
SECTION 5. TRANSPORTATION PLAN

Introduction

The *Transportation Plan* is designed and intended to provide an efficient, structured framework for the smooth flow of traffic throughout the study area that will accommodate future growth and development. Improving certain aspects of the system also ensures that existing traffic movement may be accommodated. The *Transportation Plan* is an overall guide that will enable individual developments and roadways within the City to be coordinated into an integrated, unified transportation system.

The transportation system is one of the most visible and permanent elements of the urban structure. Once the alignments and rights-of-way of major transportation facilities 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 successful growth of the City will depend largely upon the efficiency of local and regional thoroughfares and of the overall regional transportation system.

The Transportation Plan is a critical determinant of the intensity and location of future development.

5.1 Functions of Transportation Planning

The *Transportation 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 requirements throughout the planning area. The Transportation Plan has been developed in support of the *Future Land Use Plan* and will help facilitate the orderly development of the community.

The Plan serves as a guide for determining the ultimate configuration of the transportation network. It establishes parameters whereby appropriate transportation corridors are preserved and/or developed to provide adequate levels of service. It also serves as a guide for programming improvement projects. The Plan should reflect community goals, provide efficient traffic routes and complement the desired land use patterns. The Plan should also integrate with the regional freeway/highway and arterial system and the roadway systems of surrounding local jurisdictions while being sensitive to topographical features and constraints and being adaptive to change.

The Transportation Plan was prepared by analyzing the existing system of thoroughfares and by proposing changes and recommendations for future thoroughfares based upon the guiding principles formulated during the comprehensive planning process.

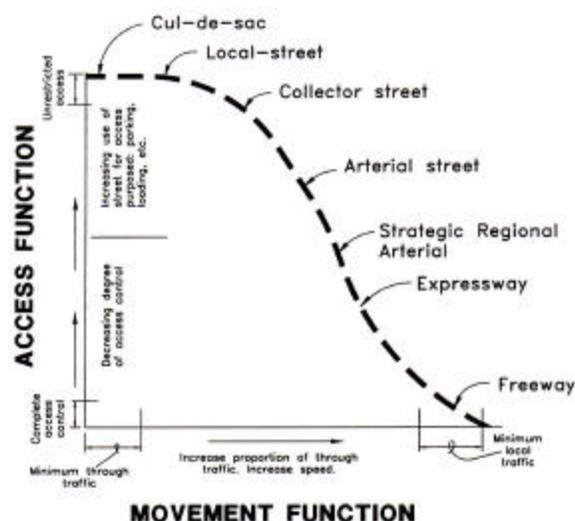
The Transportation Plan should serve the Future Land Use Plan in terms of the alignment and type of roadways appropriate to various land uses.

5.2 Functional Classification System and Transportation Standards

A functional classification system is proposed that reflects the role of each roadway type within the Plan. This system translates into physical design features that include Transportation cross-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 function very well mobility-wise but, because of speeds and volumes, they serve very 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 thoroughfare types is proposed:

- *Highways*: high capacity roadways in which direct access from adjacent properties is eliminated or significantly reduced, and where ingress and egress to the traffic lanes is controlled by widely spaced access ramps and interchanges
- *Major Thoroughfares*: provides for continuity and high traffic volume movement between major activity centers like neighborhoods, commercial centers, etc. Three types of Major Thoroughfares are specified:
 - 6-Lane Divided (6D)
 - 4-Lane Divided (4D)
 - 4-Lane Undivided (4U)
- *Collectors*: collects and distributes traffic from local access streets, as in residential neighborhoods, to major transportation routes or highways. One type of collector is specified:
 - 2-Lane Undivided (2U)
- *Residential or Local*: internal streets within a neighborhood that provide access to residential lots and building sites and should promote connectivity with the greater thoroughfare network. Two types of residential or local roadways are specified:
 - 2-Lane Undivided Rural (2UR)
 - 2-Lane Undivided Urban (2UU)

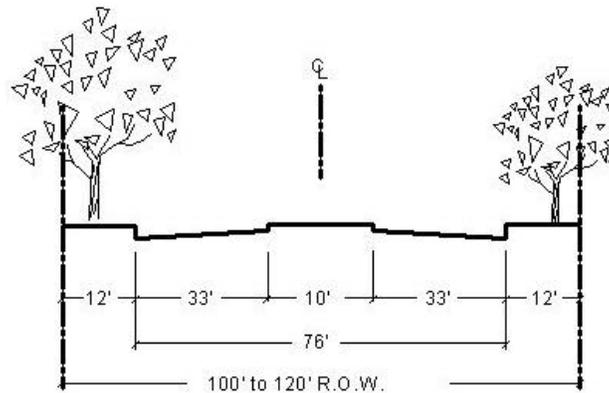
Highways

Highways are typically funded through the Federal Highway Administration and are administered through the Texas Department of Transportation (TxDOT). No new highways are anticipated or proposed within the planning area. However, TxDOT is planning to reconstruct Highway 385, including that portion within the city limits, within the next three years.

Collectors

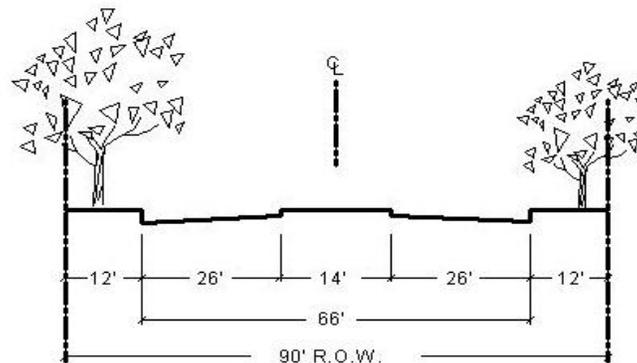
- **6-Lane Divided (6D)** – provides three lanes in either direction with a center median. The median may also be raised to create a divided roadway for safety and possible aesthetic improvements. A right-of-way of 100 to 120' is required.

Illustration 5.2 6D Roadway Section



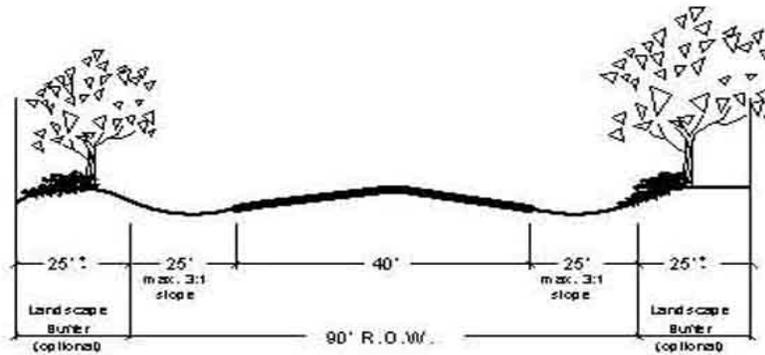
- **4-Lane Divided Roadway (4D)** – provides a 4-lane divided or undivided thoroughfare. This roadway has a 26-foot wide pavement section and a 14-foot center median that may be the “lay down” or painted type, which allows more flexibility for emergency vehicle access. The median may also be raised to create a divided roadway. These streets are intended where traffic volumes are more moderate, 20,000 to 25,000 vehicle trips per day. A minimum right-of-way of 90 feet is required.

Illustration 5.3 4D Roadway Section



- **4-Lane Undivided Roadway (4U)** – provides a 4-lane undivided thoroughfare. This roadway has a 40-foot wide pavement section constructed with bar ditches. These roadways are to be constructed within a 90-foot right-of-way. These streets are intended where traffic volumes are more moderate, 10,000 to 25,000 vehicle trips per day.

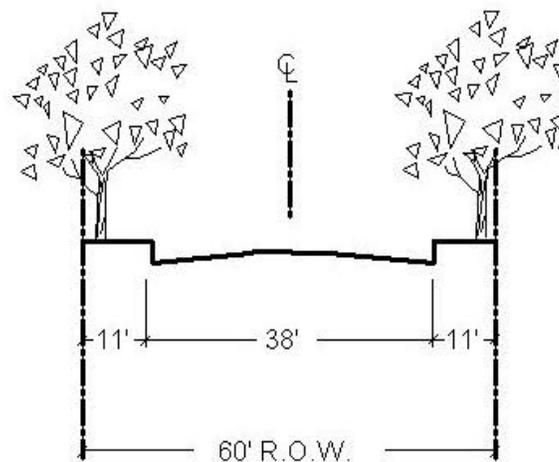
Illustration 5.4 4U Roadway Section



Collectors

- **2-Lane Undivided Roadway (2U)** – low to moderate volume roadways whose purpose is to collect traffic from smaller streets and distribute to major thoroughfares. Average daily volume should not exceed 10,000 trips per day. This type of roadway provides for 60 feet of right-of-way with 38 feet of paving. These roadways are to be constructed with curbs and gutters.

Illustration 5.5
2U Roadway

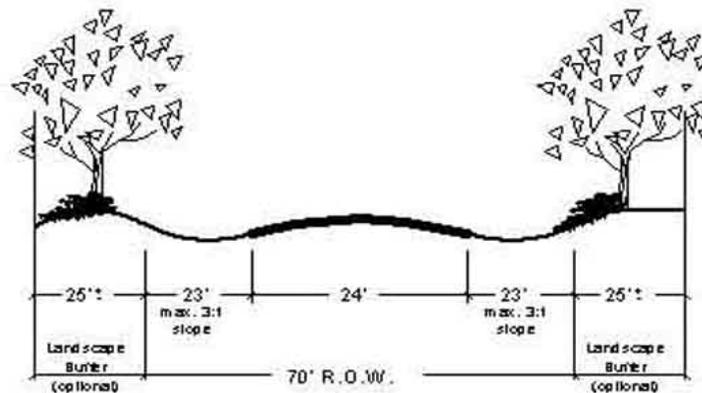


Residential or Local

- **2-Lane Undivided Rural Roadway (2UR)** – low volume roadways whose purpose is to collect traffic from smaller streets within an area to convey to the nearest 2-lane undivided, 4-lane or 6-lane roadway. These roadways are to be rural in nature, are

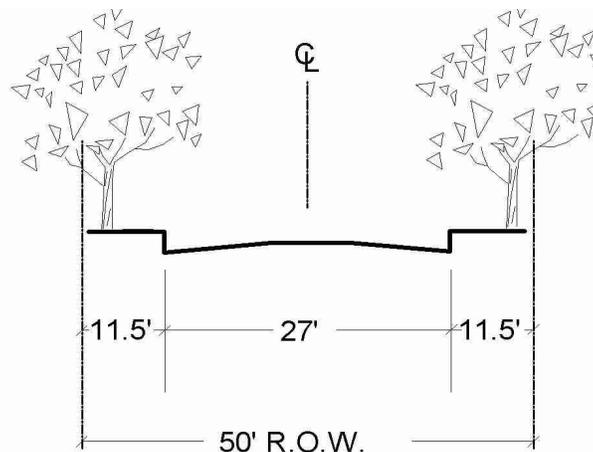
specified with 24 feet of paving and bar ditches and may be most appropriate to large acreage residential lotting/subdivisions. A right-of-way of 70 feet is also specified.

Illustration 5.6 2UR Roadway Section



- 2-Lane Undivided Urban (2UU)** - low volume roadways appropriate to all residential land use categories. This section proposes a 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. Illustration 5.7 below describes the 2-Lane Undivided Urban (2UU) Roadway section. A process called traffic calming allows for residential street sections to be narrowed, thereby forcing traffic to move at a slower rate and increase the safety and pedestrian-friendliness of the neighborhood.

Illustration 5.7 2UU Roadway Section



5.3 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", from best scenario to worst scenario, 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.	Urban Thoroughfares 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 CBD 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 CBD 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 cities, and is also the recommended level for roadway design purposes. The transportation system must be expanded as growth occurs to ensure that the overall roadway network continues to function at a level of

service “C” or better.

5.4 The Transportation Plan

A number of elements must be considered in the process of developing a Transportation Plan, including the *Future Land Use Plan*, travel demands, traffic movement and access requirements, and existing physical constraints to roadway construction. The types of land uses that exist and are planned for an area affect the roadway capacity and access needs for that area.

The primary purpose of the *Transportation Plan* is to provide a long-range plan to assist in Transportation facility planning and the dedication of needed rights-of-way to implement such a plan. The recommended major *Transportation Plan* is presented together with the *Future Land Use Plan* on Plate 4.1. One of the benefits of the *Transportation Plan* is the identification of streets upon which resources can be concentrated for improvements, ensuring that these monies are spent efficiently. The *Transportation Plan* is designed to identify the proposed location of collector and arterial streets with the intent to facilitate movement and serve higher volumes of traffic that will occur with future development.

5.5 Transportation Planning Issues

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

1. *Maintaining an adequate, appropriate and efficient roadway network.*

Increased population as well as increased single-person trips will increase traffic on existing roadways. The system should include a hierarchy of streets, with each class of street designed to serve a specific function. Each class of street must be designed with relation to the anticipated use, speed and traffic volume. Increased development will mean increased demand and additional resources to expand the system to keep pace with growing needs.

2. *Coordinating roadways and adjacent development.*

Land use planning and transportation planning are closely linked. Failure to successfully merge the two can drastically reduce the effectiveness of adjacent roadways and poorly planned roadways can reduce the viability of adjacent land uses.

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

Building and maintaining an efficient street network requires significant 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.

The following statements describe the recommended policies to guide Levelland's transportation planning efforts:

1. Plate 4.1 shows the proposed major *Transportation Plan* together with the *Future Land Use Plan*. This plan should be used to determine the classification of planned roadway segments. Additional collector streets may be needed to serve traffic within new developments. The alignment and capacity 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 Transportation Plan should not be approved unless an acceptable alternative is developed and approved.
2. Levelland should use the detailed specifications found in the Subdivision Ordinance to determine the appropriate design standards for planned roadway improvements.
3. Levelland 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 transportation needs of future development proposals.
4. Transportation system improvements should be prioritized, phased and scheduled in accordance with the Comprehensive Plan and the ability to fund the improvements.
5. On-site local and collector streets constructed by developers must be in compliance with the City's regulations. Levelland may also require off-site improvements needed to provide adequate access to the development. This policy should be implemented through specific provisions of the City's subdivision and zoning ordinances.
6. Levelland should coordinate with TxDOT, the South Plains Association of Governments and other local jurisdictions when planning transportation improvements.
7. Streets should be designed in a comprehensive fashion considering street trees, ADA-

accessible pedestrian walkways, bike lanes, sidewalks, signage, lighting and air quality whenever any of those factors are applicable. Citizen involvement in major street-widening projects should be sought.

8. All alternatives for increasing roadway capacity should be considered before physical road widening is recommended for roadways within existing neighborhoods.
9. Commercial 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.
10. Except as specifically approved by the City, all development should provide adequate on-site parking for normal operations. Exceptions to this condition can be made for specific areas such as special redevelopment, historic areas and the downtown area. This policy should be implemented through specific provisions in the Subdivision and Zoning Ordinances.

5.6 Transportation Implementation

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

- *Coordination of Capital Improvements*

Some of the major transportation improvements will involve cooperation with the South Plains Association of Governments and TxDOT. These improvements may require some financial participation. Levelland will likely be required to assume the responsibility for constructing a reasonable portion of its transportation system as it expands its physical boundaries. It should be understood that the system will be constructed on an incremental basis over an extended period of time (ex. 20 to 30 years).

- *Subdivision Control*

The subdivision of land into building sites represents the first step in the development of urban land uses and the creation of traffic generators. Reasonable land (i.e., right-of-way) must be set aside at the time of platting so that adequate thoroughfares can be created without adversely impacting the value, stability and long-range character of the area being developed. ***Specifically, right-of-way must be dedicated in accordance with the Transportation Plan as each plat is approved.*** Right-of-way protection and reservation within the City's ETJ is particularly important.

- *Zoning and Land Use Control*

The adequacy of existing and planned thoroughfares must be taken into account in all changes of zoning and land use. When such changes occur, the space for street use (i.e. right-of-way) should be provided commensurate with the overall use contemplated within the area.

- *Building Lines*

Where widening of an existing transportation right-of-way is contemplated, buildings should be set back to allow for the planned widening to ensure that the use functions properly with the new transportation after the proposed improvement is made. In some cases, it will be desirable to establish building lines by ordinance to help ensure the orderly and uniform development of transportation frontage.

- *Other Considerations*

Certain aspects of the Plan, such as access controls along major arterials, should be implemented through other design and technical standards that may or may not be included in the City'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. Impact fees should also be established under separate process.