

NC Active Transportation Alliance (NCATA) Background Paper

Subject: Improper Installation of "Rumble Strips" in North Carolina

Summary: The improper installation of "Rumble Strips" in numerous areas of North Carolina is causing unsafe conditions for cyclists and motorists. Cyclists can be thrown from their bike by the strips or be forced to verge abruptly into the traffic lane. Although NCDOT has provided general guidance there are no standardized, specific guidelines across the 14 DOT Highway Divisions. In addition, it appears that the contractors applying the rumble strips are either unaware of the guidance or are ignoring it. This issue must be addressed at local and State levels.

Discussion:

NCDOT policy published in the document "*NCDOT Division of Bicycle and Pedestrian Transportation, Laws and Policies*" establishes the following general guidelines for Rumble Strips:

"Rumble strips (raised traffic bars), asphalt concrete dikes, reflectors, and other such surface alterations, where installed, shall be placed in a manner as not to present hazards to bicyclists where bicycle use exists or is likely to exist. Rumble strips shall not be extended across shoulder or other areas intended for bicycle travel."

http://www.ncdot.gov/bikeped/download/bikeped_laws_Bicycle_Policy.pdf

It appears that contractors installing the rumble strips are either unaware of the guidance or are ignoring it because it is very general.

In various areas across North Carolina the improper installation of rumble strips causing unsafe conditions for cyclists. These rumble strips create situations where cyclists must use the travel lane and that drivers will need to brake suddenly or change lanes to pass safely. Examples of this situation are shown in Attachment 1 to this paper.

Although NCDOT, Division of Highways, Traffic Engineering and Safety Systems Branch has recognized this problem and did issue a draft document entitled "STANDARD PRACTICE for Milled Rumble Strips/Stripes on Non-Full-Controlled Facilities" (See Attachment 2) there is no consistent and specific guidance among the fourteen NCDOT transportation divisions across the State. It is notable that In Western NC, NCDOT Division 14 has issued some excellent guidelines for Rumble Strips (Attachment 3).

The issue of improper placement of rumble strips is not unique to North Carolina. The League of American Bicyclists (LAB) has published a paper which raises concern about rumble strips and notes that National organizations and agencies such as the AASHTO and the FHWA have issued guidance on how state agencies can balance the motorist safety benefits of rumble strips with the needs of bicyclists.

http://www.bikeleague.org/resources/reports/pdfs/rumble_strips.pdf

Proposed Corrective Actions:

- NCDOT develop and enforce a consistent rumble strip design standards and implementation practice for all 14 Divisions across the state. These standards should be consistent with AASHTO and FHWA guidance.
- The NCDOT Bicycle Division make this an issue of specific concern
- Local MPO and RPO Transportation Advisory Committees address this situation with their NCDOT Divisions

For additional information: Contact Al Schroetel, NCATA Policy Committee
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Attachment 1: Examples of the Improper Installation of Rumble Strips

Eastern North Carolina: Highway 17 in Brunswick County

A specific example where it appears that the contractors applying the rumble strips are either unaware of the guidance or are ignoring it can be found on Rte 17 in Brunswick County where the rumble strips start near the intersection with Cherry Tree Rd. and go seven miles south, essentially wiping out all of the narrow paved shoulders. In addition the rumble strips are continuous (without periodic breaks) making it dangerous to enter or leave the bike lane. In these areas, there is no alternate continuous route for north / south travel. The following pictures illustrate these unsafe conditions:



The Piedmont: Aviation Parkway, RDU Airport:

Aviation Parkway has provided safe cycling for several years. Unfortunately, the shoulder was recently made unusable by grinding rumble strips into it. The travel lane on the shoulder sections and curb and gutter sections can be used when traffic is light, but there are other times and locations where having the option to use the shoulder is preferable and safer. Although some sections of the shoulder had adequate space to the right of the rumble strips to maneuver a bicycle, but the amount of debris that accumulated there and the quality of the pavement is such that it is unsafe to cycle. The rumble strips leave no place to go to avoid even occasional debris.

The Piedmont: Residential street in Cary, NC

Raised and reflectored rumble strips were installed in a striped bike lane on a 25 mph residential street in Cary. These rumble strips were installed a few years after the road was marked with bike lanes. Although they leave adequate room for riding, they are continuous (without periodic breaks) making it dangerous to enter or leave the bike lane.

Western North Carolina: Improperly installed rumble strips on Hwy 74, especially as it runs between Sylva and Fontana are causing unsafe conditions for cyclists. Hwy 74 is a 4 lane highway and one of the best roads for access in the far west. It has had rumble strips installed which make it far less useful for cyclists.

Attachment 1

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Attachment 2

NCDOT, Division of Highways, Traffic Engineering and Safety Systems Branch draft document entitled “*STANDARD PRACTICE (DRAFT) for Milled Rumble Strips/Stripes on Non-Full-Controlled Facilities*”.

“ It is desirable to provide a nominal width of 3.5 feet (42") of useable shoulder between the outside edge of the shoulder rumble strip/stripe to the edge of pavement. However, even though a 3.5-foot nominal width is desired, it will not preclude the installation of a proven safety countermeasure where there is the presence of treatable lane departure events. Also, the condition of the shoulder itself should be considered in determining whether or not to provide the 3.5-foot nominal riding width for bicycle traffic.

Gaps in milled patterns may be provided to allow bicyclists to move between the through lane and the right shoulder to avoid vehicles, debris, etc.”

Attachment 2

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Attachment 3

Guidelines for Installation of Rumble Strips in NCDOT Highway Division 14 Where Bicycle Use is Legal (Non-Freeways)

Rumble strips will be installed on median shoulders as per the Standard Drawings or Special Provisions. No special accommodations are necessary. The remaining bullets apply only to outside (right-side) paved shoulders.

- For highways with a typical paved shoulder less than 3 ½ (3.5) feet wide, no rumble strips will be installed.
- For highways with a typical paved shoulder equal to or greater than 3 ½ (3.5) feet wide but less than six feet wide, any rumble strips installed will be twelve inches wide and placed on the edgeline, with the edgeline being remarked in the rumble strip. (i.e., a rumble stripe). Where the actual paved shoulder is less than the typical width, rumble strips will not be installed unless a clear width of 36" will be left for use by bicycles.
- For paved shoulders six feet wide or wider, rumble strips will be installed according to the Standard Drawings or Special Provisions, except that the offset from the travel lane will be six inches from the travel lane regardless of shoulder width.
- For rumble strips installed as per items number three or four above, breaks twelve feet long will be placed after each continuous run of forty-eight feet of rumble strip to allow bicyclists to avoid debris and to make turning movements. Any breaks for driveways or other reasons will reset the 48 foot count.

Attachment 3