

# Barriers for Expansion of RAP/RAS Usage in Oklahoma

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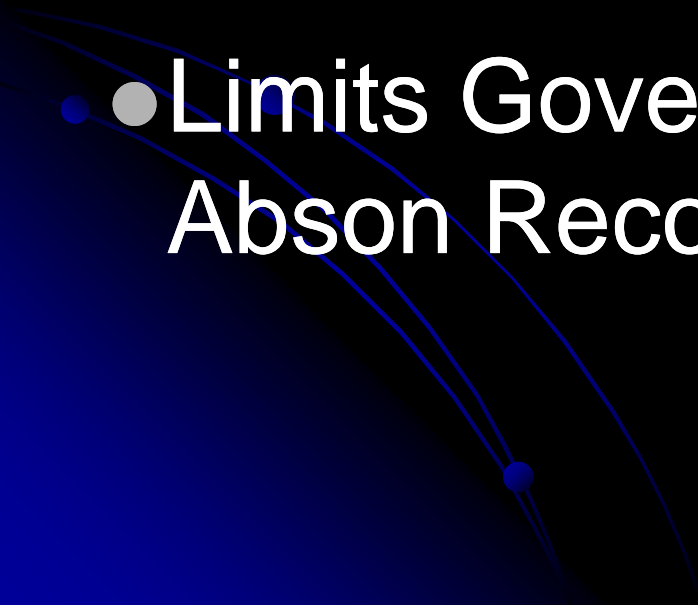


## HMA Recycling Expert Task Group

# RAP/RAS Usage in Oklahoma

- Past
  - Present
  - Future
    - Barriers for Expanded Usage
  - FHWA - Perspective
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# Past RAP Usage

- 1988 Standard Specifications  
Section 708.04c
  - Maximum 40% With AC-20:
    - Not Allowed in Surface Course
    - Limits Governed by Penetration of  
Absorbed Recovered Binder
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# Past RAP Usage

- 1991 Supplement Standard Specifications Section 708.04c
- Maximum 25%
- Plan Limits Govern
- RAP in Surface Courses Only With <1,000 ADT

# Past RAP Usage

- Crush and Screen to 95% Passing 2" Sieve
- Insoluble Residue (OHD L-25):
  - 0% - Unless Known
- Natural Sand and Gravel Limits Reduced by Amount in RAP

# Past RAP Usage Why Limit Usage?



# Past RAP Usage Why Limit Usage?



# Past RAP Usage

## Why Limit Usage?





# Past RAP Usage Why Limit Usage?



# Present RAP Usage

- 2009 Standard Specifications  
Section 708.04c
- Plan Limits Govern
- RAP in Surface Courses Only With  
    <0.3M ESALS
- Superpave Mixtures Only


# Present RAP Usage

- Max. Percent by Binder Grade
  - PG 64-22 OK – 25
  - PG 70-28 OK – 15
  - PG 76-28 OK – 15
- Shoulder - 25
- Temporary (detours) - 35


# Present RAP Usage

- FRAP – Fine and Coarse RAP
  - Fine – Passing Sieves 5/8", 1/2", 3/8"
  - Coarse – Passing 1 1/2" Sieve to Fine
- Insoluble Residue (OHD L-25):
  - 0% - Unless Known
- Natural Sand and Gravel Limits Reduced by Amount in RAP

# Future RAP Usage

- Oklahoma University Research – Increase RAP Percentages
  - Allow RAP in all Surface Course Lifts?
  - Some Divisions Use No RAP
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# Future RAS Usage

- Some Oklahoma Contractors Interested in RAS
  - Some Have Done it in Neighboring States
  - Develop Specifications
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# Barriers for Expanded Usage



# Barriers for Expanded Usage

- Scary:
  - Cost or Save \$\$\$'s
  - New / Changes
  - Quality or Value
  - Availability of RAS
  - Lack of Specifications for RAS
  - Lack of Upper Management Support



# Barriers for Expanded Usage

- Communication and Education
  - Prepare Educational Materials and Specifications
  - Internal – Meet with Upper Management
  - External – FHWA and OAPA Support


# Summary

- Past / Present / Future
- Barriers for RAP/RAS Expansion:
  - Who – Upper Management
  - What – New Processes
  - Where - Localized
  - Why – Improve Quality, Decrease Cost, Green

# Resources For More Information

- Kenneth Hobson – [khobson@odot.org](mailto:khobson@odot.org)
- George Raymond – [graymond@odot.org](mailto:graymond@odot.org)
- Waseem Fazal - [waseem.fazal@fhwa.dot.gov](mailto:waseem.fazal@fhwa.dot.gov)
  
- Okla. Std. Specifications and Special Provisions:  
<http://www.okladot.state.ok.us/cnstrctengr.htm>
- OHD Laboratory Test Methods:  
<http://www.okladot.state.ok.us/materials/ohdllst.htm>

# FHWA- Perspective

- Oklahoma Division- Recognizes Benefit and Encourages Recycling
  - Great Partnership with Stakeholders
  - Participation in Pavement Improvement Committees- Technical Task Groups
  - Resources Sharing- Technical Support
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# FHWA Perspective- Barriers

- QC
  - Past Bad Experiences
  - RAP- For Maintenance Work
  - Availability of Good Quality Aggregates-  
Crude Oil Prices
  - Fear- Known & Unknown
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# FHWA- Perspective Future

- Opportunities for Us
- RAS
- Overall-Satisfied with the Progress

