

**Hudson-Hampstead 24518**

**Public Informational Meeting**

**March 14, 2013**

NH Route 111 just west of Sullivan Road

# Highway Safety Improvement Program (HSIP)

- \$5.5 Million per year to NH
  - \$500,000 set aside for rumble strip installation statewide
    - Mostly to replace existing locations that have been impacted by paving projects
  - Other efforts include median protection, guardrail replacements/upgrades, intersection improvements, road safety audits & surveillances

# Highway Safety Improvement Program (HSIP)

- **Rumble Strips** are one of the nine FHWA Proven Safety Countermeasures to address crashes that occur in the focus areas of intersections, pedestrians, and roadway departure



# Why install rumble strips/stripes?

Rumble Strips/Stripes are an effective, low cost, countermeasure for preventing roadway departure crashes. The noise and vibration produced by rumble strips alert drivers when they leave their travel lane.

# Established NHDOT Guidelines

- Developed in 2008
  - In response to public comments about installation practices
  - Combined effort:  
Highway Design,  
Construction, Traffic,  
Highway Maintenance,  
Rail & Transit, FHWA,  
and Environment
  - Guidelines being  
reevaluated at this time  
to allow a systemic  
approach to roadway  
selection and installation



# Federal Highway Guidelines

There are two main applications of rumble strips:

- Centerline Rumble Strips – an effective countermeasure to prevent head-on collisions and opposite-direction sideswipes, often referred to as cross-over or cross-centerline crashes. Primarily used to warn drivers whose vehicles are crossing centerlines of two-lane, two-way roadways.
- Shoulder Rumble Strips – an effective means of preventing run-off-the-road crashes. They are primarily used to warn drivers they have drifted from their lane. A variation on this is the edge line rumble stripe, which places the pavement marking within the rumble strip, improving the visibility of the marking.

# Federal Highway Guidelines

The main cause of roadway departure crashes is driver drowsiness and inattention

- driving too fast
  - alcohol and drugs
  - cell phones
  - other distractions within the vehicle
- Driver fatigue can be induced by highway hypnosis
    - occurs when the lines and stripes on long, stretches of highway reduce the driver's concentration.
  - Rumble strips are also helpful in alerting drivers to the lane limits where conditions such as rain, fog, snow or dust reduce driver visibility.

# Federal Highway Guidelines

- Roadway departure fatalities, which include runoff-the-road (ROR) and head-on fatalities, are a serious problem in the United States. In 2003, there were 25,562 roadway departure fatalities, accounting for 55 percent of all roadway fatalities in the United States. That same year:
  - More than 16,700 people died in ROR crashes (39 percent of all roadway fatalities).
  - Head-on crashes 12 percent of all fatal crashes

Source: FHWA website

<http://www.fhwa.dot.gov/research/deployment/rumblestrips.cfm>

# Currently in place in NH...

- Shoulders
  - Interstates and Turnpikes
  - US202/NH9 – Henniker & Hopkinton
  - NH 101 – Auburn to Exit 10 in Exeter
- Centerline
  - US202/NH9 – Henniker & Hopkinton.
  - NH 16 – Rochester to Ossipee
  - NH 101 – Milford & Amherst
  - NH 111 – Hudson (will be replaced this Spring)
    - Hudson Park Drive to Sullivan Road (1.7 miles)
    - Originally installed Fall of 2000

## As a Minimum, the Following Conditions Must Apply...

- Highway segment has a speed limit of 50 MPH or greater with limited or controlled access.
- Highway segment should have a minimum of 4' wide shoulders
- Highway segment has an accident history (crossing the centerline), greater than the State average.

## Minimum Conditions... Cont'd

- ADT should be greater than 5000 vpd
- Existing Pavement must be in good condition so that the installation of CRS will not cause future pavement delamination.
- Minimum depth of the existing wearing course should be 1-1/4 inches
- Any highways that do not meet all of the above conditions will require an engineering analysis and Chief Engineer Approval. .

# Minimum Conditions... Cont'd

And Lastly...

- A public informational meeting will be held and concurrence from the local officials should be obtained.

# Project Limits

Begin just west of Kimball Hill Road in Hudson and proceed 7.6 miles east to a point just west of Wall Street in Windham (CRS & SRS)

Omit stretch in the vicinity of Exit 3 and the ongoing Interstate 93 construction projects for the time being

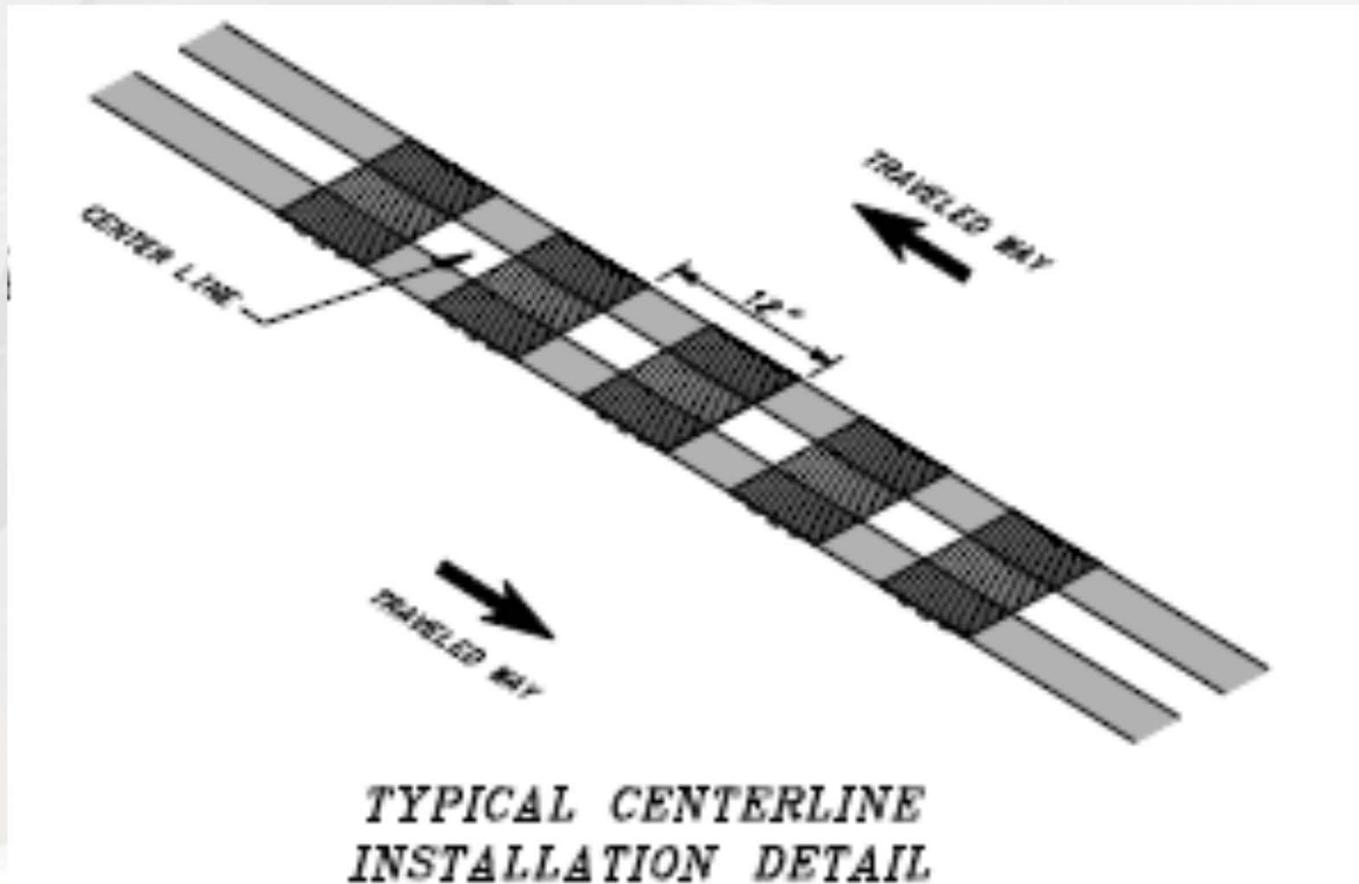
Begin 0.4 miles east of the NH Route 28 intersection in Windham and proceed 10.8 miles east to a point just east of Mill Road in Kingston (CRS & SRS)

# To Be Considered...

- Posted Speed limits – 35 to 50 MPH
- Traffic Volumes – 16,000
- Passing Zones – 8
- Shoulder Width
- Condition & Thickness of Pavement
- Residential Areas
- Bicyclists

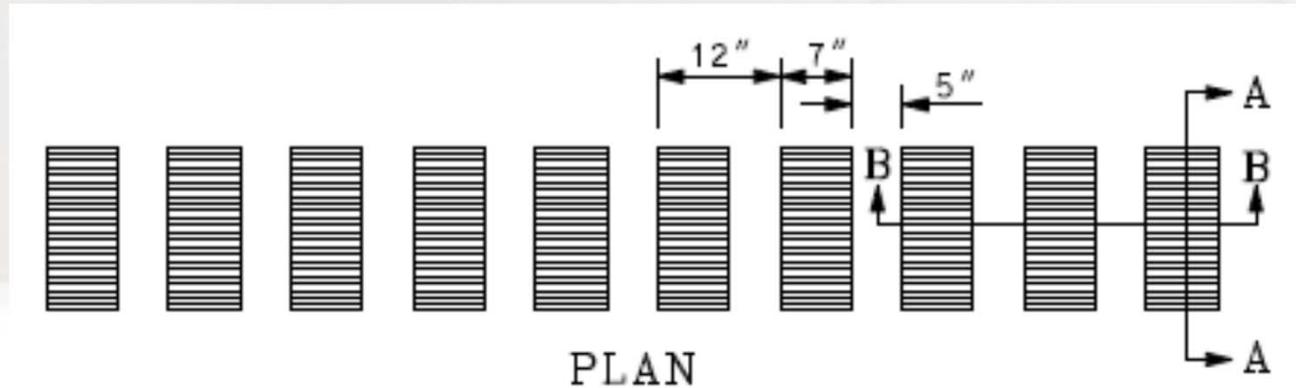
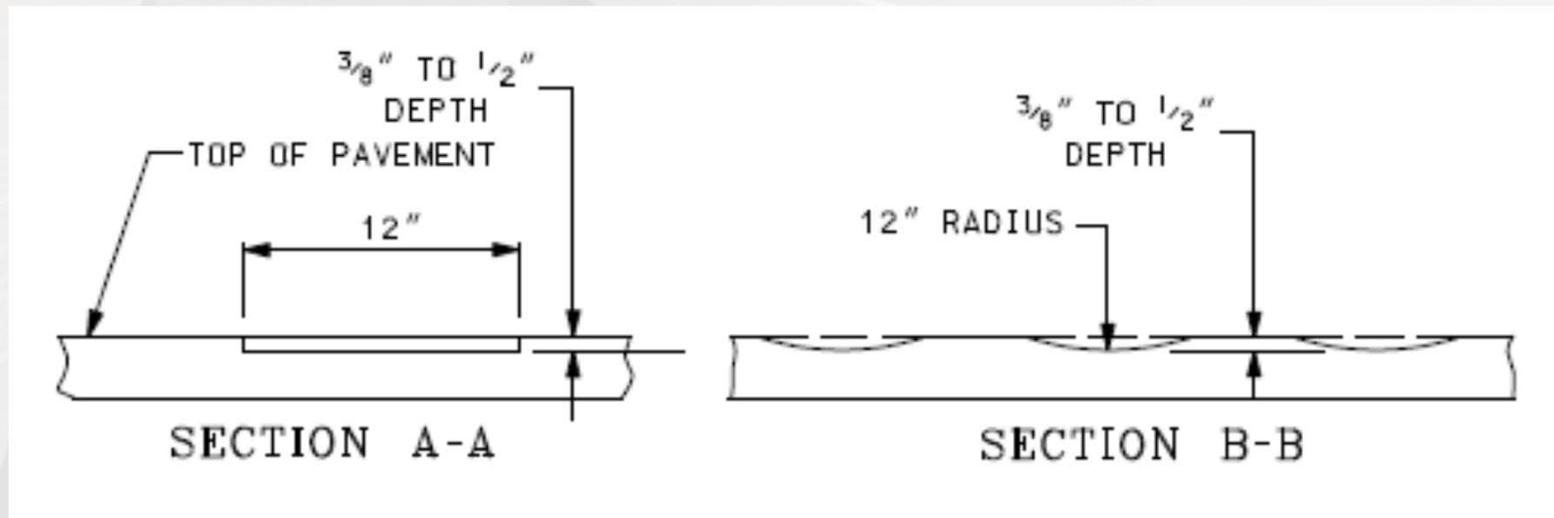
# Design Details

- Centerline 12 inches wide



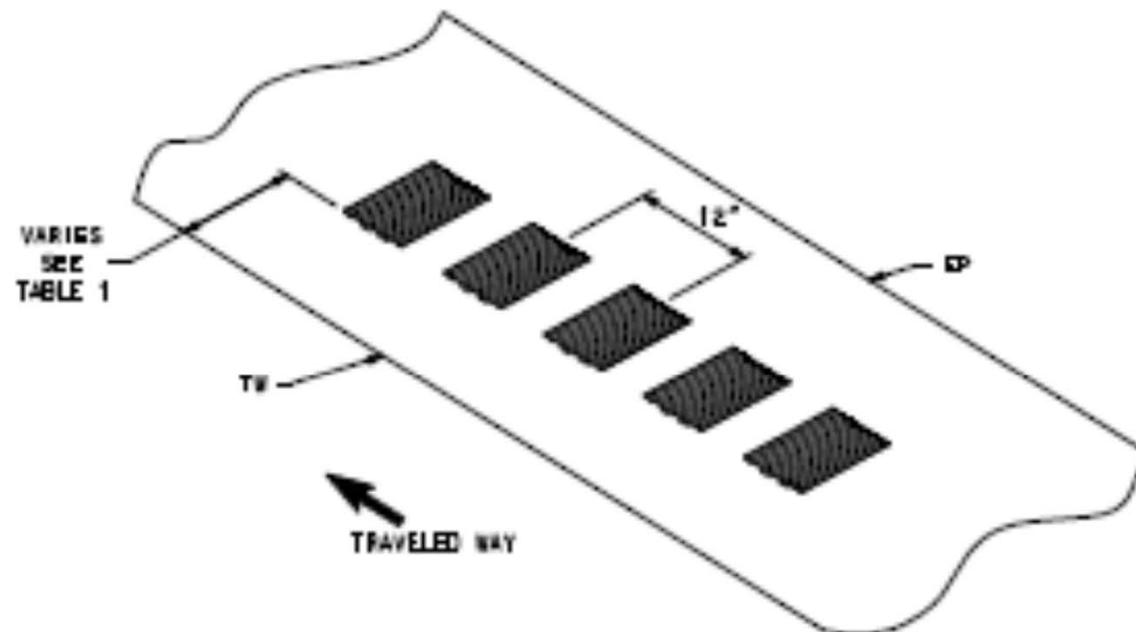
# Design Details

- Centerline



# Design Details

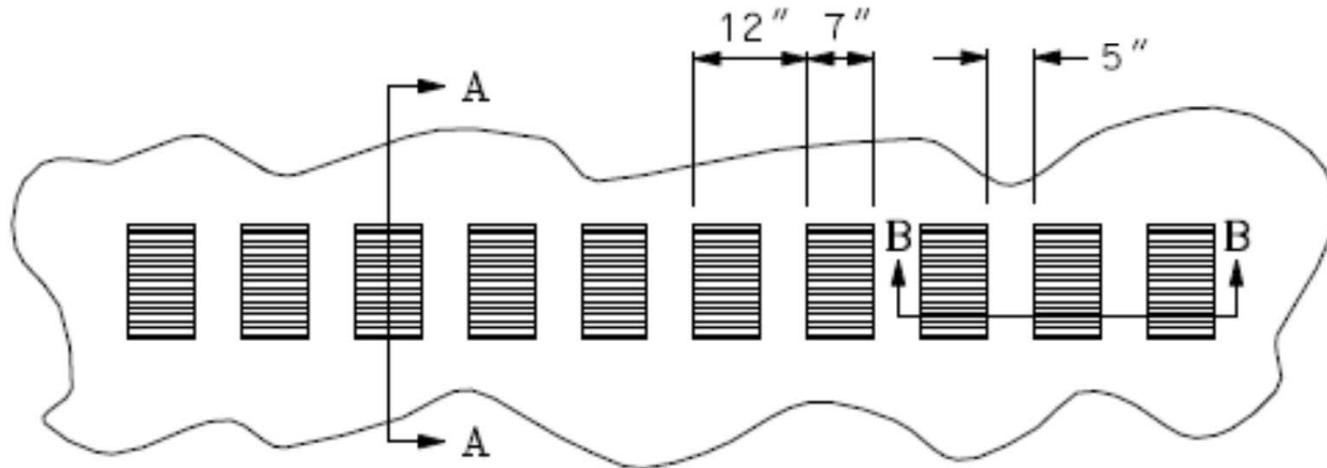
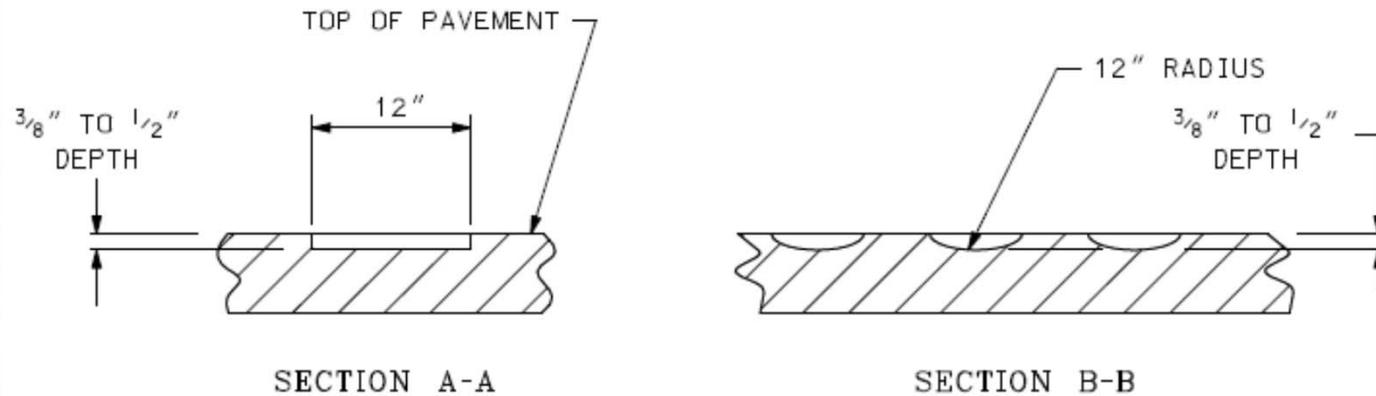
- Shoulder 12 inches wide
- \*16 inches wide on Interstates and Divided Highways
- Rumble Stripes will begin ON the white lane line and the remainder will be within the shoulder



**TYPICAL SHOULDER INSTALLATION  
RIGHT SHOULDER DETAIL**

# Design Details

- Shoulders



PLAN

# Benefits to Rumble “Stripes”

- Improved nighttime visibility
- Increased reflectivity under wet road conditions
- Increased longevity of the pavement markings
- Inclement weather navigational aid



- Second location chosen in the State to install shoulder rumble stripes
- First was Franconia Notch Parkway

# Approximate Costs

- Centerline @ \$2,000/mile
- Shoulder @ \$1,300/mile



# Testimonials

- Town of Hopkinton
- Town of Milford
- Town of Milton (Selectboard, PD & EMS)
- Town of Wakefield (Selectboard, PD & EMS)
- Strafford Regional Planning Commission

## Personal Note

My nephew was recently involved in a head-on collision with another vehicle. He and all other parties survived...



In my professional opinion, I believe rumble strips could have prevented this



Questions?