

STATE OF NEW HAMPSHIRE

INTER-DEPARTMENT COMMUNICATION

Date: July 19, 2013

From: *Wk for*
Erik Paddleford, Bicycle/ Pedestrian Technician
Rail and Transit Bureau

Subject: NHDOT Bicycle Pedestrian Transportation Advisory Committee
(BPTAC) - NHDOT Rumble Strip Policy Recommendations

To: Christopher Clement, P. E.
Commissioner

THRU: Patrick Herlihy, *PH* Director, Aeronautics, Rail and Transit
Shelley Winters, *SW*
Administrator, Bureau of Rail
and Transit

The NHDOT Bicycle Pedestrian Transportation Advisory Committee (BPTAC) has reviewed current rumble strip practices of NHDOT and other transportation agencies around the country. Attached are the Committee's recommendations regarding the application and use of rumble strips on state highways where bicyclists can be expected to be part of the normal traffic flow. The development of these recommendations included the active assistance of BPTAC members, which includes transportation professionals and experienced stakeholders. The recommendations were developed in cooperation with Highway Design, Traffic, and Rail and Transit.

We respectfully request that the Department incorporate these recommendations into the NHDOT rumble strip policy and future rumble strip projects.

Please let me know if you would like me and/or members of the BPTAC to schedule a presentation or discussion at your convenience. Dave Topham from the Bike/Walk Alliance of New Hampshire was BPTAC's lead and is able to provide you additional information as well. Dave can be reached at dave@bwanh.org or 603-898-9926.

Att.

cc: (by email) R. Grandmaison, W. Lambert, C. Dobbins, N. Coates

NHDOT Bicycle Pedestrian Transportation Advisory Committee

Christopher D. Clement
Commissioner
New Hampshire Department of Transportation
7 Hazen Drive
Concord, NH 03301

July 5, 2013

Background:

The NHDOT Bicycle and Pedestrian Transportation Advisory Committee (BPTAC) respectfully submits its findings concerning rumble strips and presents these recommendations regarding future NHDOT rumble strip design and construction.

Consistent with the principles that govern shared-use highway operation, there are sound reasons why bicyclists may prefer to maintain continuous flexibility in lane positioning. Flexibility means that bicyclists can prepare for left turns, pass, evade hazards, avoid hazardous roadway conditions and avoid crashes due to motorists' "right hook" turns. To the extent that placement of rumble strips in the middle of otherwise adequate shoulders forces bicyclists to ride in the travel lane, or ride over an unsafe surface in order to exit the shoulder, rumble strips can significantly reduce safety for bicycle riders as one group of road users. They can also lead to unnecessary conflict with motorists and law enforcement, who may not understand why a bicyclist is unable to safely ride on the shoulder. The Committee, however, recognizes that rumble strips are a widely-used method to reduce Run off the Road (ROR) crashes of motor vehicles by warning drivers when they have drifted from their lane.

Recommendations:

In order to minimize the negative effects of pavement grooves on bicyclists, BPTAC respectfully requests consideration of the following recommendations, which are consistent with guidance from the Federal Highway Administration and the National Cooperative Highway Research Program Report 641: "Guidance for the Design and Application of Shoulder And Centerline Rumble Strips".

1. Shoulder Rumble Strips can be tolerable for bicyclists if implemented with bicycling in mind. Rumble "strips" are recommended over rumble "strips." In addition to decreasing the negative impacts for bicyclists, households along the road benefit because the volume and duration of noise generated by motorists encountering a rumble stripe is less than the noise generated by a motorist encountering a rumble strip.
2. On roads where bicycles are legal vehicles, the remaining ride-able shoulder width should be four feet (five if adjacent to a fixed object like a curb, guardrail, wall, building, etc.) to the right of the rumble strip or rumble stripe treatment.
3. Shoulder Rumble Stripes starting under the white reflective paint of the right-hand lane edge line (or "fog line") and extending into the paved shoulder are considered the most desired location for bicyclists. Wide rumble strips of 16" in the center of the shoulder area should never be used where bicycles are legal vehicles on the highway. Typical width of milled "bicycle tolerable" rumble stripes is 5 to 7 inches.
4. Shoulder Rumble Stripes may vary in length along a given road from 6" to 16" in order to maintain a "ride-

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able shoulder" of at least four feet. A 12" length is typical. In some cases, exceptions for short distances allowed the "ride-able shoulder" to be reduced to three feet. No Shoulder Rumble Stripes should be installed if the bare minimum of a three-foot "ride-able shoulder" cannot be achieved (four feet if against a fixed object).

5. The typical on-center spacing for the milled rumble stripe cuts is 12". Milled depth is 0.375" for "bicycle tolerable" stripes and 0.5 to 0.625" for conventional shoulder rumble strips. The depth of the milled strips and stripes affects both the noise level transmitted to the motor vehicle operator when driving across the stripe and the degree of instability encountered by bicyclists.
6. Shoulder Rumble Stripes should have gaps to allow bicyclists to cross into or across the main travel lane without driving over the milled stripes. These gaps partially accommodate passing of obstacles in the shoulder, passing of other bicyclists, left turn needs and other lane-position negotiations with other traffic. A typical gap pattern is 48 feet of rumble stripe followed by a 12-foot gap.
7. In areas with wide shoulders, Centerline Rumble Strips generally have little effect on bicycling. Roads designated for "Centerline Rumble Strips" (CRS) and/or "Shoulder Rumble Strips (or Stripes)" (SRS) must meet certain criteria including usage, speed, design, and crash history of the road.
8. NHDOT should consider bicycle transportation for all roadway projects. NHDOT should follow cost-effective "Best Practices" for roadways for all users.
9. The NHDOT guidelines for rumble strips should be updated to include "bicycle tolerable" shoulder rumble stripes.