



## **Memorandum**

To: Michael S. Griffith, Director Office of Safety and Technologies, Federal Highway Administration  
From: National Bicycling Groups  
Re: 2011 Rumble Strip Technical Advisory

July 29, 2011

Thank you for taking the time to listen to the concerns of the bicycling community raised by the new FHWA Technical Advisory on Shoulder and Edge Line Rumble Strips, and on Center Line Rumble Strips. The bicycling community continues to recognize the life-saving benefits to motorists of shoulder and center line rumble strips, and understands the role these devices can play in reducing roadway departure crashes for motorists. We also support initiatives to reduce distracted, drowsy and inattentive driving, and welcome efforts to reduce the impact of speed, drinking and drugged driving on our nation's highways.

Before getting into specific recommendations and detailed language issues, I want to reiterate our broader concerns that, when combined with those specific issues, provoked the strong reaction you have seen from us and which you may see from many individual cyclists and other cycling organizations.

### **1. Process**

We understand that the TA was not designed to be written and reviewed in the same way as a proposed rule or change to the CFR. However, even though people with responsibility for bicycling issues were tangentially included in the writing and review process...this is an issue with widely known implications for bicyclists and more than 1,500 individual cyclists wrote FHWA this time last year on this very topic. The nation's leading cycling organizations made a constructive and concerted effort last year to connect with FHWA and represent cyclists concerns in advance of the development of this new Technical Advisory. We are disappointed, to say the least, that none of these legitimate concerns were reflected in the new Technical Advisory.

## **2. Expansion**

The Technical Advisory recommends a dramatic expansion in the use of shoulder and edge line rumble strips – for example, to ALL rural roadways with speed limits 50mph or higher, and even urban roadways with ANY record of roadway departure crashes regardless of the stated cause of inattention. This expansion is made without reference to any broader policy issues or any limits in the usefulness of shoulder and edge line rumble strips. For example:

- What are the impacts of effectively preventing an entire category of legitimate roadway users from using hundreds of thousands of miles of rural (and even some urban) roadways?
- Are there any implications to people with disabilities of rendering unusable hundreds of thousands of miles of roadway shoulders?
- How does the new policy shift align with the Secretary’s stated policy in March 2010 that motorists will not be favored at the expense of bicyclists and pedestrians any longer?

You noted in our meeting that the technical advisory “tilts” the balance in favor of saving motorists lives. In reality, it tips the scales over completely by assuming that preventing any run of the roadway crash by rumbling every mile of higher-speed rural roadway on the off-chance that it might alert a driver AND that there is enough room for recovery AND that the driver then doesn’t drift back to sleep or inattention again and depart the roadway or cross the center line someplace else on the system...is worth the [unknown and uncalculated] cost of preventing bicyclists from using these roadways.

There is no apparent assessment of the impact of cyclists riding in the travel lane of a roadway that has been rumbled or the safety implications of cyclists using other roadways that may have more dangerous operating characteristics rather than using the shoulder of the rumbled roadway.

## **3. Removal of rumble-free 4 feet**

In the 2001 guidance, the document explicitly recommended that four feet of clear space be left where shoulders were used by bicyclists; there were references back to the AASHTO Guide for the Development of Bicycle Facilities where this critical statement is contained. This vital protection of riding space for cyclists is essentially gone – the presumption in the new Technical Advisory is that there is no minimum width that is necessary to leave, and when you go below four feet there are some things you can do to mitigate the loss of ride-able space. There is no suggestion that rumble strips are not appropriate in certain locations and situations.

## **4. Downgrading Cyclists Concerns – now secondary to the life of the pavement**

Again, in the 2001 Guidance, there was a specific and reasonably prominent treatment of bicyclists’ concerns with the placement and use of rumble strips. That is gone: bicyclists concerns are literally relegated, on pages 5 and 6, to issues affecting “other road users” and secondary to the potential adverse effects of rumble strips to the life of the pavement. Given the significance of this issue to the bicycling community, this is simply wrong.

## 5. Removal of Stakeholder Involvement

Along with the recommendation that rumble strips be placed along an increasingly large percentage of roadways comes the removal of any attempt to discuss installation with stakeholders – including bicyclists. Now, a section on “Public Outreach” discusses how to sell installation to the media and public and at no point suggests any dialog with stakeholders or affected groups.

If any one of these concerns were the “only” worry we had with the new Technical Advisory, we might be a little irritated or frustrated. But, the cumulative impact of all these changes and new assumptions in this one document is such that ***our real preference and request to you all is that the Technical Advisory be suspended or withdrawn until these substantive issues are fixed.***

## Conclusion

We want to thank you again for agreeing to hear our concerns regarding this issue of critical importance. As we review the development of the Technical Advisory – the process, the analysis, drafting and final language – it is clear that the document should be re-issued with greater balance and with more thought and attention given to these issues. We understand and appreciate the Office of Safety’s deep and abiding concern for safety of motorists, but have to say that this new Technical Advisory may be one of the worst things to happen to cyclists in America in decades.

We also appreciate your timely response to our recent communications – including acknowledgement of the issues on the webinar last week – and would like to continue to move quickly to resolve these issues. We would like to have a follow-up meeting to discuss these comments with you and your team within the next two weeks.

## Detailed Comments on Technical Advisory: Shoulder Rumble Strips

### Section 4 (e)

We are not aware of any research or documented track record of bicyclists or pedestrians benefitting from the noise created by a vehicle crossing the rumble strip such that they were able to get out of the way of a vehicle departing the roadway. Generally speaking, cyclists and pedestrians are able to hear the approach of motor vehicles from behind, especially on high speed roads, without the aid of rumble strips. This section, given the rest of the concerns we have with the document, frankly seems disingenuous in trying to present rumble strips as a benefit to cyclists. There are also legitimate questions as to how cyclists should be expected to differentiate between a motor vehicle crossing a shoulder rumble strip (a potential cause for concern) rather than a center line rumble strip (which a cyclist may welcome).

## **Section 5**

Insert the word “motorist” before “deaths and serious injuries” in the first line.

There is no discussion in this section or section 9 about the limitations of rumble strips in locations where there is no recovery room beyond the rumble strip and shoulder – where installation of a rumble strip would serve no real purpose. Also, there is nothing about the impact of momentarily preventing a run-off-the road crash but leaving a drowsy, inattentive, or distracted driver still on the road with the potential to veer over the centerline or off the side of the roadway further along the road.

## **Section 6 (b)**

We are deeply concerned by the potential spread of rumble strips into urban areas and on urban roadways. The urban roadway environment not only has lower speeds and noise issues but also the presence of cyclists and pedestrians, curb and gutter cross-sections, many more turns and turning movements, dedicated bicycle routes, lanes and other facility types. If there is to be any encouragement of the use of rumble strips in urban areas, there must be much stricter guidance as to the appropriate situations and locations when this device might be acceptable to all roadway users – particularly people with disabilities who may need to use the shoulder for access to transit, or to jobs, good and services along an urban roadway that doesn’t have a sidewalk. The first sentence might be amended to say:

*“While rumble strips have been extensively used in rural areas, use in urban areas should only be considered where it can address a documented run-off-the-road crash problem and the installation does not interfere with the safe and legal operation of bicycles or pedestrian movements.”*

## **Section 6 (d)**

We are concerned by the application of center line rumble strips without any research or consideration of the potential impact on the willingness of drivers to cross a rumbled centerline in order to safely pass a cyclist. Even without rumble strips being present, motorists are often unwilling to cross a centerline to perform this maneuver safely – in some states, laws have been passed specifically to permit such a maneuver.

The situation is significantly different from the issue addressed by section 7 (d) of the Center Line Rumble Strip Technical Advisory, where it is noted that in passing zones motorists and motorcyclists aren’t inhibited to cross the center line rumbles to make their passing movements – in those situations, there is a specific passing zone, the center line is not solid, and drivers are very deliberately crossing the centerline for an extended period to make a high speed passing maneuver.

## **Section 7 (a)**

We would recommend some acknowledgement be given to the higher cost of removing milled-in rumble strips, should the need arise because of poor installation, installation in inappropriate locations.

#### **Section 7 (d)**

We appreciate that the second part of this section is intended to facilitate the crossing of rumble strips by bicyclists so that they can avoid debris or obstacles on the shoulder and position themselves correctly for a left-turn. We don't believe the advice is strong enough and recommend the second sentence say:

*"Intermittent recurring gaps in the rumble strip pattern should be used on all roadways where bicyclists are legally allowed to operate. This accommodates the safe movement of bicycles from one side of the rumbles to the other, which is necessary to aid a bicyclists' movement to the left of the shoulder rumble strip when needed to avoid debris, make turns, or avoid other shoulder users. Rumble strip installation should not continue where less than four feet of paved shoulder width would remain for bicycle use. "*

#### **Section 8 (c)**

Our experience has been that rolled in rumble strips are much less likely to have gaps – if this is because of the nature of the process of installing them, the technical advisory should draw attention to this as a potential negative.

#### **Section 9**

We would like to see a return to the 2001 guidance with the inclusion of a specific section on "Addressing the Impacts on Bicyclists". Maintenance and noise issues can be dealt with separately. A new Section 9 on bicycle issues should say:

*"9. How can the adverse effects of rumble strips on bicyclists be reduced?"*

*The FHWA fully supports the following statement from the 1999 American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities:*

*"Rumble strips or raised pavement markers are not recommended where shoulders are used by bicyclists unless there is a minimum clear path of 0.3 m (1 ft) from the rumble strip to the traveled way, 1.2 m (4 ft) from the rumble strip to the outside edge of paved shoulder, or 1.5 m (5 ft) to adjacent guardrail, curb or other obstacle."*

*Rumble strips should only be installed when an adequate unobstructed width of paved surface remains available for bicycle use. To aid a bicyclist's movement to the left of a shoulder rumble strip when needed to avoid debris, make turns or avoid other shoulder users, periodic gaps should be provided of 10-12 feet between groups of the milled-in elements, spaced at 40-60 feet throughout the length of the shoulder rumble strip.*

*Additional mitigation measures that can be used to reduce the impact of rumble strips on bicyclists and ensure that four feet of usable width remains after rumble strips have been installed include:*

- *Use of edge line rumble strips rather than shoulder rumble strips*
- *Make minor adjustments in design dimensions that have been shown to produce rumble strip designs more acceptable to bicyclists. The principal adjustments to the milled-in strip elements studied are decreased length transverse to the roadway (B), increased center-to-center spacing (E), reduced depth (D), and reduced width longitudinal to the roadway (C). This produces a rumble strip with a somewhat reduced effectiveness in alerting drivers, but is considered a reasonable trade-off for an agency that is attempting to balance the needs of all road users.*

*Where there is a documented history of run-off the road crashes and an agency wishes to install shoulder rumble strips but there is insufficient width to do so while preserving four feet of paved shoulder width for bicyclists, the agency should work with the local bicycling community to determine how to balance the needs of traffic safety for motorists with the access and mobility needs of bicyclists.”*

The new language on “Bicycle Compatibility” should be replaced with the above. Bicycle use and rumble strips are simply not compatible – and if there is insufficient space left over for a bicyclist to safely operate on the shoulder, it isn’t a matter of bicycling being “unpleasant and inconvenient”. It is unsafe, dangerous and rendered impractical, if not impossible.

There is no mitigation that makes it possible to ride on shallower, narrower rumble strips – unless a suitable width of paved shoulder is left for cyclists to ride on without the rumble strip.

The use of edge line rumbles might help to achieve the goal of allowing sufficient width for cyclists.

The gap pattern recommendation should not be reserved for “mitigation”; it should be standard on roadways where bicyclists can legally operate.

Section 9 b iii is recommended for inclusion in a new section 9.

Section 9 b iv should be removed. The presumption that a minimum of four feet of paved shoulder should remain for bicyclist use should be reinstated – and exceptions to that basic assumption should be the point at which “mitigation” measures are discussed and employed.

## **Section 10**

Reinstate the language from 2001 guidance that says:

*All responsible agencies should work in cooperation with bicycle groups, enforcement agencies, emergency groups and other roadway users, to develop policies, design standards and implementation techniques that address the safety and operational needs of all roadway users.*

## **Section 11 (a)**

The recommendation to install continuous milled edge line or shoulder rumble strips on all “rural highways with travel speeds of 50mph or greater” should be amended to include the caveat “provided sufficient width remains for safe bicycle travel”.

There should be a clarification of whether you mean posted or actual travel speeds – as actual travel speeds would clearly bring hundreds of thousands more miles of rural roads within the remit of this recommendation than if the language was “posted” speed. We recommend “posted speeds” be used.

### **Center Line Rumble Strips.**

In general, the comments made for the shoulder rumble strip document apply equally to the one on center line rumbles. There is one additional comment we want to make on the Center Line Rumble Strip guidance.

In Section 9 (b) the technical advisory states that “it is recommended that on routes with heavy bicycle traffic, the rumble strip design provide 13 ft of pavement beyond the edge of the rumble strip.” We appreciate that an attempt was made to address the concerns of bicyclists who might be squeezed by motorists keeping clear of the center line rumble strip – however, we do not agree that the recommended width is appropriate. The AASHTO Guide for the Development of Bicycle Facilities and several state and local laws note that 14 feet is the minimum width at which bicycles and motor vehicles can safely be operated within the same lane (or combined travel lane and bike lane/shoulder). Therefore, if you want to recommend providing enough pavement width to avoid motorists having to cross the center line to safely pass a cyclist...the suggested width should be at least 14 feet.