VERMONT

Agency of Transportation

CENTERLINE RUMBLE STRIPES

VTrans Highway Division

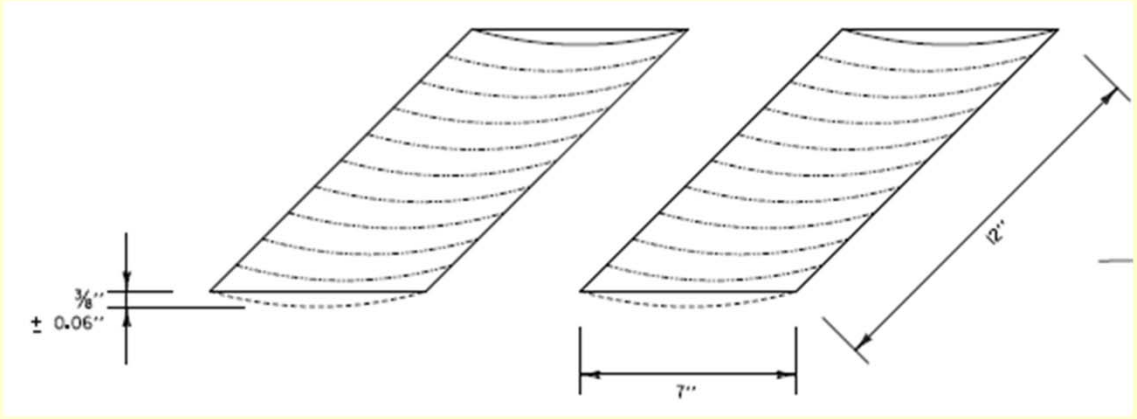
Ken Robie
Project Delivery Bureau Director

Bruce Nyquist
Office of Highway Safety Director

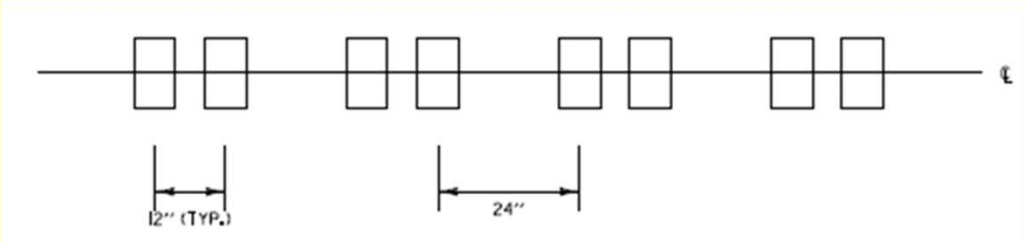
Presentation to:
Senate Transportation Committee
January 20, 2015

WHAT ARE CENTERLINE RUMBLE STRIPES?

- Maximum depth of 3/8 of an inch
- 12 inches wide, installed along the centerline of a roadway
- 7 inches in length, measured in the direction of travel



- Two rumble stripes spaced 12 inches on center
- 24 inch space between every two rumble stripes



WHY INSTALL CENTERLINE RUMBLE STRIPES?

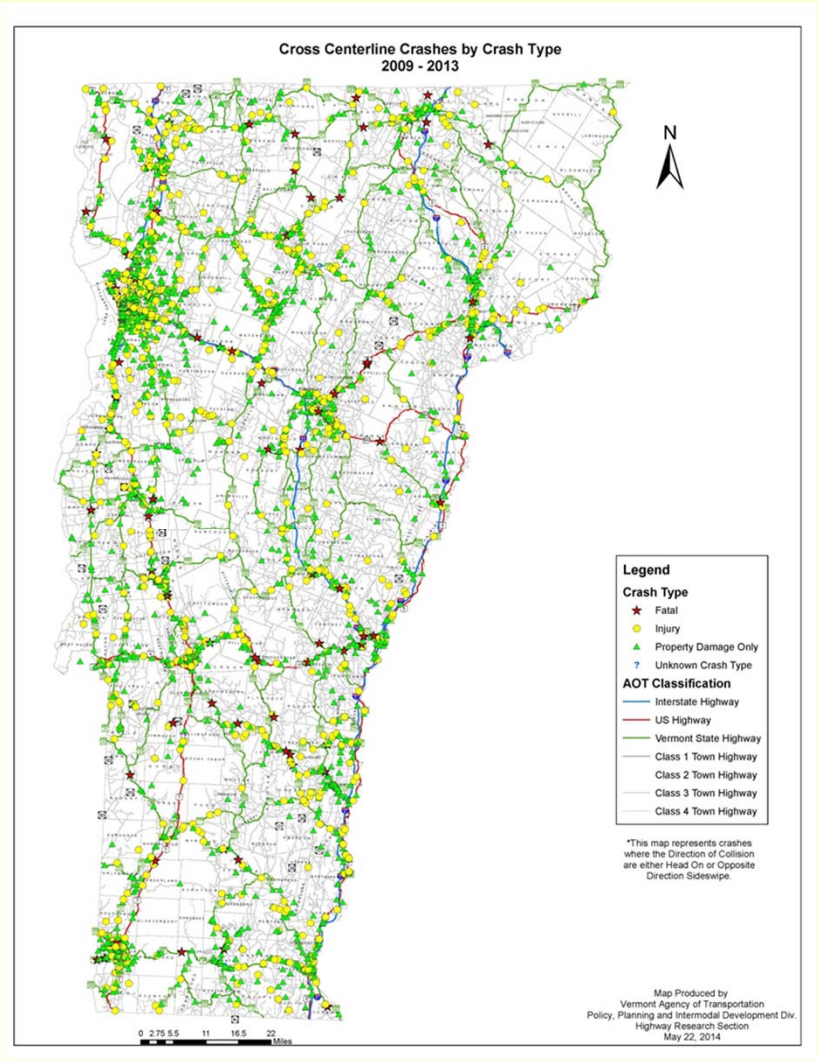
- Reduce head-on and opposite direction sideswipe crashes
- Reduce run-off-road crashes where vehicles cross centerline
- Reduce lane drift due to distracted/fatigued driving
- Reduce speed and off-tracking on curves
- Improve centerline visibility in wet pavement conditions
- Provide enhanced guidance in fog and snow
- Very low cost safety improvement

Statewide

3943 Crashes

94 Fatalities

1788 Injuries



CLRS CRASH REDUCTION STATISTICS

In the US:

44% Reduction of Head-on Fatal and Injury Crashes on Rural Two-Lane Roads

In Vermont:

- **11%** Reduction of all crashes
- **32%** Reduction in injury related crashes

VERMONT

Agency of Transportation

CURRENT VERMONT CLRS LOCATIONS

Marlboro – Brattleboro (2010)	VT 9	9.30 miles
Highgate-Sheldon (2014)	VT 78	4.19 miles
Waitsfield-Duxbury (2014)	VT 100	3.93 miles
Rockingham-Clarendon (2014)	VT 103	23.68 miles
Sheldon – Enosburg (2010)	VT 105	9.49 miles
Stockbridge-Bethel (2014)	VT 107	7.01 miles
St. Johnsbury – Guildhall (2012)	US 2	21.74 miles
Alburgh-Colchester (2014)	US 2	28.30 miles
Mendon – Killington (2009)	US 4	6.73 miles
Woodstock - Hartford (2013)	US 4	9.22 miles
Fair Haven (2011)	US 4	0.12 miles
Putney-Westminster (2014)	US 5	3.78 miles
Bennington – Manchester (2012)	US 7	19.35 miles
Brandon – Middlebury (2014)	US 7	9.40 miles
Westminster (2014)	Westminster St. Highway	0.65 miles
	TOTAL	**157 miles**
	TOTAL (2014 PROJECTS)	**81 miles**

VERMONT

Agency of Transportation

POTENTIAL 2015 CLRS LOCATIONS

Williston	VT 2A	1.04 miles*
Bethel-Randolph	VT 12	6.14 miles*
Randolph	VT 66	7.19 miles*
Lemington-Canaan	VT 102	10.48 miles*
Thetford	VT 113	7.97 miles*
Canaan	VT 114	0.59 miles*
Essex-Richmond	VT 117	6.85 miles*
Hancock	VT 125	6.50 miles*
Westfield-Troy	VT 242	6.50 miles*
South Burlington	US 2	2.18 miles*
Berlin	US 302	1.90 miles*

The projects noted above represent projects that will be under construction or advertised in calendar year 2015.

* Length represents overall project length, not the length of CLRS. Each project will undergo an evaluation to identify locations where CLRS should be installed. Selected locations would meet criteria associated with traffic volume, vehicle speed, residential offsets, as well as additional criteria presented in subsequent slides.

CLRS ARE CONSIDERED WHERE

- Pavement width is 28 feet or greater
- Speed limit is 45 mph or higher
- Average Daily Traffic is 1500 vehicles per day or greater
- The above criteria are not met, but the crash history indicates a pattern of head on, sideswipe, or single vehicle crashes

CLRS ARE DISCONTINUED AT

- Centerline breaks (ex. intersections and RR crossings)
- Residences within 100 feet of centerline
- Raised medians
- Two way left turn lanes (TWTL)
- Closely spaced commercial drives with high volume turning traffic
- Narrow bridges
- Bridges or concrete roadways with less than 2.5” of pavement

NOISE INFORMATION

- VTrans has performed various studies related to noise associated with centerline rumble stripes
- Sheldon – Enosburg (50 mph, 50 feet from road)
  - Passenger Car: No Rumble – 71 db, Rumble – 73 db
  - Pickup Truck: No Rumble – 71 db, Rumble – 74 db
  - Dump Truck: No Rumble – 76 db, Rumble – 78 db
- In some installations the decibel increase has been up to 5-8 db after installation. Low Frequency increases have been up to 10 db
- Findings – over time, noise decreases due to wear of the pavement surface
- Duration of Activation - Averages approx. 1 second
- Frequency of Activation - Varies: Avg. 12 times/day, in one project that is four years old, to 40 – 100 times/day on a recent installation

DISCUSSION