CHAPTER 8820
DEPARTMENT OF TRANSPORTATION
LOCAL STATE-AID ROUTE STANDARDS, FINANCING

8820.0100 DEFINITIONS.

[For text of subps 1 to 2c, see M.R.]

Subp. 2e. **Bridge rehabilitation.** "Bridge rehabilitation" means (1) the partial reconstruction of an existing bridge to meet current design criteria and construction standards or (2) a project that fixes the deterioration in the structure or improves the geometrics or load-carrying capacity, but may not necessarily provide improvement to meet new design standards.

[For text of subps 2f to 13a, see M.R.]

Subp 13b **Reconditioning.** "Reconditioning" includes resurfacing, replacement, or rehabilitation of the pavement structure to extend the life of the roadway and effectively address critical safety and operations needs through minor improvements to the existing facility. Reconditioning projects generally utilize the existing horizontal and vertical alignment, may entail minor widening or geometric improvement, and normally require little or no additional right-of-way Replacement or rehabilitation of the pavement structure does not include significant subgrade correction Reconditioning may include changes in vertical or horizontal alignment involving no more than 20 percent of the length of the project Work does not normally extend beyond the existing ditch bottom

Subp 13c. **Reconstruction.** "Reconstruction" means (1) the replacement of an existing roadway on a similar alignment or (2) the replacement of an existing bridge with a completely new bridge

[For text of subps 14 to 22, see M.R.]

Statutory Authority: *MS s 162.02, 162.09*

History: *24 SR 1885*

8820.0600 SELECTION OF ROUTES.

Final selection of routes to be included in the respective county state-aid and municipal state-aid systems are subject to the approval of the commissioner. These routes may be established on new locations where no existing roadway exists or may be located upon or over an established roadway or specified portion of a roadway.

The highway and street systems to be selected and designated in accordance with law are:

[For text of item A, see M.R.]

B. a municipal state-aid street system not exceeding 20 percent of the total length of city streets and county roads within the jurisdiction of an urban municipality plus the length of all trunk highways reverted or turned back to the jurisdiction of the urban municipality pursuant to law on and after July 1, 1965, plus the length of county highways reverted or turned back to the jurisdiction of the urban municipality pursuant to law on or after May 11, 1994

For an undivided, one-way street with a minimum width of 26 feet and with no parking lane or with a maximum width of 46 feet with parking available on one side of the street, the chargeable length allowed for municipal state-aid street length purposes is one-half of the length of the one-way street.

Statutory Authority: *MS s 162.02, 162.09*

History: *24 SR 1885*

8820.1400 MAINTENANCE, CONSTRUCTION, AND TURNBACK ACCOUNTS; STATE-AID PAYMENTS.

[For text of subps 1 and 2, see M.R.]

Subp. 3. **Urban maintenance apportionment account.** Twenty-five percent of the total allocation, if requested by the urban municipality before December 16 preceding the annual allocation, or $1,500 per mile of improved municipal state-aid streets, is the minimum allotment for the general maintenance of the approved state-aid system. The commissioner may modify any allotments to the urban maintenance account to finance the amount needed to pay the interest due on municipal state-aid bonds and to accommodate the screening board resolutions pertaining to trunk highway turnback maintenance allowances.

Those municipalities desiring to receive an amount greater than the established minimum, not to exceed 35 percent of the total allocation, shall file a request with the commissioner before December 16 preceding the annual allocation and shall agree to file a detailed annual maintenance expenditure report at the end of the year

[For text of subp 4a, see M.R.]

Subp. 4b. **Town bridge account.** The commissioner shall retain for payment on approved projects the town bridge account portion of the annual allocation.

[For text of subps 4c to 8, see M.R.]

Statutory Authority: *MS s 162.02, 162.09*

History: *24 SR 1885*

8820.1500 CONSTRUCTION FUNDS.

[For text of subps 2 to 9, see M.R.]

Subp. 9a. **Advance from town bridge account.** When the commissioner approves a request from the governing body of a county for the replacement, reconstruction, or rehabilitation of a town bridge requiring funds in excess of the county's available town bridge account, the commissioner shall reimburse those expenditures in accordance with the terms and conditions specified in the approved request. The request for advance encumbrance must be submitted with the Report of State Aid Contract

[For text of subps 10 to 11a, see M.R.]

Subp. 12. **Municipal state-aid funds; county or trunk highway projects.** The governing body of an urban municipality desiring to use a portion of its state-aid funds for improvements within its boundaries on a state trunk highway or county state-aid highway, must have the plans approved by the state-aid engineer before bids are opened for these purposes. The extent of state-aid participation must be determined on the same basis as a regular municipal state-aid highway project, including engineering and right-of-way costs.

Statutory Authority: *MS s 162.02, 162.09*

History: *24 SR 1885*

8820.2300 TURNBACK, TOWN BRIDGE, AND TOWN ROAD ACCOUNTS.

[For text of subps 1 to 1b, see M R]

Subp. 2 **Town bridge fund allocation.** The funds set aside for town bridges must be allocated to the eligible counties.

[For text of subps 2a to 7, see M.R.]

Statutory Authority: *MS s 162.02; 162.09*

History: *24 SR 1885*

8820.2500 MINIMUM STATE-AID STANDARDS.

[For text of subps 1 to 2, see M R]

Subp. 3. **Right-of-way.** The minimum widths of right-of-way for state-aid routes must be at least 60 feet within cities and 66 feet m rural areas, except that the right-of-way may be less for routes that are within a city, that were constructed before November 13, 1995, and that can be reconstructed to new construction standards within the previously existing right-of-way Before construction, the governing body shall acquire control of the additional widths of right-of-way as may be necessary to properly maintain the ditch section, drainage structures, and the recovery area. Permanent easements for highway purposes are considered to be right-of-way for the purposes of this subpart.

[For text of subp 4, see M R]

Statutory Authority: *MS s 162.02; 162 09*

History: *24 SR 1885*

8820.2700 MAINTENANCE REQUIREMENTS.

Subpart 1. **Standards.** The commissioner shall require a reasonable standard of maintenance on state-aid routes within the county or urban municipality, consistent with available funds, the existmg street or road condition, and the traffic being served. This maintenance must be considered to include:

[For text of items A to C, see M R.]

D. the striping of pavements of 22 feet or more in width, consistent with the current manual on uniform traffic control devices, and for which there are no pending improvements;

[For text of item E, see M R]

F. the installation of route markers on county state-aid highways as follows:

(1) route markers must be a minimum of 16 inches by 16 inches square with black letters or numerals on a white background; or

[For text of subitem (2), see M:R]

[For text of subps 2 and 3, see M R]

Statutory Authority: *MS s 162.02, 162 09*

History: *24 SR 1885*

8820.3100 GENERAL STATE-AID LIMITATIONS.

[For text of subps 1 to 6, see M.R]

Subp 7a. **Bicycle paths and sidewalks.** Payment for a bicycle path or sidewalk must be made when requested by urban municipalities, but only if the bicycle path or sidewalk is located withm the permanent right-of-way of a state-aid eligible route or within an easement generally parallel with a state-aid route. County state-aid funds may be spent on bicycle paths or sidewalks as a match to federal-aid funds or on paths that are both a part of an adopted bicycle path plan and are located within the permanent right-of-way of a state-aid route or within an easement generally parallel with a state-aid route

[For text of subps 8 to 10, see M R]

Statutory Authority: *MS s 162 02, 162 09*

History: *24 SR 1885*

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

New or reconstruction projects for rural and suburban undivided roadways must meet or exceed the minimum dimensions indicated in the following design chart

Projected ADT (b)	Lane Width (h)	Shoulder Width (h)	Inslope (c)	Recovery Area (d)	Design Speed (e)(g)	Surfacing	Structural Design Strength (i)	Bridges to Remain (f) Width Curb-Curb
	feet	feet	rise run	feet	mph		tons	feet
0-49	11	1	1.3	7	30-60	Agg.		22
50-149	11	3	1 4	9	40-60	Agg.		22
150-749	12	4	1 4	15	40-60	Paved	9	28
750-1499	12	4	1:4	25	40-60	Paved	9	28
1500 and over	12	6(h)	1 4	30	40-60	Paved	10	30

Engineering judgment may be used to choose a lane-width or shoulder-width dimension other than the widths indicated in the chart for roadways Factors to consider may be safety, speed, population/land use, benefit/cost analysis, traffic mix, farm equipment, environmental impacts, terrain limitations, bicycle traffic, pedestrian traffic, other nonmotorized uses, functional classification, or other factors. Widths less than those indicated in the chart require a variance in accordance with parts 8820 3300 and 8820.3400

(a) 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

(b) Use the existmg traffic for highways not on the state-aid system

(c) Applies to slope within recovery area only

(d) Obstacle-free area (measured from edge of traffic lane) Culverts with less than 30-inch vertical height allowed without protection in the recovery area.

Guardrail is required to be installed at all bridges where the design speed exceeds 40 mph, and either the ADT exceeds 749 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 m part 8820.0100, the recovery area 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 40 mph or less, the recovery area 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) Inventory rating of H 15 is required. A bridge narrower than these widths may remain in place if the bridge is not deficient structurally or hydraulically.

(g) Design speed of 30 mph allowed for highways not on the state-aid system.

(h) 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

(i) Roadways not on the state-aid system are not subject to the minimum structural design strength requirements. In suburban areas, the minimum structural design strength is nine tons or ten tons as needed for system continuity

Approach sideslopes must be 1 4 or flatter when the ADT exceeds 400

HS 25 loading with AASHTO Standard Specifications or HL-93 loading with load and resistance factor design (LRFD) is required for new or reconstructed bridges. HS 18 loadmg is required for all rehabilitated bridges The curb-to-curb minimum width for new or reconstructed bridges is the sum of the lane and shoulder widths plus four feet

Statutory Authority: *MS s 162 02, 162 09*

History: *24 SR 1885*

8820.9926 GEOMETRIC DESIGN STANDARDS: RURAL AND SUBURBAN UNDIVIDED; RECONDITIONING PROJECTS.

Subpart 1 **Minimum reconditioning standards.** Reconditioning projects for rural or suburban undivided roadways must meet or exceed the minimum dimensions indicated in the following design chart. See part 8820 0100, subpart 13b, for the description of activities allowed

Existmg ADT	Statutory or Regulatory Posted Speed	Lane Width (Paved)	Combined Lane (Paved) and Shoulder Width
Below 750	Under 50 mph	10 feet	11 feet
Below 750	50 mph or over	10 feet	12 feet
Over 749	Under 50 mph	10 feet	12 feet
Over 749	50 mph & over	11 feet	14 feet

Engineering judgment may be used to choose a lane 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, environmental impacts, terrain limitations, bicycle traffic, pedestrian traffic, other nonmotorized uses, functional classification, or other factors Widths less than those indicated in the chart require a variance in accordance with parts 8820 3300 and 8820 3400.

Widths of bridges to remain in place must equal roadway pavement width. Bridges narrower than these widths may remain in place provided that the bridge does not qualify for federal-aid bridge funds H 15 inventory rating is required.

Any highway that was previously built to state-aid or state standards, that was granted a variance to standards in effect at the time of construction or reconstruction, or that is a trunk highway turnback, may be reconditioned

The proposed structural design strength must be a minimum of seven tons

Statutory Authority: *MS s 162 02, 162 09*

History: *24 SR 1885*

8820.9936 GEOMETRIC DESIGN STANDARDS, URBAN; NEW OR RECONSTRUCTION PROJECTS.

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

Functional Classification and Projected Traffic Volume	Design Speed mph	Lane Width (a) feet	Curb Reaction Distance (e) feet	Parking Lane Width feet
Collectors or Locals with ADT < 10000*	30-40	(b) 11	2	8
	over 40	12	2	10
Collectors or Locals with ADT ≥ 10000 and Arterials	30-40	(b) 11	(c) 4	10
	over 40	12	(c) 4	(d) 10

(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) Wherever possible, lane widths of 12 feet, rather than 11 feet, should be used.

(c) May be reduced to two feet if there are four or more traffic lanes and on one-way streets

(d) No parking is allowed for six or more traffic lanes or when the posted speed limit exceeds 45 mph

(e) Curb reaction must be provided only where parking is not provided

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

When a 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 be a mmimum nine tons structural design, or ten tons if needed for system continuity

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

A new bridge must have a curb-to-curb width equal to the required street width. HS 25 loadmg with AASHTO Standard 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

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 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 clearance 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.

*Additional average daily traffic may be allowed if a capacity analysis demonstrates that level of service D or better is achieved at the higher traffic volume. If the capacity analysis demonstrates that additional lanes are required only during peak traffic hours, then each additional driving lane may be used as a parking lane during nonpeak hours.

"Level of service" has the meaning given it in the Highway Capacity Manual, Special Report 209, as revised and published by the Transportation Research Board of the National Research Council, Washington, D.C. The definition is incorporated by reference, is not subject to frequent change, and is located at the Minnesota State Law Library, 25 Constitution Avenue, St. Paul, Minnesota 55155.

Statutory Authority: *MS s 162.02, 162.09*

History: *24 SR 1885*

8820.9946 GEOMETRIC DESIGN STANDARDS, URBAN; RECONDITIONING PROJECTS.

Subpart 1. **Two-way streets.** In the following design chart, total width is from face-to-face of curbs.

Reconditioning projects for two-way urban roadways must meet or exceed the minimum dimensions indicated in the chart.

Number of Through Lanes, Functional Class, and Present Traffic Volume	Total Width with No Parking	Total Width with Parking on One Side	Total Width with Parking on Both Sides	Proposed Structural Design Strength
	feet	feet	feet	tons
2-Lane Collector or Local with ADT < 10000	26	32	38	(b) 9
4-Lane Collector or Local with ADT < 10000	44	52	60	(b) 9
2-Lane Collector or Local with ADT ≥ 10000 or 2-Lane Arterial (a)	26	32	42	9
4-Lane Collector or Local with ADT ≥ 10000 or 4-Lane Arterial	44	54	64	9
6-Lane Collectors or Arterials	66	(c)	(c)	9

(a) Permissible for present traffic volumes less than 15,000 ADT.

(b) When ADT is less than 5,000, seven tons is allowable.

(c) No parking is allowed.

When a 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.

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 half the sum of the shoulders, parking lane, and curb reaction distance

Subp. 2. **One-way streets.** In the following design chart, total width is from face-to-face of curbs.

Reconditioning projects for one-way urban roadways must meet or exceed the minimum dimensions indicated in the chart.

Number of Through Lanes and Functional Class	Present ADT	Total Width with No Parking feet	Total Width with Parking on One Side feet	Total Width with Parking on Both Sides feet	Proposed Structural Design Strength tons
2-Lane Collector or Local with ADT < 10000	<5000	21	29	37	7
	5000-10000	23	31	39	9
2-Lane Collector or Local with ADT ≥10000 or 2-lane Arterial	<15000	23	31	39	9
	≥15000	24	32	40	9
3-Lane Arterial or Collector	All	34	42	50	9

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 half the sum of the shoulders, parking lane, and curb reaction distance

Subp 3 **Exception.** Any street that was previously built to state-aid or state standards, that was granted a variance to standards in effect at the time of construction or reconstruction, or that is a trunk highway turnback, but does not meet current standards, may be reconditioned regardless of subparts 1 and 2.

Statutory Authority: *MS s 162 02, 162.09*

History: *24 SR 1885*

8820.9956 VERTICAL CLEARANCES FOR UNDERPASSES.

Underpass projects must meet or exceed the minimum dimensions indicated in the following design chart

	Rural-Suburban Design, Vertical Clearance feet-inches	Urban Design, Vertical Clearance feet-inches
Highway under roadway bridge	16-4	14-6

Highway under railroad bridge	16-4	14-6
Highway under pedestrian bridge	17-4	14-6
Highway under sign structure	17-4	14-6
Railroad under roadway bridge*	22-0	22-0

*Variances to the required minimum may be granted by the commissioner of transportation. That approval eliminates the need for a state-aid variance.

Statutory Authority: *MS s 162.02, 162 09*

History: *24 SR 1885*

8820.9961 MINIMUM DESIGN STANDARDS FOR 45-DEGREE AND 60-DEGREE DIAGONAL PARKING.

Diagonal parking projects must meet or exceed the minimum dimensions indicated in the following design chart.

Parking Angle	Present ADT	Parking Stall Width	Parking Stall Depth	Distance Between Traffic Lane and Parking Stall	Length Along Curb
		(feet)	(feet)	(feet)	(feet)
45 degrees	< 3000	9	20	2	12.7
60 degrees	< 3000	9	21	7	10 4
45 degrees	≥3000	9	20	14	12 7
60 degrees	≥ 3000	9	21	19	10 4

Maximum legal speed limit must be 30 mph

At least two through-traffic lanes must be provided

Diagonal parking provisions must be established by cooperative agreement between the local road authority and the commissioner.

The cooperative agreement must show the angle of parking and provide for pavement marking of the parking lanes

Minnesota Statutes; section 169.34, must be adhered to in determining diagonal parking spacing

Provide a two-foot clearance from the face of the curb to fixed objects. Parking meters, when spaced so as to not interfere with vehicle operation, are exempt.

Statutory Authority: *MS s 162 02, 162 09*

History: *24 SR 1885*

8820.9981 MINIMUM GEOMETRIC DESIGN STANDARDS; NATURAL PRESERVATION ROUTES, DESIGNATED NATIONAL FOREST HIGHWAYS WITHIN NATIONAL FORESTS, AND STATE PARK ACCESS ROADS WITHIN STATE PARKS; NEW OR RECONSTRUCTION PROJECTS.

Subpart 1 **Type I route.** New or reconstruction projects for type I natural preservation routes, designated natural forest highways withm national forests, and

state park access roads within state parks must meet or exceed the minimum dimensions indicated in the following design chart.

Surface Type	Design Speed	Lane Width	Shoulder Width	Inslope	Recovery Area	Design Strength	Bridge to Remain
	mph	feet	feet (a)	rise run (b)	feet (c)	tons	feet (d)
Aggregate	30	11	1	1:3	3		22
Paved	30	11	2	1:3	10	9	22

(a) If the route has scenic vistas that will require parking vehicles along the shoulder, widening the shoulder at these locations is acceptable. The designer will provide a four-foot paved shoulder if the route is a popular bicycle route

(b) Applies to slope within recovery area only Other design features, such as guardrails or retaining walls, should be considered in particularly sensitive areas in lieu of reconstructing the inslope in accordance with part 8820 4060.

(c) Obstacle-free area (measured from edge of traffic lane)

Guardrail is required to be installed at all bridges where the design speed exceeds 40 mph, and either the ADT exceeds 749 or the bridge width is less than the sum of the lane and shoulder widths

Mailbox supports must be in accordance with chapter 8818

(d) Inventory rating of HS 15 is required. A bridge narrower than these widths may remain in place if the bridge is not deficient structurally or hydraulically

HS 20 loading with AASHTO Standard Specifications or HL-93 loading with load and resistance factor design (LRFD) is required for new bridges. HS 18 loading is required for all rehabilitated bridges The curb-to-curb minimum width for new or reconstructed bridges is the sum of the lane and shoulder widths plus four feet

Ditch depths and widths must be kept to the minimum required to function hydraulically and to provide for adequate snow storage when a standard ditch would negatively impact the surroundings

The designer shall specify in the plan and special provisions that the clearing width is to be kept to the absolute minimum. In sensitive areas, the normal clearance allowed to a contractor for working room is zero unless otherwise required for special conditions.

Curb and gutter may be used in lieu of a ditch section under the paved option The lane width, shoulder width, and recovery area must be maintained

For designated national forest highways within national forests, and state park access roads within state parks, this subpart applies only where the projected ADT is less than 100, unless the route has been designated as a natural preservation route

Subp 2 **Type II route.** New or reconstruction projects for type II natural preservation routes, designated national forest highways within national forests, and state park access roads within state parks must meet or exceed the minimum dimensions indicated in the following design chart

Surface Type	Design Speed	Lane Width	Shoulder Width	Inslope	Recovery Area	Design Strength	Bridge to Remain
	mph	feet	feet (a)	rise: run (b)	feet (c)	tons	feet (d)
Aggregate	30	11	2	1:3	9		24
Paved	40	12	4	1 4	10	9	24

(a) The designer will provide a six-foot paved shoulder if the route is a popular bicycle route. If the route has scenic vistas that will require parking vehicles along the shoulder, widening the shoulder at these locations is acceptable.

(b) Applies to slope within recovery area only Other design features, such as guardrail or retaining walls, should be considered in particularly sensitive areas in lieu of reconstructing the inslope in accordance with part 8820.4060 Approach sideslopes must be 1:4 or flatter within the recovery area when the ADT exceeds 400

(c) Obstacle-free area (measured from edge of traffic lane).

Guardrail is required to be installed at all bridges where the design speed exceeds 40 mph, and either the ADT exceeds 749 or the bridge width is less than the sum of the lane and shoulder widths

Mailbox supports must be in accordance with chapter 8818.

(d) Inventory rating of HS 15 is required. A bridge narrower than these widths may remain in place if the bridge does not qualify for federal-aid bridge funds

HS 20 loading with AASHTO Standard Specifications or HL-93 loading with load and resistance factor design (LRFD) is required for new bridges. HS 18 loading is required for all rehabilitated bridges The curb-to-curb minimum width for new or reconstructed bridges is the sum of the lane and shoulder widths, but may not be less than 30 feet.

Ditch depths and widths must be kept to the minimum required to function hydraulically, to be traversable if within the recovery area, and to provide for adequate snow storage when a standard ditch would negatively impact the surroundings

The designer shall specify in the plan and special provisions that the clearing width is to be kept to the absolute minimum In sensitive areas, the normal clearance allowed to a contractor for working room is zero unless required for special conditions.

For designated national forest highways within national forests, and state park access roads within state parks, this subpart may be applied only where the projected ADT is less than 300, unless the route has been designated as a natural preservation route.

Subp. 3 **Type III route.** New or reconstruction projects for type III natural preservation routes, designated national forest highways within national forests, and state park access roads within state parks must meet or exceed the minimum dimensions indicated in the following design chart.

Surface Type	Design Speed	Lane Width	Shoulder Width	Inslope	Recovery Area	Design Strength	Bridge to Remain
	mph	feet	feet (a)	rise: run (b)	feet (c)	tons	feet (d)
Aggregate	30	12	3	1 4	10		24

Paved (e)	30	12	4	1:4	10	9	24
Paved	40	12	4	1:4	15	9	24

(a) The designer will provide a six-foot paved shoulder if the route is a popular bicycle route If the route has scenic vistas which will require parking vehicles along the shoulder, widening the shoulder at these locations is acceptable.

(b) Applies to slope within recovery area only Other design features, such as guardrail or retaining walls, should be considered in particularly sensitive areas in lieu of reconstructing the inslope in accordance with part 8820 4060. Approach sideslopes must be 1:4 or flatter within the recovery area when the ADT exceeds 400.

(c) Obstacle-free area (measured from edge of traffic lane)

Guardrail is required to be installed at all bridges where the design speed exceeds 40 mph, and either the ADT exceeds 749 or the bridge width is less than the sum of the lane and shoulder widths.

Mailbox supports must be in accordance with chapter 8818

(d) Inventory rating of HS 15 is required. A bridge narrower than these widths may remain in place if the bridge does not qualify for federal-aid bridge funds

(e) This standard may be applied only when the project is located in a subdivided area or an area in a detailed development process, and physical restraints are present that prevent reasonable application of another level of these standards.

HS 25 loading with AASHTO Standard Specifications or HL-93 loading with load and resistance factor design (LRFD) is required for new bridges HS 18 loading is required for all rehabilitated bridges. The curb-to-curb minimum width for new or reconstructed bridges is the sum of the lane and shoulder widths, but may not be less than 32 feet.

Ditch depths and widths must be kept to the minimum required to function hydraulically, to be traversable if within the recovery area, and to provide for adequate snow storage when a standard ditch would negatively affect the surroundings.

The designer shall specify in the plan and special provisions that the clearing width is to be kept to the absolute minimum In sensitive areas, the normal clearance allowed to a contractor for working room is zero unless required for special conditions

Statutory Authority: *MS s 162 02, 162 09*

History: *24 SR 1885*

8820.9986 MINIMUM GEOMETRIC DESIGN STANDARDS: NATURAL PRESERVATION ROUTES, DESIGNATED NATIONAL FOREST HIGHWAYS WITHIN NATIONAL FORESTS, AND STATE PARK ACCESS ROADS WITHIN STATE PARKS; RECONDITIONING PROJECTS.

Reconditioning projects for natural preservation routes, designated national forest highways within national forests, and state park access roads within state parks must meet or exceed the minimum dimensions indicated in the following design chart.

TYPE I, II, OR III ROUTE

Proposed Design Strength	Pavement Width	Shoulder-to-Shoulder Width
tons	feet	feet
7	22	26

Widths of bridges to remain in place must equal pavement width A bridge narrower than these widths may remain in place if the bridge does not qualify for federal-aid bridge funds. H 15 loading is required.

Statutory Authority: *MS s 162.02, 162 09*

History: *24 SR 1885*

8820.9990 ROUTE MARKER.

2 ft by 2 ft

Green legend; white reflectorized background

Statutory Authority: *MS s 162.02; 162.09*

History: *24 SR 1885*

8820.9995 MINIMUM BICYCLE PATH STANDARDS.

Minimum Bicycle Path Standards

For Off-Road Design, the following shall apply:

Minimum Surfacing Width (two-way)	8 ft (b)
Shoulder/Clear Zone	2 ft (c)
Inslope	1:2 (rise:run)
Design Speed	20 mph (d)
Vertical Clearance	10 ft

(a) For on-road bicycle facilities, the appropriate tables in the Minnesota Bicycle Transportation Planning and Design Guidelines are recommended for design purposes.

(b) Ten feet is desired for a combined bicycle/pedestrian path. Five feet is required for a one-way bicycle path.

(c) The shoulder/clear zone should be carried across bridges and through underpasses 12 feet or less in clear width. Lead-in guardrail should be provided when shoulders are not carried over bridges.

(d) Use a 30 mph design speed for grades longer than 500 feet and greater than four percent, from the uphill point where the grade equals four percent to 500 feet

beyond the downhill point where the grade becomes less than four percent The maximum allowable grade is 8 3 percent.

Statutory Authority: *MS s 162 02, 162 09*

History: *24 SR 1885*