

8820.9941 MINIMUM DESIGN STANDARDS: ON-ROAD BICYCLE FACILITY FOR URBAN; NEW OR RECONSTRUCTION PROJECTS.

The bicycle facility design standard in this part applies when the road authority has determined that the roadway will be specifically designed to include an on-road bicycle facility and only if the roadway surface is paved.

New or reconstruction projects for urban roadways must meet or exceed the dimensions indicated in the following design chart.

Functional Classification and Projected Traffic Volume	Design Speed	Lane Width (a)	Curb Reaction Distance (d)	Parking Lane Width (f)	Bikeway Design Roadways with Two Travel Lanes Urban Curb and Gutter		Bikeway Design Roadways with Four or more Travel Lanes Urban Curb and Gutter
	(mph)	(feet)	(feet)	(feet)	(ADT)	(feet)	(feet)
Collectors or Locals with ADT <2,000	25-30	10-12 (e)	2	7-10	<500	SL	N/A
					500-2,000	WOL 14-16 or BL 5-6	
	35-40	11-12	2	8-10	<500	SL	BL 5-6
					500-2,000	WOL 14-16 or BL 5-6	
	over 40	12	2	10		BL 5-6	BL 5-6
						BL 5-6	
Collectors or Locals With ADT 2,000-5,000	25-30	10-12 (e)	2	7-10		WOL 14-16 or BL 5-6	WOL 14-16 or BL 5-6
	35-40	11-12	2	8-10		BL 5-6	BL 5-6
	over 40	12	2	10		BL-6	BL 6

Collectors or Locals with ADT 5,000- 10,000	25-30	10-12 (e)	2	7-10		BL 5-6	BL 5-6
	35-40	11-12	2	8-10		BL 5-6	BL 5-6
	over 40	12	2	10		BL 6 or PS 8 or SUP	BL 6 or PS 8 or SUP
Collectors or Locals with ADT >10,000 and Arterials	30-40	11-12	4 (b)	10		BL 6 or PS 8 or SUP	BL 6 or PS 8 or SUP
	over 40	12	4 (b)	10 (c)		BL 6 or PS 8 or SUP	PS 8 or SUP

(SL = shared lane; BL = bicycle lane; WOL = wide outside lane; PS = paved shoulder; SUP = shared use path)

Engineering judgment should be used to choose a lane-width, on-road bicycle facility, or shoulder width dimension other than the widths indicated in the chart. Factors to consider include safety, speed, population/land use, benefit/cost analysis, traffic mix, peak hourly traffic, farm equipment, environmental impacts, terrain limitations, bicycle traffic, pedestrian traffic, on-street parking, intersection and driveway spacing, rights-of-way constraints, vehicle turn lane configuration, sight distance, sight lines, bus routes, other nonmotorized uses, functional classification, or other factors. Dimensions less than those indicated in the chart require a variance in accordance with parts 8820.3300 and 8820.3400.

(a) One-way turn lanes must be at least ten feet wide, except 11 feet is required if the design speed is over 40 mph.

(b) Curb reaction distance may be reduced to two feet if there are four or more traffic lanes and on one-way streets.

(c) No parking is allowed on streets with six or more traffic lanes or when the posted speed limit exceeds 45 mph.

(d) Curb reaction shall be provided unless on-street parking, a bicycle facility, or a wide outside lane are provided adjacent to the curb. The dimensions for wide outside lanes include the curb reaction distance.

(e) When creating a multimodal design with a combination of vehicle lane, parking lane, and bikeway lane widths, if a vehicle lane width of less than 11 feet is used, the parking and bikeway lanes shall be at least one foot wider than the minimum widths. Engineering judgment should be used to choose a vehicle lane width of less than 11 feet. Additional factors to consider include the types of vehicles (buses, trucks, etc.), peak hour counts, turning movements, population/land use, crash history/analysis, terrain limitations, bicycle traffic, pedestrian traffic, other nonmotorized uses, and snow storage.

(f) In determining the parking lane width, the roadway ADT and the vehicle mix shall be taken into consideration for residential, commercial and/or industrial areas, or for a mixed use thereof.

One-way streets must have at least two through-traffic lanes.

When a raised median is included in the design of the two-way roadway, a one-foot reaction distance to the median is required on either side of the median. Minimum median width is four feet.

Urban design roadways must accommodate a minimum nine tons structural axle load design.

Roadways not on the state-aid system are not subject to the minimum structural design strength requirements.

The minimum curb-to-curb width of a new bridge must be the required street width, but in no case less than required per Minnesota Statutes, section 165.04. HS 25 loading with AASHTO Standards Specifications or HL-93 loading with load and resistance factor design (LRFD) is required for new or reconstructed bridges and a minimum of HS 18 loading is required for all rehabilitated bridges. When the new bridge approach roadway includes elements for the accommodation of pedestrians or bicycles, the new bridge width must also provide for pedestrians or bicycles unless pedestrians or bicycles are otherwise accommodated.

For ADT less than 150, the widths of bridges to remain must be at least the sum of the lanes. For ADT greater than or equal to 150, the widths of bridges to remain must be at least the sum of the lanes plus one-half the sum of the shoulders, parking lane, and curb reaction distance.

Clearance of 1.5 feet from the face of the curb to fixed objects must be provided when the posted speed is 40 to 45 mph. A ten foot clear zone measured from the driving lane must be provided when the posted speed exceeds 45 mph.

For volumes greater than 15,000 projected ADT, at least four through-traffic lanes are required, unless a capacity analysis demonstrates that a different lane configuration achieves level of service D or better.

Structures: Vehicular roadway bridge and underpass structures when two-way bicycle traffic is accommodated: on bridge or underpass sidewalks, the sidewalk clear width shall be no less than eight feet, but preferably ten feet. Whenever practicable, the shoulder/clear zone of an off-road shared use path should be carried across bridges and through underpasses. The minimum structure clear width must be 12 feet. When the surface width plus shoulder/clear zone full width of the approach shared use path is greater than the proposed clear width of the structure, a lead-in bicycle safety railing is required at each end of the bridge or underpass. As an alternative to lead-in bicycle safety railing, the surface width of the approach shared use path may be narrowed at a 1:50 taper while maintaining minimum surface width and shoulder/clear zone through the structure.

Statutory Authority: *MS s 14.386*

History: *37 SR 697*

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