

<b>Subject: Shoulder Rumble Strips</b>	
<b>Date:</b> May 12, 2003	<b>Author:</b> D. Ross Coulter, ASCT
<b>Bulletin Number:</b> DS03003 <b>Bulletin Type:</b> Change to Standard	<b>Action Required:</b> Immediate <b>Effective Date:</b> May 26, 2003
<b>Contacts</b>	<b>Standards Affected</b>
Richard Voyer, P.Eng. Safety Standards Engineer Engineering Branch Victoria (250) 387-7761 Alan Callander, Cycling Coalition Liaison Policy Branch Victoria (250) 356-5563 D. Ross Coulter, ASCT Sr. Geom & Safety Tech Engineering Branch Victoria (250) 356-7928	Replaces previous Technical Bulletin DS99001 and supplements Technical Circular TC-06/03 "Shoulder Rumble Strips (SRS)"

## Background

Shoulder Rumble Strips have been used as an audible delineation by an increasing number of highway agencies over the last ten years with very significant safety improvements. Based on published results from both Canada and the U.S., the Engineering Branch estimates that installing SRS on paved shoulders could reduce Run-Off-Road (ROR) accident by 20% or higher. It is estimated that the installation of SRS on rural highway sections brings benefits, through accident reductions that far exceed the costs.

## Policy

- Shoulder Rumble Strips shall be installed on rural highway sections in the following cases, in accordance with the Application Guidelines:
  1. New rural highway sections;
  2. When re-paving, rehabilitating or reconstructing existing rural highway sections, which include the shoulders;
  3. Other rural Highway Sections that are not part of a project but that would benefit from the installation of SRS.
- Exceptions to this policy require justification and sign-off by the Chief Engineer or designate.
- SRS should not be used in urban areas. Good indication of an urban highway section are:
  1. Speed Zone of 70 km/h or less in the vicinity of a settlement;
  2. Highway Section with curb-and-gutter or a sidewalk;
  3. The spacing between driveways and intersections is less than 150 metres.
- The minimum shoulder depth of pavement required is 50 mm;
- SRS are not to be installed if pavement deterioration/cracking is evident.

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## Application Guidelines:

The Layout for Milled-in SRS is shown in Figures A.

- SRS shall be installed on shoulders in both directions, for rural two lane and four lane arterial undivided highways (RAU). On rural four lanes divided arterials, expressways and freeways (RAD, RED & RFD), the SRS is installed on both the outside and the median shoulders.
- Schedule 1 Highways may have rumble strips on shoulders as narrow as 0.8 m. Shoulders with SRS that have cycling traffic should be at least 1.5 metres wide, but may be less with modified SRS.
- On rural highways SRS will be installed in the following manner:
  - a) For shoulders  $\geq 1.5$  m with no further analysis – 300 mm SRS offset 100 mm from the paint line;
  - b) For shoulders  $\geq 1.2$  m and  $< 1.5$  m with no further analysis - 150 mm SRS offset 0 mm from the paint line;
  - c) For shoulders  $< 1.2$  m but  $\geq 0.8$  m – 150 mm SRS, offset 0 mm from the paint line. This application requires the approval of the Regional Manager of Professional Services, when the risk to motorists is high and the following conditions have been met:
    - 1) There are no other approved type of audible delineation device which reduces the encroachment on the shoulder width used by cyclists;  
and
    - 2) A risk analysis has been done for the specific highway section. A cycling advocacy group, recognized by the BC Cycling Coalition, must be involved in the risk analysis. The risk analysis must show that the benefits to motorists clearly exceed the negative impact on cyclists.
- The Ministry Cycling Policy requires that the cycling stakeholders should be made aware, as soon as possible of the SRS program and given an opportunity to provide input. Therefore, the projects that have an SRS component should be identified as early as possible. Contact Alan Callander of the Transportation Policy Branch for cycling advocacy group contacts.
- All projects that involve SRS should be submitted for possible ICBC Cost-Sharing evaluation. Regions and Districts may also develop stand-alone SRS projects, which should be brought forward for possible ICBC Cost-Sharing. To assist Regions, a prioritised list of highway sections is attached. The list identifies candidate locations; however it does not limit SRS to only those locations.

## SRS Interruptions:

- SRS are to be interrupted prior to driveways, intersections, ramps, shoulder constraints and wherever it is needed and required to allow cyclists to merge to the left of the SRS (such as to avoid riding over a drainage grate), as shown on figures B, C and D.
- Shoulder rumble strips should not be installed on bridge decks and overpass structures and within 200 mm of expansion joint dams.