

**8820.9920 MINIMUM DESIGN STANDARDS; RURAL AND SUBURBAN UNDIVIDED; NEW OR RECONSTRUCTION PROJECTS.**

When the road authority has determined that the roadway will be specifically designed to include on-road bicycle facilities, and only if the roadway surface is paved, the appropriate design criteria in the current MnDOT Bikeway Facility Design Manual are recommended for design to accommodate the bicycle facility.

New or reconstruction projects for rural and suburban undivided roadways must meet or exceed the minimum dimensions indicated in the following design chart. Where two dimensions are indicated, the larger values within the ranges are desirable.

Projected ADT (a)	Lane Width (b)	Shoulder Width	In- slope (c)	Clear Zone (d)	Minimum Design Speed (e)	Sur- facing	Structural Design Strength	Bridges to Remain (f) Width Curb to Curb
	feet	feet	rise: run	feet	mph		tons	feet
0-49	11-12	1	1:3	7	30	Agg.		22
50-149	11-12	3	1:4	9	40	Agg.		22
150-299	11-12	4	1:4	15	40	Agg./ Paved	7-ton/ 10-ton Staged (h)	28
300-749	11-12	4	1:4	15	40	Paved	10-ton Staged (h)	28
750-1499	11-12	4	1:4	25	40	Paved	10-ton Staged (h)	28
1500 and over	11-12	6(g)	1:4	30	40	Paved	10	30

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 for roadways. 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.

For rural divided roadways, use the geometric design standards of the Mn/DOT Road Design Manual, with a minimum ten tons structural design and minimum 40 mph design speed.

(a) Use the existing traffic for highways not on the state-aid system.

(b) The state-aid engineer may approve lane widths of ten feet on roads classified as local or collector if truck and bus volumes are relatively low, rights-of-way are constrained, design speeds are 35 mph or less, and ADT is less than 1,500.

(c) Applies to inslope within the clear zone only. Approach roadway sideslopes in the clear zone must be 1:4 or flatter. Mn/DOT Road Design Manual clear zone may be used.

(d) Culverts with less than 30-inch vertical height allowed without protection in the clear zone. Mn/DOT Road Design Manual clear zone widths may be used in lieu of the values in the table in this part.

Guardrail is required to be installed at all bridges where the design speed exceeds 40 mph, and either the existing ADT exceeds 400 or the bridge clear width is less than the sum of the lane and shoulder widths.

Mailbox supports must be in accordance with chapter 8818.

For roadways in suburban areas as defined in part 8820.0200, the clear zone may be reduced to a width of ten feet for projected ADT under 1,000 and to 20 feet for projected ADT of 1,000 or over. Wherever the legal posted speed limit is 45 mph or less, the clear zone may be reduced to a width of ten feet.

(e) Subject to terrain. In suburban areas, the minimum design speed may be equal to the current legal posted speed where the legal posted speed is 30 mph or greater.

(f) Bridges to remain must have a load rating factor of at least 0.75 using the AASHTO Manual for Bridge Evaluation, LRFR (load and resistance factor rating) for inventory level. A bridge narrower than these widths may remain in place if the bridge is not deficient structurally or hydraulically.

(g) Shoulders are required to be a minimum width of eight feet for highways classified as minor arterials and principal arterials with greater than 1,500 ADT projected, at least two feet of which must be paved.

(h) Except within municipal corporate limits, ten-ton staged structural design must be able to carry ten-ton axle loads except during spring load-restriction periods, or year-round if needed for system continuity. Roadbed width must accommodate ultimate ten-ton pavement overlay thickness and ultimate 1:4 sideslope. Within municipal corporate limits, minimum structural design must support nine-ton axle strength.

HL-93 loading in the AASHTO LRFD (load and resistance factor design) Specifications is required for new or reconstructed bridges. Rehabilitated bridges must have a load rating factor of at least 0.9 using the AASHTO Manual for Bridge Evaluation, LRFR (load and resistance factor rating) for inventory level. The curb-to-curb minimum width for new or reconstructed bridges must be equal to the proposed lane plus shoulder widths, but in no case less than the minimum lane widths plus four feet, and in no case less than required per Minnesota Statutes, section 165.04.

**Statutory Authority:** *MS s 14.386; 14.389; 162.02; 162.09; 162.155*

**History:** 20 SR 1041; 23 SR 1455; 24 SR 1885; 29 SR 449; 32 SR 608; 36 SR 925; 37 SR 697;  
42 SR 485

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