

Vanport Limestone Skid Resistance committee

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Introduction

- To report on the work of a joint PennDOT/Industry committee looking into skid resistance issues.

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Presentation Outline

- Background
- Why and when the committee was formed.
- Where across PA the skid issue is occurring.
- Potential Solutions being considered.

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Background

- Sometime in the late 1990's PDOT D-10 had noticed several crash clusters in certain areas of I-80. These clusters and a resulting skid test program in 1999 spurred the department into conducting an in-depth analysis of the roadway surface conditions.

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Background

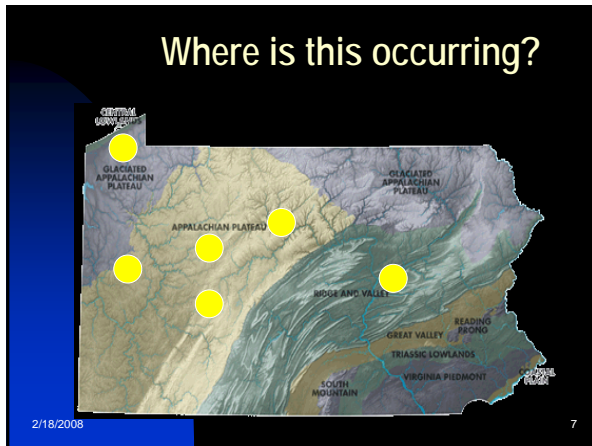
- Initially it was noticed that most if not all the concrete pavement in these areas contained Vanport Limestone.
- A task force was formed in May 2006 to investigate the diminished skid performance on those roadways.

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Where is the issue occurring?

- 34 Clearfield I-80 sections, 2 sections Erie I-90, 1 Dauphin I-81 that were low in less than 10 yrs.
- 1 Lawrence I-79, 5 Lawrence SR-422, 5 Erie I-79, 1 Dauphin 81 and 1 Cambria SR-22 were low in 10-15 yrs.
- Of note...There were no crash clusters in any of these low skid sections.

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Why is this occurring?

- The lose of skid resistance is related to the loss of a surface mortar.
- When the surface mortar is worn away, then coarse aggregate become exposed at the tire/pavement interface.
- At that time the coarse aggregate become a factor in skid resistance.

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Other States

- Similar investigations have occurred in New York, South Dakota and other states.
- A range of potential solutions are being considered for both existing pavements and new construction

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PennDOT Special Provision

- Separate from the committee work, PennDOT wrote a special provision on a recently bid SR 22 project requiring an SRL level H or E aggregate for the top 2" of the concrete pavement.

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Potential Solutions

- Two lift Portland cement concrete construction with a higher skid resistant coarse aggregate at the surface.
- Two lift asphalt/Portland cement concrete construction with a higher skid resistant coarse aggregate in the thin asphalt layer at the surface.
- Blending of higher skid resistant coarse aggregate with the Vanport coarse aggregate in the concrete paving mixture.
- Staged construction, with a planned future application of a friction coarse (~12 years later)

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Potential Solutions continued:

- Blending of higher skid resistant coarse aggregate with the Vanport coarse aggregate in the concrete paving mixture.
- Staged construction, with a planned future application of a friction coarse (~12 years later)
- Increase the mortar fraction in the concrete mixture by decreasing the coarse aggregate solid volume and/or degreasing coarse aggregate size to AASHTO A67 designation.
- Increase the durability of the surface mortar layer.
- Reduce the surface wear by banning the use of metal studs.
- Surface textures with greater skid durability.

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Committee work continues.

- Meeting in July /07 with the Pa. Transportation Institute. (Penn State)
- Currently drafting the report. Work will likely be concluded in the next 2-3 months,
- Will include recommendations for future research.
- Give us your ideas.

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Please contact us for input or questions

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Thank You

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