Master Street Plan

PLANNING AND ZONING
COPY

LEAVE IN OFFICE

Prepared for

City of Tyler, Texas

Wilbur Smith and Associates

Master Street Plan

Prepared for

City of Tyler, Texas

Wilbur Smith and Associates

October, 1985

Wilbur Smith and Associates, Inc.

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CONSULTING ENGINEERS AND PLANNERS

CABLE WILSMITH
TELEX 573439

October 28, 1985

Mr. Gary Gwyn
City Manager
City of Tyler
Post Office Box 2039
Tyler, Texas 75710

Dear Mr. Gwyn:

We are pleased to submit our report, Master Street Plan for Tyler, Texas, in accord with our agreement of July 12, 1984.

The report documents the existing thoroughfare system within the City of Tyler and its extraterritorial jurisdiction, and develops a recommended plan for proposed new streets and improvements to existing streets. The plan recommends both short-range (1985-1990) and long-range improvements to the thoroughfare system. This recommended plan is structured to meet anticipated future thoroughfare system needs as Tyler continues to grow.

We would emphasize the importance of: (1) formal adoption by the City of an official Master Street Plan; (2) vigorous enforcement of the Plan in newly urbanizing areas through subdivision and zoning controls; and, (3) periodic review and updating of the Plan.

We would like to express our appreciation for the assistance provided throughout the study by City staff, particularly Mr. Paul Parker, Director of Planning and Development, and Mr. Bill Ward, Director of Public Services. Appreciation is also expressed for the assistance provided by Mr. Roy Roberson and Mr. Dale Spitz of the State Department of Highways and Public Transportation.

We appreciate the opportunity to undertake this important study.

Respectfully submitted,

WILBUR SMITH AND ASSOCIATES

Merrell E. Goolsby, P.E.
Principal Associate

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"This study was funded under Section 112 of the 1973 Federal Aid Highway Act and prepared in cooperation with the State Department of Highways and Public Transportation, and the U.S. Department of Transportation, Federal Highway Administration. The contents of this report reflect the views of the author who is responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the Federal Highway Administration. This report does not constitute a standard, specification, or regulation. The recommendations in this study are intended as a guideline for use in the orderly development of a system of thoroughfares to serve the study area."

Chapter 1

Introduction

This Master Street Plan provides a framework for rational development of an arterial and collector street network as the City of Tyler continues to grow in population and expand in area. In addition, it identifies improvement needs to existing major streets in developed areas of the City, based upon Year 2000 projected traffic demand.

The plan includes proposed new arterial and collector streets as well as improvements and extensions of existing streets. Approximate alignments are shown for new facilities and should be considered in platting of subdivisions, right-of-way dedication, and construction of major roadways. The plan does not include local streets, which function to provide access to adjacent land.

Population Growth

Over the past 25 years, Tyler experienced a 54 percent increase in population, from 51,230 in 1960 to 79,090 in 1985. In the last decade, the population increased at a rate of approximately 19 percent. The population increased between 1980 and 1985, from 70,508 to 79,090, an increase of 12.2 percent. This indicates that the growth rate of aproximately 23.2 percent for the 1970's can be sustained or surpassed in the 1980's.

Purpose of Implementing a Master Street Plan

The purpose of a master street (thoroughfare) plan is to provide for orderly improvement and expansion of the roadway system at minimum cost as the need for improvements arises. The plan delineates the street network estimated to be needed in the future for the extraterritorial jurisdiction of the City of Tyler.

Implementation of thoroughfare improvements to the existing street network would occur over time as the City grows, and would build toward the recommended plan. The improvements would be constructed by the City of Tyler, developers, Smith County, and State Department of Highways and Public Transportation.

The City of Tyler, Smith County and the State Department of Highways and Public Transportation (SDHPT) can utilize the master street plan in making decisions concerning the planning, coordination and programming of future road improvements. City review of preliminary and final plats for proposed subdivisions should provide consistency with the master street plan. By identifying thoroughfare locations where right-of-way is needed, land owners and developers can consider the roadways in their planning, dedication of rights-of-way, and provision of appropriate set backs for new buildings and utility lines located along the rights-of-way.

Development of the Plan

Preparation of this master street plan for the City of Tyler is part of the on-going transportation planning process of the Tyler Urban Transportation Study, involving the City, Smith County, and the SDHPT, in cooperation with the U.S. Department of Transportation, Federal Highway Administration. The plan was prepared as an element of the 1984 Unified Planning Work Program for Multimodal Transportation Planning, and was funded under Section 112 of the 1973 Federal Aid Highway Act. Professional services for preparation of the plan were provided by Wilbur Smith and Associates, Inc.

Assistance was provided throughout the study by staffs of the involved governmental units and citizens of the City of Tyler. Technical information and data used in the study were provided by the City of Tyler, Smith County and the SDHPT.

Planning Area

Study area for the master street plan development study includes the City of Tyler and its extraterritorial jurisdiction,

as defined in Figure 1. The study area encompasses an area of approximately 254 square miles.

Tyler is located approximately midway between Dallas and Shreveport, Louisiana, and is a regional center for northeast Texas. Tyler's economic base is diversified, including industrial, manufacturing, petroleum, financial, health care, distribution and retail functions.

Characteristics of the study area are varied, ranging from fully developed areas in the City of Tyler to rural agricultural areas. The study area encompasses what may reasonably be expected to be the Tyler urban area of the future.

Previous Area Studies

In preparing the recommended master street plan, existing City and SDHPT data, records, ordinances and a number of previous area studies were reviewed, including:

1. Tyler Urban Transportation Study, Volume 1, Origin-Destination Study, City of Tyler, Smith County, Texas Highway Department, 1964.

2. Tyler Urban Transportation Study, Volume 2, The Plan, City of Tyler, Smith County, Texas Highway Department, 1966.

3. "Tyler Urban Transportation Study, Annual Report" (multiple), 1977, 1980, 1982.

4. "Tyler Urban Transportation Study Interim Report; Street and Highway Development," 1984.

5. City of Tyler Master Plan Revision (multiple volumes), Lockwood, Andrews and Newnam, Inc., and Wisenbaker, Fix and Associates, 1977.

6. Tyler Junior College Campus Master Plan, Page Southerland Page Architects/Engineers, 1984.

7. "Transportation Improvement Program for Tyler Urbanized Area, Fiscal Year 1985," Tyler Urban Transportation Study, undated.

8. "District 10, State Department of Highways and Public Transportation, 14 Month Letting Schedule (September 1984 through October, 1985) and 4 year Letting Schedule (November, 1985 through October, 1989), 1984.

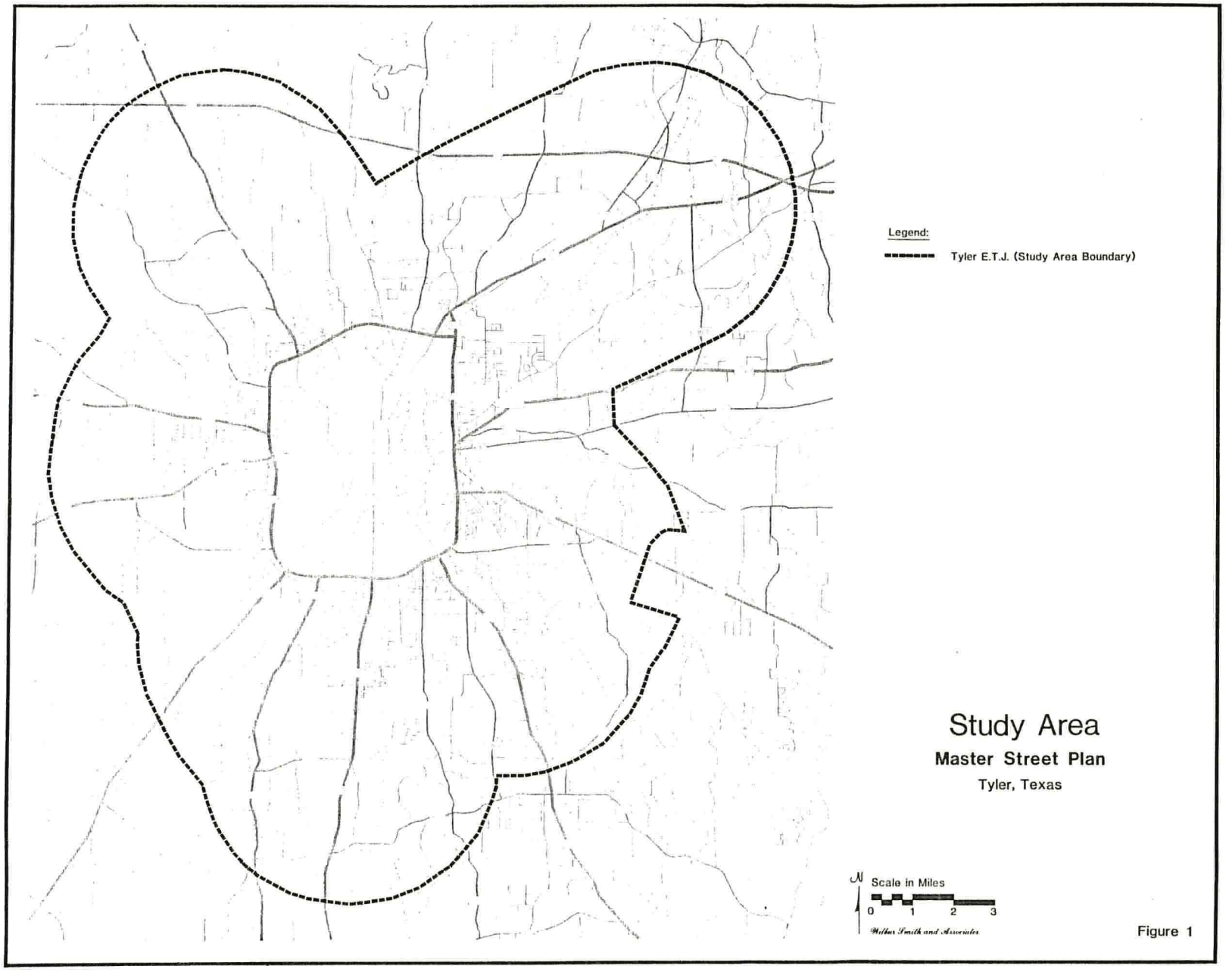
Legend:
Tyler E.T.J. (Study Area Boundary)
Study Area
Master Street Plan
Tyler, Texas
N
Scale in Miles
0 1 2 3
Wilbur Smith and Associates

Figure 1

9. "Capital Improvements Program, Summary of Proposed Programs," 1983-1988, City of Tyler.

10. "Subdivision Ordinance, Tyler, Texas" Draft Revisions, Development Policy Committee, 1984.

11. "Zoning Ordinance, City of Tyler," November 4, 1960, as amended.

12. "Population Projection and Analysis, City of Tyler, Texas," paper by Dale W. Spitz, Texas State Department of Highways and Public Transportation, 1983.

Chapter 2
Existing Street Network

The development of a coordinated thoroughfare plan requires a full understanding of the existing street network. Data defining the current street system and traffic patterns provide a basis for projecting future conditions and needs. Recommendations must be compatible with an orderly and functional transition from the existing system to the future system.

The existing street network provides the beginning point for development of a recommended future network. The existing thoroughfare system of the city acts as a constraint as well as a resource in the planning of future thoroughfares, since alignments, right-of-way and traffic patterns are established. Once a street becomes a thoroughfare, particularly if it is a continuous route over a long distance, its function tends to be permanent. Therefore, the existing major thoroughfare pattern in Tyler can be considered, to a degree, as a "given," upon which the projected future planned network must be built.

It should be recognized that only minor changes in existing alignments of thoroughfares will be possible in the developed portion of Tyler, without incurring inordinate costs and community disruption.

Definition of Street Usage

The determination of existing street usage is the first step in the definition of existing characteristics. The determination of street use, or functional classification, is based upon field reconnaissance, physical characteristics, traffic volumes and travel patterns. The definition of street classification used in this study are those of the National Committee on Urban Transportation

(NCUT) which recommends four categories of street classification as follows:

Freeway or Expressway - This class of facility is devoted entirely to the task of traffic movement and performs little or no land-service function. Thus, it is characterized by a high degree of access control.

Except in rare instances, this classification should be reserved for multi-lane median divided roads with few or no intersections at grade. Expressways provide for movement of large volumes of traffic at relatively high speed, and are primarily intended to serve long trips. Freeways provide the same service as the expressways, but have full control of access, with grade separations at all intersections.

Arterial - This class of street interconnects the principal traffic generators within the city, and important rural routes. They accommodate trips between different areas of the city, and should form a reasonably integrated system.

The length of the typical trip on the arterial system should exceed one mile. Truck and bus routes, as well as state and federal numbered routes, are usually located on the arterials. Commuting and work trips, which tend to be longer than local shopping trips, also concentrate on these routes.

This concentration of through traffic, in most cases, results in the designation of these streets as "through" streets. Arterial streets are usually provided with such traffic aids as progressive traffic signal systems (signals timed to minimize distruption in traffic flow), lane markings, and stop signs for traffic approaching on unsignalized cross-streets.

Although traffic volume cannot be considered a criterion in itself, these routes are generally the most heavily used in the city, and daily traffic volumes usually exceed 5,000 vehicles per day.

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(1) Procedure Manual: Determining Street Use, by National Committee on Urban Transportation, Washington, D.C., 1958.

Arterials mainly serve to move traffic. However, since high traffic volumes tend to attract certain types of land use, they also perform a secondary land-service function. Thus, although abutting property will have access, on-street parking and loading may be restricted, or prohibited altogether, to improve street capacity.

Collector - This class of street serves the internal traffic movement within an area of the city, such as a subdivision or commercial area, and connects this area with the arterial street system. Collector streets are not intended to accommodate long, through trips and are not continuous for any great length.

In gridiron patterns, however, a street several miles in length may be serving as a collector street rather than an arterial street if its predominant use is to travel to the next junction with an arterial street and then turn onto the arterial street.

The principal differences between collector and arterial streets is the length and number of trips they accommodate.

Collectors rarely carry state or federal route designations, although they may connect less important rural routes with the arterial system. Collectors may be used for bus or truck movements to penetrate an area, and give direct service to that area, but they rarely are used for through routes.

In an industrial area, collector streets would properly carry both truck and bus movements which serve or terminate in that area.

The collector street is intended to serve abutting property with the same degree of land service as a local street, while at the same time serving local traffic movements.

This may necessitate a wide roadway--wider than that of many arterials--if the traffic volumes are high, as they would be in the vicinity of the central business district.

Traffic control devices may have been installed to protect or facilitate traffic flow on a collector street, and to give it some priority over adjoining local streets. Where present, these controls normally would not be as extensive as those on arterial streets.

Local Streets - The sole function of local streets is to provide access to immediately adjacent land. Local streets make up

the highest percentage of the total street mileage of the city, but carry a small percentage of the total vehicle-miles of travel.

In and around the central business district, the local streets may carry traffic volumes measured in thousands of vehicles per day, but this is an exception to the normal local street. Local residential streets in most cases would carry daily traffic volumes of less than 1,000 vehicles.

Bus, truck, or highway routes are seldom assigned to local streets, and then only to connect a specific destination with the closest major street. This occurs most often in the central business district.

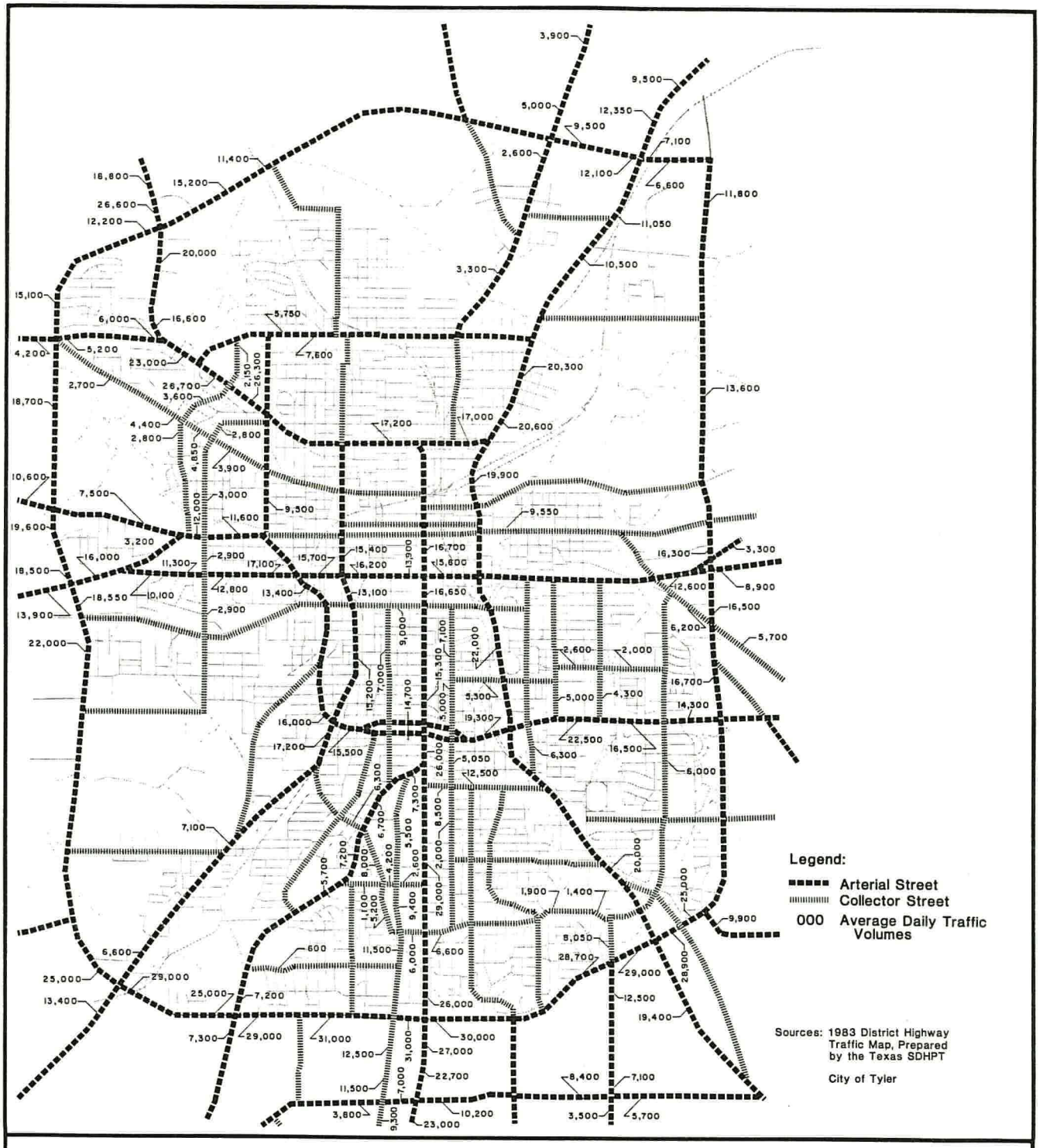
Within the local street classification, there are three subclasses indicating the type of area served: residential, industrial, and business. These more specific designations emphasize different types of service demands placed on these streets.

Functional Classification of Existing Tyler Street System

The street network in the study area was carefully evaluated and a functional classification of freeways, arterials, and collector streets was determined. The functional classification of existing streets is shown in Figures 2A and 2B. The area inside Loop 323 is depicted in Figure 2A, while the remainder of the study area is shown in Figure 2B.

The street network in Tyler presents a challenge in that the local and collector street network generally follows the basic gridiron pattern, while the arterial street network generally follows a radial pattern. The exception is within the central area of Tyler, defined by Gentry Parkway on the north, Fourth Street on the south, Beckham Avenue on the east and Palace-Vine on the west, where the arterial system has a north-south and east-west orientation, and in the developed area of Tyler south of Loop 323, the arterial street system approximates a gridiron pattern.

Interstate Highway 20 - The only existing freeway or expressway in the study area is Interstate Highway 20 (I.H. 20) which traverses the northern portion of the study area in the east-west direction. The primary function of I.H. 20 is to serve

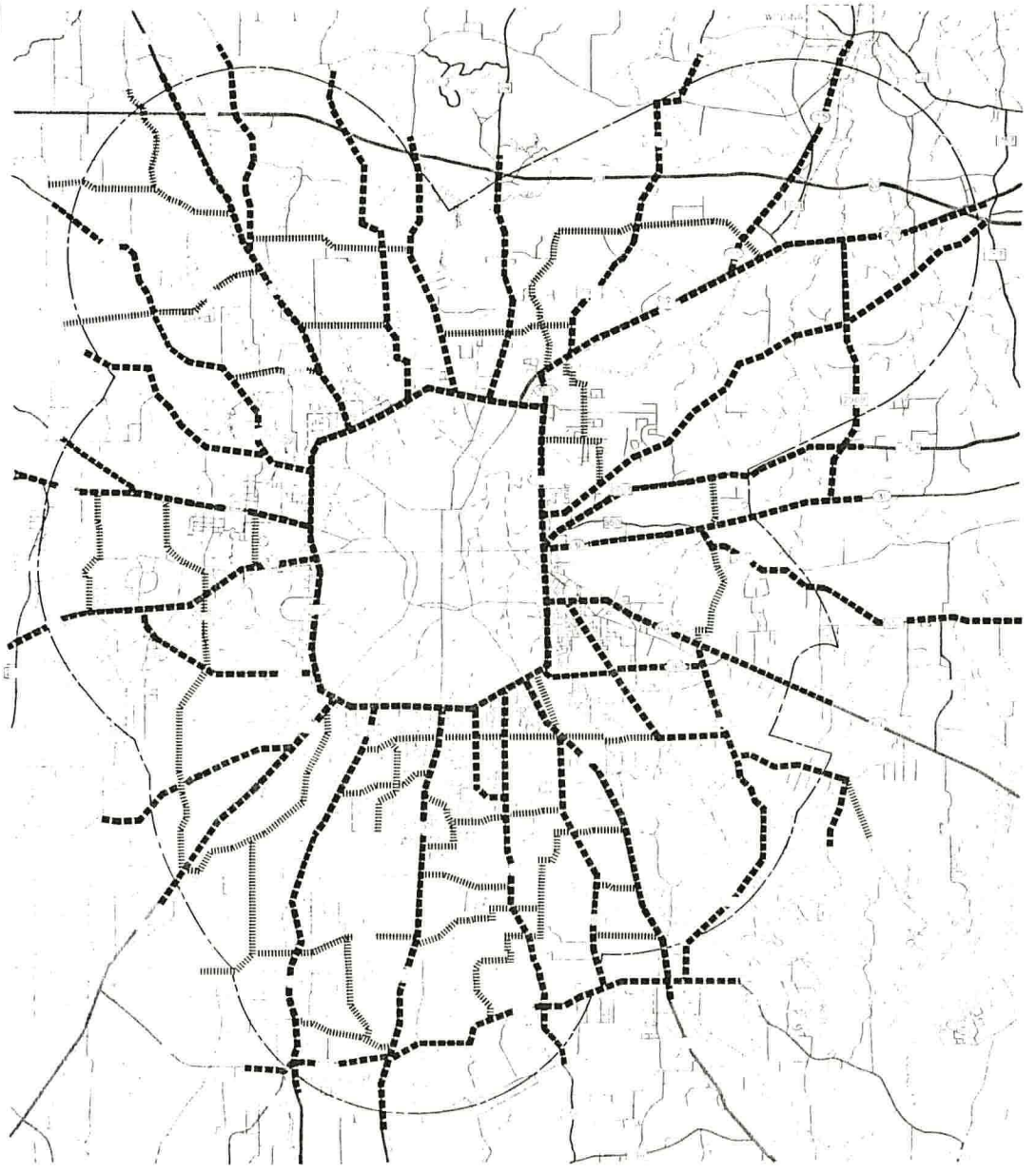


Existing Street Network Classification

Master Street Plan

Tyler, Texas

Figure 2A



Legend:

- Tyler E.T.J. (Study Area Boundary)
- Arterial Street
- Collector Street

Existing Street Network Classification

Master Street Plan

Tyler, Texas

N

Scale in Miles

0 1 2 3

Wilbur Smith and Associates

Figure 2B

long distance trips between cities in the region and between states in the southern United States. I.H. 20 serves Tyler with interchanges at U.S. 69, F.M. 14, F.M. 2015, S.H. 155 and at U.S. 271. The portion of the study area traversed by I.H. 20 is presently rural, with little urban development.

East-West Arterials - The arterial network in the study area has few east-west routes that are continuous through the City of Tyler. Front Street and the Chandler Highway (S.H. 31) form the only east-west arterial through the central part of the study area. Fifth Street East, Glenwood Boulevard, Erwin Street west and the Dallas Highway form designated route S.H. 64, which is an east-west route traversing the study area. However, the Glenwood Boulevard portion is on a north-south alignment, which disrupts the continuity of the facility.

The Van Highway (S.H. 110 West) Gentry Parkway, M.L. King Boulevard and North Loop 323, are the only east-west arterials in the northern part of the City of Tyler, and only North Loop 323 is continuous across much of the City. The only east-west arterials in the southern part of the City are East Fifth Street and South Loop 323, and only South Loop 323 is continuous across most of the City.

North-South Arterials - The arterial network in the Tyler area has a more defined north-south orientation. North-south traffic is served by Beckham-Troup Highway (S.H. 110 South), the Frankston Highway (S.H. 155), South Broadway (U.S. 69) the Mineola Highway (U.S. 69), the Gladewater Highway (U.S. 271), State Park Highway (FM 14), Paluxy Drive (FM 756), and Old Jacksonville Highway (FM 2493). These north-south arterial streets form the designated U.S., State Highway and Farm to Market roadway network through the City of Tyler. This designated route network was illustrated in Figures 2A and 2B.

Roads Outside Loop 323 - Functional classification of streets outside Loop 323 is illustrated in Figure 2B. Mush of this area is presently rural in nature, although during the planning period portions will become urbanized and highly developed.

The principal streets or rural roads were classified according to their function. Many of these roads are discontinuous with

jogs, offsets, and T-intersections, due to the alignment along historical property lines.

Because of the low traffic volumes on most of these roads, reasonable traffic operations presently result. However, as the area becomes urbanized and more traffic is generated along these roads, existing roadway characteristics such as alignment and cross-sections will become restraints.

Collector Streets - Collector streets also were classified, and are shown in Figures 2A and 2B. Many of these streets serve as collectors by function rather than by design, with several being residential streets.

The higher volume collector streets in Tyler are 1) Houston Street, between Fleishel Avenue and Glenwood Boulevard, 2) Old Bullard Road between Old Jacksonville Road and Grande Boulevard, 3) Old Troup Highway between South Broadway and Troup Highway and 4) Donnybrook Avenue between Houston Street East and Amherst Drive. Portions of Donnybrook Avenue carry traffic volumes of 7,100 vehicles per day while portions of Old Bullard Road near Loop 323 carry up to 12,900 vehicles per day. In general, however, the majority of the existing collector street system carries Average Daily Traffic volumes less than 5,000 vehicles.

Route Continuity

Route continuity over extended distances is presently lacking for many north-south and east-west travel corridors in the study area. Only Front Street (S.H. 31) provides east-west continuity through the study area. State Highway 64 (Fifth Street-Glenwood) provides some east-west continuity, but is offset approximately one mile at Glenwood Boulevard. Old Kilgore Highway and Old Overton Road (Farm to Market Roads 2767 and 850 respectively), and Spur 364, terminate at Loop 323.

North-south movement, although provided on arterial roadways carrying ten designated routes through the study area, has little continuity through the City of Tyler. All north-south arterial corridors are offset as they encounter the inner loop defined by Gentry Parkway, Fifth Street, Beckham Avenue and Glenwood Boulevard, with the exception of the corridor formed by the

the Gladewater Highway, Gentry Parkway East, Beckham Avenue and Troup Highway, and this corridor does not actually serve a true north-south function across the city.

The radial and circumferential major street pattern that has developed in the Tyler area places significant limitations to north-south and east-west route continuity through the City of Tyler.

Route continuity for travel within the developed area of Tyler is significantly better than for the study area as a whole. For example, the majority of the north-south and east-west arterial streets extend radially from the central area of the City of Tyler to the limits of the study area. Many of trips within the study area are work trips and shopping trips that take place within the densely developed area of Tyler and are served by this arterial street network with reasonable continuity. However, for trips through the less densely developed areas outside of Tyler and for through trips across the study area that traverse the City of Tyler, continuity is lacking.

As Tyler grows from its present size, a more definite gridiron pattern of arterial streets should be implemented in the developing areas to provide route continuity.

Traffic Volumes

A citywide measurement of traffic volumes along existing thoroughfares gives an indication of how the system is serving traffic demands. Numerous traffic counts have been made over the past several years in the City of Tyler. These counts include peak-period counts in the central area, and 24-hour counts conducted by the City of Tyler and the SDHPT. Together, adequate volume information was available to determine the overall traffic patterns on the City.

Traffic volumes on the existing street network are shown in Figures 2A and 2B.

Major Travel Corridors - Examination of Figure 2A gives a visual indication of the heavily travelled traffic corridors in the city. The heaviest travelled corridors for east-west traffic are Gentry Parkway, Front Street, Fifth Street and Loop 323 South. For

north-south travel, East Gentry Parkway, West Gentry Parkway, Broadway and Beckham Avenue, in addition to Loop 323 west carry the highest traffic volumes.

High sustained volumes over the continuous routes can be seen for Front Street, South Broadway, Beckham Avenue/Troup Highway which forms a continuous route between the CBD and the rapidly developing commercial and residential area to the south. Traffic volumes on Front Street average 12,000 to 15,000 vehicles per day. The South Broadway corridor between Fifth Street and Shiloh Road averages 27,000 vehicles per day. The highest traffic volumes on the arterial system are presently recorded on the southern portion of Loop 323 near South Broadway (U.S. 69) where volumes average 30,000 to 31,000 vehicles per day.

Traffic volume on all major routes within Loop 323 generally ranges between 10,000 and 25,000 vehicles per day. The discontinuities in these major routes cause turning movements at major intersections to be high, approaching or exceeding capacity at many points.

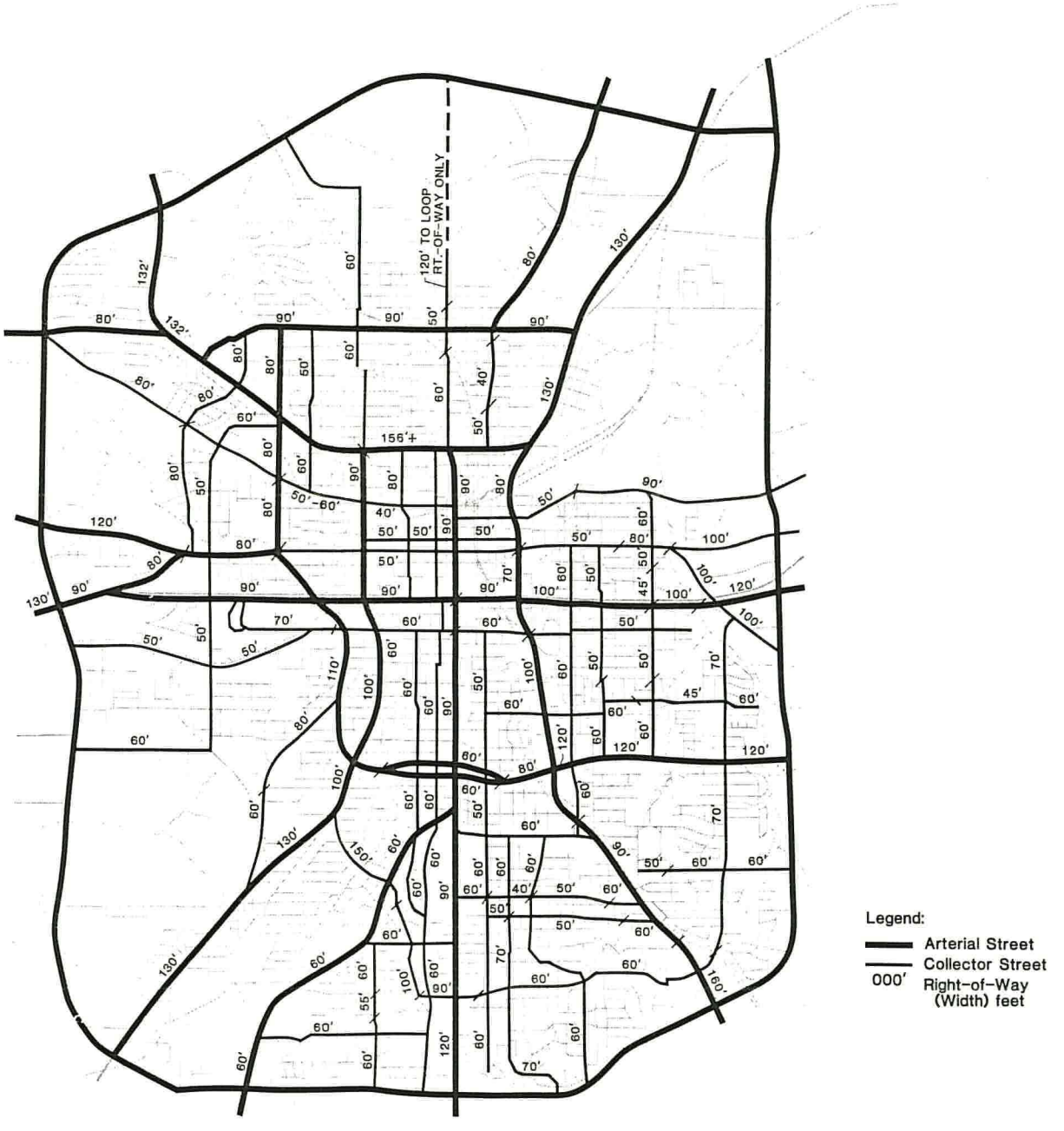
Existing Rights-of-Way

The existing rights-of-way for the major streets and roads within the study area are illustrated on Figures 3A and 3B.

Major Traffic Generators

The downtown area, industrial plants, universities, shopping centers, hospitals, and other generators of urban travel influence traffic volumes and flow patterns on the street network which serves these generators. In reviewing the street network, it is necessary to consider the traffic generators in the City of Tyler as they influence traffic demand and traffic volume. Existing major trip generators are listed in Table 1. Locations of these major trip generators are shown in Figure 4. The most significant trip generators are described below:

Downtown Area - The central business district (CBD), generally bounded by Oakwood Street on the north, Front Street on the south, Fannin Street on the east, and Bonner Street on the west, is a major traffic generator. The CBD has a concentration of banking, governmental, and business offices.



Existing Right of Way

Master Street Plan

Tyler, Texas

Scale in Feet

0 1500 3000 4500 6000

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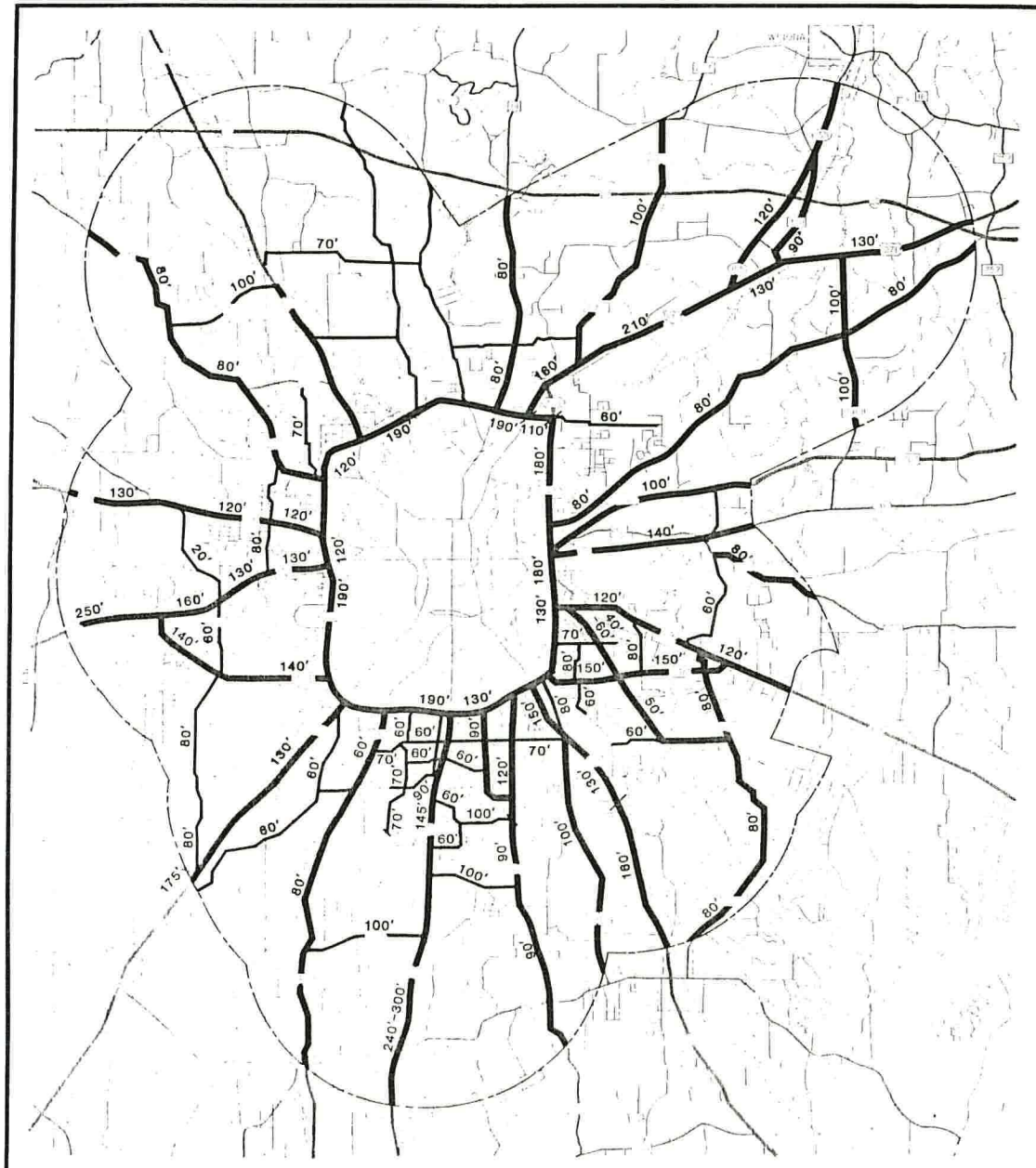
Figure 3A



Legend:

- Tyler E.T.J. (Study Area Boundary)
- Arterial Street
- Collector Street
- 000' Right-of-Way (Width) feet

Existing Right of Way

Master Street Plan

Tyler, Texas

N

Scale in Miles

0 1 2 3

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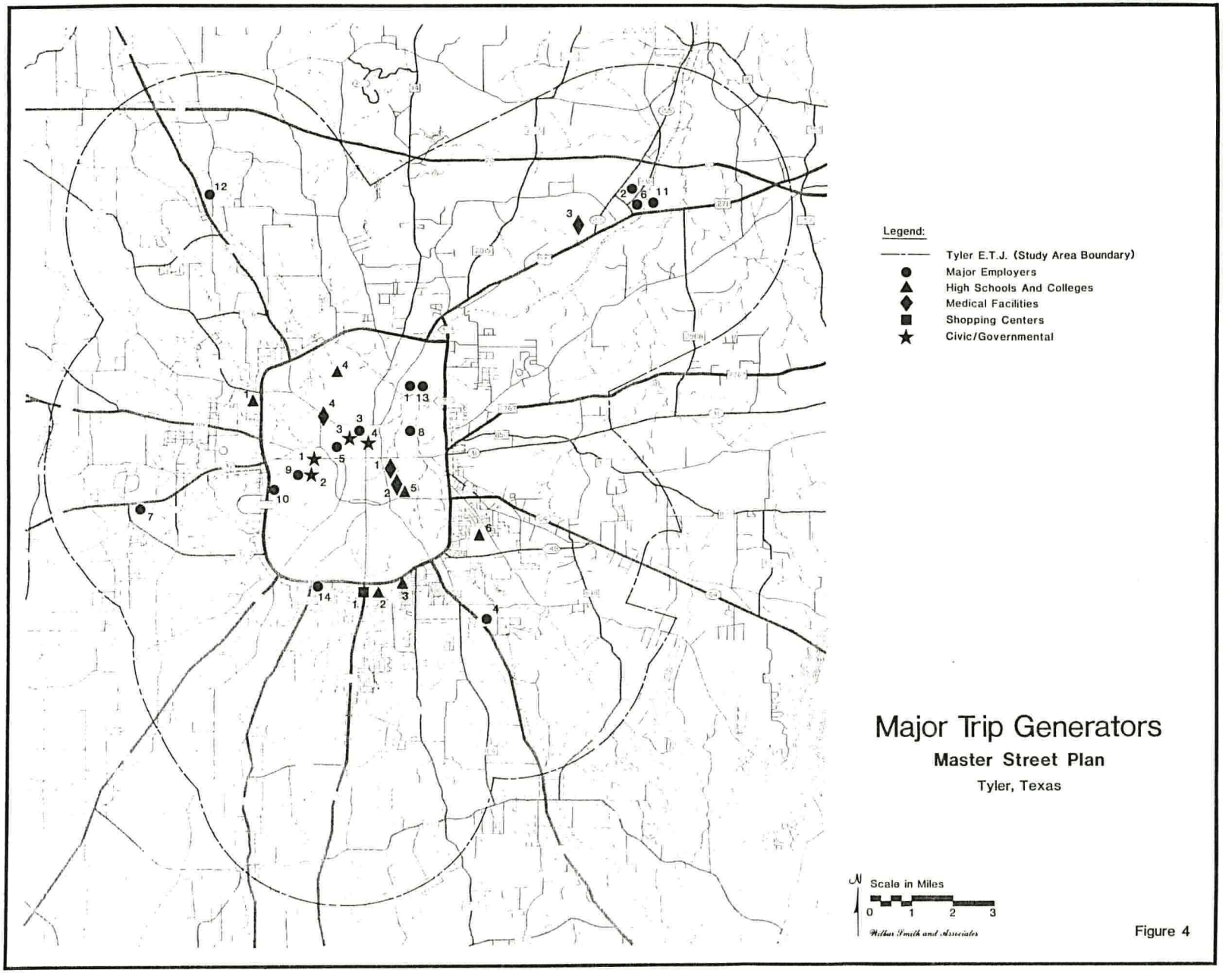
Figure 3B

Table 1 (Continued)

SYMBOL	
	MEDICAL FACILITIES
1	Mother Frances Hospital
2	Medical Center Hospital
3	University of Texas Health Center at Tyler
4	Community Hospital of Tyler
	SHOPPING CENTERS
1	Regional Shopping Area
	CIVIC/GOVERNMENTAL
1	Tyler Rose Park
2	Rose Stadium
3	City Hall
4	County Courthouse

(1) Refer to Figure 4.



Major Trip Generators

Master Street Plan

Tyler, Texas

Figure 4

Broadway Shopping Area - The major retail shopping center area in Tyler is located on South Broadway, south of Loop 323. The Broadway Square Shopping Mall, and adjacent retail shopping areas, generate approximately 35,000 to 40,000 trips per day, making this area the largest single trip generator in Tyler.

Tyler Junior College - The second largest single traffic generator in the city is Tyler Junior College, with a full-time enrollment of over 8,000 students and approximately 7,000 additional part-time students. Tyler Junior College is located on East Fifth Street between South Baxter Avenue and South Palmer Avenue.

Tyler Pipe Industries, Inc. - This major employer is located north of the city on U.S. 69, several miles north of Loop 323. Tyler Pipe Industries generates a significant amount of the trips through the Loop 323/Gentry Parkway intersection.

TRANE Air Conditioning Company - The TRANE Air Conditioning Company, one of the largest employers in Tyler, is located on the Troup Highway (S.H. 110) approximately two miles south of Loop 323. Most of the trips to and from this location must traverse the intersection of the Troup Highway at Loop 323.

Kelly-Springfield Tire Company - This major employer is located on S.H. 31 approximately three miles west of Loop 323 on the west side of Tyler. This facility is presently undergoing a significant expansion.

University of Texas at Tyler - The University of Texas at Tyler is a significant traffic generator in the City, with a student enrollment of over 5,500. The University of Texas at Tyler is located on University Boulevard (Spur 248) in southeast Tyler.

Hospital and Medical Center Area - The Mother Frances Hospital and the Medical Center Hospital are located approximately one-quarter mile apart on South Beckham Avenue south of East Houston Street. These combined medical facilities, and related medical offices, represent a significant trip generator.

Other Area Trip Generators - Traffic demand is influenced by a number of other major trip generators, some located near the limits of the ETJ of Tyler. The locations of these other traffic generators are shown in Figure 4. Among these are the University

of Texas Health Center at Tyler, located northeast of Tyler on U.S. 271. The Continental Can Company, Imperial American Company, and Southland Corporation, each employing several hundred, are also located northeast of Tyler near U.S. 271 and I.H. 20.

Existing Land Use and Development Constraints

Many existing factors influence the development of a viable master street plan--natural land features, certain land uses that have developed previously, railroads, and other considerations having varying impacts on the location and implementation schedule of new roadways.

It is not intended to imply that such land use constraints will prohibit the development of a desirable master street system through an area. However, their influence may easily be such as to affect location where a choice is available, cost of construction, and time scheduling of implementation. A number of the more common land use constraints were identified and considered in the delineation of major thoroughfares in the study area.

These constraints area shown in Figure 5 and include:

1. Flood plains, rivers, creeks, canals, and lakes;
2. Airports; and
3. Railroads.

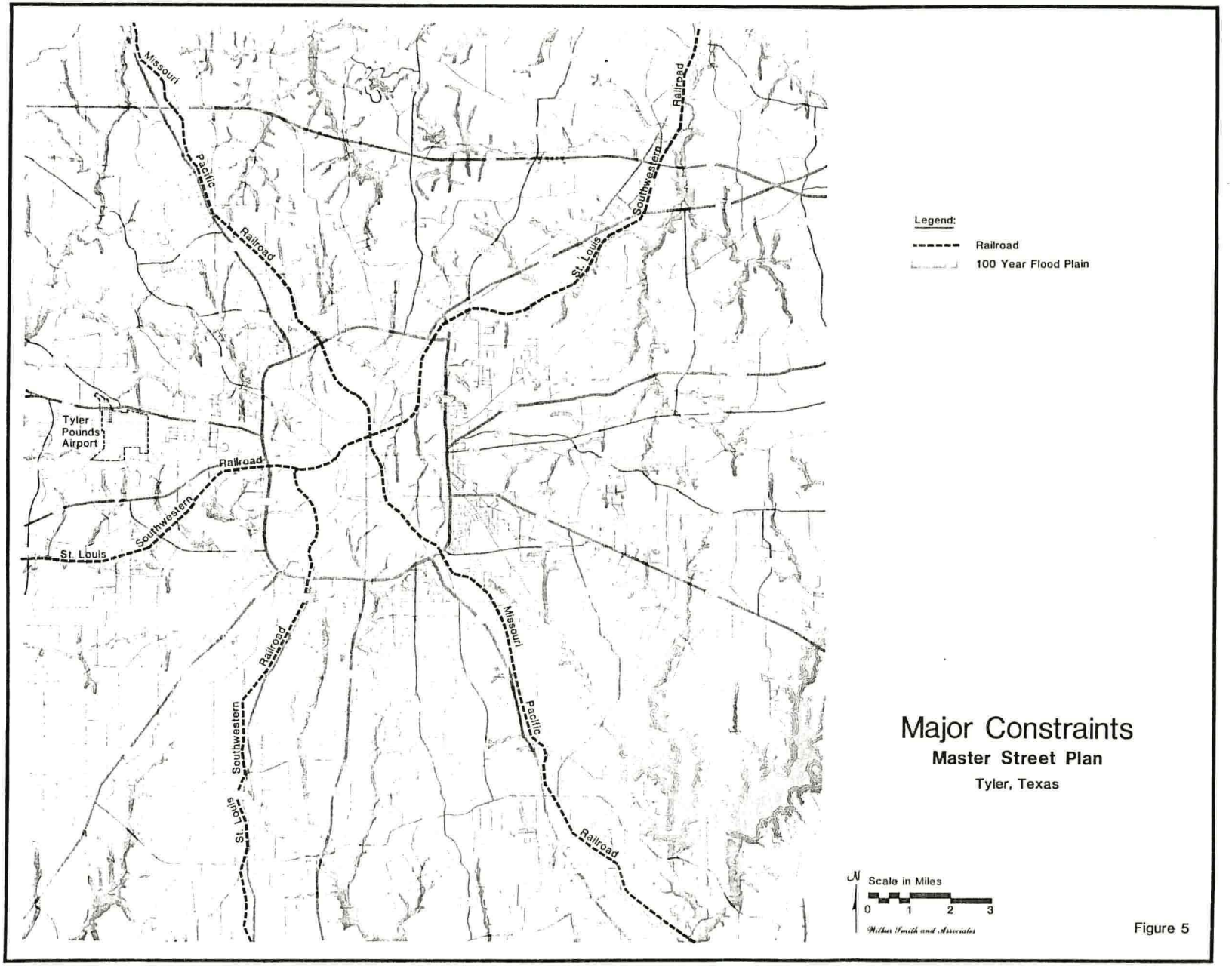

Missouri Pacific Railroad
St. Louis Southwestern Railroad
Tyler Pounds Airport
Railroad
St. Louis Southwestern Railroad
Missouri Pacific Railroad
St. Louis Southwestern Railroad
Missouri Pacific Railroad
Legend:
Railroad
100 Year Flood Plain
Major Constraints
Master Street Plan
Tyler, Texas
N
Scale in Miles
0 1 2 3
Wilbur Smith and Associates

Figure 5

Chapter 3

Growth and Traffic Forecasts

Tyler is a regional center for the northeast Texas area, and has experienced a steady historical growth. The radial nature of the area's highway network shows the regional focus on Tyler, which has developed over time. Consequently, travel in and through Tyler is interrelated to factors associated with the entire region.

The public agency responsible for coordination of transportation planning in the region is the Tyler Urban Transportation Study, a cooperative effort of the City of Tyler, Smith County, and the State Department of Highways and Public Transportation.

Population and Land Use

The City of Tyler has experienced continuous growth since 1890 when its population was 6,908. The first five decades of the 20th Century saw the population of Tyler grow almost six fold to 38,968 in 1950, as shown in Table 2. The 1960 census indicated a population of 51,230. By 1970 the population had increased to 57,770, and the 1980 census recorded a population of 70,508.

The State Department of Highways and Public Transportation reported a population estimate for 1985 of 79,090, indicating a continuation of the growth trend.(1) Table 2 indicates that with the exception of the periods between 1890-1900, 1910-1920, and 1960-1970, Tyler has experienced a growth rate between 2.3 and 6.5 percent per year. The growth rate between 1980 and 1985 indicates that the existing population growth rate is approximately 2.4 percent per year.

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(1) Population Projection and Analysis, City of Tyler, Texas, September 1983, SDHPT, District 10, Tyler.

Table 2

TYLER AND SMITH COUNTY POPULATION GROWTH 1890-1985
Tyler Master Street Plan Study
Tyler, Texas

YEAR	TYLER	PERCENT CHANGE	SMITH CO.	PERCENT CHANGE
1890	6,908	-	28,324	-
1900	8,069	16.8	37,370	31.9
1910	10,400	28.8	41,746	11.7
1920	12,085	16.2	46,769	12.0
1930	17,113	41.6	53,123	13.5
1940	28,279	65.2	69,090	30.0
1950	38,968	37.7	74,701	8.1
1960	51,230	31.4	86,350	15.5
1970	57,770	12.7	97,096	12.4
1980	70,508	23.2	128,366	32.2
1985	79,090(1)	12.2	-	-

(1) "Population Projection and Analysis, City of Tyler, Texas," Texas State Department of Highways and Public Transportation, 1983.

Source: U.S. Bureau of the Census.

2000 Population Forecast - Several projections have been made for future year population in the City of Tyler. The most recent estimate of Tyler population for the year 2000 is 105,600, based on an analysis conducted by the State Department of Highways and Public Transportation as previously referenced.

The estimated 105,600 population for Tyler in the year 2000 pertains to an expanding Tyler urban area. The City of Tyler land area will increase through annexation as Tyler continues to grow. Present growth patterns indicate new growth can be expected to be primarily in the south and west portions of the urban area. By the year 2000, the City of Tyler can be expected to have a developed area approximately 50 percent greater than that in 1980, assuming a similar development density.

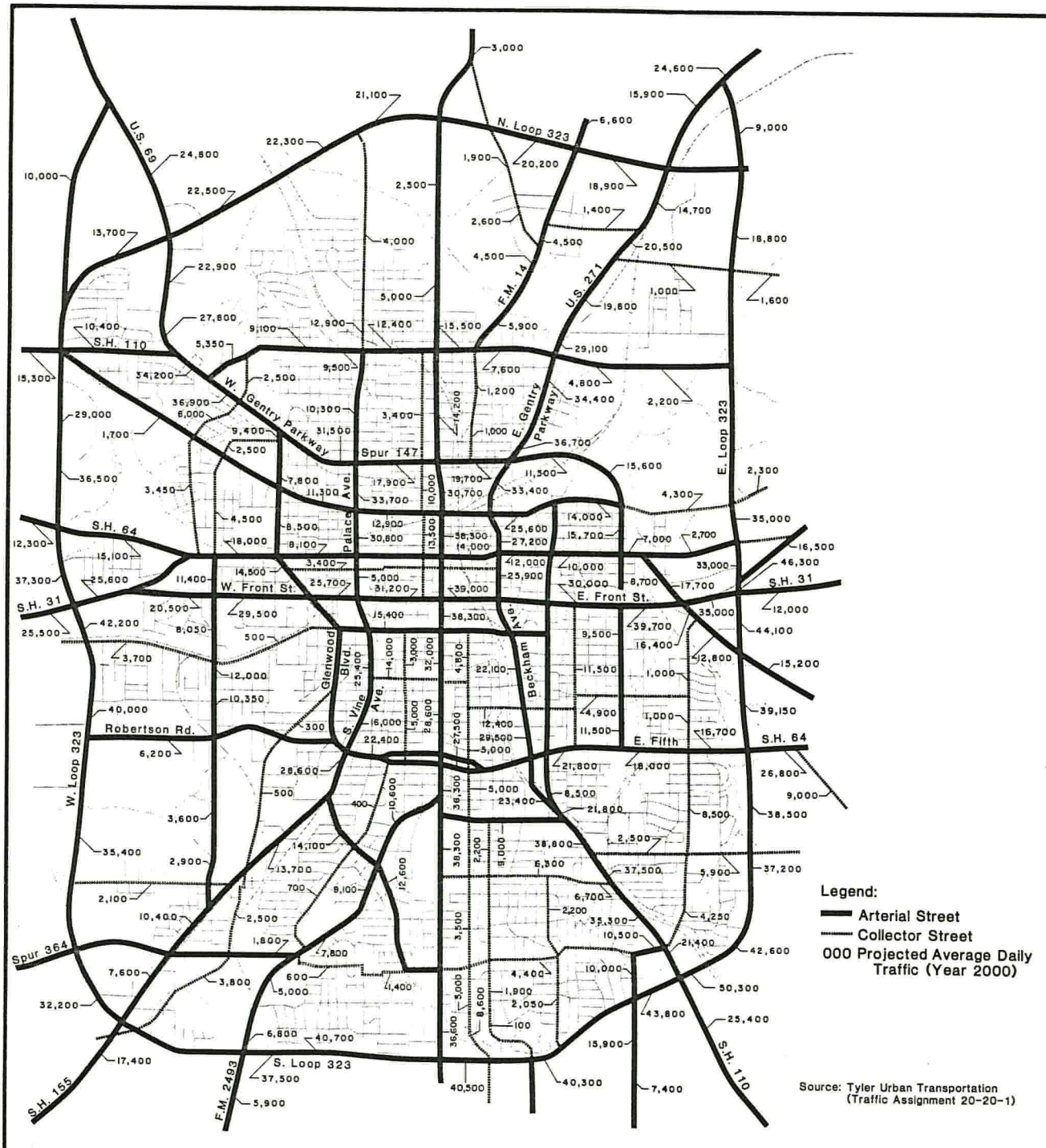
Basis of Travel Forecasts

The Tyler Urban Transportation Study was used as a principal source in estimating future travel in Tyler. The urban transportation study was initiated in the early 1960's, with the initial plan developed in 1966. A major update of the land use and population projections was made in 1977, and traffic projections for the year 2000 were developed as part of the updated study.

The urban transportation study update in 1977 projected the population of the City of Tyler at 72,800 for 1980 and approximately 81,000 for 1985. These estimates are consistent with the actual 1980 census count and the 1985 estimated population. Thus, the year 2000 travel forecast for the Tyler study area was considered generally applicable for use in developing the Tyler Master Street Plan.

Forecast Methodology - The methodology employed by the Tyler Urban Transportation Study to forecast future traffic involves three basic steps: trip generation, trip distribution, and traffic assignment. Each step consists of a model containing one or more components. Trip generation was modeled using demographic variables and generated trip productions and attractions for each of the zones in the study area. The trip distribution step distributes the generated trips to develop zone-to-zone trips. The traffic assignment step assigns the resulting trips to the traffic network under consideration.

Travel Forecasts - The Tyler Urban Transportation Study made available the accepted traffic assignment, which was performed in May, 1977. The specific travel forecast adopted from the several alternative travel forecasts conducted in May, 1977, is designated 20-20-1. Traffic volumes projected by this assignment for the year 2000 are illustrated in Figure 6. The assigned traffic volumes provide a basis for assessing future roadway needs and alternatives for satisfying these indicated needs.



Projected Average Daily Traffic
Year 2000
Master Street Plan
Tyler, Texas

N Scale in Feet
0 1500 3000 4500 6000

Wilbur Smith and Associates

Figure 6

Chapter 4

Recommended Plan

This chapter focuses on the Master Street Plan recommended for the City of Tyler and the rationale upon which it was developed. The plan delineates the approximate alignment of proposed arterial and collector streets in the study area, and indicates a cross-section consistent with projected future (year 2000) traffic demand.

In addition, several design and planning control measures are recommended. It is desirable in implementing the master street plan, that other controls be exercised. These include roadway cross-section, general design standards, access control (driveway) standards, and Truck loading/unloading facilities.

Rationale for Master Street Selection

In developing the master street plan, basic principles of transportation planning were followed. These principles provided the underlying framework for development of the plan details.

Traffic Service - Travel forecasts, in vehicles per day, were made for various possible alternative thoroughfare configurations. This demand for service for the year 2000 and the satisfaction of this demand was a principal determinant of the master street and the recommended cross-sections.

Recognition of Community Values - It should be recognized that the existing land use infrastructure (including structures, landscaping, open space, etc.) developed in concert with the existing arterial alignments and cross-sections may be significantly impacted by changes needed to accommodate projected future traffic demand. In the community's viewpoint, the priorities for the continued maintenance of this existing land use infrastructure

may be greater than the need to accommodate the demands of future traffic growth. For many areas of Tyler, predominantly within Loop 323, this basic principal may be the controlling factor in developing realistic and implementable improvements to meet future traffic demand.

Network Continuity - The master street plan should provide for a continuity of alignment and cross-sections, reflecting the level of demand for service.

Arterial streets should generally provide continuous routes through the City, serving the basic needs for longer trips. These streets also should not have offsets, jogs, or T-intersections. In developing the recommended plan for Tyler, continuity with State and County roads at the ETJ boundary was also considered; and related to the recommended of this study.

System Relationship - Relationship of the various elements or functional classes of roadways is another primary consideration in the development of a plan.

Adequate high-type facilities, such as expressways should be provided where needed for proper service of long trips. In Tyler, this was a factor in reviewing the planned Outer Loop Freeway, which is presently under consideration.

Arterial streets should be interrelated and compatible with the freeway system, as well as other arterial streets. At a lower functional level, the interrelationship of the collector street system to the arterial street system is also important. Careful planning of the interface between collector and arterial systems provides the ability to efficiently interchange trips from or to the collector streets.

Land Access - Another consideration related to traffic service is that of land access. This includes the uniformity of the master street plan in providing access and service to all parts of the City. Failing to provide this service could seriously handicap the growth potential of areas not adequately served.

A general rule of thumb for traffic access is that no one should need to travel more than one-half mile on local streets before intersecting with a collector or arterial street.

Growth Potential - The master street plan should consider development potentials beyond the projected limits of urban growth for the design year, so that, as future development does occur, the master street plan is compatible and will serve new developments.

Maximum Use of Existing Network - The existing thoroughfare system in the City of Tyler must be built upon in developing a future master street plan, in order to provide a maximum return for investments made in thoroughfare development, and to minimize community disruption.

The basic plan, therefore, should begin with the existing street system, and to the extent realistically possible, modify and expand it to satisfy future needs.

It should be recognized, however, that in utilizing existing alignments, inadequate right-of-way and capacity for handling future needs will exist on many of the present facilities.

Interested persons should be able to learn where planned thoroughfares are to be provided. By an understanding of the plan and knowledge of where and approximately when thoroughfare projects will occur, orderly community development can occur, with adequate provision of transportation infrastructure.

The Tyler Master Street Plan was developed for a study area, which is not expected to be totally urbanized by the year 2000, for which traffic forecasts were made. However, the master street plan should be enforced in these undeveloped areas, so that thoroughfare development may proceed in an orderly manner as the City develops, regardless of time frame. The master street plan should be periodically reviewed and updated to respond to changing conditions and growth patterns.

Design Considerations

Inherent in the recommendation of a master street are the design standards to be used in implementation of the plan.

Design criteria are physical requirements for construction of thoroughfares. Construction of a thoroughfare to certain standards determines the capacity, level of service and provided on the facility.

It is recognized that, due to possible right-of-way restrictions or adverse environmental impact, rigid application of design standards in currently developed areas could result in improvement projects that are difficult to implement. Thus, improvements to existing thoroughfares may require development of special design solutions on a case-by-case basis.

Recommended design standards are presented in this report and should be considered as minimum standards for new construction. Where feasible and appropriate, higher standards may be used.

Traffic Capacity

The number and width of traffic lanes, and the amount of green time provided at signalized intersections, are the primary factors affecting urban street capacity. Other significant factors include the amount of traffic entering or exiting driveways, on-street parking, the percentage of heavy trucks and buses using the street, the distance between intersections, the type of traffic control (traffic signals, stop signs, etc.) and size of the urban area.

To provide a basis for system evaluation, average capacity ranges were developed for the various types of facilities needed. These capacity standards represent volumes which will permit a reasonable level-of-service (As defined by the Highway Capacity Manual).

These design capacities, shown in Tables 3 and 4, indicate peak-hour capacities in the heavier direction of flow, and the estimated total roadway and average daily traffic capacity for the entire roadway. Capacity values represent typical conditions and were used as a general guide to determine the number of traffic lanes necessary to accommodate future traffic demand on particular facilities.

It should be recognized that in utilizing existing alignments, inadequate right-of-way and capacity for handling future needs will exist on many existing facilities. The cost and disruption of upgrading existing facilities within the developed portions of Tyler to meet future projected needs at the generally accepted design Level-of-Service C would, in many cases, be difficult to implement. Therefore, where substantial additional right-of-way would

TABLE 3

CAPACITY CRITERIA FOR ARTERIAL STREETS
Level of Service C
Tyler Master Street Plan
Tyler, Texas

TYPE FACILITY	CAPACITY		
	Vehicles Per Hour		Vehicles Per Day
	Direction of Heaviest Flow	Total Roadway	Total Roadway
Six-Lane Arterial(1)	1,850	3,300	38,000
Six-Lane Arterial	1,450	2,400	27,000
Four-Lane Arterial	1,000	1,700	19,000
Four-Lane Arterial without left turn lanes	850	1,450	15,600

(1) Arterial with partial control of access; signal green time assumed 65 percent of cycle.

NOTE: Continuous left turn lanes assumed for all arterials except as noted. Capacity values were developed from the Highway Capacity Manual, Highway Research Board, Special Report 87, 1965, and based on the following average conditions:

Load Factor (Level of Service C)	= 0.3
Metropolitan Area Population	= 106,000
Commercial Traffic	= 5 Percent
Left Turns (Separate Signal Phase)	= 10 Percent
Right Turns	= 10 Percent
Signal Green Time	= 50 Percent of Total Cycle
Directional Distribution	= 60/40
Peak Hour	= 9 Percent of ADT

TABLE 4

CAPACITY CRITERIA FOR ARTERIAL STREETS
Level of Service D
Tyler Master Street Plan
Tyler, Texas

TYPE FACILITY	CAPACITY		
	Vehicles Per Hour		Vehicles Per Day
	Direction of Heaviest Flow	Total Roadway	Total Roadway
Six-Lane Arterial(1)	2,400	4,000	44,500
Six-Lane Arterial	1,700	2,850	32,000
Four-Lane Arterial	1,200	2,000	22,000
Four-Lane Arterial without left turn lanes	1,000	1,600	18,000

(1) Arterial with partial control of access; signal green time assumed 65 percent of cycle (at minor intersections) grade separations at major intersections.

NOTE: Continuous left turn lanes assumed for all arterials except as noted. Capacity values were developed from the Highway Capacity Manual, Highway Research Board, Special Report 87, 1965, and based on the following average conditions:

Load Factor (Level of Service D)	= 0.7
Metropolitan Area Population	= 106,000
Commercial Traffic	= 5 Percent
Left Turns (Separate Signal Phase)	= 10 Percent
Right Turns	= 10 Percent
Signal Green Time	= 50 Percent of Total Cycle
Directional Distribution	= 60/40
Peak Hour	= 9 Percent of ADT

be required that would significantly impact developed areas of the City, the design capacities illustrated in Table 4, representing Level of Service D, are recommended. A description of the six levels of service are described in Table 5. Level of Service D, although the generally accepted design level of service in major urban areas, is not a desirable design standard. Level of Service D is a minimum design standard that will result in a high level of congestion, and should only be used when analysis of specific problem areas conclude that design to provide a higher Level of Service would result in an unacceptable cost/benefit ratio. Should conditions permit, design to higher standards should be considered.

Use of Level-of-Service C is recommended primarily for streets outside Loop 323 or streets within Loop 323 where right-of-way acquisition and associated land use impacts do not preclude design to this level.

Recommended Design Standards

Design criteria recommended for use in implementation of the master street plan are shown in Table 6. These design standards are in conformance with urban design practices and design policies established by the American Association of State Highway and Transportation Officials.

The roadway cross-sections recommended for various streets in the master street plan are dependent upon traffic demands and level-of-service criteria. Typical cross-sections recommended are shown in Figure 7. Arterial cross-sections are shown for six-lane and four-lane roadways, with each cross section containing a continuous left-turn lane. Minimum cross section for collector streets are also shown in Figure 7.

No design provision has been made for curb parking, since the primary function of an arterial street is to provide for movement of traffic rather than convenient parking for abutting property. To provide for curb parking along thoroughfares would increase right-of-way requirements and construction costs significantly.

Table 5

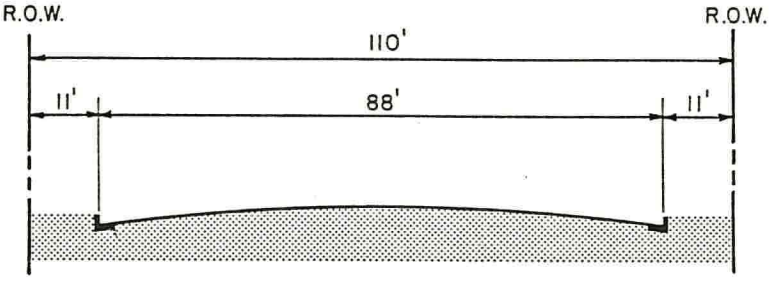
DESCRIPTION OF LEVELS-OF-SERVICE
Tyler Master Street Plan Study
Tyler, Texas

LEVELS OF SERVICE	DESCRIPTION
A	Light traffic volumes with little or no queueing of vehicles on approaches. If stopped at intersection, 100 percent probability of clearing intersection on next green phase.
B	Light to moderate traffic volumes with little or no queueing of vehicles on approaches. If stopped at intersection, 95 percent probability of clearing intersection on next green phase.
C	Moderate to heavy traffic volumes with moderate queues on all approaches. Some individual traffic movements may exceed capacity for short periods due to surges in traffic volumes. Traffic flow remains stable. Traffic progression along arterial streets can be maintained. If stopped at intersection, 70 percent probability of clearing intersection on next green phase.
D	Heavy traffic volumes. Moderate to long queues on all approaches. Traffic flow generally remains stable, however, surges in traffic volumes may cause heavy congestion for short durations on one or all approaches. Traffic progression along arterial streets maintained at marginal levels. High probability of being stopped at intersection. If stopped, will require one or more green phases to clear intersection.
E	Heavy traffic volumes. Unstable traffic flow. Without traffic volume surges or other aberations, intersection will operate similar to D range. With traffic surges, a failure condition will result. In reality, an intersection in this range will occulate between D and F conditions throughout the peak hours.
F	Capacity exceeded. Forced flow conditions. Queue lengths may exceed one hundred vehicles. Traffic signal efficiency often decreases due to blockage of intersection at the end of a green phase. Condition may extend beyond the end of the peak hour.

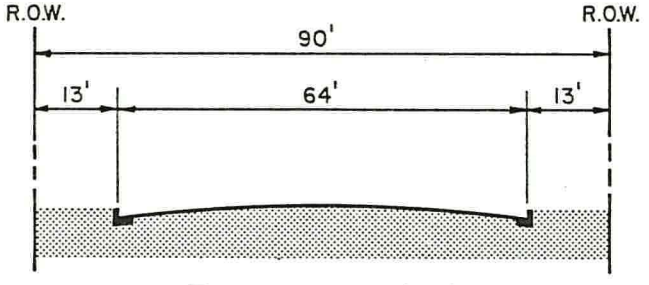
Table 6

RECOMMENDED ARTERIAL DESIGN STANDARDS
Tyler Thoroughfare Development Program
Tyler, Texas

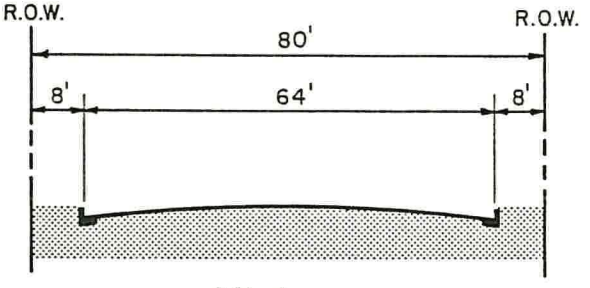
DESIGN ELEMENT	STANDARD
Design Speed (Miles-per-hour)	
Outlying Areas	60
Developed Areas	40
Maximum Curvature (Degrees)	
Outlying Areas	5.0
Developed Areas	7.0
Maximum Grade (Per Cent)	
Outlying Areas	4
Developed Areas	6
Stopping Sight Distance (Feet)	
Outlying Areas	475
Developed Areas	275
Number of Through Lanes	4 Minimum
Lane Width (Feet): Desirable	12
Minimum	11
Sidewalk	Both Sides
Right-of-Way Width (Feet)	90 Minimum (60 Collector)
Structure Width	Pavement Plus 4' Plus Sidewalk
Structure Design Load	H20-S16
Vertical Clearance (Feet)	15.25



Six Lane Arterial

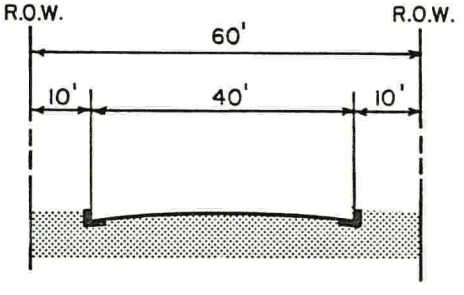


Recommended



Minimum

Four Lane Arterial



Collector

Notes: Minimum Cross Section Not Applicable for
R.O.W. Dedication and Construction of New Streets.
Reconstruction of Existing Streets May Require Special Design.

Recommended Street Cross Sections

Master Street Plan

Tyler, Texas

Not To Scale

Wilbur Smith and Associates

Figure 7

Access Control

Driveway openings from thoroughfares should be provided only as part of the functional plan for off-street parking and access to a parcel of land. The objective of access control should be to provide safe and orderly ingress and egress for abutting property, with minimum interference to through traffic. The general guidelines for access control are illustrated on Figure 8 and are discussed below.

Driveway Widths - The width of driveway approaches should not be greater than 40 feet for commercial or industrial establishments. A one-way drive should be a minimum of 15 feet. For residential uses, a driveway may have a minimum width of 10 feet.

Driveway openings for truck loading docks in buildings with vehicle doorways may need to be as wide as 60 feet; however, where more dock space is required, successive driveway openings should be separated by a traffic island.

Location of Driveways - No driveway should be permitted within 35 feet of the extended curb line at street intersections. The beginning of the driveway return should not encroach on the curb section of the intersection radius.

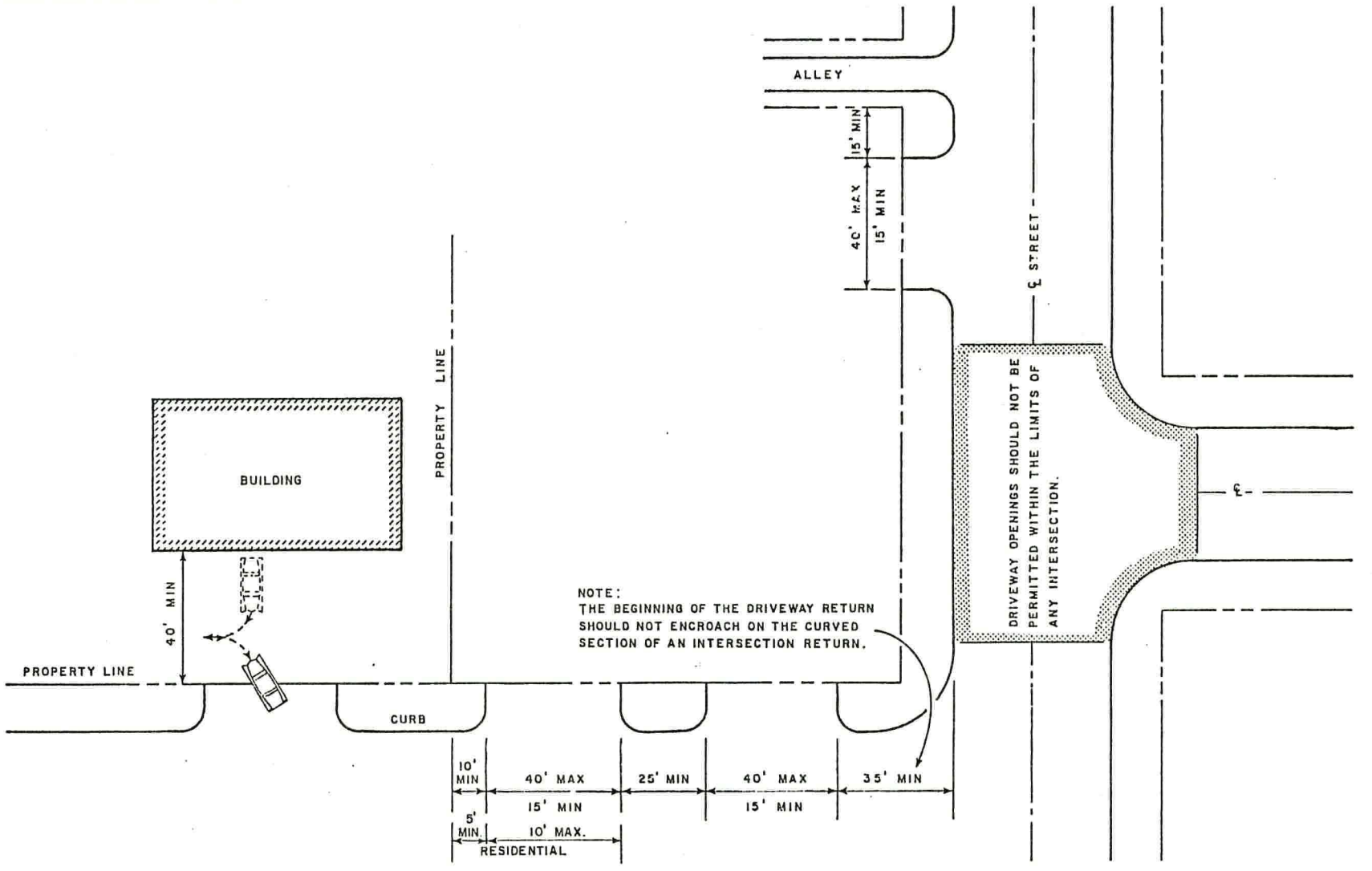
No driveway should be permitted within 15 feet of an alley right-of-way or 10 feet of a property line. Adjacent driveways should be separated by an island of a 25-foot minimum width.

Number of Driveways - No more than two driveway approaches should be permitted on any tract of land with a frontage of 100 feet or less. One additional driveway approach may be permitted for each 200 feet of additional frontage on a tract. Planned developments requiring more than this number of driveways should be evaluated based upon the merits of each individual case and variances granted where the need is justified.

Angle or Recessed Parking - Driveway approaches should not be permitted to allow angle or recess parking.

Before a driveway is approved, the approach should provide access to an off-street parking space, a vehicle doorway, or a dock where adequate vehicle storage space is available.

A minimum of 40 foot set-back is required between the right-of-way line and the building to provide off-street parking and



Recommended Access Control

Master Street Plan

Tyler, Texas

Not To Scale

Wilbur Smith and Associates

Figure 8

sufficient room for the vehicle to maneuver and reenter the street front first.

Truck Loading/Unloading

To protect the function of streets as traffic facilities, most cities have adopted policies related to the control of truck loading and unloading.

When adequate loading facilities area not provided as part of the land development, a functional conflict often results with respect to the use of public streets for truck loading/unloading.

It must be assumed that of necessity the loading/unloading operation will occur, whether or not provision is made for it. If curb or off-street loading areas are not provided, illegal parking and/or blocking of the street results.

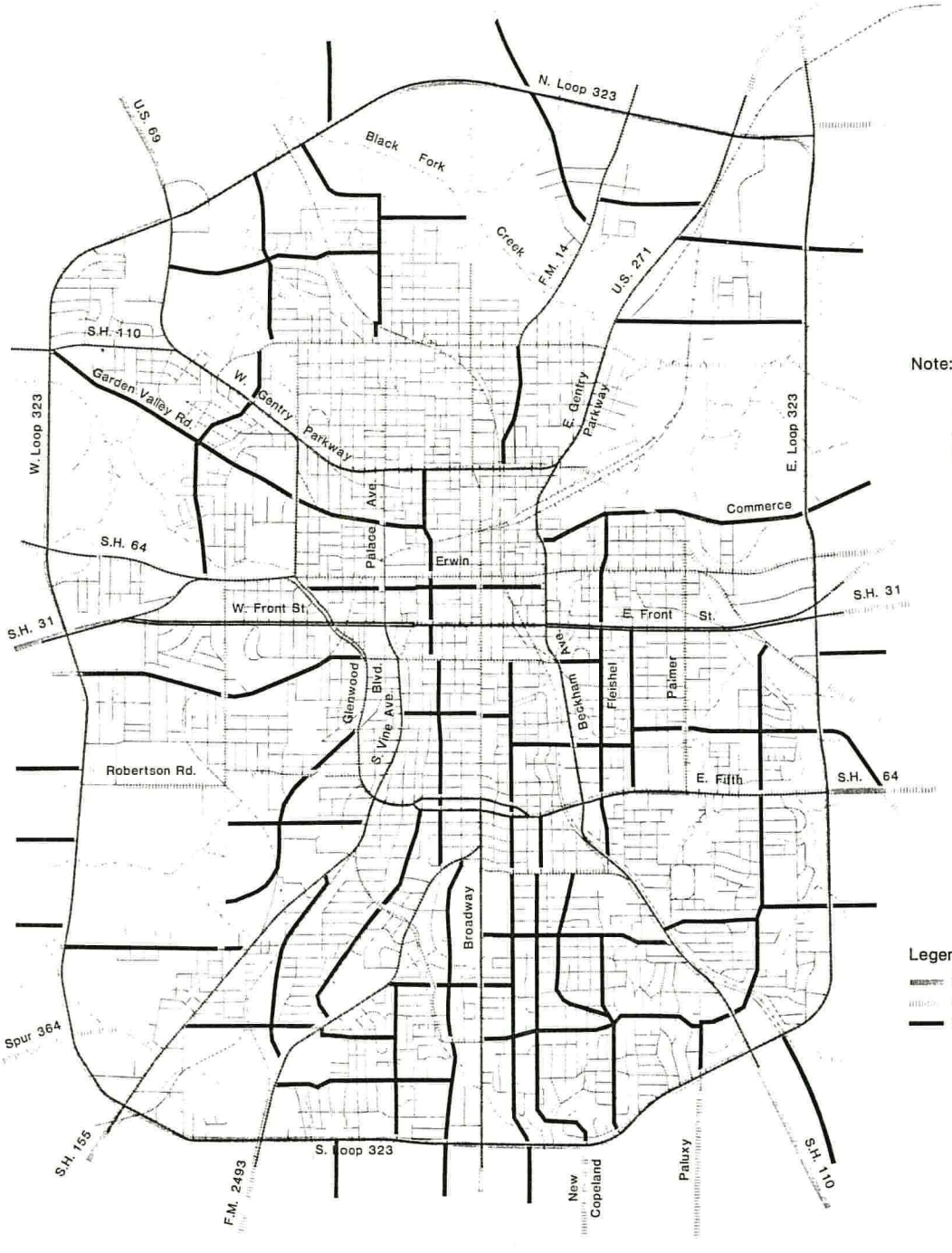
Truck loading/unloading in the Tyler central business district is accommodated, in many cases, by alley entrances to business. Newer developments with significant goods movement needs are usually designed to handle loading at docks off the street right-of-way. However, adequate dock clearance and vehicle maneuver space is not always provided by the owner, or specifically required by the city, and in many cases vehicle maneuvering occurs in the street.

The City of Tyler presently requires the provision of a specified number of loading bays for off-street loading facilities for commercial and industrial land uses (see Section XVII, Zoning Ordinance of City of Tyler). The required number of spaces is based on type and size of the development.

Recommendation - It is recommended that the City adopt requirements for new developments on arterial streets that would require off-street dock and truck maneuver areas for loading/unloading operations.

Recommended Master Street Plan

The master street plan developed for the City of Tyler, recommends approximate alignments and cross-sections for an arterial and collector system in the study area. The plan is illustrated in Figures 9A and 9B. The development of the recommended plan was accomplished in two distinct phases. The first phase involved an



Note:

This Plan Shows General Locations Only Which Are Subject To Modification To Fit Local Conditions

Legend:

- 6-Lane Arterial Street
- 4-Lane Arterial Street
- Collector Street

Recommended Master Street Plan

Master Street Plan

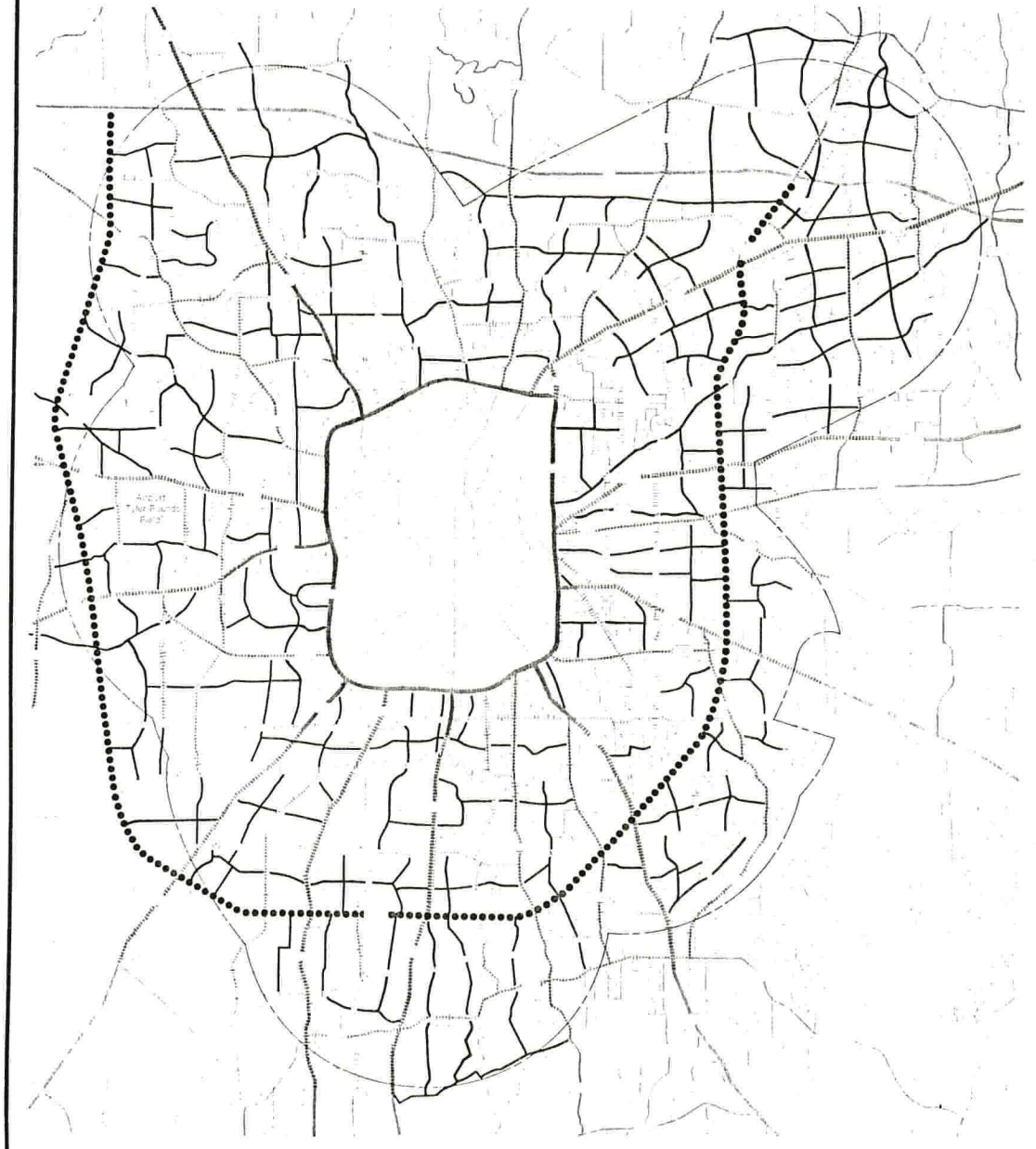
Tyler, Texas

Scale in Feet

0 1500 3000 4500 6000

Wilbur Smith and Associates

Figure 9A



Legend:

- Tyler E. T. J. (Study Area Boundary)
- Freeway (Outer Loop)
- 6- Lane Arterial Street
- 4- Lane Arterial Street
- Collector Street

Note:

This Plan Shows General Locations Only Which Are Subject To Modification To Fit Local Conditions

Recommended Master Street Plan

Master Street Plan

Tyler, Texas

N

Scale in Miles

0 1 2 3

Wilbur Smith and Associates

Figure 9B

assessment of future roadway needs based strictly upon engineering criteria, and involved the definition of a major street network sufficient to accommodate projected future traffic demand at accepted levels-of-service. The second phase of the development of the recommended master street plan introduced the restraints to roadway network improvement dictated by the higher need to maintain certain components of the community infrastructure adjacent to the existing roadway network. As a result, the recommended major street plan presents a strategy for meeting projected future traffic service needs to the maximum extent possible while at the same time being realistic and implementable.

Significant features of the plan outside Loop 323 include recommendations for extending the arterial and collector roadway network to The boundary of the existing Extra Territorial Jurisdiction (ETJ) of the City of Tyler. The plan illustrates the incorporation of the planned outer loop freeway presently planned by the SDHPT.

Inside Loop 323, maximum use is made of the existing roadway network. Significant features inside Loop 323 include widening and extension of existing streets, including extending Broadway north to N. Loop 323 and widening Broadway from the CBD to South Loop 323.

Collector Roadways - Collector roadways in the plan are shown as they presently function in the existing urban area. Collector roads recommended for the undeveloped area can be interpreted as schematic and subject to alteration to fit specific development plans of the area. The exact alignment of collector streets is not critical, but must serve the function of collecting and distributing traffic for areas bounded by arterial streets.

Description of the Plan

The existing roadway facilities and traffic characteristics are significantly different in the areas inside and outside of Loop 323. Since Loop 323 is the interface between these two areas, it reflects the characteristics of both. Due their differing charac-

teristics, the roadway network inside of Loop 323, Loop 323, and the roadway network outside of Loop 323, will be discussed separately.

New Facilities Inside Loop 323

The recommended roadway network inside Loop 323 consists of several new arterial streets, and the upgrading of several existing collector streets to arterial streets.

New Arterial Roadways - Recommended arterial roadway segments on new alignments are described below.

North Broadway Extension - North Broadway is recommended to be extended as a four lane arterial roadway from Gentry Parkway north to Lavendar Road north of Loop 323. The portion of North Broadway from its present terminus near 28th Street to Lavendar Road will be on a new alignment. The City previously acquired necessary right-of-way for this extension. The existing section between Gentry Parkway and M. L. King is to be widened in the City's current bond program.

M. L. King, Jr., Boulevard - MLK is recommended to be extended as a four lane arterial roadway from Gladewater Highway (U.S. 271) east to Loop 323 on a new alignment.

Gentry Parkway Extension to Old Henderson Highway - Gentry Parkway is recommended to be extended east and southeast to connect with Old Henderson Highway at Erwin Street East. This roadway will provide a direct connection between Gentry Parkway at U.S. 271 and the east portion of Tyler.

Lyon's Avenue Extension - This extension is recommended to be constructed from its present terminus at Robertson Road, south to Walton Road, and then along the Gardner Street alignment to the Frankston Highway. This new connection would be constructed as a four lane arterial roadway.

3rd Street - Robertson Road Connector - A new roadway segment is recommended, extending West Third Street from Englewood Avenue west to Lyons Avenue where it connects to Robertson Road. The new connector is recommended to be constructed as a four lane arterial roadway, and with the improved sections of Robertson Road and West

3rd Street (upgraded to four lane arterial cross sections) will form an arterial roadway connection between Glenwood Boulevard and West Loop 323.

S.H. 364 Extension - This extension is a new arterial roadway recommended to extend S.H. 364 to the east across W. Loop 323 to intersect the Tyler-Frankston Highway at a point southwest of Seaton Street. This new arterial roadway would be constructed to a four-lane divided cross-section.

Improvements to Existing Streets

In addition to the new roadway extensions previously discussed, the improvements to the arterial roadway network inside Loop 323, required to accommodate projected year 2000 traffic demands, involve improvements to existing arterial streets. The recommended improvements are described below.

South Broadway - Between Front Street and Old Jacksonville Road, South Broadway is the only north-south arterial roadway between South Vine Avenue and South Beckham Avenue, and presently carries much of the north-south through traffic demand. South of Old Jacksonville Road, Old Bullard Road, although classified as a collector facility, carries between 10,000 and 12,000 daily trips in the Broadway corridor and serves to relieve demand on South Broadway. The traffic volumes projected on South Broadway in the year 2000 will require significant additional capacity between Front Street and Old Jacksonville Road.

Due to the magnitude of the improvements required within the South Broadway corridor to accommodate the projected year 2000 traffic volumes, several alternative improvement concepts were evaluated. Three of the alternatives evaluated met the criteria of providing a direct connection between the CBD area north of Front Street and the area outside Loop 323 within the South Broadway corridor. The following five roadway network alternatives for accommodating the projected year 2000 traffic along the South Broadway Corridor were evaluated:

Alternative 1 - Do Nothing;

Alternative 2 - Widen South Broadway to the maximum extent possible within the existing right-of-way;

Alternative 3 - Widen South Broadway as in Alternative 2 and improve College Avenue-Old Bullard Road to a four-lane parallel arterial;

Alternative 4 - Widen South Broadway as in Alternative 2 and and improve Donnybrook Avenue to a four-lane parallel arterial; and

Alternative 5 - Widen South Broadway to a six-lane arterial between Front Street and Loop 323 South.

Alternative 1 - This alternative proposes no geometric roadway improvements on South Broadway or any parallel collector or other residential streets. Should the projected year 2000 traffic volume demand in the South Broadway Corridor be realized, these volumes would have to be accommodated to the extent possible on South Broadway with the capacity deficit being accommodated on parallel streets such as Chilton Avenue South, College Avenue South, Brookside Drive, Old Bullard Road, Donnybrook Avenue South, and other residential streets. The existing four-lane configuration of South Broadway between Front Street and Loop 323 South has a capacity to accommodate approximately 15,600 vehicles per day at Level of Service C and approximately 18,000 vehicles per day at Level of Service D. Assuming that traffic will continue to utilize South Broadway until an unacceptable level of congestion results (level of service E), approximately 18,000 vehicles per day can be accommodated in the narrowest section of South Broadway between Charnwood Street and Fourth Street. College Avenue South - Old Bullard Road and Donnybrook Avenue South would probably accommodate the majority of the overflow from South Broadway, adding an additional 3,000 to 4,000 trips per day to each street. Between Charnwood Street and Fourth Street, year 2000 traffic volumes on Donnybrook could be expected to increase to approximately 8,000 to 9,000 vehicles per day with 4,000 to 6,000 vehicles per day expected on College Avenue South. With their existing alignments, which include numerous off-sets and on-street parking, these projected traffic volumes would create significant congestion on these two predominately residential streets.

The "do nothing" alternative would result in severe congestion on South Broadway, Donnybrook Avenue and on College Avenue South,

with increased traffic volumes experienced on other parallel residential streets. The environment of the neighborhood east and west of South Broadway will be impacted by the infiltration of north-south through traffic along the South Broadway corridor. In summary, this alternative has the following impacts:

1. Severe traffic congestion on South Broadway during peak traffic periods.

2. High volumes of traffic filtering through neighborhoods on parallel collector and residential streets.

Alternative 2 - This alternative proposes that South Broadway be widened to a four lane arterial roadway with left turn lanes between Charnwood Street and Fourth Street and to a six-lane arterial roadway with left turn lanes between Fourth Street and South Loop 323. Widening between Charnwood and Fourth Street is currently funded in the City Bond Program. This improvement alternative would have the following impacts:

1. The improved cross-sections of South Broadway would not accommodate the projected year 2000 traffic demand at a desirable level of service. Level of service D to E operations would be expected during the peak traffic periods.

2. Infiltration of traffic on parallel residential and collector streets would exist. However, the traffic volumes on residential streets would not be as significant as in Alternative 1.

3. The widening of South Broadway between Charnwood Street and Fourth Street, could be accommodated within the existing 90 feet of right-of-way. However, existing landscaping would be impacted. In this section, a raised median could be included in the design and landscaping of the median, and right-of-way could create an environment more pleasant than currently exists.

Alternative 3 - This alternative involves the improvement of South Broadway to a four-lane arterial roadway with left turn lanes between Front Street and Fourth Street and to a six-lane arterial roadway with left turn lanes between Fourth Street and South Loop 323. Old Bullard Road and College Avenue would be improved to a four-lane cross-section (minimum 52-foot roadway) between Front Street and Rieck Road to serve as a parallel arterial. The

upgrading of College Avenue will involve the elimination of three off-sets in College Avenue at Rusk Street, Houston Street and at Front Street. This improvement alternative would have the following impacts:

1. The widening of South Broadway between Charnwood Street and Fourth Street, could be accommodated within the existing 90 feet of right-of-way. However, landscaping would be impacted. This improvement is currently funded in the City Bond Program.

2. The widening of South Broadway between Fourth Street and Amherst to a six-lane arterial cross-section would require an additional 20 feet of right-of-way and a street widening of approximately 24 feet.

3. The widening of South Broadway from Amherst to South Loop 323 can be accommodated within the existing right-of-way.

4. College Avenue and Old Bullard Road have a 60 foot right-of-way. College Avenue is a 30-foot wide street. Old Bullard Road is 36 feet in width. Ten additional feet of right-of-way would be needed on both streets. College Avenue would need to be widened an additional 22 feet, while Old Bullard Road would need to be widened an additional 16 feet. Additional widening would be required at major intersections to provide left turn lanes. The elimination of offsets on College Avenue at Rusk Street, Houston Street and Front Street would require the acquisition of approximately one-half city block of property at each location.

5. The predominate impact would be to residential properties, and the established neighborhoods along Old Bullard and College Avenue.

Alternative 4 - This alternative involves the improvement of South Broadway Avenue to the same standards as described in Alternative 2. The impacts to South Broadway are also the same as for Alternative 2. South Donnybrook Avenue would be extended south to intersect with South Loop 323 at Macon Drive (this is in the current City Bond Program). A transition to eliminate the offset between South Donnybrook Street and Fannin Avenue would be constructed between East Houston and East Reeves Streets. Macon Drive would be extended south to Rieck Road. The Donnybrook Avenue - Macon Drive arterial between East Front Street and Rieck Road would be constructed to a four-lane undivided arterial cross-

section with left turn lanes provided at major intersections. Ten to twenty feet of additional right-of-way would be required along the existing portions of Donnybrook Avenue and Macon Drive. Additional right-of-way to remove the offset between Donnybrook Avenue and Fannin Avenue at Houston Street and to extend Donnybrook south to East Loop 323, and Macon Drive south to Rieck Road would be required.

Impacts of this alternative roadway improvement are as follows:

1. Same impacts on South Broadway as Alternative 2.

2. Ten to 20 residential structures would require removal for right-of-way acquisition. Fifteen to twenty additional residences would lose approximately one-third of their front yard, since an estimated 10 feet of additional right-of-way will need to be acquired on Donnybrook between Troup Highway and Loop 323, to accommodate roadway widening of approximately 22 feet.

Alternative 5 - This alternative involves the widening of South Broadway to a six-lane arterial cross-section between Front Street and South Loop 323. An additional 20-feet of right-of-way would be required between Amherst and Front Street. Sufficient right-of-way exists on Broadway between Amherst and South Loop 323 to construct a six-lane arterial cross-section. Broadway Avenue is 42 feet in width between Charnwood Street and Fourth Street, then widens to 64 feet in width between Fourth Street and South Loop 323. The six-lane arterial cross-section requires a street width of 88 feet. This improvement alternative would have the following impacts:

1. Substantial right-of-way acquisition;

2. The removal of several commercial structures; and,

3. Many of the existing trees and landscaping along South Broadway between Front Street and South Loop 323 would be eliminated.

Evaluation of Broadway Alternatives - Acceptance of the "do nothing" alternative or implementation of any of the four improvement alternatives will have varying degrees of impacts.

Consideration of community values relating to the maintenance of the integrity of residential neighborhoods and the maintenance of trees and landscaping along the three corridor streets considered for improvement indicates that none of the five alternatives would be entirely acceptable. It does not appear that any engineering solution that would provide adequate roadway capacity to accommodate projected year 2000 traffic demand along the Broadway corridor would be completely compatible with the existing land use and community concerns. It therefore appears that trade-offs between traffic capacity needs and impacts may be necessary.

However, without major improvements as defined in three of the five corridor improvement alternatives evaluated, the projected traffic demand cannot be accommodated on arterial streets. It is therefore likely that the demand will be satisfied through increased use of residential streets parallel to and within the Broadway corridor. In addition, traffic conditions on South Broadway during peak periods will be at lower than desirable levels-of-service, during peak periods.

It is apparent that differing community values are in conflict regarding the improvement of Broadway. The maintenance of the existing visual character of South Broadway is a community concern. The protection of residential neighborhoods from the negative impacts of high traffic volumes is also an important community objective. The safe and efficient movement of traffic is a community objective. However, the achievement of all objectives is not possible in the face of increasing traffic demand along the South Broadway corridor, and the total sacrifice of any objective may not be desirable.

Recommendation - It is recommended that Alternative 2 be adopted as the strategy which best balances the needs for traffic service and community impacts. This alternative would include widening Broadway to four lanes with left turn lanes between Charnwood Street and Fourth Street and to six lanes with left turn lanes between Fourth Street and South Loop 323. It is recommended that special design and landscaping features be considered in the section between Charnwood Street and Fourth Street.

Other Improvements Inside Loop

The remainder of the system recommendations inside, and including, Loop 323, consist of improving existing arterial and collector streets to accommodate increased traffic demand, and the designation of several additional streets as collector streets. These recommendations, like those for the South Broadway corridor, recognize that constraints and potential impacts may require improvements which do not satisfy traffic demand at a desirable level-of-service.

North-South Arterials Inside Loop

Exclusive of the thoroughfares discussed in the preceding section for new thoroughfare alignments, this section summarizes indicated improvement needs for north-south arterial streets.

Old Henderson Highway - Old Henderson Highway is recommended to be constructed as a four-lane divided roadway between S.H. 64 and Erwin.

Palmer Avenue - McMurrey Drive - Presently extends between E. Fifth Street and Commerce Street. Palmer Avenue borders the eastern portion of Tyler Junior College. The recommended Gentry Parkway Extension would provide a direct connection between McMurrey Drive and Gentry Parkway, and significantly improve access to the east Tyler area from north Tyler. The existing alignment of Palmer Avenue and McMurrey Drive would generally be widened to a four-lane undivided cross-section with additional widening at major intersections to provide left-turn lanes.

E. Gentry Parkway and Gladewater Highway (U.S. 271) Beckham Avenue - Troup Highway (S.H. 110) - This arterial forms the primary north-south corridor in the eastern portion of Tyler between Broadway and Loop 323 South, and are recommended to be developed as a six-lane arterial roadway between Loop 323 South and M.L. King, Jr., Boulevard. The existing four-lane arterial roadway between M.L. King, Jr. Boulevard and N. Loop 323 should be adequate to accommodate projected year 2000 traffic volumes. This roadway corridor also provides access to downtown Tyler from the northeast and southeast portions of the metropolitan area.

Old Jacksonville Road - Old Jacksonville Road is recommended to be widened to a four-lane arterial road within the study area. To minimize additional right-of-way acquisition, the cross-section inside Loop 323 may need to be limited to a four-lane, fifty-two foot wide cross-section with widening at major intersections to provide left-turn lanes. South of Loop 323, Old Jacksonville Road should be constructed as a four-lane arterial roadway with continuous left turn lane.

Frankston Highway (S.H. 155) - Vine Avenue - Palace Avenue - This facility is recommended to be improved to a four-lane arterial roadway with continuous left turn lane between Loop 323 South and Sunnybrook Drive, and between Gentry Parkway and M.L. King, Jr. Boulevard. Between Sunnybrook Drive and Gentry Parkway, Vine Avenue and Palace Avenue are recommended to be improved to a six-lane arterial roadway. This facility forms the major north-south corridor in the western portion of Tyler. Frankston Highway, south of Loop 323, is currently being widened by the SDHPT.

South Lyons Avenue - The development of this facility to a four-lane arterial roadway with continuous left turn lane in conjunction with the proposed southerly extension of Lyons Avenue to the Frankston Highway, will provide an additional north-south arterial facility in the western portion of Tyler. This new arterial roadway extending between West Erwin Street and S.H. 155 will provide north-south access through this area.

East-West Arterials Inside Loop

This section summarizes improvements to existing east-west arterial streets within Loop 323.

M. L. King, Jr. Boulevard - In conjunction with the recommended extension of M.L. King, Jr. Boulevard between East Gentry Parkway and East Loop 323, as previously described, this arterial will form the major east-west roadway in the northern portion of the city between N. Loop 323 and Gentry Parkway. The existing four-lane arterial cross-section on M.L. King, Jr. Boulevard between West Gentry Parkway and East Gentry Parkway is sufficient to meet future demand.

West Gentry Parkway - Van Highway - West Gentry Parkway enters Tyler from the north across Loop 323, and on a crescent-shaped alignment, crosses the northern portion of Tyler north of the CBD. The West Gentry Parkway - Van Highway (S.H. 110) corridor provides the primarily east-west travel corridor north of the Tyler CBD. The recommended extension of Gentry Parkway to Commerce Street near Fleishel Avenue North will provide continuity of traffic flow between northwest and east/southeast Tyler including Tyler Junior College. Gentry Parkway presently has sufficient width to accommodate the recommended six-lane cross-section. The existing four-lane cross-section on Van Highway will require widening at major intersections to accommodate left-turn lanes.

Dallas Highway - Erwin Street - The Dallas Highway (S.H. 64 west) and Erwin Street between the Chandler Highway and Old Henderson Highway is an east-west arterial facility serving the Tyler CBD. From Spring Avenue east to Old Henderson Highway, Erwin Street is recommended to be widened to a four-lane arterial facility with additional widening for left-turn lanes at Beckham Avenue, Fleishel Avenue and at McMurrey Drive.

Front Street - Chandler Highway (S.H. 31) - Front Street and Chandler Highway serve as the major east-west arterial facility through the central portion of Tyler. It is recommended that Front Street and Chandler Highway be improved to a six-lane arterial roadway within Loop 323. The portion of the Chandler Highway connecting S.H. 31 and S.H. 64, is adequate in its existing configuration and cross-section. Front Street is currently planned for widening to provide four lanes and a continuous left turn lane.

Robertson Road - Third Street - Robertson Road and Third Street west of Glenwood Boulevard are recommended to be improved to a four-lane facility in conjunction with the construction of the new roadway connector between Lyons Avenue and Englewood Avenue. Between W. Loop 323 and Englewood Avenue, a four-lane roadway with continuous left turn lane is recommended. East of Englewood, a four-lane roadway without left turn lanes may be necessary to reduce the required right-of-way through the existing residential area between Englewood Avenue and Glenwood Boulevard. This recommended arterial roadway between Glenwood Boulevard and West

Loop 323, in conjunction with Fifth Street, will provide an east-west arterial street across this section of Tyler.

Fourth Street/Fifth Street (S.H. 64) - Fifth street, in pair with Fourth street between South Wall Avenue and South Augusta Avenue, serves as the major east-west facility across the southern portion of Tyler. It is recommended that Fourth Street/Fifth Street be improved to the equivalent of a six-lane roadway with left turn lanes between Third Street and Palmer Avenue. East of Palmer Avenue, the existing four-lane roadway is expected to be adequate to meet future needs.

Houston Street - Houston Street serves as a minor east-west arterial street between Glenwood Boulevard and Fleischel Avenue. It is recommended that Houston Street be improved to a four-lane arterial roadway between Glenwood Boulevard and Fleishel Avenue. Left turn lanes are recommended at Glenwood Boulevard, Vine Avenue, South Broadway, South Beckham and at Fleishel Avenue.

Old Troup Highway - Old Troup Highway between South Broadway and South Beckham Avenue serves as an east-west arterial. It is recommended that this section of Troup Highway be improved to a four-lane roadway with left-turn lanes at South Broadway, Donnybrook Avenue, and South Beckham Avenue.

Loop 323 - This facility forms a circumferential loop around Tyler. Year 2000 projected traffic volumes will require a six-lane roadway on Loop 323. Grade separated intersections will possibly be needed at the following six locations:

1. E. Front Street/E. Loop 323;
2. E. Fifth Street/E. Loop 323;
3. Troup Highway (S.H. 110/S.F. Loop 323;
4. South Broadway/S. Loop 323;
5. Old Jacksonville/S. Loop 323 (including railroad grade separation); and
6. Chandler Highway (S.H. 31)/W. Loop 323

Thoroughfares Outside Loop 323

The recommended thoroughfare network outside Loop 323 consists of, 1) the existing radial U.S. and State highways and the Farm to

Market (F.M.) road network; 2) the existing, but limited network of major and minor streets presently constructed, primarily in the south, southeast and west portions of the metropolitan area, 3) the proposed Outer Loop Expressway, and 4) recommended extensions of existing arterial streets, and recommended new arterial streets.

U.S. Highways, State Highways and F.M. Roads - Existing highways radiate from Loop 323 at regular intervals of approximately one to one and one-half miles apart at Loop 323. Within a distance of one mile out from Loop 323 this spacing remains adequate to meet the approximate spacing guidelines for arterial roadways. Divergence of the radial arterials farther out from Loop 323 leaves large areas within the study area with inadequate arterial service.

In general, all U.S., State and FM Roads within the study area are recommended to ultimately have a minimum four-lane cross-section. The following highways are estimated to require a six-lane cross-section for the stated distance outside of Loop 323:

	Facility	Approximate Distance Outside Loop 323
1)	East Fifth Street (S.H. 64)	To Old Omen Road
2)	Troup Highway (S.H. 110)	1.0 mile
3)	South Broadway (U.S. 69)	To Rieck Road
4)	Frankston Highway (S.H. 155)	To Rice
5)	Chandler Highway (S.H. 31)	2.5 miles
6)	Mineola Highway (U.S. 69)	3.0 miles

Existing Major Streets - The existing major streets in the study area outside Loop 323 that will be incorporated into the thoroughfare plan are described in the following paragraphs. These streets are predominantly within the urbanized area on the south side of Tyler.

Rice Road - Shiloh Road - Rice-Shiloh extends from Old Jacksonville Highway (FM 2493) east to Troup Highway (S.H. 110), and when current City bond projects are completed on the eastern and western ends, will have a four-lane cross-section.

Rieck Road - Rieck Road presently extends from Plantation Drive east to New Copeland Road. This street, constructed to a four-lane cross-section without left turn lanes, presently functions as a collector roadway facility, and is shown in the master street plan as a collector.

Grande Boulevard - Grande presently extends from Old Jacksonville Highway to South Broadway Boulevard. This street, constructed as a four-lane cross-section, presently functions as a collector facility, but will function as an arterial street as it is extended in the future.

Cumberland Road - Cumberland presently extends from South Broadway east to Paluxy Road (FM 756). It is located approximately three miles south of Loop 323. This street, constructed to a two-lane rural cross-section, presently functions as a collector facility, and is recommended to be an arterial street in the future.

Old Omen Road - Old Omen Road begins at Loop 323 in the southeast quadrant of the city, and runs southeast crossing Fifth Street, McDonald Road, and University Boulevard and terminates at FM 848. Old Omen Road presently functions as a collector facility between Loop 323 and Fifth Street and as an arterial facility between Fifth Street and F.M. 848.

Other Roadways - A number of existing minor streets and rural roads throughout the study area are incorporated into the recommended master street plan. However, due to the meandering alignments of many of these roadways, in most cases, only short segments coincide with recommended arterial alignments. Most of these minor streets and roads serve as collector facilities in the recommended plan.

Proposed Outer Loop Expressway - The proposed outer loop expressway, would encircle the Tyler urban area on the east, south and west sides at a distance from Loop 323 which varies between three and five miles. The outer loop will connect to Interstate Highway 20 at two points, which will serve to create a complete loop around the urban area.

The schedule for implementation of the proposed Outer Loop Expressway has not been established. However, a segment of the

proposed alignment between S.H. 155 and S.H. 110 has been scheduled by the SDHPT for project planning (route studies, environmental analyses, schematic design, and other planning).

Recommended Arterial Extensions and New Alignments

For the most part, existing major streets are incorporated into the plan and extended through the study area. In several cases, new alignments or partial use of existing roads are recommended for development of the arterial street network.

Arterial Roadways - The recommended Master Street Plan, extends Rice Road and Shiloh Road east to intersect S.H. 64 along the F.M. 3236 alignment and to the west to intersect the proposed Outer Loop Expressway. Rice Road - Shiloh Road forms an arterial roadway located approximately one-half mile south of Loop 323 through the area expected to experience intense future development. Existing development and right-of-way may limit the development of Rice Road - Shiloh Road to a four-lane arterial cross-section. The recommended plan develops Rieck Road as an east-west collector facility paralleling Rice Road - Shiloh Road and Grande Boulevard. Grande Boulevard is recommended to be extended as a major arterial roadway east to FM 848, and to the west to the proposed alignment of the Outer Loop Expressway, where it will continue as a county road on an existing alignment. The Master Street Plan recommends the construction of an east-west arterial roadway that crosses South Broadway (U.S. 69) approximately at Cumberland Road and extends between FM 848 on the east and State Highway 155 on the west.

The remainder of the recommended arterial street alignments illustrated in Figure 9B are located at an approximate spacing of one-mile. Few additional radial arterials are recommended since the existing highway network is adequate to provide radial arterial service in most of the study area.

The recommended arterial network was designed to provide a north-south and east-west arterial grid system, to the extent

feasible. Deviations from the spacing guidelines and north-south and east-west grid system result primarily from natural barriers created by flood plains, lakes and major drainage channels. To a lesser extent, deviations in alignment are also influenced by man-made barriers such as existing development and railroad lines.

Collector Roadways - Collector roadways in the plan are shown as they presently function in the existing developed areas. Collector roads recommended for the undeveloped area can be interpreted as schematic and subject to minor alteration to fit specific development plans of the area.

The exact alignment of collector streets is not critical, but must serve the function of collecting and distributing traffic for arterial streets.

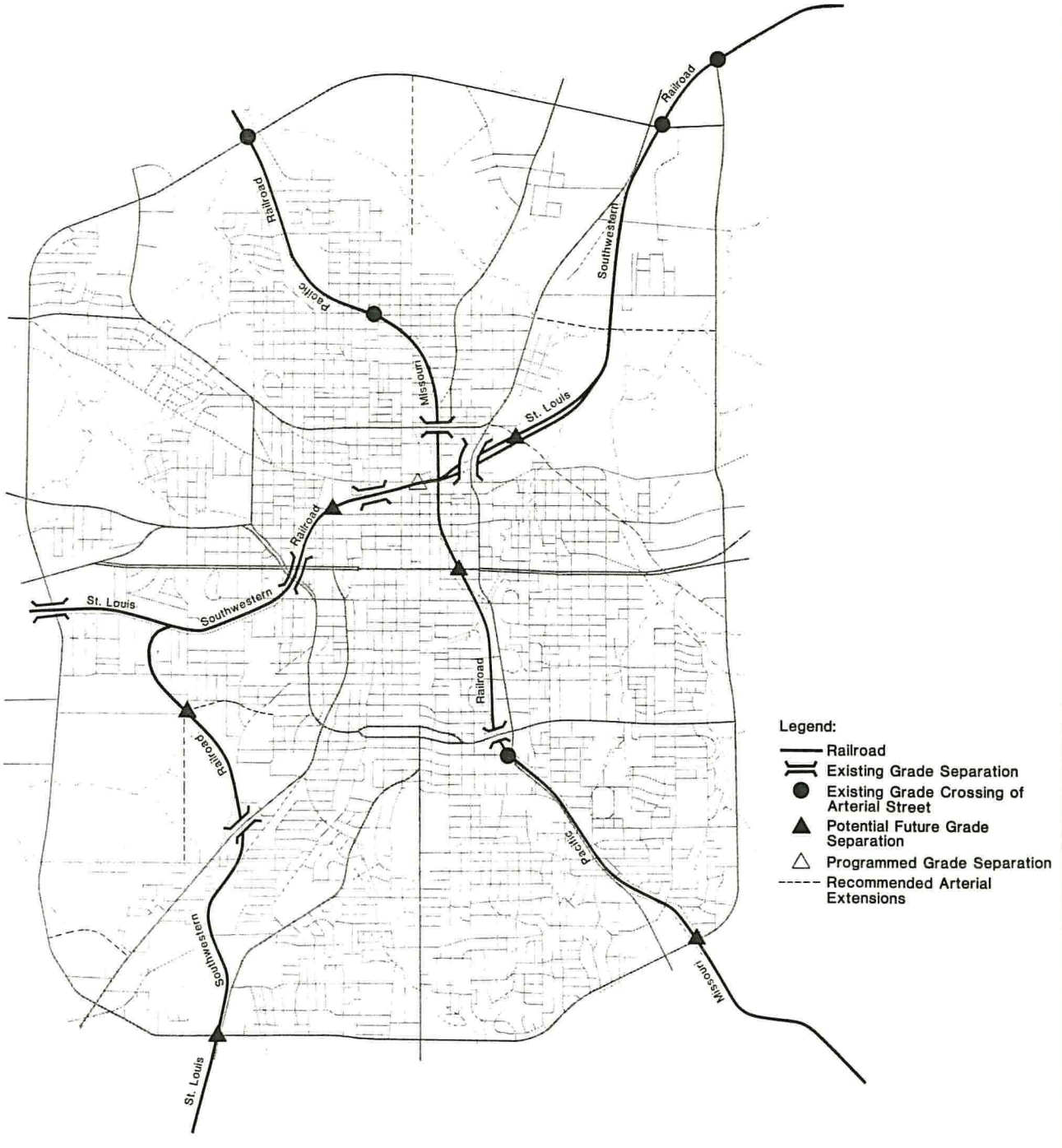
A design principal for collector roads, illustrated by the plan, is that where possible, collector streets should be made discontinuous between arterial streets to discourage through traffic. The plan generally recommends that these discontinuities occur at collector/collector intersections and not at arterial/collector intersections, so that efficient intersection-signalization and operation is maintained on the arterial system. Many of collector/collector intersections will be under stop sign control.

Railroad Grade Crossings

At-grade intersections between railroads and streets have long been recognized as a significant safety and traffic operations problem. Accidents at these crossings are generally much more severe than other types of traffic accidents. The operational effect on street traffic caused by the blocking of a crossing by a train is highly variable, depending upon number, length, and speed of trains, and the volume of street traffic.

Main-line tracks of the St. Louis Southwestern Railway and the Missouri Pacific Railroad cross the City of Tyler as illustrated in Figure 10.

At-grade crossings of the railroad with the existing arterial street network occur at 10 locations on or within Loop 323. Grade



Potential Future Railroad Grade Separations

Master Street Plan

Tyler, Texas

N Scale in Feet

0 1500 3000 4500 6000

Wilbur Smith and Associates

Figure 10

separated crossings of the railroad with the existing arterial street and collector network presently exist at 7 locations. The 10 existing at-grade crossings and 7 grade separated crossings are illustrated in Figure 10. These locations are listed in Table 7.

Recommended roadway additions to the arterial roadway network in the recommended Master Street Plan will add a number of additional crossings of arterial streets with the railroad.

The impact of grade crossings on motor vehicle traffic on the crossing streets can be substantial in terms of delay and accident potential, particularly on and inside Loop 323 where projected traffic volumes indicate the potential for significant delays. Table 8 lists the 15 at-grade arterial/railroad crossings that will exist on arterial streets in the recommended Master Street Plan.

Recommendation - A goal of the Master Street Plan should be to grade separate intersections of arterial streets with the railroad. However, grade separations are costly and can be difficult to implement in urbanized areas. Normally, the achievement of only a limited number of railroad grade separations is possible. It is recommended that the six locations listed in Table 9 be considered for future grade separations. Two of the six locations are on high volume sections of Loop 323. The four remaining locations are on arterial streets which are now, or are projected to be important elements in the future roadway network. North Broadway at the St. Louis Southwestern Railway, is presently programmed for implementation by the State Department of Highways and Public Transportation.

Table 7

EXISTING AT-GRADE CROSSINGS OF
THE ARTERIAL STREET NETWORK
Tyler Master Street Plan
Tyler, Texas

	CROSSING	1983 AVERAGE DAILY TRAFFIC
1.	S.E. Loop 323 Missouri Pacific RR	28,900
2.	S.W. Loop 323 St. Louis S.W. RR	27,000
3.	S. Beckham Avenue Missouri Pacific RR	21,000
4.	N. Broadway St. Louis S.W. RR	17,000
5.	E. Front Street Missouri Pacific RR	15,600
6.	Palace Avenue St. Louis S.W. RR	15,400
7.	N.W. Loop 323 Missouri Pacific RR	11,400
8.	M.L. King, Jr. Blvd. Missouri Pacific RR	7,600
9.	E.N.E. Loop 323 St. Louis S.W. RR	7,100
10.	N.N.E. Loop 323 St. Louis S.W. RR	5,700

Table 8

AT-GRADE CROSSINGS
RECOMMENDED ARTERIAL STREET SYSTEM
Tyler Master Street Plan
Tyler, Texas

	CROSSING	PROJECTED 2000 ADT VOLUMES
1.	S.E. Loop 323 Missouri Pacific RR	46,000
2.	E. Front St. Missouri Pacific RR	38,000
3.	S.W. Loop 323 St. Louis RR	37,500
4.	N. Palace Avenue St. Louis S.W. RR	33,000
5.	N. Broadway St. Louis S.W. RR	30,700
6.	S. Beckham Avenue Missouri Pacific RR	23,400
7.	N.W. Loop 323 Missouri Pacific RR	22,300
8.	E. Houston Street Missouri Pacific RR	18,100
9.	E. Gentry Parkway Extension(1) St. Louis S.W. RR	15,600
10.	E.N.E. Loop 323 St. Louis S.W. RR	15,000
11.	M.L. King, Jr. Blvd. Missouri Pacific RR	12,400
12.	Robertson Road/South Lyons Avenue(1) St. Louis RR	9,800
13.	N.N.E. Loop 323 St. Louis S.W. RR	9,000
14.	N. Broadway(1) Missouri Pacific RR	7,000
15.	M.L. King, Jr. Blvd.(1) St. Louis S.W. RR	4,000

(1) Proposed new roadway alignment.

Table 9

POTENTIAL FUTURE RAILROAD GRADE SEPARATIONS
Tyler Master Street Plan
Tyler, Texas

	CROSSING	PROJECTED 2000 ADT VOLUMES
1.	S.E. Loop 323 Missouri Pacific RR	46,000
2.	E. Front St. Missouri Pacific RR	38,000
3.	S.W. Loop 323 St. Louis S.W. RR	37,500
4.	N. Palace Avenue St. Louis S.W. RR	33,000
5.	Robertson Road St. Louis S.W. RR	9,800
6.	East Gentry Parkway Extension St. Louis S.W. RR	15,600

Chapter 5

Implementation

The recommended Tyler Master Street Plan carries a high price tag--not in money alone but also in potential impacts to homes and commercial structures to provide the necessary width for rights-of-way. It calls for expenditures of up to approximately $1,488,390 per mile on certain streets. It calls for improving some existing streets, on right-of-way only 60 feet wide, with multi-lane arterials with a left turn lane between the opposing traffic streams, and built on rights-of-way up to 110 feet in width.

Impact of Tyler Growth Rate

The recommended thoroughfare development program is typical of urban street modernization programs throughout the United States.

The significant increase in the city's population over the last three decades, from less than 39,000 in 1950 to more than 70,000 in 1980, has been matched by a similar increase of both manufacturing and non-manufacturing employment.

The increase in motor vehicle traffic which has accompanied this rapid urban growth rate has been squeezed into an arterial street network which, except for extensions into previously undeveloped areas, was not designed to accommodate volumes of traffic of this magnitude.

The result has been a steady intensification of traffic congestion, accidents, and delays on major city streets. In short, the recommended Master Street Plan represents part of the price of growth, past and future.

Role of Urban Transportation Corridors

In order to make clear the penalties involved in failure to adopt the essential elements of the recommended thoroughfare

program, with as few compromises as possible, it will be necessary to promote among the citizens of Tyler, an understanding of the special role of major urban travel corridors in the economic life of the community, and this important influence on the total community environment.

Urban areas exist because a large number of people, living in one locality, create maximum opportunity to assemble more productive combinations of men and machinery for output of goods and services. The mutual closeness of men and machinery in an urban area is a product of the community's transportation system.

But as urban areas grow in population, with the new growth spreading further into outlying portions of the community, the average speed of travel between all destinations in the urban area must increase. Otherwise, residents of the community no longer will retain the same degree of proximity that they had in the past--thus weakening the economic basis for existence of the urban area.

Service to Community Growth Goals

As the Tyler urbanized area extends its future growth further into presently undeveloped sections, provision of high-capacity major transportation corridors will become of increasing importance to serve three recognized goals of sound community development:

1. Labor mobility between area job markets;
2. Preventing deterioration of residential areas; and
3. Concentration of industrial-commercial land uses.

Labor Mobility Between Area Job Markets - As Tyler grows in population, a continuing need will exist for a mix of job opportunities and classes of employment skills between central and outlying areas of the community--so that some central-city residents can commute to employment concentrations in outlying areas, while some residents of new outlying neighborhoods continue to commute to central sections of the city for work purposes.

The recommended master street plan is important to the future increase in work-trip travel speeds, so that as the community expands over a larger land area all sections of the region will retain a reasonable level of mobility.

The alternative result, which will follow if major thoroughfare traffic capacities and travel speeds do not increase will be that growing inaccessibility will force major relocations of industry, retailing and professional centers, and other trip-generating developments.

Preventing Deterioration of Residential Areas - The development of high-capacity major thoroughfares linking together all sections of Tyler will create a functional street classification system, by separating long-trip movements from short-trip neighborhood travel on local streets.

The "spill-over" of heavy through-traffic movement onto local neighborhood streets, resulting from the buildup of traffic congestion on low-capacity major thoroughfares, has been a principal cause of deterioration of residential streets in sections of mature cities throughout Texas and the nation.

This phenomenon illustrates the fact that neither zoning regulations or land use planning can work effectively in isolation from careful planning and development of major arterial routes, so designed and operated that they have adequate capacity for serving trips between various sections of the community.

Since the majority of Tyler's growth has taken place in the last three decades the city is not yet experiencing significant deterioration of residential neighborhoods caused by through-traffic spill-over.

However, Tyler should heed the lessons provided by the experience of numerous mature residential neighborhoods in other Texas cities, which have been blighted by the intrusion of heavy through-traffic movements onto local streets that were not designed, or intended, for such use.

Concentration of Industrial-Commercial Land Uses - A final reason for emphasis on provision of high-capacity major thoroughfares, particularly in newly developing outlying areas, is that locations adjacent to major intersections along these routes become economically and functionally desirable sites for concentrating new office centers, industrial parks, shopping centers, and other commercial developments.

In this manner, an orderly and efficient urban land use design is fostered, with incompatible land uses not mixed in with residential, educational, governmental, cultural, and recreational developments.

This ability of a properly designed major thoroughfare network to support Tyler's urban planning goals applies not only to newly urbanizing areas, but to future redevelopment programs within the central part of the city as well.

The total thoroughfare network creates neighborhood cells, within which the urban planner can work in confidence in designing all functional elements of the community structure. It is the most powerful of all tools available to the urban planner to promote and preserve the land use pattern the city is seeking to achieve.

Recommended Five-Year Implementation Plan

The recommended Master Street Plan is not expected to be fully implemented within any given time period, but has been developed for the entire Tyler extraterritorial jurisdiction. In fact, only a portion of the study area will be urbanized within the next 15 years. This urban expansion is expected to take place as infill within Loop 323 and as new development in areas located primarily within one to three miles outside Loop 323. The pattern of urbanization is difficult to project with certainty into future years. Therefore, improvements are generally made in increments based upon short-range needs.

The recommended short-range implementation program is listed in Tables 10 and 11, and addresses existing transportation needs and projected short-range needs for the period 1985 to 1990. The program includes City and SDHPT planned improvements (shown in Figure 11), as well as other projects recommended on the basis of this study.

Estimated Cost

The estimated cost of the recommended 5-year improvement program is $29,413,500. The procedures for determining the cost estimate are discussed in the following paragraphs.

Table 10

RECOMMENDED 5-YEAR IMPROVEMENT PROGRAM
Arterial Streets
Tyler Master Street Plan

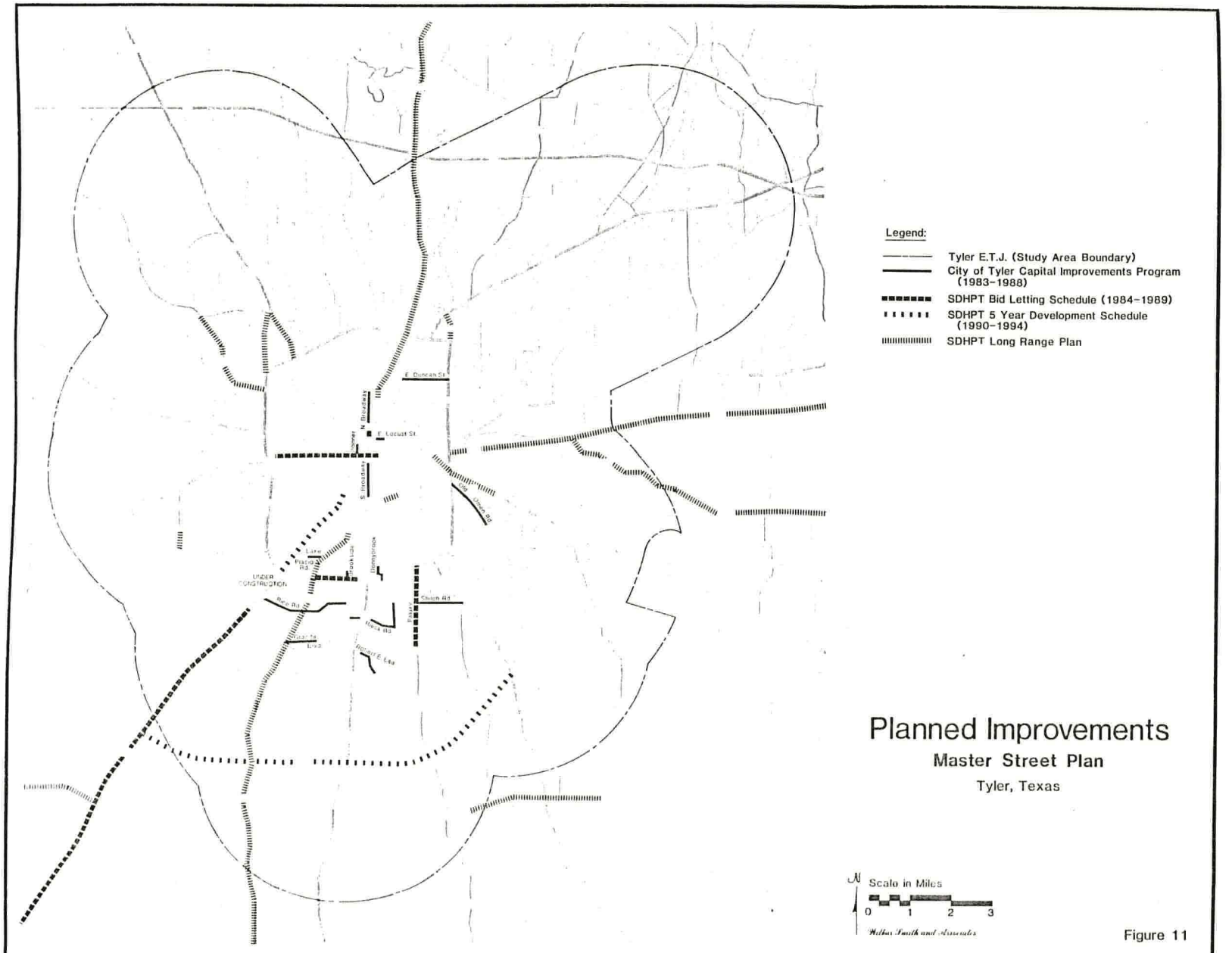
	NAME OF STREET	FROM	TO	TYPE OF IMPROVEMENT	PROJECT LENGTH	AGENCY	ESTIMATED PROJECT COST
ARTERIAL STREETS							
1)	Shiloh Road	Paluxy Drive	SH 110 South	Widen to 52 Ft.	5,700 Ft.	City	$ 781,500
2)	South Broadway	Charnwood Street	4th Street	Widen to 64 Ft.	4,100 Ft.	City	184,500
3)	Copeland Road	Shiloh Road	Rieck Road	Widen to 64 Ft.	3,850 Ft.	City	613,000
4)	Old Omen Road	E.S.E. Loop 323	McDonald Road	Widen to 52 Ft.	7,000 Ft.	City	1,077,000
5)	Rice Road	F.M. 2493	SH 155	Construct 52 Ft. Roadway	6,700 Ft.	City	307,000(1)
6)	North Broadway	Gentry Parksay	M. L. King, Jr.	Widen to 52 Ft.	3,750 Ft.	City	901,000
7)	Robertson Road/ Third Street	West of Lyons	Glenwood	Construct 64 Ft. Roadway	4,650 Ft.	City	2,586,500
8)	Lyons	Front Street	Frankston Hwy.	Widen 64 Ft. Construct New 64 Ft. Roadway	9,000 Ft. 8,025 Ft.	City City	5,143,000
9)	Spur 364 Extension	W. Loop 323	Frankston Hwy.	Construct 64 Ft. Roadway	3,900 Ft.	City	897,000(1)
10)	S. Beckham Ave - Troup Highway	E. Front Street	S. Loop 323	TSM Improvements	15,750 Ft.	SDHPT	600,000
11)	Loop 323	West of Frankston Hwy. Paluxy Road	Old Bullard Road West of University	Widen to 6-Lanes With Left Turn Lanes	14,250 Ft.	SDHPT	1,966,500
12)	Front Street	Chandler Hwy.	Fannin St.	Widen to 64 Ft.	11,760 Ft.	SDHPT	944,000
13)	Paluxy Road	E.S.E. Loop 323	Copeland Road	Widen to 64 Ft.	11,400 Ft.	SDHPT	1,246,000
14)	N. Broadway	At St Louis SW RR		Construct Grade Separation	-	SDHPT	3,586,500
15)	N. Broadway	M. L. King, Jr.	Loop 323	Widen to 64 Ft. and construct 64 Ft. Roadway and Bridge	8,000 Ft.	City	$ 3,065,000
					TOTAL ARTERIAL		$23,898,500

(1) This amount is for City participation with Developers.

Table 11

RECOMMENDED 5-YEAR IMPROVEMENT PROGRAM
Collector Streets
Tyler Master Street Plan

NAME OF STREET	FROM	TO	TYPE OF IMPROVEMENT	PROJECT LENGTH	AGENCY	ESTIMATED PROJECT COST
COLLECTOR STREETS						
1) Rieck Road	1,000 Ft E. of S. Broadway	Copeland Road	Widen to 40 Ft.	3,400 Ft.	City	$ 882,000
2) Rieck Road	South Bradway	Old Bullard Road	Widen to 40 Ft.	840 Ft.	City	79,500
3) South Donnybrook Ave.	South of Brookwood	E.S.E. Loop 323	Widen to 40 Ft.	900 Ft.	City	480,500
4) South Bonner Ave.	West Front Street	West Erwin St.	Widen to 40 Ft.	1,450 Ft.	City	211,000
5) Lake Placid Road	Old Jacksonville Rd.	Old Noonday Rd.	Widen to 40 Ft.	1,800 Ft.	City	395,500
6) East Locust Street	North Beckham St.	North Center St.	Widen to 40 Ft.	900 Ft.	City	238,500
7) Duncan Street	U.S. Hwy. 271	N.N.E. Loop 323	Widen to 40 Ft.	5,900 Ft.	City	604,000
8) Macon Road	Shiloh Road Atlanta Avenue	Atlanta Ave. Rieck Road	Widen to 40 Ft. Construct 40 Ft. Road	1,725 Ft. 750 Ft.	City	521,000
9) South DonnyBrook Ave.	Old Troup Hwy.	East Fourth St.	Widen to 40 Ft.	2,025 Ft.	City	344,000
10) Fleishel Ave.	Front St.	Beckham Ave.	Widen to 40 Ft.	7,050 Ft.	City	1,198,500
11) McDonald Rd.	Troup Hwy.	Golden Rd.	Widen to 40 Ft.	3,300 Ft.	City	$ 561,000
				TOTAL COLLECTOR		$ 5,515,000



Legend:

- Tyler E.T.J. (Study Area Boundary)
- City of Tyler Capital Improvements Program (1983–1988)
- SDHPT Bid Letting Schedule (1984–1989)
- SDHPT 5 Year Development Schedule (1990–1994)
- SDHPT Long Range Plan

Planned Improvements

Master Street Plan

Tyler, Texas

N

Scale in Miles

0 1 2 3

Wilbur Smith and Associates

Figure 11

Basis of Cost Estimates - Development costs for new and improved facilities in the recommended Thoroughfare Program are calculated on the basis of 1985 prevailing unit prices for materials and labor. These generalized costs reflect construction costs applicable to the Tyler area.

The final costs of implementing each improvement are highly dependent upon the timing of both right-of-way acquisition and construction. The use of current cost values provides a basis by which the relative costs of each improvement can be compared.

Factors such as construction contract size, prevailing labor and material cost indices, and right-of-way costs, will influence the final costs of developing each project of the plan; therefore, the final cost may vary significantly from these generalized estimates.

The total estimated cost for the recommended thoroughfare development program includes construction costs and right-of-way costs.

Unit Construction Cost - The unit construction costs listed in Table 12 were utilized in developing estimated construction costs for extension of new routes and improvement of existing facilities. These values were developed from review of recent project costs and bids in the Tyler area.

Costs for Recommended Cross-Sections - The construction costs for the recommended 6-lane and 4-lane arterials were estimated on the basis of a generalized 1,000-foot section and converted to cost per mile. These costs, shown in Tables 13 and 14, are $1,488,390 per mile for a 6-lane arterial and $1,216,620 per mile for a four-lane arterial.

The construction costs to widen an existing facility were developed by modifying the estimates in Tables 13 and 14 to include the removal of existing curb and gutter and sidewalk, and resurfacing of pavement. Only streets with urban cross-sections were considered for widening. Streets with rural cross-sections were estimated on the basis of constructing new facilities with an urban cross-section.

For specific projects, additional costs for drainage and structures were added to the typical costs where appropriate.

Table 12

1985 UNIT CONSTRUCTION COSTS
Tyler Master Street Plan
Tyler, Texas

CONSTRUCTION ITEM	UNIT	UNIT PRICE
Mobilization	Per Mile	Lump Sum
Clearing, Grubbing, and Demolition	Acre	$2,000.00
Common Excavation	Cubic Yard	4.25
8" Compacted Iron Ore (Base Course)	Square Yard	4.25
2" HMAC (Surface Course)	Ton	55.00
Street Subgrade Stabilization (Lime)	Square Yard	1.50
Concrete Curb and Gutter (6" Curb, 3' Slab)	Linear Foot	3.90
4-inch Concrete Sidewalk	Square Yard	6.60
Topsoil, Fertilizer, and Planting	Acre	1,000.00
Relocation of Utilities	Per Mile	2,500.00
Storm Sewer, Including Excavation and Backfill	Linear Foot	42.58
Engineering and Supervision of Construction	15 Percent of Total Cost	

Table 13

ESTIMATED CONSTRUCTION COSTS, 6-LANE ARTERIAL
Tyler Master Street Plan
Tyler, Texas

ITEM	UNIT	COST PER MILE
Mobilization	Lump Sum	$ 10,000
Clearing, Grubbing, and Demolition	13.3 Ac. @ 2,000.00	26,600
Excavation, Roadway	26,105 C.Y. @ 4.25	110,950
8" Compacted Iron Ore (Base Course)	48,645 S.Y. @ 4.25	206,950
2" HMAC (Surface Course)	5,356 Tons @ 55.00	294,580
Street Subgrade Stabilization (Lime)	64,535 S.Y. @ 1.50	96,800
Concrete Curb and Gutter (6" Curb, 3' Slab)	10,560 L.F. @ 3.90	41,180
4" Concrete Sidewalk	4,690 S.Y. @ 6.60	30,950
Topsoil, Fertilizer, Planting	1.6 Ac. @ 1,000.00	1,600
Relocation of Utilities	Lump Sum	25,000
Storm Sewer, Including Excavation and Backfill	10,560 L.F. @ 42.58	449,640
	SUBTOTAL	$1,294,250
Plus 15 Percent Engineering and Contingencies		194,140
	TOTAL COST PER MILE	$1,488,390

NOTE: Roadway includes six traffic lanes plus two-way left turn lane.

Table 14

ESTIMATED CONSTRUCTION COSTS, 4-LANE ARTERIAL
Tyler Master Street Plan
Tyler, Texas

ITEM	UNIT	COST PER MILE
Mobilization	Lump Sum	$ 10,000
Clear, Grubbing, and Demolition	10.9 Ac. @ 2,000.00	21,800
Excavation, Roadway	19,066 C.Y. @ 4.25	81,030
8" Compacted Iron Ore (Base Course)	34,615 S.Y. @ 4.25	147,110
2" HMAC (Surface Course)	4,130 Tons @ 55.00	227,150
Street Subgrade Stabilization (Lime)	52,800 S.Y. @ 1.50	79,200
Concrete Curb and Gutter (6" Curb, 3' Slab)	10,560 L.F. @ 3.90	41,180
4" Concrete Sidewalk	4,690 S.Y. @ 6.60	30,950
Topsoil, Fertilizer, Planting	2.1 Ac. @ 1,000.00	2,100
Relocation of Utilities	Lump Sum	25,000
Storm Sewer, Including Excavation and Backfill	10,560 L.F. @ 37.16	392,410
	SUBTOTAL	$1,057,930
Plus 15 Percent Engineering and Contingencies		158,690
	TOTAL COST PER MILE	$1,216,620

NOTE: Roadway includes four traffic lanes plus two-way left turn lane.

Plan Review and Update

This master street plan is the beginning point of the thoroughfare planning process, rather than the end. It is not a one time effort, but should be viewed as a continuing process.

The master street plan should be monitored and periodically reviewed and updated by the City of Tyler in order to maintain consistency with changing conditions, needs, and resources. The short-range improvement program should be periodically revised as recommended projects are completed, and other recommended improvements are added to new five year programs.

It is recommended that the City review and update the short-range improvement program as the basis for developing bond programs for street improvements.

Implementation of this master street plan requires coordination among the City, SDHPT, the county, and the private sector in making judicious decisions concerning the availability and use of road improvement resources. A workable master street plan is a significant element toward fulfilling future mobility needs within the Tyler urban area.

City Action on Master Street Plan

A preliminary report of the Master Street Plan Study was submitted to the City of Tyler by the Consultant on May 9, 1985. Following public meetings and a period for receipt of comments, the City of Tyler Planning Commission made a recommendation to the City Council to adopt the recommended plan, with certain specific modifications. The City of Tyler Planning Commission's recommendations are provided in the Appendix of this report.

Appendix

City of Tyler

212 NORTH BONNER

Tyler, Texas 75710

POST OFFICE BOX 2039

September 30, 1985

Mr. Gene Goolsby
908 Town and Country Road
Suite 400
Houston, TX 77024

Dear Mr. Goolsby:

Please be advised that the City of Tyler Planning Commission has formulated its recommendation on the proposed Master Street Plan. The City Planning Commission will forward its recommendation to the City Council. The City Planning Commission recommended the Preliminary Master Street Plan as submitted on May 9, 1985 with the following modifications:

1. Figure 9-A should be changed to reflect the recommended collectors designation (McDonald Road) to follow the following route:

   (A) Along Sterling Drive between Golden Road and Troup Highway; and

   (B) Delete from the recommendation the proposed collector alignment along McDonald Road from Golden Road and Troup Highway;

2. The description of the transition between Donnybrook Avenue and Fannin Avenue, in Alternate 4, Page 27, should be changed to read as follows: "A transition to eliminate the offset between South Donnybrook Street and Fannin Avenue would be constructed between East Houston Street and East Reeves Street";

3. On Page 46, under the subheading Arterial Roadways, delete sentences 6 and 7, which reads as follows: "Due to the density of existing developments south of Grande Boulevard, the next feasible east-west arterial corridor does not occur for approximately 1 3/4 miles. Therefore, it is recommended that if sufficient right-of-way is available, that Grande Boulevard between the east and west sections of the Outer Loop be developed as a six-lane arterial roadway." In addition, figure 9-A should be modified to show the arterial loop between Loop 323 and the Outer Loop as a four-lane arterial roadway.

4. On Page 43, under the subheading Loop 323, the second sentence should be changed to read as follows: "Year 2000 projected traffic volumes will require a six-lane roadway on Loop 323." In addition, figure 9-A should be modified to show all of Loop 323 as a recommended six-lane arterial roadway.

5. On Page 45, under the subheading Cumberland Road, the third sentence should be changed to read as follows: "This street, constructed to a two-lane rural cross-section, presently functions as a collector facility. Cumberland Road is recommended to be an arterial street with the exception of that portion between U. S. Highway 69 (Broadway) and Highway 110, which shall be designated as a collector street. A 90 foot right-of-way should be required for this portion designated as collector to allow for potential expansion in the future. The balance of Cumberland Road would remain as a four-lane arterial street.

With the above delineated modifications, the Planning Commission recommends the Preliminary Report to the City Council.

If you have any questions or need any additional information, please contact me at your convenience.

Sincerely yours,

Paul L. Parker

Paul L. Parker, AICP
Director of Planning
And Development

PLP/nlh