



# Transportation

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## Sachse Comprehensive Plan

The Transportation Element of the Sachse Comprehensive Plan provides a framework for planning and guiding the rational and orderly development of the area's thoroughfare system, including Expressways, Arterials, Collectors and Local Streets. This element includes a review of previous transportation plans and studies, overview of existing transportation facilities and services, analysis of travel characteristics and development of the thoroughfare system plan for the City of Sachse. It covers the same geographic area, within the city limits, as other elements of the Comprehensive Plan. The planning area boundary is illustrated in **Figure 4-1 - Thoroughfare Plan**.

### **AUTHORITY FOR PLANNING AND REGULATING THOROUGHFARES**

Under the provisions of Article XI, Section 5 of the Texas Constitution and Title 7, Chapter 212 of the Texas Local Government Code, the City of Sachse may require that development plans and subdivision plats must conform to "...the general plan of the municipality and its current and future streets..." and, "...the general plan for extension of the municipality and its roads, streets and public highways within the municipality and its extraterritorial jurisdiction.....". Requirements for right-of-way dedication and construction of street improvements should apply to all subdivision of land within the City's incorporated area.

### **PREVIOUS PLANS AND STUDIES**

There are a number of related plans and studies that address transportation improvement needs for the City of Sachse, Dallas and Collin Counties and the Metroplex, which are being reviewed and considered in the development of the Comprehensive Plan.

- ★ *Comprehensive Plan Update, 1986 as amended*
- ★ *North Central Texas Metropolitan Planning Organization Regional Transportation Plan—Mobility 2025*

### **EXISTING TRANSPORTATION SYSTEM**

The development of the Transportation Element for the Comprehensive Plan includes analysis and evaluation of the City of Sachse's existing transportation system. The existing roadway and traffic conditions of the highway and street network have been identified and analyzed to assist in determining long-range needs for thoroughfare system development. Physical conditions of the roadway system and characteristics of existing travel patterns are based upon available information obtained through the City of Sachse, Dallas and Collin Counties, North Central Texas Metropolitan Planning Organization (MPO), Texas Department of Transportation (TxDOT), and other governmental agencies. Other transportation modes, facilities and services have also been identified and analyzed.

Sachse's transportation system is served by three modes: automobile, rail and non-motorized. The automobile travel mode, the predominant mode, is served through a utilitarian roadway network of state highways and local roads and streets. Sachse's solitary state highway is State Highway (SH) 78, which connects northeastern Dallas County with eastern Collin County and Fannin County. Through Sachse, Highway 78 is a four-lane divided facility that traverses the city from southwest to northeast. The remainder of Sachse's roadway network is comprised of local roads and streets. It should be noted that the planned extension of the President George Bush Turnpike (Highway 190) might pass through southern Sachse.

The rail mode in Sachse is accommodated by a track owned by Union Pacific that runs adjacent to SH 78 across the city. Because of its proximity to SH 78, this track contains numerous at-grade crossings. In addition, this track causes a significant geometric constraint where crossing roads intersect SH 78.

Although there are currently few facilities dedicated to the non-motorized travel mode, there is a demand for such facilities. As a result, the city is planning the future construction of a trail system designed to accommodate pedestrians, bicycles, and equestrians.

### **Major Traffic Generators**

The location and character of land uses that generate large numbers of trips have a major influence on traffic volumes and flow patterns. Major traffic generators are identified and considered in reviewing the transportation system and developing the Transportation Element. At this time, there are a number of small local businesses and activities in the area. Since the area is expected to grow in both residential and commercial developments, future major traffic generators in the area may include the industrial park, the new Sachse High School and the eventual commercial development near the proposed turnpike.

### **THOROUGHFARE PLAN**

**Thoroughfare System Planning** is the process used by cities and other governmental entities to assure development of the most efficient and appropriate street system to meet existing and future travel needs. The purpose is to ensure orderly and progressive development of the streets to serve mobility and access needs of the public. Thoroughfare planning is interrelated with other components of comprehensive planning and urban development such as land use, housing, environment and public utilities.

It is a common misconception that a Thoroughfare Plan is a blueprint for capital improvements, that once a street or road is shown on a Thoroughfare Plan, it must be improved to the minimum standards shown on the Plan. However, this is not the purpose of a Thoroughfare

Plan. Its purpose is to identify how streets and roads operate and are intended to operate, to provide guidance to local officials and property owners in the decision making process and to help ensure the construction of a logical, complete and functional roadway network. Through the use of typical cross-sections defined for each functional classification, the Thoroughfare Plan provides a uniform and consistent design for all new or improved roadway facilities, which helps provide guidance to motorists with respect to utility, speed and land use. While the Thoroughfare Plan does not identify who is responsible for funding and/or building proposed thoroughfare improvement, including new roadways, it shall be considered to be standard operating procedure that **developers are responsible for constructing and/or improving that portion of all roadways within or adjacent to their development, regardless of functional classification.** While the Thoroughfare Plan does identify how streets and roads are intended to operate, it **does not mandate that an existing functionally classified street or road must be improved to the specifications shown**, except where adjacent to or traversing a new development. In other words, just because an existing street or road is shown as a particular functional classification does not mean it must be improved to conform to the cross-section shown for that particular classification where it is not adjacent to or traversing a new development.

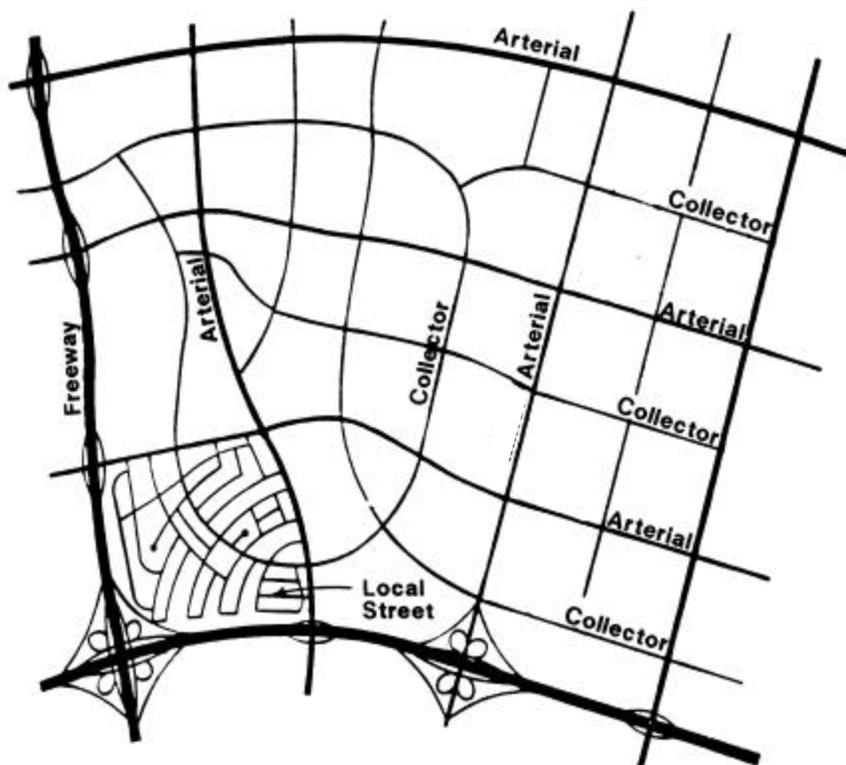
A Thoroughfare Plan is just that, a plan. It is important to recognize that the alignments shown for proposed facilities represent desired corridors and are merely illustrative. In other words, the alignments shown are general alignments. Because of geographical and other constraints, actual alignments may vary. The approximate alignments and right-of-way requirements for planned thoroughfares shown on the Plan should be considered in platting of subdivisions, right-of-way dedication and construction of major roadways.

The Sachse Thoroughfare Plan classifies every road and street within the corporate limits into one of five categories (listed from highest functional classification to lowest): Tollway, Principal Arterial, Minor Arterial, Collector and Local Street. The Sachse Thoroughfare Plan is represented graphically in **Figure 4-1 - Thoroughfare Plan**. While the Plan does show future alignments for those facilities assigned a functional classification of Collector or higher, it does not show future alignments for new Local Streets, because these streets function principally to provide access to adjacent land and their future alignments may vary depending upon specific development plans. Local Street alignments should be determined by the City, in cooperation with developers, as part of all planning for new development.

## **FUNCTIONAL CLASSIFICATION OF THOROUGHFARES**

Thoroughfares are grouped into functional classes according to the type of service they are intended to provide. Thoroughfares are classified according to their functional role in terms of *movement* and *access*. The higher classifications emphasize movement over access, while the lower classifications emphasize access over movement. The functional classification of a thoroughfare normally does not change as traffic increases and improvements are made unless the intended use of that roadway changes. Functional classification is not necessarily related to the number of lanes, although higher classes tend to be multi-lane roadways. However, two-lane roadways can and do function as Principal Arterials in many areas. A graphical representation of the functional classification hierarchy is shown in **Figure 4-2 - Relationship of Functional Classes**.

**FIGURE 4-2  
RELATIONSHIP OF FUNCTIONAL CLASSES**



Source: Wilbur Smith Associates

## **FUNCTIONAL CLASSIFICATIONS**

As stated previously, each of Sachse's streets and roads, existing and future, has been assigned one of the following classifications: Tollway, Principal Arterial, Minor Arterial, Collector and Local Street, with the Tollway being the highest classification, and the Local Street the lowest.

**Tollways and Freeways** are devoted entirely to traffic movement with little or no direct land service function. They are multi-lane divided highways with full access control, meaning that all intersections are grade separated and the main lanes provide no direct access to adjoining properties. Full access control is what distinguishes a Tollway or a Freeway from other classes of roadways. Tollways and Freeways serve large volumes of high-speed traffic and are primarily intended to serve long trips, including both vehicles entering and leaving the urban area, as well as major circulation movements within the urban area. In the Sachse area, currently no roadway facilities function as a tollway or a freeway, although the future extension of the President George Bush Turnpike (the extension of Highway 190) will pass through extreme southern Sachse. For Tollway and Freeway facilities with frontage roads, the main lanes are typically classified separately from the frontage roads, with the frontage roads being assigned a lower Arterial designation.

**Principal Arterials** are streets and highways that provide a high degree of mobility, serve relatively high traffic volumes, have high operational speeds and serve a significant portion of through-travel or long-distance trips. Freeways and Principal Arterials together typically accommodate about 30 to 40 percent of a region's travel on 5 to 10 percent of the total roadway network. Principal Arterials serve as primary routes through a region and between regions. They are continuous over long distances (greater than five miles) and accommodate both intraregional and interregional travel. These facilities generally serve high-volume travel corridors that connect major generators of traffic, such as the central business district, other large employment centers, suburban commercial centers, industrial centers, major residential communities and other major activity centers within the urban area. Highway 78 and Murphy Road north of Blackburn Road are classified as Principal Arterials and shown in purple on the Thoroughfare Plan.

Principal Arterials typically operate between 40 to 55 MPH. In order to expedite the movement of traffic, access to adjacent properties is restricted, on-street parking is prohibited and signals are spaced at not less than ½ mile intervals and are typically limited to only those intersections where the intersecting street is of a classification of Minor Arterial. Where two Principal Arterials intersect, a grade separation should be used. At an interchange of a Principal Arterial and a Tollway or Freeway, a cloverleaf or similar indirect ramping system is desirable to

minimize the impedance of through-traffic. Where intersections on Principal Arterials are installed, they are typically designed to limit speed differentials between turning vehicles and other traffic to no more than 10 to 15 MPH.

**Minor Arterials** are similar in function to Principal Arterials, except that their primary function is to accommodate only intraregional mobility. Minor Arterials are from one to five miles in length, operate at lower speeds (30 to 40 MPH), and provide more direct access to adjacent properties and the local street network. Signals and driveways are more frequent on Minor Arterials, with signals every block in heavily urbanized districts. Unlike Regional Arterials, on-street parking is permitted on Minor Arterials. Minor Arterials that are currently in use (or will be designated) include Maxwell Creek, Blackburn/Ingram, Ranch, Sachse, Merritt and Miles (south of Sachse Road, Pleasant Valley and Bunker Hill Roads and Wood Bridge Parkway. They are shown in red on the Thoroughfare Plan.

Principal and Minor Arterials are generally spaced at one mile intervals in an alternating grid pattern. The integrated system formed by Principal Arterials and Minor Arterials typically includes 15 to 25 percent of the total roadway network and serves 40 to 60 percent of total motor vehicle travel in the area.

**Collectors** are the connectors between Arterials and Local Streets, which serve to collect traffic and distribute it to the Arterial network. Collectors also serve to provide direct access to a wide variety of residential, commercial and other land uses, and their design involves site-specific considerations. They provide direct service to neighborhoods and other local areas, and may border or traverse neighborhood boundaries. Parking is generally permitted on Collectors. Sachse' Collectors are Clubhouse, Hooper, Bailey, Miles (north of Sachse Road), Salmon, Industrial and Ben Davis Roads. They are shown in green on the Thoroughfare Plan.

Since Collectors are used for short distance trips between Local Streets and Arterials, they should be continuous in the spaces between Arterials. However, Collectors should never be more than a mile in length and should not extend across an Arterial, as such an extension will promote the misuse of the Collector as an Arterial. To provide efficient traffic circulation and preserve amenities of neighborhoods, Collectors should desirably be spaced at about one-quarter to one-half mile intervals. Subdivision street layout plans should include Collectors as well as Local Streets in order to provide efficient traffic access and circulation.

Since Collectors generally carry higher traffic volumes than Local Streets, they require a wider roadway cross section. A Collector should be designed to accommodate two travel lanes and two parking lanes. A Collector should never be designed to accommodate more than two travel

lanes throughout its length, as such a design will encourage the misuse of the Collector as an Arterial. A Collector should be designed for an operating speed of 30 MPH. Collectors typically make up about 5 to 10 percent of the total street system.

Collectors serve an important role in collecting and distributing traffic between Arterials and Local Streets. Their identification is essential in planning and managing traffic ingress/egress and movement within residential neighborhoods as well as commercial and industrial areas. Existing Collectors are delineated on the Thoroughfare Plan and planned new Collectors are shown as general alignments that should be considered and incorporated in subdivision platting and development planning.

**Local Streets** include all other streets and roads that are not included in higher classes. They include internal and access streets that allow direct access to residential and commercial properties and similar traffic destinations. Direct access to abutting land is their primary role, for all traffic originates from or is destined to abutting land. Through-traffic and excessive speeds should be discouraged by using appropriate geometric designs, traffic control devices, curvilinear alignments and discontinuous streets. On-street parking is generally permitted. Trip lengths on Local Streets are short, volumes are low and speeds are slow, typically 25-30 MPH. A typical local street can accommodate one travel lane and two parking lanes, although narrower cross-sections are acceptable. Local Streets typically comprise about 65 to 80 percent of the total street system in urban areas. Local streets are shown in black on the Thoroughfare Plan.

### **TRANSPORTATION GOAL, OBJECTIVES AND ACTIONS:**

The Transportation Goal, with its Objectives and Actions form the basis of the transportation plan. They serve as a framework for guiding future transportation growth and improvements within the City of Sachse. For the Sachse Transportation Element these are based upon input from the Steering Committee as well as from comments received from residents at a community meeting held in May 2000. Also taken into consideration were the goals and objectives from the previous plans. The Transportation Plan is based upon the following goal, objectives and actions:

**Transportation Goal:** *Provide access to neighborhoods and businesses while serving overall mobility needs of residents and businesses.*

**Objective A:** Ensure the road system in the City provides appropriate access for residents while discouraging commercial traffic in neighborhoods.

**Action 1:** Use the Thoroughfare Plan to determine where arterial and collector streets are needed in new residential and commercial developments.

Action 2: Use city funds on streets to benefit the community as a whole.

Action 3: Improve traffic signal timings to enhance progressive movement along Hwy 78 and other major thoroughfares.

**Objective B:** Alternative transportation modes should be available to the residents of the City.

Action 1: Provide designated on and off street bike routes.

Action 2: Provide trails, sidewalks and crosswalks on all arterial and collector streets.

**Objective C:** Larger vehicles should utilize major transportation routes around the City to minimize negative impact on residential neighborhoods.

Action 1: Downgrade the functional classifications of roads traversing Sachse to discourage their use by larger vehicles.

Action 2: Adopt designated enforceable truck routes.

Action 3: Establish Hazardous Material Routing.

Action 4: Provide better enforcement of traffic regulations, especially for trucks.

Action 5: Provide signage for truck traffic movement through and within the Sachse area.

## **IMPLEMENTATION OF THE THOROUGHFARE PLAN**

Implementation of thoroughfare system improvements occurs in stages over time as the City grows and, over many years, builds toward the ultimate thoroughfare system shown in the Thoroughfare Plan. The fact that a planned thoroughfare is shown in the plan does not represent a commitment to a specific time frame for construction, nor that the City will build the roadway improvement. Individual thoroughfare improvements may be constructed by a variety of implementing agencies including the City of Sachse, Dallas and Collin Counties and Texas Department of Transportation (TxDOT), as well as private developers and land owners for sections of roadways located within or adjacent to their property.

The City of Sachse, Dallas and Collin Counties, TxDOT, as well as residents, land owners and developers, can utilize the Thoroughfare Plan in making decisions relating to the planning, coordination and programming of future development and transportation improvements. Review by the City of preliminary and final plats for proposed subdivisions in accordance with the Subdivision Ordinance should include consideration of compliance with the Thoroughfare Plan, in order to ensure consistency and availability of sufficient right-of-way for the general roadway alignments shown in the plan. By identifying thoroughfare locations where right-of-way is needed, land owners and developers can consider the roadways in their subdivision planning, dedication of public right-of-way and provision of set backs for new buildings, utility

lines, and other improvements located along the rights-of-way for existing and planned thoroughfares.

The Thoroughfare Plan will have long reaching effects on the growth and development in the Sachse area, since it guides the reservation of rights-of-way needed for future thoroughfare improvements. The plan has important influence on the pattern of movement and the desirability of areas as locations for development and land use. While other elements of the Comprehensive Plan look at foreseeable changes and needs over a 20-year period, thoroughfare planning requires an even longer-range perspective extending into the very long-term future. Future changes in transportation technology, cost structure, service demands for the transportation system and resulting long-term shifts in urban growth and development patterns require a farsighted and visionary approach to thoroughfare planning decisions.

### **PLAN AMENDMENT PROCESS**

It will be necessary to periodically consider and adopt proposed amendments to the Thoroughfare Plan to reflect changing conditions and new needs for thoroughfare system improvement and development. A systematic procedure should be followed for making plan amendments, including a set schedule for annually inviting and considering proposed changes.

The process for amending the Thoroughfare Plan should be established in the City's Subdivision Ordinance. Typically, plan amendment requests may originate from landowners, civic groups, neighborhood associations, developers, other governmental agencies, City staff, and other interested parties. Proposed revisions should be analyzed by the Planning and Development Department, Public Works Director, City Engineer and other City staff and the proposed changes and staff recommendations should then be considered by the Planning and Zoning Commission. The Planning and Zoning Commission should conduct a public hearing on proposed plan amendments, including required 15-day public notice in advance of the hearing. Proposed amendments should be considered in a fair, reasonable and open process. The burden for proving compelling reasons for and public benefit of any proposed changes should rest with the requesting parties. Decisions and determinations should represent the best interests of the public.

The revised Thoroughfare Plan, including any approved plan amendments, should be adopted by the Planning and Zoning Commission and submitted by the Commission for adoption by the City Council. The amended plan becomes effective upon adoption by the City Council.