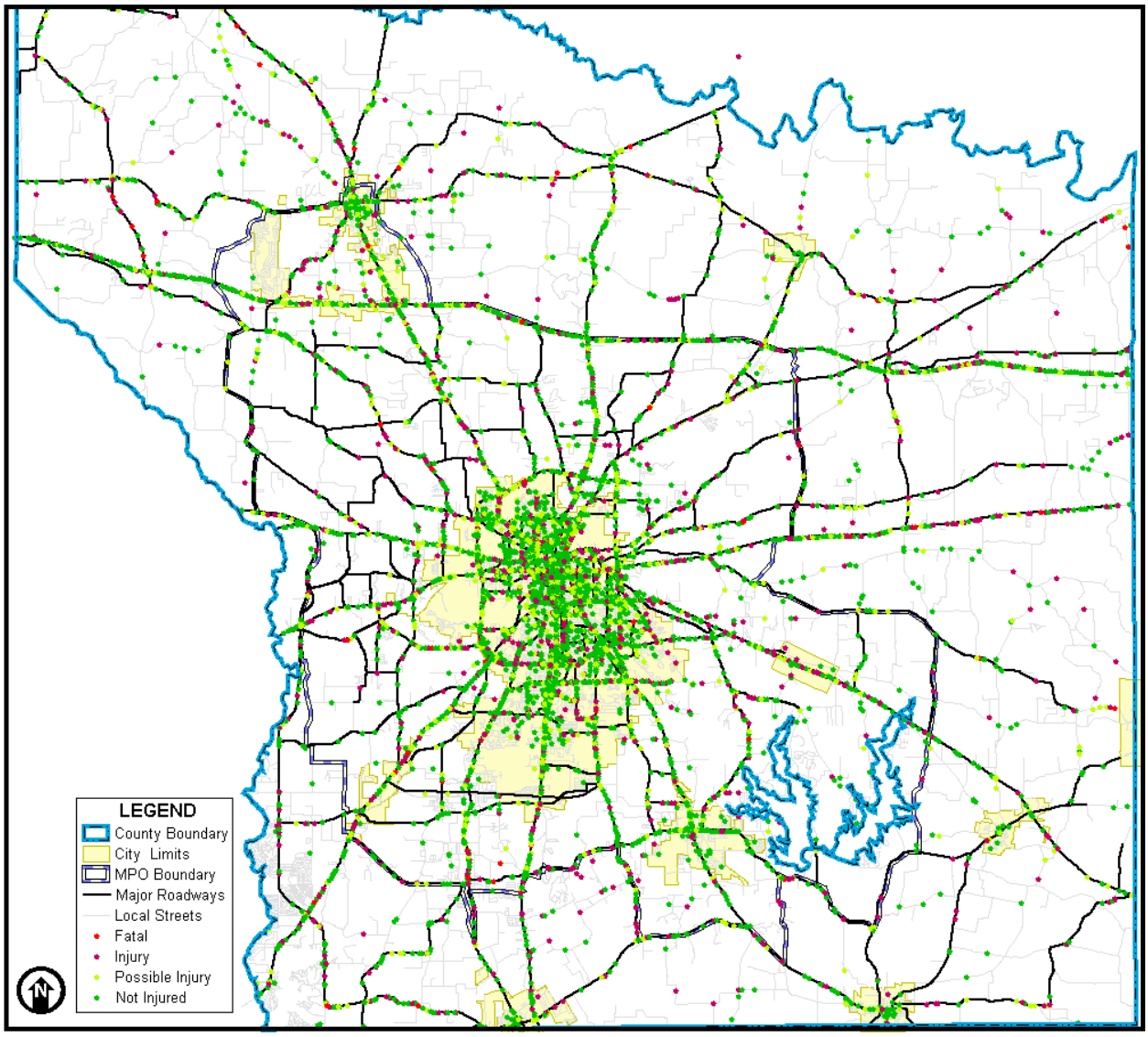
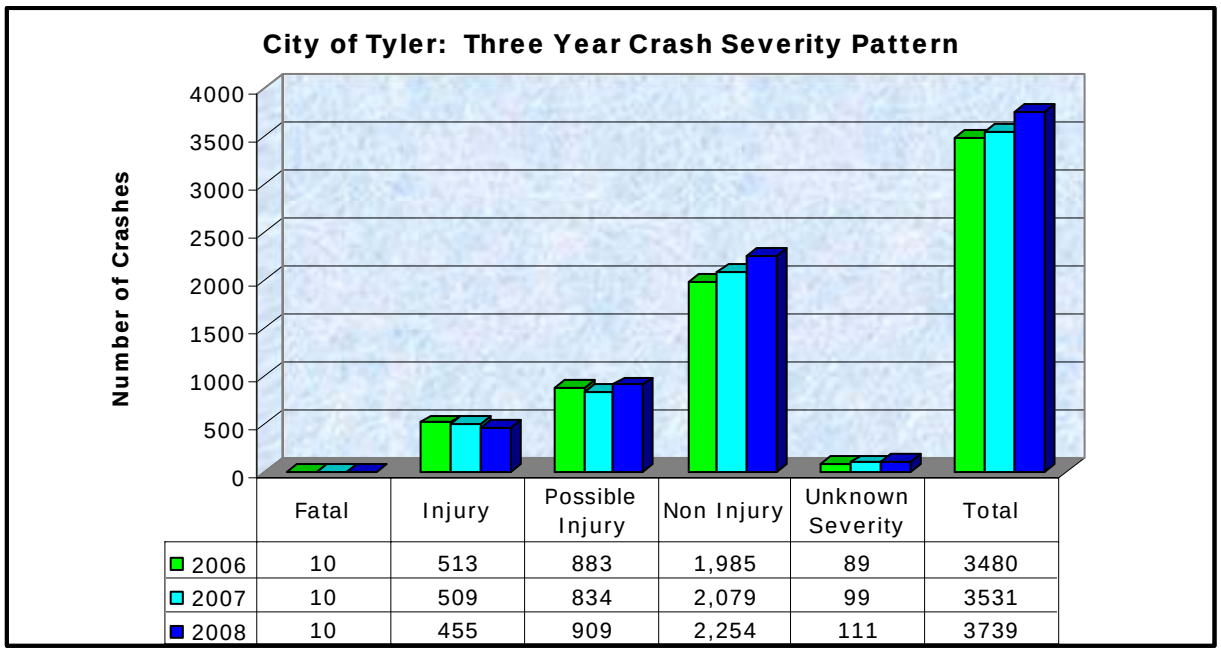


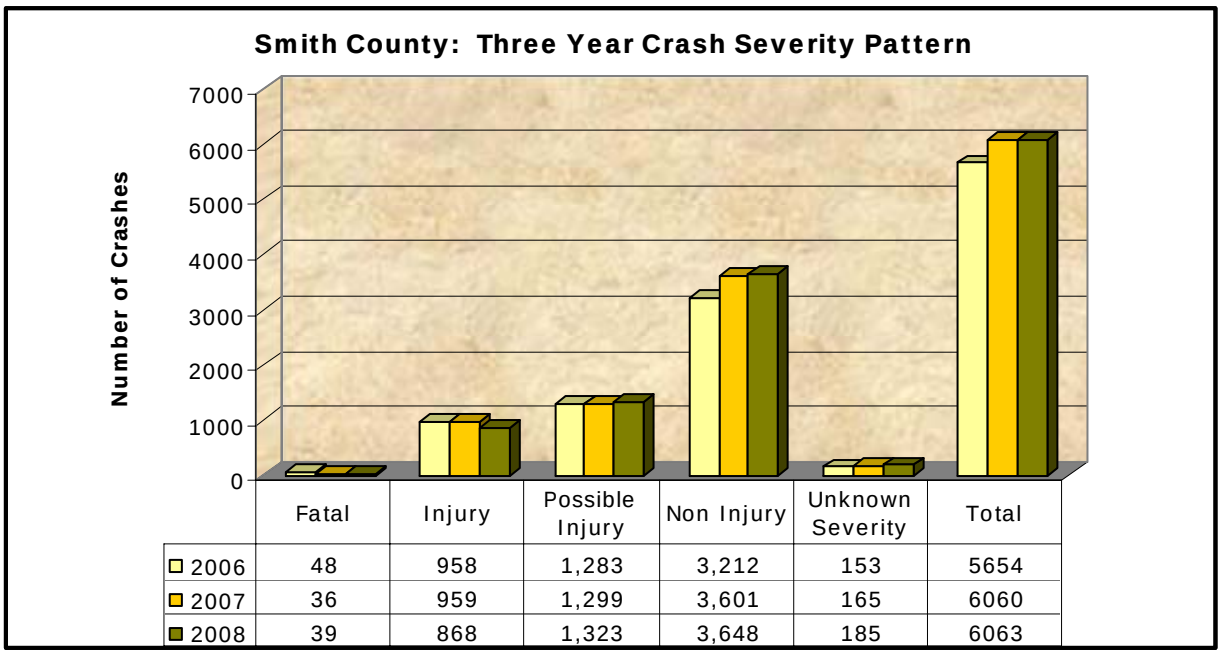
FIGURE 11-2 2006-2008 MOTOR VEHICLE CRASHES IN SMITH COUNTY

Accident Numbers and Severity

Figure 11-3 shows the total crashes that occurred during a three-year period in Tyler city limits and Smith County. It shows that during the three-year period from 2006-2008, 123 fatal crashes, 6,690 injury crashes, and 10,461 non-injury crashes occurred within Smith County. As expected, the majority of the accidents occur in the city of Tyler where the highest percentage of travel occurs. **Figure 11-4** depicts the percentage distribution of crash severity for Smith County. Nearly half of the crashes involved some injury with about 0.7 percent fatal.



	Fatal	Injury	Possible Injury	Non Injury	Unknown Severity	Total
2006	10	513	883	1,985	89	3480
2007	10	509	834	2,079	99	3531
2008	10	455	909	2,254	111	3739



	Fatal	Injury	Possible Injury	Non Injury	Unknown Severity	Total
2006	48	958	1,283	3,212	153	5654
2007	36	959	1,299	3,601	165	6060
2008	39	868	1,323	3,648	185	6063

FIGURE 11-3 NUMBER AND SEVERITY OF MOTOR VEHICLE CRASHES

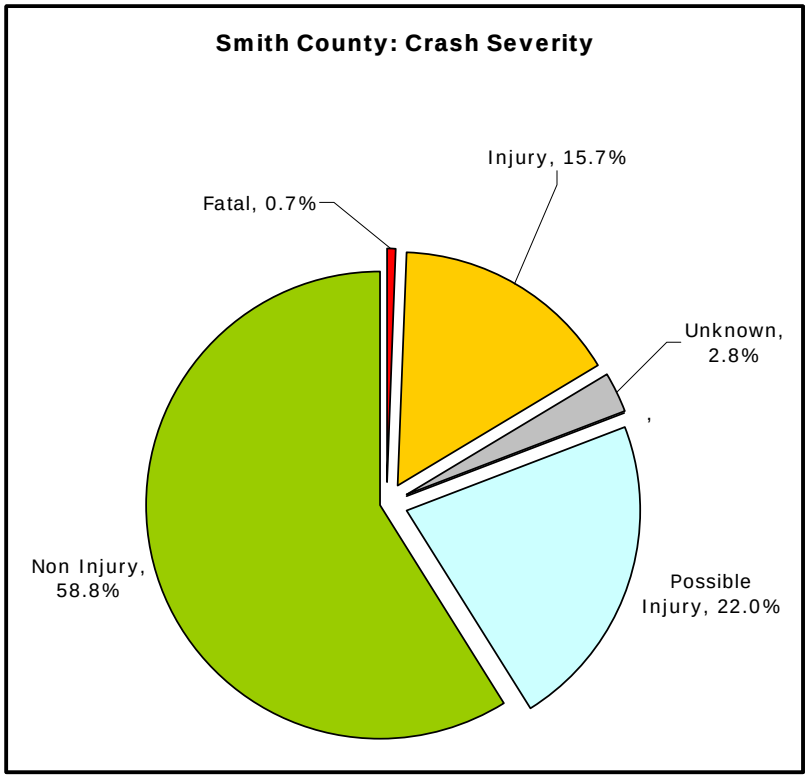


FIGURE 11-4 DISTRIBUTION OF MOTOR VEHICLE CRASH SEVERITY FOR SMITH COUNTY

SECURITY

Security is an important component of the metropolitan transportation planning process. The goal under SAFETEA-LU is to: "*Increase the ability of the transportation system to support homeland security and to safeguard the personal security of all motorized and non-motorized users."* Elevating the importance of security within the transportation planning process requires providing resources to identify and implement projects that directly improve security needs and mitigate imminent threat. Some security planning activities have been initiated within the Tyler metropolitan area and Smith County. These include short- medium- and long range ITS projects under key areas of Emergency Management, Commercial Vehicle Operations, and Public Transportation Management (see **Tables 10-2 to 4**). Tyler Transit has an ongoing effort to develop a security plan for transit.

Potential Roles for the Tyler Area MPO

The role of the MPO is to focus on activities that can be incorporated into the continuing, comprehensive, and cooperative (3C) transportation planning process. These activities must be examined from a regional perspective, since no one agency is solely responsible for the security of an area. Incorporating security considerations into the MPO planning process must go beyond the standard measures often considered such as, emergency preparedness and response planning, and think more towards capital planning. Considering work elements that allow the MPO to address security, as appropriate is a first step to integrating security into the planning process. These elements may include involving the Technical Advisory Committee

(TAC) in determining emergency transportation routes, adding an emergency management position to the TAC, and enhancing communication between all agencies that plan and provide transportation services. These work elements should be in accordance with the following countermeasures: Prevention, Protection, Redundancy, and Recovery.

Prevention includes analyzing the vulnerability of key transportation infrastructure and services, as well as identifying strategies, technologies, and projects that can help prevent events. Protection measures, such as detection systems, fences, and locks, are often enacted to couple with prevention measures for highly vulnerable components of the transportation network such as bridges, tunnels, and transit facilities. Redundancy within the transportation network allows for easy alternative routes for traffic if an incident occurs. This idea of having a "backup plan" should also be considered with communications and information sources as well. Recovery primarily consists of short term or initial response activities during an emergency situation and long term response activities that consist of providing traveler information, re-routing of services, and reconstruction.

Disruption of the transportation system, due to manmade or natural causes, produces consequences ranging from inconvenience to economic loss to injury or death. As a medium for collaboration, and a financial and technical resource for planning and transportation system analysis, the MPO has a critical role to play in ensuring the security of transportation facilities and services.

In the MPO's role as a forum for cooperative decision-making, the actions that seem most appropriate for it in the context of security/disaster planning are to:

- Provide a forum for interagency coordination and cooperation with local, state and federal agencies that have a stake in Tyler metropolitan area security and safety to coordinate surveillance and prevention strategies; and,
- Provide a forum for discussions on coordinating emergency responses. Given the MPO's responsibilities for funding strategies and projects, potential actions could include: funding new strategies/technologies/projects that can help prevent events and/or protect key transportation facilities; funding communications systems and technology to speed response to incidents; and funding recovery activities.

Given the MPO's strengths in technical analysis and transportation planning, potential actions could include:

- Analyzing the transportation network for emergency route planning and identifying strategic gaps in the network.
- Develop a geographic information system (GIS) database of critical transportation facilities and infrastructure, including evacuation routes for incorporation into future MTP updates.

12 Financial Plan

Federal regulations require Metropolitan Transportation Plans to be financially constrained. According to 23 Code of Federal Regulations, Part 450, Section 450.322, the financial plan must "demonstrate the consistency of proposed transportation improvements with already available and projected sources of revenue." Revenue projections are required by the regulations to reflect the existing situation and historical trends.

TRADITIONAL FUNDING SOURCES

Federal and State Funding

The Texas Department of Transportation offers project funding through 12 categories. Projects now fall under the Statewide Preservation Program (SPP), which is supported by the department's "Maintain It" strategy, or the Statewide Mobility Program (SMP), which is supported by the "Built It" strategy. **Table 12-1** provides a general overview of the 12 TxDOT funding categories.

The Tyler Area MPO is eligible for funding in the following categories:

1. Preventive Maintenance and Rehabilitation
3. Urban Area (non-TMA) Corridor Projects
4. Statewide Connectivity Corridor Projects
6. Structures Replacement and Rehabilitation
8. Safety
9. Transportation Enhancements
10. Supplemental Transportation Projects
11. District Discretionary
12. Strategic Priority

TABLE 12-1 OVERVIEW OF TXDOT FUNDING CATEGORIES

Funding Category		Starting Point	Project Selection By	Summary / Restrictions	Usual Funding		
#	Name				Fed	State	Local
MAINTAIN IT							
1	Preventive Maintenance and Rehabilitation	TxDOT District	TxDOT Districts	Preventive maintenance and rehabilitation of the existing state highway system including interstate main lanes, structures, signs, markings, striping.	90% 80% 0%	10% 20% 100%	0% 0% 0%
6	Structures Replacement and Rehabilitation	TxDOT District	TxDOT Bridge Division	Rehab of bridges on and off the state system, replacement of existing highway-railroad grade crossing or railway underpass	90% 80% 80%	10% 20% 10%	0% 0% 10%
BUILD IT							
2	Metropolitan Area (TMA) Corridor Projects	TxDOT District	MPOs in consultation w/ TxDOT	Mobility and added capacity projects for TMA MPOs	80% 0%	20% 100%	0% 0%
3	Urban Area (non-TMA) Corridor Projects	TxDOT District	MPOs in consultation w/ TxDOT	Mobility and added capacity projects for non-TMA MPOs	80% 0%	20% 100%	0% 0%
4	Statewide Connectivity Corridor Projects	TxDOT District	TxDOT Commission	Mobility and added capacity projects which serve the mobility needs of statewide connectivity	80% 0%	20% 100%	0% 0%
5	Congestion Mitigation & Air Quality Improvement	TxDOT District	MPOs in consultation w/ TxDOT	Addresses attainment of air quality standards in non-attainment areas	90% 80% 80%	10% 0% 20%	0% 20% 0%
7	Metropolitan Mobility / Rehabilitation	TxDOT District	MPOs in consultation w/ TxDOT	Transportation needs within MPOs with populations of 200,000 or greater	80% 80% 0%	20% 0% 100%	0% 20% 0%
8	Safety – Federal Hazard Elimination Program	TxDOT District	TxDOT Commission / Federal Safety Indices	Safety related projects	100% 90% 90% 0%	0% 0% 0% 100%	0% 10% 0% 0%
	Safety – Federal Railroad Signal Safety Program	TxDOT District	TxDOT Commission / Federal Safety Indices	Installation of automatic RR warning devices	100% 90% 90% 0%	0% 0% 10% 100%	0% 10% 0% 0%
9	Transportation Enhancements	TxDOT District	TxDOT Commission	Projects that enhance the traveling experience	80% 80%	20% 0%	0% 20%
	Safety Rest Area Program	TxDOT District	Maintenance Division	Projects to renovate, build, relocate safety rest areas	80%	20%	0%

Funding Category		Starting Point	Project Selection By	Summary / Restrictions	Usual Funding		
#	Name				Fed	State	Local
10	Supplemental Transportation Projects – State Park Roads	TxDOT District or TPWD	Tx Parks & Wildlife	Construction and rehabilitation of roadways within or adjacent to state parks	0%	100%	0%
	Supplemental Transportation Projects RR Grade Crossing Replanking Program	TxDOT District	Traffic Operations Division	Replacement of rough railroad crossing surfaces	0%	100%	0%
	Supplemental Transportation Projects RR Signal Maintenance Program	TxDOT District	Traffic Operations Division	Contributions to RR Companies based on number of crossings	0%	100%	0%
	Supplemental Transportation Projects Construction Landscape Programs	TxDOT District	TxDOT District	Landscape, aesthetic, and environmental improvements	0%	100%	0%
	Supplemental Transportation Projects Landscape Cost Sharing Program	TxDOT District	TxDOT District	Allows the department to execute joint landscape improvement projects through partnerships	0%	100%	0%
	Supplemental Transportation Projects Landscape Improvement Program	TxDOT District	TxDOT District	Landscape projects for non-attainment air quality or near non-attainment areas	0%	100%	0%
	Supplemental Transportation Projects Supplemental (Federal)	Federal allocations	Varies	Federal programs such as Forest Highways, Indian Reservation Highways, Federal Land Highways and Ferry Boat Discretionary	100% 0% 0%	0% 20% 100%	0% 0% 0%
11	District Discretionary	TxDOT District	TxDOT District	Projects selected at district's discretion	80% 80% 0%	20% 0% 100%	0% 20% 0%
12	Strategic Priority	TxDOT Commission	TxDOT Commission	Projects must promote economic development, provide system continuity with adjoining states, increase efficiency on military deployment routes	80% 0%	20% 100%	0% 0%

Local Funding

Local funding is received primarily from sales and property taxes.

The City of Tyler is the only local agency with annual construction dollars dedicated to roadway projects. In 1996, citizens of Tyler approved an additional one-half cent in sales tax to be

collected to fund capital improvement with the city. City ordinance allows for 35 percent of the one-half cent sales tax collected to be used on street and traffic projects.

Smith County is another source of local funding. The majority of its funds are received from road and bridge fees. The county road department is responsible for the construction and maintenance of county roads, bridges, drainage structures, signs and traffic control devices.

NON-TRADITIONAL FUNDING SOURCES

With continued growth and development occurring across the state, traditional funding sources are no longer adequate to keep up with transportation needs. New legislation gives local authorities more power and provides them with innovative techniques to finance needed transportation projects. This allows projects to be planned and built at a much faster rate. The non-traditional funding techniques include the following methods:

Texas Mobility Fund

Voters approved Texas Constitutional Amendment 15 in 2001 enabling the State Legislature creation of the Texas Mobility Fund in order to accelerate completion of TxDOT projects and improvements. The fund allows the state to issue bonds backed by dedicated revenue sources. HB 3588 authorizes certain transportation related fees such as motor vehicle inspection fees and driver's license fees to be moved from the state's General Revenue Fund to the Texas Mobility Fund. The TxDOT Commission administers the fund as a revolving fund program to advance projects by spending, granting, or loaning funds for highway improvements including toll roads.

Bonds

In 2003, voters approved Constitution Proposition 14 to authorize the state to borrow money on a short term basis of two years or less. In 2007, voters approved Constitution Proposition 12 authorizing the state to borrow up to $5 Billion in general revenue bonds for highway improvements. Bonds allow the state to borrow money to build projects today and pay for the projects over time. This allows the public to enjoy the early benefits of projects for the additional financial cost of projects. When construction costs rise faster than interest rates, it is financially advantageous to borrow funds to accelerate projects.

Toll Roads

A toll road had the ability to generate project revenue, which means projects can be fully or partially financially self sufficient. Toll roads have the ability to start sooner and finish quicker, reducing construction delays and opening earlier when compared to conventional developed pay as you go roads. Toll equity allows state funds to be combined with other funds to build toll roads. Toll Conversion allows the commission to transfer segments of any non-tolled state highway to a county or regional toll authority for operation and maintenance providing local authorities another option that can accelerate maintenance and expansion improvements.

Regional Mobility Authority (RMA)

The state partners with counties to establish RMAs, which are political entities formed to allow an individual county or multiple counties to work together to develop and implement a regional approach to transportation needs. They have extensive authority over transportation projects in their communities giving local governments a greater ability to provide mobility and safety benefits to citizens. RMAs receive funding for initial project development from the sale of state bonds. They may also seek a loan or grant from TxDOT. The types of projects may include highway, rail, aviation, and pedestrian facilities, and may be tolled or nontolled. Additionally, RMAs can purchase right-of-way and lease portions for use by businesses including hotels, restaurants, and gas stations.

In the spring of 2004, the county judges of Gregg and Smith counties, along with the mayors of Longview and Tyler, began a dialogue of how the two counties and cities could pool their resources and cooperatively unite for the good of both areas. From that discussion the North East Texas Regional Mobility Authority (NET RMA) was formed. In the summer of 2006 four additional counties (Cherokee, Harrison, Rusk and Upshur) joined the NET RMA, marking the first time that any RMA in Texas had grown beyond its original founding members. The NET RMA made history a second time in summer 2007 when six more counties joined: Bowie, Cass, Panola, Titus, Van Zandt, and Wood. The Board of Directors consists of 18 chairpersons from the member counties.

Comprehensive Development Agreements

A Comprehensive Development Agreement enables private investments in the Texas transportation system. This is a project delivery method that rolls the design and construction of a toll road project into one comprehensive contract, instead of the traditional method of having individual contracts for separate phases of a project. This results in faster delivery of the project and greater cost certainty with a lump sum price and may include the design, construction, right-of-way acquisition, utility adjustment, environmental permitting and mitigation, and operation & maintenance phases of a typical project.

TxDOT does not have the general authority to enter into Comprehensive Development Agreements (CDAs) after August 31, 2009. However, the department could enter into a CDA on or before August 31, 2011 for several previously exempted projects around the state. These exempt projects include a CDA that does not grant the private entity the right to finance the project, e.g., a design-build project that does not include private financing. Regional Mobility Authorities have the same CDA authority as TxDOT and will maintain CDA authority.

Pass-Through Toll Agreements

A Pass-Through Toll Agreement is a partnership between a developer and TxDOT where roadway construction is funded with a per-vehicle or per-vehicle mile paid by TxDOT to the developer. It is not a toll road. Instead, any toll that would typically be paid by a motorist is instead paid for or "passed through" to TxDOT. A local government or private entity makes a transportation improvement and is reimbursed from the state based on the number of vehicles using the highway. This allows the local area to implement projects quicker while providing for project repayment under TxDOT's funding category 12.

State Infrastructure Bank

The state infrastructure bank (SIB) was authorized by the state legislature in 1997 to allow TxDOT to offer various loans and credit enhancement products for highway projects. The overall goal of the SIB program is to provide innovative financing methods that will add to the list of options available to assist communities with meeting their infrastructure needs. The SIB program allows borrowers to access capital funds at or lower-than-market interest rates. SIB loans are available that can help pay for various phases of a project. The SIB operates as a revolving loan fund, where the account balance grows through the monthly interest earned and repaid principal and interest payments. In Texas, SIB financial assistance can be granted to any public or private entity authorized to construct, maintain or finance an eligible transportation project. Projects must be eligible for funding under the existing federal highway rules (Title 23); this usually requires a project to be on a state's highway system and included in the statewide Transportation Improvement Plan.

HISTORICAL TRENDS IN FUNDING

Historically transportation improvement projects in the Tyler MPO boundaries have been funded by federal, state, or local dollars. In some instances, a combination of these funding sources was used to complete projects. Historically spending from 1995 to 2009 is summarized in **Table 12-2.**

Over the past five years state and federal funding in the region totaled over $180 million. For the "Maintain It" construction categories (cat 1 and 6), approximately $31 million, or 17 percent of total funding was expended in the region. A review of the "Build It" construction categories showed an 83 percent or $149 million was expended in the area.

The roadway networks in the cities of Lindale and Whitehouse are primarily composed of state or county facilities. Traditionally, neither city is in the business of constructing or maintaining area roads. However in the last five years, the City of Lindale did construct the first phase of Centennial Boulevard. The roadway created access to previously undeveloped properties and in turn generated more tax revenue when several national retail chains and hotels located along it. With the construction of Centennial Boulevard and miscellaneous pavement repairs, the City of Lindale spend roughly $2 million since the last MTP update.

Smith County Road and Bridge Department also saw an increase in funding in the last five years. Between 2005 and 2009, the county spent slightly over $40 million on its roads and bridges. Included in that total amount are all labor and material costs occurred by the department's three divisions: Administration, Labor, and Equipment Division.

In terms of public transportation, Tyler Transit received nearly $10 million in federal, state, and local funding in the past five years. Roughly $5.6 million was from federal funds, $1.4 million from state funds, and $2 million from local sources. Another $660,000 was collected through toll credits.

TABLE 12-2 HISTORICAL AND PROJECTED FUNDING, TYLER MPO/SMITH COUNTY

Funding Sources	Historical (1995-1999)	Historical (2000-2004)	Historical (2005-2009)	Projected 10 Year (2010-2019)	Projected 15 Year (2020-2034)
Federal & State					
Build It	**$ 49,781,925**	**$ 56,772,403**	**$ 149,241,411**	**$ 27,150,000**	**$ 55,775,000**
Total Mobility (Construction 3,11,12)			$ 101,551,580	$ 15,000,000	$ 37,500,000
Non Mobility Categories					
Cat 8 - Safety			$ 35,666,077	$ 11,500,000	$ 17,300,000
Cat 9 - Enhancement			$ -	$ 650,000	$ 975,000
Cat 10 - Miscellaneous			$ 361,374	$ -	$ -
Cat 11 - District Discretionary			$ 11,662,379	$ -	$ -
Total Non Mobility			$ 47,689,830	$ 12,150,000	$ 18,275,000
Maintain It (Cat 1 & 6)	**$ 53,067,396**	**$ 65,966,856**	**$ 31,168,623**	**$ 40,000,000**	**$ 60,000,000**
Total Federal & State	**$ 102,849,321**	**$ 122,739,259**	**$ 180,410,033**	**$ 67,150,000**	**$ 115,775,000**
Loop 49					
Gov't Earmarks (TxDOT/MPO/City)			$ 37,900,000	$ 53,250,000	$ -
NET RMA (Toll Revenue, Bonds)			$ -	$ 110,840,000	$ 85,000,000
Local Funding					
City of Tyler Construction	$ 7,280,000	$ 13,634,148		$ 90,621,309	$ 147,573,324
City of Tyler Maintenance/Rehab	$ 7,790,000	$ 8,910,006			
City of Whitehouse Maintenance/Rehab	$ 2,100,000	$ -	$ -	$ -	$ -
City of Lindale Maintenance/Rehab	$ 360,000	$ -	$ 2,000,000	$ -	$ -
* Smith County Maintenance/Rehab	$ 25,000,000	$ 29,832,820	$ 40,075,978		
Transit Funding					
Tyler Transit Federal	$ 1,760,000	$ 3,335,789	$ 5,673,808	$ 13,028,084	$ 31,441,776
Section 5316 JARC (Federal)	$ -	$ -	$ -	$ 706,532	$ 1,059,798
Section 5317 New Freedom (Federal)	$ -	$ -	$ -	$ 2,004,452	$ 3,006,678
Tyler Transit State	$ 1,300,000	$ 1,802,662	$ 1,448,279	$ 3,258,951	$ 10,677,518
Tyler Transit Local	$ 350,000	$ 605,172	$ 2,148,001	$ 6,038,515	$ 13,339,357
Section 5316 JARC (Local)	$ -	$ -	$ -	$ 639,082	$ 958,623
Section 5317 New Freedom (Local)	$ -	$ -	$ -	$ 1,899,452	$ 2,849,178
Toll Credits (Transit)	$ -	$ -	$ 659,125	$ 1,680,412	$ 4,174,293
Total Transit	**$ 3,410,000**	**$ 5,743,623**	**$ 9,929,213**	**$ 29,255,480**	**$ 67,507,221**

** Includes Road and Bridge Labor & Material and Equipment*

PROJECTED FUNDING AVAILABILITY

Although the Tyler MPO has traditionally seen a trend of upward growth across all funding sources, the recent economic recession was considered when developing projected funding for the next 25 years. Projections were developed for expected federal, state, and local funding for the 10-year short-term strategy (2010-2019) and the 15-year long-term strategy (2020-2035).

Federal and State Funding

In the past MTP a straight line projection of historical expenditures were used to arrive at a 10-year and 15-year forecast of funding. However, recent cuts in state and federal funding prevent the use of that mythology here. Through close coordination with local TxDOT staff, a more realistic and conservative funding projection was derived.

As shown in Table 12-2 federal and state funding is projected at roughly $67 million in the short-term and $115 million in the long-term. These funding dollars are broken down into two main types: “Maintain It” and “Build It” funds.

The “Maintain It” categories are projected to account for $40 million or 60 percent of total funding in the short-term and $60 million or 52 percent in the long-term. The two highway construction programs that comprise the “Maintain It” strategy are Category 1 – Preventive Maintenance and Rehabilitation and Category 6 – Structures Replacement and Rehabilitation. Federal regulations do not require maintenance projects to be individually listed in the MTP.

Funding for the “Build It” categories is projected to account for roughly $27 million in the short-term and $55 million in the long-term. Funding for the “Build It” categories was further broken down into “mobility” which accounts for the majority of capacity and intersection improvement projects and includes funding from Categories 3, 11, and 12.

Lump sum categories were also identified for Category 8 – Safety, Category 9 – Enhancements, Category 10 – Miscellaneous, and Category 11- District Discretionary (non-capacity improvements). A more detailed discussion of these categories is provided below.

Category 8 – Safety

Category 8 – Safety funding is projected to equal $11.5 million in the short-term and $17.3 million in the long-term. Funding for this category can be used for a variety of safety related projects which are not individually listed in the plan including access management projects, safety light, signs, and railroad warning devices.

Category 9 – Enhancements

Category 9 – Enhancement funding is project to equal $650,000 in the short-term and $975,000 in the long-term. These projections are significantly lower then those developed in the last MTP, where were $1.7 million and $5.8 million, respectively. Funding from this category can be used for projects above and beyond what normally is expected for transportation enhancements as outlined in TEA-21. Funding from this category is typically used for bicycle and pedestrian improvements and enhancements. To obtain funding for bicycle and pedestrian facilities, the City of Tyler or other local agencies will need to nominate and sponsor projects and compete on a statewide basis for funding.

Category 10 – Miscellaneous

No funding is designated Category 10 – Miscellaneous during this MTP update. Funding from this category can be used for miscellaneous projects including state park roads, railroad grade crossing replanking, railroad signal maintenance, and landscape programs.

Category 11 – District Discretionary

No funding is designated Category 11 – District Discretionary (non-capacity improvements) during this MTP update. Funding from this category can be used for a variety of projects at the TxDOT Tyler District's discretion; however, this lump sum category reflects funds that may be used for non-capacity improvement projects not individually listed in the plan. Historically Category 11 funding has been used for overlay, roadway reconstruction, underpasses and resurfacing projects in the Tyler MPO.

Local Funding

The City of Tyler and its One-Half Cent Sales Tax is expected to generate over $90 million for short-term and over $147 million for long-term transportation projects. As previously mentioned, the sales tax was adopted in 1996 to aid in the construction of capital improvement projects, including streets and traffic improvements. The City of Tyler is the only local entity with projected funds for added capacity transportation improvements.

Maintenance and rehabilitation funding on a local level was projected based on input from the local entities. Like most of the other funding categories, the community leaders see little to no funds being available for local system preservation. **Table 12-2** summarizes the projections from the cities of Tyler, Whitehouse, and Lindale.

NET RMA Funding

Loop 49 is the toll road facility located in the southern part of the City of Tyler. In the past all sections of the roadway was constructed by TxDOT using traditional or Proposition 14 funding. In total, TxDOT provided over $91 million for the construction of Segments 1, 2, 3a, and 5. Planning and/or PS&E development are underway for segments 3b, 4, and 6; however, the NET RMA will be the source for funding of these future projects. The NET RMA expects to use bond and toll revenues to build the segments, as well as maintain the entire facility. In the short-term it is estimated the NET RMA will spend over $110 million for Segments 3b and 4 and $85 million in the long-term funding scenario for Segment 6. Loop 49 is being constructed as a two-lane toll road, but its ultimate section is a 4-lane, divided section. Construction of the ultimate section is not planned before 2035.

Public Transportation Funding

Tyler Transit predicts it will receive a total of $27.5 million in short-term funding from federal, state, and local sources. For the long range period the agency is expecting to receive $35.5 million in federal funding, over $10.6 million in state funding, and $17 million in local funding. Additionally, Tyler Transit expects $5.8 million of funding from toll credits over the next 25 years.

13 Project Prioritization

A Metropolitan Transportation Plan identifies projects that are necessary to handle an area's projected future traffic. The projects' construction does not happen overnight; instead it planned and executed over a number of years. It is the responsibility of the Tyler MPO to provide a timetable for constructing projects. This chapter discusses the approach the Tyler MPO used to identify and prioritize the area's roadway projects.

PROJECT SELECTION CRITERIA

The MPO Policy Committee authorized the creation of a Project Selection Criteria Sub-Committee of the Technical Advisory Committee during the MTP adoption process in 1999. This committee was comprised of TxDOT, county, city, and MPO staff. The sub-committee developed project selection criteria which would be used for each project seeking federal funding. The MPO Policy Committee approved the project selection criteria in July 1999.

The project selection criteria are:

- Existing Traffic Volume
- Existing Level-of-Service
- Future Traffic Volume
- Future Level-of-Service
- Construction Cost Estimate
- Public Benefit
- Social and Environmental Impacts

In previous versions of the MTP the above criteria were applied to potential projects through round table discussions. Members of the Technical Advisory Committee would review the measurable factors and determine where a project ranked. A benefit to this approach was committee members were familiar with the existing network and could quickly indentify new projects based on the criteria. On the other hand, bias could enter into the decision if committee members were more familiar with one project or area of the MPO over another. To eliminate this risk, a method for project prioritization that used the above criteria was developed.

The project prioritization process used in this MTP Update redefined the above criteria into five broader categories. Next, each was assigned a weighted factor to better define its importance in the decision making process.

The five categories and their weighted percentage are:

- Transportation and Circulation (35%)
- Project Costs (15%)
- Public Safety (20%)

- Environmental Impacts (20%)
- Existing Infrastructure (10%)

To prioritize a project, it would receive a score (1-10) in each of the above areas. The score a project received in each area was then multiplied by its weighed factor and totaled for its final ranking. For example, if a project scored 7 out of 10 in the area of Transportation and Circulation, 3 out of 10 in terms of Project Costs, 10 out of 10 in Public Safety, 5 out of 10 in Environmental Impacts, and a 1 out of 10 in the Existing Infrastructure area, its final score would be 6.

$$7(35\%) + 3(15\%) + 10(20\%) + 5(20\%) + 1(10\%) = 6$$

Transportation and Circulation

Transportation and Circulation measures the impact a project will have on a roadway network in terms of LOS. Level of Service is a quantitative measure of operational conditions at a location. It is directly related to a roadway's volume-to-capacity ratio and involves assigning a letter designation ranging from A to F to classify traffic flow. A classification of LOS A indicates free flow with no travel delay time, while a LOS F is a sign of congested flow. In most urban areas, a LOS D is considered the limit of acceptable operation.

In this category, potential projects' LOS for existing conditions was compared to those after the projects' construction. In both scenarios, 2035 traffic volumes were utilized in the model. The change in LOS determines the projects' score in this category. The scale is defined below.

TABLE 13-1 RANKING SCALE FOR TRANSPORTATION AND CIRCULATION

1	3	5	7	10
No Change in LOS	Improved by 1 LOS Grade	Improved by 2 LOS Grades	Improved by 3 LOS Grades	Improved by 4 or more LOS Grades

If a roadway's LOS improves from a LOS F to LOS B, then it LOS improved by 4 LOS grades and it receives a 10 for Transportation and Circulation ranking. Similarly, if a project improves a roadway's LOS from LOS D to LOS B, its Transportation and Circulation ranking would be 5.

This category is considered an important measure and is therefore assigned the highest weighted value in the overall prioritization formula.

Project Costs

Previously the only cost evaluated was a project's construction costs. However, this is not the only cost associated with a project. Each project will also have right-of-way (ROW) and engineering (design) costs. In some cases, these costs can significantly impact when a project is constructed. If too high, the project could be postponed until additional funds are available.

In this category, the projects' total costs were estimated and assigned a rank. Projects with significant total costs are considered undesirable and are assigned a low score. Projects with lower overall costs are ideal and therefore score higher. The scale is defined below.

TABLE 13-2 RANKING SCALE FOR PROJECT COSTS

1	5	10
Overall costs exceeds $40,000,000	Overall costs were between $40,000,000 and $10,000,000	Overall cost less than $10,000,000

Public Safety

One objective of the Tyler MPO is to improve safety on the existing transportation system by developing projects that reduce hazards and improve driving conditions. To capture this goal in the project selection process, the Public Safety category was defined.

In this category, potential projects' accident history from the last 36 months was calculated. Projects along segments of roads with higher accident histories are considered desirable. These projects are needed to improve public safety and therefore were assigned a higher score. Projects along segments of roadways with low accident histories are important, but are considered lower priorities in terms of public safety. These projects rank lower on the Public Safety scale. The scale is defined below.

TABLE 13-3 RANKING SCALE FOR PUBLIC SAFETY

1	3	5	7	10
Crash Rate less than 10	Crash Rate between 10 and 20	Crash Rate between 20 and 40	Crash Rate between 40 and 50	Crash Rate greater than 50

Environmental Impacts

Environmental Impacts defines the effects a project will have to area wetlands, waters of the US, historical structures, and environmental justice (or social impacts). To rank projects in this category a thorough understanding of the area is required. Projects with high environmental impacts are not considered ideal. These projects might improve the performance of the area's transportation network, but the costs environmentally are high and therefore receive the category's lowest score. On the other hand, a project that improves the network's performance and little environmental impact are preferred. These projects receive the category's highest score of 10.

TABLE 13-4 RANKING SCALE FOR ENVIRONMENTAL IMPACTS

1	3	5	7	10
High Environmental Impacts	◄——►	Average Environmental Impacts	◄——►	Low Environmental Impacts

For example, this MTP Update identifies a project along SH 110 (Beckham Avenue) between East Fifth Street and Golden Road. The project description calls to widen the roadway from

four to six travel lanes. Because of its high impact to neighboring businesses and homes, the project received an environmental impact score of one.

Existing Infrastructure

Another objective of the Tyler MPO is the preservation of its existing transportation system. The rehabilitation of an existing roadway can improve the transportation network without the impacts related with new corridors. Although one could argue this criterion is already accounted for in the Project Costs and Environmental Impacts Rankings, the Tyler MPO feels its importance allows for a separate category.

For this category, the projects' descriptions and limits were evaluated. New location projects, regardless of type, receive the lowest ranking of one. Projects involving the rehabilitation of a bridge receive a ranking of five. Finally, projects to widen or preserve existing roadway facilities are consisted the highest priority and receive a ranking of 10. The scale is defined below.

TABLE 13-5 RANKING SCALE FOR EXISTING INFRASTRUCTURE

1	5	10
New Location	Bridge Rehabilitation Projects	Roadway Widening or Rehabilitation Projects

PRIORITIZATION PROJECT LIST

A list of potential projects was initially developed through the public involvement process and input from the Technical Advisory Committee, TxDOT, the Tyler Area MPO, and local communities. The list was then evaluated following the prioritization method previously present in this chapter. The resulting prioritized federal/state projects are shown in Table 13-6. This ranked list along with the available funding dollars (from Chapter 12) will be combined to create the short-term, long-term, and illustrative project improvements lists in Chapter 14.

TABLE 13-6 PRIORITIZATION FEDERAL/STATE PROJECT IMPROVMENTS

Project Name	Construction Limits		Prioritization Criteria					Total Score
	From Limits	To Limits	Transportation & Circulation 35%	Project Costs 15%	Public Safety 20%	Environmental Impacts 20%	Existing Infrastructure 10%	
FM 2493	FM 2813	FM 346	10	5	5	5	10	**7.25**
Spur 248	Old Omen Road	SH 64, East	7	10	5	5	10	**6.95**
FM 14	MLK Jr, Blvd	Loop 323 East	7	10	7	3	10	**6.95**
Loop 323	Bellwood	SH 31 W	5	10	3	10	10	**6.85**
FM 756 (Paluxy)	Jeff Davis Drive	FM 346	7	10	5	3	10	**6.55**
SH 155, North	US 271 North	IH 20, East	7	10	5	3	10	**6.55**
SH 31, East	Loop 323, East	FM 850	5	5	10	5	10	**6.50**
SH 110	5th Street	Golden Road	5	10	10	1	10	**6.45**
FM 2493	FM 346	FM 344	7	5	5	5	10	**6.20**
FM 16	US 69	2.4 mi E of US 69	7	10	5	1	10	**6.15**
US 69, North	Loop 323	IH 20, West	1	5	10	10	10	**6.10**
SH 110 (North)	FM 849	IH 20	7	5	3	5	10	**5.80**
SH 64, West	FM 724	FM 2661	7	10	1	3	10	**5.75**
Loop 323 Extension	Loop 323, Northeast	US 271	3	10	7	3	10	**5.55**
SH 31, West	FM 206	FM 2661	3	10	3	7	10	**5.55**
Spur 364	Loop 323	SH 31, West	5	5	5	5	10	**5.50**
SH 110 (North)	Loop 323	FM 2016	5	5	5	5	10	**5.50**
SH 64, West	FM 2661	County Line	7	5	3	3	10	**5.40**
FM 16	US 69	Loop 49	7	10	1	1	10	**5.35**
SH 31, East	FM 850	County Line	7	1	3	5	10	**5.20**
SH 31, West	FM 2661	County Line	3	10	1	7	10	**5.15**
SH 64, East	CR 220, East	FM 3226	5	5	3	5	10	**5.10**
SH 110 (North)	FM 2016	FM 849	5	5	3	5	10	**5.10**
SH 110	Hagan Road	Troup City Limits	5	5	1	5	10	**4.70**
US 271	Loop 323	IH 20, East	1	5	3	10	10	**4.70**
IH 20	SH 110	US 271	3	1	5	7	10	**4.60**
IH 20 Frontage Roads	Loop 49	CR 431	7	10	1	1	1	**4.45**
US 69 at FM 346			5	10	1	1	5	**4.15**
FM 14	Loop 323, North	IH 20	1	5	7	3	10	**4.10**
SH 155, North	IH 20 East	County Line	5	1	3	3	10	**4.10**
SH 64, East	FM 3226	County Line	5	1	1	5	10	**4.10**
Airport / Loop 49 Spur	Loop 49, West	Tyler Airport	1	10	1	1	1	**2.35**

14 Recommended Projects

This chapter takes the projects identified as a priority in Chapter 13 and applies funding constraint from Chapter 12. Together this information generates a listing of fundable projects for the short- and long-term ranges.

LEGISLATIVE BACKGROUND

ISTEA required that Metropolitan Transportation Plans divide transportation projects into two sections: short-range (2010-2019) and long-term (2020-2034). ISTEA also required that plans be fiscally constrained – the plan can only contain those projects which can reasonably be expected to be funded. TEA-21 maintained these requirements, but also allowed the plan to include for 'illustrative purposes' additional projects that would be included in the long-range plan if additional resources were available.

RECOMMENDED TRANSPORTATION IMPROVEMENTS

The Transportation Plan includes a short-term implementation plan (2010-2019) and a long-range plan (2020-2034). Also included are illustrative projects that may eventually be included in the long-range plan if additional resources become available.

Figure 14-1 displays the Level of Service for the 2012 committed roadway network. The 2012 network includes all roadways as shown in the 2007 base network as well as the following projects. These projects have either been completed since 2007 or are scheduled to be completed before 2012.

- Loop 49 (Segments 2, 3a, 3b, 4, 5) from IH 20 to SH 110
- Towne Park Extension from Loop 323 to SH 155
- Sunnybrook Extension from SH 155 to Loop 323
- Lake Placid Road from Old Jacksonville Hwy to SH 155
- Old Omen Road Widening from University Blvd to Shiloh Road
- Grande Blvd from Broadway Ave to SH 110
- Copeland Road Widening from Rieck to Grande Blvd
- Old Jacksonville Hwy Widening
- FM 346 Widening in Whitehouse

Loop 49 is currently being constructed as a two-lane roadway. Its ultimate configuration will be a four-lane, divided toll way. The project is being phase constructed in order to stretch funding dollars and construct all planned segments. Currently the two-lane toll supports the traffic volumes using the facility. As these volumes grow and new funding comes available, the additional two travel lanes can be constructed. Segment 3a is currently under construction and segment 5 will let in December 2009. Segment 3b has been delayed while the project is converted to a design-build format. The project's completion date is unknown at this time.

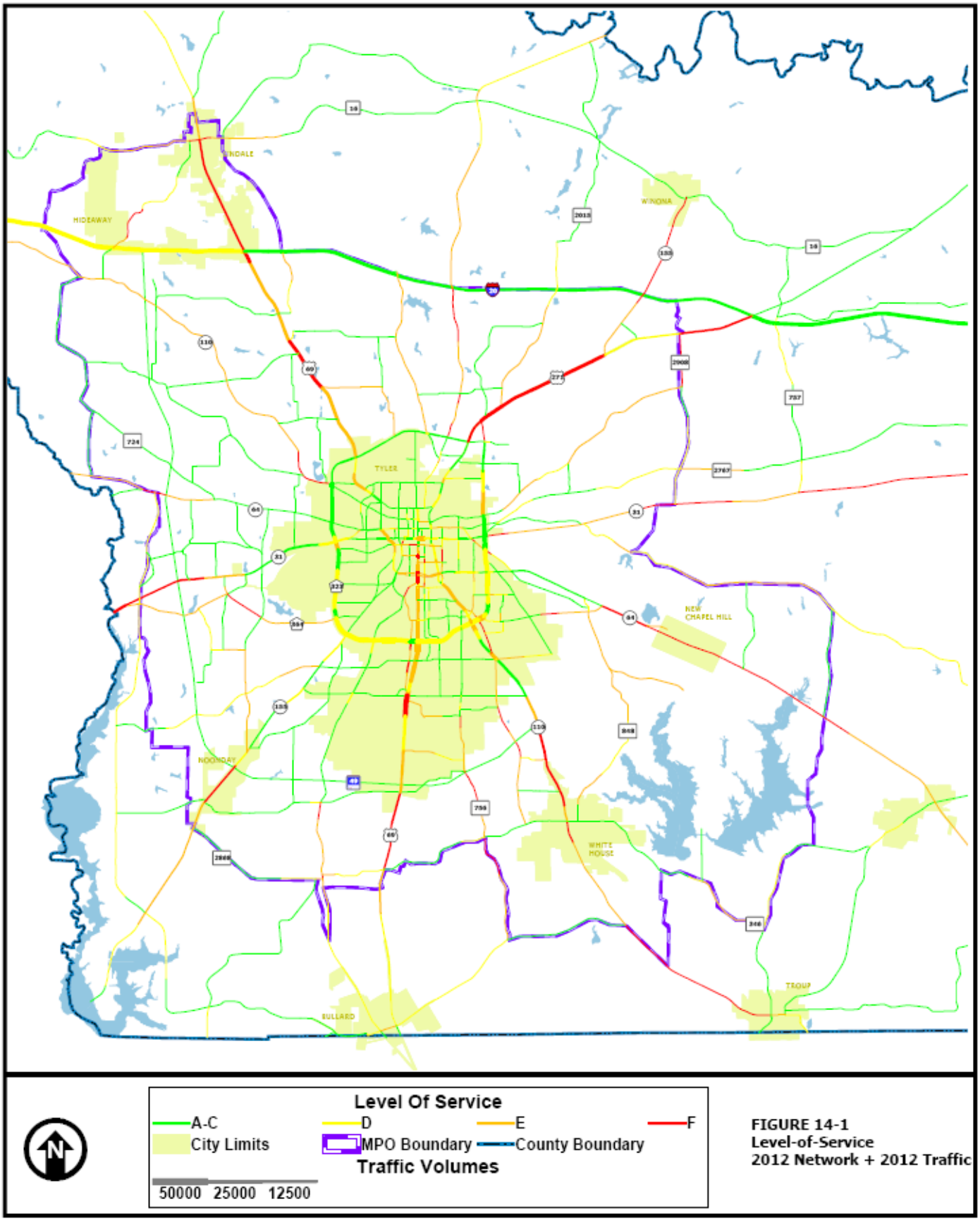


FIGURE 14-1
Level-of-Service
2012 Network + 2012 Traffic

State Sponsored Short-Range Projects

The short-term improvement program includes three mobility projects involving widening roadways to 4-lane typical sections. The recommended short-term program is identified in **Table 14-1** and depicted in **Figure 14-2**.

TABLE 14-1 STATE SPONSORED SHORT-TERM IMPROVEMENTS

ID	Project Location	From Limits	To Limits	Project Description	Estimated Construction Cost (in $)	Estimated Engineering Cost (in $)	Estimated ROW Cost (in $)	Estimated Total Project Cost (in $)
Mobility Improvements								
SNM-26	Loop 323	Bellwood	SH 31 W	Widen to 6 lanes with RR Underpass	$7,000,000	$500,000	$300,000	$7,800,000
LM-D6	FM 2493	FM 2813	FM 346	Reconstruct to a 4-lane urban arterial with CLT	$6,500,000	$975,000	$1,300,000	$8,775,000
LM-B2	Spur 248	Old Omen Road	SH 64 East	Upgrade to a 4-lane divided principal arterial	$8,000,000	$900,000	$1,500,000	$10,400,000
TOTAL MOBILITY IMPROVEMENTS								- **$26,975,000**
Non Mobility Improvements								
SNM-43	Category 8 - Safety							$11,500,000
SNM - 44	Category 9 - Enhancement							$650,000
SNM-45	Category 10 - Miscellaneous							$0
SNM-46	Category 11 - District Discretionary							$0
TOTAL NON MOBILITY IMPROVEMENTS								**$12,150,000**
Maintain It								
SM-47	Category 1 - Preventive Maintenance							$38,000,000
SM-48	Category 6 - Structures Replacement/Rehabilitation							$2,000,000
TOTAL MAINTAIN IT								**$40,000,000**

The three mobility projects identified use approximately all of the identified funding for the short-term period.

A total of $12 million is set aside for short-term non-capacity improvement projects that could be funded by Category 8 – Safety or Category 9 – Enhancement. Non-capacity improvements funded by these categories are not individually listed in this plan. No funding was designated for Categories 10 (Miscellaneous) and 11 (District Discretionary).

The Maintain It categories (1 and 6) include $40 million for preventive maintenance, structures replacement, and rehabilitation. Like non-capacity improvements, maintenance project are not individually listed in this plan.

In addition, to the projects and funding discussed above, the state will contribute roughly $53 million towards the completion of Loop 49 Segments 3a and 5. The limits of Segment 3a are from SH 155 to SH 31, while Segment 5 extends east from FM 756 to SH 110.

NET RMA Sponsored Short-Range Projects

The NET RMA plans to fund the construction of Loop 49 Segments 3b and 4. The limits of Segment 3b are from SH 31 to IH 20. At IH 20, Segment 4 begins and continues north to US 69. The projects are projected to cost roughly $110 million. Funding will be generated through the sell of bonds and from toll revenues collected from the other completed segments.

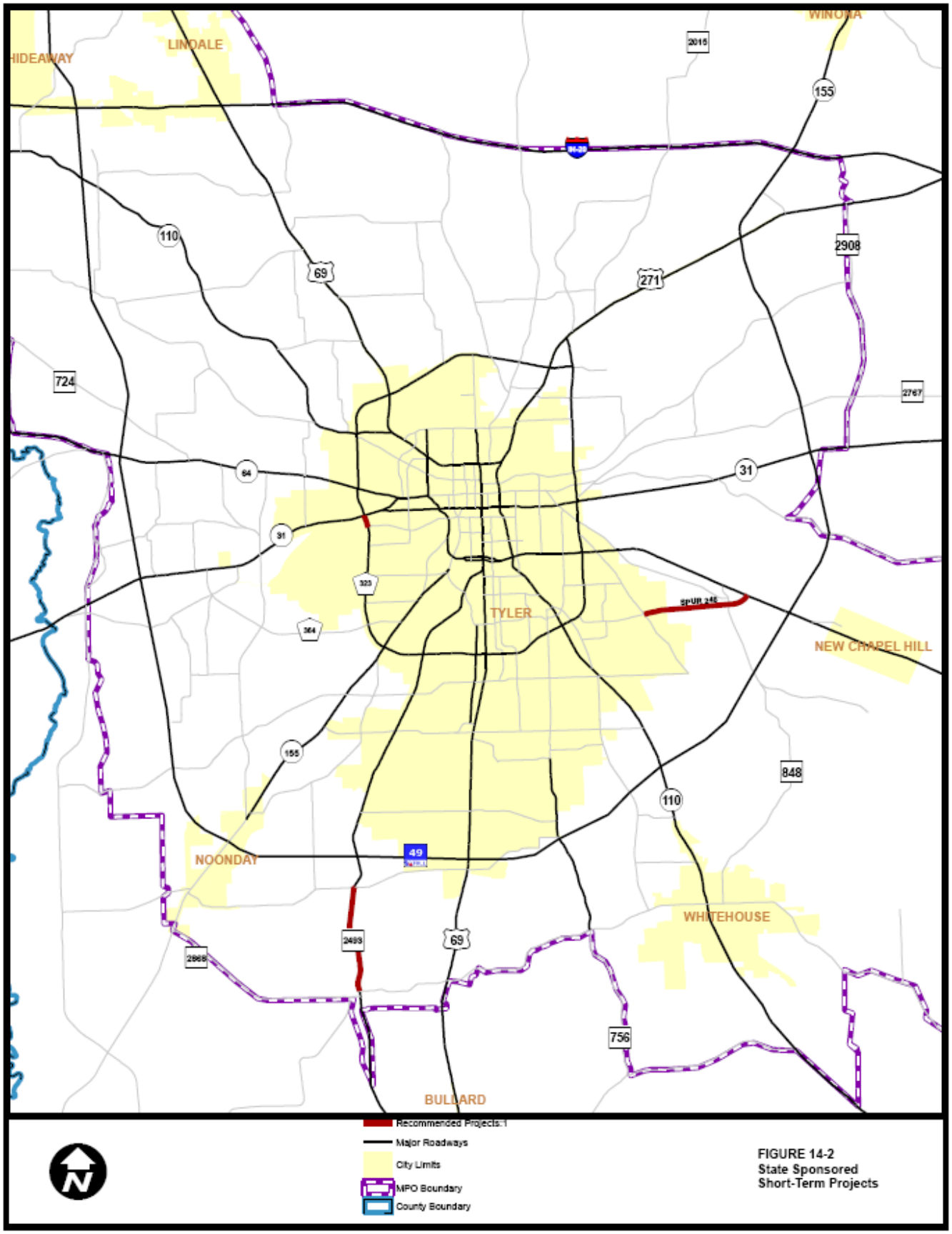


FIGURE 14-2
State Sponsored
Short-Term Projects

Local Sponsored Short-Range Projects

All of the local improvements in the short-term are either roadway extensions or widening projects. Eleven local projects have been identified with costs totaling approximately $90 million (**Table 14-2**). The priority of these projects was not established by this MTP Update. Rather the One-Half Cent Sales Tax Committee, created by the City of Tyler, provided the project listing and related costs.

Note the costs for the Cumberland Road extension only account for the amount that being funded by the City of Tyler. The actual construction cost is higher because a private developer plans to fund two of the four travel lanes.

Also note the Rice Road project is only partially funded by short-term funding. The project's total costs exceed $20 million. The City of Tyler plans to use $10.9 million of short-term funds towards its costs and complete the project with long-term funding.

TABLE 14-2 LOCAL SPONSORED SHORT-TERM IMPROVEMENTS

ID	Project Location	From Limits	To Limits	Project Description	Estimated Construction Cost (in $)	Estimated Engineering Costs (in $)	Estimated Utility Cost (in $)	Estimated Total Project Cost (in $)
LS-47	Lake Placid Rd	Old J'ville Hwy	SH 155	Widen to 4-lane with bike, raised median				$ 7,451,495
LS-20	Towne Park	Loop 323	SH 155	Construct new location, 4-lane with bike, raised median				$ 4,069,102
LS-21	New Sunnybrook Drive	SH 155	Loop 323	Construct new location, 4-lane with bike, raised median				$ 16,547,712
LS-49	Cumberland Rd	Broadway Ave	Old J'ville Hwy	Construct new location, 4-lane	$ 21,087,000	$ 3,907,000	$ 341,000	$ 25,335,000
LS-33	Shiloh Rd	Rhones Quarter Rd	Copeland Rd	Widen to a 4-lane minor arterial with CTL	$ 13,510,000	$ 1,960,000	$ 1,958,000	$ 17,428,000
LS-50	W Erwin Street at Glenwood	--	--	Widen intersection to eliminate split phase operations	$ 342,000	$ 72,000	$ 88,000	$ 502,000
LU-A4	Roy Road	Paluxy Dr	Rhones Quarter Rd	Widen to 2-lane major collector with CTL	$ 5,597,000	$ 930,000	$ 1,842,000	$ 8,369,000
LS-17	* Rice Road	Old Bullard Rd	Old J'ville Hwy	Widen to 4-lane minor arterial with CTL	$ 15,732,000	$ 1,810,000	$ 2,486,000	$ 10,919,000 ($20,028,000)
TOTAL								**$ 90,621,309**

* Partial funded by the Short-term funding. Reminder funded from Long-term funds

State Sponsored Long-Range Projects

Using the project prioritization method described in Chapter 13, recommended transportation improvements for the long-term time horizon were developed. The long-term improvement program (2020-2034) involves widening several roadways from two to four lanes and one roadway from a four-lane facility to six lanes.

The recommended long-term program is identified in **Table 14-3** and long-term, state projects are shown in **Figure 14-3**. **Figure 14-4** displays LOS in the Year 2035 with the implementation of the long-term projects.

TABLE 14-3 STATE SPONSORED LONG-TERM IMPROVEMENTS

ID	Project Location	From Limits	To Limits	Project Description	Estimated Construction Cost (in $)	Estimated Engineering Cost (in $)	Estimated ROW Cost (in $)	Estimated Total Project Cost (in $)
Mobility Improvements								
SU-1	FM 14	MLK Jr, Blvd	Loop 323 East	Widen to 4-lane minor arterial with CLT	$4,500,000	$675,000	$900,000	$6,075,000
SM-C9	FM 756 (Paluxy)	Jeff Davis Drive	FM 346	Upgrade to a 4-lane principal arterial	$6,500,000	$850,000	$1,400,000	$8,750,000
LM-C12	SH 31, East	Loop 323, East	FM 850	Widen to a 4-lane divided principal arterial	$13,500,000	$1,000,000	$3,600,000	$18,100,000
SU-A3	SH 110	5th Street	Golden Road	Widen from 4 to 6-lane divided principal arterial	$3,000,000	$450,000	$1,200,000	$4,650,000
SU-C8	FM 16	US 69	2.4 mi E of US 69	Widen from 2 to 4 lanes	$7,200,000	$1,080,000	$2,880,000	$11,160,000
TOTAL MOBILITY IMPROVEMENTS								**$48,735,000**
Non Mobility Improvements								
LNM-49	Category 8 - Safety							$17,300,000
LNM - 50	Category 9 - Enhancement							$975,000
LNM-51	Category 10 - Miscellaneous							$0
LNM-52	Category 11 - District Discretionary							$0
TOTAL NON MOBILITY IMPROVEMENTS								**$18,275,000**
Maintain It								
LM-53	Category 1 - Preventive Maintenance							$56,000,000
LM-54	Category 6 - Structures Replacement/Rehabilitation							$4,000,000
TOTAL MAINTAIN IT								**$60,000,000**

The five mobility projects identified use approximately $48.7 million of the $54 million available in long-term funding. There is approximately $5 million remaining in mobility funding that was not spent by the long-term project lists. Although it is a sizable amount of remaining funds, it can not completely fund the next project from the state's prioritized project list in Chapter 13.

A total $18 million is set aside for long-term non-capacity improvement projects that could be funded by Category 8 – Safety or Category 9 – Enhancement. Non-capacity improvements funded by these categories are not individually listed in this plan. No funding was designated for Categories 10 (Miscellaneous) and 11 (District Discretionary).

The Maintain It categories (1 and 6) include $60 million for preventive maintenance, structures replacement, and rehabilitation. Like non-capacity improvements, maintenance project are not individually listed in this plan.

NET RMA Sponsored Long-Range Projects

The NET RMA plans to fund the construction of Loop 49 Segment 6. The limits of Segment 6 are from SH 110 to US 271/SH155 North. The project is projected to cost roughly $85 million. Funding will be generated through the sale of bonds and from toll revenues collected from the other completed segments.

Local Sponsored Long-Range Projects

Local projects that were not identified in the short-term plan are considered illustrative projects. The City of Tyler has allocated funding for the long-term strategy but is unsure which projects will be a priority. Therefore, some of the projects from the illustrative list may eventually be brought forward and funded during the 2020-2034 timeframe.

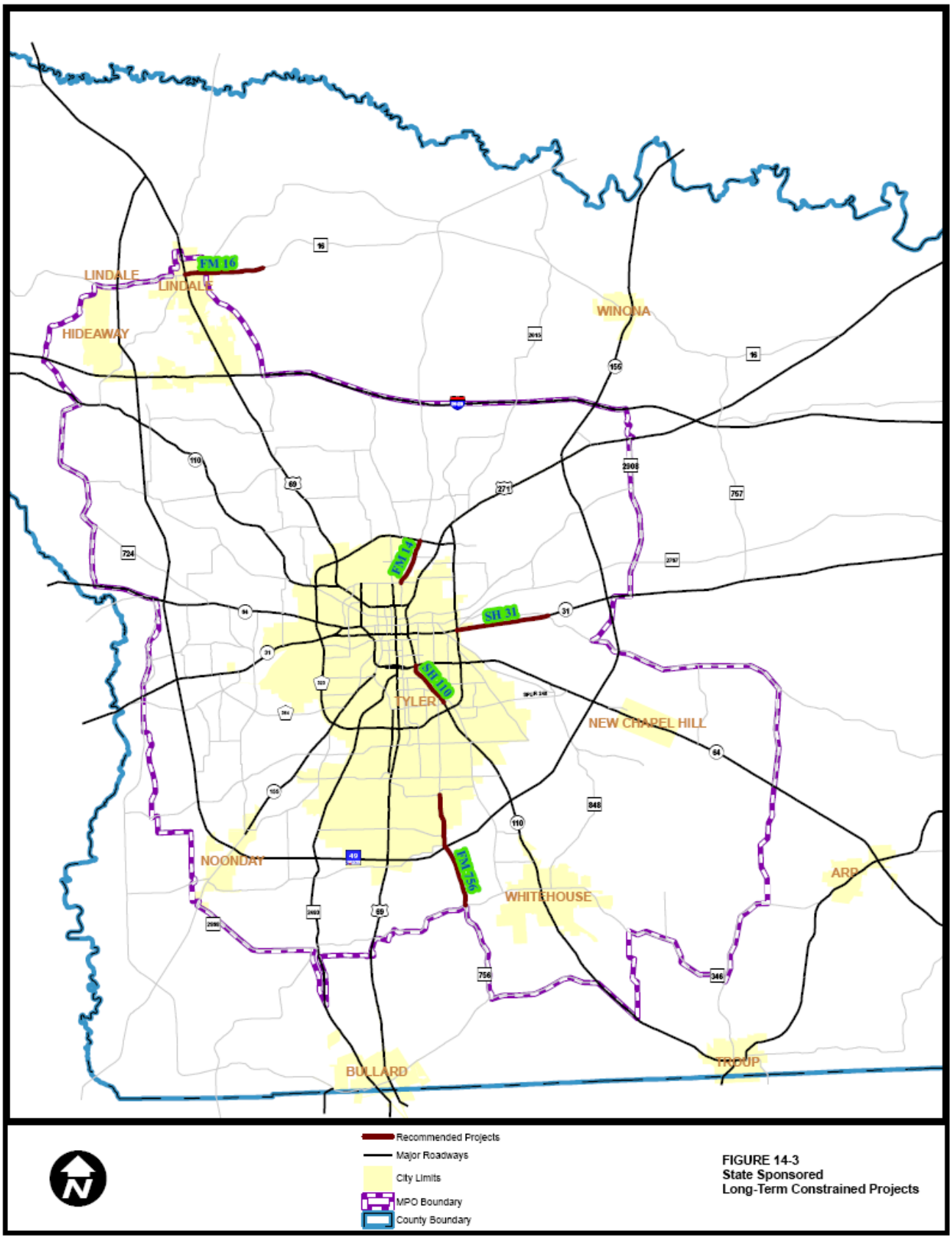


FIGURE 14-3
State Sponsored
Long-Term Constrained Projects

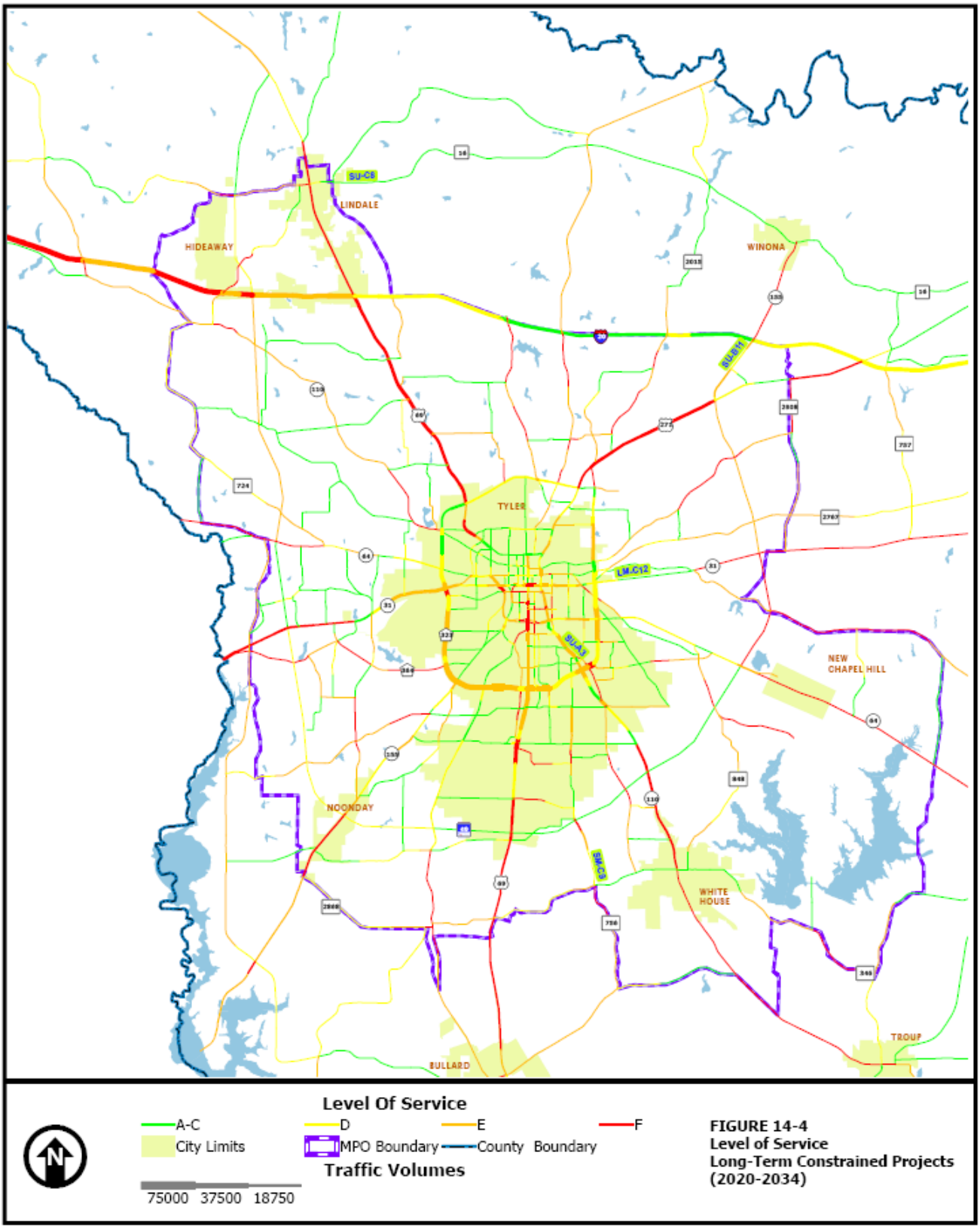


FIGURE 14-4
Level of Service
Long-Term Constrained Projects
(2020-2034)

State and Local Illustrative Projects

This plan includes a listed of illustrative projects which may eventually be included in the long-range plan if 'reasonable additional resources' become available.

As show in **Table 14-4**, 27 projects on the state system, totaling $652 million have been identified as illustrative projects. Several of these projects extend outside of the MPO boundary and are included in the plan as they may eventually be part of the Tyler Area MPO in the future.

Thirty-six (36) local projects have been identified as illustrative improvements in **Table 14-5**. These projects have a total costs near $184 million. Potentially the projects could be funded and constructed by individual cities or through joint venues. With a joint venue two or more parties share the total project costs at an agreed upon percentage. This approach is ideal when the benefits of constructing the project are equally shared between all parties. Such partnerships could be between neighboring cities or between a city and private developer.

Public Transportation Projects

According to the funding presented in Chapter 12, Tyler Transit projects $29.3 million will be available for short-term projects and $67.5 million for long-term projects. Operating and capital expenditures are expected to equal $26.4 million in the short-term strategy and $66.6 million in the long-term plan as shown in **Table 14-6**.

Currently Tyler Transit is developing a Strategic Plan to determine future projects. Sponsored by the Tyler MPO, the study's goal is to develop a practical public transportation service expansion plan that is financially feasible and sustainable. Potential projects that may eventually be implemented if additional resources become available are shown in **Table 14-7**.

TABLE 14-4 STATE ILLUSTRATIVE IMPROVEMENTS

ID	Project Location	From Limits	To Limits	Project Description	Estimated Construction Cost (in $)	Estimated Engineering Costs (in $)	Estimated ROW Cost (in $)	Estimated Total Project Cost (in $)
LM-D6-2	FM 2493	FM 346	FM 344	Reconstruct to a 4-lane urban arterial with CLT	$ 14,500,000	$ 2,175,000	$ 5,800,000	$ 22,475,000
SU-A8	US 69, North	Loop 323	IH 20, West	Widen from 4 to 6-lane divided principal arterial	$ 14,000,000	$ 2,100,000	$ 2,800,000	$ 18,900,000
SU-B11	SH 155, North	US 271 North	IH 20, East	Widen to a 4 lane principal arterial	$ 6,000,000	$ 900,000	$ 1,200,000	$ 8,100,000
SU-6	SH 110 (North)	FM 849	IH 20	Widen from 2 to 4 lanes	$ 10,500,000	$ 1,575,000	$ 2,100,000	$ 14,175,000
LM-A11	SH 64, West	FM 724	FM 2661	Widen to a 4-lane divided principal arterial	$ 8,000,000	$ 1,200,000	$ 800,000	$ 10,000,000
LM-C10	SH 31, West	FM 206	FM 2661	Widen from 4 to 6 lanes	$ 6,000,000	$ 900,000	$ 600,000	$ 7,500,000
LM-32	Loop 323 Extension	Loop 323 Northeast	US 271	Widen to a 4-lane divided arterial	$ 3,000,000	$ 450,000	$ 600,000	$ 4,050,000
LM-34	Spur 364	Loop 323	SH 31, West	Widen from 2 (or 3) to 4 lanes	$ 16,000,000	$ 1,200,000	$ 2,000,000	$ 19,200,000
SU-7	SH 110 (North)	Loop 323	FM 2016	Widen from 2 to 4 lanes	$ 9,000,000	$ 1,350,000	$ 1,800,000	$ 12,150,000
SU-5	SH 64, West	FM 2661	County Line	Widen to a 4-lane divided principal arterial	$ 12,000,000	$ 1,800,000	$ 1,200,000	$ 15,000,000
LM-C7	FM 16	US 69	Loop 49	Widen from 2 to 4-lane divided minor arterial	$ 6,000,000	$ 900,000	$ 2,400,000	$ 9,300,000
SU-2	SH 31, East	FM 850	County Line	Widen to a 4-lane divided principal arterial	$ 56,000,000	$ 8,400,000	$ 5,600,000	$ 70,000,000
SU-3	SH 31, West	FM 2661	County Line	Widen from 4 to 6 lanes	$ 6,000,000	$ 900,000	$ 600,000	$ 7,500,000
LM-A12	SH 64, East	CR 220, East	FM 3226	Widen to a 4-lane divided principal arterial	$ 9,000,000	$ 1,350,000	$ 900,000	$ 11,250,000
SU-8	SH 110 (North)	FM 2016	FM 849	Widen from 2 to 4 lanes	$ 21,000,000	$ 3,150,000	$ 2,100,000	$ 26,250,000
SU-A10	SH 110	Hagan Road	Troup City.Limits	Widen to a 4-lane divided principal arterial	$ 21,000,000	$ 3,150,000	$ 2,100,000	$ 26,250,000
SU-A1	US 271	Loop 323	IH 20, East	Widen from 4 to 6-lane divided principal arterial	$ 18,000,000	$ 2,700,000	$ 1,800,000	$ 22,500,000
SU-9	IH 20	SH 110	US 271	Widen from 4 to 6 lanes	$161,000,000	$ 24,150,000	$ 16,100,000	$201,250,000
LM-A9	IH 20 Frontage Roads	Loop 49	CR 431	Add frontage roads to interstate	$ 6,000,000	$ 900,000	$ 600,000	$ 7,500,000
SM-27	FM 346 at US 69	--	--	Intersection Improvements	$ 8,600,000	$ 350,000	$ 1,200,000	$ 10,150,000
LM-C11	FM 14	Loop 323 North	IH 20	Widen to a 4-lane minor arterial with CLT	$ 18,000,000	$ 950,000	$ 1,250,000	$ 20,200,000
SU-B11-2	SH 155, North	IH 20 East	County Line	Widen to a 4-lane principal arterial	$ 34,000,000	$ 5,100,000	$ 3,400,000	$ 42,500,000
SU-4	SH 64, East	FM 3226	County Line	Widen to a 4-lane divided principal arterial	$ 49,200,000	$ 7,380,000	$ 4,920,000	$ 61,500,000
SU-B9	Airport Spur	Loop 49 West	Tyler Airport	Construct new 2-lane spur to regional airport	$ 4,000,000	$ 600,000	$ 400,000	$ 5,000,000
TOTAL								**$652,700,000**

TABLE 14-5 LOCAL ILLUSTRATIVE IMPROVEMENTS

ID	Project Location	From Limits	To Limits	Project Description	Estimated Construction Cost (in $)	Estimated Engineering Costs (in $)	Estimated Utility Cost (in $)	Estimated Total Project Cost (in $)
LS-31	Shiloh Road	SH 110	Old Omen Road	Upgrade to a 4-lane divided arterial	$ 17,958,000	$ 2,694,000	$ 416,000	$ 21,068,000
LU-38	Cumberland Rd	Broadway Ave	Paluxy Drive	Widen to 4-lane minor arterial with CTL	$ 13,541,000	$ 1,510,000	$ 1,586,000	$ 16,637,000
LU-B10	W Erwin Street	Bonner Ave	Glenwood Blvd	Widen to a 4-lane minor arterial	$ 4,849,000	$ 701,000	$ 659,000	$ 6,209,000
LU-39	Cambridge Road	Broadway Ave	Jeff Davis Drive	Widen to 2-lane major collector with CTL	$ 4,671,000	$ 625,000	$ 1,248,000	$ 6,544,000
LU-40	Copeland Rd	Grande Blvd	Jeff Davis Drive	Construct new location, 4-lane minor arterial	$ 4,953,000	$ 743,000	$ -	$ 5,696,000
LU-41	Crow Road	SH 155	Old J'ville Hwy	Widen to 2-lane major collector with CTL	$ 2,298,000	$ 288,000	$ 1,000	$ 2,587,000
LU-42	Porter Street	Front Street	Devine	Widen to 2-lane major collector with CTL	$ 1,803,000	$ 246,000	$ 165,000	$ 2,214,000
LU-43	Old Henderson	E. Front Street	E. Erwin Street	Widen to 4-lane minor arterial with CTL	$ 2,251,000	$ 325,000	$ 251,000	$ 2,827,000
LU-44	N. Broadway Ave	Blackfork Creek	N. Loop 323	Widen to 4-lane minor arterial with CTL	$ 19,632,000	$ 540,000	$ -	$ 20,172,000
LU-45	Lyons Ave	W. Front Street	W. Erwin Street	Widen to 4-lane minor arterial with CTL	$ 1,708,000	$ 248,000	$ 71,000	$ 2,027,000
LU-46	Fleishel Ave	E. Houston Street	E. Front Street	Widen to 2-lane major collector with CTL	$ 590,000	$ 98,000	$ 192,000	$ 880,000
LU-47	Elm Street	Beckham Ave	Saunders	Widen to 2-lane major collector with CTL	$ 556,000	$ 74,000	$ 31,000	$ 661,000
LU-48	E. Erwin Street	Spring Street	Beckham Ave	Widen to 4-lane minor arterial with CTL	$ 1,885,000	$ 290,000	$ 331,000	$ 2,506,000
LU-49	E. Erwin Street	Beckham Ave	E. Loop 323	Widen to 4-lane minor arterial with CTL	$ 8,036,000	$ 1,194,000	$ 1,414,000	$ 10,644,000
LU-50	Copeland Rd	Old Troup Hwy	Shiloh Road	Widen to 2-lane major collector with CTL	$ 3,266,000	$ 652,000	$ 1,648,000	$ 5,566,000
LU-51	Dawson Street	Clinic Drive	Fleishel Drive	Widen to 2-lane major collector with CTL	$ 379,000	$ 60,000	$ 98,000	$ 537,000
LS-17	* Rice Road	SH 155	Old J'ville Hwy	New location, 4-lane minor arterial with CTL	$ 15,732,000	$ 1,810,000	$ 2,486,000	$ 9,109,000
LS-18	Donnybrook Avenue	Shiloh Road	Rieck Road	Widen from 32 to 40 ft urban street	$ 1,560,000	$ 234,000	$ 156,000	$ 1,950,000
LS-24	Bellwood Lake Drive	Bellwood Lake Drive	Briarwood Road	Extend road as a 2-lane collector	$ 1,680,000	$ 252,000	$ 168,000	$ 2,100,000
LS-25	Charlotte Drive	Van Highway	Loop 323 Northwest	Widen to a 2-lane collector with CTL	$ 1,344,000	$ 201,600	$ 134,400	$ 1,680,000
LS-B4	Grande Blvd	SH 155	Loop 49	Extend 4-lane divided minor arterial and add an interchange at Loop 49	$ 6,000,000	$ 900,000	$ 600,000	$ 7,500,000
LS-C2	Grande, Phase III	SH 110	Old Omen Road	Extend road as a 4-lane minor arterial with CTL	$ 5,780,000	$ 867,000	$ 578,000	$ 7,225,000
LS-C3	New Omen Road	Shiloh Road	Grande Boulevard	Extend road as a 4-lane divided minor arterial	$ 1,740,000	$ 261,000	$ 174,000	$ 2,175,000
LU-35	North Whitehouse Arterial	South Point Road	SH 110	Extend road as a 2-lane minor arterial	$ 2,964,000	$ 444,600	$ 296,400	$ 3,705,000
LU-36	East-West Whitehouse Arterial	FM 346	East-West Whitehouse Arterial	(Phase 1) Upgrade county roads to a 2-lane minor arterial with CTL	$ 2,484,000	$ 372,600	$ 248,400	$ 3,105,000
LU-37	East-West Whitehouse Arterial	FM 346 West	Includes Wildwood, Fowler, Dudley Rds	(Phase 2) Extend road as a 2-lane minor arterial	$ 1,992,000	$ 298,800	$ 199,200	$ 2,490,000
LU-A6	Big Eddy Road	SH 155	FM 2661	Extend 2-lane minor arterial and merge with Big Eddy Rd to FM 2661	$ 3,468,000	$ 520,200	$ 346,800	$ 4,335,000
LU-A7	Big Eddy Road	FM 2868	SH 155 / CR 168	Upgrade east portion to a minor arterial	$ 720,000	$ 108,000	$ 72,000	$ 900,000
LU-B5	Bellwood Road	Bellwood	SH 31 / Pioneer Drive	Extend road as a 2-lane collector	$ 2,652,000	$ 397,800	$ 265,200	$ 3,315,000
LU-B6	Indian Creek Road	South of Spur 364	Lake Placid Road	Extend road as a 2-lane collector	$ 2,736,000	$ 410,400	$ 273,600	$ 3,420,000
LU-B7	CR 493 / CR 4196	US 69, North	CR 431	Add roads as a 2-lane collector	$ 2,064,000	$ 309,600	$ 206,400	$ 2,580,000
LU-B8	Jim Hogg Road	IH 20	FM 16	Widen to a 4-lane minor arterial	$ 4,884,000	$ 732,600	$ 488,400	$ 6,105,000
LU-C6	Lake Placid Extension	SH 155	CR 1141	Extend road as 2-lane collector	$ 4,656,000	$ 698,400	$ 465,600	$ 5,820,000
LU-38	Grande Boulevard	Loop 49	FM 2661	Extend 4-lane divided minor arterial	$ 4,800,000	$ 720,000	$ 480,000	$ 6,000,000
LU-52	Sunnybrook Ave	Loop 323, West	SH 31, West	Construct new location, 4 lanes	$ 7,000,000	$ 1,050,000	$ 700,000	$ 8,750,000
LU-53	Copeland Rd	Jeff Davis Drive	Cumberland Rd	Construct new location, 4 lanes	$ 3,000,000	$ 450,000	$ 300,000	$ 3,750,000
LU-54	Grande Blvd	Old Grande	Old J'ville Hwy	Widen to a 4-lane divided principal arterial with CTL	$ 4,500,000	$ 675,000	$ 450,000	$ 5,625,000
TOTAL								**$198,414,000**

* Partial funded by the Short-term funding. Reminder funded from Long-term funds

TABLE 14-6 PROJECTED TRANSIT EXPENSES

Project ID	Year	Capital ADA 5307	Capital Planning 5307	Capital Security 5307	Capital 5307	Capital PM 5310	JARC 5316	New Freedom 5317	Operation 5307	Annual Total
SR-PT3	2010	$ 112,961	$ 20,000	$ 10,000	$ 613,837	$ 137,260	$ 142,557	$ 520,521	$ 952,564	$ 2,509,699
SR-PT4	2011	$ 115,220	$ 20,000	$ 10,000	$ 626,112	$ 137,260	$ 142,557	$ 520,521	$ 912,640	$ 2,484,309
SR-PT5	2012	$ 115,220	$ 20,000	$ 10,000	$ 657,418	$ 142,750	$ 132,562	$ 357,858	$ 949,146	$ 2,384,954
SR-PT6	2013	$ 115,220	$ 20,000	$ 10,000	$ 690,288	$ 148,460	$ 132,562	$ 357,858	$ 987,111	$ 2,461,500
SR-PT7	2014	$ 115,220	$ 20,000	$ 10,000	$ 724,803	$ 154,399	$ 132,562	$ 357,858	$ 1,026,596	$ 2,541,438
SR-PT8	2015	$ 115,220	$ 20,000	$ 10,000	$ 761,043	$ 160,575	$ 132,562	$ 357,858	$ 1,067,660	$ 2,624,918
SR-PT9	2016	$ 117,520	$ 20,000	$ 10,000	$ 799,095	$ 166,998	$ 132,562	$ 357,858	$ 1,110,366	$ 2,714,399
SR-PT10	2017	$ 117,520	$ 20,000	$ 10,000	$ 839,050	$ 173,678	$ 132,562	$ 357,858	$ 1,154,781	$ 2,805,448
SR-PT11	2018	$ 117,520	$ 20,000	$ 10,000	$ 881,002	$ 180,625	$ 132,562	$ 357,858	$ 1,200,972	$ 2,900,539
SR-PT12	2019	$ 117,520	$ 20,000	$ 10,000	$ 925,053	$ 187,850	$ 132,562	$ 357,858	$ 1,249,011	$ 2,999,853
LR-PT1	2020	$ 117,520	$ 25,000	$ 15,000	$ 962,055	$ 193,485	$ 134,561	$ 390,390	$ 1,614,296	$ 3,452,307
LR-PT2	2021	$ 117,520	$ 25,000	$ 15,000	$ 990,916	$ 199,290	$ 134,561	$ 390,390	$ 1,695,011	$ 3,567,688
LR-PT3	2022	$ 119,870	$ 25,000	$ 15,000	$ 1,020,644	$ 205,269	$ 134,561	$ 390,390	$ 1,779,761	$ 3,690,495
LR-PT4	2023	$ 119,870	$ 25,000	$ 15,000	$ 1,051,263	$ 211,427	$ 134,561	$ 390,390	$ 1,868,749	$ 3,816,260
LR-PT5	2024	$ 119,870	$ 25,000	$ 15,000	$ 1,082,801	$ 217,769	$ 134,561	$ 390,390	$ 1,962,187	$ 3,947,578
LR-PT6	2025	$ 119,870	$ 25,000	$ 15,000	$ 1,115,285	$ 224,302	$ 134,561	$ 390,390	$ 2,060,296	$ 4,084,705
LR-PT7	2026	$ 119,870	$ 25,000	$ 15,000	$ 1,148,744	$ 231,032	$ 134,561	$ 390,390	$ 2,163,311	$ 4,227,907
LR-PT8	2027	$ 122,270	$ 25,000	$ 15,000	$ 1,183,206	$ 237,962	$ 134,561	$ 390,390	$ 2,271,477	$ 4,379,866
LR-PT9	2028	$ 122,270	$ 25,000	$ 15,000	$ 1,218,702	$ 245,101	$ 134,561	$ 390,390	$ 2,385,050	$ 4,536,075
LR-PT10	2029	$ 122,270	$ 25,000	$ 15,000	$ 1,255,263	$ 252,454	$ 134,561	$ 390,390	$ 2,504,303	$ 4,699,241
LR-PT11	2030	$ 122,270	$ 25,000	$ 15,000	$ 1,292,921	$ 260,028	$ 134,561	$ 390,390	$ 2,629,518	$ 4,869,688
LR-PT12	2031	$ 122,270	$ 25,000	$ 15,000	$ 1,331,709	$ 267,829	$ 134,561	$ 390,390	$ 2,760,994	$ 5,047,753
LR-PT13	2032	$ 124,720	$ 25,000	$ 15,000	$ 1,371,660	$ 275,864	$ 134,561	$ 390,390	$ 2,899,044	$ 5,236,238
LR-PT14	2033	$ 124,720	$ 25,000	$ 15,000	$ 1,412,810	$ 284,140	$ 134,561	$ 390,390	$ 3,043,996	$ 5,430,616
LR-PT15	2034	$ 124,720	$ 25,000	$ 15,000	$ 1,455,194	$ 292,664	$ 134,561	$ 390,390	$ 3,196,196	$ 5,633,725
CATEGORY TOTAL		**$2,979,041**	**$575,000**	**$325,000**	**$25,410,874**	**$5,188,471**	**$3,364,024**	**$ 9,759,755**	**$45,445,035**	**$93,047,200**

TABLE 14-7 ILLUSTRATIVE TRANSIT IMPROVEMENTS

Project Description	Estimated Cost
New Parking Lot for Bus Fleet	$ 100,000
New Transfer Point	$ 15,000,000
New HVAC for Depot	$ 60,000
High Speed Wireless Internet Connection between Depot and City Hall Servers	$ 15,000
Own Maintenance Facility (parking, land acquisition)	$ 19,708,000
Own Fueling Facility	$ 100,000
Multimodal Center / Office	$ 20,000
AVL Fixed Routes	$ 50,000
Annunciator FR	$ 20,000
Passenger Counter, Fixed Route	$ 10,000
Bus Stop Lighting	$ 10,000
Next Bus Technology	$ 50,000
Bus Stop Shelter, more	$ 150,000
Bus Security System, cameras	$ 50,000
Office Security System	$ 15,000
Increase # of ParaTransits	$ 250,000
Increase # of Fixed Routes	$ 120,000
More Automated Bus Information via Phone Interactive System, IVR	$ 40,000
Trash Can at Bus Stops and Maintenance	$ 30,000
Benches at Stops without Shelters	$ 70,000
Dispatch Radios for GM and Supervisors Office	$ 2,000
Commuter Bus Route to High Speed Rail	$ 60,000
Route Analysis using Planning Dollars every 5 Years	$ 120,000
Total	**$ 36,050,000**