



Manual for Constructing
Driveway Entrances
on State Highways

2015 Edition

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1 – Introduction

1.1 Purpose

The purpose of the driveway permit process is to manage access on the State Highway System. Access regulations are necessary in order to preserve the functional integrity of the State Highway System and to promote the safe and efficient movement of people and goods while providing reasonable access to adjoining property owners. Reasonable access means that a property owner will have access to the public highway system, but it does not mean that potential patrons are guaranteed the most direct or convenient access from a specific roadway to the owner's property. This manual is intended to define the process for constructing a legal driveway or other work within the State Highway rights-of-way.

1.2 History

In 1974, the Tennessee Department of Highways, now known as the Tennessee Department of Transportation, adopted rules and regulations governing the construction of driveways on state highway right-of-way. Some of these rules were amended in 1978, but there have been no revisions since then. This new manual represents a comprehensive overhaul of the driveway regulations. A summary of changes can be found on the TDOT Traffic Engineering Office website's Highway Entrance Permit page.

1.3 Need

Every access point constructed on the state highway system increases the crash risk. The cumulative impact of closely spaced access points over time is one of the largest contributors to high crash rates and congestion on state highways. The majority of states in the nation have updated their driveway access standards in the last 20 years to curtail the accelerated degradation to highway efficiency and safety. It is the Department's intent to adopt national best practices that better preserve the safe and efficient movement of people and goods while also helping property owners make better decisions regarding access needs. Outdated access policies not only fail to protect the interests of highway users but also fail to enhance the economic opportunities a highly efficient roadway network offers businesses and customers.

1.4 Authority

This manual is authorized by the following sections of the Tennessee Code Annotated:

- (a) Section 4-3-2303(2), Powers and duties of commissioner, which authorizes the Commissioner to promulgate regulations governing the administration and operations of the Department.
- (b) Section 54-5-301(a), Regulations governing construction of entrances – Penalty for illegal entrances, which authorizes the Commissioner to make reasonable and proper rules governing the construction of driveway entrances on the State Highway System.
- (c) Section 54-5-302, Agreement prior to construction mandatory, which provides that no person

may construct any entrance onto a state highway unless it is constructed in accordance with the rules and regulations adopted by the Commissioner.

1.5 Severability

If any provision of this manual of standards and guidelines is proven or held to be invalid or unconstitutional, such invalidity shall not affect the validity of these standards and guidelines as a whole, or any part thereof, other than the part determined to be invalid.

1.6 Definitions

AASHTO – The American Association of State Highway and Transportation Officials.

Access Point – A location on a property frontage at which access to a state highway is allowed by the Department.

ADA or Americans with Disabilities Act of 1990 – Federal law prohibiting discrimination against persons with disabilities. Requires public entities and public accommodations to provide accessible accommodations for persons with disabilities.

Americans with Disabilities Act Accessibility Guidelines (ADAAG) – Scoping and technical specifications for new construction and alterations undertaken by entities covered by the ADA.

Algebraic Difference in Grade – The total change in grade between intersecting grades.

Apron – That portion of the driveway extending from the edge of the pavement of the through roadway to the back of sidewalk section, or the right-of-way line if no sidewalk exists.

Applicant – The owner of a property or the owner’s representative applying for a state highway entrance permit.

Auxiliary Lane – A lane along the roadway that is used for the purpose of acceleration, deceleration, or storage of vehicles for turning movements.

Buffer Area – The border area along the frontage of a property, between the traveled way and the right-of-way line, and within the frontage boundary lines.

Commercial Border Area – The border area along the frontage boundary line that extends outside the right-of-way line onto a tract of commercial property. This area is designed to prevent vehicles from parking or being serviced on state owned right-of-way. Typically, commercial border areas are grassy or mulched, and surrounded by a concrete curb.

Commercial Border Area Clearance – The distance, measured perpendicular to the right-of-way line, between the right-of-way line and the edge of the commercial border area. See Figure A.3 dimension “CB”.

Connection – Any driveway, street, turnout, or other means of providing for the movement of vehicles to or from the public roadway system.

Corner Clearance – At an intersecting street or highway, the distance measured along the edge of traveled way between the intersection of right-of-way lines and the tangent projection of the nearest edge of the driveway. See Figure A.3 dimension “C”.

Crossover – A paved or graded area of the highway median designed to allow vehicles to cross the median of a divided highway.

Department – The Tennessee Department of Transportation.

Distance Between Double Driveways – The distance measured parallel to the right-of-way line between the tangent edges of two adjacent driveways servicing the same frontage. In the case of driveways at an angle less than 90° to the traveled way, the minimum distance required between them shall be applied at the point where the two tangent edges are closest to the traveled way. See Figure A.3 dimension “D”.

Driveway – An improved area between a public road and private property used to provide ingress and egress of vehicular traffic from the public road to a definite area of private property.

Driveway Angle – The angle of 90° or less between the driveway centerline and the edge of the traveled way. See Figure A.2 dimension “Y”.

Driveway Width – The perpendicular distance between the parallel edges of a driveway. See Figure A.2 dimension “W”.

Drop/Lowered Curb – A curb with reduced vertical dimension to allow vehicular access in specific areas while containing the flow of storm water under common flow conditions.

Edge Clearance – The distance measured parallel to the edge of the traveled way, between the frontage boundary line and tangent projection of the nearest edge of driveway. In the case of driveways at an angle less than 90° to the traveled way, the edge clearance shall be measured between the frontage boundary line and the point where the tangent edge of the driveway is closest to the traveled way. See Figure A.2 dimension “E”.

Encroachment – The use of state highway right-of-way by anyone other than the Department’s personnel or authorized agents for any purpose other than that intended by the Department.

Field Entrance – An area between a public road and private property used to provide ingress and egress of farm equipment from the public road to a definite area of private property used for agricultural purposes.

Frontage – The length along the highway right-of-way line of a single property tract or roadside development area between the edges of the property. Corner property at a highway intersection has a separate frontage along each highway.

Frontage Boundary Line (F.B. Line) – A line, perpendicular to the highway centerline, at each end of the frontage, extending from the right-of-way line to the edge of the traveled way. See Figure A.4.

Functional Classification – The grouping of streets and highways into classes or systems according to the character of service they are intended to provide.

“May” – see “Shall,” “Should,” and “May.”

Median Offset – The distance measured parallel to the right-of-way line from the end of the median to the nearest edge of the closest driveway.

MUTCD – Manual On Uniform Traffic Control Devices.

Outparcel – A small tract of land containing a small commercial establishment which is situated in close proximity to a large, high-volume generating commercial building. Outparcels derive a substantial amount of their business from the traffic generated by the primary commercial establishment in the area. See Figure A.11.

Radius Type Driveway – A driveway constructed with a transition curb defining the edges of the driveway.

Radius of Curvature – Curvature of a circular arc measured as the length of the curvature vector. See Figure A.2 dimension “R”.

Ramp Type Driveway – A driveway constructed with a drop curb used to define the edge of the pavement of the adjacent roadway.

Right-Of-Way (R.O.W.) – Lands conveyed or dedicated to the public for use as a street, alley, walkway, or other public purpose related to the provision of transportation services. See Figure A.2.

Road, Roadway – *See Street.*

Rural – Area located outside the urban boundary limits as determined by the TDOT Planning Division. Link to boundary maps provided on TDOT Traffic Engineering Office website’s Highway Entrance Permit page.

“Shall,” “Should,” and “May”:

Shall – A mandatory condition. Where certain requirements in the design or application are described with the “shall” stipulation, it is mandatory when an installation is made that these requirements be met.

Should – An advisory condition. Where the word “should” is used, it is considered to be advisable usage, recommended but not mandatory.

May – A permissive condition. No requirement for design or application is intended.

Setback – The lateral distance between the right-of-way line and the roadside business building, gasoline pump curb base, display stand, or other object, the use of which will result in space for vehicles to stop or park between such facilities and the right-of-way line.

Sidewalk – An improved pathway or other area on public or private property where pedestrians may walk

or stand.

Sight Distance – The distance at which a driver can see or be seen by an approaching vehicle.

Street – Any public thoroughfare primarily used by motor vehicles and not classified as an alley.

Street-Type Entrance – A point of access constructed to meet AASHTO street intersection standards with design features that include curb returns, channelized lane usage, lane use markings, etc.

Traveled Way – The portion of the roadway for the movement of vehicles, exclusive of shoulders, berms, sidewalks, and parking lanes.

Urban – Area located inside the urban boundary limits as determined by the TDOT Planning Division. Link to boundary maps provided on TDOT Traffic Engineering Office website's Highway Entrance Permit page.

Traffic Control Devices – All signs, signals, markings and other devices placed on, over, or adjacent to a traveled way to regulate, warn, or guide traffic.

Traffic Impact Study (or Report) – A review and analysis of the access requirements for and traffic impacts created by a development, prepared by a licensed professional engineer, and meeting the standards set forth by the Institute of Transportation Engineers (ITE) and any requirements established by the Department.

2 – Highway Entrance Permits

2.1 General

No person may construct a driveway or related encroachment on state highway right-of-way, including the modification, revision, or change in use of any existing driveway facilities, without first obtaining a state highway entrance permit. Change in use includes increasing the number of trips. The property owner, whose property will be accessed by the driveway or street being built or modified, is responsible for obtaining a highway entrance permit and fulfilling all associated requirements. All entrance permit applications (except for residential drives or field entrances), along with any other required information shall be forwarded to the appropriate Tennessee Department of Transportation (TDOT) Region Traffic Engineering Office. See the TDOT Traffic Engineering Office website's Highway Entrance Permit page for a link to Region Traffic Engineering offices. **Please note: Any modification, revision, or new construction on state right-of-way, other than that of a "simple" driveway, may require the acquisition of additional TDOT permits prior to beginning work. Applicants should make sure to contact the appropriate Region Traffic Engineering Office to determine which permits will be required.**

2.2 Residential Driveways and Field Entrances

Owners wishing to construct a residential driveway or field entrance shall contact the local TDOT District Office (see TDOT Traffic Engineering Office website's Highway Entrance Permit page for a link to District Offices). All entrances onto state highways shall meet the conditions of this manual to be approved by the TDOT District Office representative.

2.3 Coordination with Local Authorities

The Department encourages cities, counties, or other local authorities to develop their own regulations governing the construction and design of driveways and intersections. If the ordinances or regulations of more than one jurisdiction apply to a proposed driveway or intersection, it is the responsibility of the applicant to contact each authority to ascertain all requirements and obtain approval from all jurisdictions. The more restrictive regulations shall apply, but the Department shall not issue a permit for a highway entrance that may meet local guidelines but violates the requirements of this manual. Also, the issuance of a permit by the Department does not eliminate the applicant's need to meet the requirements of local authorities.

The Department may opt to allow local agencies sole responsibility for issuing highway entrance permits. This will be done using a memorandum of understanding. The local agency will be required to either meet or exceed the conditions of this manual. Permittee should check with their area TDOT office to determine the appropriate agency authority. The current list of agencies that have sole responsibility can be found on the TDOT Traffic Engineering Office website's Highway Entrance Permit page.

The Department encourages developers to contact local authorities and the appropriate Region Traffic Office when considering the purchase of property where existing or future access to a state highway is of major concern. The Department at its discretion may provide a letter of written conceptual concurrence if provided development plans approved by the local jurisdiction prior to property purchase. The letter from the Department does not negate the land developer's responsibility to acquire a highway entrance permit prior to constructing a new entrance or modifying an existing entrance.

2.4 Liability Insurance

Either the property owner or the contractor performing the work shall carry general liability insurance with an insurance company authorized to do business in Tennessee and in a form acceptable to the Department. Proof of said insurance shall be furnished to the Department in the form of an insurance certificate indicating coverage which shall match the exposure of the Department to claims for negligence as set forth in Tennessee Code Annotated, Section 9-8-307 as it may be from time to time amended and construed. Said limits are currently three hundred thousand dollars (\$300,000) per person and one million dollars (\$1,000,000) for each occurrence. Certificate holder must be: State of Tennessee, Department of Transportation. Such insurance **shall remain in full force** and effect from the beginning of construction on the right-of-way until such construction has been completely approved, in writing, by the Department. Please specify permittee's name (property owner), and identify the location (state route and county) covered by this certificate of insurance. If this information is not provided, the permit will not be granted and the process may be delayed.

2.5 Bond Requirements

All applications, except for residential driveways and field entrances, for permits authorizing the construction or modification of entrances on state owned right-of-way shall be accompanied by a bond executed by or on behalf of the owner, guaranteeing the performance of the terms and conditions of the permit. Bond forms can be found on the TDOT Traffic Engineering Office website's Highway Entrance Permit page. The applicant may select one of the following procedures:

- A. Completely and accurately fill out the Cash Bond form, and post a cashier's or certified check. The amount of the cashier's or certified check shall be equal to one hundred ten percent (110%) of the estimated construction cost (as determined by the Department), or five thousand dollars (\$5000), whichever is greater.
- B. Completely and accurately fill out the Surety Bond form, and post a surety bond. The amount of the surety bond shall be equal to one hundred ten percent (110%) of the estimated construction cost (as determined by the Department), or five thousand dollars (\$5000), whichever is greater.

Regardless of the type of bond chosen, it shall remain in effect until construction on state right-of-way has been completed and approved by the Department. Upon completion of the authorized construction, the applicant shall notify the Region Traffic Engineering Office that issued the permit for construction. The Region Traffic Engineer, or another designated Department representative, shall inspect the site to ascertain that all construction has been satisfactorily completed and that all construction complies with the terms and conditions of the permit covering the work.

After the time period specified in the permit, the Department’s representative shall make a final inspection of the site to ascertain that all construction has been maintained to design specifications. If the Department finds the construction satisfactory, the applicant shall be advised, in writing, that the construction has been accepted by the Department, and the cash bond shall be refunded, or the bonding agency shall be notified to release the bond, as applicable.

2.6 Requirements for Application

As early as possible in the application process, the owner or a designated representative should contact the Region Traffic Engineering Office nearest the proposed construction. This will allow the applicant to become familiar with the Department’s requirements, and may inform the applicant as to any other permits that must be obtained prior to beginning construction.

Forms

The applicant shall fill out the highway entrance permit application in full. All required copies of the permit itself are to be signed in the box designated “Permittee” by the property owner or a legal representative of the corporation that owns the property. Any other applicable forms shall also be filled out and forwarded to the Region Traffic Engineering Office. The permit application and other forms may be obtained from the TDOT Traffic Engineering Office website’s Highway Entrance Permit page or from the Region Traffic Engineering Office.

Expiration and Extensions

An entrance permit is valid for 1-year from the date of issuance. If construction cannot begin within this time period, an extension is available for an additional 6 months upon the written request of the applicant (made prior to the expiration of the permit). Once the permit expires or if additional extensions are needed, the renewal may require re-submittal of a permit application.

Site Plan

In many cases, the Department will require the applicant to submit a site plan showing proposed and existing conditions as well as how the drainage of storm water will be handled at the newly-developed site. When required, a site plan shall be stamped by a qualified professional engineer who has been licensed by the State of Tennessee. See the TDOT Traffic Engineering Office website’s Highway Entrance Permit page for a checklist of items to be included in a site plan.

Traffic Control Plan

Due to the nature of the proposed construction, the roadway being accessed, peak hour volumes, and/or other characteristics of a particular site, the Department may require the applicant to submit a traffic control plan. If required, such a plan shall conform to the guidelines found in the state adopted Manual on Uniform Traffic Control Devices. Lane closures required for construction shall be coordinated with the Regional Traffic Engineer to be incorporated into the Department’s construction reports.

Traffic Impact Study

Depending upon the type and nature of the proposed entrance, along with considerations of future development at a given site, the Department may require the applicant to submit a Traffic Impact Study. These studies shall be performed and stamped by a qualified professional engineer who is registered in

Tennessee. See Section 5.7 for more information on Traffic Impact Studies.

See TDOT Traffic Engineering Office website's Highway Entrance Permit page for TDOT Region Traffic Engineering Offices, District Offices and for various forms associated with the permit application process.

3 – Right-of-Way Encroachment

3.1 General

No part of state highway right-of-way shall be used for servicing vehicles, displays, or the conducting of private business. The buffer area is to be kept clear of buildings, fences, business signs, parking areas, service equipment, and appurtenances thereto. Parking may be permitted on the roadway, as at curbs on city streets, when permitted by police control. The buffer area may be graded and landscaped as approved by the Department.

3.2 Buffer Areas

During the development of private property and the construction of driveways thereto, it may be necessary to re-grade the buffer area by cutting or filling. Such work shall be done in a manner to ensure adequate sight distance for traffic operations, proper drainage, suitable slopes for maintenance operations, and good appearance. The buffer area outside the driveways should be treated to prevent use by vehicles. This may be accomplished by grading, the use of curbs, rails, guide posts, low shrubs, etc., in a manner that will not impair clear sight across the area.

3.3 Parking and Storage

Each roadside business establishment should provide adequate parking or storage space off the right-of-way to prevent the storage of vehicles on the driveway or the backing up of traffic onto the travel way. This is particularly needed for businesses where a number of vehicles will be leaving and entering at the same time.

Where there are one or more driveways to a corner establishment at a highway intersection, parking should be prohibited or severely restricted on each highway between the intersection and the nearest driveway. This will improve the overall safety of the intersection by eliminating potential sight obstructions to motorists.

4 – Access Points

4.1 Types of Highway Access

Single or Two-Family Driveway: Driveways servicing single-family homes or duplexes are considered to be residential. See Figure A.2.

Field Entrance: This type of access is allowed to service farmland or other similar property. Driveways for such property are subject to the same regulations as a residential driveway.

NOTE: Owners wishing to construct either a residential driveway or field access shall contact the local Tennessee Department of Transportation District Office (see the TDOT Traffic Engineering Office website's Highway Entrance Permit page for a link to the District Offices).

Multi-Family Driveway: Residential properties consisting of more than two apartments or units are considered multi-family properties. Driveways for such complexes are subject to the same regulations as a commercial driveway.

Commercial Driveway: Driveways providing access to private property used for commercial purposes, or to public property, will be classified as commercial. See Figure A.3-A.8.

Street-Type Entrance: When development of a specified tract of property will generate 250 or more trips per day, a street-type intersection shall be required, and a Traffic Impact Study may also be required, at the Department's discretion. This may include, but is not limited to: shopping centers, residential neighborhoods, industrial parks, or educational complexes. Also, when access is granted to new streets or roads, they shall be of the street-type design. Driveways for such complexes are subject to the same regulations as a commercial driveway. See Figure A.9.

Joint Access Driveways: The physical configuration of some properties makes it difficult to provide access adequate to serve certain types of development. Examples include uses that normally require two points of access to be developed on a lot with limited frontage, sites with access limitations caused by narrow frontage, frontage that does not span a median opening on a divided highway, or corner clearance requirements. In these and other cases, it may be desirable to develop driveways that serve two or more properties. All involved property owners must agree in writing to the construction of a joint access driveway for a permit to be issued.

Frontage Roads: Where there are several adjacent roadside establishments, each with relatively limited frontage, or where there is a probability of such development, consideration should be given to the provision of a frontage road for the several driveways so as to reduce the number of separate connections to the highway. Where border width permits, the several driveways should be connected directly to such a frontage road paralleling the highway with connections to the highway only at the extremities of the frontage road or at well-spaced intervals along it. See Figure A.10 for a sample drawing of a typical frontage road. All frontage roads shall be off of the right-of-way and shall be designed such that queuing at the primary access with the state route does not affect traffic flow.

Outparcels: Frequently, when a large piece of commercial property is being developed, a high-volume traffic generator, such as a large department store or movie theater, will be the primary business at that location. However, a portion of the property may be divided into smaller outparcels, which will then be developed by smaller businesses. Since these establishments derive a substantial portion of their business from the traffic generated by the primary business, access to these outparcels should come from within the shopping area itself, rather than each business having its own access point from a state highway. This will improve the overall safety of the area, reduce potential points of conflict, and move traffic off of the main thoroughfare and into the shopping area. Access to outparcels are often dictated by local planned unit development (PUD) requirements. No future access should be permitted by the Department unless revisions have been made and approved through the local PUD. For an example of outparcel access, see Figure A.11.

4.2 Number of Entrances

Generally, the number of entrances to a single property shall be kept to the minimum necessary to provide adequate and reasonable service without compromising safety. For single-family residential properties, only one driveway shall be allowed unless the frontage is 200 feet or greater, then a second driveway may be allowed. No more than two driveways for single-family residential properties will be allowed. For all other uses, please consult the following:

- Typically, only one entrance shall be permitted.
- For frontages of 200 feet to 400 feet, an additional entrance may be permitted based on need demonstrated in a Traffic Impact Study.
- For frontages in excess of 400 feet, more than two entrances may be permitted based on need demonstrated in a Traffic Impact Study. The additional entrances may be allowed at the rate of one entrance per every 200 feet of continuous frontage, over 400 feet.
- Where corner lots are involved, the regulations described above shall apply separately to each roadway.

Exceptions to the limitation number of entrances may be granted when the need for such exceptions is demonstrated in a Traffic Impact Study, which concludes that the adverse impacts of additional driveways will be outweighed by the improvement of circulation and safety.

5 – Access Design

5.1 Control Dimensions

Driveways shall be designed to adequately handle the anticipated volume and type of traffic generated. Design shall be governed by the largest vehicle expected to regularly use the entrance. See Figures A.2 through A.9 in Appendix A for example drawings illustrating the control dimensions listed below.

5.1.1 Edge Clearance (E):

All portions of a driveway, including radii, shall lie within the frontage boundary lines. At no time shall the edge clearance be less than the radius of curvature for the junction of the driveway and the edge of pavement. (see “Radius of Curvature” below)

Minimum Edge Clearances:

Rural:

Residential – 10 ft.

Commercial – 20 ft. (larger minimum edge clearance may be required if design vehicle is a single-unit truck or tractor trailer)

Urban:

Residential – 5 ft.

Commercial – 20 ft. (larger minimum edge clearance may be required if design vehicle is a single-unit truck or tractor trailer)

Note: when a single-unit truck or tractor trailer is used as the design vehicle, the minimum required edge clearance shall be equal to the required driveway radius (see “Radius of Curvature” below).

5.1.2 Driveway Angle (Y) (Rural and Urban):

Driveway angles shall be as follows:

Driveways for two-way operation

90° to the centerline of the roadway.

Driveways for one-way operation

1. Driveways used by vehicles turning from both directions on the highway shall be the same as for two-way operation: 90° to the centerline of the roadway.

2. Driveways used by vehicles traveling in one direction on the highway (right-in, right-out only): 60° to the centerline of roadway preferred; may be reduced to 45° (with the approval of the Department).

5.1.3 Radius of Curvature (R):

The radii of driveways and street entrances will vary, depending on the type of establishment and the type of vehicle using the entrance. Particular site characteristics, such as the speed of the adjacent roadway, should also be considered in determining entrance radii.

Rural Driveways:

Residential - 10 ft. minimum; 20 ft. maximum

Commercial - 20 ft. minimum (larger radius may be required if design vehicle is a single-unit truck or tractor trailer)

Urban Driveways:

Residential - 5 ft. minimum; 15 ft. maximum

Commercial - 20 ft. minimum (larger radius may be required if design vehicle is a single-unit truck or tractor trailer)

Street-Type Entrances:

For entrances servicing passenger cars almost exclusively -
25 ft. minimum, 30 ft. recommended

For entrances with a significant portion of single-unit trucks or WB-40 tractor trailers -
40 ft. minimum

For entrances servicing WB-50 tractor trailers or larger -
40 ft. minimum, 75 ft. maximum, 50 ft. recommended

5.1.4 Entrance Width (W) (Rural and Urban):

The entrance width shall be as listed in Table 5.1.

Table 5.1: Driveway Widths

Entrance Type	One-Way Driveways		Two-Way Driveways	
	Minimum	Maximum	Minimum	Maximum
Single Family or Duplex	N/A	N/A	14 ft.	20 or 24 ft.
Multi Family	12 ft.	20 ft.	24 ft.	40 ft.
Commercial or Industrial	12 ft.	24 ft.	24 ft.	40 ft.*

*Note: Where developments are expected to serve a substantial volume of heavy vehicles (6 or more tires), this dimension may be increased to 50 feet.

Street Entrance Width: Generally, street entrances shall be limited to 50 feet. The Department may elect to expand the entrance width if it is determined through a Traffic Impact Study that extra lanes are warranted. Regardless of entrance width, medians for street entrances may not be constructed within the right-of-way.

See Figure A.9.

5.1.5 Corner Clearance (C) (Rural and Urban):

The corner clearance distance shall be as listed in Table 5.2.

Table 5.2: Corner Clearance Requirements

Classification of Intersecting Street	Functional Classification of Road to be Accessed by Driveway		
	Arterial	Collector	Local
Arterial	200 ft.	150 ft.	100 ft.
Collector	150 ft.	100 ft.	50 ft.
Local	100 ft.	50 ft.	50 ft.

NOTE: The functional classification of the route shall be determined using the functional class maps published by TDOT’s Planning Division. A link to the functional class maps can be found on the TDOT Traffic Engineering Office website’s Highway Entrance Permit page.

5.1.6 Distance Between Double Driveways (D) (Rural and Urban):

Rural - 40 ft. minimum
 Urban - 40 ft. minimum

5.1.7 Fuel Pump Clearance (F) (Rural and Urban):

Where applicable, fuel pumps shall be placed so that refueling vehicles will not be parked or serviced on state right-of-way. The pumps shall be placed the following distances from the R.O.W. line(s):

Pumps parallel to R.O.W. line - 15 ft. minimum
 Pumps perpendicular to R.O.W. line - 25 ft. minimum; 50 ft. recommended
 Pumps at any other angle to R.O.W. line - 25 ft. minimum; 50 ft. recommended

5.1.8 Commercial Border Area Clearance (CB) (Rural and Urban):

Commercial border area clearance shall be at least 3 feet. If border area clearance is less than 6 feet from R.O.W. line a 6” raised curb shall be required.

This clearance (and use of 6” curb) is designed to prevent vehicles from parking or being serviced within the R.O.W. line.

5.2 Sight Distance

Highway entrances should be located to provide adequate sight distance for all traffic movements allowed. Where sight distance requirements are not met, specific movements may be restricted. The developer of such a site may be required to perform additional grading work in order to ensure proper sight distance requirements are met. Sight distance requirements shall be in accordance with the Department’s design standards, see Department’s standard drawings RD01-SD series. See figures 5.1 and 5.2 below.

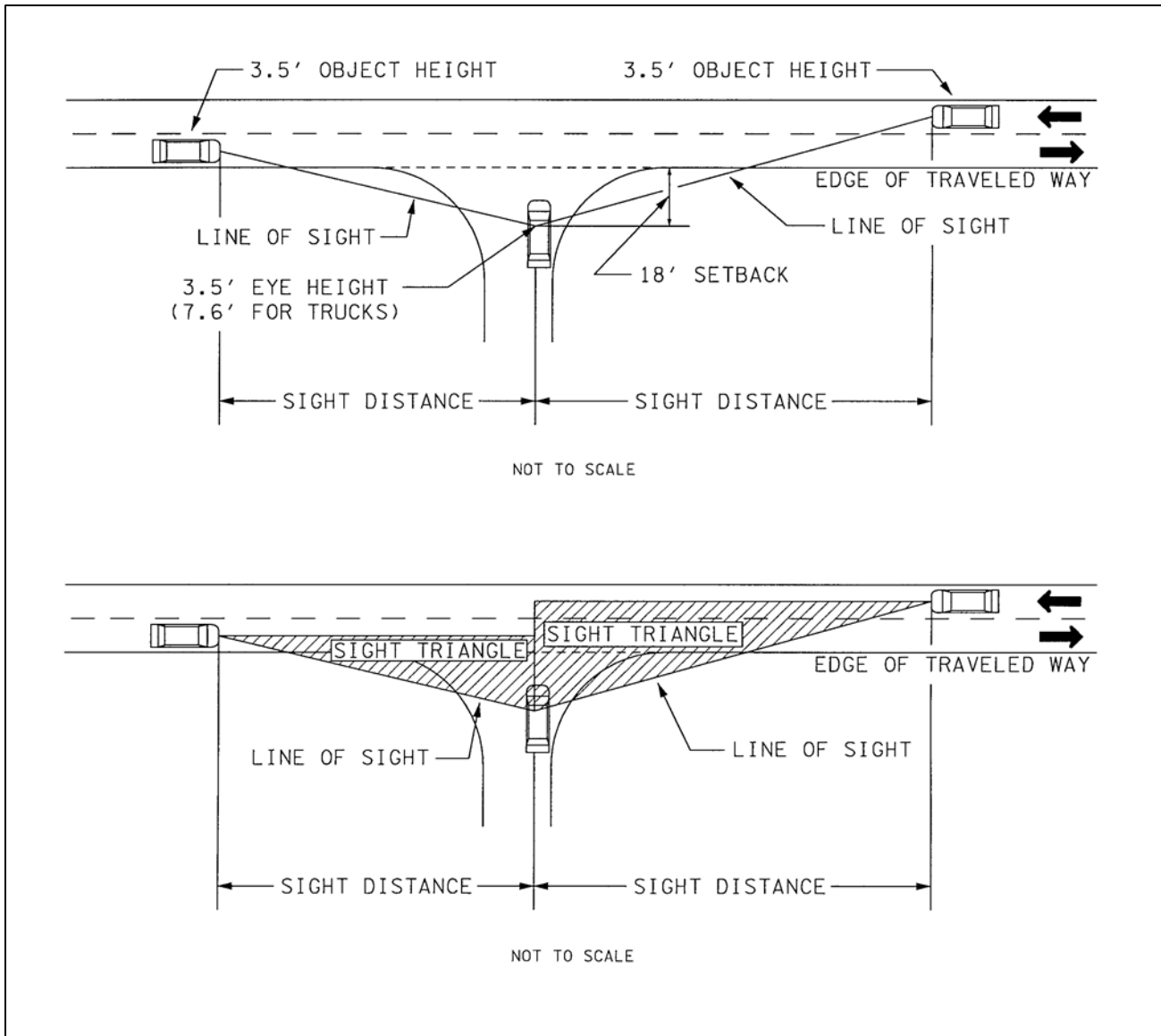


Figure 5.1: Sight Triangle

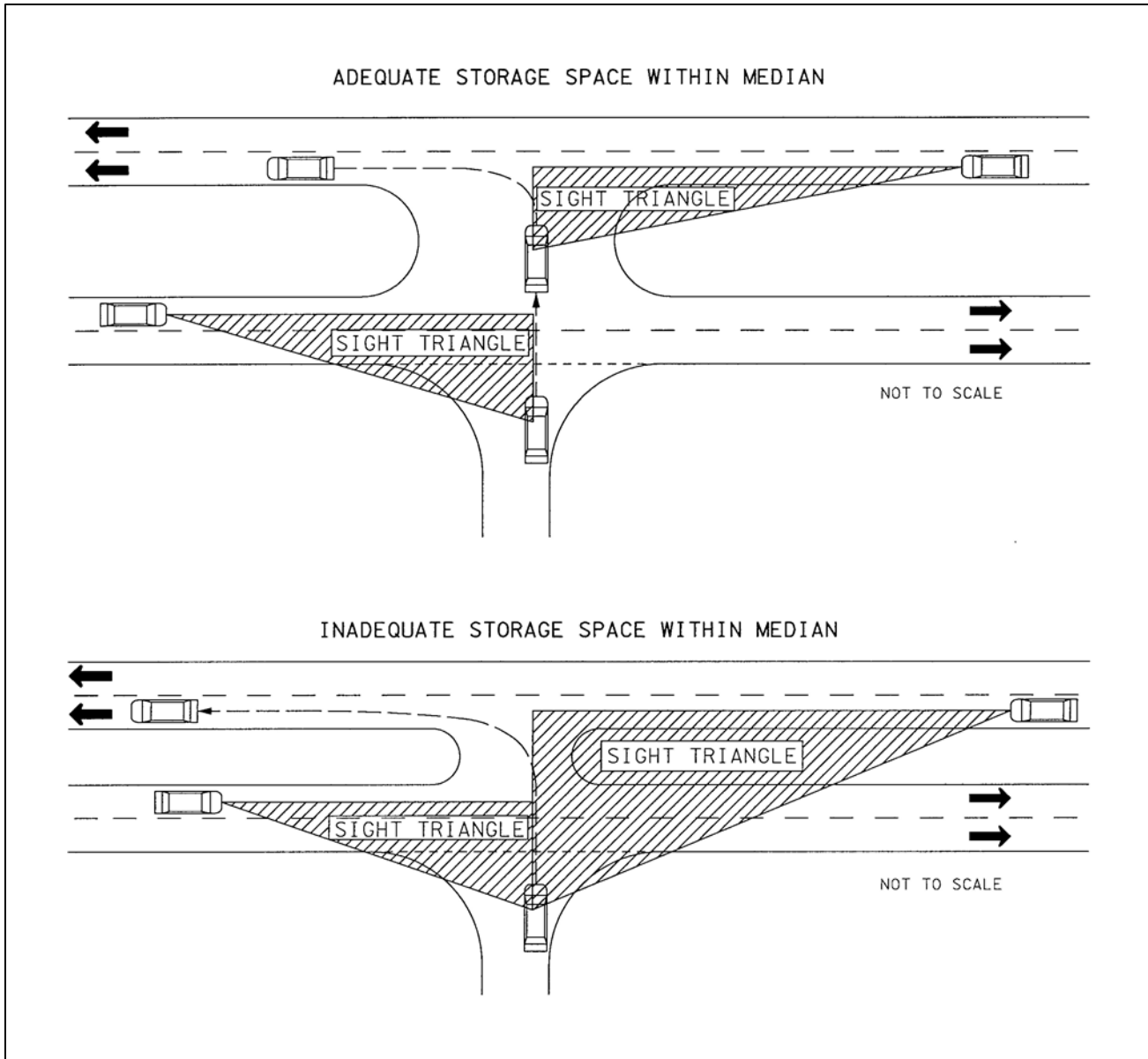


Figure 5.2: Sight Distance at Divided Highways

5.3 Driveway Construction and Grading Standards

All driveways connecting to state routes shall be constructed according to either local government or Department standards, whichever standards are the strictest. In the interest of safety, driveways shall be designed to minimize storm water flow from the driveway onto the public roadway. If there is a curb, the design should also minimize the diversion of storm water flowing against the curb into the driveway. Driveway side slopes shall be no steeper than 6:1. If there are culvert ends facing oncoming traffic, a side drain endwall with grates may be required. See the TDOT Traffic Engineering Office website's Highway Entrance Permit page for links to Department standard drawings.

5.3.1 Residential and field entrances on roads without curb & gutter:

For driveways classified as residential or field entrance, the portion of any driveway within the right-of-way should satisfy the following criteria:

- Driveway grade shall not exceed 15% (10% is recommended).
- From the edge of traveled way to the outer edge of the shoulder, the driveway grade shall match the existing shoulder grade.
- For Cut Sections - From the outer edge of the shoulder to the low point at the ditch line or over a culvert, the grade shall not exceed 8% (5% is recommended). Beyond the ditch line, the maximum grade allowed is 15% (10% is recommended).
- For Fill Sections – Beyond the outer edge of the shoulder, the grade shall not exceed 15% (10% is recommended).
- The maximum allowable difference in grade between intersecting grade lines is 10% in crests and 9% in sags
- The minimum separation distance between changes in grade is 10 feet.

5.3.2 All other entrance types on roads without curb & gutter:

For driveways serving all other uses, the portion of any driveway within the right-of-way shall satisfy the following criteria:

- Driveway grade shall not exceed 8% (5% is recommended).
- From the edge of traveled way to the outer edge of the shoulder, the driveway grade shall match the existing shoulder grade.
- For Cut Sections - From the outer edge of the shoulder the grade shall not exceed 8% (5% is recommended).
- For Fill Sections - Beyond the outer edge of the shoulder, the grade shall not exceed 8% (5% is recommended).
- The maximum allowable difference in grade between intersecting grade lines is 10% in crests and 9% in sags.
- The minimum separation distance between changes in grade is 30 feet.

5.3.3 Driveways on roads with curb & gutter:

Driveways should slope upward from the gutter line to meet the sidewalk (if applicable). Descending driveways are to be constructed in a manner which prevents water from leaving the roadway gutter. The maximum difference between the grades of the roadway cross slope and the driveway shall not exceed 10% in crests and 9% in sags. The driveway grade must not exceed 2% across a sidewalk. Beyond the outer edge of the sidewalk (or an equivalent point) the maximum allowable grade is 8% (5% recommended) for commercial applications, 15% (10% recommended) for residential applications.

Vertical Curves – All driveway vertical curves should be designed as flat as possible to prevent vehicles from dragging the pavement. This is especially important when developments are expected to serve a substantial

volume of oversized vehicles (5 or more vehicles per day with 3 or more axles). The maximum break in pavement grade, as well as all other appropriate factors, including vertical curve characteristics, should be checked by the designer to ensure adequate clearance for the long wheelbase of the oversized vehicles.

See Figure A.1 for an illustration of the regulations listed above.

5.4 Pavement Section

All driveways shall have a surface treatment adequate to permit reasonable use of the facility during all weather conditions. Gravel surfaces may be considered adequate for residential driveways unless drainage patterns and the grade of the driveway are likely to result in debris (including dirt and/or gravel) being transported into the roadway by storm water.

Commercial driveways shall be paved with concrete or bituminous material. The paving section shall be at least as deep as the pavement on the street or road to which access is being secured, and shall extend from the edge of the pavement of the existing roadway to either the back of the ditch line, the right-of-way line, or ten feet (10') from the outer edge of the shoulder or curb line, whichever is the greatest.

5.5 Signs and Pavement Markings

Signs and pavement markings shall be in accordance with the state adopted MUTCD. Markings shall be thermoplastic or as directed. Signs may be required for stop or yield conditions. Additional regulatory and/or warning signs may be required as directed. All signing and marking shall be maintained in accordance with the MUTCD.

5.6 Median Openings and Spacing

Medians provide safety along with improved traffic operations. In the interests of equity, openings shall be permitted at predetermined uniformly spaced specific locations. This allows a high degree of safety for the motoring public while providing reasonable access for property owners.

It is the policy of the Department to provide median openings at most existing city streets or county roads. It is also the policy of the Department to provide uniformly spaced openings for U-turn vehicles between median openings for city streets or county roads. The recommended uniform spacing is 1320 feet (a range of 880 feet - 1760 feet is acceptable) in rural areas and 660 feet (a range of 440 feet - 880 feet is acceptable) in urban areas.

Where possible, driveways should be located so that they are aligned with pre-existing median openings. When this is not possible, driveways should be located a minimum of 100 feet from the nearest median opening to minimize wrong-way movement and conflicts with traffic using the median opening.

5.7 Traffic Impact Studies

Due to site characteristics, new land use or development, or other circumstances, the Department may

require that a Traffic Impact Study be submitted. The following is a list of several types of new development as well as guidelines that may determine the necessity of a Traffic Impact Study, however, it is by no means complete or comprehensive. The Department has final authority to determine when a Traffic Impact Study shall be required.

- Shopping Center – 50,000+ gross square feet
- Planned Unit Development – 30+ acres
- Industrial – 200+ employees
- DHV (Design Hourly Volume) of 100 vehicles or more
- ADT (Average Daily Traffic) of 250 vehicles or more
- Residential Development – 50+ single family detached units or 100+ total dwelling units
- Offices – 50,000+ gross square feet
 - Proposed additional turning lanes
 - Proposed signalization
 - Business / Office Parks

A Traffic Impact Study shall meet the criteria established by the Institute of Transportation Engineers and shall be completed and stamped by a qualified professional engineer who is licensed by the State of Tennessee. The study shall analyze traffic conditions for both the initial development and the full development of the site under the most critical traffic situations expected. This is particularly important when considering the development of large areas, such as planned unit developments, business or office parks, large residential neighborhoods, etc. Studies are used to help assess the need for roadway improvements and modification of traffic control and channelizing devices to help alleviate the impact of new development. A Traffic Impact Study must also justify the proposed highway entrance and must demonstrate what effects the proposed development will have on adjacent roadways.

5.8 Auxiliary Lanes

Generally, the need for any type of auxiliary lane should be documented in a Traffic Impact Study. However, in certain situations the Department may elect to require that an auxiliary lane be constructed without requiring a Traffic Impact Study.

When adding auxiliary lanes, the entire roadway at the site should be resurfaced to prevent differential settlement, eliminate undesirable pavement contrast, and provide proper pavement markings. (See Section 5.5 regarding pavement markings) When the design of an auxiliary lane or lanes requires that the through lanes of the highway must be shifted to a new alignment, the entire roadway within the limits of the shift shall be resurfaced. All seams shall be in line with lane boundaries.

5.8.1 Design of Auxiliary Lanes:

The design of acceleration, deceleration, and storage lanes on state highways shall be based on the Department's Design Guidelines. See the TDOT Traffic Engineering Office website's Highway Entrance Permit page for links to Department's Design Guidelines. In addition, design of such lanes shall satisfy the following criteria:

- The installation of any auxiliary lane shall not adversely impact the access of adjacent property.
- If an auxiliary lane is required based on the recommendations of a Traffic Impact Study, the owner of the property shall install the lane(s) within the public right-of-way. Where public right-of-way is not available, the owner shall dedicate any required right-of-way under the owner's control, so that the auxiliary lane may be accommodated.
- Tapers used to introduce or terminate an auxiliary lane should be designed to meet the guidelines set forth in AASHTO's A Policy on Geometric Design of Highways and Streets, current edition, where physically possible.
- Acceleration and deceleration lane lengths should be designed to meet AASHTO guidelines where physically possible.
- Consideration should be given to provide better visibility of opposing through traffic and reducing potential conflicts between opposing left-turn vehicles by aligning opposing left turn lanes or providing a positive offset of left turn lanes.

5.8.2 Unsignalized Intersections:

The determination of a warrant for and the length of left-turn storage lanes at unsignalized intersections shall be based on the Department's Design Guidelines. See the TDOT Traffic Engineering Office website's Highway Entrance Permit page for links to Department's Design Guidelines.

5.8.3 Signalized Intersections:

The length of left-turn and right-turn storage lanes at signalized intersections shall be determined as part of a Traffic Impact Study.

5.9 Department's Design Standards and Guidelines

The edition of the Department's Standard Drawings and Design Guidelines required to be met are the ones in effect on the date of application for a Highway Entrance Permit.

6 – Drainage

6.1 General

Each new entrance and associated buffer areas shall be constructed so as to prevent water from flowing onto the roadway or shoulder and also shall not impair drainage within the right-of-way. In addition, new entrances and buffer areas shall not materially alter the drainage characteristics of adjacent property. All culverts, catch basins, drainage channels, and other drainage structures required within the buffer area and under driveways as the result of the property being developed shall be designed and installed in accordance with current standards set by the Department.

6.2 Design of Drainage Systems

Drainage discharged into the state highway drainage system shall not exceed the undeveloped flow rate, as determined in accordance with the Department’s design policy. Applicants may be required to submit a drainage plan, as well as all appropriate hydrologic and hydraulic calculations, which show that the proposed system will adhere to the regulations set forth by the Department, and the plan shall be subject to approval by the appropriate Department official. Required drainage plans shall be stamped by a qualified professional engineer who is licensed by the State of Tennessee.

Drainage pipes shall be a minimum of eighteen inches (18”) in diameter, and type “6D” endwalls shall be required if the drainage pipe falls within the clear zone or if the speed limit is greater than or equal to 50 miles per hour. In other conditions, endwalls may still be required (see the TDOT Traffic Engineering Office website’s Highway Entrance Permit page for links to Department’s Design Guidelines - for further information on endwalls). Drainage pipes underneath driveways shall extend beyond the driveway and radius. All drainage structures, including endwalls and culverts, shall be installed by the applicant in accordance with Department standards. The drainage design must be approved by the Department prior to construction.

6.3 Construction

Erosion and sediment control devices, designed according to Department standards, shall be shown on the drainage plan and installed as the first phase of construction. **Please Note: It is the responsibility of the applicant to ensure that all storm water quality requirements are met. Other agencies that have storm water regulations, such as the Tennessee Department of Environment and Conservation or city and county governments, may require additional drainage management practices.**

Structures connecting to the highway drainage system shall be constructed so as to prevent scour, erosion, and blockage of existing structures. Drainage systems shall not alter the stability of roadway subgrades, nor shall they adversely affect the existing profile or cross-section.

Curbs on driveways or street-type entrances shall not continue beyond the right-of-way line or ditch line

when the driveway or street-type entrance connects to a roadway without curbs.

7 – Engineering Exceptions

7.1 General

It is recognized that certain developments, due to location, topography, or other conditions, may not be able to meet the criteria set forth in this manual. In such cases, the applicant shall request, in writing, that an exception to the Department's policy be made. The request shall show why the requirements of Department policy cannot be met and the effect the proposed exception will have.

All requests for exceptions shall be made to the Region Traffic Engineering Office that is handling the proposed entrance permit. Once reviewed by the Region Traffic Engineer, potentially acceptable requests shall be forwarded to the State Traffic Engineer's Office at Tennessee Department of Transportation Headquarters to grant or deny exception based on the majority decision reached by a panel of transportation professionals with knowledge relevant to the unique conditions of the exception. The panel will meet quarterly and all requests must be received two weeks prior to the scheduled meeting in order to be considered. The Region Traffic Engineering Office that is submitting the request will then be notified of the decision and the Region Traffic Engineering Office will in turn notify the applicant.

All correspondence and notification shall be in writing and shall be included as an addendum to the issued permit.

8– Maintenance

8.1 General

Property Owner’s Responsibility

It is the responsibility of the property owner to maintain the following:

- Entrance surface material (paved or gravel), shoulder and slopes from the highway edge of pavement to the right-of-way line.
- Pavement markings from the highway edge of pavement to the right-of way line.

Department’s Responsibility

It is the responsibility of the Department to maintain the following:

- Entrance drainage structures within the state’s right-of-way, if installed under a Department issued permit. Entrance pipes and culverts properly installed on public right-of-way under a highway entrance permit become the property of the Department.

Approved Permitting Authority’s Responsibility

It is the responsibility of the local permitting authority within their jurisdiction to maintain the following:

- Entrance drainage structures within the state’s right-of-way, if installed under a Municipality issued permit. Entrance pipes and culverts properly installed on public right-of-way under a highway entrance permit become the property of the Municipality.

Refer to Section 2.3 of this manual for a detailed discussion on local authorities with sole responsibility for issuing Highway Entrance Permits within their jurisdiction.

A – Example Drawings

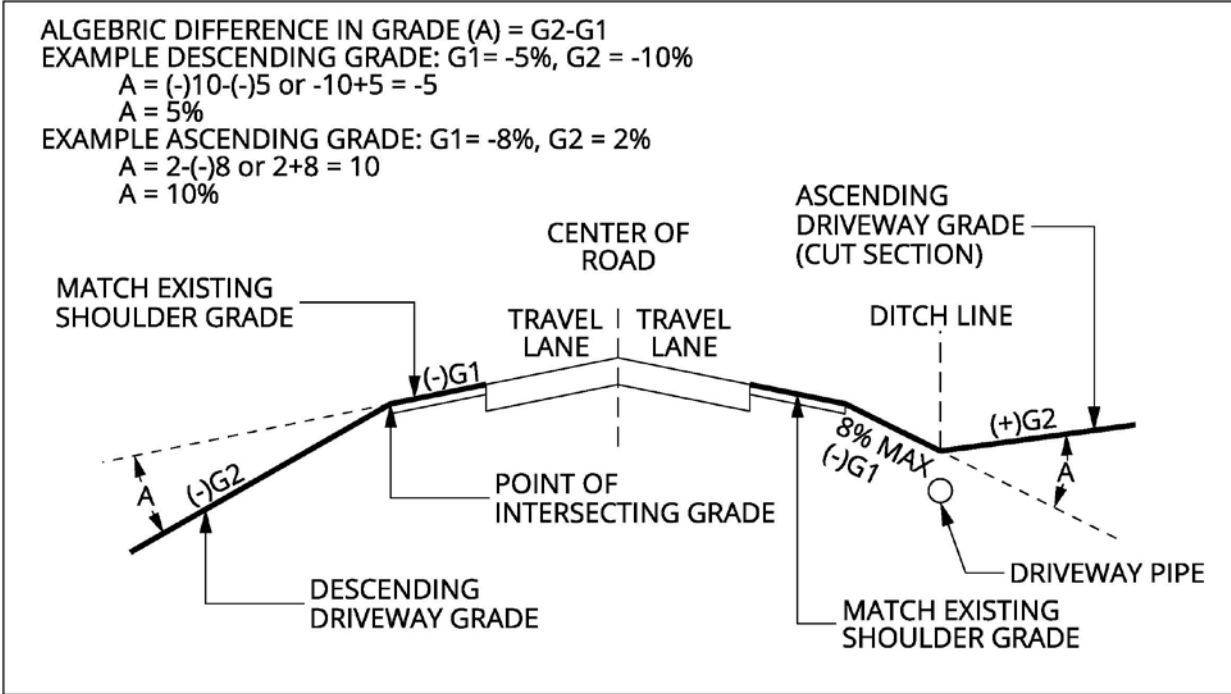
The following diagrams are included for illustrative purposes only. Applicants may use them as a guide, but each location must be considered individually. Actual layouts of planned highway entrances may differ based on topography, property line configuration, sight distance, traffic generated by new development, or other factors.

Legend

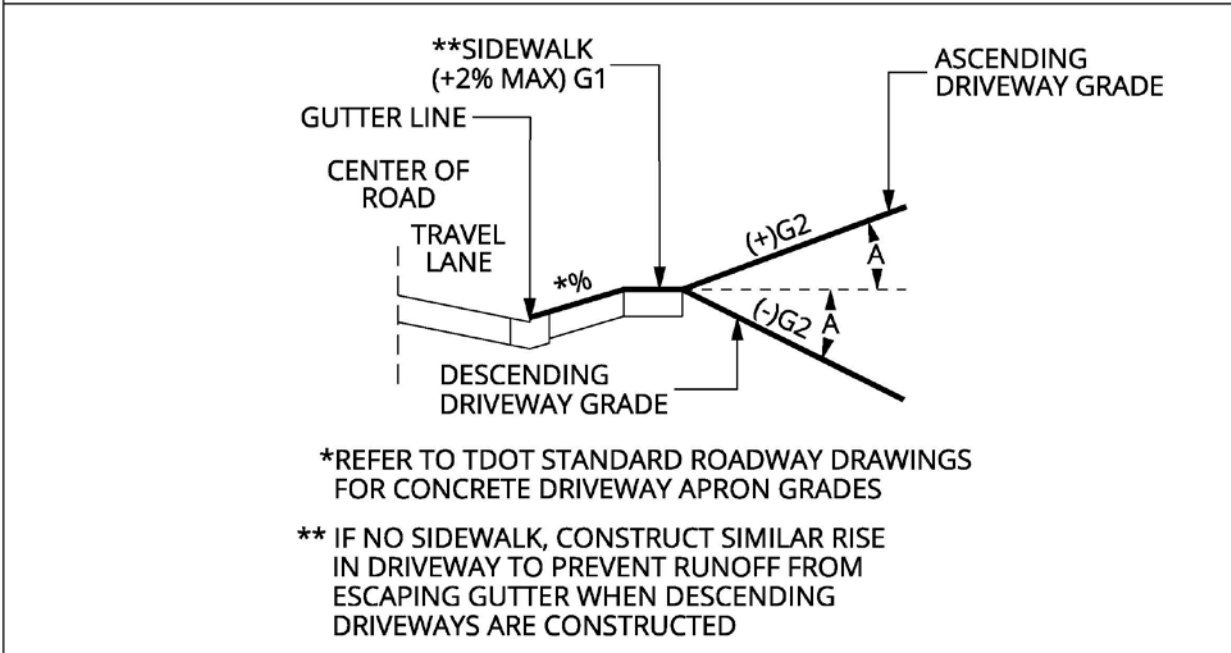
E = Edge Clearance	C = Corner Clearance
W = Width	CB = Commercial Border Area Clearance
R = Radius of Curvature	F = Fuel Pump Clearance
Y = Driveway Angle	D = Distance b/w Double Driveways
R.O.W. = Right-of-Way	F.B. = Frontage Boundary
G1 = Grade of Roadway Constraint	G2 = Grade of Driveway
A = Algebraic Difference In Grade (G2%-G1%)	

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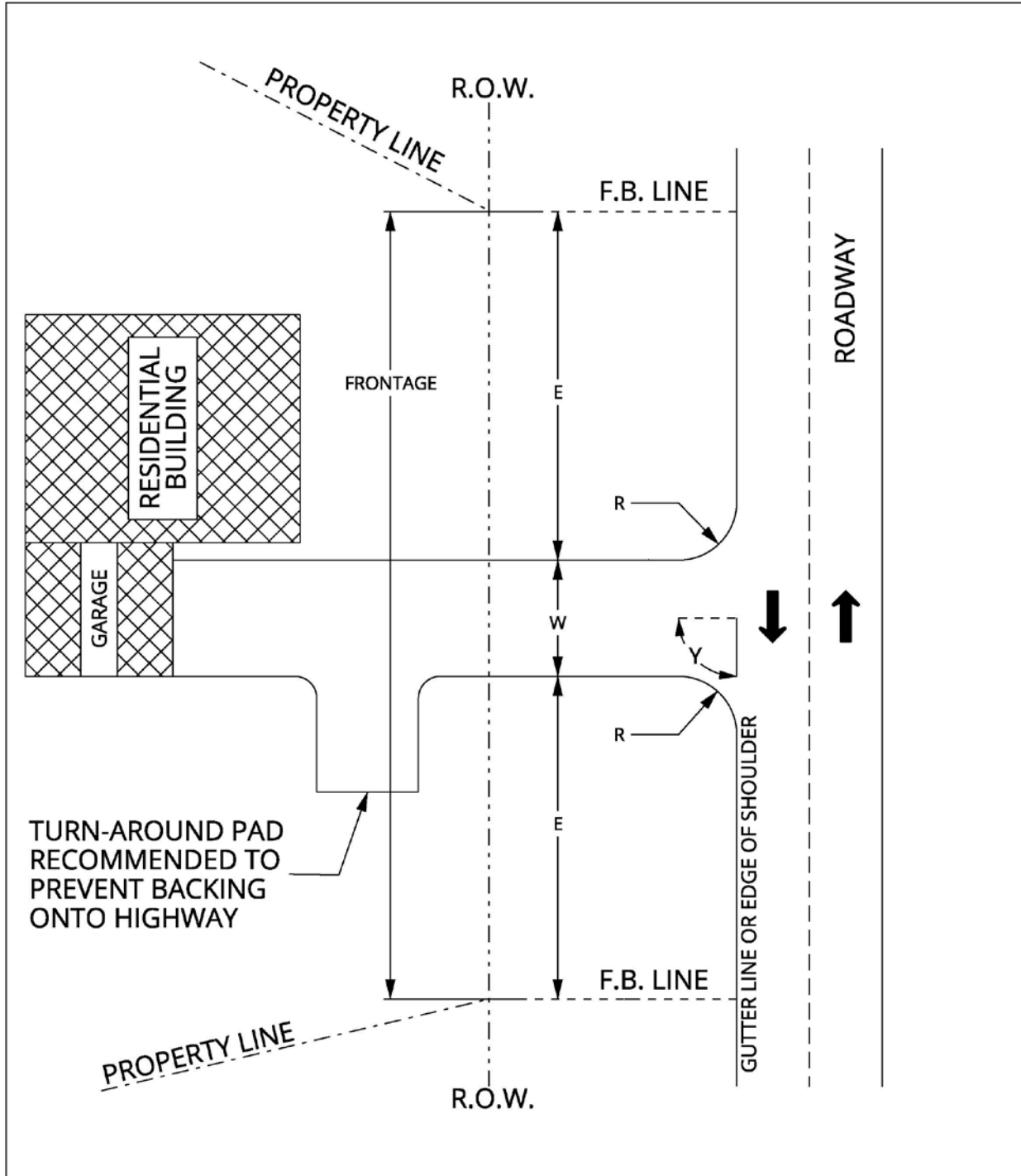


ROADWAYS WITH SHOULDERS

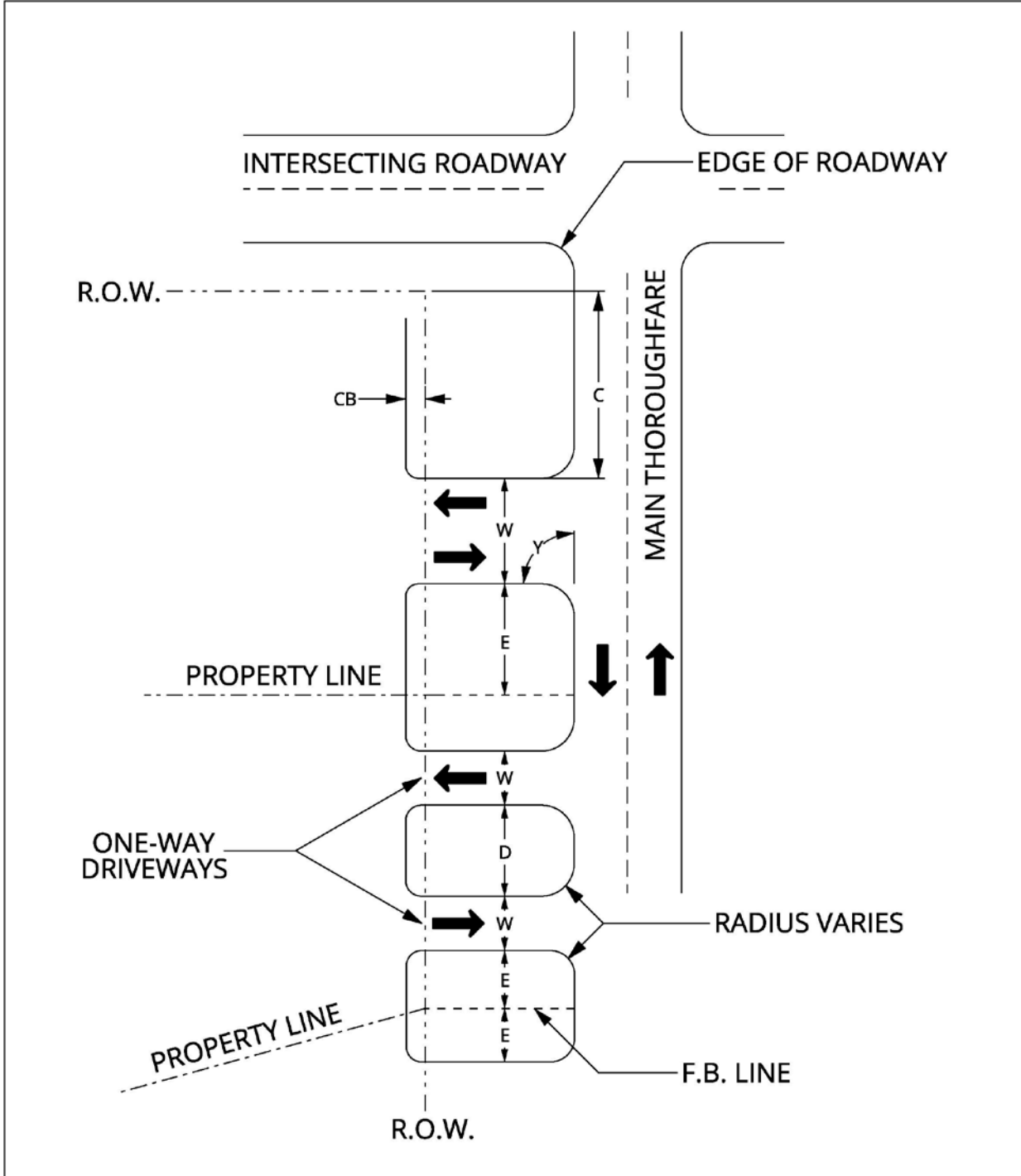


ROADWAYS WITH CURB

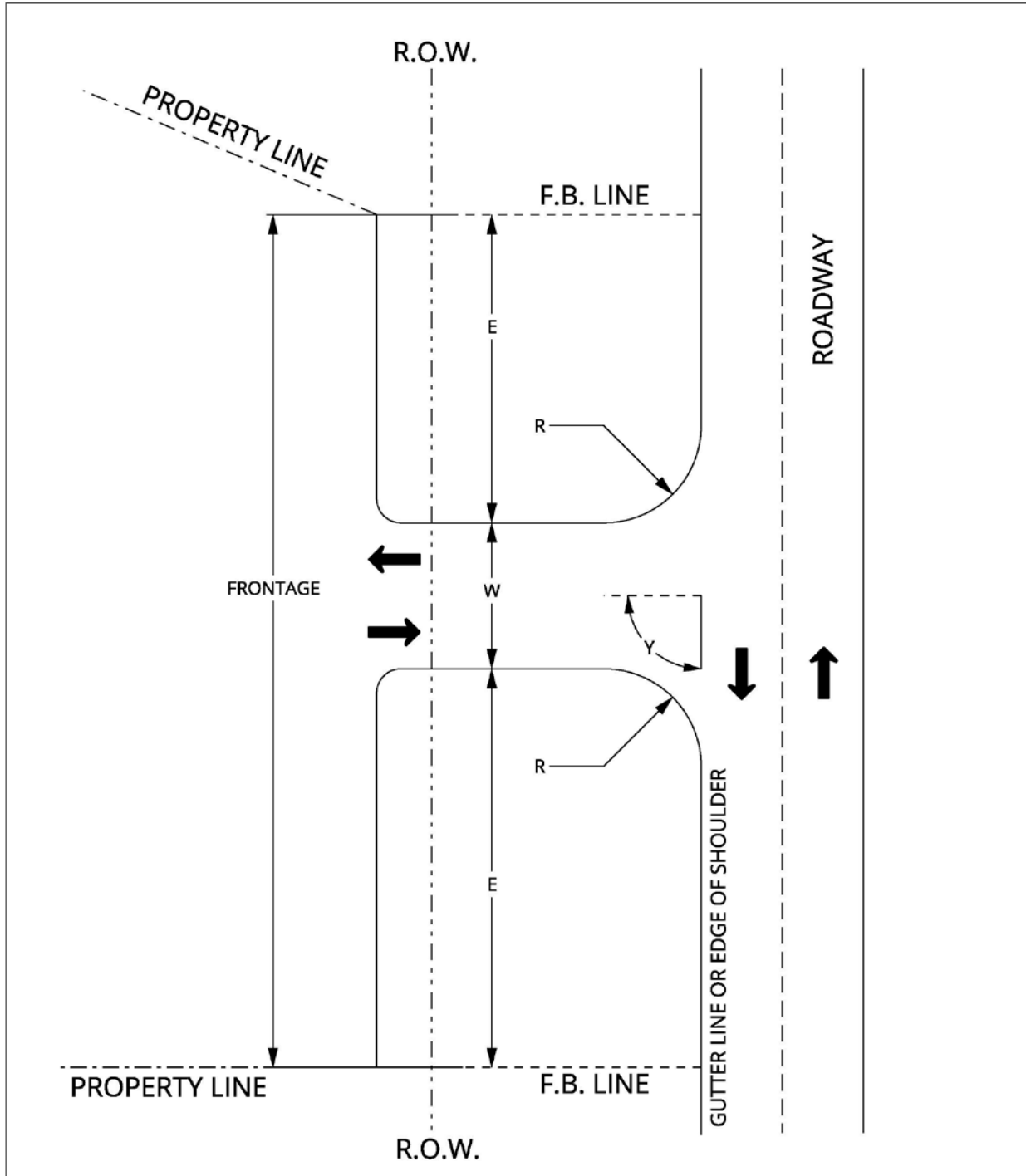
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G1 = GRADE OF ROADWAY CONSTRAINT	SECTION 5.3	
G2 = GRADE OF DRIVEWAY	SECTION 5.3	
FIGURE A.1 DOES NOT SHOW PROFILES FOR NEW STREET CONNECTIONS. REFER TO TDOT STANDARD ROADWAY DRAWINGS		FIGURE A.1
		DRIVEWAY PROFILE SCHEMATIC
		NOT TO SCALE 06/22/2015



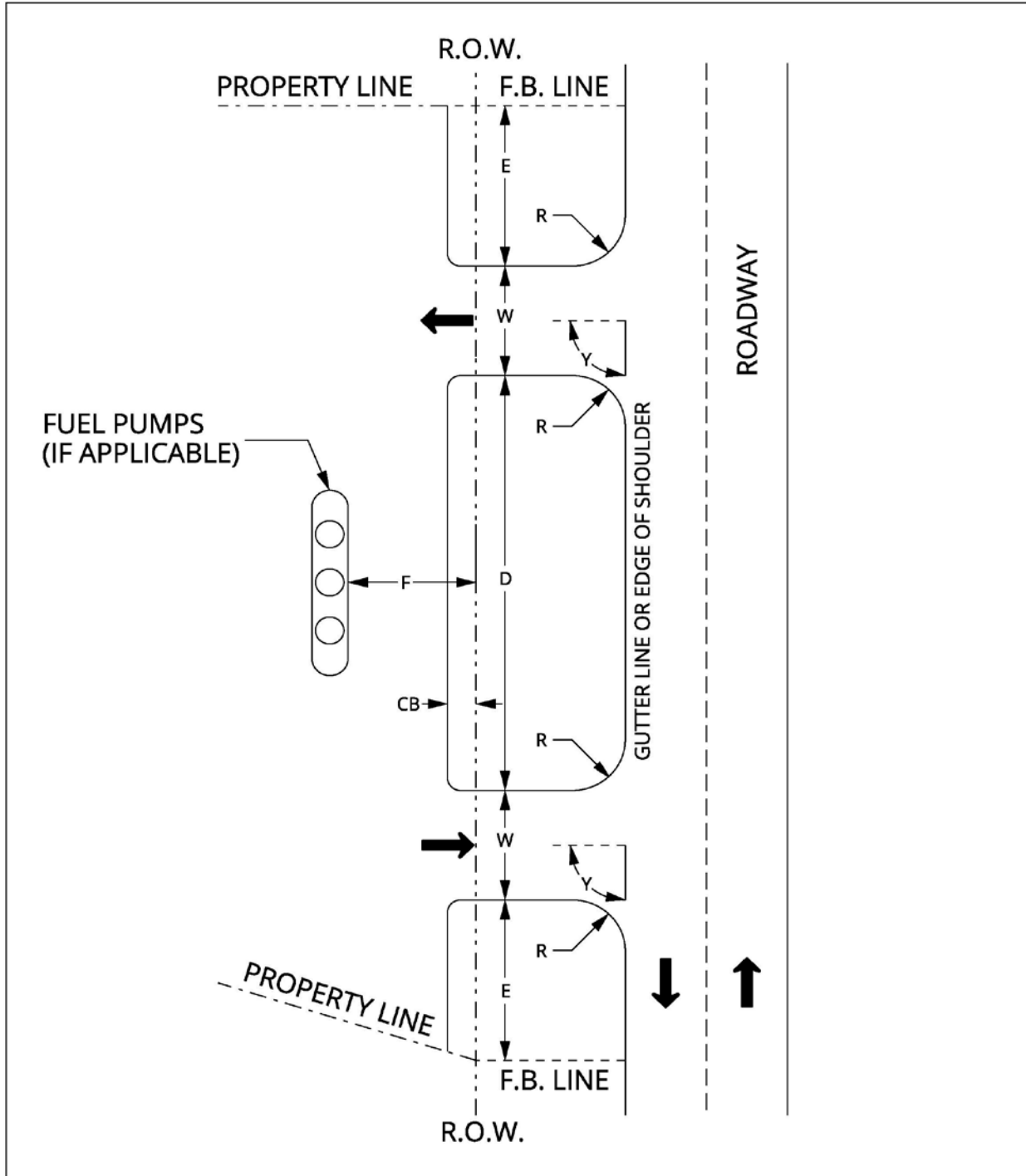
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W = WIDTH	SECTION 5.1.4	FIGURE A.2	
R = RADIUS OF CURVATURE	SECTION 5.1.3	TYPICAL RESIDENTIAL DRIVEWAY	
Y = DRIVEWAY ANGLE	SECTION 5.1.2		
F.B. = FRONTAGE BOUNDARY	SECTION 1.6		
		NOT TO SCALE	06/22/2015



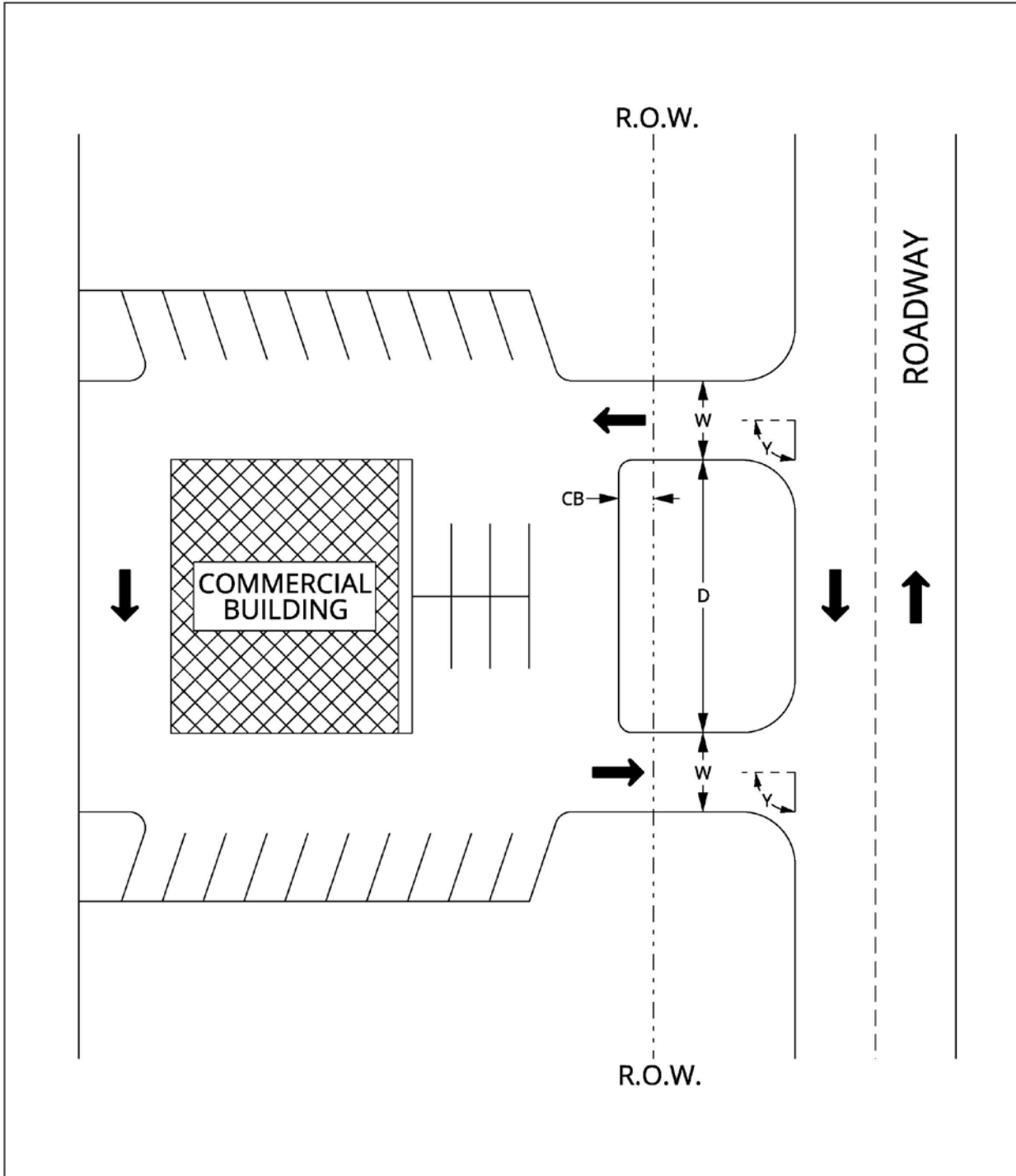
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W = WIDTH	SECTION 5.1.4	FIGURE A.3	
Y = DRIVEWAY ANGLE	SECTION 5.1.2	COMMERCIAL DRIVEWAY CONTROL DIMENSIONS	
C = CORNER CLEARANCE	SECTION 5.1.5		
CB = COMMERCIAL BORDER AREA CLEARANCE	SECTION 5.1.8		
D = DISTANCE BETWEEN DOUBLE DRIVEWAYS	SECTION 5.1.6		
F.B. = FRONTAGE BOUNDARY	SECTION 1.6	NOT TO SCALE	06/22/2015



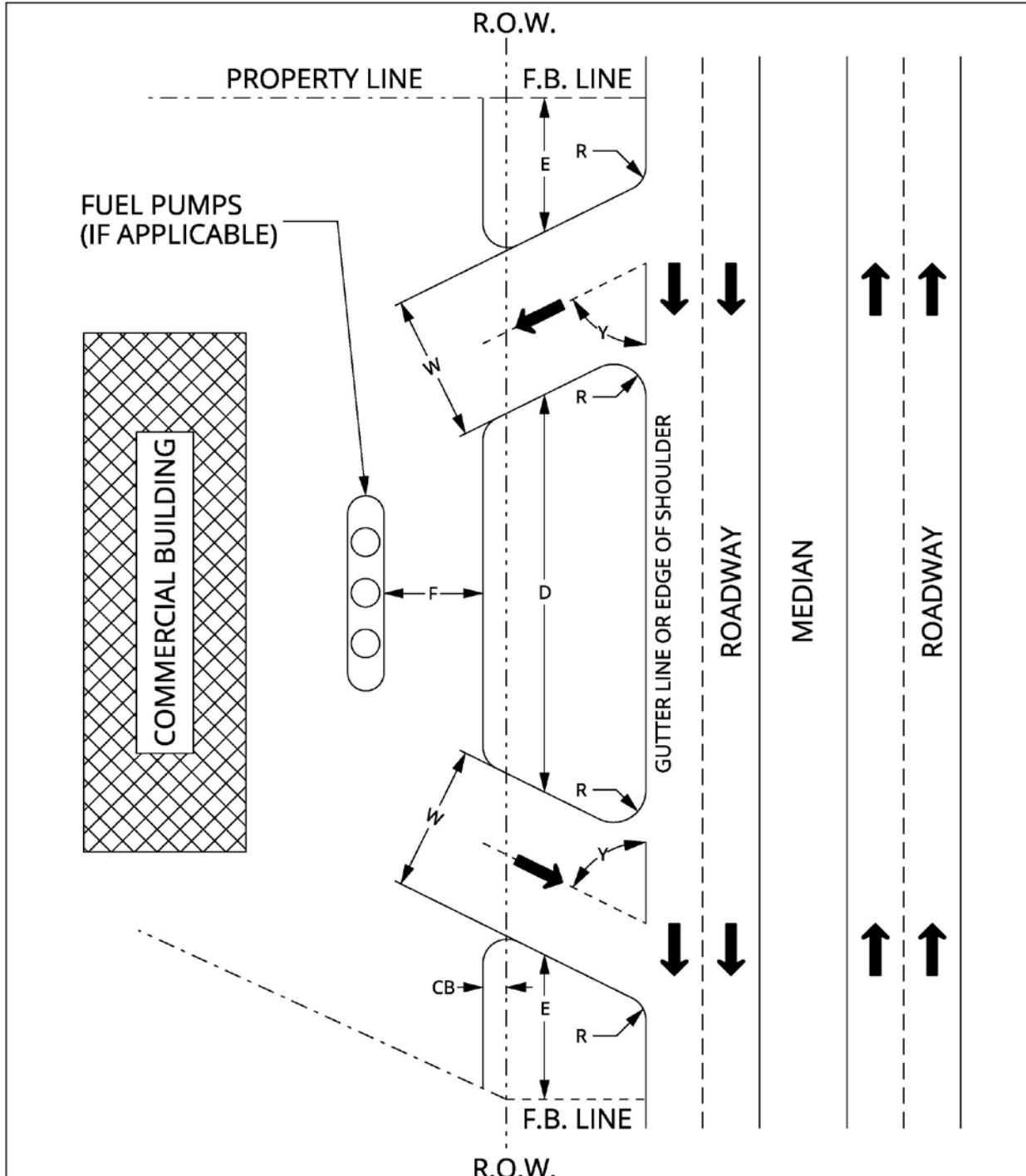
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W = WIDTH	SECTION 5.1.4	FIGURE A.4	
R = RADIUS OF CURVATURE	SECTION 5.1.3	TYPICAL TWO-WAY COMMERCIAL DRIVEWAY	
Y = DRIVEWAY ANGLE	SECTION 5.1.2		
F.B. = FRONTAGE BOUNDARY	SECTION 1.6		
		NOT TO SCALE	06/22/2015



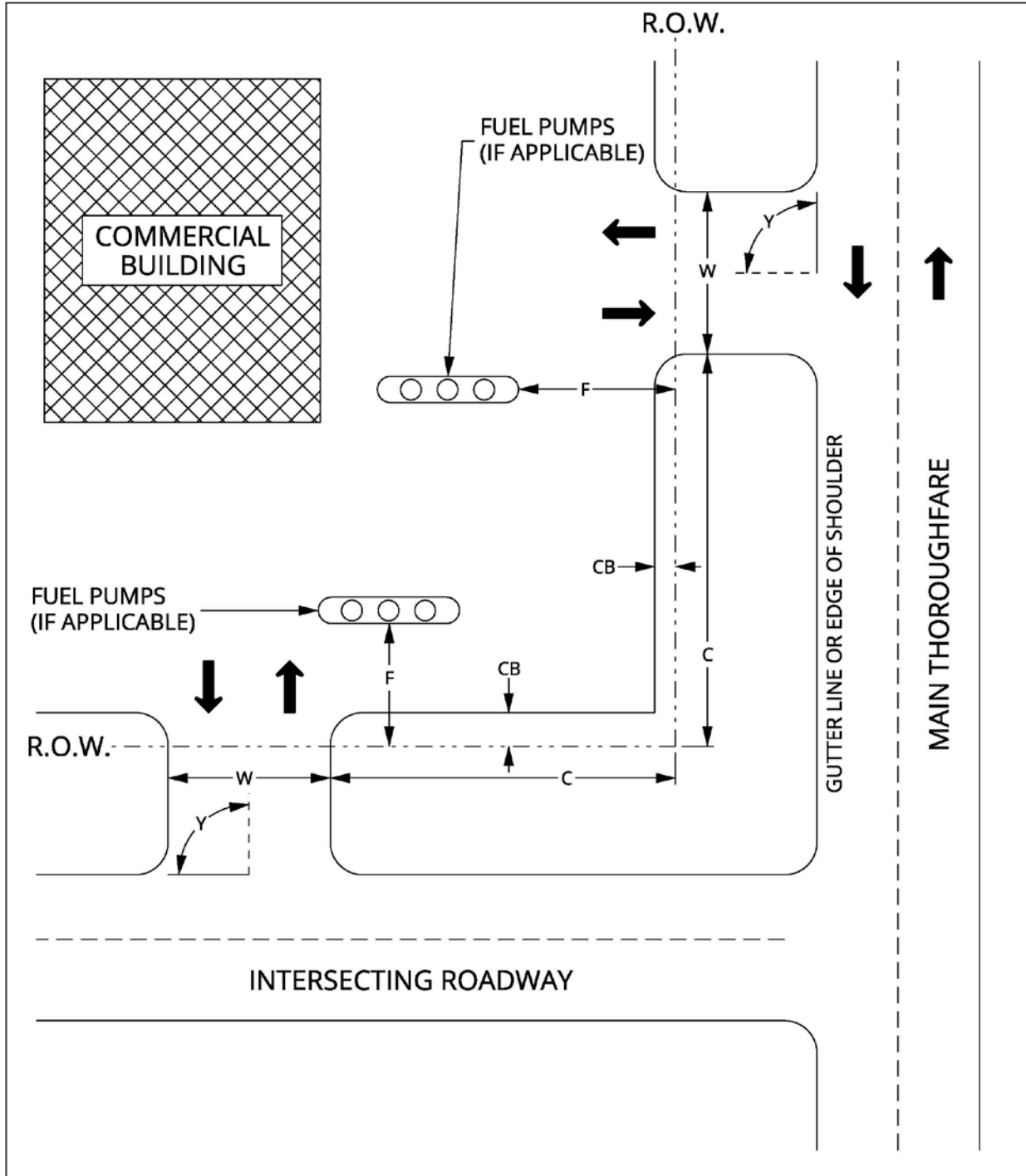
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W = WIDTH	SECTION 5.1.4	FIGURE A.5	
R = RADIUS OF CURVATURE	SECTION 5.1.3	TYPICAL ONE-WAY COMMERCIAL DRIVEWAY	
Y = DRIVEWAY ANGLE	SECTION 5.1.2	NOT TO SCALE	
CB = COMMERCIAL BORDER AREA CLEARANCE	SECTION 5.1.8	06/22/2015	
F = FUEL PUMP CLEARANCE	SECTION 5.1.7		
D = DISTANCE BETWEEN DOUBLE DRIVEWAYS	SECTION 5.1.6		
F.B. = FRONTAGE BOUNDARY	SECTION 1.6		



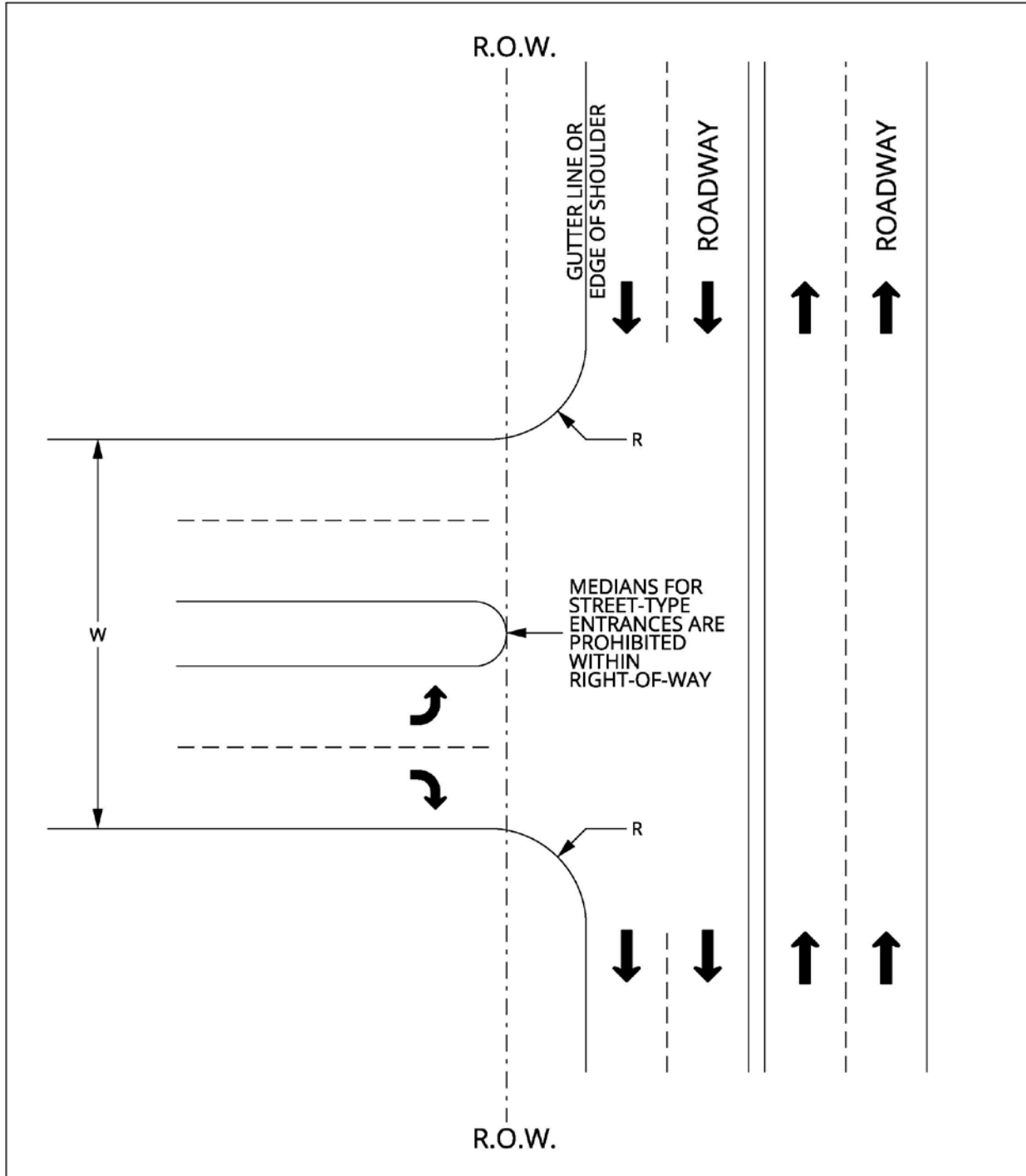
W = WIDTH	SECTION 5.1.4	STATE OF TENNESSEE	
Y = DRIVEWAY ANGLE	SECTION 5.1.2	FIGURE A.6	
CB = COMMERCIAL BORDER AREA CLEARANCE	SECTION 5.1.8	TYPICAL COMMERCIAL DRIVE-THROUGH WITH ONE-WAY DRIVEWAYS	
D = DISTANCE BETWEEN DOUBLE DRIVEWAYS	SECTION 5.1.6	NOT TO SCALE	06/22/2015



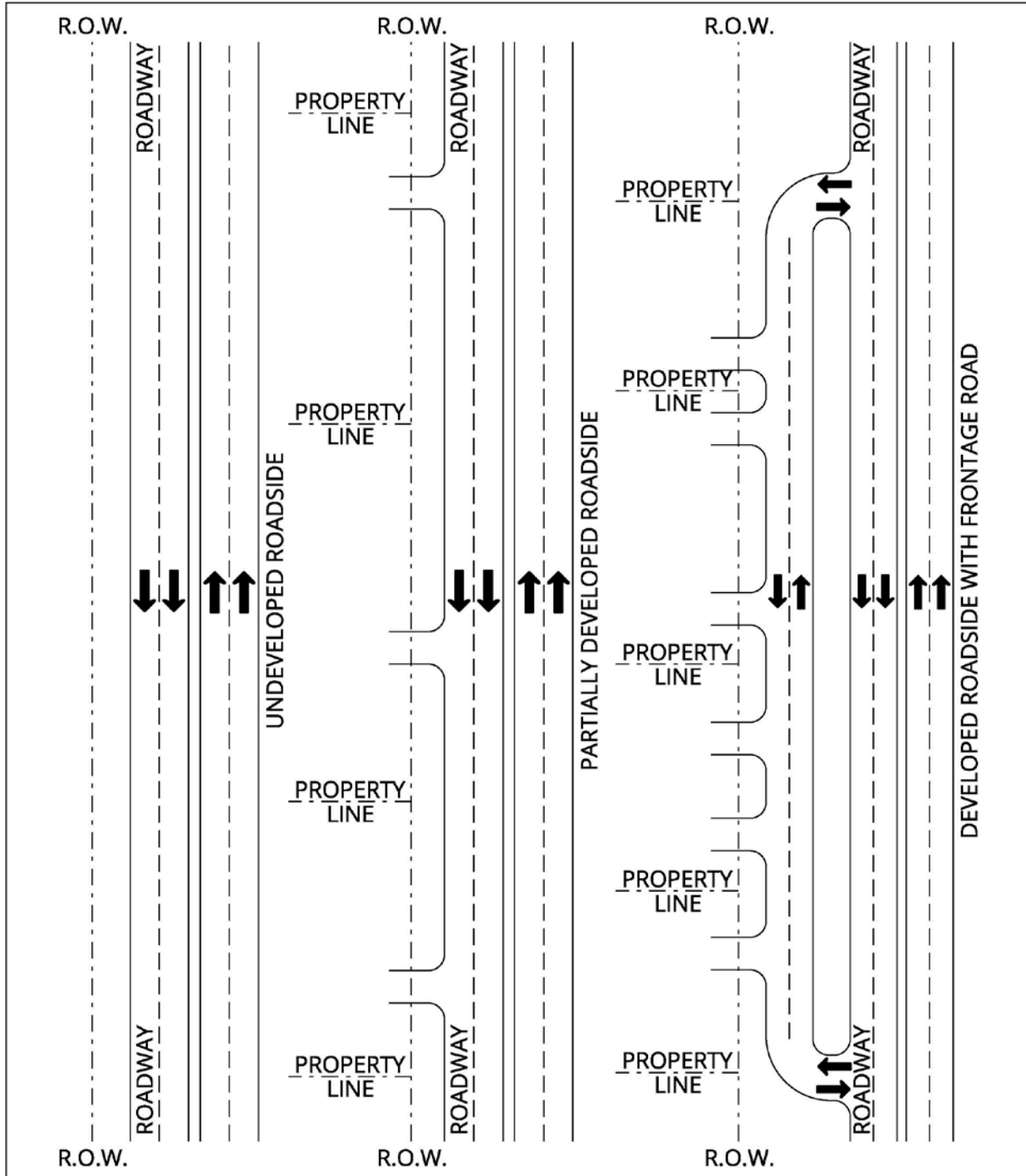
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W = WIDTH	SECTION 5.1.4		
R = RADIUS OF CURVATURE	SECTION 5.1.3	FIGURE A.7	
Y = DRIVEWAY ANGLE	SECTION 5.1.2		
CB = COMMERCIAL BORDER AREA CLEARANCE	SECTION 5.1.8	TYPICAL ONE-WAY DRIVES FROM A DIVIDED HIGHWAY WITH MEDIAN	
F = FUEL PUMP CLEARANCE	SECTION 5.1.7		
D = DISTANCE BETWEEN DOUBLE DRIVEWAYS	SECTION 5.1.6	NOT TO SCALE	
F.B. = FRONTAGE BOUNDARY	SECTION 1.6		



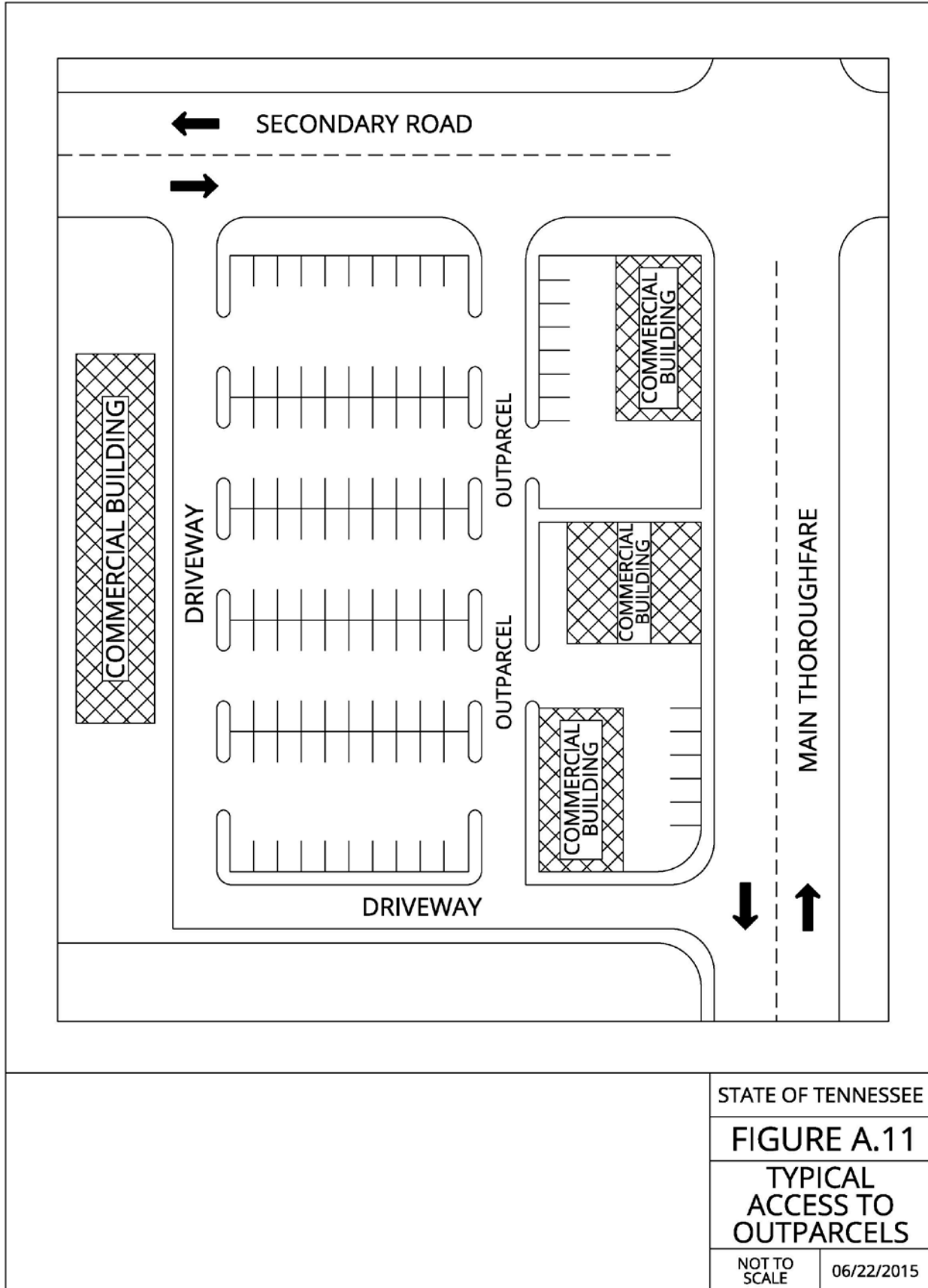
W = WIDTH	SECTION 5.1.4	STATE OF TENNESSEE	
Y = DRIVEWAY ANGLE	SECTION 5.1.2	FIGURE A.8	
C = CORNER CLEARANCE	SECTION 5.1.5	TYPICAL COMMERCIAL DRIVEWAYS CORNER LOT	
CB = COMMERCIAL BORDER AREA CLEARANCE	SECTION 5.1.8		
F = FUEL PUMP CLEARANCE	SECTION 5.1.7		
		NOT TO SCALE	06/22/2015



W = WIDTH	SECTION 5.1.4	STATE OF TENNESSEE	
W = 50 FT. MAX		FIGURE A.9	
R = RADIUS OF CURVATURE	SECTION 5.1.3	TYPICAL STREET-TYPE ENTRANCE WITH MEDIAN	
NOTE: ALL STREET-TYPE ENTRANCES SHALL BE DESIGNED TO MEET AASHTO SPECIFICATIONS		NOT TO SCALE	06/22/2015



STATE OF TENNESSEE	
FIGURE A.10	
TYPICAL FRONTAGE ROAD DEVELOPMENT	
NOT TO SCALE	06/22/2015



STATE OF TENNESSEE	
FIGURE A.11	
TYPICAL ACCESS TO OUTPARCELS	
NOT TO SCALE	06/22/2015