

Policy 01

ACCESS CONTROL FOR TRAFFIC AND DRIVEWAYS

- Section 1 Introduction
 - 1.1 Purpose of Policy
 - 1.2 Definitions
 - 1.3 Property access limited to driveway
- Section 2 Right-of-way construction permit
 - 2.1 Permit required
 - 2.2 Application for permit
 - 2.3 Driveway agreement
 - 2.4 Approval and display of right-of-way construction permit
- Section 3 Specifications
 - 3.1 Number and location of driveways
 - 3.2 Width of driveways
 - 3.3 Nonconformance of driveways
 - 3.4 Miscellaneous driveway requirements
 - 3.5 Construction specifications
 - 3.6 Major traffic generators
 - 3.7 High volume drive-through facilities
- Section 4 Design Schematics
 - Figure 1 Example of Single-Family Residential Driveway
 - Figure 2 Example of Multi-Family Residential Driveway
 - Figure 3 Example of Single Driveway (Commercial property)
 - Figure 4 Example of Double Driveway (Commercial property)
 - Figure 5 Example of Gasoline Station - Double Driveway
 - Figure 6 Example of Ramp Type Driveway
 - Figure 7 Example of Street Type Driveway
 - Figure 8 Example of Driveway Types (Ramp, Radius, Street)

SECTION 1 INTRODUCTION

1.1 PURPOSE OF POLICY

The efficiency and safety of a street or highway depends largely upon the amount and character of any interference with vehicles moving along the street. This interference may come from vehicle movements in opposing directions or the same direction, but normally the major interferences are that of vehicles entering, leaving, or crossing the street.

Commercial developments, industrial facilities, and multi-family residential developments are major traffic generators which significantly affect the efficiency and safety of a street or highway. In order to protect the traveling public and fully utilize the potential of streets and highways, it is necessary to regulate vehicle movements entering and leaving roadside developments, thus reducing interference with the traffic stream. In contrast to the necessity by local government to regulate access, the landowner has a legal right to adequate ingress and egress to the land.

The Director of Engineering and his representatives (i.e., the Engineering Department) have the responsibility to make the movement and handling of traffic more effective and efficient. Part of that responsibility involves resolving the conflicting interests of both landowners and road users in the critical area of driveway locations and operations. In many cases the Inspections Bureau reviews and approves driveway locations and design parameters on behalf of the Engineering Department. Therefore, this policy has been established to meet the following objectives:

- To provide maximum protection and safety to the general public through the orderly control of traffic entering and leaving the street or roadway
- To provide a uniform policy for the design and review of driveways throughout the city of Knoxville.
- To ensure that construction methods and field decisions will be acceptable to the city of Knoxville.

Through the uniform enforcement of this policy, the needs and rights of both landowners and the traveling public will be satisfied with respect to the critical area of driveway location, design, and operation. The extent to which this policy is enforced on existing property uses will be based on the relative values of the existing and proposed improvements. Existing lots of record prior to the original publication of this policy (January 1980) may be reviewed on an individual basis, when compliance with this policy represents an unusual hardship. Lots recorded after publication of this policy are expected to comply fully with all provisions of this policy.

1.2 DEFINITIONS

<u>Apron</u>	That portion of the driveway extending from the edge of pavement to the sidewalk section, or right-of-way line if no sidewalk exists, and lying between the side slopes of the driveway.
<u>Corner Clearance</u>	The distance measured along the street right-of-way line from the intersection of street right-of-way lines to the nearest edge of driveway.
<u>Curb Return</u>	The curved portion of a curb at street intersections, or the curved portion of a curb in the side slopes of a driveway.
<u>Curb Transition</u>	A change in the vertical dimension of a curb over a distance as required to develop a full curb from a drop curb.
<u>Driveway</u>	The improved area between a public street and private property intended to provide ingress and egress of vehicular traffic from the public street or thoroughfare to a definite area of private property. Driveways are typically categorized into three types (radius, ramp, street) and three types of properties (multi-family, nonresidential, single-family).
<u>Driveway Angle</u>	The acute angle between the driveway centerline and the centerline of the street. Shown as dimension Y on Figures 1 through 5.

<u>Drop Curb</u>	A curb section with a reduced vertical dimension to allow vehicular ingress and egress, obtained by cutting a section of existing curb or by new construction of a standard ramp driveway.
<u>Easement</u>	The right to use another person's property for a limited and specifically named purpose, as recorded in legal documents and property records. The landowner continues to control the property in all other respects.
<u>Edge Clearance</u>	The distance measured along the street right-of-way line from an interior property line to the nearest edge of driveway. Shown as dimension E on Figures 1 through 5.
<u>Right-Of-Way</u>	The lands conveyed or dedicated to the public to be used for a street, alley, walkway, drainage facility, or other public purpose.
<u>Sidewalk</u>	The area on public or private property where pedestrians walk or stand, generally parallel to the edge of the street, roadway or curb. Sidewalks are generally paved.
<u>Sidewalk Section</u>	The portion of the driveway apron which is an extension of the adjacent sidewalks.
<u>Street</u>	Any public thoroughfare, primarily used by motor vehicles, with a designed section that is not classified as an alley.
<u>Traffic Control Devices</u>	All signs, signals, markings and structures that are placed on, over, or adjacent to a traveled way to regulate, warn or guide traffic. Traffic control devices must conform to the Manual on Uniform Traffic Control Devices and supplement regulations issued by the Tennessee Department of Transportation.

=====

Driveway Properties:

<u>Driveway, Multi-Family</u>	A driveway providing vehicular ingress and egress for property that is used for multi-family residential purposes.
<u>Driveway, Nonresidential</u>	A driveway providing vehicular ingress and egress to property that is used for commercial, industrial, educational or other non-residential purposes.
<u>Driveway, Single-Family</u>	A driveway providing vehicular ingress and egress for property used for single-family residential purposes (usually a single lot of record).

Driveway Types (see Figure 8 for examples):

<u>Driveway, Radius</u>	A driveway constructed with a tapered radius curb transition and a fully developed pavement section from the tangent section of the driveway to the tangent section of the street.
<u>Driveway, Ramp</u>	A driveway constructed with a drop curb transition and paved with concrete from the back of sidewalk (or the property line where no sidewalk exists) to the edge of pavement along the street.
<u>Driveway, Street</u>	A driveway constructed similar in appearance to a street intersection, with fully developed curb returns and pavement sections, lane use markings, channelized lane usage, queue storage for waiting vehicles, etc.

1.3 PROPERTY ACCESS LIMITED TO DRIVEWAY

In order to restrict ingress and egress to the approved driveway, an appropriate curb section or curb and gutter section will be required along the edge of public roadways on a line and grade that must be approved by the Engineering Department. The general requirements are:

- 1) Curb and gutter
 - (a) All roadways classified as arterials on the Major Road Plan
 - (b) All roadways classified as collectors on the Major Road Plan
- 2) Curb and gutter, or detached curb
 - (a) All roadways classified as local and that serve land uses other than single-family residential development (RD, CD, OD)
- 3) Curb and gutter, or detached curb, or extruded curb
 - (a) All roadways classified as local and that serve single-family residential development (SFR)

Additional requirements or exceptions to the stated policy may be necessary to ensure that new curbs, gutters, sidewalks and grass areas are consistent with adjacent development or plans for future development. All parking areas shall be constructed and properly curbed so that traffic movements to park and unpark will take place within the property lines.

SECTION 2 RIGHT-OF-WAY CONSTRUCTION PERMIT

2.1 PERMIT REQUIRED

No driveway shall be constructed, nor shall any existing driveway be relocated, altered, or reconstructed on any public right-of-way, except under a permit issued by the appropriate authority. Tennessee Department of Transportation (TDOT) can issue permits for a right-of-way under state jurisdiction, such as a federal or state route. The Knoxville Engineering Department can issue permits for any other right-of-way, which is considered to be under city jurisdiction. All improvements constructed on public right-of-way within the city limits must conform to this policy.

All driveways to be constructed or reconstructed on city right-of-way shall be reviewed and approved by the Engineering Department prior to issuance of a right-of-way permit. In general, a right-of-way permit will not be issued prior to a site development permit or a building permit. A right-of-way permit will not be issued for a vacant parcel of property without a proposed development plan. The Engineering Department may require reasonable proof that a proposed development plan will be implemented, prior to consideration and review of a right-of-way permit for a vacant parcel of property. A right-of-way permit will not be considered or issued for a parcel of property which is not constructable due to topography, building and zoning restrictions, unusual size or shape of property, or other factors which would not allow parking and/or internal traffic circulation on the property.

2.2 APPLICATION FOR PERMIT

An application form for a right-of-way construction permit is included in Appendix A of the Land Development Manual. Include a brief explanation of the proposed usage of property with the application. Submit three copies of a prepared site plan drawing on standard 24" x 36" size paper, unless the right-of-way permit is for a single driveway for a residential development (RD) project, for which a 8 1/2" x 11" sketch will be sufficient.

The site plan drawing must show parking layout, buildings, vertical and horizontal alignment of driveway, sight distances if applicable, drainage and typical driveway cross-section. Include exact location and dimensions of the proposed driveway with reference to the property boundary. Additional requirements typically include property lines, nearest intersecting streets and alleys, utility poles, fire hydrants, traffic signs, traffic signals, pavement markings, parking meters, and bus stops. A site plan drawing shall be at a minimum scale of 1" = 30' in order to clearly show all features. If the plan drawing would exceed 24" x 36" at this scale, the developer may either use multiple drawings or could potentially use 1" = 50' supplemented with detailed drawings of critical areas.

The Stormwater Engineering Division (or in some cases the Inspections Bureau) will review the application in order to determine acceptability of design and the conformance with regulations and design standards. In addition, copies of the right-of-way application will be circulated to other city agencies as necessary to ensure that all driveways are shown correctly on other site development drawings. The Stormwater Engineering Division will notify the permit contact whether permit approval has been granted and any deficiencies noted, which may also include suggested improvements or alternatives based upon knowledge of local standards, neighborhood preferences, physical factors or other conditions.

Approval of the proposed driveway locations and geometric design shall be secured from the Stormwater Engineering Division prior to the issuance of a site development permit or a building permit, except for residential property (single-family houses or duplexes) fronting on local or collector streets. A permit for reconstruction or replacement of any existing driveway, in its current location, may be requested by submitting a right-of-way application to the Civil Engineering Division.

2.3 DRIVEWAY AGREEMENT

A driveway agreement may be necessary in rare cases involving large or complex projects with multi-family housing or commercial developments. The driveway agreement will include the approved right-of-way drawings of the proposed driveways, all exceptions and restrictions imposed on the driveways, methods of construction, maintenance responsibilities, and other conditions as necessary. If the right-of-way permit includes the alteration of through traffic lanes or the addition of a traffic lane, the driveway agreement shall also include a construction plan for the alteration, amount and method of payment for the construction, bond provisions, and a further description of safety and maintenance responsibilities.

A driveway agreement shall be signed by the owner, developer, other interested parties and a representative of the Engineering Department. The driveway agreement shall be binding upon the owner and developer, their successors, any renter or leasee, and upon the City of Knoxville. The driveway agreement also becomes part of the right-of-way permit.

2.4 APPROVAL AND DISPLAY OF RIGHT-OF-WAY CONSTRUCTION PERMIT

When an approved right-of-way permit is granted by the Stormwater Engineering Division or the Inspections Bureau, the supervisor at the construction site shall keep the permit available for inspection at the worksite. The right-of-way construction permit shall be made immediately available to city inspectors upon request. If work is not performed to the requirements of the authorized permit standards, the City of Knoxville may immediately issue a notice to stop work. The site supervisor is also required to produce any TDOT right-of-way permit upon request, so that a city inspector may also review driveway plans and construction of a driveway that connects to state right-of-way.

SECTION 3 SPECIFICATIONS

3.1 NUMBER AND LOCATION OF DRIVEWAYS

In order to provide ease and convenience of ingress and egress to private property, the number and location of driveways shall be regulated relative to the development density of the property being served and the amount of lot frontage. The number and location of driveways is regulated in order to provide the maximum safety with the least interference to the traffic flow on public streets. The maximum number of driveways is shown in Table 3-1 based upon lot frontage:

Table 3-1 Maximum Number of Driveways	
Lot Frontage	Maximum Number of Driveways
< 75 feet	1
75 feet to 149 feet	1 A, B
150 feet to 299 feet	2 B
300 feet to 599 feet	3 B
(each additional 300 feet)	(+ 1 more) B
(A) Single-family houses, gasoline service stations, or drivethrough Establishments may have two driveways if separated by a Distance equal to the width of the widest driveway.	
(B) Or as determined by the Knoxville Engineering Department.	

All driveways shall be subject to the following controls, unless appeal is made to the Stormwater Engineering Division upon sound engineering judgment:

- No driveway shall be constructed within the radius return of a street intersection.
- No driveway shall be constructed with a corner clearance of less than 25 feet.
- No driveway shall be constructed in a manner which results in the encroachment of a curb return or curb radius beyond the extension of an adjacent property line or lease line, except where joint use with the adjacent property is established.
- Property adjoining more than one street with adequate frontage for a driveway entrance shall be encouraged to locate primary access on the street with lower traffic volumes.
- The minimum length of tangent curbs between curb cuts on the same property must equal or exceed 20% of the widest adjacent curb cut.
- Except for R-1 zoning districts, no driveway may be constructed opposite the non-continuous leg of a "T" intersection for a distance equal to the width of the non-continuous leg right-of-way plus 25 feet in each direction.

3.2 WIDTH OF DRIVEWAYS

The width of all driveways shall be within minimum and maximum limits specified in Table 3-2:

Table 3-2 Driveway Widths		
Location	Minimum	Maximum
Residential (single-family or duplex)	10 feet	25 feet
One-way, all other uses (A)	15 feet	20 feet
Two-way, all other uses (B)	25 feet	30 feet
(A) All one-way driveways shall be signed to denote "entrance only" and "exit only". A driveway agreement must be accepted in order to ensure proper maintenance of traffic signs (see sections 2.3 and 3.3).		
(B) Gasoline service stations and developments which serve a substantial volume of trucks (more than 5 per day or 25 per week) of large trucks with at least 3 axles may choose to have driveways up to 40 feet wide.		

For all ramp-type driveways, the curb transition shall extend at least 3 feet beyond the side of each apron when measured at the curb line or the edge of pavement, but not more than 5 feet. In addition, length of ramp-type driveways shall be at least equal to the curb transition length. Minimum length of curb cuts for radius-type and ramp-type driveways is shown in Table 3-3, based upon the functional classification of the street and the property use.

The width of street-type driveways for major traffic generation sites are often required to be wider than 40 feet to accommodate traffic patterns, in which case a waiver by the Knoxville Engineering Department will be necessary. The curb radius for street-type driveways shall not be less than 25 feet and not greater than 40 feet, unless a waiver is granted.

3.3 NONCONFORMANCE OF DRIVEWAYS

On occasion, the use of a land parcel or development project is changed so that the driveway is no longer in conformance with this policy. In this case, the owner or developer, at his expense, shall replace or modify all curbs, gutters, sidewalks and grassed areas to restore the driveway and lot frontage to a condition that is consistent with the land use and the neighborhood character. Curb/driveway replacement shall occur either during the site redevelopment project or, if no sitework is being performed, within six months of the land use change.

In locations where driveways are not permitted or are substandard, the Knoxville Engineering Department may request the property owner to either remove or modify the driveway as necessary within 180 days, or a lesser time if appropriate, by means of written notification. If the property owner shall fail to remove, modify or complete work upon the driveway within the allotted time, then the Knoxville Engineering Department may remove or modify such driveway, with the cost of construction being paid by the property owner or a lien attached to the property. The lien shall be twice the amount of the construction cost, with recovery of liens being enforced in Knox County Chancery Court or any other court of competent jurisdiction.

Table 3-3 Minimum Length of Curb Cut for Driveways (Radius-Type and Street-Type)				
		Minimum length of curb cut for driveway (based on street classification)		
	Driveway width	Arterial	Collector	Local
SINGLE FAMILY RESIDENTIAL	10'	25'	20'	20'
	12'	27'	22'	22'
	15'	30'	25'	25'
	20'	35'	30'	30'
	25'	40'	35'	35'
HIGH TRUCK VOLUME TRAFFIC	20'	60'	55'	50'
	25'	65'	60'	55'
	30'	70'	65'	60'
	35'	80'	70'	65'
	40'	90'	75'	70'
GASOLINE SERVICE STATION	20'	50'	40'	30'
	25'	55'	45'	35'
	30'	60'	50'	40'
	35'	60'	55'	45'
	40'	60'	60'	50'
ALL OTHER USES	15'	45'	35'	25'
	20'	50'	40'	30'
	25'	55'	45'	35'
	30'	60'	50'	40'
Minimum turning radius into curb cuts		Arterial	Collector	Local
<i>Single Family Residential</i>		7.5'	5'	5'
<i>High Truck Volume Traffic</i>		20'	17.5'	15'
<i>Gasoline Service Station</i>		15'	10'	5'
<i>All Other Uses</i>		15'	10'	5'

3.4 MISCELLANEOUS DESIGN CRITERIA

Driveways shall be designed to meet the following conditions:

- Driveways shall constructed to conform to the existing paved street grade, unless a different grade is approved by the Stormwater Engineering Division.
- Driveways shall cross the sidewalk area (if any) to allow for a smooth and continuous sidewalk (either existing or proposed) along city rights-of-way.
- In general, an existing driveway shall not be incorporated into the construction of a new driveway unless it can be demonstrated that the sidewalk is in good condition consisting of a minimum 6" thick reinforced concrete slab meeting the city standards.
- Driveways are not allowed to contain any municipal facilities, such as traffic signal standards, fire hydrants, crosswalks, loading zones, utility poles, guy wires, fire alarm boxes, meter boxes, or

sewer cleanouts. The owner or developer may be authorized to relocate the municipal structures or appurtenances as necessary. The owner or developer may also request the city to relocate minor structures or appurtenances as necessary, with the cost to be borne by the owner or developer.

- If special pedestrian or vehicle hazards are created by two-way traffic, then a driveway may be restricted to one-way traffic. Proper signs and/or markings shall be erected and maintained. A one-way driveway, due to the necessity of providing one-way signs, will require an approved driveway agreement (as described in Sections 2.3 and 3.2) in order to ensure proper maintenance of traffic signs. Failure to adequately erect and maintain standard one-way signs is a violation of this policy.
- Driveways shall be constructed at an angle not less than 75° to the street or roadway unless exempted by the Knoxville Engineering Department. This safety requirement is to allow clear sight distance in each direction. Exemptions may be considered for single driveways serving single-family residences.
- Driveways shall be located and constructed to provide adequate stopping sight distance for drivers entering and exiting the property.
- Driveways should generally be the standard ramp-type driveway at locations where sidewalks exist or are included in the construction. Either radius-type, ramp-type or street-type driveways may be constructed at locations where sidewalks do not exist. In general, a new driveway should be constructed to match the predominant type of driveway in existing use along that street or road.

3.5 CONSTRUCTION SPECIFICATIONS

All work performed in the construction of driveways and entrances shall conform to the current specifications established by the Tennessee Department of Transportation or the City of Knoxville. Use high-quality materials and standard paving methods to ensure a safe and durable finished project. The construction plans shall completely describe the pavement thickness and materials used. Materials shall generally be described using standard TDOT terminology.

3.6 MAJOR TRAFFIC GENERATORS

The Knoxville Zoning Ordinance defines a major traffic generator as a facility that is required to provide 400 or more parking spaces. The number and types of parking spaces are described in Article V, Section 7 (Minimum offstreet parking, access and driveway requirements). Any development projects which qualify as a major traffic generator shall submit a complete report to the Metropolitan Planning Commission, along with conceptual plans, that provides the following information:

- Projection of traffic generation for the development.
- Directional distribution of traffic and the assignment of projected traffic to the available access routes.
- Anticipated queue length and available vehicle storage of access routes.
- Impact of the development and proposed access routes on the operation of existing streets and neighborhoods.

3.7 HIGH VOLUME DRIVE-THROUGH FACILITIES

Any property that provides drive-through services (such as carwashes, cleaners, banks or fast food restaurants) is required to provide adequate storage areas for waiting vehicles. Storage area lengths, expected volumes, and queue times shall be submitted to the Knoxville Engineering Department for review. Factors that affect the review may include:

- Size and type of street that provides access to the property
- Potential for interference with traffic on collector and arterial roads
- Sight distances at the driveway entrance and exit
- Available parking to conduct business in a manner other than by drive-through

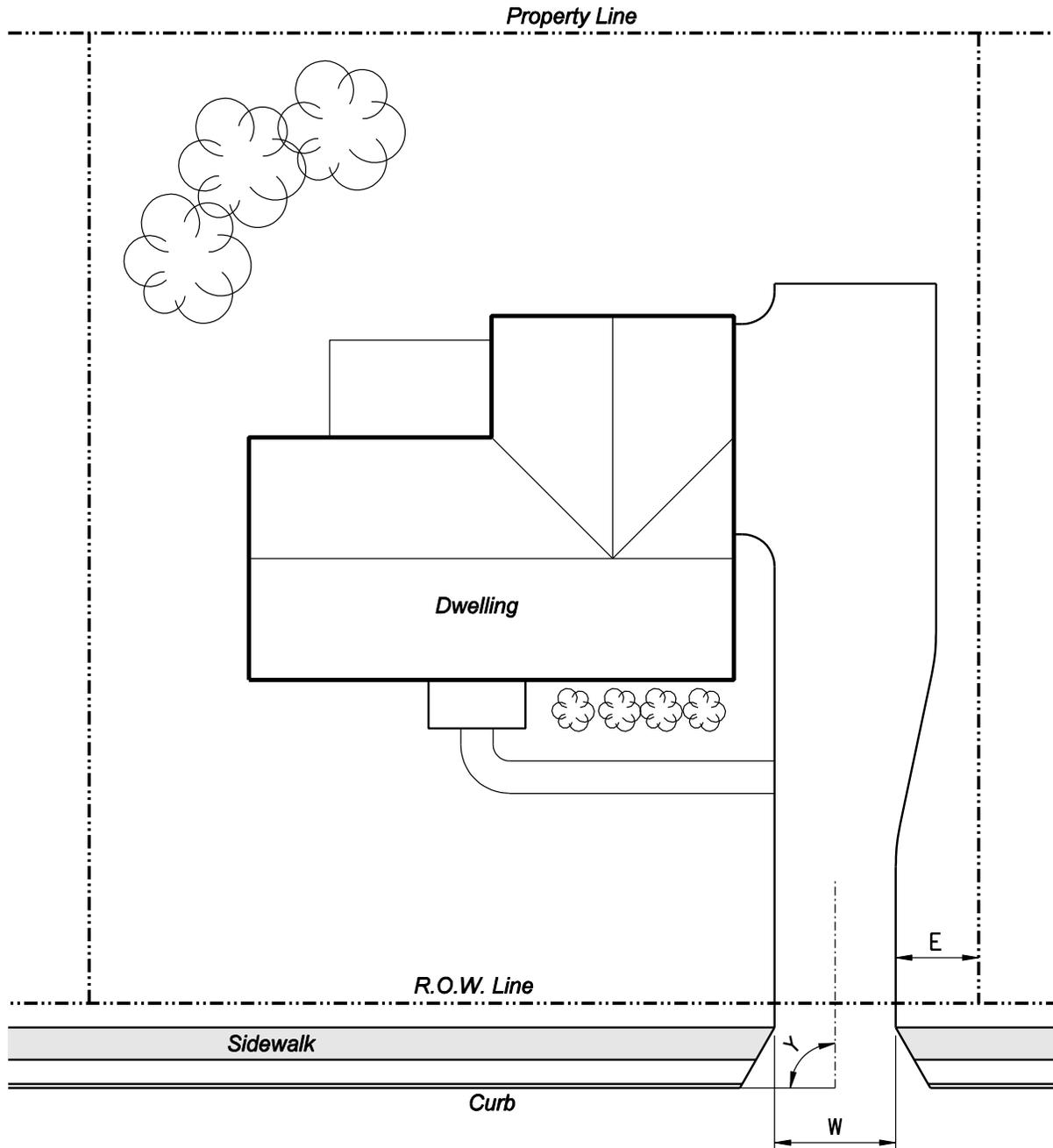
SECTION 4 DESIGN SCHEMATICS

The following design schematics show examples of common driveway layouts. Figure 8 shows the 3 types of driveways (radius-type, ramp-type, and street-type). As stated previously in Section 3.4, driveways and entrances must be aesthetically compatible with neighborhood standards and other driveways in the immediate vicinity. In addition, the presence of existing or proposed sidewalks is a major factor in selecting the driveway type.

When designing driveways and entrances, the engineer must consult the appropriate sections of the Knoxville Zoning Ordinance for property setback requirements, parking requirements and building limitations. In addition, a clear sight triangle is defined by Article V, Section 6-C, of the Knoxville Zoning Ordinance. This minimum level of sight distance is considered adequate for very infrequent use on low-volume local streets. Higher standards for sight distance should be considered for driveways and entrances with high volumes of traffic or that connect to roads with higher design speeds.

Example of Single Family Residential Driveway Schematic

Not to scale



W = 10' MIN - 25' MAX

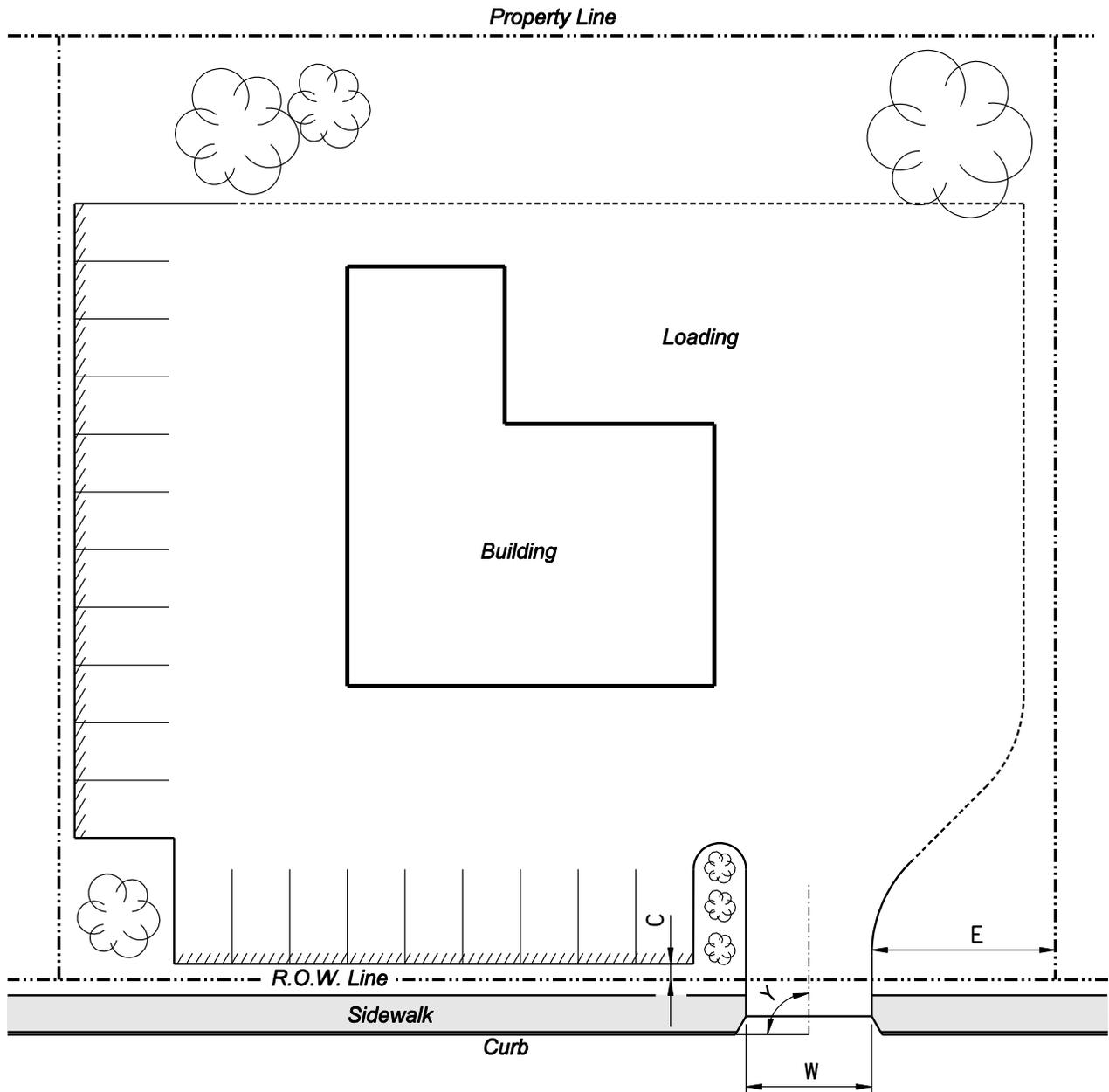
E = MIN/MAX VARIES WITH STREET CLASSIFICATION

Y = 75° TO 90°

NOTE: SEE APPROPRIATE ZONING ORDINANCE FOR BUILDING AND PARKING LOT SET BACK REQUIREMENTS.

Figure 1

Example of Single Driveway Schematic
Not to scale



W = 20' MIN - 30' MAX

C = 3' MIN

E = MIN/MAX VARIES WITH STREET CLASSIFICATION

Y = 75° TO 90°

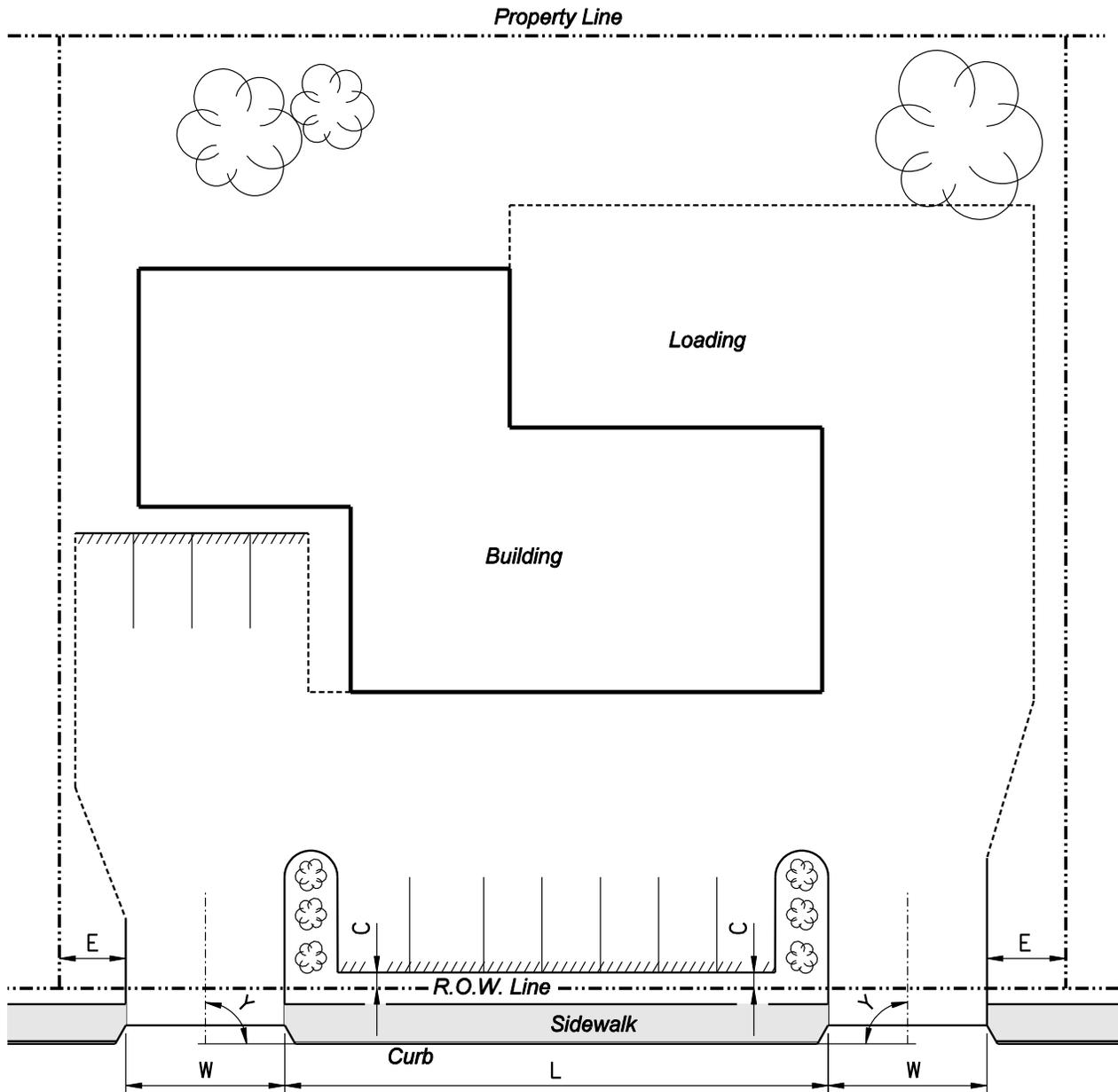
////// 6" RAISED CURB

NOTE: SEE APPROPRIATE ZONING ORDINANCE FOR BUILDING AND PARKING LOT SET BACK REQUIREMENTS.

Figure 3

Example of Double Driveway Schematic

Not to scale



W = ONEWAY DRIVE: 15' MIN - 20' MAX
 TWOWAY DRIVE: 20' MIN - 30' MAX
 C = 3' MIN
 L = WIDTH OF WIDEST DRIVEWAY, MIN

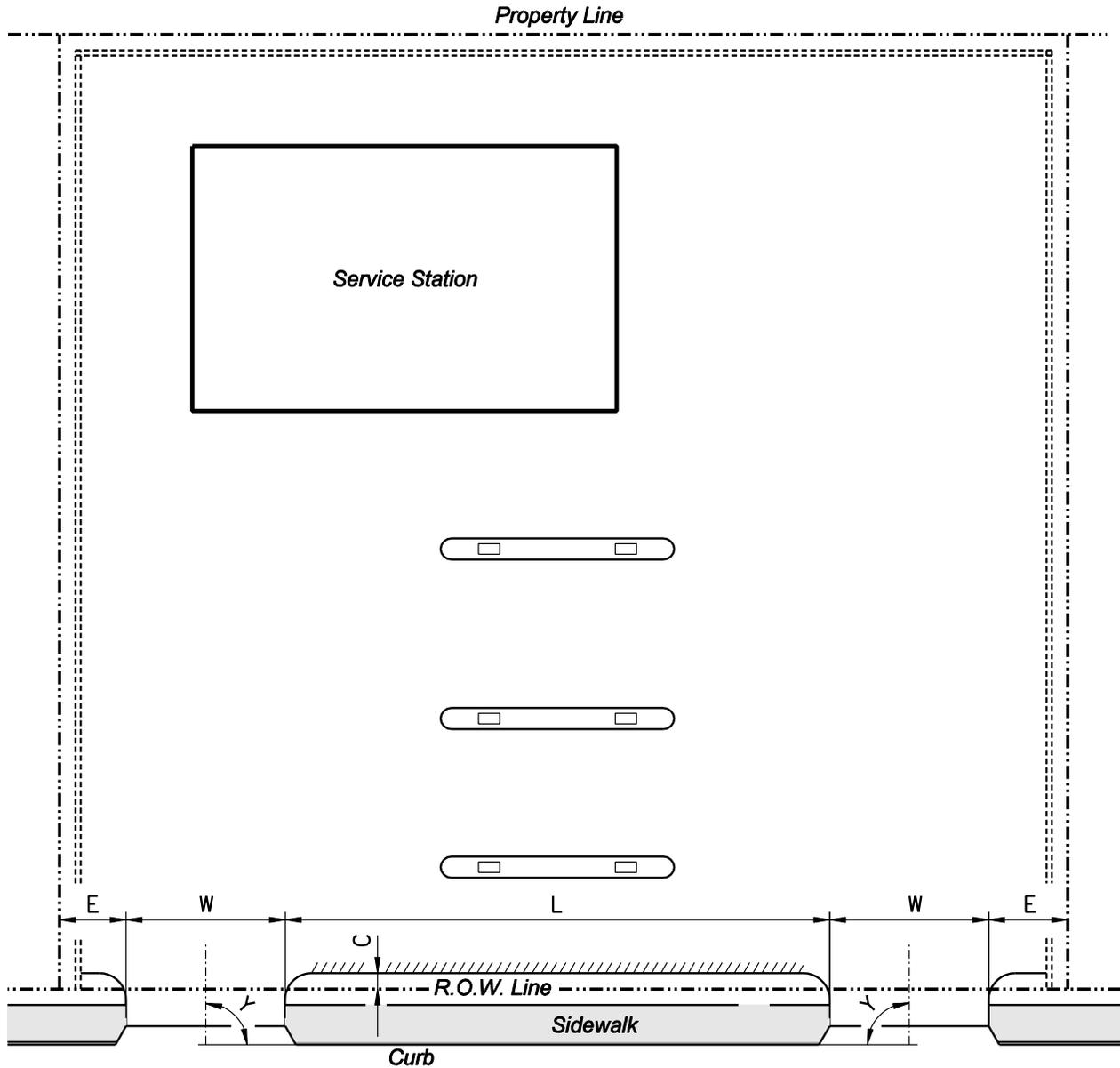
E = MIN/MAX VARIES WITH STREET CLASSIFICATION
 Y = 75° TO 90°
 // // // 6" RAISED CURB

NOTE: SEE APPROPRIATE ZONING ORDINANCE FOR BUILDING AND PARKING LOT SET BACK REQUIREMENTS.

Figure 4

Example of Gas Station Double Driveway Schematic

Not to scale



W = ONE DRIVEWAY: 20' MIN - 40' MAX
 E = MIN/MAX VARIES WITH STREET CLASSIFICATION
 L = WIDTH OF WIDEST DRIVEWAY MIN

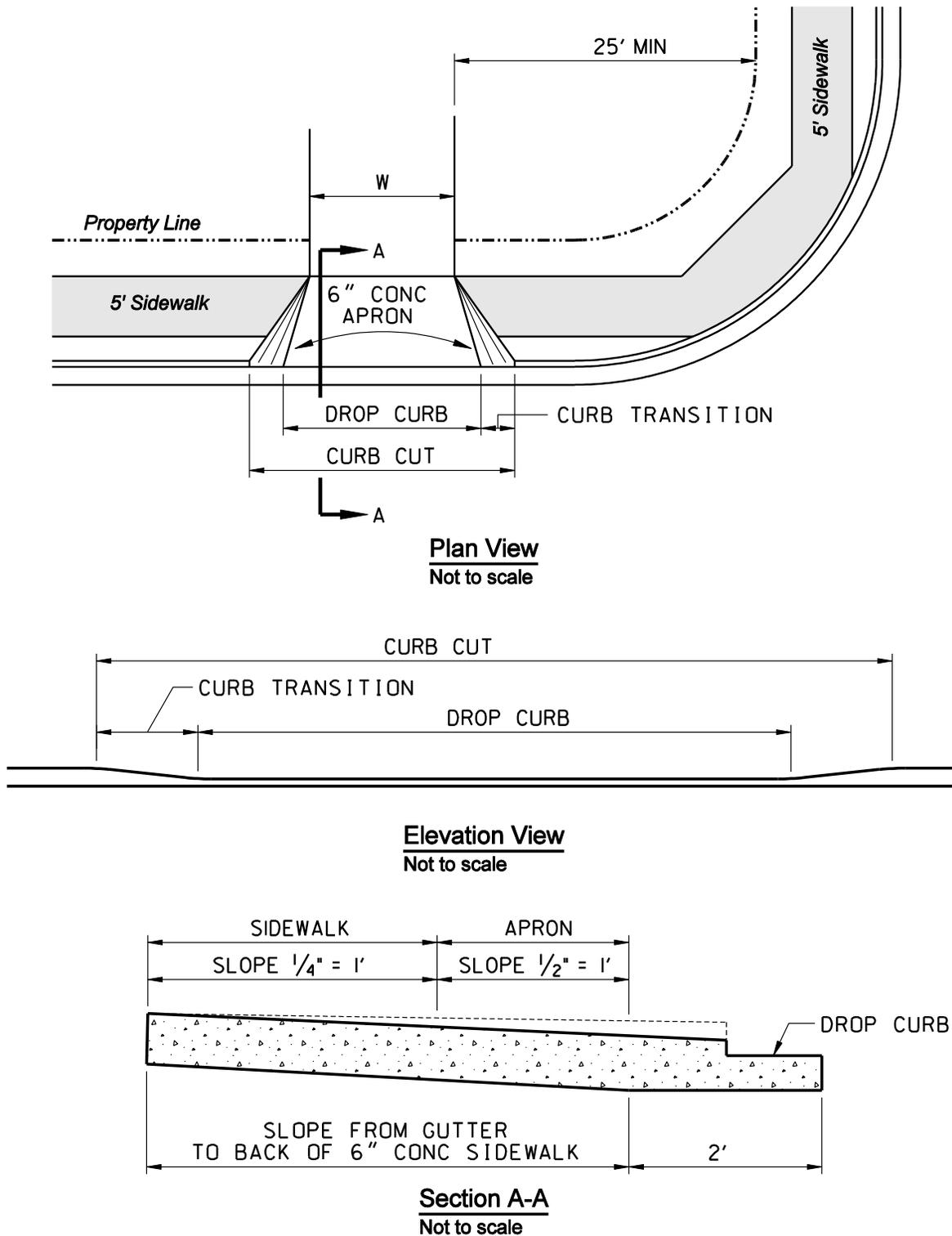
Y = 75° TO 90°
 C = 3' MIN
 // // // // 6" RAISED CURB

NOTE: SEE APPROPRIATE ZONING ORDINANCE FOR BUILDING AND PARKING LOT SET BACK REQUIREMENTS.

Figure 5

Example of Ramp Type Driveway Schematic

Not to scale



Plan View
Not to scale

Elevation View
Not to scale

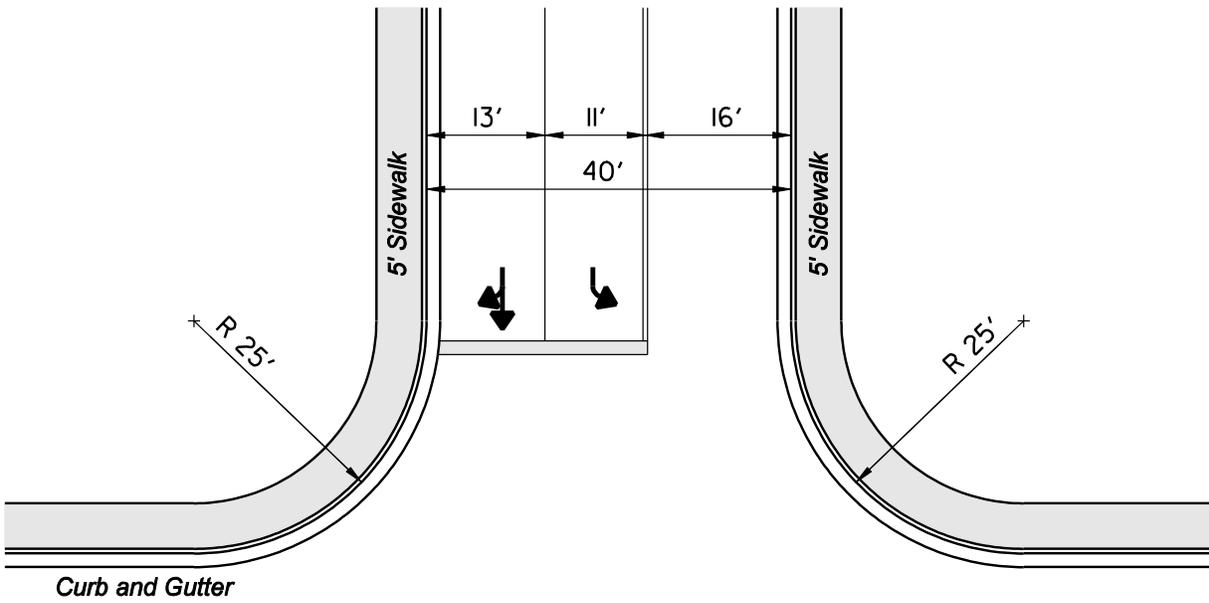
Section A-A
Not to scale

Figure 3

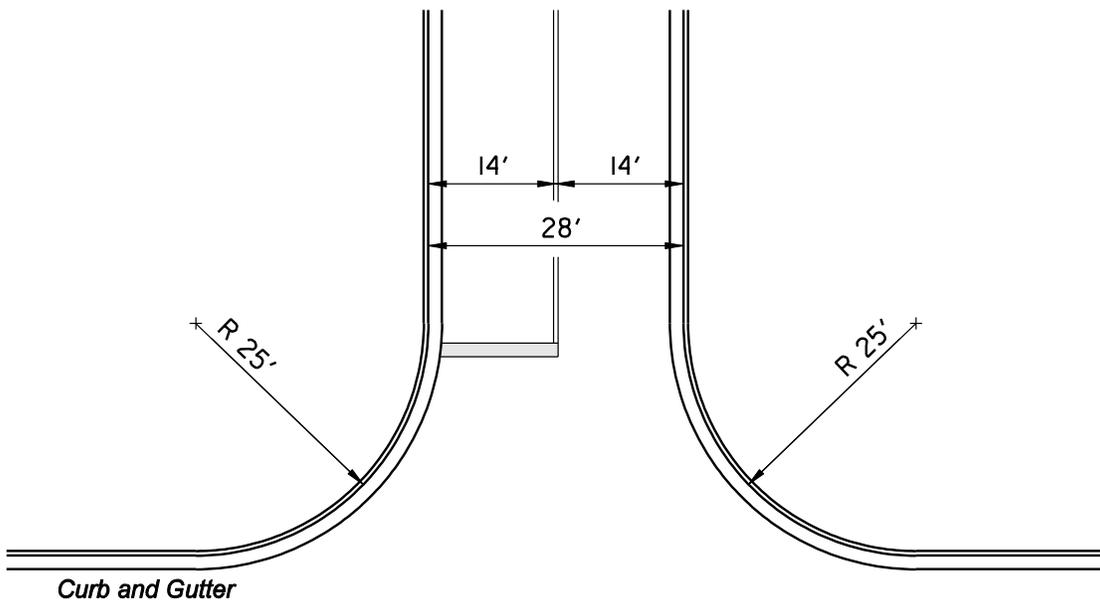
Example of Street Type Driveway Schematic

Not to scale

Figure 4



40' Street Type Driveway



28' Street Type Driveway

Examples of Driveway Types

Not to scale

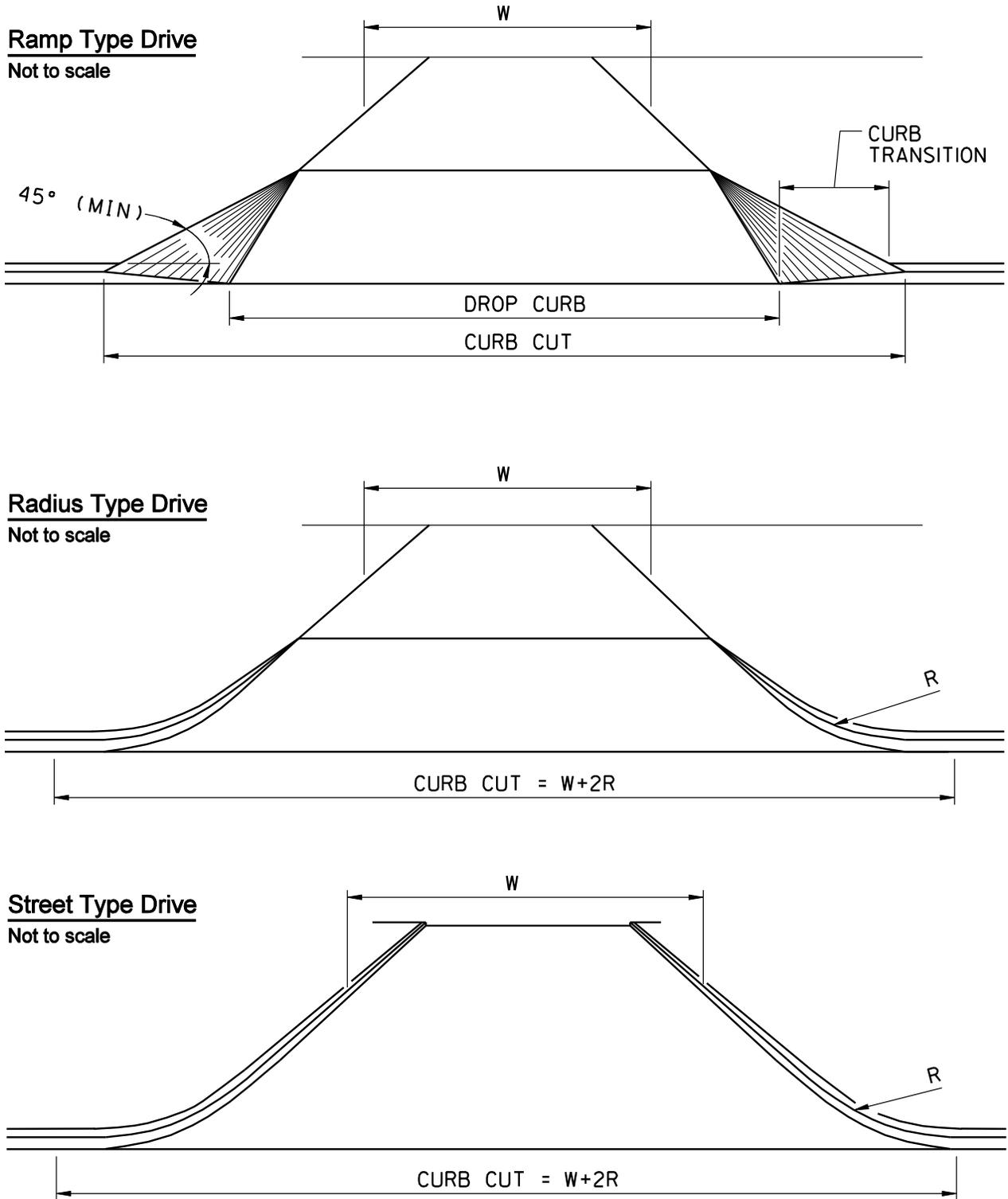


Figure 5