

Design Class	Undivided Multilane				Two-Lane																			
	C-1		C-2		C-3				C-4															
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban												
DHV in Design Year <sup>[1]</sup> NHS Non-NHS	Over 900 <sup>[2]</sup>		Over 301 <sup>[3]</sup> Over 501		201-300 301-500				200 and Under 300 and Under															
Access Control	[4]		[4]		[4]				[4]															
Separate Cross Traffic Highways Railroads <sup>[5]</sup>	Where Justified Where Justified <sup>[6]</sup>		Where Justified All <sup>[6]</sup>		Where Justified Where Justified <sup>[6]</sup>				Where Justified Where Justified <sup>[6]</sup>															
Design Speed (mph) <sup>[7]</sup> Desirable <sup>[8]</sup> Minimum <sup>[9][10]</sup>	70 40	60 30	70 50	60 40	70 50	60 40	70 50	60 40	70 50	60 40	60 40	60 30												
Traffic Lanes Number Width (ft)	4 12	4 or 6 11 <sup>[11]</sup>	4 12	4 or 6 11 <sup>[11]</sup>	2 12	2 12	2 12	2 12	2 12	2 12	2 12	2 12												
Shoulder Width (ft) <sup>[12]</sup> Median Width (ft)	8	8 <sup>[13]</sup>	8	8 <sup>[13]</sup>	8	8	8	8	8	8	8	8												
Parking Lane Width (ft) – Minimum Pavement Type <sup>[15]</sup>	None	10	None	10	None	10	None	10	None	10	None	10												
Right of Way (ft) <sup>[16]</sup> Structures Width (ft) <sup>[17]</sup>	150	80	120	80	120	80	120	80	120	80	100	80												
Other Design Considerations – Urban	Full Roadway Width <sup>[18]</sup>		Full Roadway Width <sup>[18]</sup>		As Required <sup>[18]</sup>				As Required <sup>[18]</sup>															
Type of Terrain	Rural – Design Speed (mph)												Urban – Design Speed (mph)											
	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	25	30	35	40	45	50	55	60 <sup>[19]</sup>
Level	7	7	7	7	7	6	6	5	5	4	4	9	9	9	9	9	9	9	9	9	9	8	7	6
Rolling	10	9	9	8	8	7	7	6	6	5	5	12	12	11	10	10	10	10	10	10	10	8	8	7
Mountainous	11	10	10	10	10	9	9	8	8	6	6	14	13	12	12	11	10	10	10	10	10	10	10	9

Geometric Design Data: Collector  
Figure 440-8

**Collector Notes:**

- [1] The design year is 20 years after the year the construction is scheduled to begin.
- [2] When considering a multilane highway, perform an investigation to determine whether a truck-climbing lane or passing lane will satisfy the need (see Chapter 1010).
- [3] Where DHV exceeds 900, consider 4 lanes. When the volume/capacity ratio is equal to or exceeds 0.85, consider the needs for a future 4-lane facility. When considering truck-climbing lanes on a C-2 design class highway, perform an investigation to determine whether a C-1 design class highway is justified.
- [4] For access control requirements, see Chapters 1430 and 1435 and the Master Plan for Limited Access Highways. Contact the HQ Design Office Access & Hearings Unit for additional information.
- [5] Contact the Rail Office of the Public Transportation and Rail Division for input on railroad needs.
- [6] Criteria for railroad grade separations are not clearly definable. Evaluate each site regarding the hazard potential. Provide justification for railroad grade separations.

- [7] For existing roadways, see 440.07.
- [8] These are the design speeds for level and rolling terrain in rural design areas. They are the preferred design speeds for mountainous terrain and urban design areas. Higher design speeds may be selected, with justification. Do not select a design speed that is less than the posted speed.
- [9] In urban design areas, with a corridor analysis, these values may be used as the minimum design speed. Do not select a design speed that is less than the posted speed.
- [10] These design speeds may be selected in mountainous terrain, with a corridor analysis. Do not select a design speed that is less than the posted speed.
- [11] Consider 12-ft lanes when the truck DDHV is 200 or greater.
- [12] When guardrail is installed along existing shoulders with a width greater than 4 ft, the shoulder width may be reduced by 4 inches.
- [13] When curb section is used, the minimum shoulder width from the edge of traveled way to the face of curb is 4 ft.

- [14] Minimum median width is as required for shoulders and barrier (including required shy distance) or ditch (see 440.10).
- [15] For pavement type determination, see Chapter 520.
- [16] Desirable width. Provide right of way width 10 ft desirable, 5 ft minimum, wider than the slope stake for fill and slope treatment for cut (see 440.15).
- [17] For the minimum vertical clearance, see Chapter 1120.
- [18] For bicycle requirements, see Chapter 1020. For pedestrian and sidewalk requirements, see Chapter 1025. Curb requirements are in 440.11. Lateral clearances from the face of curb to obstruction are in with Chapter 700.
- [19] For grades at design speeds greater than 60 mph in urban design areas, use rural criteria.
- [20] Grades 1% steeper may be used in urban design areas and mountainous terrain with critical right of way controls.

**Geometric Design Data: Collector**  
 Figure 440-8 (continued)