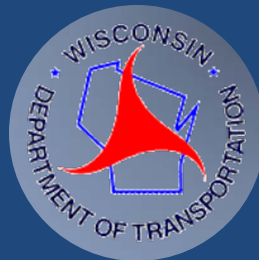
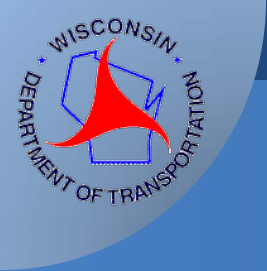


# Wisconsin HMA Pavement Warranty Program 2010 Updates

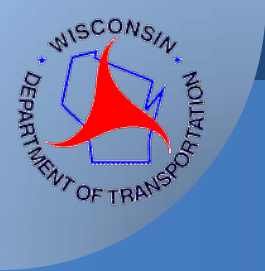
Barry Paye, PE  
Pavement Warranty & Research Engineer  
Wisconsin Department of Transportation





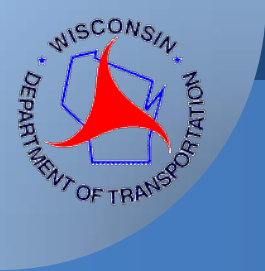
# Outline

- Warranty Program History
- Warranty Specification Changes
  - Language Changes
  - Threshold Changes
- Other Warranty Program Changes
- Questions



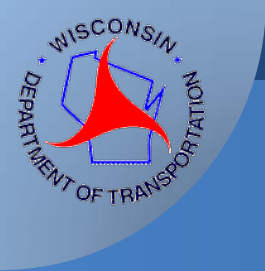
# Warranty Program History

- Program Developed in the 1990's
  - 1995: First warranty specification use
  - 1996: Specification expanded to include overlays
  - 1997: Contractor required to seal cracks in the 3<sup>rd</sup> year
  - 1998: Crack seal moved to 4<sup>th</sup> year
  - 1999: Ancillary pavement included



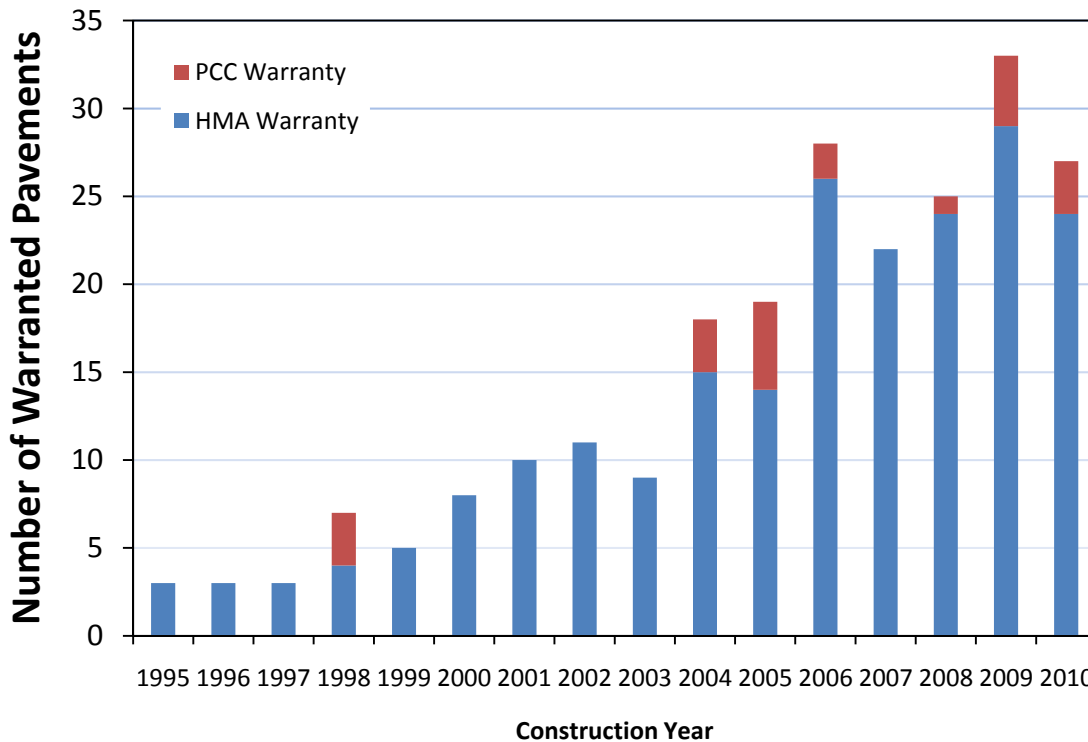
# Warranty Program History

- Changes made in the 2000's
  - 2007: Bonding requirement reduced to 25% the cost of an overlay
  - 2008: Crack seal moved to 5<sup>th</sup> year
  - 2008: Warranty end date of November 1<sup>st</sup> for all projects.
  - 2009: 3 year functional overlay specification developed
  - 2010: Warranted HMA Specifications revised



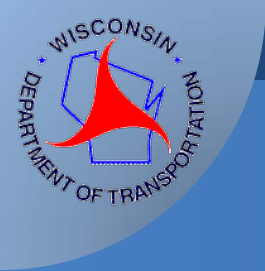
# Warranty Program History

- Warranted pavement construction



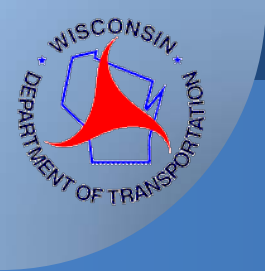
### Totals thru 2010

HMA warranties	210
PCC warranties	21



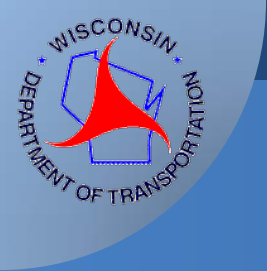
# 2010 Developments

- Premature distress in several warranted pavements began to appear
- Pavement Management Unit changing scoring system.
  - Old System: Pavement Distress Index (PDI)
  - New System: Pavement Condition Index (PCI)
- Legislative Audit Bureau audit of HMA



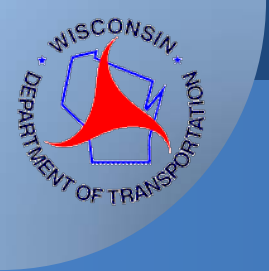
# Specification Usage

- 5 Year Warranty Specification
  - New construction
  - Mill and relay
  - Pulverized base
  - Rubblized base
- 3 Year Overlay Specification
  - Over milled and unmilled HMA
  - Over concrete



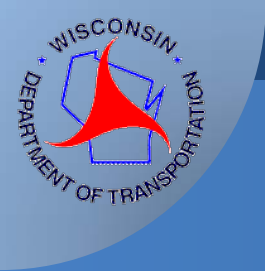
# Conflict Resolution

- Removed the 5 person conflict resolution team
- Replaced with meeting between contractor and DOT reps
  - Still gives contractor/department a chance to solve at the lowest level
- If not resolved in meeting, follow the new Section 105 process
  - Claims process developed by WisDOT/WTBA



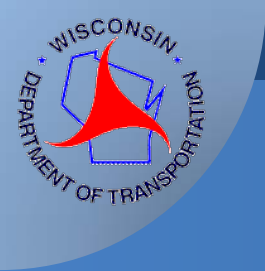
# Pavement Condition Surveys

- Removed references to PDI
- Now references PCI procedures in DOT Pavement Distress Survey Manual
- Surveys must be conducted between May 1 and August 15
- Department to issue Warranty Report by September 15
- Survey segment is now 1 lane wide by 0.1 mile long



# Warranty Work Form (DT2305)

- Form DT2305 to be completed when work occurs on a warranty project
  - Elective work
  - Remedial work
  - 5<sup>th</sup> Year work
- Still need to complete form DT1812 “Permit to work in Right-of-Way”



# Warranty Work Form (DT2305)

Description of work, including who performed the work, what materials were involved, and other relevant information	
<input type="checkbox"/> Performance/Final Review	Date review was performed
Description of pavement performance, pavement condition, areas of concern after warranty closeout, and other relevant information.	

Were pavement markings replaces as per STSP460-001, Section C.5?     Yes     No     N/A

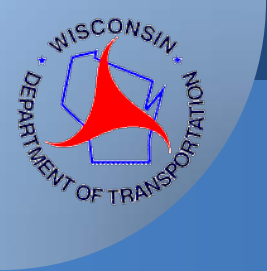
Signature (Contractor) \_\_\_\_\_ Date \_\_\_\_\_

Print Name \_\_\_\_\_ Title \_\_\_\_\_

Signature (WisDOT) \_\_\_\_\_ Date \_\_\_\_\_

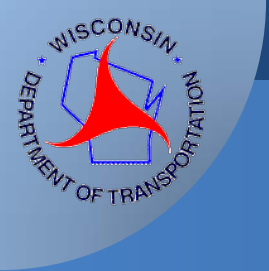
Print Name \_\_\_\_\_ Title \_\_\_\_\_

• Contractor & Department sign and date at end of warranty to document work and close the warranty.  
**Submit the form in hard or electronic copy to the appropriate regional contact.**



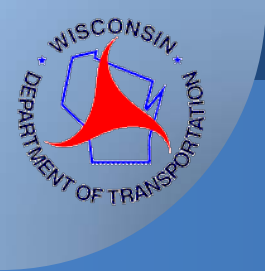
# Warranty Work Form (DT2305)

- Form DT2305 to be completed when work occurs on a warranty project
  - Elective work
  - Remedial work
  - 5<sup>th</sup> Year work
- Still need to complete form DT1812 “Permit to work in Right-of-Way”
- Added signature blocks for the contractor and department
- Will be posted on the external DOT website



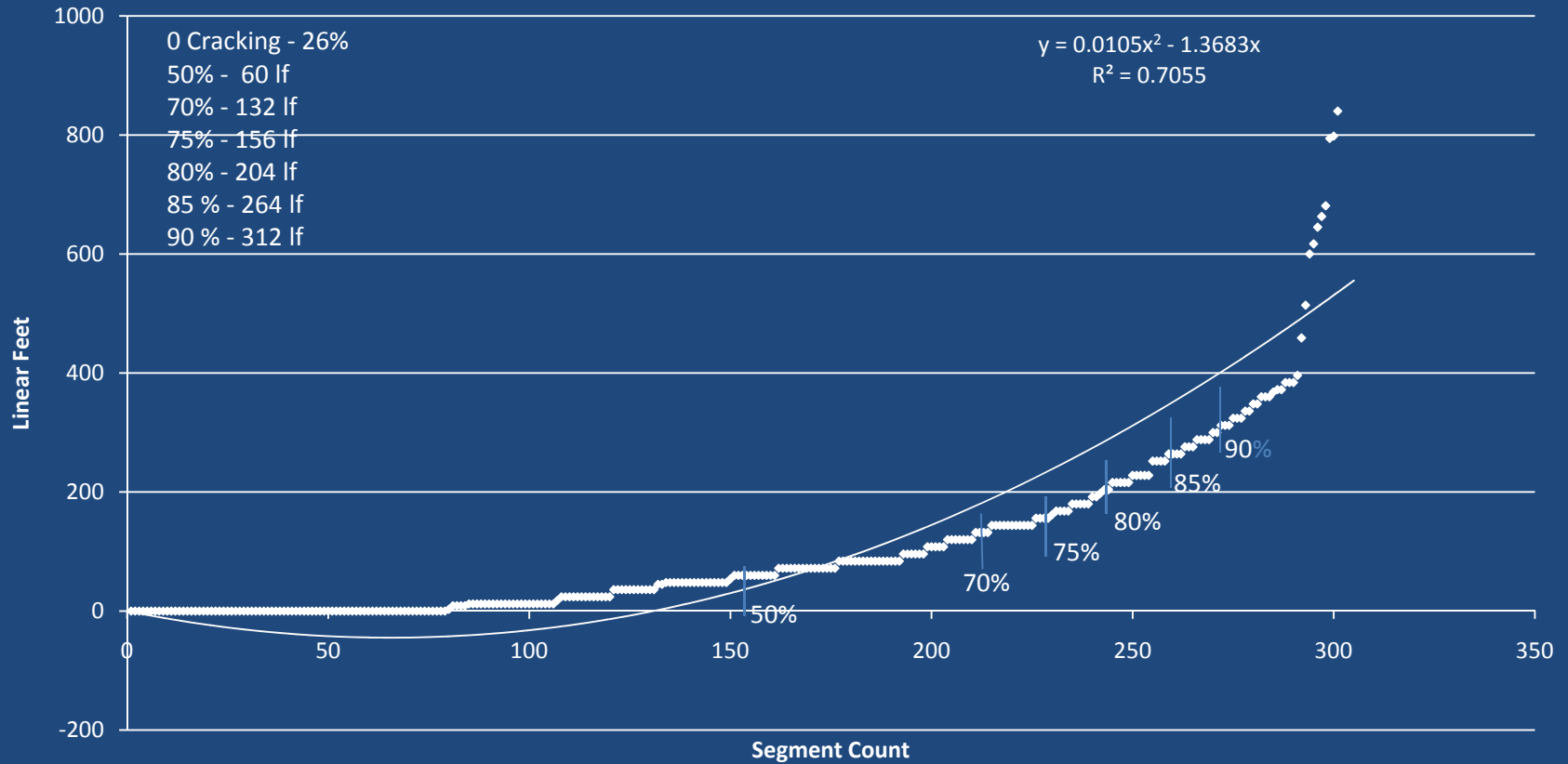
# Threshold Revisions

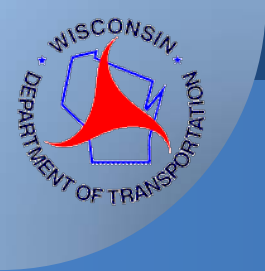
- Reviewed 477 - 0.1 mile segments
  - 77 Warranted
  - 400 Non-Warranted
  - All constructed between 2001-2003
  - Current population of 5 year old projects for evaluation
- Old thresholds based on the 90<sup>th</sup> percentile
- New thresholds based on the 75<sup>th</sup> percentile



# Transverse Cracking

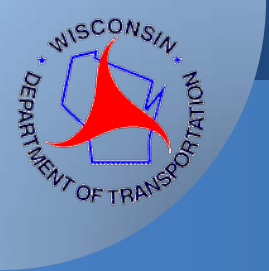
## Transverse Cracking - Type 1 Pavement





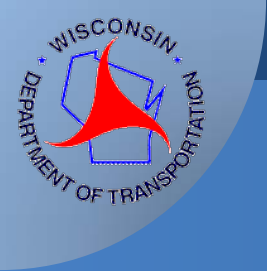
# Transverse Cracking

- Old Threshold
  - Greater than 25 cracks/segment
  - Wider than ½” width – rout and seal
  - 25% with banding/dislodgement – remove and replace
- New Threshold
  - Greater than 100 linear feet in a segment
  - Level low (L) or higher – remove and replace



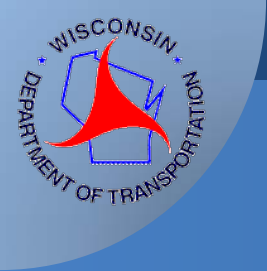
# Transverse Cracking

- Footnote 5
  - If constructed over pulverized base, threshold is adjusted to 150' linear feet of low level cracking
  - If base is too thin, crack seal instead of remove and replace



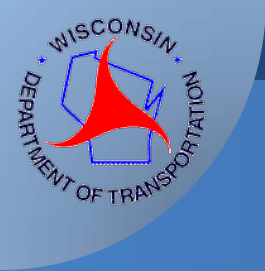
# Longitudinal Cracking

- Old Threshold
  - Greater than 1,000 Linear Feet
  - Wider than ½” in width – rout and seal
  - 25% with banding/dislodgement – remove & replace
- New Threshold
  - Greater than 50 Linear Feet
  - Level low (L),  $\leq 3/8$ ” wide – rout and seal
  - Level medium (M) or higher – remove and replace



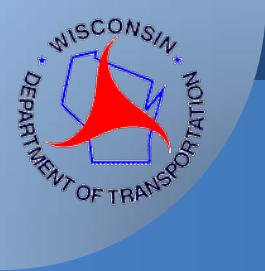
# Longitudinal Construction Joint

- Separated out from Longitudinal Cracking
- Greater than 50 linear feet
  - Level low (L) – rout and seal
  - Level medium (M) or higher – 2' mill and inlay
- Parallel construction joint & longitudinal crack
  - Remove and replace



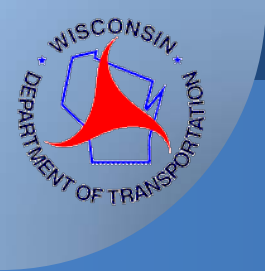
# Rutting

- Changed from two different thresholds to one
- Old
  - 0.25” to 0.50”, fine mill & microsurface
  - 0.50” or greater, remove & replace upper layer
- New
  - 0.375” and greater, mill and replace 1.75”
- Footnote 4 defines how rutting is measured



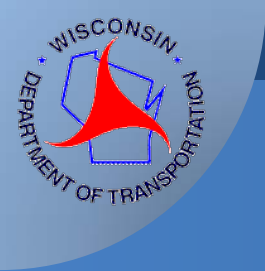
# Other Specification Changes

- Old low threshold items converted from 1% of area to 50 SF (0.80%)
  - Alligator Cracking
  - Block Cracking
  - Bleeding
  - Longitudinal and Transverse Distortions
  - Weathering and Raveling



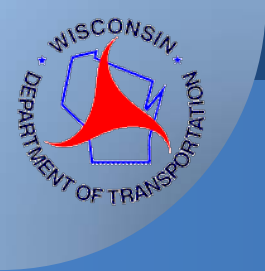
# Language Clean Up

- Cleaned up language on the following
  - Factors beyond the contractor's control
  - Remedial action language
  - Footnote 2 related to alligator cracking
  - 5<sup>th</sup> year crack seal
  - Traffic control language in payment section



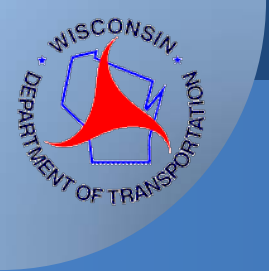
# 3 Year Overlay Specification

- Previous changes made to 5 Year Specification plus
  - Longitudinal Cracking in 2 categories
    - Reflective:
      - 150 LF of medium cracking – seal
    - Non-reflective:
      - 125 LF of low cracking – seal
      - 125 LF of medium cracking – remove and replace
  - No threshold on transverse cracking



# Warranty Oversight Consultant

- Why?
  - Regions don't have the resources to manage warranty projects
  - Each region is doing something different
  - Will bring a consistent contact statewide
  - Will be hired by BTS and supervised by BTS Warranty Engineer



# Questions

- Contact Information
  - Barry Paye, PE
  - [Barry.paye@dot.wi.gov](mailto:Barry.paye@dot.wi.gov)
  - 608-246-3855

