



Carver County

Division of Public Works

RUMBLE STRIP POLICY

Adopted by the Carver County Board of Commissioners on March 19, 2013.

PURPOSE

The following Policy has been established to provide uniformity and consistency in the application and installation of edge line and centerline rumble strips on Carver County's rural roadway system. This policy weighs the safety benefit with the noise nuisance associated with rumble strips, and defines when rumble strips will be used on the County roadway system.

BACKGROUND

In response to an overrepresentation of road departure and head-on crashes along the rural county highway system in Minnesota, Carver County completed a Roadway Safety Plan in 2013 which identifies a variety of potential mitigation strategies (as documented in the NCHRP 500 Series reports on implementation of AASHTO's *Strategic Highway Safety Plan* and in the Federal Highway Administration's Technical Memorandum on Consideration and Implementation of Proven Safety Countermeasures). Current safety-related guidance suggests that the first step in addressing road departure crashes and head-on crashes involves considering the deployment of techniques and features along road edges and centerlines that help keep vehicles on the roadway and in the appropriate lane. The techniques include enhancing pavement markings, enhancing delineation of highway curves, constructing wider or paved shoulders, providing a safety wedge as part of bituminous paving projects, installing median and barriers, and installing edge line and centerline rumble strips. Considering implementation costs and estimated effectiveness, the use of rumble strips has been selected as a targeted strategy for reducing the occurrence of road departure and head-on crashes along segments of rural county highways.

It is Carver County's long-term goal to reduce road departure and head-on crashes along all county highways utilizing the most appropriate technique. Given that the Carver County system includes approximately 270 miles of roadway, implementation costs are extremely high. This will require using a phased approach to construct and install the edge line and centerline improvements over several years, as funding permits.

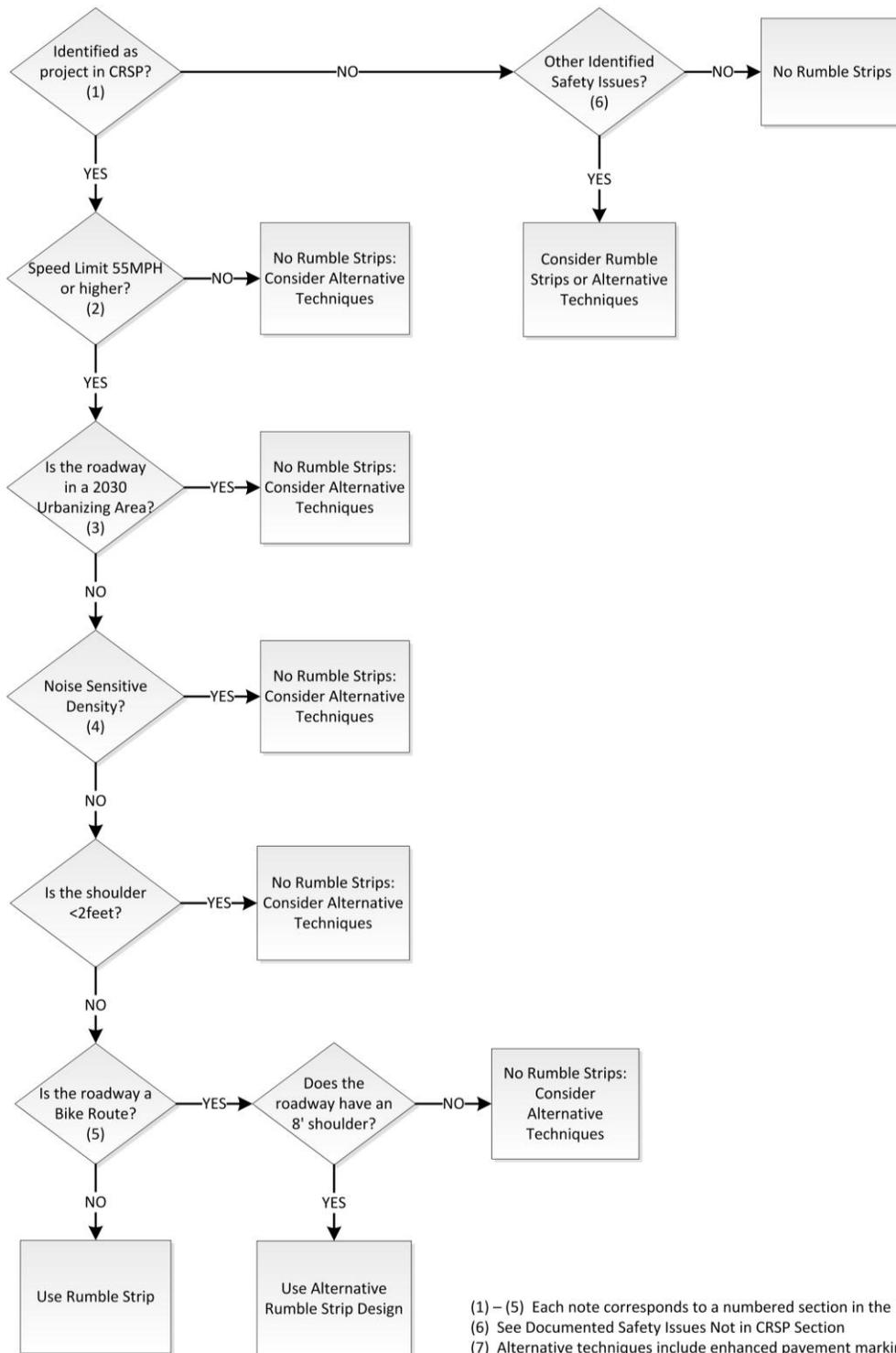
POLICY

Carver County will periodically evaluate the rural county highway system, based on the County Road Safety Plan, traffic volumes, road departure crashes, bike use, shoulder characteristics, land use, and residential density, and will establish a priority for implementation of rumble strips consistent with the following flowchart and criteria.



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RUMBLE STRIP POLICY FLOW CHART



(1) – (5) Each note corresponds to a numbered section in the Policy Criteria
 (6) See Documented Safety Issues Not in CRSP Section
 (7) Alternative techniques include enhanced pavement markings, safety edge, median and barriers, etc...



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Carver County's approach to implementing edge line enhancements will include two basic components:

1. Including safety strategies in traditional maintenance and regular construction projects.
2. Adding safety strategies by undertaking stand-alone projects that capitalize on securing state and federal highway safety improvement funds.

POLICY CRITERIA

Rumble strips in the travelled way have several potential pitfalls that should be considered carefully in any decision to implement them, including the following:

- Noise that may disturb nearby residents
- Potential loss-of-control problems for motorcyclists and bicyclists
- Difficulties created for snowplow operations
- Inappropriate driver responses, such as using the opposing travel lanes to drive around the rumble strips

With this policy Carver County is trying to balance the safety benefit of rumble strips with the noise nuisance for nearby residence utilizing the following criteria:

1. If the segment of roadway has been identified in the County Road Safety Plan as a candidate for rumble strip installation. These projects have been chosen based on roadway ADT, density of lane departure crashes, access density, curve critical radius density, and edge line risk.
2. Rumble strips will not be installed if the posted speed limit is less than 55mph.
3. Rumble strips will not be installed if the segment is within a 2030 urbanizing area as determined by the Carver County Comprehension Plan.
4. If rumble strips are considered for a roadway the design will allow for a break in the rumble strips within 650 feet of a residence (see Noise Sensitive Density Guidelines Section below). A segment of rumble strips will only be installed if it is at least a 1320 foot (1/4 mile) continuous segment. Each segment will be analyzed to determine if the allowable rumble strip installation areas are worthwhile for the segment.
5. If the segment falls within an actively used Bicycle route, it will then be analyzed for existing shoulder widths and a possible alternative rumble strip design will be chosen (see Bicycle Design Guidelines Section below).



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BICYCLE DESIGN GUIDELINES

For locations designated as bike routes or routes with regular bike traffic, also consider:

- At locations with paved shoulder, moving the rumble to the outside edge of the paved shoulder to provide space for the bicyclist to move between the roadway lane and shoulder without having to run over the rumbles
- At locations without shoulders, consider bike-friendly designs (such as 48-foot grooves with a 12-foot skip) or adding a narrow paved shoulder, moving the edge line to 11 feet, and adding the rumbles to the outside edge of the shoulder.

NOISE SENSITIVE DENSITY GUIDELINES

The National Cooperative Highway Research Program (NCHRP) Report 641, Guidance for the Design and Application of Shoulder and Centerline Rumble Strips, states that terminating rumble strips 656 feet prior to a residential or urban area results in tolerable noise impacts. The report also states that a recent survey of residence show the majority of people find the external noise produced from centerline rumble strips to be acceptable or tolerable and that the potential driver safety outweighed the effect of the external noise.

DOCUMENTED SAFETY ISSUES NOT IN COUNTY ROAD SAFETY PLAN

Carver County Public Works will also consider utilizing rumble strips along a segment of roadway if there is a documented safety problem. If this occurs, proper public involvement will be the main part of the project scope.