**Perpetual Pavements**

1. The future of asphalt pavements
2. Smoother, longer lasting.
3. Lower long-term maintenance costs compared to full-depth concrete pavements
4. Improved rut resistance.
5. New HMA mixes including SMA and Superpave

**Milling for Perpetual Pavements**

1. Formation of the Milling Specifications Committee in 2003
   a. INDOT, APAI and representatives of the Indiana Milling Industry
2. Does a better milling job make for a better paved surface?
   a. A more consistently textured surface makes it easier to achieve density.
   b. A better milling job can help correct longitudinal grade problems.
   c. A better milling job can improve transverse grade deviations.

**INDOT MILLING SPECIFICATIONS**

1. Texture of the milled surface.
   a. ITM 812 texture testing.
2. Longitudinal Grade Control.
   a. 16’ straight edge testing.
3. Transverse grade and matching of cut.
   a. 10’ straight edge testing.
4. Tighter restrictions for covering a milled surface.
   a. 5-day cover-up requirement designed to prevent unraveling.

**STANDARD CUTTER DRUMS**

- **TRIPLE WRAP**
  - 5/8” SPACING

**CUTTING PATTERN**

- **80 FPM**
- **60 FPM**
Texture Testing

- Cutting patterns
- Texture testing

Longitudinal Grade Control

Longitudinal grade cannot deviate more than 1/4” when checked with a 16’ rolling straight edge.

- Existing road conditions.
- Sensor type and sensitivity.
- Averaging system.
- Cutting speed.
- Operator and ‘downman’ skill level.
- Condition of your track pads.
- Overall condition and maintenance of the machine.

Increasing Drum Speed

- Drum speeds
- 93 min⁻¹
- 73 min⁻¹
ADJUSTING THE GRADE

POOR CONDITIONS
Problems

BAD TEETH AND HOLDERS

1 SENSOR

TRANSVERSE GRADE CONTROL
UNDER NEW INDOT SPECIFICATIONS, TRANSVERSE GRADE CANNOT DEViate MORE THAN 1/8" WHEN CHECKED WITH A 10' STRAIGHT EDGE.

• Skilled operators and “downmen”.
• Slower cutting speeds allow for slope and grade controls time to react.
• Sensor position relative to rutting, poor shoulder conditions.
• Full width machines becoming the standard.

STANDARD GRADE CONTROLS

AVERAGING SYSTEM

FULL WIDTH MILLING
NEW INDOT MILLING ITEMS

• ASPHALT MILLING:
  This is the most frequently used item. It pertains mostly to mainline milling at a specified depth and has to be performed with all the smoothness requirements as described above. Milled surfaces under this item must be covered in 5 work days to prevent unraveling and deterioration of the milled surface.

NEW INDOT MILLING ITEMS

• ASPHALT SCARIFICATION/PROFILE:
  This item utilizes the milling machine to prepare the asphalt surface for overlay. The intent of this item is to mill a minimum amount necessary to texture the entire mainline surface (or to the bottom of any existing wheel ruts). This item also falls under the 5-day cover rule.

NEW INDOT MILLING ITEMS

• ASPHALT REMOVAL MILLING:
  This item is specified when it is desirable to remove asphalt overlay down to existing concrete or brick pavement. This item does not require a 5-day cover-up.

NEW INDOT MILLING ITEMS

• TRANSITION MILLING:
  This item is specified when it is necessary to time the mainline overlay into adjoining county roads, public roads, driveways, paving exceptions, etc. Since these areas are on the mainline, they can stay uncovered for up to 14 work days.

IN SUMMARY

INDOT MILLING 2004

• QUALITY NOT QUANTITY
• GET IT RIGHT THE FIRST TIME
• FULL WIDTH MILLING
• GROUND SPEED WITH GRADE AND SLOPE
• AVERAGING SYSTEMS
• GOOD KNOWLEDGEABLE GROUND MEN

THANK YOU FOR YOUR ATTENTION!