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**SECTION 5.  
THOROUGHFARE PLAN**

**MASTER PLAN 2004**

**TOWN OF COPPER CANYON, TEXAS**

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## SECTION 5. THOROUGHFARE PLAN

### Introduction

The Thoroughfare Plan is designed to provide a framework for travel throughout the Town and facilitate dispersal of traffic to the regional thoroughfare system. Improving certain roadways also ensures that existing traffic movement may be accommodated. The Thoroughfare Plan is an overall guide that will enable individual developments and roadways within the Town to be coordinated into an effective thoroughfare system.

The thoroughfare system is one of the most critical elements in determining the character and intensity of development within the Town. Once the alignments and rights-of-way of roadways are established and adjacent properties are developed, it becomes very difficult to make significant changes to the system. Therefore, it is important that the existing system be evaluated, with particular attention given to enhancing the overall system's capacity and efficiency. The economic health of the Town will depend largely upon the adequacy of local roads and the efficiency of regional roadways and the overall regional thoroughfare system.

### Functions of Thoroughfare Planning

The Thoroughfare Plan defines a hierarchy of roadway functions that provide for both traffic movement and property access. The Plan also provides a clear statement of future roadway alignments, capacities, and right-of-way (ROW) requirements throughout the planning area. The Thoroughfare Plan has been developed to work in tandem with the Future Land Use Plan and will help facilitate the orderly and controlled development of the community.

The Thoroughfare Plan serves as a guide for determining the ultimate Thoroughfare network. It establishes parameters whereby appropriate Thoroughfare corridors are preserved and/or developed to provide adequate levels of service. It also serves as a guide for programming capital improvement projects. The Plan should reflect community goals, provide efficient traffic routes and complement the desired land use patterns. The Plan should also consider its position within the regional arterial system and make decisions accordingly.

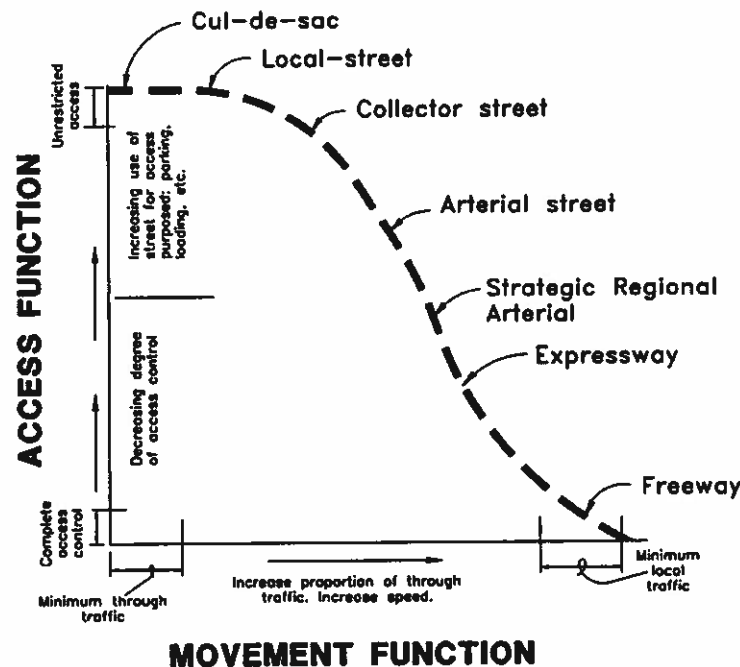
The Thoroughfare Plan was prepared by analyzing the existing system of roadways, incorporating the concerns of citizens as expressed in Section 3. *Goals and Objectives* and during the thoroughfare portion of the planning process.

## 5.1 Functional Classification System and Thoroughfare Standards

A functional classification system defines the role of each roadway type within the Plan. This system translates into physical design features per each roadway type to allow for various street sections and pavement standards.

Illustration 5.1 helps depict the functional street system, or hierarchy, for the community as a whole. The *movement function* refers to the accessibility of adjacent properties from a particular street or thoroughfare. As the illustration indicates, local streets provide the most access to the adjacent properties, but function poorly in terms of mobility. Freeways exhibit high mobility because of speeds and volumes, serve poorly as access to adjacent roads and properties. With this in mind, streets that carry higher volumes of traffic should have a limited number of “curb cuts” (driveway openings), exits and/or extended block lengths (i.e. fewer intersections) so traffic movement will not be impeded. This concept is referred to as the property *access function*.

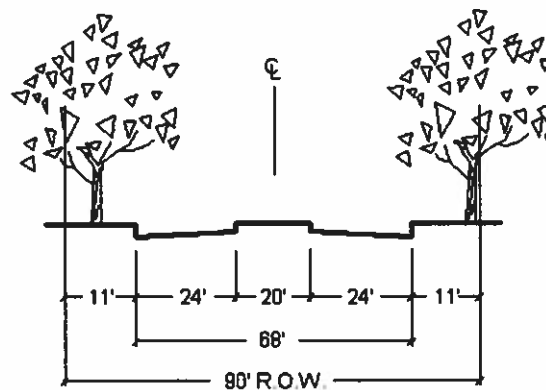
**Illustration 5.1 Functional Street System**



A system consisting of the following roadway types is proposed for Copper Canyon:

**Arterial:** provides for continuity and high traffic volume movement between major activity centers like neighborhoods, commercial centers, etc. F.M. 407 is the only roadway specified as an Arterial. One type of Arterial is specified and matches the street section and right-of-way (90 feet) established by the Town of Flower Mound Thoroughfare Plan and the Texas Department of Transportation (TxDOT). Illustration 5.2 below describes the proposed section as a 4-Lane Divided (4D) Roadway:

**Illustration 5.2**  
**4D Roadway**



**Collector:** Collects and distributes traffic from local access streets, as in residential neighborhoods, to major arterials or highways. These roadways are to be rural in nature and are specified with a minimum twenty four foot (24') roadway section and bar ditches. A minimum right-of-way of sixty feet (60') is described for all rural sections. All rural sections are 2-Lane Undivided Rural (2UR) Roadways. Illustration 5.3 *2UR Roadway* below describes proposed sections for Copper Canyon Road.

**Illustration 5.3**  
**2UR Roadway**

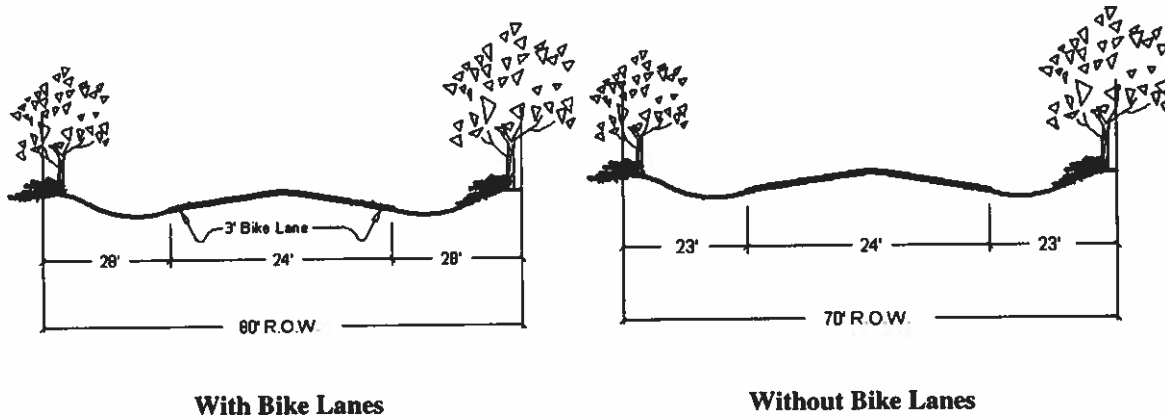
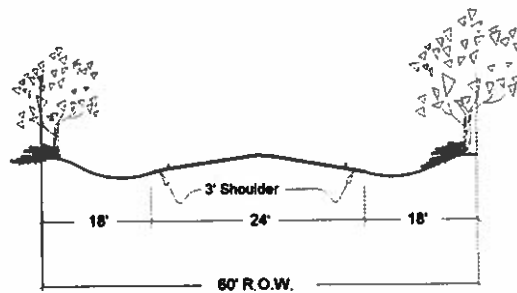


Illustration 5.4 *Reduced Shoulder Without Bike Lanes* is proposed for Chinn Chapel Road and Orchid Hill Lane.

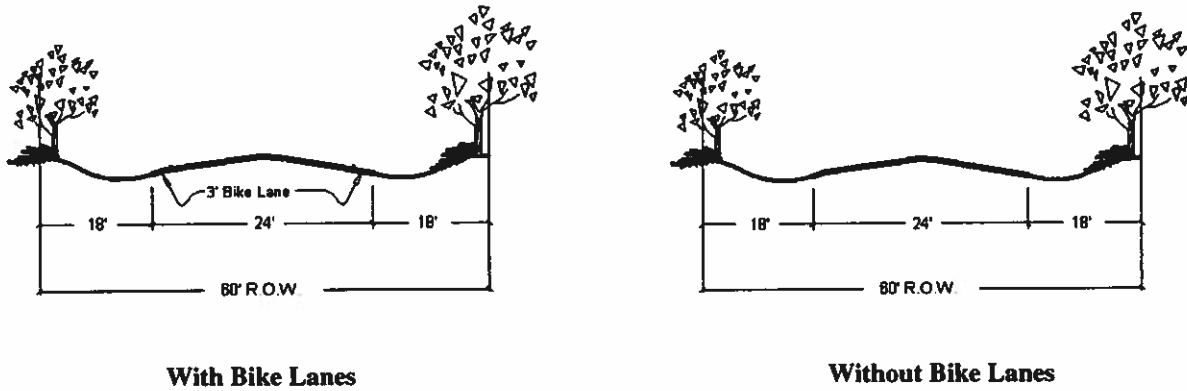
**Illustration 5.4**  
**Reduced Shoulder Without Bike Lanes**



**Residential:** Internal streets within a neighborhood that provide access to residential lots and connection to collector streets. This roadway type can accommodate bike lanes on both sides of the street at a pavement width of twenty four feet (24') and will not require an adjustment in right-of-way.

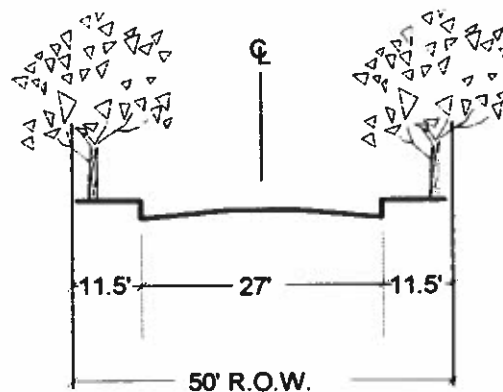
Illustration 5.5 2RUR Roadway proposes sections for residential streets.

**Illustration 5.5  
2RUR Roadway**



An additional residential roadway section is proposed should town housing development and commercial development occur in a manner significant enough to require its own internal street system. This section proposes a twenty seven foot (27') paved section with curb-and-gutter and sidewalks to both sides. Parallel parking may be suitable to both sides of the 2-way street or diagonal parking to one side. Illustration 5.6 below describes the 2-Lane Residential Undivided Urban (2RUU) Roadway section.

**Illustration 5.6  
2RUU Roadway**



## 5.2 Level of Service and Traffic Capacity

*Capacity* is the measure of a street's ability to accommodate the traffic volume along the street. *Level of Service* (LOS) is a phrase representative of several factors, including speed, travel time, traffic interruptions, and operating cost of a traffic facility (roadway), used to measure the quality of the facility. In addition, a roadway link refers to a specific length of roadway, usually between two intersections.

Levels of service "A" through "F" (highest to lowest) are defined in Table 5.1.

**Table 5.1**  
**Definition of Level of Service for Roadway Links**

Level of Service (LOS)	Description	Example
A and B	Light, free-flowing traffic volumes. Virtually no delays with smooth progression of traffic, and speed is generally unaffected by other vehicles. Slight decline in the freedom to maneuver from A to B.	Residential or Rural Streets
C	Basically satisfactory to good progression of traffic, but at that point where individual drivers become affected by interactions with other vehicles. Light congestion, and speed is affected by the presence of other vehicles.	Roadways at Off-Peak Hours
D	High density, but stable traffic flow. Speed and freedom to maneuver are restricted. Small increases in traffic flow will cause significant operational problems. This LOS is generally used to justify thoroughfare improvements.	Secondary Streets (at Peak Hours)
E	Operating conditions at near capacity level. All speeds are reduced to low, but remain relatively uniform, meaning generally not stop-and-go. Operations at this level are usually unstable, because small increases will cause severe speed reductions.	Primary Streets at Peak Hours
F	Forced flow. Heavy congestion. Total breakdown with stop-and-go operation. Queues (i.e., vehicle stacking) at intersections on these lengths may exceed 100 vehicles.	Downtown Areas Usually in Larger Cities at the A.M. or P.M. Peak Hours

Source: North Central Texas Council of Governments

Level of service "C" is generally the recommended level of service in most communities, and is desirable for Copper Canyon. However, a LOS of "C" does not necessarily necessitate a

widened road for additional lanes. Doing so may provide only a temporary solution to a problem that may later become further exacerbated by inviting higher traffic volumes. Each case for additional lanes along collector streets should be examined individually.

### 5.3 Thoroughfare Planning Issues

The following three broad issues have been considered in developing policies for the Thoroughfare Plan:

1. ***Maintaining an adequate, appropriate and efficient roadway network sensitive to the existing character of Copper Canyon.***

Increased population and single-person trips will increase traffic on existing roadways. Each class of street must be designed with relation to the anticipated traffic volume associated with increased development.

2. ***Coordinating roadways and adjacent development.***

Land use planning and thoroughfare planning are closely linked. It is critical to define future travel demand based on increased development of the Town and implement a thoroughfare plan applicable to this demand.

3. ***Cost-effective infrastructure investment.***

Building and maintaining an efficient street network requires an investment of local resources. Careful planning is needed to ensure that the most cost-effective investments in the street network are made for the community as a whole. Funding is usually based on general obligation bonds and impact fees. Other funding sources should also be considered (i.e. the State and counties)

### Recommendations

1. **Since ultimate build-out densities will be relatively low, a traditional thoroughfare system is not necessary. The proposed roadway system is designed around existing roadways. New roadways have been added to compliment the present system while not encouraging "through" traffic. The proposed new roadway system does, however, facilitate the continued development of the Town. Without the addition of new roadways, the existing roadways may suffer from excessive traffic.**
2. **Chinn Chapel Road and Copper Canyon Road should maintain the same cross-sections and established rights-of-way.**



3. **F.M. 407 should maintain the same cross-sections and established ROW as set forth by the Town of Flower Mound Thoroughfare Plan and TxDOT.**

### **Policies**

The following statements describe the recommended policies to guide Copper Canyon's Thoroughfare planning efforts:

1. Plate 4.1 *Future Land Use and Thoroughfare Plan* shows the proposed Thoroughfare Plan together with the Future Land Use Plan. Future residential streets are designated in some areas to ensure proper traffic flow throughout the Town. Additional residential streets may be constructed at the time of platting to provide access to new developments. The alignment of these streets should be determined as part of any action on a preliminary plat, final plat, site plan or zoning case. Any plat, site plan or zoning case not in conformance with the Thoroughfare Plan should not be approved unless an acceptable alternative is developed and approved.
2. A collector street that provides an east-west connection through the Town should not be sought because of its capacity to generate additional traffic volumes and through traffic.
3. Copper Canyon should review the Subdivision Ordinance to ensure the appropriate design standards for planned roadway improvements are in place and changed where necessary.
4. Copper Canyon should seek to maintain a minimum level of service (LOS) standard of "C" on their respective roadways. This standard should be used in reviewing the Thoroughfare needs of future development proposals. Careful consideration should be given if a roadway (rated below "C") is proposed for additional lanes because of the propensity to simply create additional traffic volumes and not successfully address the problem.
5. Development of a Capital Improvements Program should be considered to address the financing of thoroughfare improvements.
6. Thoroughfare system improvements should be prioritized, phased and scheduled in accordance with the Master Plan and the ability to fund the improvements.

7. Roadways constructed by developers must be in compliance with the Thoroughfare Plan and the Town's regulations. Copper Canyon may also require off-site improvements needed to provide adequate access to the development. This policy should be implemented through specific provisions of the Town's subdivision and zoning ordinances.
8. Copper Canyon should coordinate with TXDOT, the North Central Texas Council of Governments (NCTCOG) and other local jurisdictions when planning thoroughfare improvements to F.M. 407, F.M. 2499, Chinn Chapel Road and/or Copper Canyon Road.
9. When streets are designed, consideration should be given to streetscaping and air quality. Citizen involvement in any major street-widening projects should be sought.
10. All alternatives for increasing roadway capacity should be considered before physical road widening is recommended for any roadways.
11. Retail and other non-residential uses that generate high volumes of traffic should be limited to locations where arterial streets provide sufficient access for non-local traffic such as F.M. 407.

## 5.4 Thoroughfare Implementation

The proper administration of the Thoroughfare Plan will require the following actions:

- *Subdivision Control:* The subdivision of land into building sites represents the first step in the development of land uses and the creation of traffic generators. Reasonable land (i.e. ROW) must be set aside at the time of platting so that adequate roadways can be created without adversely impacting the value, stability and long-range character of the area being developed. *Specifically, ROW must be dedicated in accordance with the Thoroughfare Plan as each plat is approved.*
- *Zoning and Land Use Control:* The adequacy of existing and planned roadways must be taken into account in all changes of zoning and land use. When such changes occur, ROW should be provided appropriate to the land use anticipated.
- *Building Lines:* Where widening of an existing Thoroughfare right-of-way is considered,

building line setbacks should increase in depth to allow for the planned widening. In some cases, it will be desirable to establish building lines by ordinance to help ensure orderly and uniform development along roadway corridors.

- *Other Considerations:* Certain aspects of the Plan, such as access controls along major arterials, such as F.M. 407 or F.M. 2499 should be implemented through other design and technical standards that may or may not be included in the Town's Subdivision or Zoning Ordinances. Examples of other standards that need to be implemented are sight and visibility standards and joint (i.e. shared) access standards.