

IMPERIAL ROAD DESIGN MANUAL
REVISIONS March 2009

APPENDIX “B(1)”

- Page B(1)-1 – Replaced the following language; “*Subdivision Street Design Requirements*” with “*Secondary Street Acceptance Requirements*” in the first paragraph.

Replaced the follows language in the second paragraph from; “*For the purposes of this document, “Resident Engineer” means that employee who oversees the land development functions for the residency. This may be the Resident Engineer, Residency Administrator or that employee designated to perform the “responsible charge” duties for the residency or other designee as determined by the District Administrator.*” with “*For the purposes of this document, “District Administrator’s Designee” means that employee who oversees the land development functions in a particular geographic area. This may be the Residency Administrator, area engineer or that employee designated to perform the “responsible charge” duties for land development as designated by the District Administrator.*”

Replaced the follows language in the third paragraph from; “*In the event of conflict between this appendix and other provisions of the Road Design Manual, Road and Bridge Standards, and the Subdivision Street Requirements, the Resident Engineer shall determine the governing provision. As indicated in the Subdivision Street Requirements, any requirements of the subdivision ordinance of the locality that are greater than these requirements shall govern. The Resident Engineer is provided considerable discretionary authority in the application of standards related to local subdivision streets.*” with “*In the event of conflict between this appendix and other provisions of the Road Design Manual, Road and Bridge Standards, and the Secondary Street Acceptance Requirements, the District Administrator’s Designee shall determine the governing provision. As indicated in the Secondary Street Acceptance Requirements, any requirements of the subdivision ordinance of the locality that are not in conflict with these requirements shall govern. The Engineer is provided considerable discretionary authority in the application of standards related to local subdivision streets.*”

- Page B(1)-2 – Revised the following language; added “site” and deleted “subdivision” in the first paragraph.

Deleted “*In PUD developments, trip generation rates should be developed for each type of land use and combined to determine projected traffic for each of the subdivision streets.*” at the end of the second paragraph.

Added “site” in the first sentence in the second paragraph. Also added the following language at the begin of paragraph two; “*Traffic generation developed to meet Chapter 527 (Traffic Impact Analysis Regulations) may be utilized to meet this requirement, at the engineer’s discretion.*”

Replaced the following language; “*Subdivision*” with “*secondary*” in the third paragraph.

- Page B(1)-3 – Replaced “*Resident Engineer*” with “*District Administrator’s Designee*” under “Criteria”.

Deleted the second sentence in the second paragraph, “*Service to long distance through traffic is discouraged.*”

- Page B(1)-4 – Replaced “*Resident Engineer*” with “*District Administrator’s Designee*” under item number (5), also under “Approval” in the first sentence and at the end of the second paragraph under “Terrain”.

Added item 6 “*The location of stub outs on adjoining property and the existing land use of such adjacent property, if applicable, and the location of any proposed stub outs within the network addition, if applicable.*”

Added “*Response is required per SSAR within 45 calendar days.*” At the end of item 3 under “Approval”.

- Page B(1)-5 - Replaced the following language under “LOCAL ROADWAY”; “*Any street functionally classified as "local" shall have a minimum design based on the Geometric Design Standards for Residential Subdivision Streets, Tables 1-3 and other applicable provisions of this guide. These standards are depicted on the subsequent pages. The following criteria shall apply to the design of all subdivision streets functionally classified as "local":*” with “*The following Geometric Design Standards shown in Tables 1 thru 3 are the minimum design criteria that shall apply to the design of all new residential streets functionally classified as "local" streets:*”.
- Page B(1)-6 – Replaced “*Resident Engineer*” with “*District Administrator’s Designee*” under item 2.
- Page B(1)-7 – Revised “GEOMETRIC DESIGN STANDARDS FOR RESIDENTIAL SUBDIVISION STREETS (GS-SSR) TABLE 1 - CURB AND GUTTER SECTION from three to two “Projected Traffic Volume” categories and revised numerous values. Also revised the numbered notes.
- Page B(1)-8 – Revised “GEOMETRIC DESIGN STANDARDS FOR RESIDENTIAL SUBDIVISION STREETS (GS-SSR) TABLE 2 - SHOULDER AND DITCH SECTION from three to two “Projected Traffic Volume” categories and revised numerous values. Also revised the numbered notes.
- Page B(1)-9 – Revised numerous values and the numbered notes in the “GEOMETRIC DESIGN STANDARDS FOR RESIDENTIAL SUBDIVISION STREETS, TABLE 3 – ONE-LANE (ONE-WAY) SUBDIVISION STREETS.
- Pages B(1)-10 thru B-16 – Added parking typical sections FIGURES 1.1 thru 1.7.

- Page B(1)-17 – Revised pavement width under “Two-way Rural (shoulder)” from 18 feet to 24 feet.
- Page B(1)-20 - Replaced “*Resident Engineer*” with “*District Administrator’s Designee*” under “PAVEMENT DESIGN” in item 2.

Added the following language under “PAVEMENT WIDTH” at the end of item 1. “*also see Typical Sections Figures 1.1 through 1.7.*” Also replaced “should” with “shall”.

Revised the following language under “PAVEMENT WIDTH”, item 2. as follows; “Unless otherwise indicated, the use of curb and gutter anticipates on street parking. Parking along streets with shoulder and ditch design is *not desirable*. However, if the locality desires to allow parking on a shoulder and ditch design, a minimum width of travel way of 22 ft (situations with ADT<2000) and 24 ft (ADT>2000) is required. Please refer to Table 2 of this Chapter for further information.”

Revised item 3. under “PAVEMENT WIDTH” to read as follows; “*Designated parking widths may be utilized in lieu of shoulders; however, the minimum width of travel way must be maintained.*”

Revised angle of intersection to read “*between 60 and 90 degrees*” under INTERSECTIONS

- Page B(1)-21 - Replaced the following language under item 2. “SPACING”; “*Offset intersections are discouraged. Desirable spacing between streets entering from opposing side of the major street is 250 feet. Desirable block lengths, or spacing between streets entering from the same side of the major street is 500 feet. For low volume local streets with ADT <1500 vpd the minimum spacing between streets entering from opposite sides of the major street should be no less than 125 feet and block length should be no less than 250 feet.*” with “*Offset intersections are discouraged. Intersections or intersecting streets on the same side or opposite sides shall be a minimum of 200 feet and this distance shall be adjusted upward based on upstream and downstream intersection turning movement volumes.*”

Replaced “FIGURE 3 – INTERSECTION DESIGN with updated drawing and revised minimum spacing values.

Deleted the following language under “MINIMUM RADII”; “*For subdivision streets the following considerations shall apply:*” and “*For turns from roadways with less than 1500 vpd onto roadways under 1500 vpd.*”

Replaced “Should” with “Shall” in the last sentence in the first paragraph under “MINIMUM RADII”.

Added the following language in the second paragraph under “MINIMUM RADII”; The minimum “*affective*” intersection radii on subdivision streets “*shall not be less than*” 25 feet. If intercity buses, “*single unit trucks*” or standard 65-passenger school buses are expected to use the street, the minimum radius should be increased to accommodate the turning radius of such vehicles.

- Page B(1)-22 - Deleted the following language at the beginning of this page;
 - (1) *The minimum intersection radii on subdivision streets should normally be 25 feet. If intercity buses or standard 65-passenger school buses are expected to use the street, the minimum radius should be increased to accommodate the turning radius of such vehicles. Minimal encroachment into the opposing lane of traffic of the receiving street is expected. A larger radius or additional pavement at the intersection may be required on shoulder and ditch sections to avoid shoulder rutting. When the traffic volume of the receiving street is less than 400 vpd or when a turn lane from the exited street is available, greater encroachment into the opposing lane may be acceptable and a radius not less than 15 feet may be used. However, when a radius less than 25 feet is proposed, an auto-turn diagram should be used to demonstrate the impact of a single unit design truck on the opposing lane of the receiving street and the sufficiency of the street widths to accommodate said vehicle without running off of pavement or scrubbing curbs.*
 - b. *For turns from or onto roadways carrying 1500 or more vpd.*

The minimum intersection radii shall be that required to accommodate a single unit truck design vehicle without encroaching into the opposing lane of the receiving street. This is typically a 30’ radius. The sufficiency of the street widths to accommodate said vehicle shall be demonstrated with an appropriate diagram. If intercity buses or standard 65-passenger school buses are expected to use the street, the minimum radius shall be increased as necessary to accommodate the turning radius of such vehicles. Minimal encroachment into the opposing lane of traffic of the receiving street is expected; and replaced it with the following language; “A larger radius or additional pavement at the intersection may be required on shoulder and ditch sections to avoid shoulder rutting.

Auto-turn diagrams should be used to demonstrate the impact on the opposing lane of the receiving street and the sufficiency of the street widths to accommodate the vehicles without running off of pavement or scrubbing curbs.”

- Page B(1)-23 - Replaced the following language under item b. “Cul de sacs with unpaved centers (islands)”; *“Resident Engineer”* with “*District Administrator’s Designee*”. Added the following language at the end of the same paragraph; “*unless the cul de sac is being developed to accommodate low impact development techniques.*”
- Page B(1)-24 – Revised distances in the “T-Type and Branch Type Alternative Turnaround” detail.

- Page B(1)-26 - Replaced the following language in the last paragraph under “Treatment behind curbs”; “*Where sidewalk is used in conjunction with curb and gutter, a utility strip shall be included behind the curb as shown in figure 6. This utility strip may be paved with a suitable material approved by the Resident Engineer but should not be considered to be part of the prescribed width for sidewalks.*” with “*Where sidewalk is used in conjunction with curb and gutter, a buffer strip is recommended behind the curb as shown in Figure 6. This buffer strip may be paved with a suitable material approved by the District Administrator’s Designee, but the paved portion of the buffer strip should not be considered to be part of the prescribed width for sidewalks. Sidewalk placed adjacent to curb shall be 8 feet in width.*”
- Page B(1)-27 – Revised “FIGURE 6 –DETAIL BACK OF CURBS” to state “*the width of sidewalk passing the tree well shall be at least 4 feet in width.*” Also replaced “*Resident Engineer*” with “*District Administrator’s Designee*”.

Replaced “*Resident Engineer*” with “*District Administrator’s Designee*” under “PRIVATE ENTRANCES”.

- Page B(1)-30 – Replaced “*are normally at least*” with “*should be a minimum of* ” and added “*to allow for the placement of signs in accordance with the MUTCD, Part 2*” in item (4) under “Sidewalk Standards”. Replaced “*must*” with “*shall*” in item (4) under “Sidewalk Standards”.

Deleted “*to meet recommended sidewalk width*” at the end of item (4) under “Sidewalk Standards” and added “*to accommodate the opening of car doors. See Figure 6 and 10*”.

- Page B(1)-31 – Replaced “*two-way*” with “*two-directional*” and added “*unless a physical barrier is provided, such as dense shrubbery, railing or chain link fence.*” in the second paragraph under “Shared use path”.

Revised the third paragraph under “Shared use path” from; *The minimum pavement width for a shared use path should be 10 feet.*” with “*The minimum pavement width for a two-directional shared use path shall be 10 feet.*” Added the following language; “*In rare instances, a reduced width of 8 feet can be adequate. This reduced width should be used only where the following conditions prevail:*

- (1) *bicycle traffic is expected to be low, even on peak days or during peak hours*
- (2) *pedestrian use of the facility is not expected to be more than occasional*
- (3) *there will be good horizontal and vertical alignment providing safe and frequent passing opportunities*

- Page B(1)-32 – Added the following language; *(4) during normal maintenance activities the path will not be subjected to maintenance vehicle loading conditions that would cause pavement edge damage. Under certain conditions it may be necessary or desirable to increase the width of a shared use path to 12 feet, or even 14 feet, due to substantial use by bicycles, joggers, skaters and pedestrians, use by large maintenance vehicles, and steep grades.*”

Replaced the following language; *“A minimum 2 foot wide graded area should be maintained adjacent to both sides of the trail. A minimum 3 foot clear zone should be maintained from the edge of the path.”* with *“A minimum 2 foot wide graded area shall be maintained adjacent to both sides of the path. A minimum 3 foot clear zone shall be maintained from the edge of the path to signs, trees, poles, walls, fences, guardrail and other lateral obstructions.”* in the second paragraph.

Replaced the following language; “should” with “shall” in the first second and “undercrossings” with “underpasses” in the third sentence in the third paragraph.

- Page B(1)-36 – Revised the following language in the first sentence under b. from, (See 24 VAC 30-91-10) to (See 24 VAC 30-92-10).

Replaced “*Resident Engineer*” with “*District Administrator’s Designee*” under item 4. “Documentation”.

- Page B(1)-37 – Replaced the following language; *“Subdivision Street Design Requirements”* with *“Secondary Street Acceptance Requirements”* under item 5 “Storm water management”.

Replaced the following language; *“The minimum right of way should be 40 feet or the width necessary to accommodate all roadway elements, including the clear zone, and extend 3 feet behind any feature intended to be maintained by VDOT as part of the roadway, whichever is greater. In no case shall the right of way extend less than one foot behind any feature to be maintained by VDOT however, as indicated in the Subdivision Street Requirements, easements may be used in lieu of dedicated right of way to accommodate slopes or sight distances. Reduced right of way may be allowed with specific approval of the locality and the Resident Engineer as defined in Section B-4.B.3 Elements of a Typical Section, of this Guide.”* with *“The minimum width of right of way shall be sufficient to accommodate all roadway elements, including pedestrians, multiuse trails, bicyclist, shared use paths and the clear zone and extend at least one (1) foot behind any feature intended to be maintained by VDOT as part of the roadway. However, the minimum width of right of way shall be no less than 30 feet. As indicated in the Secondary Street Acceptance Requirements, easements may be used in lieu of dedicated right of way to accommodate slopes and sight distances.”* under “RIGHT OF WAY”.

- Page B(1)-38 – Replaced “edge of pavement” with “edge of travel way” at the end of the last sentence of the first paragraph. Replaced “*Resident Engineer*” with “*District Administrator’s Designee*” in the last paragraph in two locations;. Also added “*for the placement of signs in accordance with the MUTCD, Part 2*”. and replaced “note 6” with “note 2” in the last sentence.
- Page B(1)-40 - Replaced “*Resident Engineer*” with “*District Administrator’s Designee*” in the first paragraph under “GUARDRAIL”.
- Page B(!)-44 – Replaced the following language in the first sentence in the second paragraph; “*Subdivision streets should be designed to encourage 85th percentile speeds in the range of 25 to 30 mph.*” with “*Subdivision streets shall be designed to in accordance with Geometric Design Standard Tables 1, 2, and 3 in this appendix.*”

Added the following language in the last paragraph; “*Bulb-outs are also appropriate for new construction.*”

- Page B(1)-46 – Revised the third web site in the second paragraph under “ROUNDABOUTS”.

Replaced “*Residency Administrator*” with “*District Administrator’s Designee*” in the last sentence in the second paragraph.

Added the following language at the end of the third paragraph; “*Roundabouts typically handle higher volumes with lower vehicle delays (queue) than traditional intersections at capacity.*”

- Page B(1)-48 – Replaced “*Subdivision Street Design Requirements*” with “*Secondary Street Acceptance Requirements*” in the first sentence under “UTILITIES”.
- Page B(1)-49 - Replaced “*Resident Engineer*” With “*District Administrator’s Designee*” in the last paragraph under item (3) “Open-cutting of hard-surfaced roadways”.

Added the following language at the end of item 2; “*However, manholes shall not be placed in sidewalk, multiuse trail, or shared use path facilities within five feet of curb ramps or within driveway entrances*”.

- Page B(1)-50 – Added the following language at the end of item b.; “*but shall not encroach on the sidewalk, the shared use path, or any clear zone.*”

- Page B(1)-51 – Replaced ‘FIGURE 14 – LIGHTING ALONG CURB AND GUTTER SECTIONS to correct drawing dimensions.

- Pages B(1)-52 – Replaced “*Neotraditional*” with “*Traditional*” in numerous locations.

Added the following language in the fourth sentence of the fourth paragraph; Most “*Traditional*” Neighborhood Development streets are designed to minimize “*the impact of*” through traffic by the design of the street and the location of the land uses.

Added the following language in the fifth paragraph; “*Alley widths are to be determined by the locality.*”

- Pages B(1)-53 – Replaced “*Neotraditional*” with “*Traditional*” in numerous locations.

Added the following language in the last sentence under item A; Most “*Traditional*” Neighborhood Development streets are designed to minimize “*the impact of*” through traffic.

Replaced the following language in the first sentence under item F; “*Curb extensions at intersections are frequently used in Neotraditional developments.*” with “Curb extensions at intersections are frequently used in *Traditional Neighborhood Developments.*”

- Page B(1)-54 - Replaced “*Resident Engineer*” with “*District Administrator’s Designee*” in the second sentence.