

2019 APAM Conference Hot Mix Asphalt (HMA) Update



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Michigan Department of Transportation
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Hot Mix Asphalt (HMA) Update

- Fine Texture Pavement Milling
- Future Changes
- Mix Design
- Stone Matrix Asphalt (Gap-Graded Superpave)

Fine Texture Pavement Milling

- FUSP 501JJ
- 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.

Fine Texture Pavement Milling

- Ensure the milling operation is providing an acceptable surface texture by achieving a maximum Macro texture of 0.08 inches thickness according to ASTM E 965.



Fine Texture Pavement Milling

- How do we accomplish texture requirements?
 - Ensure the milling machine is configured with either a 0.3 inch tooth spacing **or**
 - a 0.6 inch tooth spacing operated at a maximum speed of 40 feet per minute **or**
 - approved equal configuration and speed capable of meeting ASTM E 965 testing requirements.
- Milled area is free from gouges, continuous grooves, ridges and has a uniform texture.





Micro Cold Milling Hot Mix Asphalt (0-3.5 Inches)

- Use Statement :
 - Use on CPM Surface Seal projects that require the removal of a previous surface seal or where improved ride quality is desired. The integrity of the pavement should be suitable to allow traffic to be maintained on the milled surface.
- Location:
 - Previously Approved Special Provisions, Division 5 (select *Special Provisions – 2012 Previously Approved* from the drop down menu at the following web site:
<https://mdotjboss.state.mi.us/SpecProv/specProvHome.htm>
- This was developed for use on CPM projects.
- There is no traffic restriction written into the special provision.

Future Changes

- 2020 Standard Specifications for Construction
- Reduction of Mixes:
 - LVSP and E03 combined into EL.
 - E1 and E3 combined into EML.
 - E10 and E30 combined into EMH.
 - E50 eliminated and replaced with EH.
 - Gap-Graded Superpave renamed Stone Matrix Asphalt (SMA) to be consistent with national standards.



QUESTIONS?

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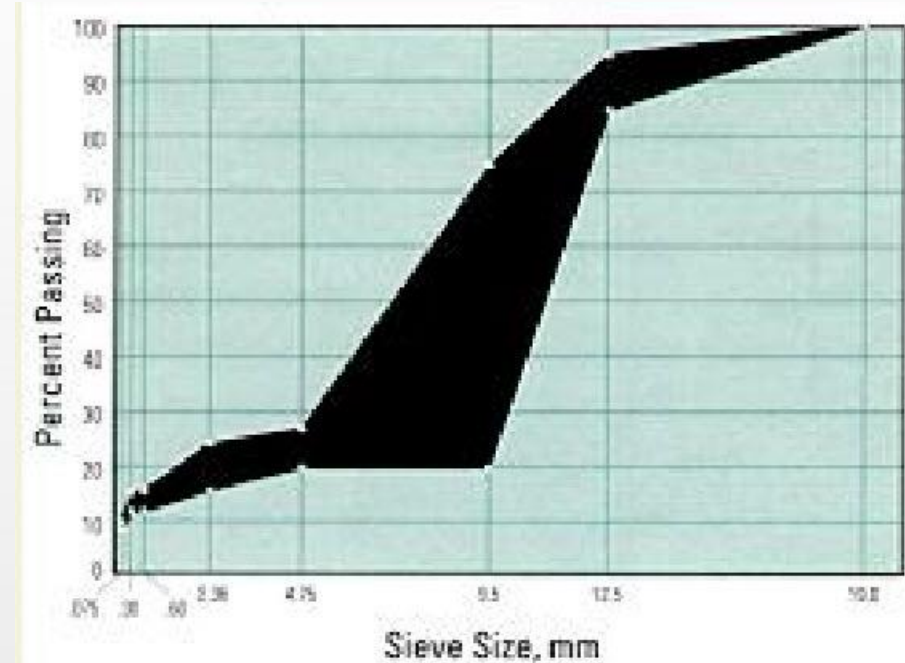


Mix Design Changes

- Paper Mix Design
 - Revised Superpave Express Status Requirements
 - 15 Superpave designs minimum required to qualify
 - Must maintain an 80% pass rate (12 out of past 15)
 - Only required to submit AWI samples
 - Paperwork can be dropped off or emailed
- AWI Sample Waiver
- Project Office Notification

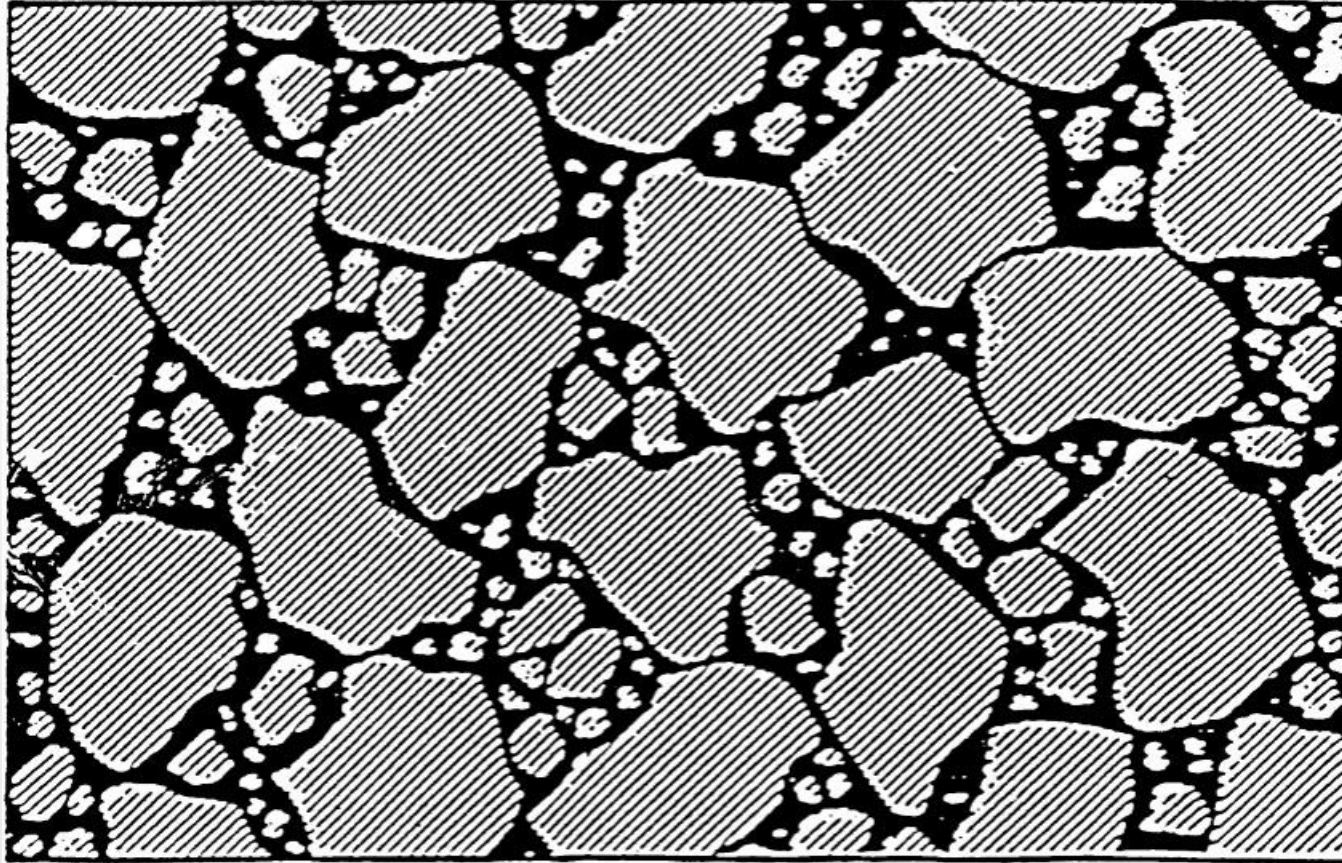
Stone Matrix Asphalt (Gap-Graded)

- What is it?
 - Gap-Graded Mixture
 - Stone on Stone Contact
 - High Asphalt Content
 - Fibers to Prevent Draindown
 - High Filler Content to Reduce Voids
 - Likes Traffic

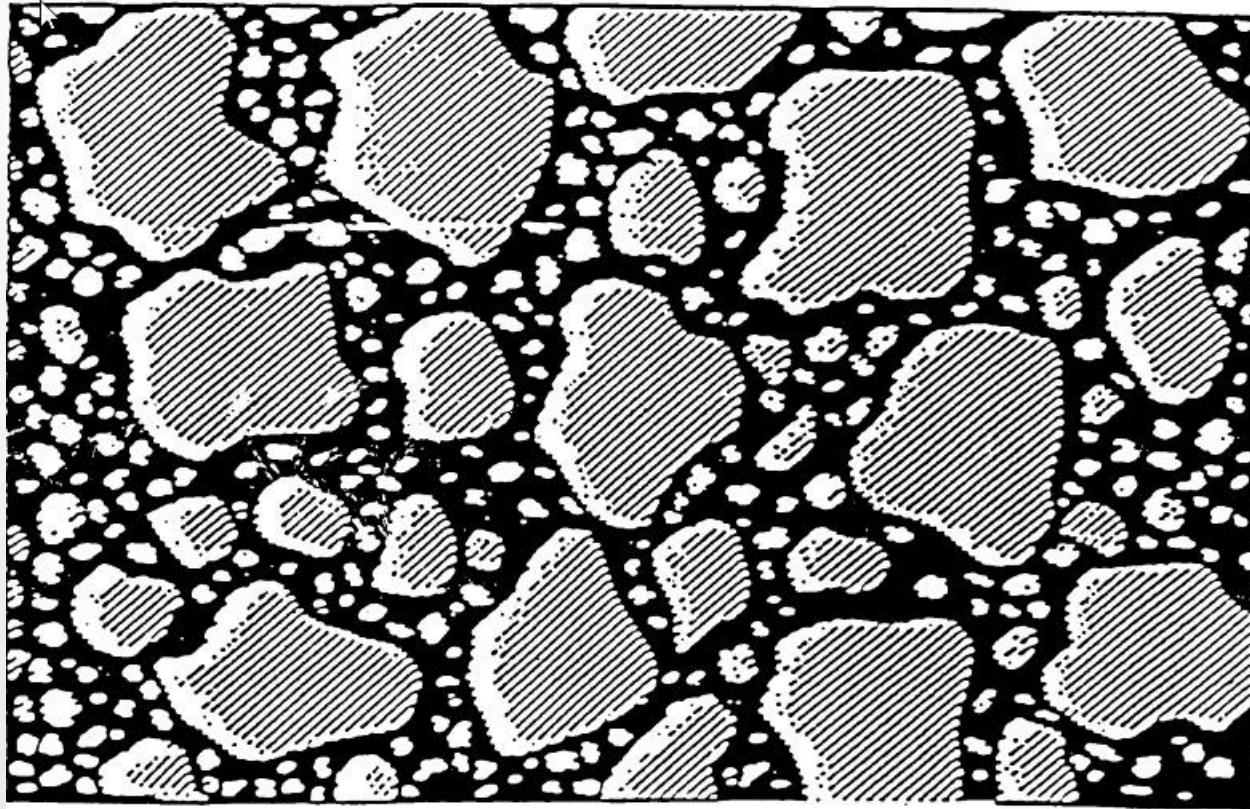


AASHTO-M335

Stone Matrix Asphalt (Gap-Graded)



Dense Graded



Stone Matrix Asphalt (Gap-Graded)

- Performance
 - Durability
 - Rut-Resistance
 - Cracking Resistance
 - Longer Service Life
- Economics
 - Higher Cost

Stone Matrix Asphalt (Gap-Graded)

- Where to use it?
 - Freeways
 - Off-site IPL/Test Strip
 - High Traffic Roads
 - High Truck Traffic Roads
- When to use it?
 - Full Depth HMA Reconstruct
 - Mill and Fill
 - When the underlying pavement is in good condition
 - Paving Over Old Concrete
 - Metro – Telegraph
 - Southwest Fix

NAPA SMA Conference



- Michigan Attendees
 - Chris James – MDOT
 - Nathan Maack – MDOT
 - Sheri Strpko – Rieth-Riley Construction
 - Dave Vanderweele – Rieth-Riley Construction
 - Chuck Mills – APAM
- Overall: 250 attendees from 20 countries

NAPA SMA Conference

- Main Topic Areas
 - Performance
 - Economics
 - Technical
 - Sustainability
 - Research

NAPA SMA Conference

- Technical - Best Practices
 - Mix Design
 - Plant Operations
 - Paving Operations

NAPA SMA Conference

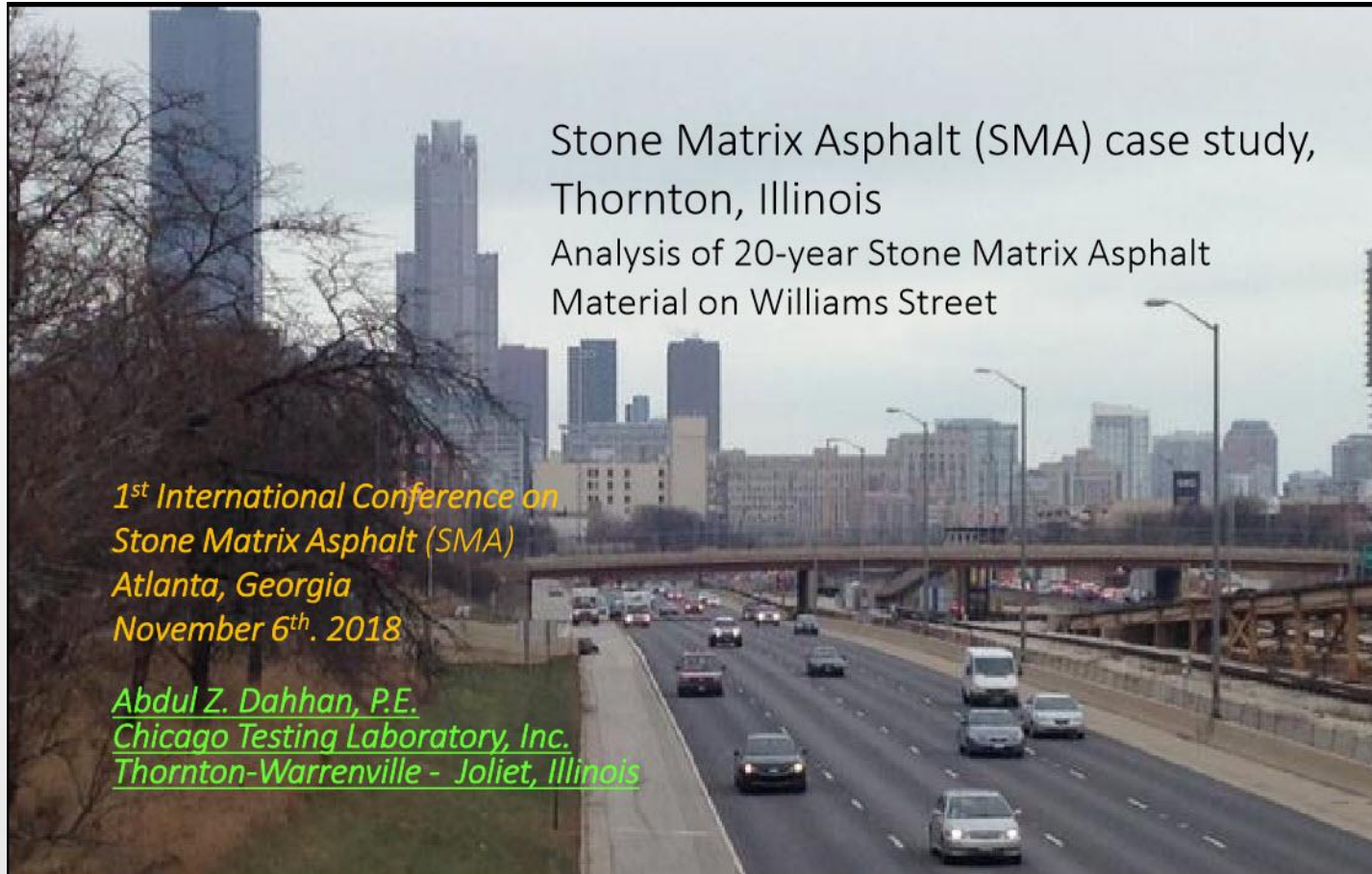
- Sustainability
 - Alternative Fillers
- Noise
 - Great Britain designed a quieter SMA
 - Illinois Tollway
- RAP in SMA

NAPA SMA Conference

- Research
 - Many performance studies
 - Life Cycle
 - Rubber Modified, RAP, RAS
 - Use on Australian Airfields
 - Hard to quantify the benefits with data

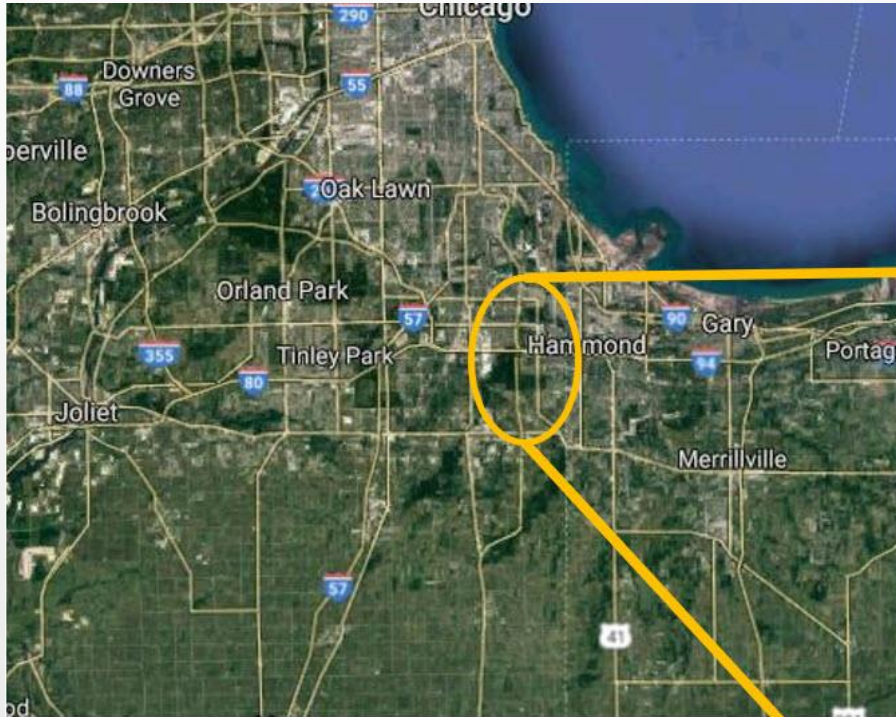
NAPA SMA Conference

- Case Study: Williams Street Intersection



NAPA SMA Conference

- Case Study: Williams Street Intersection



Thornton, Illinois
25 miles due south of Downtown Chicago

Located in Thornton is the “World’s Toughest Intersection”
at the corner of Williams and Margaret



NAPA SMA Conference

- Case Study: Williams Street Intersection



At the World's Toughest Intersection, Margaret & Williams Sts., in Thornton, Illinois,
SMA has been the mix of choice.

NAPA SMA Conference

- Case Study: Williams Street Intersection



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- Case Study: Williams Street Intersection



Rut Depth String Line, Williams St. Intersection

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- Case Study: Williams Street Intersection

Use of SMA, including full-depth perpetual SMA, is recommended in any high loading condition pavement where long term rut resistance and durability are desired.



NAPA SMA Conference

- Take Aways
 - SMA is successfully used all over the world
 - Autobahn
 - Japan
 - Indianapolis Motor Speedway
 - 18 States
 - Lots of studies
 - Performance is better but hard to quantify
 - Take it slow

QUESTIONS?

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Michigan Work Zone Safety Task Force

*Working together, MDOT and the heavy construction industry
are advancing our culture and practices to put
SAFETY FIRST
in Michigan's work zones.*



Task Force Purpose

As a partnership between MDOT and the heavy construction industry in Michigan, the Task Force works together to advance the effort of looking at ways to go above and beyond the current mode of operations to make work zone safety an even greater aspect of our culture.

Specifically, this task force is charged to:

- Set direction and enable implementation of recommendations
- Ensure the timely closure of issues
- Be the catalyst for changing culture
- Help to remove barriers to implementation; provide suggestions for other options



Who Is Involved

- Co-Chaired by Tony Kratofil & Mike Malloure
- 19 Members
 - MDOT
 - Contractors
 - Designers
 - Consulting Engineers



Who Is Involved

Seven Action Teams:

- Over 90 People
- Each Team is led by one Industry and one MDOT Representative
- Equal representation from Contractors and MDOT
- Additional members from:
 - Consulting Engineers
 - State Police
 - Other Industry Partners



Action Team 1

Team Leads:

Rob Coppersmith

Kim Avery

Influence driver compliance by consistent enforcement of laws





Balance between mobility and safety

Action Team 2

Team Leads:

Aden Shea

Steve Brink





Action Team 3

Team Leads:

Ryan O'Donnell

Craig Heidelberg

Flexibility throughout the project life cycle to encourage safety excellence



Action Team 4

Team Leads:

Brian Morley

Mike Cagle

Rick Becker

Ongoing education of all stakeholders





Action Team 5

Team Leads:

Mike DeFinis

Lindsey Renner

Multi-faceted marketing to influence positive outcomes in work zones





Safety culture consistent everywhere

Action Team 6

Team Leads:

Mike Malloure

Greg Johnson

Tom Fox





Proper and efficient use of new technology

Action Team 7

Team Leads:

Marc VanTil

Craig Innis





Putting

SAFETY FIRST

In Michigan's Work Zones

