Table 4-4.03A
SHOULDER USE BY BUSES: GEOMETRIC DESIGN CRITERIA
Type of Highway: Urban Multi-Lane Freeway and Expressways; Buses on right shoulders only

Controlling Geometric Design Criteria	Standard	Notes:
Design Speed, mph	35	Maximum speed for buses traveling on shoulder, as per operational policy
Shoulder Width, ft	10.0 12.0	10.0 ft minimum, 12.0 ft desirable 12.0 ft required in areas of new construction or reconstruction.
Bridge Width, ft	11.5 12.0	11.5 ft minimum, 12.0 ft desirable 12.0 ft required in areas of new construction or reconstruction
Grades, max. %	nc	No change (nc) match existing roadway
Inslopes	1:6	If inslopes are not steeper than 1:6, inslopes may be steepened to 1:6. If inslopes are steeper than 1:6, match existing, except in the following cases: If fill slope is steeper than 1:3 and higher than 2 ft, provide guardrail. If fill slope is steeper than 1:3.5 and higher than 5 ft, provide guardrail, unless there is 18 ft between the edge of shoulder and the point where the fill slope becomes steeper than 1:3.5.
Structural Capacity	HS25	For new bridges. For existing bridges to allow shoulder use the shoulder must be structurally adequate (capable of carrying legal loads and does not appear on the inventory of inadequate bridges).
Horizontal Alignment, radius, ft	nc	No change (nc) match existing roadway
Vertical Alignment, minimum K value, ft/deg	nc	No change (nc) match existing roadway
Stopping Sight Distance, ft	250	Stopping Sight Distance based on 35 mph design speed
Cross Slope, ft/ft	0.02 - 0.05	MnDOT Road Design Manual: Tbl. 4-4.01D.
Superelevation max, ft/ft	0.06	MnDOT Road Design Manual; Fig. 3-3.03A
Vertical Clearance, ft	14	AASHTO's A Policy on Geometric Design of Highways & Streets; Chapter 7 Tallest design vehicle is 10 ft -9 in.
Horizontal Clearance to Obstructions, ft	0	AASHTO's A Policy on Geometric Design of Highways & Streets; Chapter 8 2 ft beyond edge of shoulder is preferable, as a minimum, place at the edge of shoulder.