



# Frequently Asked Questions

The Access Management Regulations:  
Principal Arterials 24 VAC 30-72  
Minor Arterials, Collectors, Local Streets 24 VAC 30-73  
and  
The Road Design Manual Appendix F  
Design Standards

**March 2010**

Land Development Section  
Central Office  
Virginia Department of Transportation

# Table of Contents

**NOTE: Each item below provides a link to its location in the document**

- THE REGULATIONS AND STANDARDS** ..... 1
  - Overview** ..... 1
    - Key differences: minor arterial/collector/local street vs. principal arterial regulations..... 1
    - Effective date of each regulation..... 1
    - Consolidation of the Appendix F and Appendix G design standards ..... 1
    - Application to roads and VDOT construction projects in cities, certain towns/counties ..... 1
    - Right to access to the highway; existing entrances ..... 2
    - Affect on pedestrians and bicyclists; application to roundabouts ..... 2
    - Transportation improvements required by localities..... 3
- BASIC CONCEPTS** ..... 3
  - Commercial, Private, & Subdivision Entrances** ..... 3
    - Commercial vs. private entrances ..... 3
    - Private entrance sight distance; drainage pipes ..... 4
    - Subdivision street connections ..... 4
    - Coordinate entrance permit issuance with local land development approval ..... 4
    - Right-in/right out partial access entrances ..... 5
  - Functional Classification of Highways** ..... 5
    - Maps and process for assigning functional classification ..... 5
    - Locality functional classifications ..... 5
    - Primary/secondary highways and functional classification..... 5
  - Urban and Rural Highways** ..... 6
    - How to determine if a highway is urban or rural ..... 6
    - Highway in an Urban Development Area ..... 6
- ACCESS MANAGEMENT REQUIREMENTS** ..... 6
  - The best way to assure compliance ..... 6
  - Functional Area of Intersections and Interchanges**..... 6
    - Entrances in the functional area ..... 6
  - Shared Entrances**..... 7
    - Purpose ..... 7
    - Shared entrance agreement between property owners ..... 7
    - Written evidence of inability to reach a reasonable agreement ..... 7
  - Vehicular and Pedestrian Circulation between Properties**..... 7
    - Purpose ..... 8
    - Requiring connections on collectors ..... 8

Number of connections; pedestrian connections.....8

Cross access easements; maintenance responsibilities .....8

Adjoining land owner to extend connections .....8

Frontage roads .....9

**Traffic Signals** .....9

    Meeting the signal warrants but not the spacing standards.....9

**APPENDIX F SPACING STANDARDS**.....10

    Divided and undivided roads .....10

    Spacing between different types of entrances/intersections; measurement .....10

    Insufficient property frontage on a highway .....10

    Corner clearance and entrance spacing standards .....11

    Spacing standards for roundabouts .....11

    Design speed vs. legal speed limit .....11

    Urban roads .....11

    Existing commercial entrances and the spacing standards .....12

    Spacing for entrances/intersections near interchange ramps .....12

**EXCEPTIONS TO THE SPACING STANDARDS**.....12

    Meeting the spacing standards .....12

    Rules for grandfathering the location of entrances and intersections .....12

    Within new urbanism, traditional neighborhood type development .....13

    Older, established business corridor in a locality .....13

    Locality/VDOT access management highway corridor plan .....13

    State required second or additional entrances .....14

    Proposed signalized entrance .....14

**EXCEPTIONS TO THE ACCESS MANAGEMENT REQUIREMENTS**.....14

    Purpose.....14

    Application process, rules, timeline .....14

    Difference between an access management and a design exception .....15

**APPENDIX F DESIGN STANDARDS**.....15

    Commercial entrance design standards: highway functional classification .....15

    Entrance design: on a local street; on a low volume highway .....15

    Commercial entrance pavement; effective radius .....15

    Design standards for median openings; midblock crosswalks; partial access entrance .....16

    Intersection sight distance .....16

**SUMMARY OF THE REQUIREMENTS AND EXCEPTIONS**.....17

## THE REGULATIONS AND STANDARDS

### Overview:

**What are the key differences between the minor arterial/collector/local street regulation (24 VAC 30-73) and the principal arterial regulation (24 VAC 30-72)?**

- **Organization** - All exceptions have been consolidated into section 73-120 of the regulation.
- **Access Management Exception Requests** - The information to be submitted for each type of exception to the access management requirements is described in section 73-120 C.
- **Exception Procedures** - The rules and procedures for requesting an exception and for VDOT's handling of the request are described in section 73-120 D. The difference between an exception and an appeal of a decision on an exception request is noted.
- **Appeals** - Section 73-50 was amended to clarify the rules for appeals of a decision by the District Administrator on an entrance permit, or a decision on an access management exception request. The deadline for a decision was shortened to 30 days.
- **Filing/Decision Deadlines** - All appeal and exception deadlines in sections 73-50 and 73-120 D are specified as "calendar" days to simplify their calculation.

### **When did the regulations take effect?**

The Access Management Regulation for Principal Arterials (24VAC 30-72) became effective on July 1, 2008. The Access Management Regulation for Minor Arterials, Collectors, and Local Streets (24VAC 30-73) became effective on October 14, 2009.

### **Why were the Road Design Manual Appendix F principal arterial and the Appendix G minor arterial/collector/local street design standards combined into a new Appendix F?**

Users will now have one source for all of the access management standards for all highway functional classifications. For example, the spacing standards for principal and minor arterials, collectors, and local streets are now presented in one table (Table 2-2). Entrance, intersection, and turn lane design criteria were transferred from Appendix C: Figures 2-12, 2-13; 3-4, 3-23, 3-24; Table 3-23. The long term goal is to merge the two sets of regulations, too.

### **Do the regulations and standards apply to roads in cities and certain towns and counties?**

No, they only apply to VDOT controlled roads – those that VDOT maintains and is responsible for entrance permit issuance. The access management regulations and standards do not apply in cities, towns of more than 3,500, and in counties (Henrico and Arlington) that maintain their secondary roads (they do apply on primary routes in these two counties).

### **Do they apply to VDOT construction projects in localities that maintain their roads?**

This depends on the agreement with the locality (cities, certain towns and counties) on which construction standards will be used: VDOT's, the locality's, or a combination. If VDOT construction standards will be used for a project administered by VDOT within the locality, then the standards include those in Appendix F of the Road Design Manual. If it will be constructed according to local standards then the access management provisions will not apply.

**Can a property owner be denied all access to a highway?**

No, section 60 B of the regulations establishes that VDOT will permit reasonably convenient access to a parcel of record. Furthermore, the access management enabling Code section § 33.1-198.1 states that “private property is entitled to reasonable access” to the highway.

However, section 60 B also states that VDOT is not obligated to approve the owner’s preferred location or entrance design to assure driver safety and efficient highway operation.

It is important to note that the regulations establish that the owner of property with insufficient highway frontage due to parcel dimensions or physical constraints limiting access is entitled to a right-in and/or right-out entrance. For more information, see the Partial Access Entrance question on page 5 and the Not Enough Highway Frontage question on page 10 of this document.

**Will the regulations allow VDOT to close existing entrances?**

The regulations and standards apply to proposed new entrances/intersections. They do not apply to existing entrances where there is no change in the land use as long as the existing entrances are maintained in a good, safe condition. If there will be a significant change in the type or amount of traffic due to a new use of the property, VDOT may require improvements to the existing entrance (see section 110). The redevelopment of a site can affect the existing entrances.

Finally, entrances impacted by highway construction or repair projects may be consolidated or relocated to ensure safety and minimize traffic turning movements pursuant to §33.1-199 of the Code. See Appendix F’s Entrances Affected by Highway Construction Projects chapter.

**How do the regulations and standards affect pedestrians and bicyclists?**

The access management regulations can benefit pedestrians and bicyclists in a number of ways. National research studies have found that fewer entrances improve pedestrian and bicyclist safety by reducing pedestrian-vehicle and bicyclist-vehicle conflicts.

The regulations require vehicular/pedestrian connections between adjacent properties. The pedestrian/bicycle friendly design inherent to new urbanism development is accommodated. Entrance design must consider impacts on pedestrians and bicyclists. Minimum sight distance for entrances assures that motorists leaving an entrance can see approaching bicyclists and pedestrians.

There is a chapter in Appendix F on accommodating pedestrians and bicyclists that offers web site links to VDOT’s Bicycle and Pedestrian Program and its Bicycle Facility Guidelines. Midblock crosswalks are discussed. Also, web links to VDOT design standards for sidewalks at commercial entrances and information on intersection/roundabout crosswalk markings are presented.

**Do the regulations and standards address roundabouts?**

Appendix F contains a chapter that discusses their benefits, VDOT policy, and the approval process for roundabouts. The chapter includes information on their design and links to VDOT’s web site on roundabouts, plan sheets for single lane roundabouts, and the Federal Highway Administration’s Roundabouts: An Informational Guide. See the p. 11 question/response on the spacing of roundabouts.

When an exception to the traffic signal spacing standards is requested, section 73-120.C.5 requires that the proposed entrance location be evaluated for its suitability as a roundabout. One advantage to a roundabout is that its spacing is less than that for a traffic signal.

**Can VDOT require improvements in addition to locality land use regulatory conditions?**

Because VDOT controls connections to state highways, section 100 C of the regulations establishes that any transportation-related improvements committed to by a locality through the land use regulatory process does not release the entrance applicant from improvements required by VDOT.

**Is a Chapter 527 traffic impact study acceptable to show compliance with the regulations?**

Section 70 B of the regulations states that a traffic impact analysis study that is sufficiently detailed may be used to document the effect of a proposed entrance and its related traffic on highway operation and that the Appendix F entrance design standards will be met. If the characteristics of the development or the highway being accessed change, more up-to-date information and additional analysis will be required.

Section 120 requires VDOT's review of a development's Chapter 527 traffic impact study to include comments on the development's conformance with the access management requirements such as shared entrances, interparcel connections, and entrance spacing.

## BASIC CONCEPTS

**Commercial, Private, & Subdivision Entrances:****What is the difference between a commercial and a private entrance?**

A private entrance serves the occupants of up to two private residences (a residential driveway). The regulations have expanded the scope of the private entrance to also include:

- An entrance that allows an agricultural operation to gain access to fields (not its main entrance), and
- Entrances to civil and communication infrastructure facilities that generate 10 trips per day or less such as cell towers, pump stations, water towers, electrical substations, and storm water management basins.

A commercial entrance is one that serves any other use of land. Although the term "commercial" is used, commercial entrance regulations and standards apply to highway entrances for "non-commercial" uses such as schools, churches, subdivision streets, and apartment complexes.

**Which access management regulations and standards apply to private entrances?**

Section 40 of the regulations describes the procedures for obtaining a permit for a private entrance; section 60 specifies the penalties for installing a private entrance without a permit; section 90 describes the rules for the design, location, and installation of a private entrance; and section 130 describes the requirements for drainage at private entrances. The remainder of the regulations, including the access management requirements, does not apply to private entrances.

The Private Entrances chapter in Appendix F provides the details on, and an illustration of (Figure 4-1), the design criteria for a private entrance.

**How do commercial and private entrances differ in terms of meeting sight distance standards?**

Intersection sight distance is necessary at any access point along a highway (entrance, street intersection) to allow drivers of stopped vehicles a sufficient view of the intersecting highway to see approaching vehicles and be able to determine when to cross or make a left or right turn onto the highway and avoid collisions. Table 2-7 in Appendix F presents intersection sight distances. See page 16 of this document for more information on intersection sight distance.

Section 80 of the regulations states that minimum intersection sight distance shall be obtained for any commercial entrance.

A private entrance is placed at a *useable* location along the property owner's highway frontage with the best possible sight distance as determined by VDOT (section 90 of the regulations). VDOT can deny the private entrance applicant's preferred location if it does not have the best possible sight distance and therefore is less safe for users of the entrance as well as motorists on the intersecting highway.

**What changes have been made to private entrance permit rules and procedures?**

**Entrance Drainage Pipes:** Due to funding reductions, VDOT is no longer able to install culvert drainage pipes at private entrances free of charge (section 90 B). The property owner is now responsible for the installation of the entrance pipe and stabilization of the road's shoulder.

VDOT may agree to install the pipe at the request of a property owner and bill the property owner for the cost when finished (the property owner still furnishes the pipe). The District and Residency have the discretion to determine their policy on whether to install private entrance drainage pipes (at cost). In all cases the property owner is responsible for grading beyond the shoulder (out of the right-of-way on the owner's parcel).

**Entrance Permit:** The applicant shall be charged the private entrance permit fee. When VDOT does not install the culvert pipe, a minimum \$500 guarantee fee, letter of credit, or surety bond must be supplied by the applicant to cover VDOT's costs to fix or remove a culvert pipe that has been installed incorrectly. Upon inspection of the installation, the surety is returned or the bond is cancelled. See the Land Use Permit Regulation for more information.

**Do the regulations and standards apply to subdivision street connections?**

Yes, a subdivision street connection is a commercial entrance (serves three or more residences) so the regulations and Appendix F design standards including spacing apply, **except** for the following:

- The radii, width, and angle for subdivision street and alley connections, and
- The spacing distance between two or more subdivision street connections to a road with a functional classification as a local street.

The standards for the above items are in the Road Design Manual Appendix B.1, Subdivision Street Design Guide, pages 21 to 23.

**How does VDOT coordinate entrance permit issuance with local land development approval?**

The regulations make it clear in section 100 B of the regulations that a commercial entrance permit will not be issued until the locality approves any associated site plan or subdivision plat as VDOT does not want to infringe on a locality's authority to regulate land use.

**Why are right-in/right out partial access entrances emphasized in the regulations?**

The reason is that a right-in/right-out entrance is the safest type of entrance design. National Highway Institute research has shown that over 70% of traffic crashes at entrances involve left turns (having to cross lanes of on-coming traffic). Preventing left turns also reduces congestion by removing the potential for vehicles to back up while waiting for a motorist to make the turn.

**Functional Classification of Highways:****Where do I find maps identifying the functional classification of highways?**

VDOT's access management web site <http://www.virginiadot.org/projects/accessmgmt/default.asp> provides links to maps of principal arterials, maps of all highways by functional classification, and a list of principal arterials by locality. Functional classification maps are also available on the VDOT web site under Projects or by using the search field.

It is important to remember that certain minor arterials have been classified for access management purposes as principal arterials due to their regional importance for moving people and goods. These are shown in a gold/brown color on the principal arterial map.

**What is the process for assigning a functional classification to a developer's new road?**

All new subdivision streets are assigned a "local street" federal functional classification. The Metropolitan Planning Organization (MPO) or a county/city outside of an MPO can submit a request for the classification or reclassification of a road to a VDOT Residency or District. After review, it will be forwarded to VDOT's Central Office Transportation Planning Division to process. More information is available on the VDOT web site by typing "Functional Classification" in the Search field.

**What if a locality assigns a different functional classification to a highway?**

The federal classifications are used to assure statewide uniformity. However, section 60 C of the regulations states that "Entrance standards established by localities that are stricter than those of VDOT shall govern." So if the County has assigned a higher classification to a road (minor arterial rather than collector) and has adopted spacing standards for the minor arterial classification that are greater than the VDOT collector spacing standards, the County's spacing standards would govern.

The opposite also would apply. If the County has assigned a road to a lower classification than VDOT's (collector instead of minor arterial) and the County's collector spacing distances are lower than the VDOT minor arterial spacing standards, VDOT's would govern.

**What is the difference between the primary/secondary and the functional classifications of highways?**

The primary and secondary systems of highways are designated by the Commonwealth Transportation Board. Primary highways are assigned route numbers under 600 and secondary highways route numbers 600 and above. Functional classification is based on the federal system of classifying groups of highways according to their intended purpose to serve through traffic movement, to provide access to property, or a combination of both.

## **Urban and Rural Highways:**

### **How do I determine if a highway is “urban” or “rural”?**

The terms “urban area” and “rural area” are explained in the Introduction chapter of Appendix F and are defined in the regulations. They are based on Federal Highway Administration criteria such as the Census population, focusing on density.

The easiest way to determine whether a highway is urban or rural is to review the highway functional classification maps on the VDOT web site. Highways located in the light green portions of the maps (the federal urbanized and small urban areas) are urban highways and those located in the pale beige areas of the maps are rural highways.

### **Is a highway located in an Urban Development Area considered an urban highway?**

No. Each term has a different definition and purpose. § 15.2-2223.1 of the Code requires localities that meet certain population and/or growth rate thresholds to identify one or more urban development area in their comprehensive plan where future growth will be directed. A locality, such as Floyd County, is considered a rural area under Federal Highway Administration population density criteria but because of its growth rate (15% for Floyd County) is required to identify an urban development area. In this case, the highways in Floyd County’s designated urban development area(s) will have a rural functional classification.

## **ACCESS MANAGEMENT REQUIREMENTS**

### **Section 120 of the Regulations**

#### **What is the best way to assure compliance with the five access management requirements?**

It is important to consider the requirements as early as possible in the land development review process so the development’s design can be adjusted as needed to meet the requirements. VDOT review staff will evaluate a proposed development’s compliance with the access management requirements and will include comments about this in their review of traffic impact studies submitted in accordance with the Traffic Impact Analysis Regulation 24VAC30-155.

#### **Functional Area of Intersections and Interchanges:**

**Requirement:** Entrances are not permitted in an intersection or interchange’s functional area.

**Exception:** VDOT approval of a traffic engineering study documenting that highway operation and safety will not be adversely impacted by the location of the entrance.

#### **Why is it important to keep entrances away from intersections and interchanges?**

Entrances in close proximity to intersections and interchange ramps can cause conflicting and confusing turning movements, blocked entrance ingress and egress, and backups into the intersection or on the interchange off ramps. These problems can lead to traffic crashes, pedestrian injuries, and congestion. The functional area of intersections is discussed in the “Commercial Entrance Location Criteria” chapter of Appendix F. Sometimes a shared entrance or interparcel connections can help address the problem. The entrance may have to be restricted to right-in/right-out movements.

## Shared Entrances:

**Requirement:** New commercial entrances are to be shared with adjoining properties.

**Exceptions:** 1. Provide written evidence that a reasonable agreement could not be reached with the adjacent property owner to share the entrance, or 2. Provide documentation that there are physical constraints to creating a shared entrance such as topography, adjacent hazardous land use (e.g. heavy industrial, quarry, or petroleum/gas transmission facility), or environmentally sensitive areas such as a stream or wetland.

### What is the purpose for requiring entrances to be shared?

It reduces the number of entrances on the highway. Fewer entrances and their turning movements prevent crashes and helps reduce congestion. Several properties can gain access to a traffic signal. The neighboring property owner benefits by having an entrance established in advance that meets the spacing standards. A shared entrance is an excellent way for two properties with limited road frontage to be able to obtain an entrance without having to request spacing exceptions.

### Will VDOT be reviewing the shared entrance agreement between the property owners?

While VDOT does not have the legal resources to review shared easement agreements, VDOT will make sure they have been recorded. Section 120 of the regulations requires a commercial entrance applicant to submit with the entrance permit application a copy of the recorded agreement to share the entrance (joint use easement) and to maintain the portion of the entrance in the VDOT right-of-way. The copy will have the Deed Book and Page numbers stamped on it. Each property owner should protect their interests by having an attorney review the agreement.

### What is considered “written evidence” of a developer’s inability to reach a “reasonable agreement” to share an entrance?

Written evidence will be in the form of correspondence (e.g. a letter, email, or affidavit) from the adjacent property owner stating their unwillingness to participate in the sharing of the entrance.

If the adjacent property owner agrees to share the entrance, but subject to conditions that the permit applicant believes are unreasonable, the permit applicant can bring this to the attention of the Residency Office or the Planning and Investment Management staff at the District who will consider such matters on a case by case basis.

The intent of the shared entrance requirement is that the entrance applicant not be penalized if the neighbor refuses to cooperate.

## Vehicular and Pedestrian Circulation between Properties:

**Requirement:** Vehicular, and where appropriate pedestrian, connections are to be provided to boundaries with adjacent undeveloped properties or extend existing connections on adjacent properties. They are required on a principal or minor arterial; may be required on a collector.

**Exception:** Documentation that there are physical constraints preventing such connections such as topography, adjacent hazardous use, streams, or wetlands.

**Note:** If the permit applicant is capable of providing such connections or extending existing connections, but refuses to, the entrance shall be restricted to right-in/right-out movements.

**Why is VDOT requiring vehicular/pedestrian circulation between adjoining properties?**

Traveling between properties reduces trips (traffic) on the highway. It offers the opportunity for several properties to benefit from having access to a signalized intersection. A motorist can travel directly to the land use on the left without having to enter the highway and make a series of U turns. Existing and planned sidewalks can be extended to enhance pedestrian activity. It can facilitate customer circulation between businesses, like within a shopping center.

The vehicular connection would typically be between parking lots. Addressing this matter at the time of rezoning, site plan, and subdivision plat review allows vehicular and pedestrian connections to be included in the initial design of a project.

**How will the developer know if vehicular connections “may be required” on collectors?**

Unless VDOT asks for it during the review of a rezoning, site plan, or subdivision plat or when applying for an entrance permit, the developer does not have to provide such connections if located on a collector (Minor Arterial/Collector/Local Street Regulation, Section 120 C.4.) For example, it may be required when there already are vehicular connections on the adjacent parcel that can be extended. The regulations do require connections between adjoining properties on principal and minor arterials.

**How many connections have to be provided?**

Generally, a connection will be made to the boundary of each property on both sides of the applicant's parcel to allow internal circulation parallel to the highway. There may be cases where a connection may also need to be provided to the boundary of a property to the rear based on planned development in the vicinity.

**When would a pedestrian connection need to be constructed?**

If a network of sidewalks (or pedestrian paths) is planned for the vicinity, they will need to be constructed to the boundary lines of the property. If sidewalks about the entrance permit applicant's property, a connection will need to be made and the sidewalks extended into and through the property as appropriate for the situation.

**Does a developer have to purchase cross access easements from adjoining property owners?**

No, section 120 of the regulations does not require the purchase of cross access easements. Instead it specifies that the developer shall record a cross access easement and construct a connection on the developer's property to its boundary with an adjoining undeveloped parcel. A condition of an entrance permit for the adjoining parcel will then be to do the same. Each property owner will be responsible for maintaining the portion of the connection on their land.

**Who will be responsible for maintaining an interparcel connection or shared entrance?**

Keeping the interparcel connection or shared access point in serviceable condition is the responsibility of the landowners. VDOT is not responsible for the maintenance of commercial entrances or for internal circulation routes between a shopping center and any outparcels.

**Will the adjoining property owner be required to extend the vehicular or pedestrian connection into their property?**

A condition of the entrance permit for the adjoining property will be to extend the connections established at the common boundaries to provide cross parcel traffic circulation. If the adjoining

property owner refuses to make such connections, then the regulation states that the adjoining property owner's entrance will be physically restricted to right-in/right-out only movements.

**Will extending a vehicular connection prevent the applicant from getting an entrance?**

No, the purpose is to reduce trips on the highway, not to deny an entrance to the property.

**Are frontage roads required?**

No, frontage roads are only referenced as one way to provide vehicular circulation between parcels. Where a frontage road is pursued, built to VDOT standards, and the land dedicated for public use, VDOT will accept responsibility for its maintenance (see the "Frontage Roads" chapter in Appendix F).

**When would a property owner not have to provide these connections to allow circulation between properties?**

First, this requirement applies to entrances to principal and minor arterials. On collectors, this requirement does not apply unless the specified by VDOT.

Second, an exception to this requirement can be requested due to physical constraints preventing compliance. The exception request would need to include documentation of topography problems, environmental areas such as streams, wetlands, pond or the presence of a neighboring hazardous land use such as heavy industrial, a quarry, or petroleum/natural gas transmission facility. Upon receipt and verification of the documentation the exception request can be quickly approved.

Third, the permit applicant can decide not to offer the connections. In this case the proposed entrance will be restricted to right-in/right-out movements.

**Traffic Signals:**

*Requirement:* If there is insufficient spacing between a proposed signalized entrance and an adjacent traffic signal the entrance shall be restricted to right-in and/or right-out movements.

*Exception:* See the top of page 13 and page 14 for details on exceptions to this requirement.

**Why is a traffic signal not allowed if signal warrants can be met but not the spacing standard?**

The requirement seeks to assure efficient traffic progression through fewer signals per mile. This will maximize safety, reduce stop and go traffic and congestion, improve the traffic carrying capacity of the highway, and lower fuel use and vehicle emissions – all of which are the objectives of access management as stated in the § 33.1-198.1 enabling legislation. By achieving these objectives, the performance of highways is maximized reducing the need to spend limited construction funds to widen or build new roads.

**Spacing Standards for Entrances and Intersections:**

**What is the spacing standards requirement?**

Section 120 requires proposed entrances and intersections be separated by the distances in the spacing standards in Table 2-2 of Appendix F. See the APPENDIX F SPACING STANDARDS below and the EXCEPTIONS TO THE SPACING STANDARDS on page 12 of this document.

## APPENDIX F SPACING STANDARDS

### **Do the spacing standards in Table 2-2 apply to divided and undivided roads?**

They apply to both type of roads, except for collectors (see the Table 2-2 “Notes”). Collectors have different spacing standards for intersections on undivided vs. divided roads. The function of collectors is to provide access to property with less emphasis on accommodating through traffic. As a result, the spacing for intersections on undivided collectors is significantly less than for median divided multilane collectors that carry more traffic and are more likely to evolve to minor arterial status.

### **Do the spacing standards apply to private entrances?**

No, the spacing standards only apply to commercial entrances.

### **How do the spacing distances for one type of entrance or intersection apply to the others?**

The spacing standards establish the minimum distances between each intersection/entrance type. Along a highway, though, the different types of access points will be intermixed. Signalized intersection spacing applies to other signalized intersections. The spacing standard for unsignalized intersections provides the minimum distance between such intersections and between unsignalized and signalized intersections. Finally, partial access entrances are separated from each other and from intersections by the partial entrance spacing standard. See the “Notes” to Table 2-2 in Appendix F.

### **How are the spacing distances measured?**

They are measured from the centerline of the entrance/intersection to the centerline of the adjacent entrances/intersections both upstream and downstream, except for commercial entrance spacing on local streets (see question/answer below).

### **What is the spacing standard for commercial entrances on a local street?**

The primary function of local streets is to provide access to property and to other streets. So the spacing standard for commercial entrances on local streets is 50 ft, measured between the ends of radii of adjacent entrances. See the Figure 4-11 illustration in Appendix F.

However, the spacing standard distance between two or more subdivision street connections to a road with a functional classification as a local street is addressed in the Road Design Manual, Appendix B.1 “Subdivision Street Design Guide” page 22.

### **What if a land owner doesn’t have enough highway frontage to meet the spacing standards?**

When a parcel can not meet the spacing standards due to parcel dimensions or a physical constraint such as topography or an environmentally sensitive area, VDOT will restrict access to the safest type of entrance to prevent traffic crashes and congestion: a right-in and/or right-out entrance that is located to achieve the maximum separation possible (section 120 C.3.f of the Minor Arterial, Collector, Local Street Regulation and section 120 A.6 of the Principal Arterial Regulation).

National Highway Institute research indicates that over 70% of traffic crashes at entrances involve left turns (crossing lanes of on-coming traffic). Preventing left turns also reduces congestion caused by vehicles backing up while waiting for a motorist to make a left turn into the entrance.

The land owner can request an exception to the restriction on entrance turning movements. See the Exceptions to the Spacing Standards discussion below.

### **What is the difference between the corner clearance and entrance spacing standards?**

Corner clearance establishes how close a commercial entrance on a VDOT minor side street can be to the street's intersection with a VDOT major roadway. The major roadway will have the higher functional classification or if the same (excluding local streets), the higher traffic volume. The Table 2-2 spacing standards govern the spacing between entrance/intersection locations along the highway. The corner clearance distance separates entrances from an intersection to prevent queued vehicles from backing up onto the highway or from blocking other entrances near the intersection. The corner clearance distance will apply where it is greater than the Table 2-2 spacing standard. See Appendix F Table 2-2 Footnote 8 and the Corner Clearance chapter for more details.

### **What are the spacing standards for roundabouts?**

Roundabouts are defined as a "circular intersection." Since roundabouts are not signalized, they are separated from other intersections by the unsignalized intersection spacing standard. A roundabout design can offer an attractive alternative to a signalized intersection since the spacing distance is less. Because roundabouts require less upstream approach and downstream exit areas, the partial access entrance spacing is used to separate roundabouts from each other.

### **Why is design speed referenced as a replacement for legal speed limit?**

The intent of the spacing standards is to use the legal speed limit in their application because it is readily available and easy to determine. Unless a road is new or been widened, a road's design speed may not exist. The design speed is not available for many VDOT highways.

Referencing design speed in the Table 2-2 footnotes provides VDOT with the flexibility to use the design speed if available, since the design speed is usually 5 to 10 mph higher than the speed limit and people tend to drive closer to the design speed. The greater the speed of a vehicle, the longer it takes to stop to avoid a collision with motorists' entrance and intersection turning movements, suggesting the need for a larger spacing distance.

### **When do the spacing standards apply to VDOT highway construction projects?**

If the construction design plans were presented at a VDOT public hearing prior to the effective date of the regulations, the spacing standards for commercial entrances, intersections, and crossovers would not apply. Projects that were in the planning stage prior to this date such that the plans had not been made public by VDOT would need to comply with the spacing standards.

### **Do the spacing standards take into account the characteristics of urban roads?**

The spacing standards have been significantly reduced for urban highways due to higher density land use, smaller parcels with less road frontage, slower traffic speeds, and a greater need to accommodate pedestrians/bicyclists. Distances between destinations tend to be shorter so a lower level of mobility may be acceptable.

In addition, spacing exceptions can be approved for streets within new urbanism, higher density mixed use developments as well on older portions of urban highway corridors where the existing pattern of entrances do not meet the spacing standards.

**Can existing commercial entrances be affected by the spacing standards?**

An existing entrance may be affected if it will be upgraded from a partial access entrance to a full access entrance or from an unsignalized intersection to a signalized intersection. The owner of an existing commercial entrance is entitled to its continued use as long as it is maintained in a safe condition and can handle the traffic for which it was designed.

**Why are the spacing standards for entrances/intersections near interchange ramps not based on the road's functional classification?**

National research studies recommend that spacing be based on the number of travel lanes on the highway crossing the interchange, not its functional classification. Spacing distances between ramp terminals and entrances/intersections are higher for multilane than two-lane highways because the motorist's maneuvers at multilane roads are more complex, such as crossing through lanes to reach a left turn lane at an intersection. Functional classification is not applied because arterials and collectors can be two lane or multilane.

**How is interchange ramp entrance spacing applied if the ramp leads to a full auxiliary lane?**

The spacing would be determined as if there was a ramp taper and measured accordingly. See the discussion above Table 2-3 in Appendix F.

## EXCEPTIONS TO THE SPACING STANDARDS

### Section 120 of the Regulations

**How can problems with meeting the spacing standards be avoided?**

It will be important for developers, consultants, and local planners to consider the spacing of entrance and intersection locations when evaluating land use and design alternatives for a proposed development and during the preparation of zoning documents, site plans, and subdivision plats.

**Grandfathering the Location of Entrances and Intersections:****What are the rules for grandfathering the location of entrances and intersections?**

**Rezoning:** The specific location of the entrance is identified in a proffered plan of development or written condition that was approved by the locality prior to the October 14, 2009 is exempt from the spacing standards in Appendix F. The proffer would have to show or describe the location of the entrance using some type of measurement such as the distance from property boundaries.

**Site plan, subdivision plat, conceptual sketch:** The specific location of the entrance or intersection is exempt from the principal arterial spacing standards if it is shown on a site plan, preliminary or final subdivision plat that was approved by the locality prior to July 1, 2008 and is exempt from the minor arterial, collector, local street spacing standards if the locality submitted the plan, plat, or Secondary Street Acceptance Requirements conceptual sketch to VDOT and VDOT received it prior to October 14, 2009.

**Does the grandfathering of entrance locations apply to conditional uses and special exceptions?**

No, the regulations only reference rezoning proffered plans of development or written conditions.

**If a signalized intersection location is grandfathered, is the applicant entitled to a traffic signal?**

The location would be exempt from the Table 2-2 Appendix F intersection spacing standards, but whether the signal will be allowed depends on its meeting the signal warrants in the Manual on Uniform Traffic Control Devices, available on the VDOT web site under Business Center, Manuals.

**Within New Urbanism Developments:****Where does a new urbanism development have to be located to receive a spacing exception?**

New urbanism, traditional neighborhood developments that meet certain criteria must be located either within a designated urban development area as defined in § 15.2-2223.1 of the Code or in an area designated by the local comprehensive plan for higher density development. The spacing exception is for the entrances and intersections internal to the development.

**On an Older, Established Business Corridor:****What would be considered an older, established business corridor of a locality?**

This would be a section of a highway corridor in an *urban area* (discussed on page 6) in which most of the properties have been developed for business uses where the spacing pattern of the existing entrances and intersections within that section of the corridor did not meet the spacing standards as of the effective date of the regulation. Aerial photography can be used to identify them. VDOT approval of older, established business corridors and their boundaries will have to be conducted on a case by case basis.

**On a Highway Identified in an Access Management Corridor Plan:****What are the advantages to a VDOT approved access management highway corridor plan?**

Access management plans offer flexibility in the application of the regulations and standards to meet the special needs of different areas of the Commonwealth. Property owners, developers, the locality and VDOT will be able to know in advance where the access management requirements can be met and where exception requests can be expected.

Opportunities for sharing entrances and vehicular/pedestrian circulation between adjoining properties can be identified as can physical constraints that would prevent their use. Parcels with insufficient property frontage to meet the spacing standards can be identified. Recommendations can be made about turn lanes, signal synchronization, crossovers locations. Areas can be identified where the Appendix F spacing standards can be met, where they can be exceeded, and where shorter spacing distances are appropriate.

**Can the spacing standards in a locality's existing corridor plan supersede VDOT's?**

If the spacing standards in the corridor plan are lower than VDOT's, it must be reviewed and approved by VDOT in order to apply (see section 120 of the regulations).

**What is the process for VDOT approval of an access management corridor plan?**

Contact the VDOT Residency or District Planning and Investment Management staff for information on the review and approval process.

### **For State Required Second or Additional Entrances:**

#### **What if a development must have more than one entrance for the streets to be eligible for state maintenance and the entrances can not meet the spacing standard?**

Both regulations recognize that this situation can occur and include provisions for either waiving the state requirement for the multiple entrances or reducing the spacing distance. An exception request would need to be submitted along with information on the design of the development.

### **Proposed Signalized Entrance:**

#### **What are the options if a proposed signalized entrance can not meet the spacing standards?**

Section 120 of the regulations specifies that in this situation the entrance will be restricted to right-in and/or right-out movements. The developer can request an exception to this requirement by submitting a traffic engineering study that shows acceptable operational levels can be achieved and motorist safety will not be jeopardized. In addition, the study will need to evaluate the suitability of the entrance location for design as a roundabout.

## **GENERAL INFORMATION ON THE ACCESS MANAGEMENT EXCEPTIONS**

### **Why do the regulations provide exceptions to the access management requirements?**

The regulations were drafted to anticipate potential situations where an entrance applicant might not be able to comply with the requirements and to provide VDOT the flexibility to approve an exception to address the situation (e.g. adjacent landowner refuses to share an entrance). The property owner benefits by knowing up front what the exceptions are to the rules, what information needs to be submitted, and the procedure for seeking approval. The exceptions help to assure that the access management requirements are reasonable and fair.

### **How do I apply for an exception to the access management requirements?**

A description of the exception request review and approval process is presented in section 120 D of the 24VAC30-73 regulation.

Access Management Exception Request forms have been prepared to assist in this regard (Form AM-1 for principal arterials and Form AM-2 for minor arterials, collectors and local streets). The forms have been designed to be easy to fill out. They provide a list of all of the exceptions identified in the regulations and the required documentation that will be needed to justify each exception.

They are available on the VDOT access management web site and from the Residency and District Offices. Contact the Residency Office or the District Planning and Investment Management staff to discuss a possible exception and the information on the exception that will need to be submitted (see section 120 of the regulations).

### **How long will it take to receive a decision from VDOT on the exception request?**

A decision will be made within 30 calendar days of receipt of the written request and all documentation specified in the regulations. Some of the requests can be handled fairly quickly such as an exception to the shared entrance requirement while others that involve the review of a traffic engineering study may take the full 30 days.

**What is the difference between an access management exception and a design exception?**

A Design Exception is required for exceptions to any of the Appendix F design standards, such as for sight distance and the length of a right or left turn lane. An Access Management Exception applies to exceptions to the access management requirements in section 120 of the regulations.

## APPENDIX F DESIGN STANDARDS

**Why are the entrance design standards the same for principal and minor arterials and collectors?**

The type or functional classification of the abutting highway is not relevant to many of the standards. Throat depth is based on the traffic generated by the land use. Turn lanes focus on the speed of the highway and the length of the auxiliary lane necessary to safely decelerate. Curb radii are designed to accommodate the design vehicle expected to use the entrance. Stopping sight distance is based on the distance it takes for a motorist to stop at a given speed.

**How does the entrance design differ for a commercial entrance on a local street?**

Because the function of local streets is to provide access to property and local streets will carry relatively low levels of traffic, the design criteria for commercial entrances on them are reduced (Figure 4-11). The minimum entrance width has been lowered from 30 ft for a standard commercial entrance to 24 ft. A minimum 50 ft separation between ends of radii of adjacent entrances has been established. This is the spacing distance for commercial entrances on local streets.

**Are the design standards reduced for commercial entrances on a low volume highway?**

Yes, a low volume commercial entrance design for highways with shoulders is presented in the Figure 4-15 design illustration. The purpose of this design is to reduce construction costs for small businesses and other uses that do not generate much traffic.

“Low volume” site requirements are a maximum: 5,000 vehicles per day (VPD) on the fronting highway, 200 entrance VPD, and 10% truck trips per day.

Curb and/or gutter are not required, the minimum entrance throat (depth) is reduced to 25 ft, and the entrance width is lowered to a minimum 18 ft and maximum 30 ft.

**What are the details on the pavement for a commercial entrance, turn lane, and taper?**

Asphalt, concrete, or pavers are required of a construction (e.g. sub-base and base) comparable to the pavement of the adjacent highway. See Entrance Pavement in the Commercial Entrances chapter.

**What is the effective radius of an entrance?**

The “effective” radius must be used where on-street parking is allowed near the entrance (typically the actual radius of the entrance curbing plus the width of the parking lane). The radius is where the edge of the entrance is rounded to permit easier entry and exit by turning vehicles.

**How are pedestrians accommodated at a commercial entrance?**

The Pedestrian Accommodation section of the Commercial Entrances chapter offers a web link for obtaining the entrance design criteria when sidewalks abut a commercial entrance (the pedestrian route across the entrance).

**How does the design of a median opening determine whether it is considered a crossover?**

Definitions in the regulations and Appendix F for “crossover” and “median opening” explain that crossovers are median openings that provide the full range of turning movements (crossing and left/right turning movements). A median opening that physically restricts movements to only left turns and U turns is a directional median opening and therefore not a crossover. A directional median opening can be used to create a right-in/right-out/left-in entrance.

**Do the design standards allow midblock pedestrian crosswalks?**

Midblock crosswalks can be used to provide locations for pedestrians and bicyclists to cross the highway where pedestrian/bicyclist attractors are located on opposite sides of the road. The characteristics of the highway and the design of the crosswalk will need to be evaluated. The topic is discussed in the Accommodating Pedestrians and Bicyclists chapter in Appendix F.

**Where in Appendix F can I find information on designing partial access entrances?**

The “Restricting Left Turn Movements at Commercial Entrances” chapter provides a detailed discussion on designing entrances for partial access to limit left turns to minimize the impact of the entrance turning movements on the safe progression of traffic on the highway. Entrances can be designed as right-in/right-out only to prevent entering and exiting left turn movements or can be designed to also allow certain left turn movements such as left-in and U turns.

Illustrations for using concrete islands to channelize entrance turning movements to create a partial access entrance on undivided highways are presented in Figure 4-5. While concrete islands may not be as effective as medians, they can still prevent a majority of left turns.

Raised four foot wide medians or flexible traffic posts with reflective striping can be installed along the front of an entrance to serve as visual and physical barrier to prevent left turns at the entrance. The Medians chapter discusses directional median opening design. Figures 2-3, 2-4, and 3-25 present illustrations of different types of directional median openings

**What is the difference between intersection sight distance right and left in Table 2-7?**

Intersection sight distance allows a driver of a stopped vehicle at an entrance/intersection a sufficient view of the intersecting highway to decide when to enter the highway and then to accelerate from a stop and merge safely into the traffic to complete the turn. The intersection sight distance to the right of an entrance/intersection (SDR) is the sight distance needed to see vehicles approaching from the right when making a left turn. The intersection sight distance to the left (SDL) is the sight distance needed to see vehicles approaching from the left to make a right turn.

SDR is greater than SDL because the vehicle has to travel further to make a left turn than to turn right on to the intersecting highway. Similarly, as the number of lanes that will be crossed increases sight distance increases due to the distance the vehicle will travel. Only SDL is needed when making a right turn but both SDL and SDR are needed for a left turn. For more information, see the Intersection chapter, Intersection Control in AASHTO’s Geometric Design of Highways and Streets.

## Summary of the Five Access Management Requirements and Related Exceptions

**1. Entrances are not permitted in the functional area of an intersection or interchange.**

**Exception:** VDOT approval of a traffic engineering study documenting that highway operation and safety will not be adversely impacted by the location of the entrance.

**2. Entrance to be shared with adjoining properties.**

**Exceptions:**

- A. Adjacent property owner will not agree to share the entrance. Provide written evidence that a reasonable agreement could not be reached.
- B. There are physical constraints to creating a shared entrance: topography, adjacent hazardous land use (e.g. heavy industrial, quarry, or natural gas transmission facility), environmentally sensitive areas such as a stream or wetland.

**3. Compliance with Appendix F spacing standards for entrances, intersections, and crossovers; for entrances/intersections near interchange ramps.**

**Exceptions:**

- A. The specific location of the entrance or intersection is identified on a:
  - i. Plan of development or in a condition proffered as part of a rezoning that was approved by the locality prior to effective date of the regulations; or
  - ii. Site plan, preliminary/final subdivision plat, SSAR conceptual sketch:
    - a. Approved by the locality prior to July 1, 2008 (principal arterials).
    - b. Submitted by the locality to VDOT and received by VDOT prior to October 14, 2009 (minor arterial, collector, or local street).
- B. Entrance located on a highway within the limits of a VDOT/locality approved access management corridor plan with different spacing standards.
- C. Entrance located on an older, established business urban highway corridor where existing spacing did not meet the spacing standards prior to the effective date of the regulations.
- D. Entrances to be located within a new urbanism, higher density type development.
- E. The development's second or additional entrance does not meet the spacing standards but are necessary for the streets to be accepted into the secondary system.

NOTE: If a parcel does not have sufficient highway frontage to meet the spacing standards, VDOT will allow a right-in and/or right-out movement entrance that is located to achieve the maximum separation possible.

**4. Vehicular/pedestrian connections to boundaries with adjacent undeveloped properties. Required on a principal or minor arterial; may be required on a collector.**

**Exception:** There are physical constraints preventing such connections: topography, adjacent hazardous use, stream, wetlands.

NOTE: If the permit applicant is capable of providing such connections or extending existing connections, but refuses to, the entrance shall be restricted to right-in/right-out movements.

**5. Insufficient spacing between a proposed signalized entrance and an adjacent traffic signal. A signal will not be approved and the entrance will be limited to right-in/right-out movements.**

**Exception:** VDOT approval of a traffic engineering study that (i) evaluates suitability of entrance location for an alternate design as a roundabout and (ii) documents that the proposed signalized entrance will not impair highway operation and safety.