SECTION 4

Transportation System Guidelines and Policies

SECTION 4

Transportation System Guidelines and Policies

Will County has a number of guidelines and policies that dictate how the roadway system is built, maintained, and operated. The guidelines and policies include information on how roadways are functionally classified to provide a system of roadways that operates efficiently. Information is also provided on street standards such as minimum right-of-way requirements and the associated dimensions of proposed roads. The Will County Department of Highways also has an extensive access management policy that provides direction on where new access routes can be accommodated.

4.1 Functional Classification

The purpose of having a functionally classified highway system is not only to recognize existing travel patterns, but to reinforce and control them so that there is some established order in the County's traffic flow. If a smoothly functioning system cannot be established, then drivers seeking short cuts on less congested routes will constantly be diverting to neighborhood streets that are not designed to handle large traffic volumes. Creation of a system whereby different roadways are engineered to handle varying types of demand is essential in transportation planning.

Not all roadways are created equal. They not only vary in width, design, cross-section, or traffic volume, but also in the function they are intended to perform. The functional classification of a road describes the character of service the road is intended to provide. The various functional classifications primarily serve two competing functions, access to property and travel mobility, to different degrees. Each road will provide varying levels of access and mobility depending on its intended function. When a system is viewed in whole, the objective is to realize an optimal balance between access and mobility functions. The following are definitions for the four general road functional classifications:

- **Freeways** are limited access facilities characterized by their ability to quickly move large volumes of traffic with minimal disturbances. All access to freeways is by ramps and all crossings are grade separated. Freeways provide for high-speed long distance trips.
- **Principal and Minor Arterials** are highways that are generally characterized by their ability to quickly move relatively large volumes of traffic with fewer provisions for access to adjacent properties. Arterial highways provide for high-speed travel and longer distance trips. The designation of Strategic Regional Arterial or County Freeway is correlated to principal arterials with the primary function of mobility.
- **Collector roads** are characterized by a relatively even distribution of access and mobility functions. Traffic volumes, speeds, and trip lengths are typically smaller on collector roads than on arterial roads.

- **Local roads** are public roads and streets not classified as arterials or collectors. Local roads and streets are characterized by numerous points of direct access to adjacent properties. Speeds and volumes are low and trip distances short.

Figure 4-1 shows the schematic relationship between access and mobility functions of streets and highways. The highest classification (freeways) is intended solely for traffic movement and does not provide access to abutting land uses except at interchanges. The lowest category (local street) allows unrestricted access, and is not intended to accommodate through traffic. Classifications between these extremes perform a combination of functions with varying emphasis on traffic movement or access.

4.2 Congestion and Level of Service

Congestion is usually measured in terms of level of service (LOS). For roadway segments, average delay and speed enter into the LOS determination along with other factors. LOS measures the quality of traffic service, and may be determined for each roadway segment on the basis of delay, congested speed, volume to capacity (v/c) ratio, or vehicle density by functional class. The various levels of service for roadway segments are defined as follows:

- **LOS A** describes primarily free-flow operation at average travel speeds, usually about 90 percent of the free-flow speed for the arterial classification.
- **LOS B** represents reasonably unimpeded operations at average travel speeds, usually about 70 percent of the free-flow speed for the arterial classification.
- **LOS C** represents stable operations; however, ability to maneuver and change lanes in mid-block locations may be more restricted than at LOS B, and longer queues, adverse signal coordination, or both, may contribute to lower average travel speeds of about 50 percent of the average free-flow speed for the arterial classification.
- **LOS D** borders on a range in which small increases in flow may cause substantial increases in delay, and hence, decreases in arterial speed. Average travel speeds are about 40 percent of free-flow speeds. LOS D is often used as a limiting criterion for design purposes. As per Will County Access Regulation Ordinance, the county requires LOS C or better for any project undertaken.
- **LOS E** is characterized by significant delays and average travel speeds of one-third of the free-flow speed or less. LOS E is sometimes accepted as limiting for design criterion when restricted conditions make it impractical to consider a higher LOS.
- **LOS F** characterizes arterial flow at extremely low speeds, below one-third to one-fourth of the free-flow speed. Intersection congestion is likely at critical signalized locations with high delays and extensive queuing. LOS F is never used as a design standard. It represents a condition that is intolerable to most motorists.

4.3 Street Standards

4.3.1 Design Requirements

The design of access points and accompanying highway improvements must comply with County regulations. The standards and specifications set forth in these regulations are to ensure a safe and efficient highway system for the motoring public. Design features addressed in the regulations are design speed, intersection and driveway sight distance requirements, access design widths and standards, throat length, radius return, angle of intersection, islands, medians, driveway profile, culverts, mailbox turnouts, shoulders, curb and gutter, cross-section and materials, traffic control, and onsite design elements. In the absence of specific County guidance, the latest versions of the IDOT and American Association of State and Highway Transportation Officials (AASHTO) policies and specifications govern.

This section discusses general aspects of road design criteria that should be applied to proposed roads as each project becomes more defined. The recommendation of future roads alone is not enough to ensure adequate transportation infrastructure. These planned improvements must be constructed to design standards to ensure public safety and appropriate investment of public resources. Roads included in this plan should be designed and constructed to the specifications set forth by Will County Department of Highways or IDOT. This section also provides a general description of preferred practice for road design in Will County. For further information, reference the *Will County Department of Highways Permit Regulations and Access Control Regulations.*

4.3.2 Typical Sections

The general design criteria for the design of a road depend in part on its functional classification and its location, either urban/suburban or rural. The typical cross-section describes requirements for width of traveled way, median type and width, curb or shoulder treatment, sidewalks, bicycle lanes, clear zones, and grading.

4.3.2.1 Urban/Suburban Arterial and Collectors

Typical cross-sections for urban/suburban arterial roads and collector roads are shown in **Figure 4-2**. A larger number of commercial driveways and possibly pedestrian or bicycle traffic can be expected along these facilities. Center turn lanes are recommended wherever there are frequent entrances into high-volume commercial driveways. Where center turn lanes are not provided, left-turn lanes should be provided at all major intersections. Parking should be prohibited along arterials. Sidewalks should be provided where feasible to enhance pedestrian and bicycle usage of the right-of-way.

4.3.2.2 Rural Arterials and Collectors

Typical cross-sections for rural arterials and collector roads are shown in **Figure 4-3**. In rural areas with widely dispersed access points, a rural cross-section is recommended. For higher volume roads through less developed rural areas, a divided cross-section is recommended.

4.3.3 Intersection Spacing

The minimum spacing of intersections provides for safe and efficient access onto the county' highway system. The access requirements vary by the type of access and the classification of the county highway. The guidelines for intersection spacing are set forth in the *Will County Department of Highways Permit Regulations and Access Control Regulations.*

4.3.3.1 County Designated Freeways and SRA Routes

An intersection spacing of ¼ mile (1,320 feet) for full access shall be required on all county-designated freeways and SRA routes. This spacing may be modified at the discretion of the County Board depending on existing roadways conditions and features along the corridor or per findings described in a final SRA report.

Restricted access may be considered provided the access centerline is located a minimum of 500 feet from any other access centerline and is consistent with other requirements of the access control regulations.

4.3.3.2 All Other County Highways

For major access permits, an intersection spacing of ¼ mile (1,320 feet) for full access is desirable. Any spacing less than ¼ mile will be considered, provided a left turn lane can be designated that does not conflict with any existing or future left turn lane improvements at any existing intersection.

Restricted access may be considered provided the access centerline is located a distance from any other access centerline that is consistent with other requirements contained within the access control regulations.

4.3.4 Right-of-Way

Right-of-way guidelines have been defined by functional class to ensure appropriate land acquisition for future widening of roadways. These definitions incorporate land for the road cross-section including the traveled way, median, parking, shoulders, sidewalks, drainage, and grading. The right-of-way guidelines also establish adequate set backs from the roadways. Acquisition of right-of-way could occur before widening is warranted, allowing land to be set aside before development occurs. Often, early acquisition is the most cost-effective way to preserve right-of-way for road widening. Table 4-1 shows minimum right-of-way guidelines for county roads by road functional classification.

TABLE 4-1
Minimum Right-of-Way Guidelines for County Roads by Road Functional Classification

Functional Classification	Right-of-Way Minimum
SRAs and County Freeways	150 feet
Other Arterials	120 feet
Collectors	120 feet
Freeways (New)	300 feet

4.4 Access Management

The Federal Highway Administration (FHWA) defines access management as "the process that provides access to land development while simultaneously preserving the flow of

traffic on the surrounding system in terms of safety, capacity, and speed." Properly implemented access management will improve traffic operations, increase highway safety, and minimize adverse environmental impacts. Unplanned land development and uncontrolled access connections reduce highway safety and capacity, and result in early obsolescence of the roadway. Unregulated access increases accidents, delays, and congestion for users of the highway systems within Will County.

Access management in Will County is controlled by the *Will County Department of Highways Permit Regulations and Access Control Regulations* adopted by the County Board on May 18, 2006. These regulations provide policies and detailed procedures for permitting access to county highways. The remainder of Section 4.4 describes the 2006 adopted policy.

The two objectives of the *Will County Department of Highways Permit Regulations and Access Control Regulations* are as follows:

- To provide safe and efficient transportation routes linking the various parts of Will County and linking the county with other parts of the metropolitan region.
- To coordinate transportation planning with land use development and provide a framework around which various land development activities can take place.

The guiding philosophy of the Will County Access Control Regulations is to "provide safe, efficient transportation systems compatible with land use" by controlling access on highways to minimize curb cuts and local street intersections, and maintaining existing highway capacity. The highest degree of access control shall be applied to the county freeways and SRA routes. The degree of access control shall be based on two basic criteria: (1) the size and nature of the development, which determines the volume and types of traffic generated, and (2) the existing and/or future significance of the highway being accessed. In all cases, the operational characteristics of the new or improved access must meet, in the opinion of the County Engineer, traffic engineering criteria for safe traffic operations.

A comprehensive access regulation program will preserve highway safety and capacity, reduce delays, and allow for compatible land use and economic development within the highway corridors.

The County Engineer determines if the required criteria have been met. All traffic analysis must be completed by a qualified traffic engineer and approved by a licensed professional engineer. It is the responsibility of the permit applicant (at their sole cost) to provide the necessary studies and improvements defined by the Access Control Regulations.

4.4.1 Access Points

An access point or system of access points must be located to provide safe and efficient traffic movements along county highways.

4.4.1.1 Location of Access Points

The Will County Department of Highways has established guidelines regarding the location of access points. The guidelines state that access points should be located so that ingress and egress maneuvers will not degrade safe and efficient traffic movements and operations on county highways. The locations should provide adequate sight distance by avoiding the

placement of access points on a horizontal curve or just below a crest of a vertical curve. If the sight distance is not adequate, modifications to access points will be required such as providing access to another highway, developing indirect access by a frontage road, or improving the vertical and/or horizontal curvature of the roadway.

Whenever possible, access should be provided through existing cross streets in lieu of additional county highway access points and may be prohibited when a property abutting a county highway has frontage on one or more roadways and reasonable access can be provided from the roadway. New access locations should be aligned with access points for existing development on the opposing side of the highway. Adjacent access points should be spaced to ensure that conflicting movements do not overlap and that safe and efficient traffic movements and operations will be maintained. The distance between adjacent access points should follow the requirements as stated in this section and Section 4.3.3. The county may require joint or shared access facilities. Access points in the vicinity of interchanges, interchange ramp terminals, crossroads, frontage roads, and service drive connections shall be restricted to eliminate hazardous and congested conditions. The access points shall be located to provide safety and convenience for pedestrians, bicyclists, and other users of the highway right-of-way.

4.4.1.2 Number of Access Points

The number of access points per development is specified within the guidelines. Each development or property, regardless of the number of parcels, is limited to one access point. When subdividing existing developed parcels, no additional access will be permitted and when an existing development has a change in land use, the existing access point(s) may require relocation or reduction in the number of access points. One additional right in/right out may be considered if sufficient engineering documentation is provided showing that this second access point would substantially improve the approved access point without negatively affecting the safety and operations of the county road. If the primary access point is to be signalized, additional access points may be permitted if justified. For locations at the corner of two county roads, the access point shall be permitted on the lower volume road and the intersection of the two highways shall be improved by providing appropriate capacity improvements per the traffic impact study of the site. For locations at the corner of a county road and local road, access may be prohibited on the county road based on reasonability of the access point being located on the other road, and the intersection of the two highways shall be improved by providing appropriate capacity improvements per the traffic impact study of the site.

4.4.1.3 Internal Circulation

Providing adequate internal circulation within a development aids in the operation of major facilities. The County recognizes this need by specifying a guideline that when property abutting a county highway is to be developed, direct access to the county highway shall not be used in lieu of an adequate internal traffic circulation system. Access will not be permitted if internal traffic patterns are not acceptable based on overall traffic circulation, drive-in facility stacking and parking space capacities, internal turning movements, and projected trip/parking generation rates. No access shall be permitted if such access would require backing or turning maneuvers onto a county highway. Provisions for turnarounds

shall be made outside the county right-of-way. No parking is permitted along a collector or arterial highway or within the right-of-way of a collector or an arterial highway.

4.4.2 Turn Lanes

Turning lanes (consisting of an approach widening, turn bay taper, and full width auxiliary lane) for either right or left turns into an abutting property shall be provided as described in the following section or as determined by the County Engineer. If the construction limits of a permitted access driveway improvement fall within 500 feet of the construction limits of an existing widened section of county highway, the widening for the new access driveway shall be extended to meet the existing widened section of the county highway. This is necessary to maintain continuity and lane alignment of safety of the motoring public.

4.4.2.1 Right Turn Lane Warrants

Right turn deceleration lane warrants for two-lane and four-lane highways at highway access points (driveway or street intersections) are based on approach volumes and posted speed limits (see Table 1 and Table 2 in Section 2.1.6-5 of the *Will County Department of Highways Permit Regulations and Access Control Regulations*). The guidelines are applied to signalized and unsignalized access. The installation of right turn deceleration lanes will be required for all major and minor access points to a County Freeway or SRA route.

The length of the right turn lanes (storage plus taper) for unsignalized access points should be based on the distance required for a vehicle traveling at the highway's posted or operations speed to reach a desirable turning speed for the right turn maneuver. In the case of a signalized access point, queuing considerations demonstrated by an Intersection Design Study will determine the length of the storage and taper.

4.4.2.2 Left Turn Lane Warrants

While traffic studies are required and considered in the determination by the County Engineer for minor access request, the installation of left turn lanes will be required for all major access points to any county highway.

4.4.3 Intersection Signalization

The installation of traffic signals will only be considered on the basis of the Manual on Uniform Traffic Control Devices (MUTCD) warrant guidelines. It is the responsibility of the permit applicant to collect and submit traffic counts or accident record analysis as necessary to evaluate signal warrants. Signalized intersections shall be spaced to maintain the efficiency of traffic flow on the through highway. Signals where isolated operations are proposed shall generally be spaced a minimum of ¼ mile apart. Signals spacing of ¼ mile shall be interconnected to provide efficient traffic flow. Whenever possible, intersections to be signalized must fit into the signal progression patterns along the highway. To prevent excessive green time allocated to the driveway at the expense of the arterial highway through movements, vehicle detection with a presence feature shall be used on all approaches. Additional easements may be required for future maintenance of the traffic signal equipment. Pedestrian/bicycle push button actuated signal heads at traffic signal installations shall be required when the MUTCD pedestrian signal warrant is met.

4.4.4 Abutting Property Land Use and Site Development Characteristics

In addition to positive regulation over roadway features and access locations, the development characteristics of abutting property are an integral part of a safe and effective access control program. Technical and physical improvements to the highway and driveway system alone cannot ensure the orderly and safe movement of traffic when adjacent land uses have poor internal site circulation, or when such land uses generate increases in traffic volumes beyond the capacity of area highways. Timely communication among government agencies, municipalities, and communities to coordinate land use development along highways is required.

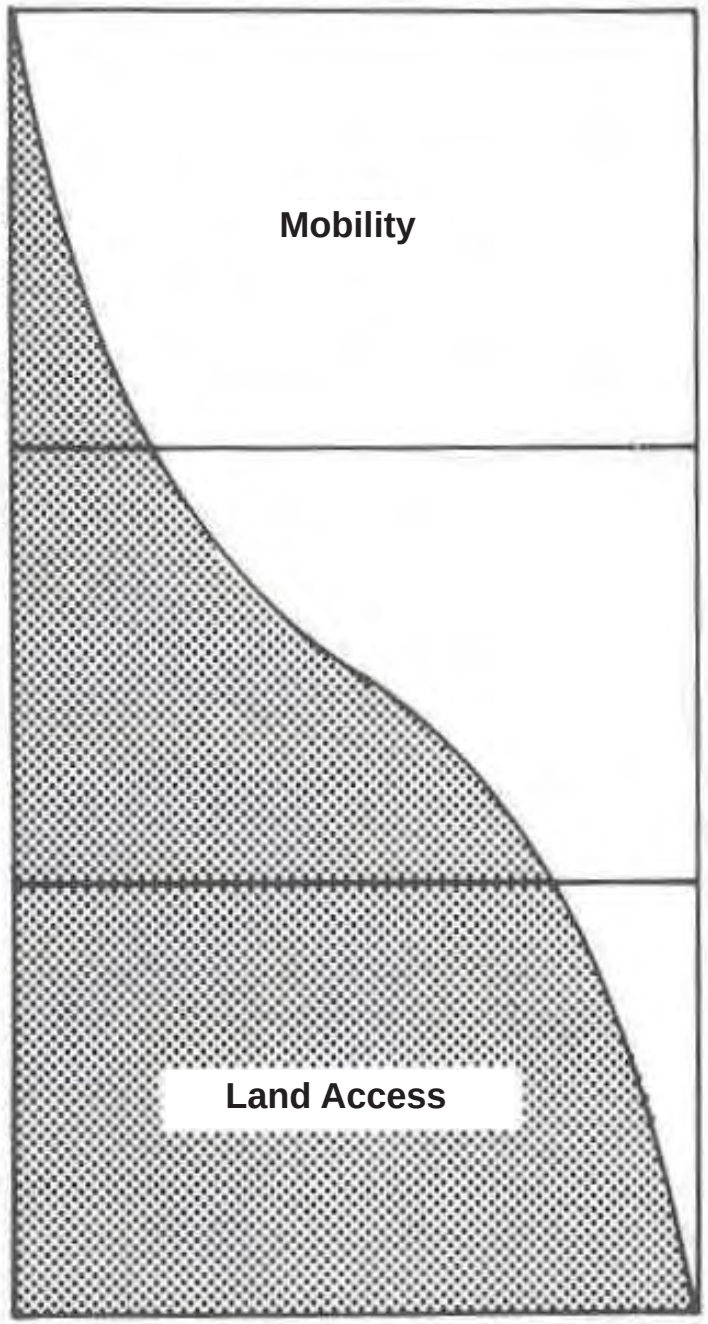
Effective corridor development plans that identify the need for a balance of transportation and access, and the desire to minimize land use and zoning conflicts, may be required. Developing cross access easements and streets at the rear of developments, which will serve as access to store service/delivery areas, as well as providing access between adjacent developments, will be required. Potential land use should be influenced by the access needs that it requires. Should projected trip generation values warrant access needs that cannot be accommodated without compromising the safety and efficiency of highway operations, a change in density or of land use should be made.

The following elements shall be reviewed as part of the access permit review process:

- Safety considerations
- Fire protection district requirements
- Regional impact to the highway system
- Internal circulation as it effects the ingress and egress to a site
- Aesthetics of the improvements on the county right-of-way
- Right-of-way requirements
- Pedestrian/bicycle/mass transit circulation

SECTION 4

Figures

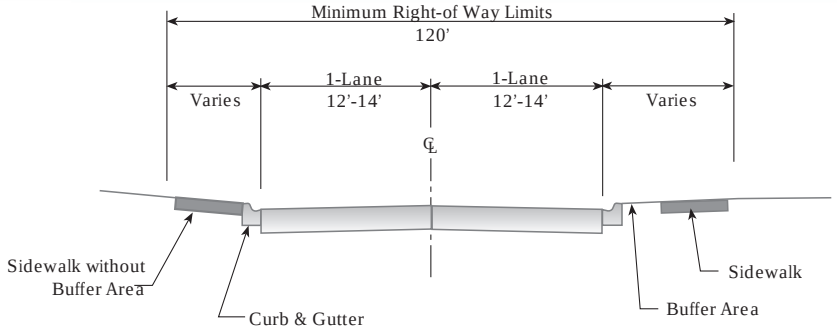


Source: A Policy on Geometric Design of Highways and Streets 2001

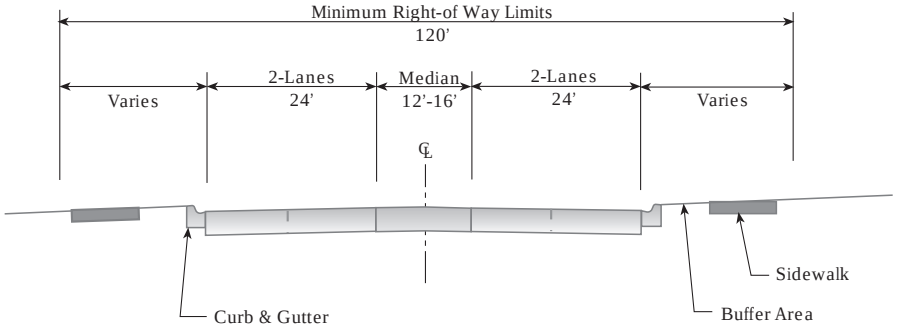
FIGURE 4-1
Access and Mobility
Function of Highways and Streets

WILL COUNTY
2030 TRANSPORTATION PLAN

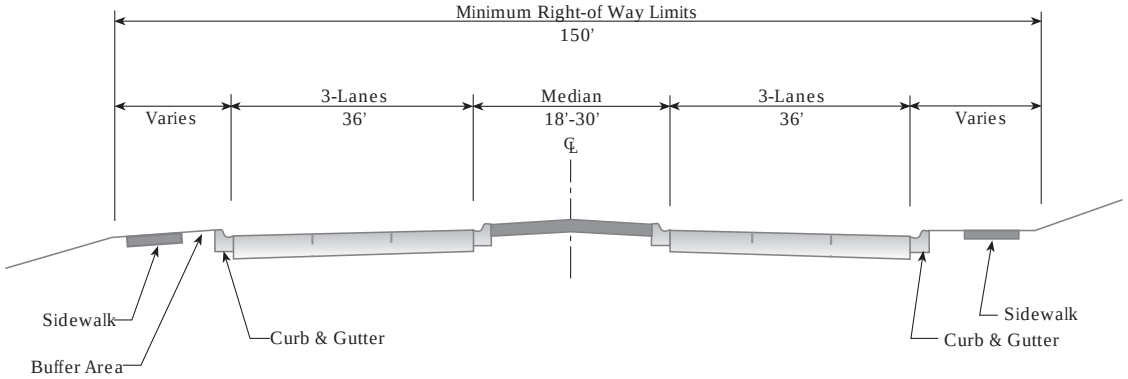
CH2MHILL Hutchison Engineering, Inc.
VLECIDES SCHROEDER ASSOCIATES, INC



Two-Lane Urban Collector



Five-Lane Urban Arterial

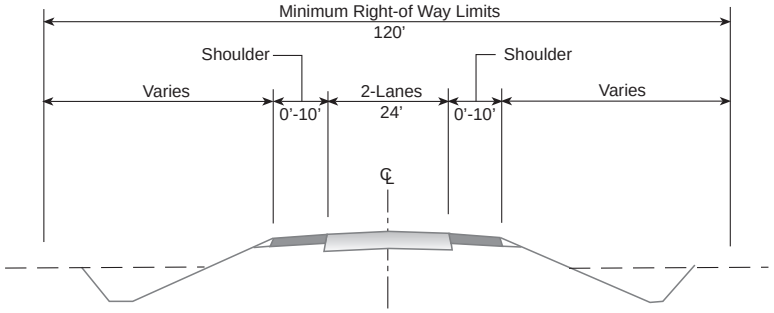


Seven-Lane Urban Arterial

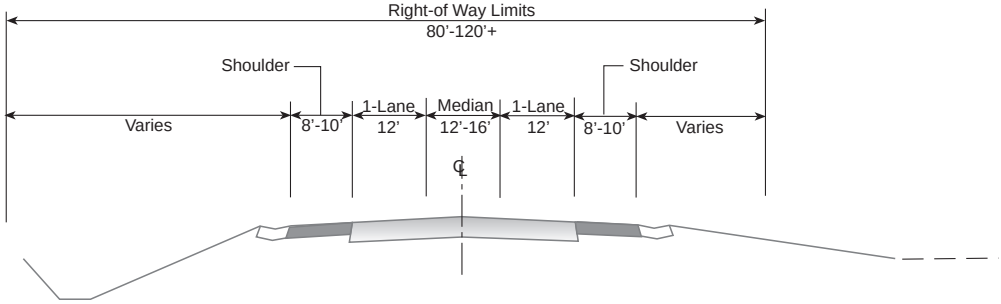
FIGURE 4-2
Urban/Suburban
Typical Cross-Sections

WILL COUNTY
2030 TRANSPORTATION PLAN

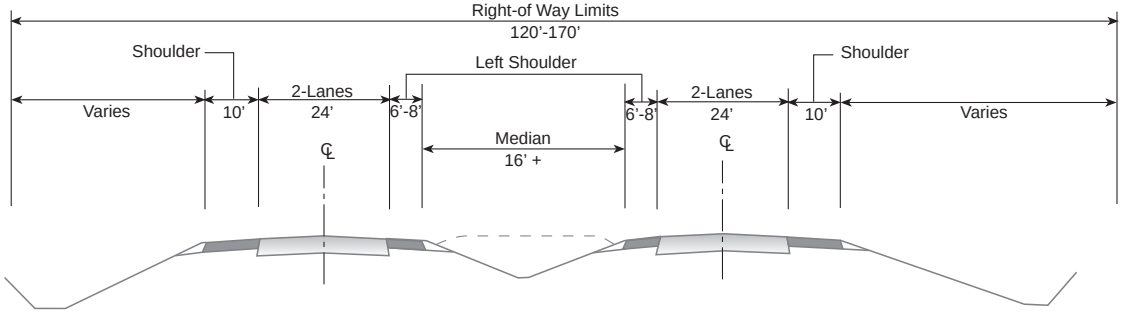
CH2MHILL Hutchison Engineering, Inc.
VLECIDES SCHROEDER ASSOCIATES, INC.



Two-Lane Rural Collectors



Three-Lane Rural Arterial



Four-Lane Rural Divided Arterial

FIGURE 4-3
Rural
Typical Cross-Sections

WILL COUNTY
2030 TRANSPORTATION PLAN

CH2MHILL Hutchison Engineering, Inc.
VLECIDES SCHROEDER ASSOCIATES, INC.