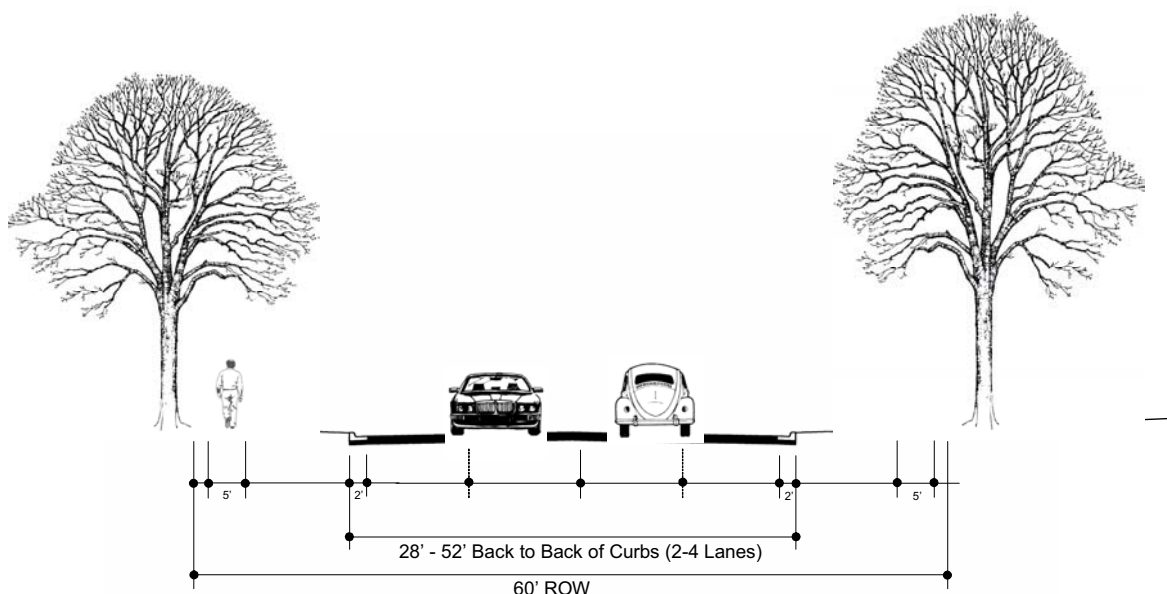




40 feet including the curb and gutter. Finally, a four-lane major collector would have 52 feet of pavement including curb and gutter.

Because of the predominantly residential nature of De Soto, major collectors are anticipated to be needed on a limited basis, primarily connecting non-residential development to area arterials. The Commerce Drive connection between K-10 Commerce Park and Lexington Avenue is a good example of how a major collector is intended to work.

Figure 8.2: Typical Cross Section for Major Collector Streets



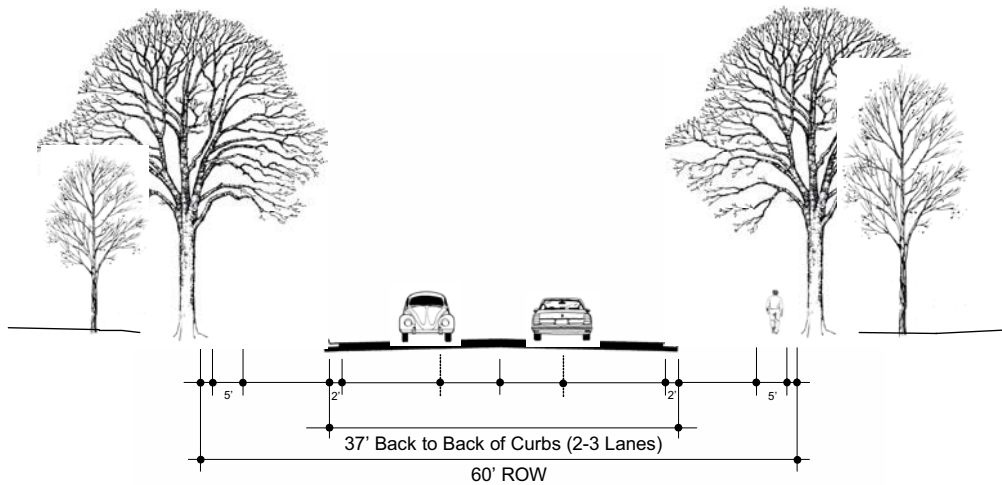
Source: Adapted from the APWA Street Section Details to reflect De Soto sidewalk requirements

As opposed to major collectors, minor collectors are anticipated to make up the majority of the City's collector improvements, serving the predominantly residential portions of the City. Minor collector roads are intended to provide the primary connection between individual neighborhoods and the arterial street network.

The right-of-way width for minor collectors is 60 feet with a pavement width of 37 feet measured from back to back of curbs. The pavement provides for a wide two-lane cross section or two travel lanes and a center turn lane. In either case, traffic volumes should range between 1,500 and 5,000 vehicles per day. Because traffic volumes are significantly higher on minor collectors than local streets, additional development setbacks are warranted to ensure impacts on abutting property are minimized.



Figure 8.3: Typical Cross Section for Minor Collector Streets



Source: Adapted from the APWA Street Section Details to reflect De Soto sidewalk requirements

For both major and minor collectors, on-street parking should be prohibited. Private access to the collector should also be limited in order to further preserve the function of the street and reduce conflicts.

As with arterials, collectors provide more direct vehicular connections than local streets. They should also accommodate more direct pedestrian connections. As such, five foot sidewalks are required on both sides of major and minor collector streets.

Local Residential Streets

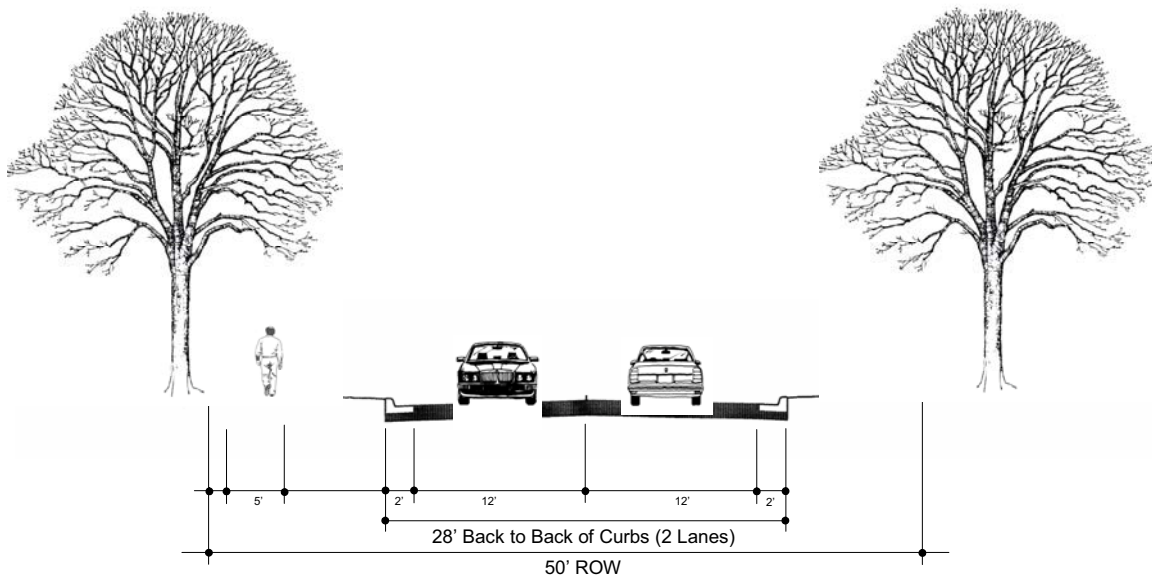
All streets in De Soto and its growth areas not designated as arterials and collectors are considered local residential streets or neighborhood streets. Most of these streets are generally adequate to serve access needs and are not discussed in detail in this section. In the growth areas local streets will be built on an as-needed basis in conjunction with approved development.

The right-of-way requirement for local streets is 50 feet. The pavement width should be 28 feet back to back of curbs that provides one lane of 12 feet in each direction (plus a two-foot curb and gutter on each side of the road).

The ideal traffic volume for local streets is less than 1,500 vehicles per day. Parking is permitted; however, in order to meet fire codes, which require a 20-foot path for equipment, parking should be permitted on one side only. To accommodate local pedestrian circulation, a sidewalk pavement of five feet should be furnished on at least one side of the local street.



Figure 8.4: Typical Cross Section for Local Streets



Source: Adapted from the APWA Street Section Details to reflect De Soto sidewalk requirements

ACCESS CONTROL

Just as the design of a roadway helps to move traffic efficiently, controlling access to the roadway system can help do the same. Traffic hazards and traffic congestion reduce the ability of the roadway to accommodate the traffic volumes or capacity for which it is designed. Traffic congestion and traffic hazards also increase the pressure to widen roadways which requires additional public funds.

Roadway capacity can be increased or decreased in a number of ways. The method utilized most frequently to increase capacity is to widen a road to provide additional travel lanes. In some instances, however, it is not feasible to add additional travel lanes due to land uses on either side of existing roadways. In these instances, other methods of increasing roadway capacity may be more appropriate. Other methods include constructing intersection improvements, turn bays, medians, restricting road and driveway access or providing traffic signal timing improvements. Conversely, road capacity can be decreased by adding cross roads, driveways, traffic signals, or other traffic control devices.

By implementing an access control policy, De Soto can improve street capacity in redevelopment scenarios and maintain existing capacity by controlling access to arterials and collectors, providing for efficient accommodation of existing and future development.

Specific design characteristics associated with each functional classification depend on factors such as projected traffic volumes and local access control policies. Higher traffic volumes, for example those exceeding 25,000 vehicles per day, would warrant construction of a four or five lane arterial street. Traffic volumes of 15,000 vehicles per day can be accommodated by a four-lane arterial street or by a two-lane arterial street which includes turnbays, good signal and intersection spacing, and private



driveway access control. In many cases, a well built two-lane arterial street can function as well as a four-lane street at just over half the cost. Specific access control guidelines are listed below for public street intersection spacing, driveway spacing and corner clearance, and signal spacing.

Intersection Spacing

In order to provide safe and efficient travel on the City’s major roads and in doing so protecting intended capacity, adequate distance should be maintained between intersections. Intersection spacing standards are intended to achieve three principle objectives.

- Provide adequate distance between intersections for the safe and efficient flow of traffic.
- Space intersections to give through-motorists an opportunity to respond to traffic entering the street from a side street.
- Base spacing requirements on through traffic speed, related spacing and reaction times.

Table 8.1 shows the minimum standards for spacing intersections, determined by through-traffic speed.

Table 8.1: Minimum Intersection Spacing Standards

Through-Traffic Speed	Minimum Intersection Spacing
30 mph	210 feet
35 mph	300 feet
40 mph	420 feet
45+ mph	550 feet

Source: Institute of Transportation Engineers

Driveway Spacing

Like a street, private driveways create an intersection with a public street. Conflicts and potential congestion occur at all intersections - public and private. Methods to reduce conflict include:

- Separating the conflicts by reducing the number of driveways and intersections;
- Limiting certain maneuvers such as left turns; and
- Separating conflicts by providing turn lanes.

To avoid these conflicts with driveway locations, access should comply with corner clearance criteria. Proper spacing of driveways permits adequate storage and stacking of automobiles on the public street. As such, driver conflicts need to be spaced in order to eliminate overlaps between through traffic and right turns. This distance may have to be increased in cases with high volumes to ensure that driveways do not interfere with the operation of turning lanes at intersections. In no case should access drives be located within the operations area of an intersection. Driveway spacing standards are intended to achieve the following objectives:

- Separate access conflicts by reducing the number of driveways and intersections.
- Limit certain traffic maneuvers such as left turns.
- Separate conflicts by providing turn lanes.
- Prohibit access drives from locating within the operations area of an intersection.
- Space driver conflicts in order to eliminate overlaps between through traffic and right turns.



- Properly space driveways to permit adequate storage and stacking of automobiles on the public street

The following standards in **Table 8.2** are based on AASHTO standards and the Institute of Transportation Engineers (ITE) Manual. These standards are intended to serve as guidelines to achieve the above objectives.

Table 8.2: Maximum Driveway Guidelines

Maximum Number of Driveways	Driveway Spacing	
	Undivided Arterial Streets Length of Lot Frontage	Divided Arterial Streets Length of Lot Frontage
1	0-399 feet	0-529 feet
2	400 - 899 feet	530 - 1199 feet
3	900-1,399 feet	1200 - 1859 feet
4	1,400-1,899 feet ¹	1860 - 2525 feet ²

Source: *Institute of Transportation Engineers (ITE) Manual*

Notes: ¹ For each 500 feet above 1899 feet, one additional driveway is permitted.

² For each 665 feet above 2525 feet, one additional driveway is permitted.

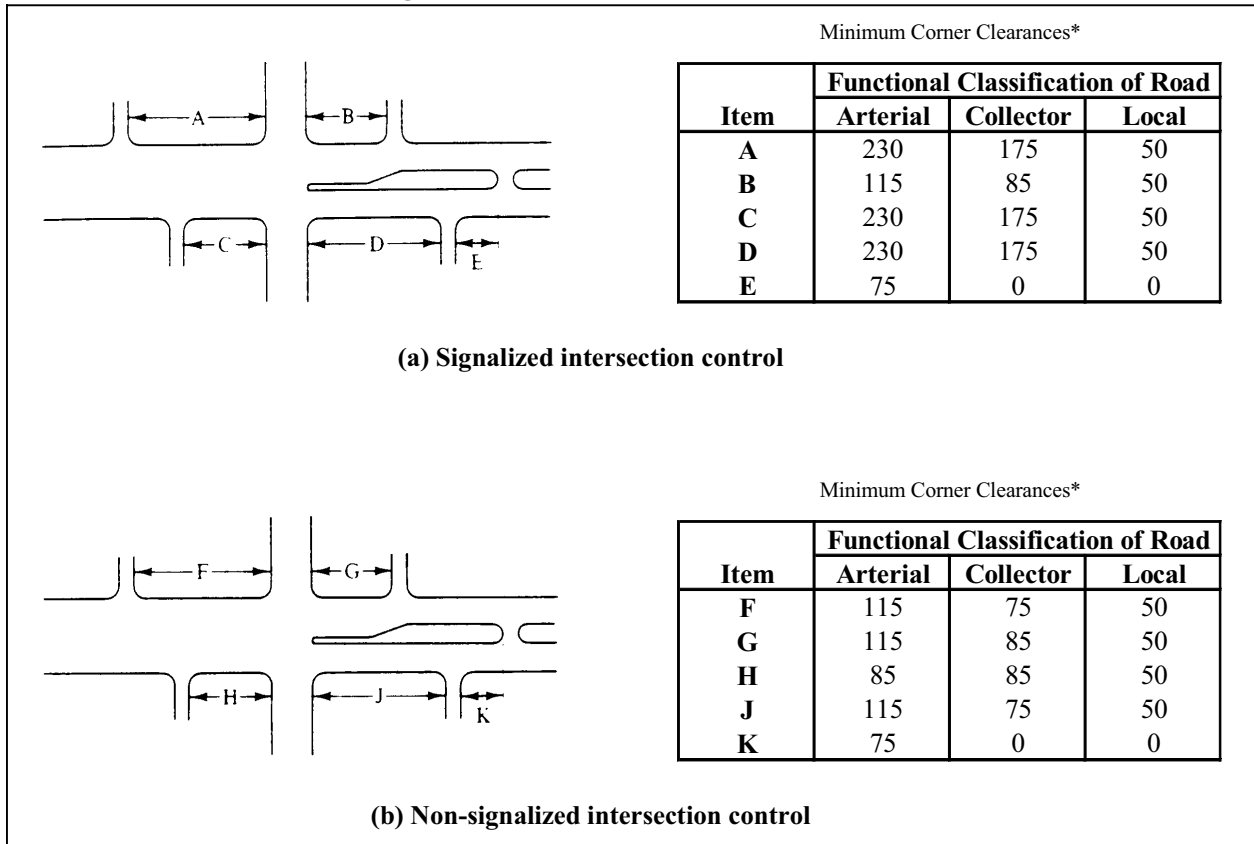
Corner Clearance

In conjunction with intersection spacing, minimum corner clearance guidelines provide for reduced conflicts at intersections. More specific minimum corner clearance guidelines are listed in **Figure 8.5**. These guidelines can be used to regulate new development, particularly multifamily and non-residential developments which often locate along arterial and collector streets.

As the City continues to grow and traffic volumes increase, the need to signalize intersections such as 91st Street and Lexington Avenue may be necessary. As such, these standards are broken into requirements for signalized and non-signalized intersections.



Figure 8.5: Corner Clearance Guidelines



Source: Adapted from The Traffic Institute, Northwest University.