

New York State Department of Transportation Centerline Rumble Strips

Dataset Description

In 2012, the New York State Department of Transportation announced the use of center line rumble strips as an effective safety measure designed to reduce dangerous head-on and opposite-direction sideswipe crashes (see <https://www.dot.ny.gov/news/press-releases/2012/2012-05-22>). The center line rumble strip dataset includes the locations where center line rumble strips have been installed on roads owned by New York State. Centerline rumble strips are also known as Centerline Audible Roadway Delineators (CARDS).

Head-on and sideswipe crashes result in numerous fatalities and injuries each year In New York State, approximately 120 deaths and 3,500 injuries occur each year from non-intersection head-on and opposite direction sideswipe crashes. Nationwide data shows that 1 in 5 non-intersection fatal crashes involve two vehicles crashing head-on. 75% of these crashes occur on undivided two-lane roads. 30% of the deaths are persons under the age of 25. For all roads, 1/3 of head-on crashes involve vehicles "negotiating a curve" and 2/3 of head-on crashes involve vehicles "going straight." (NCHRP Report 500 Vol. 4).

A Potential Solution

Rumble strips are intended to save lives and prevent serious injuries by alerting drivers that they are leaving the driving lane. They consist of raised or grooved patterns on the roadway. They provide driver with both an audible warning (rumbling sound) and a physical vibration. The "2005 National Cooperative Highway Research Program (NCHRP) Synthesis 339" was an early study that used data from a September 2003 Insurance Institute for Highway Safety study on centerline rumble strips. It found that head-on and opposite direction sideswipe injury crashes were reduced by an estimated 25% at sites treated with centerline rumble strips/stripes. This study concluded that centerline rumble strips/stripes can result in a 14% reduction of all crashes and a 15% reduction of injury crashes on rural two-lane roads. Washington State DOT found that the installation of centerline rumble strips resulted in a 37% reduction in all crossover collisions, and a 57% reduction in crossover collisions with serious and fatal injuries.

A more comprehensive study, published in 2009 in NCHRP's Report 641, "Guidance for the Design and Application of Shoulder and Centerline Rumble Strips," also supports the use of centerline rumble strips as an extremely cost effective collision countermeasure that is safe for all highway users. In this study, fatal and injury head-on and opposite direction sideswipe crashes in urban areas were reduced by an average of 64%. In rural areas, these types of collisions were reduced by an average of 44%.

For more than 10 years, the NYSDOT has utilized rumble strips on the shoulder or edgeline of freeways. NYSDOT's installation of edgeline rumble strips has helped significantly reduce the number of interstate run-off-the-road crashes.

NYSDOT seeks the safest, most effective safety measures for state roadways. Based on the statistics and experience of other states already using CARDS, NYSDOT expects centerline rumble strips to:

- Help prevent head-on and sideswipe collisions.
- Be safe for motorcyclists. CARs were tested for motorcyclist safety under NCHRP Report 641 "Guidance for the Design and Application of Shoulder and Centerline Rumble Strips," 2009.
- Be safe for bicyclists. After an extensive search, the Department has not found any evidence that milled-in rumble strips adversely impact bicyclists.
- Be very cost-effective with benefit-to-cost ratios of up to 75 to 1.
- Be relatively fast to install.