

ROAD DESIGN MANUAL REVISIONS

July, 2017

CHAPTER 2B

- Page 2B-3 – Added the following language after “COORDINATION WITH ENVIRONMENTAL DIVISION”; “*COORDINATION WITH LANDSCAPE ARCHITECT See IIM-LD-253 – Landscape Architecture Program as well Appendix B(1) (Streetscape and Landscape and Landscape Considerations).*”

CHAPTER 2D

- Page 2D-14 and 15 – Added “INTERSECTION SIGHT DISTANCE” table and language from Appendix F (this information is now located in Chapter 2D and Appendix F).

CHAPTER 2E

- Page 2E-42 – Added the following language at the end of both paragraphs on under “Urban, Suburban and Rural”, “Minor Construction” under “TEMPORARY CONSTRUCTION EASEMENTS”; “(see Code of Va. 33.2-1001)”.
- Page 2E-43 – Revised “FIGURE 2E-9 - DEPICTING TEMPORARY CONSTRUCTION EASEMENT AROUND ENTRANCES” to correct minor errors.
- Page 2E-50 – Revised the following language in the seventh bullet under “Items needed for Commonwealth Transportation Board (CTB) Approval” from; “Copy of the Public Hearing Brochure (including information on design elements or improvements, location, NEPA documents, etc., Provided by the District)” To; Copy of the Public Hearing Brochure “and Transcript” (including information on design elements or improvements, location, NEPA documents, etc., Provided by the District).
- Page 2E-60 – Revised the following language in the second sentence in the second paragraph under “DESCRIPTION” from; “Descriptions are to be referenced from items such as...” To; Descriptions are to be referenced from “the intersection of the construction baseline and” items such as...

CHAPTER 2F

- Page 2F-12 – Revised the following language in the first paragraph under “PROCESSING FORMAL PLAN REVISIONS” from: “A *Revision Data Sheet* is used by the designer to describe all formal revisions. Care must be taken to be concise, but explicit, in filling out this sheet. The right of way project number is to be shown at the top of the revision List each revised sheet with a concise, but explicit, description of the revision. The description should be detailed enough that anyone reading the revision could determine exactly what is being revised. Use parcel numbers and/or stations as references for the revision. A symbol with the revision number, i.e. R1, inside is to shown next to the revision. Make sure the revision is carried through all involved plan sheets (including cross sections and profiles) affected by the revision. It is permissible to list a series of sheets in some instances (e.g. cross section sheet numbers 14 through 29) and describe the revision on the Revision Data Sheet. See Sample Revision Data Sheet, Figure 2G-1. Each sheet in the plan assembly that is revised will also shows the revised date in the revision block at the upper right corner of the sheet. See VDOT CADD Manual, Chapter 5 for additional information regarding Right of Way revisions.” To: A Revision Data Sheet is used by the designer to describe all formal revisions. Care must be taken to be concise, but explicit, in filling out this sheet. The right of way project number is to be shown at the top of the revision. List each revised sheet with a concise, but explicit, description of the revision. The description should be detailed enough that anyone reading the revision “can” determine exactly what is being revised. Use parcel numbers and/or stations as references for the revision. A symbol with the revision number, i.e. R1, inside “a circle” is to “be” shown next to the revision. Make sure the “*Revision Data Sheet includes*” all “revised” plan sheets (including cross sections and profiles) affected by the revision. “**Note: Cross Sections are not to be renamed with an R#.**” It is permissible to list a series of sheets in some instances (e.g. cross section sheet numbers 14 through 29) and describe the revision on the Revision Data Sheet. See Sample Revision Data Sheet, Figure “2H-6”. Each sheet in the plan assembly that is revised will also show the revised date in the revision block at the upper right corner of the sheet. See VDOT CADD Manual, Chapter 5 for additional information regarding Right of Way revisions.

CHAPTER 2G

- Page 2G-36 – Revised the following language under “AS-BUILT PLANS” from; “Forward all “As-Built” plan information not captured through the formal plan revision process developed during construction to the District Location and Design Engineer. It is assumed that significant right of way and design changes made during construction would be captured through the formal revision process.

At a time convenient to the district, the "As Built" plan assembly shall be sent to the State Location and Design Engineer electronically with a request that the project records be stored in Falcon.” To; “*The Area Construction Engineer shall forward all “As-Built” plan information not captured through the formal plan revision process developed during construction to the District Location and Design Engineer. It is assumed that significant right of way and design changes made during construction would be captured through the formal revision process. The District Location and Design Engineer or Design Engineer shall send the electronic “As-Built” plan assembly to CADD Support with a request that the plans be stored in Falcon.*”

APPENDIX A

- Page A-11 – Revised the language in the second paragraph in “FOOTNOTE” #1 to add the following; For 4-lane non-Interstates (2 lanes in each direction) with independently graded median shoulders, an 8' graded median shoulder will be provided. For 6 or more lanes “(Non-Interstate and Interstate),” the graded median ...
- Page A-15 – Revised the language in “FOOTNOTE” #1 to add the following; Shoulder widths shown are for right shoulders and independently graded median shoulders. An 8' graded median shoulder will be provided when the mainline is 4 lanes (2 lanes in each direction). For 6 or more lanes “(Non-Interstate and Interstate),” the median shoulder...
- Page A-21 – Revised “FIGURE A-1-11 GEOMETRIC DESIGN STANDARDS FOR TEMPORARY DIVERSION (GS-10)” to add the following notes: “NOTE: WHEN GUARDRAIL IS REQUIRED IT SHALL BE INSTALLED IN ACCORDANCE WITH THE ROAD AND BRIDGE STANDARDS” and “NOTE: WIDTH FOR 2 WAY TRAFFIC SHALL NOT BE LESS THAN THE PROPOSED TYPICAL”
- Pages A-37 thru A-77 – Added the following; SECTION A-3 – ALTERNATIVE INTERSECTION AND INTERCHANGE DESIGN GUIDELINES. Most of this information was located in Appendix F and has been removed. Additional information has been incorporated.

Page A-47 – Revised detail for CG-3 Modified for the use on Roundabout Truck Aprons to show aggregate and concrete material.

- Page A-106 & 107 – Revised the following language after the first paragraph to add;
“On October 13, 2016, NACTO and the Global Designing Cities Initiative unveiled the NACTO Global Street Design Guide, the first-ever worldwide standard for redesigning city streets to prioritize safety, pedestrians, transit and sustainable mobility for an urban century. The Global Street Design Guide establishes a global baseline for designing streets and public spaces while redefining the role of streets in a rapidly urbanizing world. The Guide broadens how to measure the success of urban streets to include access, safety and mobility for all users, environmental quality, economic benefit, public health and overall quality of life.

The 2017 Act of the General Assembly passed HB 2023, which allows Road Diets to be implemented statewide without the loss of maintenance payments provided certain criteria are met. Highway maintenance payments; bicycle lanes. Provides that cities and towns that receive highway maintenance payments from the Commonwealth based on moving-lane-miles of highway will not have such payments reduced if moving-lane-miles of highway are converted to bicycle-only lanes, provided that the number of moving-lane-miles is not more than 50 moving-lane-miles or three percent of the municipality's total number of moving-lane-miles, whichever is less, and that prior to such conversion the city or town certifies that the conversion design has been assessed by a professional engineer and designed in accordance with certain national standards. Municipalities will not receive additional funds and cannot reduce their funding of road and street maintenance after a conversion. The bill also repeals the provision that allowed the City of Richmond to convert 20 moving-lane-miles to bicycle-only lanes. The full bill is available at <https://lis.virginia.gov/cgi-bin/legp604.exe?171+ful+CHAP0534>.

D. Any city converting an existing moving-lane that qualifies for payments under this section to a transit-only lane after July 1, 2014, shall remain eligible for such payments but shall not receive additional funds as a result of such conversion. Any city or town converting an existing moving-lane that qualifies for payments under this section to a bicycle-only lane after July 1, 2014, shall remain eligible for such payments, provided that (i) the number of moving-lane-miles converted is not more than 50 moving-lane-miles or three percent of the city's or town's total number of moving-lane-miles on July 1, 2014, whichever is less, and (ii) prior to any such conversion, the city or town certifies that the conversion design has been assessed by a professional engineer licensed in the Commonwealth pursuant to Chapter 4 (§ 54.1-400 et seq.) of Title 54.1 and that the assessment has demonstrated that (a) the level of service of the street to be converted will not be reduced or if it will be reduced that the associated roadway network will retain adequate capacity to meet current and future mobility needs of all users and (b) the conversion has been designed in accordance with the National Association of City Transportation Officials' Urban Bikeway Design Guide. Any such city or town shall not receive additional funds as a result of such conversion to a bicycle-only lane and shall annually expend funds on road and street maintenance and operations that are at least equal to funds spent on road and street maintenance and operations in the year prior to such conversion. For purposes of this subsection, "level of service" has the meaning provided in the Transportation Research Board's Highway Capacity Manual.

The following resources are available:

- *FHWA Road Diet Informational Guide*
- *FHWA Incorporating On-Road Bicycle Networks into Resurfacing Projects*
- Page A-108 – Revised the language in the last sentence in the fourth paragraph under “PLANNING AND DESIGN OF BICYCLE FACILITIES” to delete the following; *“When a bicycle facility is proposed on a project one set of pertinent plans, profiles and typical sections are to be provided to the Location and Design Bicycle/Pedestrian Facilities Coordinator prior to Preliminary Engineering, Field Inspection and after related comments are received at public information meetings.”*
- Page A-109 – Revised the following language in the second sentence under “EXISTING ROADS” from; *“It is necessary for the State Transportation and Mobility Planning Administrator...”* To; It is necessary for the State Transportation and Mobility Planning “Division” Administrator...
- Revised the following language in the bullet in both the first and second sentence under “MAJOR DEVELOPMENTS AND SITE PLANS” from; *“The bicycle element of the entire plan for the development must be reviewed and approved by the local government prior to final approval by the State Transportation and Mobility Planning Administrator. Appropriate review must be made, and communication regarding the resolution of bicycle facility systems must be carried on between the Transportation Land-Use Director, responsible District Traffic Engineer, and the State Transportation and Mobility Planning Administrator.”* To; The bicycle element of the entire plan for the development must be reviewed and approved by the local government prior to final approval by the State Transportation and Mobility Planning “Division” Administrator. Appropriate review must be made, and communication regarding the resolution of bicycle facility systems must be carried on between the Transportation Land-Use Director, responsible District Traffic Engineer, and the State Transportation and Mobility Planning “Division” Administrator.
- Page A-111 – Revised the following language in the first paragraph after the fourth bullet from; *“The Tables in this section contain roadway design treatments and widths to accommodate bicycles found in the Federal Highway Administration Report “Selecting Roadway Design Treatments to Accommodate Bicycles”, Publication Number FHWA-RD-92-073 January 1994. The controlling feature in the design of every bicycle facility is its location, whether it is on the roadway or on an independent alignment. The FHWA Report describes five basic types of facilities to accommodate bicyclists. The Shared Lane or Wide Outside Lane types may be appropriate designs for AASHTO’s Shared Roadway (No Bikeway Designation) or Signed Shared Roadway types. The shoulder types may be appropriate designs for AASHTO’s Shared Roadway (No Bikeway Designation). The following are FHWA definitions of their five types of bicycle facilities:”* To; *“The Tables in this section contain roadway design treatments and widths to accommodate bicycles. The controlling feature in the design of every bicycle facility is its location, whether it is on the roadway or on an independent alignment. Five basic types of facilities accommodate bicyclists. The following are the definitions of the five types of bicycle facilities:”*

- Page A-112 – Revised the following language in the first (bullet) paragraph from; *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'.*

To; “Paved” Shoulder - A “*minimum 4 feet*” paved portion of the roadway to the right of the edge stripe on which bicyclists may ride. Note: “*However*” delineating “(*signing or marking*)” bike lanes within the limits of a required shoulder area is not permitted.

Revised the following language in the second paragraph from; *‘Tables A-5-1 through A-5-6 indicates the appropriate design treatments given various sets of traffic operations and design factors. The design treatments are considered "desirable widths" by the FHWA. There are three basic types of roadway sections for bicycles; urban without parking, urban with parking, and rural. Controlled-access freeways are considered a special case and are not addressed by the tables.’* To; Tables A-5-1 through A-5-6 indicates the appropriate” *facility types based on design speed or posted speed and AADT. A combination of facility types may be appropriate based on users and/or Locality’s Transportation Plan.*” The design treatments are considered “*minimum criteria*”. There are three basic types of roadway sections for bicycles; “*curb and gutter*” without parking, “*curb and gutter*” with parking, and “*shoulder and ditch.*” Controlled-access freeways are considered a special case and are not addressed by the tables.

Revised the following language in the last sentence in the third paragraph from; *“The following tables do not include any specific recommendations for separate bike facilities and their design standards are addressed under VDOT/AASHTO Design Guidelines for Shared-Use Paths.”* To; The following tables “*also*” include any specific recommendations for “*shared use path and*” separate bike “*lane*” facilities and their design standards are addressed under VDOT/AASHTO Design Guidelines for Shared-Use Paths “*and VDOT/FHWA Design Guidelines for Separated Bike Lanes.*”

- Page A-113 – Revised language in “TABLE A-5-1 GROUP A BICYCLISTS, URBAN SECTION, NO PARKING”

Revised the following language to Table A-5-1 name from; “*TABLE A-5-1 GROUP A BICYCLISTS, URBAN SECTION, NO PARKING*” To; GROUP A BICYCLISTS, “(*CURB AND GUTTER*)” SECTION, WITHOUT PARKING.

Revised the following language in the first sentence in the first paragraph after “TABLE A-5-1” from; “*For Table A-5-1: wc and sl widths represent “usable widths” of outer lanes, measured from lane stripe to edge of gutter pan, rather than to the face of curb.*” To; For Table A-5-1: wc and sl widths represent “usable widths” of outer lanes, measured from lane stripe to “*front*” edge of gutter pan, rather than to the face of curb.

Revised the following language to the “Key” after the first paragraph from; “Key: *wc = wide curb lane; sh = shoulder; sl = shared lane; bl = bike lane; na = not applicable; truck, buses, and/or recreation vehicles (approximately 30 per hour or more)*” To; “Key: *wc = wide curb lane; sl = shared lane; bl = bike lane*”

Deleted the following; “Source: FHWA’s “Selecting Roadway Design Treatments to Accommodate Bicycles” dated 1994.”

Added the following language;

Notes:

1. *Shared Lane Markings (Sharrows) are recommended for use on wide curb lanes when the posted speed is less than or equal to 35 mph. Shared Lane Markings shall not be used in designated bike lanes.*
2. *When design year ADT exceeds 2000 VPD, with $\geq 5\%$ total Truck and Bus usage and the roadway is designated as an AASHTO Approved U.S. Bike Route (1, 76 and 176) or the roadway is designated as a Bicycle Route on a Locality’s Transportation Plan, a minimum 5 feet bike lane shall be provided.*

- Page A-114 – Revised language in “TABLE A-5-2 GROUP A BICYCLISTS, URBAN SECTION, NO PARKING”

Revised the following language to Table A-5-2 name from; “TABLE A-5-2 GROUP A BICYCLISTS, URBAN SECTION, WITH PARKING” To; GROUP A BICYCLISTS, “(CURB AND GUTTER)” SECTION, WITH PARKING.

Revised the following language in the first sentence after “TABLE A-5-2” from; “For Table A-5-2: wc widths represent “usable widths” of outer travel lanes, measured from the left edge of the parking space (8 to 10 ft. minimum from the curb face)...” To; For Table A-5-2: wc widths represent “usable widths” of outer travel lanes, measured from the left edge of the parking space (“7” to “8” ft. minimum from the curb face)...

Revised the following language to the “Key” after the first paragraph from; “Key: *wc = wide curb lane; sh = shoulder; sl = shared lane; bl = bike lane; na = not applicable; truck, buses, and/or recreation vehicles (approximately 30 per hour or more)*” To; Key: *wc = wide curb lane; “sbl = separated bike lane;” bl = bike lane*

Deleted the following; “Source: FHWA’s “Selecting Roadway Design Treatments to Accommodate Bicycles” dated 1994.”

Added the following language;

Notes:

1. *Shared Lane Markings (Sharrows) are recommended for use on wide curb lanes when the posted speed is less than or equal to 35 mph. Shared Lane Markings shall not be used in designated bike lanes.*
2. *When design year ADT exceeds 2000 VPD, with $\geq 5\%$ total Truck and Bus usage and the roadway is designated as an AASHTO Approved U.S. Bike Route (1, 76 and 176) or the roadway is designated as a Bicycle Route on a Locality’s Transportation Plan, a minimum 5 feet bike lane shall be provided.*
3. *Ø 3. On-Street Parking is only allowed on roadways functionally classified as collectors or locals where the posted speed is 35 mph or less.*

- Page A-115 – Revised language in “TABLE A-5-3 GROUP A BICYCLISTS, RURAL SECTION”

Revised the following language to Table A-5-3 name from; “*GROUP A BICYCLISTS, RURAL SECTION*” To; “*GROUP A BICYCLISTS, SHOULDER AND DITCH SECTION*”

Revised the following language in the first sentence in the first paragraph from; “*For Table A-5-3: wc and sl widths represent...*” To; For Table A-5-3: “*wo” and sl widths represent...*”

Revised the following language to the “Key” after the first paragraph from; “*Key: wc = wide curb lane; sh = shoulder; sl = shared lane; bl = bike lane; na = not applicable; truck, buses, and/or recreation vehicles (approximately 30 per hour or more)” To; Key: wo = wide “*outside*” lane; sh = “*paved*” shoulder; sl = shared lane*

Deleted the following language; “*Source: FHWA’s “Selecting Roadway Design Treatments to Accommodate Bicycles” dated 1994.*”

Added the following language;

Notes:

1. *Delineating (signing or marking) bike lanes with the limits of the required paved shoulder area is not permitted. In order to delineate the bike lane, the bike lane shall be provided in addition to the required paved shoulder area.*
2. *Shared Lane Markings shall not be used on shoulders.*
3. *When design year ADT exceeds 2000 VPD, with >5% total Truck and Bus usage and the roadway is designated as an AASHTO Approved U.S. Bike Route (1, 76 and 176) or the roadway is designated as a Bicycle Route on a Locality’s Transportation Plan, a minimum 5 feet paved shoulder shall be provided.*

- Page A-116 – Revised language in “TABLE A-5-4 GROUP B/C BICYCLISTS, URBAN SECTION, NO PARKING”

Revised the following language to Table A-5-4 name from; “*TABLE A-5-4 GROUP B/C BICYCLISTS, URBAN SECTION, NO PARKING*” To; GROUP B/C BICYCLISTS, “*(CURB AND GUTTER)*” SECTION, “*WITHOUT*” PARKING.

Revised the following language in the first sentence in the first paragraph from; “*For Table A-5-4: wc widths represent “usable widths” of outer lanes, measured from lane stripe to edge of gutter pan...*” To; For Table A-5-4: wc widths represent “usable widths” of outer lanes, measured from lane stripe to “*front*” edge of gutter pan...

Revised the following language in the fourth sentence in the first paragraph from; “*For VDOT projects, the bike lane stripe will be 4 feet minimum from the edge of the gutter pan.*” To; For VDOT projects, the bike lane stripe will be 4 feet minimum from the “*front*” edge of the gutter pan.

Revised the following language to the “Key” after the first paragraph from; “Key: *wc = wide curb lane; sh = shoulder; sl = shared lane; bl = bike lane; na = not applicable; truck, buses, and/or recreation vehicles (approximately 30 per hour or more)*” To; Key: *wc = wide curb lane; bl = bike lane; “sup = shared use path; sbl = separated bike lane”*

Deleted the following language; “Source: FHWA’s “Selecting Roadway Design Treatments to Accommodate Bicycles” dated 1994.”

Added the following language;

Notes:

1. *Shared Lane Markings (Sharrows) are recommended for use on wide curb lanes when the posted speed is less than or equal to 35 mph. Shared Lane Markings shall not be used in designated bike lanes.*
2. *When design year ADT exceeds 2000 VPD, with $\geq 5\%$ total Truck and Bus usage and the roadway is designated as an AASHTO Approved U.S. Bike Route (1, 76 and 176) or the roadway is designated as a Bicycle Route on a Locality’s Transportation Plan, a minimum 5 feet bike lane shall be provided.*

- Page A-117 – Revised language in “TABLE A-5-5 GROUP B/C BICYCLISTS, URBAN SECTION, WITH PARKING”

Revised the following language to Table A-5-4 name from; “TABLE A-5-5 GROUP B/C BICYCLISTS, URBAN SECTION, WITH PARKING” To; GROUP B/C BICYCLISTS, “(CURB AND GUTTER)” SECTION, WITH PARKING.

Revised the following language in the first sentence in the first paragraph from; “For Table A-5-5: wc widths represent “usable widths” of outer lanes, measured from the left edge of the parking apace (8 to 10 ft. minimum ...” To; For Table A-5-5: wc widths represent “usable widths” of outer lanes, measured from the left edge of the parking space (“7” to “8” ft. minimum...

Revised the following language to the “Key” after the first paragraph from; “Key: *wc = wide curb lane; sh = shoulder; sl = shared lane; bl = bike lane; na = not applicable; truck, buses, and/or recreation vehicles (approximately 30 per hour or more)*” To; Key: *wc = wide curb lane; bl = bike lane; “sup = shared use path; sbl = separated bike lane”*

Deleted the following language; “Source: FHWA’s “Selecting Roadway Design Treatments to Accommodate Bicycles” dated 1994.”

Added the following language;

Notes:

1. *Shared Lane Markings (Sharrows) are recommended for use on wide curb lanes when the posted speed is less than or equal to 35 mph. Shared Lane Markings shall not be used in designated bike lanes.*

2. When design year ADT exceeds 2000 VPD, with $\geq 5\%$ total Truck and Bus usage and the roadway is designated as an AASHTO Approved U.S. Bike Route (1, 76 and 176) or the roadway is designated as a Bicycle Route on a Locality's Transportation Plan, a minimum 5 feet bike lane shall be provided.
 3. \emptyset 3. *On-Street Parking is only allowed on roadways functionally classified as collectors or locals where the posted speed is 35 mph or less.*
- Page A-118 – Revised language in “TABLE A-5-6 GROUP B/C BICYCLISTS, RURAL SECTION”

Revised the following language to Table A-5-6 name from; “*GROUP B/C BICYCLISTS, RURAL SECTION*” To; GROUP B/C BICYCLISTS, “*SHOULDER AND DITCH*” SECTION

Revised the following language to the “Key” from; “*Key: sh = shoulder;*” To; Key: sh = “*paved*” shoulder; “*sup = shared use path*”

Deleted the following language; “*Source: FHWA’s “Selecting Roadway Design Treatments to Accommodate Bicycles” dated 1994.*”

Added the following language;

Notes:

1. Delineating (signing or marking) bike lanes within the limits of the required paved shoulder area is not permitted. In order to delineate the bike lane, the bike lane shall be provided in addition to the required paved shoulder area.
2. When design year ADT exceeds 2000 VPD, with $\geq 5\%$ total Truck and Bus usage and the roadway is designated as an AASHTO Approved U.S. Bike Route (1, 76 and 176) or the roadway is designated as a Bicycle Route on a Locality's Transportation Plan, a minimum 5 feet bike lane shall be provided.

Revised the following language in the third and fifth Sentences under “VDOT/AASHTO DESIGN GUIDELINES” from; “*Individuals involved in the planning and design of bicycle facilities should be familiar with and refer to the latest AASHTO Guides, for additional information. AASHTO criteria will be considered as "minimum criteria" by designers. These design guidelines consider four types of bicycle facilities: Shared Roadway (No Bikeway Designation), Signed Shared Roadway, Bike Lane and Shared-Use Path*” To; Individuals involved in the planning and design of bicycle facilities should be familiar with and refer to the latest AASHTO Guides, “*FHWA Guides and NACTO Guides*” for additional information. AASHTO criteria will be considered as "minimum criteria" by designers. These design guidelines consider four types of bicycle facilities: Shared Roadway (No Bikeway Designation), Signed Shared Roadway, Bike Lane and Shared-Use Path “*and Separated Bike Lanes.*”

- Page A-119 – Revised the following language after the first paragraph under “Paved Shoulders” from; “*On rural and urban collector and local roads and streets, provide minimum 5 feet wide paved shoulders when:*” To; On rural and urban collector and local roads and streets, “*with shoulder and ditch typical sections*” provide minimum 5 feet wide paved shoulders when:.

- Page A-120 – Revised the following language to the second bullet from; “*On-Street Parking*” To; On-Street Parking “*with Parking Stripe or Stalls*”.

Revised the following language at the end of the paragraph under “On-Street Parking with Parking Stripes or Stalls” from; “(See Figure A-5-1 section 1)” To; (See Figure A-5-1 “(1) below”).

- Page A-121 – Added the following language at the top of the page; “*On-Street Parking Without Parking Stripes or Stalls (See Figure A-5-1 (2) below)*”.

Revised the following language in the first paragraph under “BIKE LANES” from; “*Bike lanes are incorporated into a roadway design when it is desirable to delineate available road space for use by bicyclists and motorists. Delineating bike lanes within the limits of a required paved shoulder area is not permitted. Urban settings will typically use a bike lane to accommodate bicyclists (See Figure A-5-2, (1)). Rural areas will normally make use of a 4’ minimum paved shoulder to accommodate bicyclists (See Figure A-5-2, (2)).*” To; “*Bike lanes are incorporated into a roadway design when it is desirable to delineate available road space for use by bicyclists and motorists. Urban settings will typically use a bike lane to accommodate bicyclists (See Figure A-5-2, (1) below). In Rural areas a minimum 4 feet paved shoulder is required to accommodate bicyclists (See Figure A-5-2, (2) below). However delineating (signing or marking), bike lanes within the limits of the required paved shoulder area is not permitted.*”

Revised the second and third sentences in the second paragraph under “BIKE LANES” from; “*Two-way bike lanes on one side of the roadway are not recommended when they result in bicycle riding against the flow of motor vehicle traffic. In general, on one-way streets, a bike lane should be placed only on the right side of the street.*” To; “*A*” two-way bike lane on one side of the roadway “*is*” not “*permitted unless the bike lane physically separated from the travelway. See FHWA Separated Bike Lane Planning and Design Guides.*” In general, on one-way streets, a bike lane should be placed only on the right side of the street “*unless the street is designated as a Bike Boulevard. See NACTO Urban Bikeway Design Guide.*”

- Page A-122 – Revised the “Title” of detail number 1 from; “(1) BIKE LANE” To; (1) BIKE LANES “WITHOUT ON-STREET PARKING”.

Revised the “Title” of detail number 2 from; “(2) BIKE LANES WITH GRADED SHOULDERS” To; (2) BIKE “ACCOMMODATIONS WITHIN THE LIMITS OF THE REQUIRED PAVED” SHOULDER “AREA”

Revised the following language to the first “Footnote” under detail number 2 from;
⊗ “*Delineating bike lanes within the limits of a required paved shoulder area is not permitted.*” To; ⊗ Delineating “(signing or marking)” bike lanes within the limits of “*the*” required paved shoulder area is not permitted.

Added second “Footnote” under detail number 2; “⊗⊗ *4 feet minimum paved shoulder is required to accommodate bicyclists.*”

Revised the following language to the third “Footnote” under detail number 2 from;
“⊗⊗ *5 feet minimum bike lane is required from the face of guardrail or other roadside barriers.*” To; ⊗⊗ 5 feet minimum “*paved shoulder*” is required from the face of guardrail or other roadside barriers.

- Page A-123 – Added the following language in the second bullet after the first paragraph; “*Delineating (signing or marking) bike lanes within the limits of a required paved shoulder area is not permitted.*”, and “*4 feet minimum paved shoulder is required to be considered a bicycle accommodation.*”

Added the following language at the end of the last paragraph; “*The approach paved shoulder width should also continue parallel to the left of the right-turn lane, where feasible, to accommodate bicyclists continuing through the intersection.*”

- Page A-149 – Revised the following language in the first sentence in the second paragraph under “GUIDELINES FOR CURB RAMP LOCATIONS” from; “*Curb ramps should be provided...*” To; Curb ramps “*shall*” be provided...
- Page A-150 – Revised the following language in the first sentence under the third paragraph from; “*Typical situations depicting the placement of curb ramps in new construction...*” To; Typical situations depicting the placement of curb ramps “*and detectable warning surfaces*” in new construction...
- Page A-151 – Revised the following language in the first sentence under “RAMP” from;
“*A curb ramp consists of a ramp, with a maximum running slope of 12:1 (8%), and its accompanying...*” To; A curb ramp consists of a ramp, with a maximum running slope of 12:1 (8%), “*with Detectable Warning Surface extending the full width of the ramp floor or Pedestrian Access Route (sidewalk)*” and its accompanying...
- Page A-167 – Added new Curb Ramp detail at the bottom of the page.
- Page A-172 – Revised the following language in the first sentence under “Separation – Curb and/or Curb and Gutter Typical Sections” from; “*Sidewalks shall be separated both vertically and horizontally from the adjacent roadway.*” To; Sidewalks shall be separated both vertically, “*by curb or curb and gutter*” and horizontally from the adjacent roadway.

Revised the following language under “Separation – Shoulder and Ditch Typical Section” from; “...converted to a curb and gutter section. (Note: Placement of sidewalk within the shoulder area is not permitted.)” To; converted to a curb “or curb and” gutter section. “(Note: Placement of sidewalk within the shoulder area is not permitted.)”

APPENDIX B(1)

- Page B(1)-42 – Revised “FIGURE 11 – SETBACK DETAILS WITH SHOULDER AND DITCH” in the third sentence to the note under “Clear Zone” from; “No objects over 6 inches...” To; No objects over “4” inches...

APPENDIX C

- Page C-21 – Added the following language at the end of “BUS (TRANSIT) STOPS, SHELTERS AND BOARDING AND ALIGHTING AREAS”; “Note: Bus Shelters are considered an Occupiable Space / Building and require a Building Permit. See Chapter 2B for more details.”

APPENDIX E

- Page E-2 – Revised the following language in the first sentence in the second paragraph from; “The formal Constructability Review is the responsibility of the District Construction Engineer ...” To; The formal Constructability Review is the responsibility of the “Area” Construction Engineer ...

Revised the following language in the first sentence in the fourth paragraph from; “The next four constructability reviews should include the participation of the design divisions or groups and the residency under the leadership of the District Construction Engineer.” To; The next four constructability reviews should include the participation of the design divisions or groups and the residency under the leadership of the “Area” Construction Engineer.

Revised the following language in the first sentence in the fifth paragraph from; “These teams need to be comprised of personnel who are familiar and experienced in the type of work included in the project such as roadway, utilities, drainage, bridge, landscaping, environmental, traffic flow, maintenance, etc. and is led by the District Construction Engineer or Designee.” To; These teams need to be comprised of personnel who are familiar and experienced in the type of work included in the project such as roadway, utilities, drainage, bridge, landscaping, environmental, traffic flow, maintenance, etc. and is led by the “Area” Construction Engineer or Designee.

APPENDIX F

- Page F-1 – Added the following definition; “**Agritourism Entrance:** “Agritourism activity” as “any activity carried out on a farm or ranch that allows members of the general public, for recreational, entertainment, or educational purposes, to view or enjoy rural activities, including farming, wineries, ranching, historical, cultural, harvest-your-own activities, or natural activities and attractions Code of Va. §3.2-6400.”
- Pages F-10 thru F-13 – Added the following language for; “ACCESS CONTROL POLICY (FULL AND PARTIAL)”
- Page F-18 – Revised the following language to add the Virginia Administrator Code “Reg. VAC 30-73-120.C4” under “Figure 2-2 Vehicular Circulation Between Adjoining Properties”
- Page F-26 – Revised the following language under “Local Street” in “TABLE 2-2 MINIMUM SPACING STANDARDS FOR COMMERCIAL ENTRANCES, INTERSECTIONS AND MEDIAN CROSSOVERS” from; “Commercial Entrance Spacing” To; “See Note 6”.

Revise the following language in the last bullet under “Note: E. Roundabout” from; “Are measured from the inscribed circle diameter (Yield Line).” To; Are measured from “the outer edge of” the inscribed circle diameter (Yield Line).

- Page F-28 – Added the following language to “Note #6”; “No commercial entrance shall be allowed within the functional area of an intersection without prior approval from the Engineer at the Residency or District.” For commercial entrances on local streets (not individual private entrance driveways to homes), a spacing distance of 50 feet between entrance radii is specified to assure a minimum separation between such entrances (illustrated in Figure 4-11).

“No commercial entrance shall be within 115 feet minimum measured from the outer edge of the inscribed circle of a Roundabout, without prior approval from the Engineer at the Residency or District. If an entrance is approved within the 115 feet of the outer edge of the inscribed circle it shall be “Right-In, Right-Out” Only (115 feet minimum is based on the stopping sight distance for 20 mph).”

- Page F-33 thru F-34 – Added the following language for; “Traffic Signals and Median Crossovers”
“Removal of a Traffic Signal” (additional language)
“Installation of a Traffic Signal” (additional language)

- Page F-35 – Added the following language at the top of the page;
Median Crossovers Requested by the Private Sector (MPS) (24VAC30-73-50)

Any new median crossover designated MPS are to be approved by the State Location & Design Engineer. The basic process is the same as for non-MPS roadways (below), but must be forwarded to the State Location and Design Engineer for approval.

*Median Crossovers Requested by the Private Sector (Non-MPS)
(24VAC30-73-50)*

Added the following language after the second and third paragraph;

- *Responsible Person: District Traffic Engineer*

Added the following language after the fourth paragraph;

- *Responsible Person: District Traffic Engineer and State Location & Design Engineer*

- Page F-36 – Added the following language at the top of the page under; Median Crossovers on a Highway Construction Project “(MPS)”

“Any new median crossover on MPS is to be approved by the State Location & Design Engineer. The basic process is the same as for non- MPS roadways (below), but must be forwarded to the State Location and Design Engineer for approval.”

Median Crossovers on a Highway Construction Project “(Non- MPS)”

Added the following language after the second and third paragraph;

- *Responsible Person: District Location & Design Engineer*

Added the following language after the fourth paragraph;

- *Responsible Person: District Location and Design Engineer (Spacing), District Engineer/Administrator (Closings) or State Location and Design Engineer (Sight Distance)*

- Pages F-42 thru F-44 – Added “STOPPING SIGHT DISTANCE” language and tables.
- Page F-48 – Added the following language prior to “Roundabout Policy”; “*Alternative Intersection and Interchange Policies*”

Added the following language after the second paragraph under “Roundabout Policy”; “*The Department’s Roundabout Analysis Selection Tools listed below shall be used to determine if a roundabout is a feasible alternative.*”

- Page F-49 thru F-51 – Added the following language for; “*Alternative Intersection and Interchange Policy*”.

- Page F-59 – Revised the following language under “FIGURE 3-4 PASSING/LEFT TURN LANE ON TWO LANE RURAL HIGHWAY” to rename this figure to “FIGURE 3-4 PASSING/LEFT TURN LANE” and add the page number to the source.
- Page F-92 – Revised the following language under “Entrance Radius” from; “*The entrance radius is designed to accommodate the design vehicle...*” To; The entrance radius “*shall be*” designed to accommodate the design vehicle...

Revised the following language to TABLE 4-3 DESIGN VEHICLE AND TURNING RADIUS BY LAND USE” from; “WB-62 Truck” in three locations To; “WB-67 Truck”.

Revised the following language to TABLE 4-3 DESIGN VEHICLE AND TURNING RADIUS BY LAND USE” from; “*Single Unit Truck*” To; “*Single Unit Truck SU-30*”

- Page F-98 – Added the following language after the second sentence in the first paragraph under “Corner Clearance on a Minor Side Street”; “*Corner clearance can, at the discretion of the VDOT reviewer or designer, apply to connections to entrances or private roads that intersect with a VDOT major roadway if: a) the entrance or private road has the appearance of and operates like a street or if it’s intersection with the VDOT roadway is signalized and b) the connection to the entrance or private road may impact the operation of the entrance or private road’s intersection with the VDOT roadway.*”
- Page F-99 – Revised the following language in the third paragraph from; “***The minimum downstream corner clearance is 225’***, which equals the intersection sight distance for 20 mph (see Table 2-7). *Additional length will be required as directed by the Engineer at the District if the intersection is signalized or signalization is anticipated.*” To; ***The downstream corner clearance is 225’ “minimum”***, which equals the intersection sight distance for 20 mph (see Table 2-7). Additional length will be required as directed by the Engineer at the “*Residency or*” District.
- Page F-114 – Added the following language;
“*Agritourism Entrance Standards*

Moderate Volume Commercial Entrance may be permitted by the Engineer at the Residency or District if the proposed use includes agritourism activity as defined in Code of Virginia §3.2-6400. Entrance design shall include U of 50’ minimum and W of 30’ minimum to accommodate BUS-45 ingress and egress movements. Entrances shall be located to provide adequate intersection sight distance.

Code of Va. §3.2-6400 defines an “agritourism activity” as “any activity carried out on a farm or ranch that allows members of the general public, for recreational, entertainment, or educational purposes, to view or enjoy rural activities, including farming, wineries, ranching, historical, cultural, harvest-your-own activities, or natural activities and attractions.”

APPENDIX J

- Page J-1 – Revised the following language in the second paragraph under “INTRODUCTION” from; “When guardrail is wholly or partially within the project limits for any construction project, including heavy maintenance and RRR projects, all existing guardrail systems and components including terminals shall be upgraded to the latest standard in accordance with current VDOT Road and Bridge Standards for the following situations:” To; When guardrail is wholly or partially within the project limits for any construction project, including heavy maintenance and RRR projects, “Traffic Engineering Division shall perform a guardrail assessment on” all existing guardrail systems and components including terminals “Refer to Traffic Engineering Division IIM-TE-366 and IIM-TE-367. Unless Traffic Engineering Division determines that the guardrail can be eliminated,” the guardrail shall be upgraded to the latest standard in accordance with current VDOT Road and Bridge Standards for the following situations:
- Page J-18 – Deleted the following language at the beginning of the page; “For additional guidance refer to Traffic Engineering Memos TE-366 and TE-367.”

Revised the following language in the last sentence in the first paragraph from; “Attention should be given to the following factors in evaluating these locations:” To; “Traffic Engineering Division shall perform a site assessment where” attention should be given, “but not limited” to the following factors in evaluating these locations:.

Added the following language to item number 2;

- (2) Eliminating or shortening existing run of barrier:
- remove or relocate fixed objects
 - regrade to flatten fill slopes
 - verify Length of Need (LON)