

**IMPERIAL ROAD DESIGN MANUAL**  
**REVISIONS JANUARY 2011**

**CHAPTER 2A**

- Page 2A-11 – Replaced the following language under “DESIGN WAIVERS”; From “This Design Waiver Policy is for roadway projects only.” To; “This Design Waiver Policy is applicable to VDOT owned and maintained roadways only.”

**CHAPTER 2C**

- Page 2C-6 – Added the following language in and after the forth sentence under “CURVE DATA”; Remaining curve data (degree; tangent; length; radius; curve stations “*superelevation rate (E) and superelevation runoff (Lr)*”) are to be shown on the inside of the curve, centered longitudinally and lettered along imaginary lines parallel to a line that would be tangent to the mid point of the curve. “*Superelevation runoff (Lr) information is to be placed manually in the curve data. Curve*” data is to be shown...
- Page 2C-8 – Deleted the following language at the end of the paragraph under “RIGHT OF WAY”; “*Distances, bearings and curve information (metes and bounds) are to be shown for the entire periphery of take on all properties owned by U.S. and state agencies; National Forests; Railroads and Power Companies.*”

**CHAPTER 2D**

- Page 2D-11 – Replaced “FIGURE 2D-1 SAMPLE PLAN SHEET” to remove right of way and easement “pluses and distances”.
- Page 2D-16 – Replaced the following language under “DESIGN WAIVERS”; From “This Design Waiver Policy is for roadway projects only.” To; “This Design Waiver Policy is applicable to VDOT owned and maintained roadways only.”
- Page 2D-22 – Added the following language to the end of the first and second paragraph; “*This Design Waiver Policy is applicable to VDOT owned and maintained roadways only.*”
- Page 2D-31 – Added the following language in the seventh sentence under “DESIGN APPROVAL”; “*Blanket Categorical Exclusions (BCE) or*”.

## CHAPTER 2E

- Page 2E-39 – Replaced “District Utility Engineer” with “Regional Utility Coordinator” in the fourth paragraph under “UTILITY EASEMENT”.
- Page 2E-41 – Deleted the following language in the second sentence in the third paragraph; “(i.e. pluses and distances or distances on a property line).”
- Page 2E-47 – Replaced “FIGURE 2E-11 SAMPLE TITLE SHEET (URBAN DESIGN)” detail.
- Page 2E-48 – Replaced “FIGURE 2E-12 SAMPLE TITLE SHEET (SECONDARY DESIGN)” detail.
- Page 2E-49 – Replaced “FIGURE 2E-13 SAMPLE TITLE SHEET (PRIMARY DESIGN)” detail.
- Page 2E-54 – Revised the “Project Length Tabulation Block” to eliminate “Equalities” column.
- Page 2E-59 – Deleted the following language under the “Index of Sheets”; “*Metes and Bounds*”
- Page 2E-63 – Replaced the second sentence in the first paragraph under “RIGHT OF WAY DATA SHEET” from; “*These sheets are available from the Engineering Services Section’s Insertable Sheet directory.*” To; “*This sheet is available in the CADD cell library under Sheet2000.*”

Revised the following language in the first two sentences in the third paragraph under “RIGHT OF WAY DATA SHEET” from; “*When the field inspection plans are sent out, the set to the Right of Way Manager shall include a blank print of this sheet. As the parcel numbers are assigned, the District Right of Way Office will tabulate the parcel numbers...*” To; “*When the field inspection plans are sent out, the set sent to the Regional Right of Way Manager shall include a blank print of this sheet. As the parcel numbers are assigned, the Regional Right of Way Office will enter the parcel numbers...*”

Added the following language at the end of in the third paragraph under “RIGHT OF WAY DATA SHEET”; “*The land surveyor of record is responsible for computing and entering the “Area” information on Right of Way Data sheet.*”

- Page 2E-64 – Revised the second sentence in the first paragraph from; “*The Preliminary Right of Way Data Sheet will be used from field inspection time until it is replaced by the Right of Way Division’s “Posted Right of Way Data Sheet.”*” To; “*The Preliminary Right of Way Data Sheet will be used beginning at field inspection and will become the “Final Right of Way Data Sheet.”*”

- Page 2E-68 – Replaced “FIGURE 2E-18.1 SAMPLE TYPICAL SECTION SHEET” detail.
- Page 2E-77 – Deleted the following language in the first item “c”; “*Pluses and distances*” from “Proposed right of way and easements”.
- Page 2E-83 – Replaced “District Utility Engineer” with “Regional Utility Coordinator” in the first sentence of the second paragraph under “UTILITY FIELD INSPECTION”.

Revised the second sentence in the second paragraph under “UTILITY FIELD INSPECTION” from; “*On complex projects, the Designer may be requested...*” To; “*On complex projects, the In-Plan Utility Engineer and Roadway Engineer may be requested...*”

Revised the last sentence in the third paragraph under “UTILITY FIELD INSPECTION” from; “*Screened reproducibles of the plan sheets and/or profiles are normally requested by the Utility Section ...*” To; “*Electronic files on roadway base plan and/or profiles will be made available to the Utility Section ...*”

## APPENDIX “A”

- Page A-4 – Replaced the following language under “DESIGN WAIVERS” from; “This Design Waiver Policy is for roadway projects only.” To; “This Design Waiver Policy is applicable to VDOT owned and maintained roadways only.”

Added the following language at the bottom of the page;

### PAVEMENT TRANSITIONS

*Pavement transitions typically occur where new or reconstructed roadways tie-in to existing roadways. This transition of pavement width shall meet the minimum length provided by the following equations:*

*Less than 45 mph*

*45 mph and greater*

$$L = S^2W \div 60$$

$$L = W \times S$$

*L = length of transition*

*S = Design Speed*

*W = Width of offset on each side*

- Page A-7 – Revised “TABLE A-1-1” to add 75 mph “Minimum Design Speed”.
- Page A-8 (GS-1) – Added “75 mph Design Speed”, “Minimum Radius” and “Stopping Sight Distance” to “Freeways”, “Level” terrain.
- Page A-11 (GS-4) – Revised “Minimum Width of Surfacing or Pavement” from 20’ to 22’ for “Level Terrain” for “Traffic Volume” ADT 400 to 1500.

- Page A-13 (GS-6) – Deleted the following language in Footnote No. 1; “*or if design year ADT exceeds 2000.*”

Added the following language in Footnote No. 2; If heavy truck traffic “*or buses are*” anticipated, an additional 1' width is desirable.

Revised the following language in Footnote No.11 from; “Situations having restrictions on trucks may allow the use of lanes 1' less in width.” To; “Situations having restrictions on trucks may allow the use *11' lanes.*”

- Page A-16 (GS-9) – Revised “Minimum Travelway Width” for 20 mph from 15’ to 16’ to match AASHTO.
- Page A-18 – Added the following language to the end of the third paragraph under “INTRODUCTION”; “*The minimum requirement for this scenario is 1.5 ft. lateral offset.*”
- Page A-21 & 22 – Revised “Case 1 thru 4” to add additional information to the details.
- Page A-26 – Revised “Typical Urban Section” detail to agree with “Case 3” in “Figure A-2-1” increasing the “Lateral Offset” from 8’ to 10.5’.
- Page A-34 – Added the following language to the first paragraph under “GUARDRAIL INSTALLATION IN URBAN SETTINGS”; Guardrail is not recommended where curb, or curb and gutter is used. Whenever it is necessary to provide guardrail along a curbed section (no sidewalk or sidewalk space) Standard GR-2 “or GR-2A” Strong Post Guardrail shall be used in conjunction with Standard CG-3 or CG-7 (4” mountable curb) and the face of the rail should be aligned with the face of curb. “For design speeds 45 mph or less, use Standard GR-2. For design speeds greater than 45 mph, use Standard GR-2A.”
- Page A-36 – Added “ADT” traffic count range and 75 mph “Design Speed” to “Table A-3-3 Design Parameters for Roadside Barrier Layout”.
- Page A-51 – Added the following language under “MINIMUM BRIDGE WIDTHS ON RRR PROJECTS”; “*(If bridge is less than 100 feet long)*”.
- Page A-78 – Replaced “*Residency Administrator*” with “*Transportation Land-Use Director*” in the second sentence in the first bullet under “MAJOR DEVELOPMENT AND SITE PLANS”.
- Page A-80 – Revised the following language under “Shoulder”; “A paved portion of the roadway to the right of the edge stripe on which bicyclists may ride. These areas are not to be marked or signed as 'bike lanes'.”

- Page A-88 – Replaced “*static obstructions*” with “*lateral obstructions*” in the fifth sentence in the first paragraph under “Paved Shoulders”.

Added the following language at the end of the first paragraph under “Paved Shoulders”; “*Paved shoulders are not to be marked or signed as “bike lanes”.*”

- Page A-90 – Replaced “*not recommended*” with “*not permitted*” in the second sentence under “BIKE LANES”.
- Page A-91 – Replaced “*not recommended*” with “*not permitted*” to the footnote in “FIGURE A-5-2 TYPICAL BIKE LANE CROSS SECTIONS”.

- Page A-92 – Revised “FIGURE A-5-3 RIGHT TURN ONLY LANE” to add dimensions and to remove diamond symbol from bike lane.

- Page A-95 – Revised the following language in the last sentence in the second paragraph from; “*When the separation from the edge of the shared use path to the top of the slope is less than 5 feet, a physical barrier such as railing or chain link fence 42 inches high is required in the following situations*”. To “*When the separation from the edge of the shared use path to the top of the slope is less than 5 feet, a physical barrier such as railing (HR-1, Ty. III) or chain link fence is required in the following situations:*”

Deleted the following language (Bullet) Slopes 1:1 or steeper, with a drop of 1 foot or greater

Revised the following language at the bottom of the page from; “*When a shared use path is constructed adjacent to a retaining wall or any vertical drop-off 1’ or more a railing or chain link fence 54 inches high is required.*” To “*When a shared use path is constructed adjacent to a retaining wall or a structure with a drop-off 1’ or more a railing or chain link fence 54 inches high is required.*”

- Page A-96 – Revised the following language at the top of the page from; “*When railing or chain link fence are required, contact the Location and Design Standards and Special Design Section for details.*” To “*When physical barrier, railing (HR-1, Ty. III) or chain link fence are required. See Road and Bridge Standards for details.*”

Revised details to replace “*Pedestrian Railing*” with “*Physical Barrier*”, also replaced the last drawing that was showing 1:1 slopes with a retaining wall detail and increased the height of barrier to 54”.

- Page A-104 – Added additional information in the detail in “Figure A-5-9 Share-Use Path Transition from Roadway onto Bridge”.

- Page A-105 – Relocated detail sheet showing “Interstate Bicycle Routes 1 and 76” from page A-122 and labeled it “*Figure A-5-10*”.
- Page A-106 – Revised the last sentence under “Rails-With-Trails” from; “*See Figure A-5-10 and Table A-5-13 for minimum separation distance between active rails and paths (RWT).*” To “*See Figure A-5-11 and Table A-5-13 for minimum separation distance between active rails and paths (RWT).*” Also revised “Figure A-5-10” label to “Figure A-5-11”.
- Page A-107 – Revised language in the first sentence from “*Figure A-5-11*” To “*Figure A-5-10*”.
- Page A-109 – Added detail “PARALLEL AND PERPENDICULAR CG-12, TYPE C”.
- Page A-111 – Added detail “PARALLEL CG-12, TYPE B”.

Added the following language after the forth sentence under “PEDESTRIAN ACCESS ROUTE”; “*Pedestrian access routes less than 60” (1525 mm) in continuous width shall provide a pedestrian passing area a minimum of 60”x 60” (1525 mm x 1525 mm) at reasonable intervals not to exceed 200’ (61 m).*”

- Page A-112 – Added detail “PERPENDICULAR CG-12, TYPE A”.
- Page A-115 – Revised language under Buffer Strips Widths as follows; “Buffer strip shall be 48” (1220 mm) wide to provide the lateral offset for the placement of conventional signs in accordance with the MUTCD, Part 2 (*See detail below*). Buffer strip less than 48” (1220 mm) wide may be utilized; however, a *Design Waiver will be required (See IIM-LD-227)*. In unique situations where **no** buffer strip is provided, (*See Sidewalk Width in the following pages*), additional right of way shall be acquired behind the sidewalk for the placement of lateral obstructions (landscaping, fire hydrants, street lights, parking meters, signal control boxes, signal, sign and utility poles, etc.) as well as proposed drainage structures. The Roadway Designer should coordinate with the Traffic Engineering Designer to determine the amount of right of way necessary.

*The Roadway Designer has the option to meander sidewalk or construct a wider sidewalk to accommodate the minimum lateral offset for signs while maintaining a minimum clear width of 5 ft. for the Pedestrian Access Route.*”

Added new detail showing sign placement adjacent to sidewalks.

- Page A-116 – Revised language in the first sentence in the third paragraph under “SIDEWALKS” (Width) from; “*For “NO” on-street parking situations where sidewalk is placed adjacent to the curb, the width should be 24” (600 mm) wider than normal (minimum width of 48” (1219 mm) [48”+24”=72” (1829 mm)], but shall not be less than 60” (1525 mm) wide and requires the submission of a Design Waiver (See IIM-LD-227).*” To; For “NO” on-street parking situations where sidewalk is placed adjacent to the back of curb it shall be 60” (1525 mm) wide minimum and requires the submission of a Design Waiver for no buffer strip (See IIM-LD-227).
- Page A-119 – Added the following language; (HR-1, Ty. III) in the first sentence at the bottom of the page.

Revised detail to replace “*Pedestrian Railing*” with “*Hand railing*”

- Page A-120 – Added additional information in the detail in “Figure A-5-10.1 Sidewalk Transition from Roadway onto Bridge” and rename detail “Figure A-5-11”.
- Page A-124 – Deleted “Table A-5-14 Conversions From Imperial Units To Metric Units”.
- Page A-130 – Revised the following language in the first sentence in the second paragraph under “PUBLIC HEARING AND RIGHT OF WAY” from; “For “No Plan” projects any required right of way and/or easements will normally be secured by donation provided no condemnation is required. However, right of way may be purchased by individual deeds or under the “Minimum Plan”...” To; “For “No Plan” projects any required right of way and/or easements will *normally* be secured by donation provided no condemnation is required. *However*, right of way may be purchased by individual deeds *or* under the “Minimum Plan”...”

Replaced the following language in “Right of Way – Donations” under “PUBLIC HEARING AND RIGHT OF WAY” from; “*Public hearing requirements will normally be waived on "No Plan" and "Minimum Plan" projects...*” To; “*An exception to the public hearing requirement will normally be executed on "No Plan" and "Minimum Plan" projects...*”

- Page A-134 – Deleted the following language from the bottom of the sheet; “*Metes and bounds plans are required for right of way from unique clients (e.g. Federal and State agencies, the National Forest, railroads, Virginia Power, etc.) - see VDOT's Road Design Manual Chapter 2E, Section 2E-5.*”

## APPENDIX “B(1)”

- Page B(1)-9 – Replaced “Clear Zone” with “Horizontal Clearance” under “ROADWAY SECTION CRITERIA” “Curb and Gutter Roadways (No Parking)”.
- Page B(1)-44 – Added the following language in the third sentence in the first paragraph; “To maintain sight lines, trees and other objects should be restricted from corners for distances of 30 feet on all sides *measured from the end of the curb return radii.*” Also added new detail.

## APPENDIX “C”

- Page C-2 – Revised accessible parking space table as follows; revised first column label to “Total Number of Marked or Metered Parking Spaces on the Block Perimeter”.

Revised the last row of the accessible parking space table as follows; “Total Number of Marked or Metered Parking Spaces on the Block Perimeter” to “201 *and over*” and “Required Minimum Number Accessible Spaces to “4% *of total*”.

Revised the following source language; “*Access Board Revised Draft Guidelines for Accessible Public Right of Way: Dated November 23, 2005.*”

- Page C-13 – Revised the “CRITERIA FOR PLACEMENT OF RIGHT OF WAY MONUMENTS” to delete the following information;
  1. *Interstate with Arterial, Primary, or Secondary Crossroad*
  2. *Arterial or Primary with a Secondary Crossroads:*
    - (a) *Same as 1(a)*
    - (b) *To end of right of way flare of major road*
    - (c) *Same as 1(c)*
    - (d) *Same as 1(d)*
    - (e) *Same as 1(e)*
  3. *Secondary Roads*

*Show distance and plus to all right of way breaks with no monuments.*



## APPENDIXES “F”

- Preface – Added the following language at the beginning of the “Preface”; *“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). Such localities, though, may choose to apply them to roads they maintain.”*
- Page F-4 – Added the following language; *“Private Subdivision Road or Street Entrance: A commercial entrance for a road or street that serves more than two individual properties and is privately owned and maintained. “*
- Page F-24 – Added the following language to the beginning of “Note A”; *“Divided/undivided highways”.*

Added the following language to the beginning of “Note B”; *“Crossovers”*

- Page F-25 – Added the following language to the beginning of “Note C”; *“Relationship between spacing standards”*

Added the following language to the beginning of “Note D”; *“Roundabouts”*

Added the following language to the beginning of “Note E”; *“Intersection sight distance”*

Revised language in “Note F” as follows; *“Spacing standards exceptions”* - See “exceptions to the spacing standards” presented later in this section.

- Page F-27 – Added *“Figure 2-8.1 Illustration Of The Relationship Between Spacing Standards”.*
- Page F-31 – Added the following language to the first sentence in the third paragraph under “Exceptions to the Spacing Standards”; *“For highway construction or reconstruction projects on roadways owned and maintained by VDOT...”*

Deleted the following language at the bottom of the page;

- The specific location of an entrance is shown on a plan of development or described in a condition proffered as part of a rezoning approved by the locality prior to October 14, 2009 or is shown on a site plan, preliminary or final subdivision plat submitted by the locality to VDOT and received by VDOT prior to October 14, 2009.
- The location of the entrance or intersection will meet spacing standards in a VDOT and locality approved access management highway corridor plan that differs from those in Table 2-2.

- The proposed entrance or intersection will be located on an older, established business section of an urban highway corridor where existing entrances and intersections did not meet the spacing standards prior to October 14, 2009.
- The proposed public street intersection will be located within a new urbanism, traditional neighborhood mixed use type development.
- Where a development's second or additional entrances do not meet the spacing standards but are necessary for the streets in the development to be eligible for acceptance into the secondary system of state highways in accordance with the Secondary Street Acceptance Requirements (24VAC30-92).
- Limiting a proposed entrance to right-in/right-out movements because the parcel does not have enough usable property frontage on the highway (e.g. parcel dimensions, physical constraints) to meet the spacing standards.
- Limiting a proposed signalized entrance to right-in/right-out movements if the proposed entrance does not meet the signalized intersection spacing standards.

Added the following language under "*Exceptions / Waivers to the Design Standards*"; "*This Design Waiver Policy is applicable to VDOT owned and maintained roadways only.*"

- Page F-49 – Revised title from “Left and Right Turn Criteria” to “Turn Lane Criteria for Single and Dual Lanes”.

Revised “FIGURE 3-1 Turn Lane Criteria for Single and Dual Lanes” to include additional taper information.

- Page F-53 – Revised “FIGURE 3-4 Passing/ Left Turn Lane on Two-Lane Highway” detail to include additional information.
- Page F-66 – Revised “FIGURE 3-23 Double Left-Turn Lanes” to remove storage and taper information and added note directing readers to “FIGURE 3-1 Turn Lane Criteria for Single and Dual Lanes”.
- Page F-84 – Replaced the following language “*Access Vertical Alignment*” with “*Entrance Grade*”.
- Page F-98 – Revised name of “Figure 4-8 from; “*Standard Private Subdivision Road / Street Entrance*” To; “*Commercial Entrance Design To Serve A Private Subdivision Road / Street*”.