

Michigan Peer Review

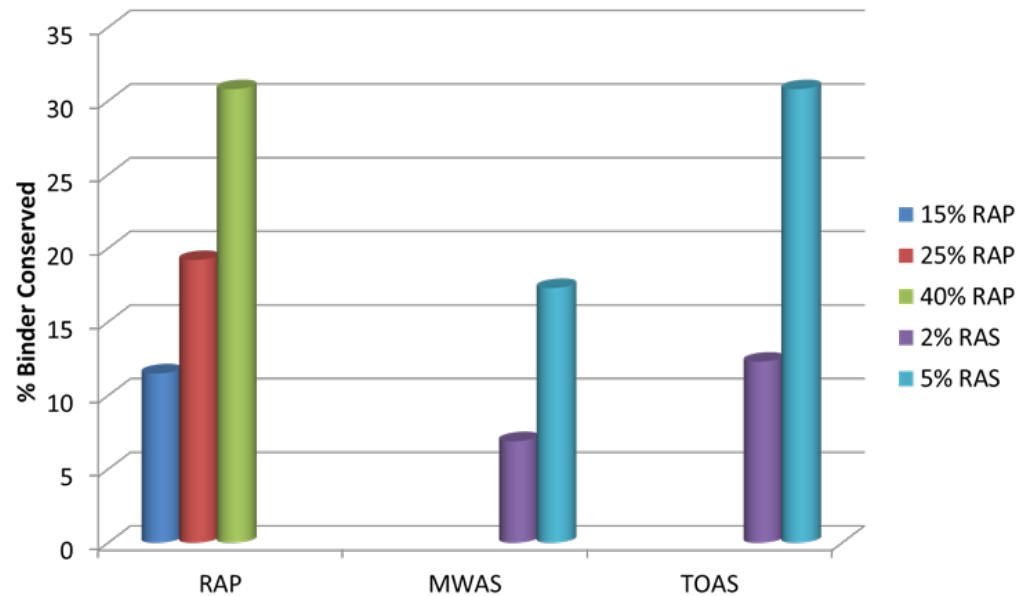
Asphalt Pavement Practice

Local Use of RAP
Three Percent Air Voids
Use of SMA

Dave Newcomb
Michigan Asphalt Conference
2016

Local Use of RAP

- Use of RAP is Important!
 - Conserve Energy
 - Conserve Resources
 - Reduce Pollution
 - Stabilize and Reduce Costs



**Once upon a time, asphalt was so cheap
and plentiful that mastodons could bathe
in it!**



Local Use of RAP

- Require Volumetric Mix Design
 - Use DOT Approach to Mix Design
 - Specify Maximum Binder Replacement (Typically 0.30)
 - Regress Asphalt Content to 3% Air Voids
 - Follow NCAT Recommended Approach for G_{sb} Allow Mix Designs Approved by MDOT
- Concern About Blending – Not Usually a Problem at Normal HMA/WMA Temperatures
- Concern About Variability – Not Usually a Problem

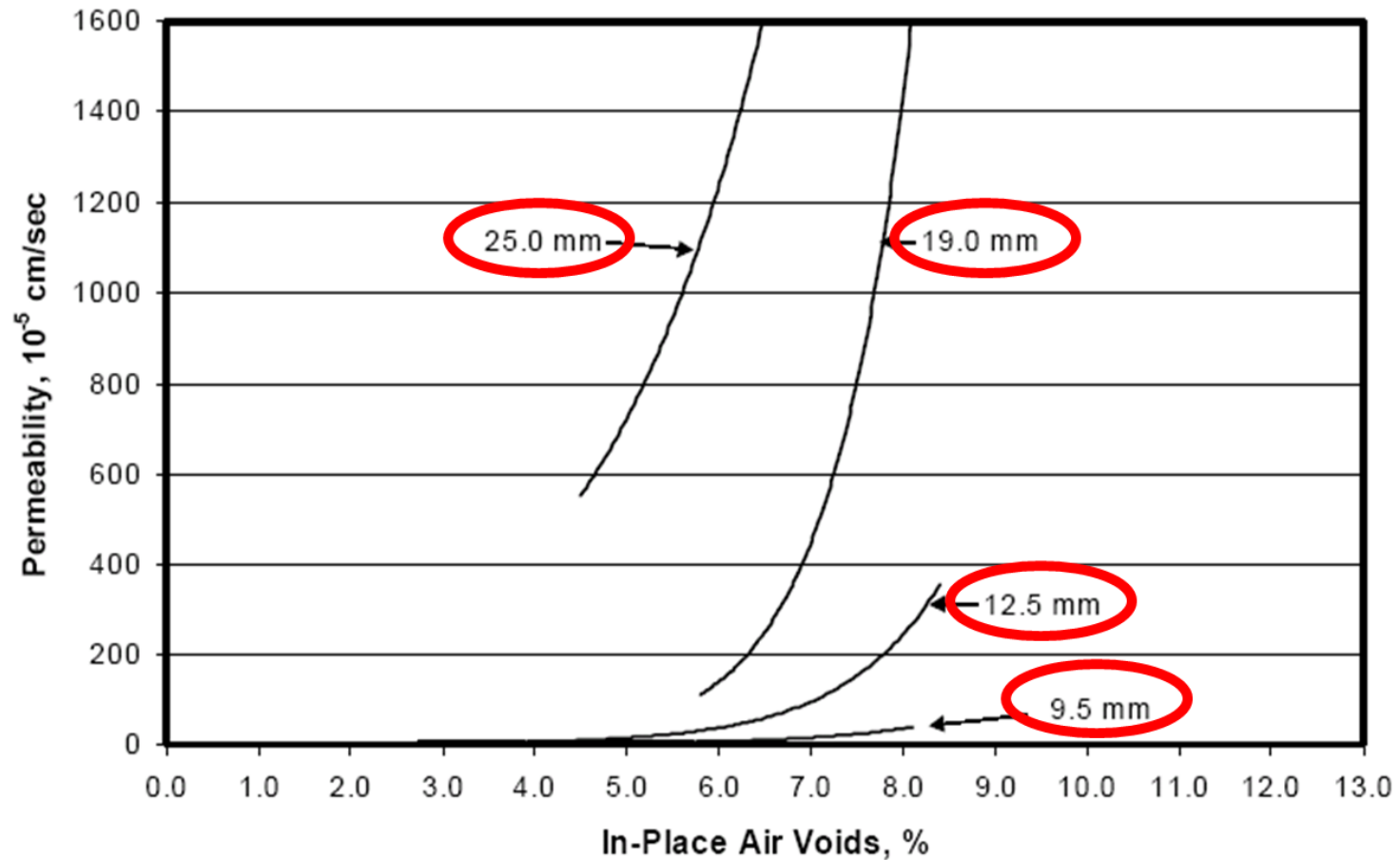
Local Use of RAP

- QC/QA
 - Require on Medium and Large Projects
 - Concern about \$\$\$: How Much Will It Cost to Not Test?
- Work with APAM
- Conduct Local Field Trials
- Develop Specification
- Implement

Three Percent Air Voids

- MDOT Recognizes There is Nothing Sacred About 4% Air Voids!
- A Good Way to Address Cracking Issues – More Asphalt
- Voids Are Not a Good Measure of Permeability – Depends on Aggregate Size

Three Percent Air Voids

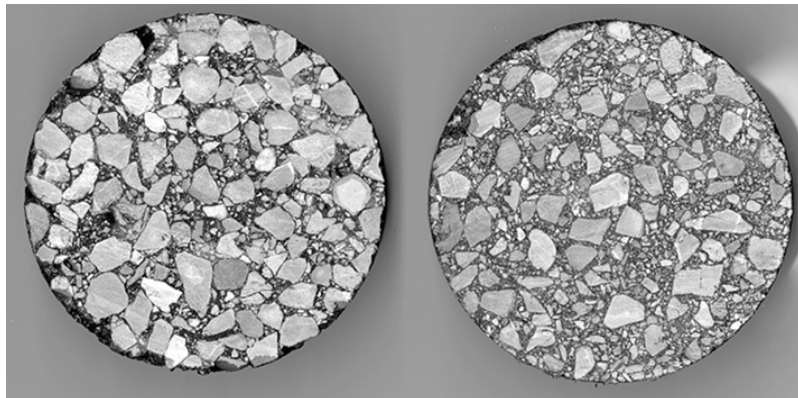


Three Percent Air Voids

- Will Serve Well Until a Balanced Mix Design Approach Developed
 - Rutting Test
 - Cracking Test
 - Asphalt Content in Between
 - More Innovation
- Should be Part of Local Implementation of RAP

Use of SMA

- High-Performance Gap-Graded Surface Mix
- Aggregate Structure Provides Rut Resistance
- High Binder Content Reduces Aging and Increases Crack Resistance
- Right Application – Surface on Long-lasting Design



SMA

- Production – Best Practices Always
- Requires a High Degree of Production Quality Control
 - Proportions Are Important
 - Will Not Perform with High Variability
- Placement – Best Practices Always

Use of SMA

- Maryland Experience
 - Little or No Top-Down Cracking
 - Little or No Rutting
- Use of RAP
 - Needs to be Controlled Like Any Other Component



**Want to know more about
ASPHALT?**

Join AAPT!



www.asphalttechnology.org/membership



At the 2016 AAPT Meeting:

- Leading Edge Workshop: Cracking Tests
- 5 Presentations on Cracking Tests
- Symposium: Balanced Mix Design
- 5 Presentations on High RAP/RAS
- Implementation of Specifications
- Aging Behavior
- Forum Topic: World Asphalt Market