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Improving Notch Wedge Joints With The Pneumatic Roller



Why? Increase of Joint Density Acceptance
In PennDOT Specification
Also: J- Band Projects in PA
(which manufacturer recommends compaction of
the wedge)

Currently How PA Contractors build Notch Wedge Joints



Analyzing: The “Notch”

- ◆ More compactive effort needs to be focused in this area to improve joint density
- ◆ Technically a “vertical joint” with unconfined mix



Areas of the joint with concern after compaction of the mat:

- ◇ Segregation in the notch after compaction of the mat (minimal but is present in this image)
- ◇ Segregation in the wedge (minimal but present in this image even though compaction has little affect on this area unless HMA mat is sliding)





Notch Wedge System w/Pneumatic Roller in tow

- ◆ The Pneumatic Roller addresses the loose unconfined HMA mix in the notch by using the tapered sidewall of the pneumatic tire to compact the mix in this area as the paver tows
- ◆ The pneumatic roller also improves the tightness of the 12” wedge which will ultimately improve joint density core results





Visual Improvement of the Notch Wedge Joint

- ◇ Visible improvement of the notch to address the normal loose HMA mix
- ◇ Clean tight vertical Notch
- ◇ Wedge “mat” is more uniform and consistent



Consistency Counts



Images of the Pneumatic roller confining the notch wedge joint



What we have been experimenting with:



Compaction of the “Open” Notch Wedge Joint



Critical: 12" overhang when compacting open notch wedge joint, every pass, every steel drum roller





Compaction of joint with adjacent pass of HMA pavement

*6"-12" breakdown 1st pass, offset over the existing "wedge portion of the joint, stabilizing material in joint area

*2nd pass to breakdown and properly compact material into the joint, 12"-18" overhang on the joint, use roller weight

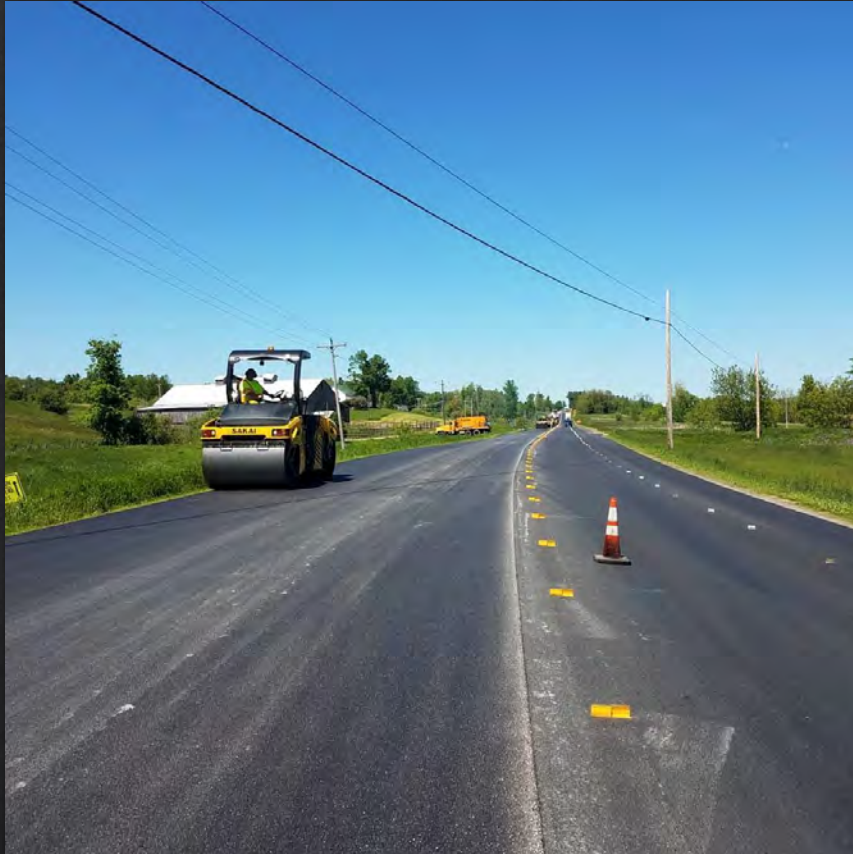
Briefly: Echelon breakdown



Pneumatic rollers on Wearing Courses



Compacted mat/joint



Why the pneumatic roller and what is coming for the future

Ground Penetrating Radar (GPR) to
verify mat and joint density

Alaska DOT has already started
implementation

Scans area of HMA mat on both sides
of the joint, (1st and 2nd lane)



PaveScan RDM 2.0

