2018
APAM Conference
Hot Mix Asphalt (HMA) Update

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Hot Mix Asphalt (HMA) Update

- Road Innovation Task Force (RITF) 30 Year Pavement
- Longitudinal Joint Pilot Project
- Fine Texture Pavement Milling
- FUSP 501GG (Cold Milling HMA Pavement)
- Future Changes

RITF - Comprehensive Public Report

- Evaluates road materials & construction methods
- Focuses on materials that may cost more in up-front spending, but produce life-cycle savings
- Focuses on longer-term time frames that maximize value to taxpayers on a total cost basis
- Includes a plan to achieve these targets



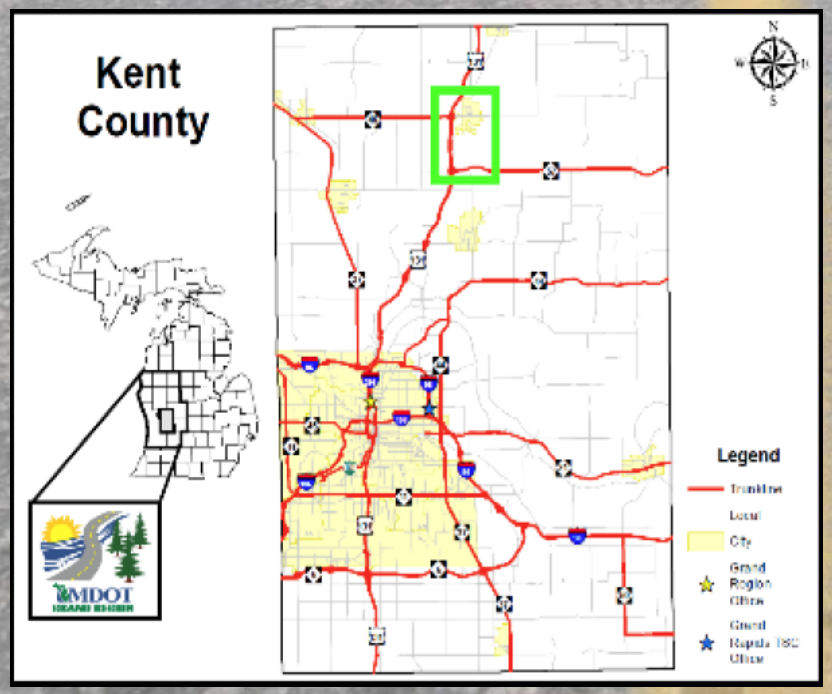
Public Act 175 of 2015

- Requires establishment of MDOT Roads Innovation Task Force (RITF)
- Requires RITF to produce comprehensive public report with specific requirements
- Release of funds after concurrent House & Senate resolution

30 Year Pavement Design

- HMA Reconstruct on US-131 Grand Region Kent County
  - MEPDG Design – 30 Year Traffic
  - 2 Feet of Free-Board for Underdrain Outlets - Drainage
  - Additional Depth of Base Material – Frost Protection
  - Increased Ride Quality
  - 93% Density
  - Film Thickness Requirement
  - Limit Fines to Effective Ratio During Production
  - Gap Graded Superpave
  - Material Transfer Device

Project Limits



Limits of 20 & 30 year HMA

Costs/Project Information

- RITF report estimates 50% increase in 30 year pavement when compared to 20 year pavement for rural freeway
- Actual 38%
- Contractor Information
  - Prime: DJ Mc Question & Sons
  - Paving Sub: Rieth Riley GR

Communication & Teamwork

Incentives and Ride Quality

Bond Coat Coverage

Material Transfer Device

Monitoring Plan

- Dynamic Cone Penetrometer (Aggregate Layers)
- Light-Weight Deflectometer (Aggregate Layers)
- Falling-Weight Deflectometer (Aggregate Layers and Paved Surface)
- Additional Sampling and Testing
  - 1000 Foot Test Sections (30 Year and Control)
  - Additional Sampling and Testing (Possible Research Project)
- Regular Pavement Management Cycles
- Next Step: 50 Year Pavement I-475 Bay Region

Longitudinal Joint Pilot Project

Density History:

- 2009- Informational Average Density 89.8
- 2011- Pilot 90.7
- 2012- FUSP 91.6
- 2013- FUSP 92.4
- 2014- FUSP 92.2
- 2015- FUSP 92.3
- 2016- FUSP 92.6
- 2017- FUSP 92.9

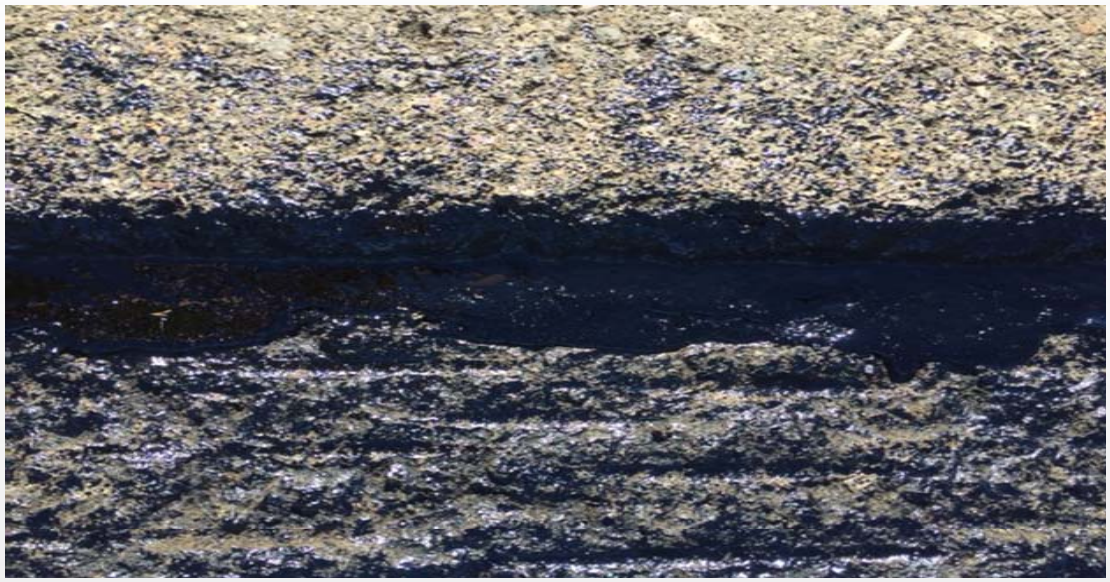
Longitudinal Joint Pilot Project

- US-127 University Region
  - One Course Mill and Resurface
  - Four Test Sections (3 longitudinal joints)
    - Longitudinal Joint Sealer
    - Double Bond Coat
    - PG Binder
    - Joint Adhesive

Double Tack Coat

Liquid AC

Joint Adhesive



Longitudinal Joint Pilot Project

Treatment	Estimate	Bid
• Joint Adhesive	$0.50 per foot	$0.27 per foot
• Longitudinal Joint Sealer	$2.00 per sft	$0.45 per sft
• Double Tack Coat	$0.05 per foot	$0.05 per foot
• PG Binder	$1.50 per foot	$0.08 per foot

Fine Texture Pavement Milling

- FUSP 501JJ starting with June letting
- Use Statement:
  - Use on all trunkline, one course, non-freeway mill and resurface projects
  - Where the integrity of the existing pavement makes it suitable to allow traffic to be maintained on a milled surface for up to 72 hours and where it is desirable to expedite the project schedule and/or increase production paving
  - Due to the 72 hour traffic restriction the specification needs to be accompanied by a liquidated damages specification

FUSP 501GG

- Cold-Milling Hot Mix Asphalt Surface
  - Deletes section 501.03 A.1 of the spec book and replaces with new equipment requirements for cold- milling machines
  - Adds additional language to section 501.03 (preparation of existing pavement) C.5 which limits horizontal gouge to 1" and adds mean texture depth requirement
  - Adds requirement for a Cold-Milling Quality Control (QC) Plan and Cold-Milling Operations Plan

Cold Milling QC Plan

- The schedule for replacing the cutting teeth
- The daily preventive maintenance schedule and checklist
- Proposed use of automatic grade controls
- The surface testing schedule for smoothness
- The process for filling distressed areas
- The schedule for testing macrotexture of the milled surface
- Corrective procedures if the milled surface does not meet the minimum macrotexture specification
- Corrective procedures if the milled surface does not meet the minimum transverse or longitudinal surface finish when measured with a 10 foot straightedge
- The methods for longitudinal control guidance (painted string line or measure offs)

Cold Milling Operations Plan

- The number, types and sizes of mill machines to be used
- The width and location of each mill machine pass
- The number and types of brooms and or vacuum trucks to be used and their locations with respect to the mill machine
- The proposed method for mill machines and wedging around existing structures such as manholes, valve boxes, and inlets
- The longitudinal and transverse typical sections for tie-ins at the end of the day
- If requested by the Engineer, a plan sheet showing the milling passes

Cold Milling HMA

Future Changes

- 50 Year Pavement Design
- Volumetric Specification for Local Agencies
- 2020 Standard Specifications for Construction
- Paper Mix Designs
- Gsb Testing

QUESTIONS?

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