KDOT Access Management Policy (AMP)

(January 2013 Edition)

Errata

KDOT intends to correct these errors during the next revision to the Policy. Corrections are denoted in "red" text with a solid line through the original text.

1) Table 4-4 (Distance traveled during driver's perception-reaction (d1), lateral movement and deceleration (d2), and downstream functional distance (d4)), Page 4-15

Correction to distance "d4 – Undeveloped (feet)" for 20 mph and page reference in "Source d4" in the footnotes.

Table 4-4. Distance travelled during driver's perception-reaction (d1), lateral movement and deceleration (d2), and downstream functional distance (d4)

Speed (mph)	d1—Undeveloped[1] (feet)	d1—Developed/CBD[1] (feet)	d2—Deceleration[2] (feet)	d4—Undeveloped[3] (feet)	d4—Developed/CBD[3] (feet)
20	75	45	70	~~155~~ 115	85
25	95	55	115	155	120
30	110	65	160	200	155
35	130	80	220	250	195
40	145	90	275	305	245
45	165	100	350	360	295
50	185	110	425	425	355
55	205	125	515	495	415
60	220	135	605	570	480
65	240	145	715	645	550
70	255	155	820	730	625

[1]*Source d1: Modified version of TRB, Access Management Manual, 2003, Table 8-3, p. 133*
[2]*Source d2: Modified version of TRB, Access Management Manual, 2003, Table 10-2, p. 172*
[3]*Source d4: Modified versions of AASHTO's A Policy on Geometric Design of Highways and Streets, Table ~~3-2~~ 3-1 (2011)*

2) Section 4.3.1.a (Intersection influence area), Page 4-16

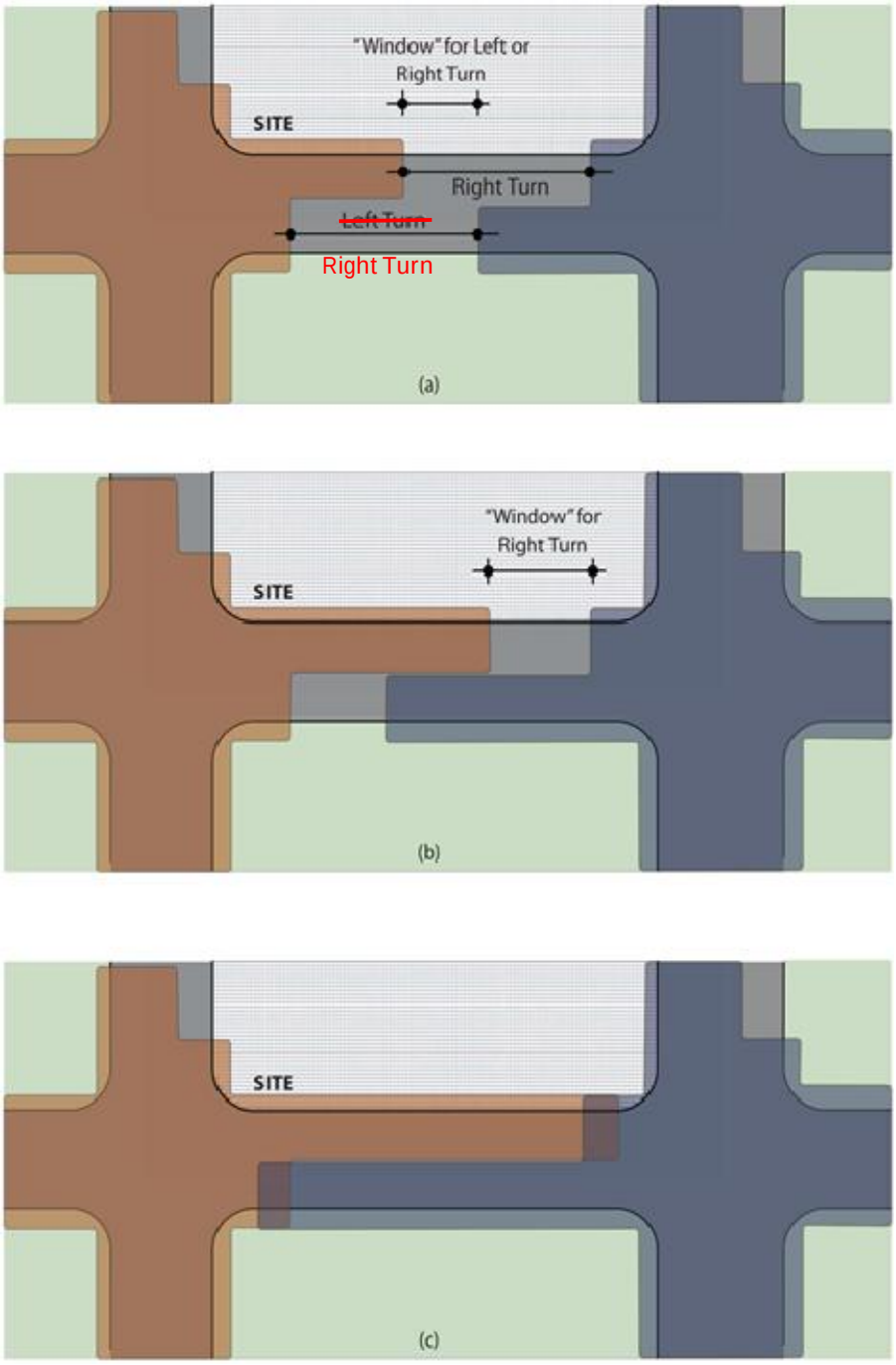
The description for Signalized locations includes an error. The second sentence should be corrected as follows:

"The storage is based on ~~2 times~~ the 95th percentile back of queue as determined by traffic modeling software, such as Synchro."

3) Figure 4-18 (Schematic of access window for direct drive access), Page 4-17

The schematic “a” indication for a left turn reflects an error in the original AMM source table and should be changed to right turn for each direction of travel as shown in the modified figure.

Figure 4-18. Schematic of access window for direct drive access



Source: TRB, Access Management Manual, 2003, Figure 8-15. P. 135
Note: (a) Window for left and right turns; (b) window for right turns only; (c) no window

4) Table 4-7 (Signalized intersection spacing criteria for various speeds and cycle lengths), Page 4-19

The source for this table is *NCHRP Report 420*[1], but the page and table numbers should be corrected as shown in the table below.

Table 4-7. Signalized intersection spacing criteria for various speeds and cycle lengths

Cycle Length (seconds)	Posted Speed Limit (mph)								
	25	30	35	40	45	50	55	60	65
	(Distance in feet)								
60	1,100	1,320	1,540	1,760	1,980	2,200	2,420	2,640	2,860
70	1,280	1,540	1,800	2,060	2,310	2,590	2,830	3,090	3,350
80	1,470	1,760	2,060	2,350	2,640	2,940	3,230	3,520	3,810
90	1,650	1,980	2,310	2,640	2,970	3,300	3,630	3,960	4,290
100	1,840	2,200	2,570	2,940	3,300	3,670	4,040	4,410	4,780
110	2,020	2,420	2,830	3,230	3,630	4,040	4,440	4,850	5,250
120	2,200	2,640	3,080	3,520	3,960	4,400	4,840	5,280	5,720

Source: Adapted from Gluck, J., H.S. Levinson, and V. Stover, Impacts of Access Management Techniques, NCHRP Report 420, Transportation Research Board of the National Academies, Washington, D.C. (1999) ~~*pp. 31-67*~~ *p. 24, Table 20.*

[1] Gluck, J., H.S. Levinson, and V. Stover. *NCHRP Report 420. Impacts of Access Management*. TRB, Washington, D.C. 1999, Table 20, p. 24.

5) Table 4-8 (Access spacing on one-way frontage road in the vicinity of exit ramp), Page 4-24

The source note for this table should indicate that the table has been modified (see correction below).

Table 4-8. Access spacing on one-way frontage road in vicinity of exit ramp

Total Volume (vph)[1]	Access Point Volume (vph)	Number of Weaving Lanes		
		2	3	4
		Spacing (feet)		
<2000	All	250	250	250
>2000	<250	460	460	560
	250	520	460	560
	500	590	460	560
	750	790	460	560
	1000	980	460	560
>2500	<250	920	460	560
	250	950	460	560
	500	980	460	560
	750	980	590	690
	1000	980	790	890
>2500	<250	980	750	850
	250	980	820	920
	500	980	980	980
	750	980	980	980
	1000	980	980	980

Source: Modified from TTI's Development of Improved Guidelines for Frontage Road
[1]Total volume is the volume of the exit ramp plus the upstream one-way frontage road volume.

6) Table 4-10 (Minimum corner clearances by area type), Page 4-29

The footnote in this table should be modified as shown.

Table 4-10. Minimum corner clearances by area type

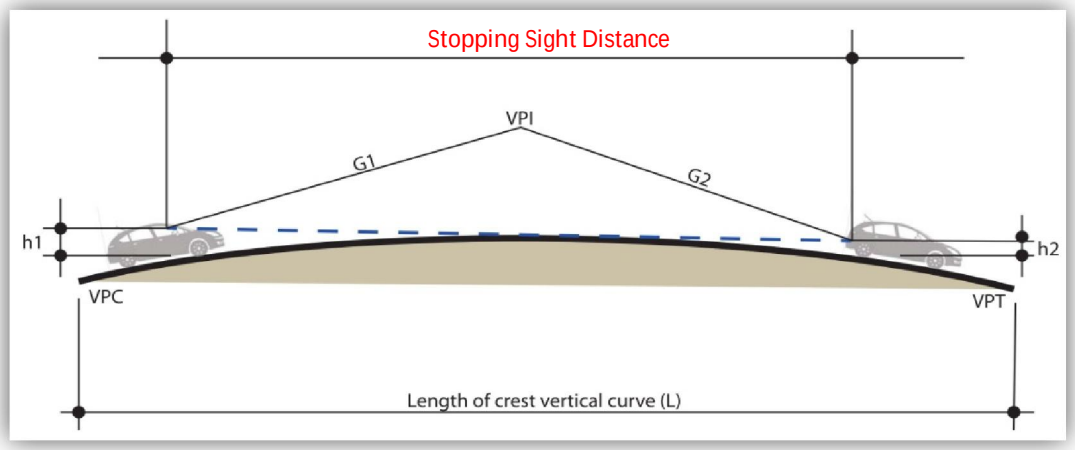
Area Type (highway)	Minimum Corner Clearance Distance (side road) (feet)
Undeveloped	155
Developed	115
CBD	85

Source: Adapted from AASHTO's A Policy on Geometric Design of Highways and Streets, Table 3-1 (2011) ~~Frontage and backage roads~~ and Table 4-6

7) Figure 4-31 (Stopping sight distance profile for a crest vertical curve), Page 4-32

The footnote for this figure should be modified to indicate that the graphic is based on Figure 3-42 of the *Green Book*.[2] In addition, a "Stopping Sight Distance" label should be added to the figure as shown.

Figure 4-31. Stopping sight distance profile for a crest vertical curve



Source: Based on AASHTO's A Policy on Geometric Design of Highways and Streets (2011 Edition), Figure 3-42, pg. 3-152 ~~pg. 3-14 and 3-15~~ h1 = 3.5 feet; h2 = 2.0 feet

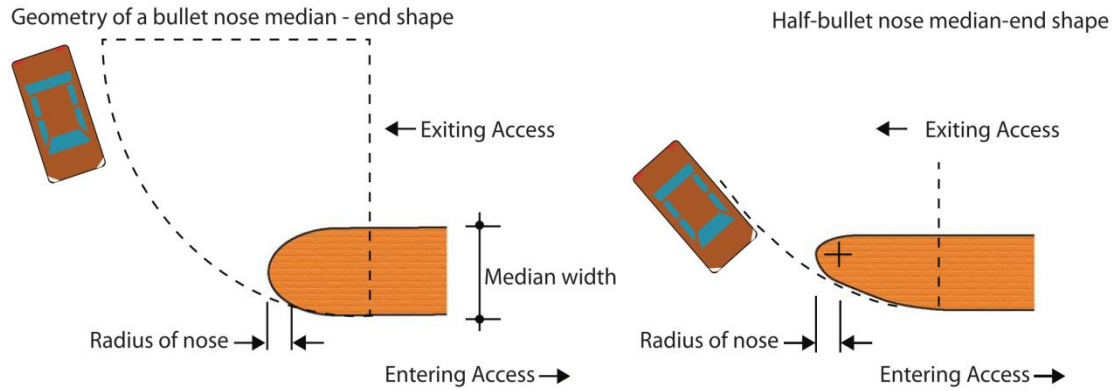
[2] AASHTO, *A Policy on Geometric Design of Highways and Streets*, 6th Edition, Washington, D.C., 2011, Figure 3-42, p. 3-152.

8) Table 4-19 (Access median design guidelines), Page 4-48

The design guideline table cites the Gattis, et al. reference but should also show in the citation that the table has been modified as demonstrated as shown below.

Table 4-19. Access median design guidelines

Aspect	Design
Length	Minimum: 50 feet or more as determined by a traffic impact study
Width Back of Curb to Back of Curb	Minimum: 4 feet Minimum to provide signage within median: 6 feet (based on installing 24 inch wide sign) Minimum to provide pedestrian refuge: 6 feet Width for landscaping: 8 to 10 feet Maximum: 16 feet
End treatment	Median island < 10 feet wide: semicircle or bullet nose median-end Median island ≥10 feet wide: bullet nose median-end



Source: Adapted from NCHRP Report 659, Guide for the Geometric Design of Driveways, Exhibit 5-32, p. 45

9) Section 4.4.8 (Profiles of the access and crossroad approach), Page 4-57

The last sentence of the descriptive text in Section 4.4.8 should be clarified in the following manner:

"The appropriate vertical curve ~~radius~~ length and length of tangent from the point of vertical intersection to the roadway centerline are provided for approach grades from 1 to 8 percent."

10) Table 4-24 (Access surface material and thickness), Page 4-66

The information shown in Table 4-24 is not correct. See corrected values below:

Table 4-24. Access surface material and thickness

	Surface type and thickness (inches)			
Access Type	Turf	Gravel	Asphalt	Concrete
1, 2	6	6	6	~~8~~ 6
3	NA	NA	6	~~8~~ 6
4	NA	6	6	~~8~~ 6
5, 6 Commercial/other	NA	NA	~~6~~ 8	8
5, 6 Industrial	NA	NA	~~8~~ 10	~~12~~ 8

11) Section 4.5.2 (Auxiliary lane warrants – left-turn lanes), Page 4-70

On page 4-70 there are two errors that should be corrected. The operational warrant for left-turn lane warrants for two-lane highways should refer to Table 4-27 (current reference mistakenly refers to Table 4-23). Similarly, the operational warrant reference for four-lane highways refers to Table 4-24 but actually should show Table 4-28. See changes below:

- **Operational warrant**—The operational criterion is triggered if one of the following occurs:
  - **Left-turn lane warrants for two-lane highways**—Utilize the information provided in ~~Table 4-23~~ Table 4-27 for guidance based on operations.
  - **Left-turn lane warrants for four-lane highways**—Utilize the information provided in ~~Table 4-24~~ Table 4-28 for guidance based on operations.

12) Section 4.5.3.a (Right-turn lane design), Page 4-74

The description for Signalized locations includes an error. The second sentence should be corrected as follows:

"The storage is based on ~~2 times~~ the 95th percentile back of queue as determined by traffic modeling software, such as Synchro."

13) Table 4-29 (Queue storage length adjustments for trucks), Page 4-75

Included in the right-turn lane section of the Policy is Table 4-29. This table is similar to an earlier table (Table 4-5, Page 4-16). Consequently, Table 4-29 should be removed and replaced by the content from Table 4-5 as shown below:

Table 4-29. Queue storage length adjustments for trucks

~~Percent Trucks~~	~~Storage Length (ft)~~
~~≤ 5~~	~~25~~
~~10~~	~~30~~
~~15~~	~~35~~

~~*Source: Stover, V. G., and F. J. Koepke, Transportation and Land Development, 2nd edition, ITE, 2002, page 5-52.*~~

Percent Trucks (%)	Average Storage Length per Vehicle (Feet)
≤ 5	25
6 ≤ 10	30
11 ≤ 15	32
16 ≤ 20	35
> 20	38

Source: Adapted from V. Stover and F. Koepke, Transportation and Land Development (2nd Edition), Institute of Transportation Engineers, 2002.

14) Section 4.5.3.b (Left-turn lane design), Page 4-76

The through-lane taper for left-turn lane transitions is calculated using a speed and offset based equation. The equations in the Policy are correct, but their limits not correct. The following changes should be made to these equation limits:

$L = (WS^2/60)$ for speeds less than ~~of~~ 45 mph ~~or less~~

and

$L = WS$ for speeds of 45~~50~~ mph or more

15) Table 4-33 (Acceleration lane lengths), Page 4-81

The source information should indicate the table has been adapted to accurately reflect the truncated content from the original source (see below).

Table 4-33. Acceleration lane lengths

Posted Speed (mph)	Acceleration Lane Length (from stop condition) (feet)[1]	Acceleration Lane Length (from free-flow right condition) (feet)[2]
45	560	490
50	720	660
55	960	990
60	1200	1140
65	1410	1350
70	1620	1560

Source: Adapted from AASHTO's A Policy on Geometric Design of Highways and Streets (2011 Edition), ~~t~~Table 10-3
Taper lengths equal 300 feet for speeds ≤ 60 mph and 600 feet for speeds > 60 mph
[1] 0-mph design speed
[2] 15-mph design speed

16) Section 4.6.1.a (Object markers for mailboxes), Page 4-87

The title for this section needs to be corrected as follows:

4.6.1.~~a~~ Object markers for mailboxes

17) Table 4-35 (Criteria for allowing on-street parking), Page 4-89

Table 4-35 provides criteria for on-street parking based on volume and speed. A citation was not included; however, the original source is from a 2002 *ITE Journal* article as shown below.

Table 4-35. Criteria for allowing on-street parking

Parking Type	Criteria	
	Volume (ADT)[1]	Speed (mph)
No parking allowed	≥20,000	≥35
Parallel	≤15,000	≤30
Angle (including back-in)	≤10,000 - multi-lane ≤5,000 - one-lane	<20

Note: ADTs are total, two-way, except for the one-lane reference.
[1] This does not imply absolute conditions, but guides the successful application
Source: Adapted from Edwards, J. D., "Changing On-Street Parallel Parking to Angle Parking", *ITE Journal*, Washington, D.C., February 2002, pp. 28-3.

18) Table 5-1 (Access Types), Page 5-2

Table 5-1 lists the access types by volume and provides typical use examples. The text in the table should be modified as shown below.

Table 5-1. Access types

Type	Traffic Volume	Use
1	Low volume 0–49 vehicles per day maximum, in/out bound traffic count	Non-commercial—farm, agriculture, field, timber, cultivated, pasture, duplex, single family residential/home, apartment building containing five or fewer dwelling units, other
2	Low volume 0–49 vehicles per day maximum, in/out bound traffic count	Special-use—city water treatment plant, microwave station, pipeline checkpoint, telephone repeater stations, utilities (electric, gas, telephone, and water) check/ maintenance stations, Corps of Engineers dike roads, other
3	Low volume 0–49 vehicles per day maximum, in/out bound traffic count	Emergency facility—fire station, paramedic facility
4	Low volume 0–49 vehicles per day maximum, in/out bound traffic count	Commercial—small business, cemetery, nursing home, other
5	Medium volume 50–499 vehicles per day and less than 50 vehicles per peak hour of the generator ~~of the highway~~ (in/out bound traffic count)	Commercial, industrial, institutional, recreational, local road connections, including shared access, other
6	High volume 500 or more vehicles per day or 50 or more vehicles per peak hour of the generator ~~highway~~ (in/out bound traffic count)	Commercial, industrial, institutional, recreational, local road connections, including shared access, other

19) Section 5.4.1a (Basic TIS Contents), Page 5-14

Section 5.4.1a, Basic TIS Contents, should contain the text changes shown below:

- Proposed site access characteristics
  - Access type (see Table 5-1)
  - Access width and radii (see Section 4.4.1)
  - Access surfacing (see Section 4.4.11)
  - Drainage method and material (see Section 4.4.10)
  - Adjacent access spacing—upstation and downstation, both sides of highway
  - Intersection influence area (see Section 4.3.1)
  - Sight distance —upstation stopping and downstation intersection, vertical and horizontal (see Section 4.3.7)
  - Auxiliary lane warranted? —yes or no (see Section 4.5)
  - Shared?—yes or no