

ROAD DESIGN MANUAL REVISIONS

July, 2016

CHAPTER 2B

- Pages 2B-4 & 2B-5 – Added the following language;
OCCUPIABLE SPACE / BUILDINGS ON ROADWAY PROJECTS
PERMIT REQUIREMENTS

POLICY

- *It should be determined as early as possible in the project development process if the project will involve the construction of a building or other occupiable space, or any work on an existing building or occupiable space.*
- *The Project Manager shall contact the Administrative Services Division (ASD), Capital Outlay Section as soon as it is determined that any building or occupiable space will be involved.*
- *Any work on a building or occupiable space on a project within the state right of way must comply with the Virginia Uniform Statewide Building Code.*
- *The Administrative Services Division (ASD), Capital Outlay Section shall request any required Building Permits from the Bureau of Capital Outlay Management (BCOM).*

For assistance with permits or document requirements, consult the Administrative Services Division (ASD), Capital Outlay Section.

DEFINITIONS

- *Occupiable Space:*
 - *A room or enclosed space designed for human occupancy in which individuals congregate for amusement, educational or similar purposes or in which occupants are engaged at labor, and which equipped with means of egress and light and ventilation facilities meeting the requirements of this code.*
- *Building:*
 - *A combination of materials, whether portable or fixed, having a roof to form a structure for the use or occupancy by persons, or property.*

EXAMPLES

- *These instructions include new construction, renovations, additions, upgrades, replacement of systems, and re-roofing.*
- *Some examples include:*
 - *Pump Stations*
 - *Bus Shelters*
 - *Tunnel Portals*
 - *Vent Buildings*
 - *Communication/Data Shelters*
 - *Picnic Shelters*
 - *Covered Pedestrian Bridges*
 - *Ferry Buildings*
 - *Storage Buildings*
 - *Inspection/Security/Booths*
 - *Toll Booths*

CHAPTER 2C

- Page 2C-4 – Deleted the following language;
HYDRAULICS COORDINATION
The Central Office Hydraulics Section will provide technical assistance, training and limited technical supervision to the District Hydraulics Sections. The Central Office Hydraulics staff will provide technical training for the District Hydraulics staffs on an as needed basis.

CHAPTER 2D

- Page 2D-15 – Revised the following language in the first sentence in the first paragraph under “DESIGN EXCEPTIONS” from; “*When plans are being prepared where, for any reason, one or more locations do not meet the AASHTO minimum design criteria (for example design speed), the location(s) and reason for difference(s) are to be noted on the title sheet.*” To; “*When plans are being prepared where, for any reason, one or more locations do not meet the AASHTO minimum design criteria (for example “shoulder width, horizontal curve radius”), the location(s) and reason for difference(s) are to be noted on the title sheet.*”

Revised the language in methods to be used to show exceptions on the Title Sheet.

- Page 2D-19 – Revised the following language in the second sentence in the third paragraph under “PLOTING ENTRANCES AND MEDIAN CROSSOVERS” from; “*Grades for entrances are to be depicted as shown in Chapter 2H, Figure 2H-40.*” To; “*Grades for entrances are to be depicted as shown in Chapter 2H, Figure “2H-41”.*”

CHAPTER 2E

- Page 2E-7 thru 12 (old) – Deleted “SECTION 2E-2 – DETAILED DRAINAGE DESIGN” this information is now location in the “Drainage Manual”.
- Page 2E-8 – Revised the following language under “Curb and Gutter” from; (*Also see “Mountable Curb and Curb and Gutter”*) To; (*Also see “Mountable Curb and Curb and Gutter”, “page 2E-32”*).
- Page 2E-11 – Revised the following language in the second sentence in the second paragraph under “STAKING FOR CONCRETE ITEMS” from; “*Figures 2E-6, 2E-7 & 2E-8 denote a typical straight-line taper detail...*” To; Figures “2E-5, 2E-6 & 2E-7” denote a typical straight-line taper detail...
- Page 2E-12 – Revised the following language from; “*Figure 2E-6 TYPICAL STRAIGHT-LINE TAPER LANE*” To; Figure “2E-5” TYPICAL STRAIGHT-LINE TAPER LANE.

Page 2E-12 – Revised the following language from; Revised the following language in the last sentence on the page from; “*For method of showing required information on roadway plan sheets, see Figure 2E-8.*” To; For method of showing required information on roadway plan sheets, see Figure “2E-7”.

- Page 2E-13 – Revised the following language from; “*FIGURE 2E-7 METHOD OF SHOWING REQUIRED INFORMATION ON ROADWAY PLAN SHEETS FOR RADIAL OFFSETS – TURN LANES – BULLET NOSES*” To; FIGURE “2E-6” METHOD OF SHOWING REQUIRED INFORMATION ON ROADWAY PLAN SHEETS FOR RADIAL OFFSETS – TURN LANES – BULLET NOSES.
- Page 2E-14 – Revised the following language from; “*FIGURE 2E-8 SAMPLE TABULATION OF DATA*” To; FIGURE “2E-7” SAMPLE TABULATION OF DATA.
- Page 2E-17 – Revised the following language to Item #2 under “RETAINING WALLS” from; *A profile is to be shown denoting the top and bottom elevations of the proposed retaining wall. See Figure 2E-9 for details.* To; A profile is to be shown denoting the top and bottom elevations of the proposed retaining wall. See Figure “2E-8” for details.
- Page 2E-23 – Revised the following from; “*FIGURE 2E- 9 PROFILE FOR PROPOSED RETAINING WALL*” To; FIGURE “2E- 8” PROFILE FOR PROPOSED RETAINING WALL.

- Page 2E-32 – Revised the following language in the second sentence in “Barrier Type Curb” under “CURB AND CURB AND GUTTER” from; “*The use of barrier curb is limited to design speeds of 40 mph or less.*” To; The use of barrier curb is limited to design speeds of “45” mph or less.

Revised the following language in “Mountable Type Curb” under “CURB AND CURB AND GUTTER” from; “*Standard CG-3 curb or Standard CG-7 curb and gutter has a 4” sloping face and is applicable to all design speeds (required for design speeds of 45 mph or greater).*” To; Standard CG-3 curb or Standard CG-7 curb and gutter has a 4” sloping face and is applicable to all design speeds (required for design speeds of “50” mph or greater).

Added the following language at the bottom of the page; “*Where a bicycle accommodation is next to curb or curb and gutter or guardrail is required, mountable curb (CG-3) or curb and gutter (CG-7) shall be used for designs speeds 45 mph and below.*”

- Page 2E-34 – Revised the following language in the first paragraph under “HISTORICAL MARKER RELOCATION” from; “*When a project requires the relocation of a historical marker, and the normal typical section does not provide for stopping at the marker (curb and gutter, no shoulder, etc.), a pullover area is to be provided.*” To; When a project requires the relocation of a historical marker, and the normal typical section does not provide for stopping at the marker (curb and gutter, no shoulder, etc.), a pull“-off” area is to be provided.

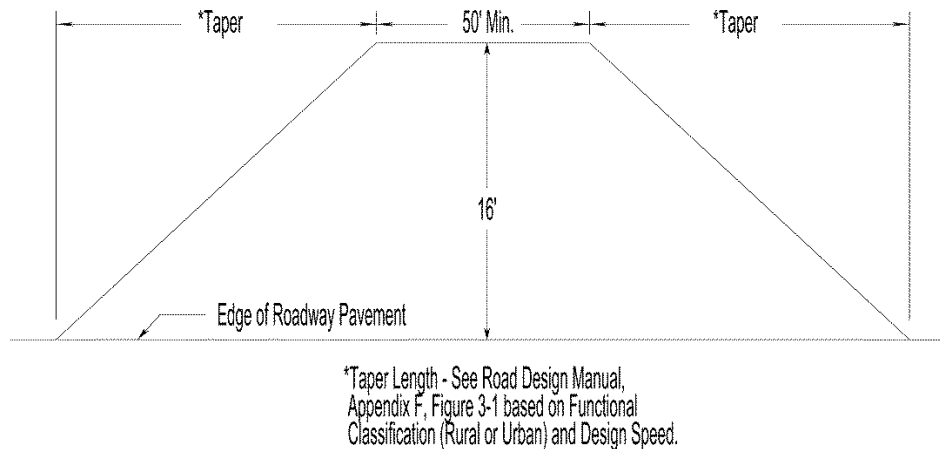
Revised the following language in the second paragraph under “HISTORICAL MARKER RELOCATION” from; “*Relocation of the marker is to be coordinated with the Environmental Division.*” To; Relocation of the marker “*shall*” be coordinated with the “*District*” Environmental Division “*(Cultural Resources staff) and District or Regional Traffic staff for review and coordination with the Department of Historic Resources (DHR).*”

Revised the following language in the third paragraph under “HISTORICAL MARKER RELOCATION” from; “*The pullover area is to be 12’ X 40’ with 50’ tapers.*” To; The pull“-off” area is to be “*in accordance with the detail shown below.*”

Revised the following language in the fourth paragraph under “HISTORICAL MARKER RELOCATION” from; “*The pavement design should be the same as the adjacent roadway.*” To; The pavement design should be the same as the adjacent roadway. “*Applicable details (Insertable Sheet - Historical Sign Marker Foundation) for the post foundation should be included in the roadway plan assembly.*”

Revised the following language in the fifth paragraph under “HISTORICAL MARKER RELOCATION” from; “Relocation of the historical marker will be covered by Section 105.15 and 510.01 of the Road and Bridge Specifications.” To; Relocation of the historical marker will be covered by Section 105.15 and 510.01 of the Road and Bridge Specifications. “Measurement and Payment for removal, storage and reinstallation of historical markers per these Sections shall be determined by the designer as deemed appropriate for the specific requirements of the project.”

Added the following detail;



- Page 2E-39 – Deleted the following language under “TEMPORARY CONSTRUCTION EASEMENTS”; “All TCE for Entrances shall be summarized separately on the Right of Way Data Sheet from all other TCE such as cut/fill slopes, drainage and detours. The Right of Way Data Sheet has been revised to add a column for Temporary (Entrances) and is in the CADD Cell Library.

All TCE for Entrances shall be computed for each parcel (if applicable) and summarized on the Plat in the Areas of Easements Table. See VDOT’s Survey Manual, Chapter 12, Figure 12-D for a Sample Right of Way Acquisition Plat.

- Page 2E-40 – Deleted the following language under “b) Substantial Construction Work” “Temporary Construction Easements for Entrance shall be clearly labeled for that purpose (Prop. Temporary Construction Easement (TCE) for Entrance) and will have a different duration from other temporary construction easements for other purposes such as cut/fill slopes, drainage and detours.”

Revised detail “FIGURE 2E-9 DEPICTING TEMPORARY CONSTRUCTION EASEMENT FOR ENTRANCES” to remove “Proposed Temporary Construction Easement” that was running across the entrance and to add additional notes.

Revised the following language from; “FIGURE 2E-10 DEPICTING TEMPORARY CONSTRUCTION EASEMENT FOR ENTRANCES” To;
FIGURE “2E-9” DEPICTING TEMPORARY CONSTRUCTION EASEMENT
“AROUND” ENTRANCES

- Page 2E-44 – Revised the language under “LIMITD ACCESS ESTABLISHMENT AND CHANGE GUIDELINES” from; “Background” To; Background “/Policy”.
- Page 2E-45 – Added the following language;

Pedestrian and Bicycle Facilities

24VAC30-151-600 Pedestrian and bicycle facilities.

The installation of sidewalks, steps, curb ramps, shared use paths, pedestrian underpasses and overpasses within right-of-way may be authorized under the auspices of a single use permit. VDOT shall maintain those facilities that meet the requirements of the Commonwealth Transportation Board's Policy for Integrating Bicycle and Pedestrian Accommodations (see 24VAC30-151-760). The maintenance of sidewalks, steps, curb ramps, shared use paths, pedestrian underpasses and overpasses not meeting these requirements shall be subject to permit requirements, and the permittee shall be responsible for maintenance of these facilities.

The installation of pedestrian or bicycle facilities within limited access right-of-way shall be considered a change in limited access control and requires approval of the Commonwealth Transportation Board prior to permit issuance (see Change of Limited Access Control, 24VAC30-151-760). The installation of pedestrian or bicycle facilities parallel to and within the right-of-way of non-limited access highways crossing limited access highways by way of an existing bridge or underpass shall not be considered a change in limited access but shall require the approval of the Commissioner of Highways prior to issuance of a permit for such activity.

- Page 2E-49 – Revised the following language in the first sentence under “DEPICTING LIMITED ACCESS RIGHT OF WAY” from; “*The method of designating Right of Way on a proposed limited access project should be as indicated in Figures 2E-11 and 2E-12.*” To; The method of designating Right of Way on a proposed limited access project should be as indicated in Figures “2E-10” and “2E-11”.
- Page 2E-52 – Revised the following from; “FIGURE 2E-11 DEPICTING LIMITED ACCESS RIGHT-OF-WAY” To; FIGURE “2E-10” DEPICTING LIMITED ACCESS RIGHT-OF-WAY.
- Page 2E-53 – Revised the following from; “FIGURE 2E-12 DEPICTING LIMITED ACCESS RIGHT-OF-WAY” To; FIGURE “2E-11” DEPICTING LIMITED ACCESS RIGHT-OF-WAY.

- Page 2E-55 – Revised the following language at the end of the second paragraph under “IDENTIFICATION” from; “(See IIM LD-151 for further instructions)” To; (See “IIM LD-204” for further instructions).

Revised the following language at the end of the last paragraph under “IDENTIFICATION” from; “(See IIM LD-151)” To; (See “IIM LD-204”).

- Page 2E-57 – Revised the following language in the last sentence in the last paragraph under “PROJECT LENGTH TABULATION BLOCK” from; “See Figure 2E-13 for Type Code numbers.” To; See Figure “2E-12” for Type Code numbers.
- Page 2E-60 – Revised the following language in the third sentence in the first paragraph from; “The Type Codes, as noted in Figure 2E-13, are required ...” To; The Type Codes, as noted in Figure “2E-12”, are required ...
- Page 2E-61 – Revised the following language in the last sentence in the first paragraph under “FUNCTIONAL CLASSIFICATION – TRAFFIC DATA” from; “Exceptions to design speed are to be noted as shown in Section 2D-8 DESIGN EXCEPTIONS.” To; Exceptions “to the controlling criteria” are to be noted as shown in Section 2D-8 DESIGN EXCEPTIONS.
- Page 2E-62 – Revised the following from; “FIGURE 2E-13 CONSTRUCTION TYPE CODE FOR HIGHWAY IMPROVEMENTS LINE ITEM CODES” To; FIGURE “2E-12” CONSTRUCTION TYPE CODE FOR HIGHWAY IMPROVEMENTS LINE ITEM CODES.
- Page 2E-69 – Revised the following language under “HYDROLOGIC DATA SHEET” from; “HYDROLOGIC DATA SHEET” (SEE CHAPTER 2H, FIGURE 2H-7 & FIGURE 2E-14” To; HYDROLOGIC DATA SHEET (SEE CHAPTER 2H, FIGURE 2H-7 & FIGURE “2E-13”
- Page 2E-70 – Revised the following from; “FIGURE 2E-14 SAMPLE HYDROLOGIC DATA SHEET (NO PLAN PROJECT)” To; FIGURE “2E-13” SAMPLE HYDROLOGIC DATA SHEET (NO PLAN PROJECT).
- Page 2E-75 – Added the following language at the bottom of the page; “14. Insertable Sheets;”
- Page 2E-80 – Revised the following language at the end of the paragraph from; “...distribution is to be made in accordance with IIM-LD-68.” To; ...distribution is to be made in accordance with “Project Management Manual, PMO-3.4.”

- Page 2E-81 – Revised the following language in the last sentence in the first paragraph under “SECTION 2E-13 UTILITY FIELD INSPECTION” from; “Include the test hole data sheet and any available preliminary plans for bridges, retaining walls, traffic signals and lighting. (See IIM-LD-68)” To; Include the test hole data sheet and any available preliminary plans for bridges, retaining walls, traffic signals and lighting. (See “Project Management Manual, PMO-3.4.”)

CHAPTER 2G

- Page 2G-16 – Deleted the following language;
DRAINAGE SUMMARY

The Drainage Summary is usually set up with the identifying sheet number and structure and lane down the left side, the description of the item including the pay unit across the top, and a "Remarks" column down the right side.

On projects where an agreement has been reached between the Department and city/county that the city/county will participate in the cost of storm sewer construction (See IIM LD-146), the following note must be shown under the drainage summary and the items referenced by an asterisk.

**Denotes items to be paid for on the run-off ratio basis according to Commonwealth Transportation Board Policy, % City/County Cost.*

Separate quantity summaries (including all structure related items) are to be shown on the plans and estimates for structures, measuring over 20 feet along the centerline, that are classed as major structures and assigned a separate project number, e.g., B-601, D-603, (See Section 2E-6-Project Length Tabulation). In cases where the roadway fill and pavement is carried over but is not a part of the structure, the roadway quantities are not to be segregated on the plans and estimates but are to be included in the roadway project summary.

- Page 2G-25 – Revised the following language in the fifth paragraph under “CHECK FOR ACCURACY AND COMPLETENESS” from; “Computer Listings must be reviewed in accordance with IIM-LD-68.” To; Computer Listings must be reviewed in accordance with “CADD Manual, Chapter 8.”

Deleted the following language at the end of “CHECK FOR ACCURACY AND COMPLETENESS”; “Detailed instructions regarding checking, labeling, etc., can be found in IIM-LD-68.”

CHAPTER 2H

- Page 2H-5 – Revised the “Revision Data Sheet” to remove the column for “Temporary Easements for Entrances”.
- Page 2H-40 – Added the following detail; “FIGURE 2H-40 SAMPLE UTILITY SHEET”.
- Page 2H-41 – Revised the following detail “*FIGURE 2H-40 SAMPLE ENTRANCE PROFILE SHEET*” To; FIGURE “2H-41” SAMPLE ENTRANCE PROFILE SHEET.

APPENDIX “A”

- Page A-1 – Revised the following language in the first under “FLEXIBILITY IN DESIGN” from; “*The policies and procedures addressed in IIM-LD-235 (Context Sensitive Solutions) are intended to clarify...*” To; The policies and procedures addressed in IIM-LD-235 (Context Sensitive Solutions) “*and IIM-LD-255 (Practical Design Flexibility in the project development process)*” are intended to clarify...
- Page A-4 – Revised the following language under item 1a. from; “*For high-speed designs (50 mph and greater) Design Speed shall be a minimum of 5 mph greater than the Posted Speed.*” To; For high-speed “*roadways (Posted*” 50 mph and “*higher) the Design Speed shall be a minimum of 5 mph higher than the Posted Speed.*”
- Page A-4 – Revised the following language under item 1b. from; “*For low-speed designs (45 mph and less) Design Speed shall be equal to or greater than Posted Speed.*” To; For low-speed “*roadways (Posted*” 45 mph and less) “*the*” Design Speed shall be equal to or “*higher*” than “*the*” Posted Speed.

Added the following table;

Posted Speed/Design Speed (All speeds in miles per hour-mph)		
	Posted	Min. Design
Low-Speed Roadways	20	20
	25	25
	30	30
	35	35
	40	40
	45	45
High-Speed Roadways	50	55
	55	60
	60	65
	65	70
	70	75

- Page A-6 – Revised the following language in the sentence after item #4 from; “*A Design Exception is required whenever the curve radius and superelevation do not support the minimum design speed. See IIM-LD-227 for information on Design Exceptions.*” To; A Design Exception is required whenever the “horizontal” curve radius and “/or” superelevation “rate does” not support the minimum design speed. See IIM-LD-227 for information on Design Exceptions.

- Page A-15 – Revised GS-5 Standard table to include “Curb” with “Standard Curb and Gutter” to read “*Standard Curb and Curb and Gutter*” and to add CG-3 and CG-2 to the appropriate column.

Revised GS-5 Standards to move the curb and gutter (CG-7) requirement from 45 mph to 50 mph and added “Footnote” number 14 “*Where bicycle accommodation is next to curb or curb and gutter or guardrail is required, mountable curb (CG-3) or curb and gutter (CG-7) shall be used for design speeds of 45 mph and below.*”

- Page A-16 – Revised GS-6 Standard table to include “Curb” with “Standard Curb and Gutter” to read “*Standard Curb and Curb and Gutter*” and to add CG-3 and CG-2 to the appropriate column.

Revised GS-6 Standards to move the curb and gutter (CG-7) requirement from 45 mph to 50 mph and added “Footnote” number 14 “*Where bicycle accommodation is next to curb or curb and gutter or guardrail is required, mountable curb (CG-3) or curb and gutter (CG-7) shall be used for design speeds of 45 mph and below.*”

- Page A-17 – Revised GS-7 Standard table to include “Curb” with “Standard Curb and Gutter” to read “*Standard Curb and Curb and Gutter*” and to add CG-3 and CG-2 to the appropriate column.

Revised GS-7 Standards to move the curb and gutter (CG-7) requirement from 45 mph to 50 mph and added “Footnote” number 14 “*Where bicycle accommodation is next to curb or curb and gutter or guardrail is required, mountable curb (CG-3) or curb and gutter (CG-7) shall be used for design speeds of 45 mph and below.*”

- Page A-20 – Revised FIGURE A-1-10 GEOMETRIC DESIGN STANDARDS FOR INTERCHANGE RAMPS (GS-R) to add language for Auxiliary and Accel/ Decel Lanes.

Added the following “FOOTNOTE” language; “(8) *See 2011 AASHTO Green Book, Chapter 10, Section 10.9.5 for further guidance on Auxiliary Lanes.*”

- Page A-25 – Revised the following language in the third paragraph under “ROADWAYS WITH SHOULDERS” from; “*For Rural Local Roads, Urban Local Streets with paved shoulders and Collectors with design speeds \leq 45 mph, as much clear zone as practical should be provided, with a minimum of 10’ beyond the traveled way. (See 2011 AASHTO A Policy on Geometric Design of Highways and Streets, Chapters 4, 5 and 6). For an example, see Figure A-2-1, Case 2.” To; “Roadways” with paved shoulders “*should provide as much clear zone as practical in accordance with Table A-2-1, which is from the AASHTO Roadside Design Guide.*” (See 2011 AASHTO A Policy on Geometric Design of Highways and Streets, Chapters 4, 5 and 6). For an example, see Figure A-2-1, Case “1”.*

- Page A-26 – Revised the following language in the third sentence in the first paragraph under “ROADWAY WITH CURB” from; “*These urban environments are characterized by sidewalks beginning at the face of the curb...*” To; These urban environments are “*often*” characterized by sidewalks beginning at the “*back*” of the curb...

Revised the following language in the last sentence in the second paragraph under “ROADWAY WITH CURB” from; “*Breakaway designs shall be used for poles and appurtenances located less than 6 feet from the face of curb. See Figure A-2-1, Case 4 and Case 5.*” To; Breakaway designs shall be used for poles and appurtenances located less than 6 feet from the face of curb. See Figure “A-2-1A, Case 3 and Case 4”.

Revised the following language in the last sentence in the sixth paragraph under “ROADWAY WITH CURB” from; “*See Figure A-2-1, Case 5.*” To; See Figure A-2-1”A”, Case 4.

- Page A-28 – Revised “FIGURE A-2-1” Clear zone details to delete old Case 2 and rename Case 3 to Case 2 and made minor revisions to these details.
- Page A-29 – Revised “FIGURE A-2-1A” to rename Case 4 and 5 to Case 3 and 4 and made minor revisions to these details.
- Page A-51 – Revised the following language in the first sentence under “DESIGN EXCEPTION” from; “*However, under unusual conditions, it may be necessary to use values that are less than the minimum values shown.*” To; “*However, it may be necessary to use values that are less than the minimum values shown.*”

Revised the following language in the last sentence in the second paragraph under “DESIGN EXCEPTION” from; “*If approved, the completed Form LD-440 is to be attached to Form LD-430 Scoping Report for submittal at advertisement stage.*” To; If approved, the completed Form LD-440 is to be attached to Form “PM-100” Scoping Report for submittal at advertisement stage.

- Page A-61 – Revised the following language in the sentence under the first bullet from; “Roadside hardware upgrades will be implemented in accordance with VDOT’s Location and Design Division, Instructional and Informational Memorandum, IIM-LD-220 (or any subsequent revisions to the IIM), which can be accessed at <http://www.virginiadot.org/business/locdes/rd-ii-memoranda-index.asp>.”
To; Roadside hardware upgrades will be implemented in accordance with “Appendix I in this manual.”
- Page A-98 – Replaced “FIGURE A-5-9 SHARED USE PATH TRANSITION FROM ROADWAY ONTO BRIDGE FOR DESIGN SPEED > 45 MPH” with new detail.
- Page A-127 – Added new detail showing “Handrails” behind the sidewalk in fill areas.
- Page A-129 – Replaced “FIGURE A-5-20 SIDEWALK TRANSITION FROM ROADWAY ONTO BRIDGE FOR DESIGN SPEED > 45 MPH” with new detail.
- Page A-137 – Revised the following language in the third sentence in the first paragraph under “DRAINAGE FACILITIES AND EROSION AND SEDIMENT CONTROL MEASURES” from; “Guidelines for developing and approving an ESC Plan are contained in the latest version of IIM-LD-11.” To; Guidelines for developing and approving an ESC Plan are contained in the latest version of “VDOT’s Drainage Manual.”

Revised the following language in the last sentence in the first paragraph under “DRAINAGE FACILITIES AND EROSION AND SEDIMENT CONTROL MEASURES” from; “Guidelines for completing the SWPPP General Information Sheets are contained in the latest version of IIM-LD-246.” To; Guidelines for completing the SWPPP General Information Sheets are contained in the latest version of “VDOT’s Drainage Manual.”

- Page A-138 – Revised the following language in the fourth sentence in the second paragraph under “POST CONSTRUCTION STORMWATER MANAGEMENT PLAN AND VSMP CONSTRUCTION PERMIT” from; “Guidelines for developing and approving a post construction SWM Plan are contained in the latest version of IIM-LD-11 and 195.” To; Guidelines for developing and approving a post construction SWM Plan are contained in the latest version of “VDOT’s Drainage Manual” and IIM-LD-195.

Revised the following language in the fifth sentence in the second paragraph under “POST CONSTRUCTION STORMWATER MANAGEMENT PLAN AND VSMP CONSTRUCTION PERMIT” from; “Guidelines for completing the SWPPP General Information Sheets are contained in the latest version of IIM-LD-246.” To; Guidelines for completing the SWPPP General Information Sheets are contained in the latest version of “VDOT’s Drainage Manual.”

- Page A-142 – Revised the following language in the last sentence in the last paragraph from; “*Utility adjustments shall be handled in accordance with IIM-LD-140 and Road Design Manual, Chapters 2E and 2G, which can be accessed at <http://www.virginia-dot.org/business/locdes/rdmanual-index.asp>*” To; Utility adjustments shall be handled in accordance with “*VDOT Survey Manual, Chapter 13*” and Road Design Manual, Chapters 2E and 2G, which can be accessed at <http://www.virginia-dot.org/business/locdes/rdmanual-index.asp>
- Page A-143 – Revised the following language at the end of the first paragraph from; “*...by appropriate qualified personnel in accordance with the latest version of IIM-LD-11 and IIM-LD-246.*” To; ...by appropriate qualified personnel in accordance with the latest version of “*VDOT’s Drainage Manual.*”

Revised the following language at the end of the third paragraph from; “*...by appropriate qualified personnel in accordance with the latest version of IIM-LD-11 and IIM-LD-195.*” To; ...by appropriate qualified personnel in accordance with the latest version of “*VDOT’s Drainage Manual*” and IIM-LD-195.

- Page A-146 – Revised the following language at the end of the second paragraph from; “*...upon request during normal working business hours (See IIM-LD-246).*” To; ...upon request during normal working business hours (See “*VDOT’s Drainage Manual.*”)
- Page A-178 – Deleted the following language; “*Guardrail laps should be switched when traffic flow is reversed for a significant length of time.*”
- Page A-184 – Revised the following language in the last sentence in the third paragraph under “ITEMS TO BE ADDRESSED UNDER CONSTRUCTABILITY INCLUDE” from; “*Address the need for temporary drainage for construct, detours, slope drains, etc. (IIM LD-11).*” To; Address the need for temporary drainage for construct, detours, slope drains, etc. “*See VDOT’s Drainage Manual.*”
- Page A-186 - Deleted the following references under “Instructional and Informational Memoranda”; “*LD-11 Erosion and Sediment Control, construction entrances*” and “*LD-213 Pavement Markings, Construction Signs, Type III Barricades, Insertable Sheets to be included in applicable plan assemblies*”.

Added the following reference; “*VDOT’s Drainage Manual*”.

APPENDIX “B”

Page B-28 – Revised the following language in item #1 under K. ROADWAY DRAINAGE” from; “*All drainage facilities shall be designed in accordance with VDOT’s Drainage Manual and supplemental directives as amended. VDOT’s Location and Design Division Instructional and Informational Memorandum IIM-LD-121 Pipe Criteria and Drainage Instructions, located at <http://www.virginiadot.org/business/locdes/rd-ii-memoranda-index.asp> and the Virginia Erosion and Sediment Control Handbook, located at www.dcr.virginia.gov shall also be used in designing drainage systems.*” To; All drainage facilities shall be designed in accordance with VDOT’s Drainage Manual and supplemental directives as amended, and “*the Virginia Erosion and Sediment Control Handbook, located at www.dcr.virginia.gov shall also be used in designing drainage systems.*”

APPENDIX “B(1)”

- Page B(1)-7 – Revised the following language under Note 6 from; “*Lateral offset (measured from face of curb) is 1.5’ (Min) 2011 AASHTO Green Book Chapter 5 (Page 5-20).*” To; Lateral offset (measured from face of curb) “*should be a minimum of*” 1.5’ (Min) 2011 AASHTO Green Book Chapter 5 (Page 5-20).
- Page B(1)-27 – Revised the following language under item number 3 from; “*Use of curb and gutter has a direct relation to the design speed of the roadway of which it is a part, as follows:*” To; “*Use of curb and gutter:*”

Revised the following language under item 3a from; “*CG-6 may be used in urban and suburban settings (including subdivisions) on streets having a design speed not greater than 45 mph.*” To; “*See appropriate GS Standards in Appendix A.*”

Deleted the following language under item 3b; “*CG-7 may be used in lieu of CG-6, but must be used along all roadways having a design speed in excess of 45 mph in urban and suburban settings*” and replaced it with “*Rolltop curb and gutter and Ribbon curb may be used along subdivision streets having a design speed not greater than 25 mph.*” Note mph changed from 30 to 25 mph.

- Page B(1)-56 & 57 – Revised, added and relocated details on “Cluster Box Unit Turnouts – Curb & Gutter Typical Sections” to add additional information and added a detail for Cluster Box Unit Turnout in Shoulder areas.

APPENDIX “C”

- Page C-8 – Added the following language after paragraph three; “*For additional information, see http://www.ada.gov/restriping_parking/restriping2015.pdf*”
- Page C-20 – Added the following language after paragraph one; “*For additional information, see http://www.ada.gov/restriping_parking/restriping2015.pdf*”
- Page C-26 – Added the following language at the end of the paragraph under “FIELD INSPECTION AND FINAL DESIGN OF ABATEMENT FEATURES”; “*Note: 10 ft. minimum right of way is to be shown on the backside of the noise barrier for future maintenance.*”
- Page C-94 – Revised the following language from; “SECTION C-8 RAMP TERMINAL AND SPEED CHANGE LANE DESIGNS” To; SECTION C-8 RAMP TERMINAL AND “ACCEL / DECEL” LANE DESIGNS.
- Page C-95 – Added the following language under “Exit Ramps and Entrance Ramps”; “*Note: See GS-R Standards in Appendix A.*”
- Page C-100 – Revised the following language from; “TABLE C-8-1 LENGTH OF TAPER FOR SPEED CHANGE LANES ON PARALLEL RAMPS” To; TABLE C-8-1 LENGTH OF TAPER FOR “ACCEL/ DECEL” LANES ON PARALLEL RAMPS.

APPENDIX “F”

- Page F-27 – Revised the following language in the last sentence under “Spacing Standards for Commercial Entrances/Intersections Near Interchange Ramps” from; “*Note: For Limited Access Line, Fence Requirements and 100’ Urban / 300’ Rural FHWA minimum access control, See Figures 2E-10 and 2E-11 in Chapter 2E of the Road Design Manual.*” To; Note: For Limited Access Line, Fence Requirements and 100’ Urban / 300’ Rural FHWA minimum access control, See Figures “2E-9” and “2E-10” in Chapter 2E of the Road Design Manual.
- Page F-51 – Added the following language at the end of Alternative Intersection Design; “*For more information on the above mentioned Alternative Intersection Designs see;*”
- Page F-57 – Revised the following language in the last sentence in the second paragraph under “Lane Width” from; “*The lane width between the crossovers should meet standard lane width where possible but not exceed the lane width of the crossover.*” To; The lane width between the crossovers should meet standard lane width where possible but “*shall*” not exceed the lane width of the crossover.

- Page F-59 – Revised the following language in the second sentence in the last paragraph under “Sight Distance” from; “*This means the island between the left and right turn lanes from the ramp should not be.*” To; This means the island between the left and right turn lanes from the ramp should “*be designed accordingly*”.
- Page F-65 – Revised the following language under the seventh bullet from; “*Design should accommodate WB-67 trucks so that one truck...*” To; Design “*shall*” accommodate WB-67 trucks so that one truck...

Revised the following language under the ninth bullet from; “*Adequate lighting should be provided. VDOT requires all roadway lighting designs to meet the lighting criteria as discussed in the current IESNA publication, Recommended Practices for Roadway Lighting (RP-8). See IIM-LD-231.*” To; Adequate lighting should be provided. VDOT requires all roadway lighting designs to meet the lighting criteria as discussed in the current IESNA publication, Recommended Practices for Roadway Lighting (RP-8). See “*VDOT’s Traffic Engineering Design Manual, Chapter 2 for more information.*”

- Page F-67 – Revised the following language in the last sentence in the sixth paragraph under “Signing and Pavement Markings” from; “*If cantilever and/or full-span sign structures are used, they shall not exceed the maximum span lengths specified in the current version of IIM-LD-250.*” To; If cantilever and/or full-span sign structures are used, they shall not exceed the maximum span lengths specified in the current version of “*IIM-S&B-89.*”
- Page F-72 – Added the following language at the bottom of the page; (*) *For instructions on selection of design speed see, Appendix A, Section A-1.*
- Page F-76 – Revised the following language; “FIGURE 3-4 PASSING/LEFT TURN LANE ON TWO-LANE HIGHWAY” to add the following; FIGURE 3-4 PASSING/LEFT TURN LANE ON TWO-LANE “RURAL” HIGHWAY.
- Page F-77 – Revised the following language from; “*Lane/Shoulder/Pavement Transitions, Merging Tapers And Speed Change Lengths*” To; “*Taper Lengths (L) -*” Lane/ Pavement Transitions and Merging Tapers to the heading.

Revised the following language in the first paragraph under “Taper Lengths (L) - Lane/ Pavement Transitions and Merging Tapers” from; “*Lane/shoulder/pavement transitions typically occur where new or reconstructed roadways tie-in to existing roadways. This also applies to where roadways tie-in to bridges. Lane/pavement transitions, merging tapers and speed change lengths shall meet the minimum length provided by the following equations:*” To; “*Lane/pavement and merging tapers transitions typically occur where new or reconstructed roadways tie-in to existing roadways. This also applies to where roadways tie-in to bridges. Lane/pavement transitions and merging tapers shall meet the minimum length (L) provided by the following equations*”:

Revised the following language under “Taper Lengths (L) - Lane/ Pavement Transitions and Merging Tapers” from; “Source: 2009 MUTCD, Section 6” To; Source: 2009 MUTCD, Section 6, “Table 6C-4”.

Added the following language under “Taper Lengths (L) - Lane/ Pavement Transitions and Merging Tapers”; “*For Permanent Shoulder Taper (0.33 L Min.) and Shifting Taper (0.5 L Min.) Lengths.*”

Revised the following language under “Taper Lengths (L) - Lane/ Pavement Transitions and Merging Tapers” from; “*For Permanent Shoulder and Shifting Tapers see 2009 MUTCD, Section 6, Table 6C-3 and 6C-4.*” To; See 2009 MUTCD, Section 6, Table 6C-3.

- Page F-98 – Revised the following language under “*Acceleration Lanes*” to add “*/Deceleration*” to the title as well as the second paragraph to read “*Acceleration/Deceleration Lanes*”.
- Page F-106 – Added the following language to the end of the paragraph under “Private and Low Volume Commercial Entrance Grades”; “*When grades do exceed 10%, consideration should be given to paving the entrance.*”

APPENDIX “I”

- Page I-5 – Revised the following language in the first sentence in the third paragraph under “CONCRETE BARRIER” from; “*MB-12A, B, C 50” Concrete Median Barrier (Tall Wall) is for glare control where there is a high volume of truck traffic or other warrants as noted below.*” To; “*MB-12A, B, C 50” Concrete Median Barrier (Tall Wall) is for glare control where there is a high volume “(10% or greater)” of truck traffic or other warrants as noted below.*”
- Page I-10 – Added the following language after IMPACT ATTENUATORS;
“TYPE 1 RE-DIRECTIVE LOW-MAINTENANCE IMPACT ATTENUATORS AND IMPACT ATTENUATOR SERVICE

Impact attenuators will be installed in areas that have a design speed (for permanent installations) or a posted speed (for temporary installations) of ≥ 50 mph and have an ADT more than 25,000 VPH devices must come from the “Type 1 (Re-Directive Low-Maintenance)” category of the VDOT’s NCHRP 350 Approved Product List (See link below).”

- Page I-19 – Revised the following language in the first sentence in the first paragraph under “ASPHALT PAVING UNDER GUARDRAIL” from; “Asphalt paving is to be used under guardrail to control the growth of vegetation on projects which have asphalt concrete or portland cement concrete paved shoulders.” To; Asphalt paving “shall” be used under guardrail to control the growth of vegetation on projects which have asphalt concrete or portland cement concrete paved shoulders “unless otherwise directed by the District Maintenance Engineer.”

Added the following after the second paragraph under “ASPHALT PAVING UNDER GUARDRAIL”; “For details, see Standard MC-4.”

Revised the following language at the bottom of the page from; “For details, see Standard MC-4.” To; For details, see Standard MC-“3B”.

- Page I-21 – Revised the following language in the last sentence in the second paragraph under “GUARDRAIL INSTALLATION ADJACENT TO CURB” from; “When using CG-2 or CG-6 (6” barrier curb) guardrail shall be offset a minimum of 8’ behind the face of curb for low-speed roadways.” To; When using CG-2 or CG-6 (6” curb) “on low speed roadways,” guardrail shall be offset a minimum of 8’ behind the face of curb.

Revised the following language in the first sentence in the third paragraph under “GUARDRAIL INSTALLATION ADJACENT TO CURB” from; “For new construction or upgrading, where guardrail is aligned with the face of curb, use the recommended curb layout as shown below...” To; For new construction or upgrading, where guardrail is aligned with the face of curb, use the “typical” curb layout as shown below...

- Page I-22 – Revised Detail to add additional information and renamed to the following; “FIGURE I-3-3 TYPICAL CURB OFFSET LAYOUT FOR A TANGENT GUARDRAIL TERMINAL”