


A New 23 CFR 772/Quieter Pavement Policy and Research

Adam Alexander
FHWA Noise Team
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Overview

- Regulation overview
- Changes in the rule
- Quieter Pavement Policy/Research
 - Arizona – Quiet Pavement Pilot Program
 - Virginia – Quiet Pavement Research
 - Washington – Quiet Pavement Research
 - Others
- Future Considerations

Regulatory Overview

- Background
 - Federal-Aid Highway Act of 1970
 - FHWA required to develop noise standard
 - First Federal regulation addressing traffic noise
 - Entire regulation is the standard (23 CFR 772)
 - Applies to Federal/Federal-aid highway projects

Regulatory Overview

- General Requirements
 - Projects on new alignment
 - Capacity adding projects
 - Projects that substantially change the alignment
 - Establishes impact thresholds by land use category
 - Requires consideration for abatement where impacts occur
 - Provides abatement alternatives
 - Requires use of the FHWA Traffic Noise Model v. 2.5

The New 23 CFR 772

- Published July 13, 2010
 - States to submit new noise policies
 - Approval by FHWA division offices with HQ and RC review
 - Implementation July 13, 2011
- Additions
 - Eliminates regulation through guidance
 - Defines terms that were in guidance
 - Feasible and reasonableness – key terms
 - Includes industry practice within the regulation

The New 23 CFR 772

- Additions
 - Establishes minimum design goal for noise abatement
 - Reorganizes noise abatement criteria table
 - Emphasizes focus on exterior areas
 - Abatement focus on noise barriers – others are optional
 - Consideration for design build projects
 - Eliminates use of TNM Lookup Tables
 - Clarified information required for local officials
 - Clarified "planned, designed or programmed" – now permitted
 - National consistency while maintaining flexibility for states

Measurement Types

Opportunities & Challenges

- Acoustic longevity
- Inconsistent results
 - Site bias
 - Construction variability
 - Measurement bias
 - Errors
- Does RAC-O = OGAC-AR?

Quiet Pavement Pilot Program

- Allows states to consider pavement as noise abatement
- Arizona only state with QPPP
- Requires extensive pre and post research and monitoring program
- State agrees to quantify, achieve and maintain noise reduction

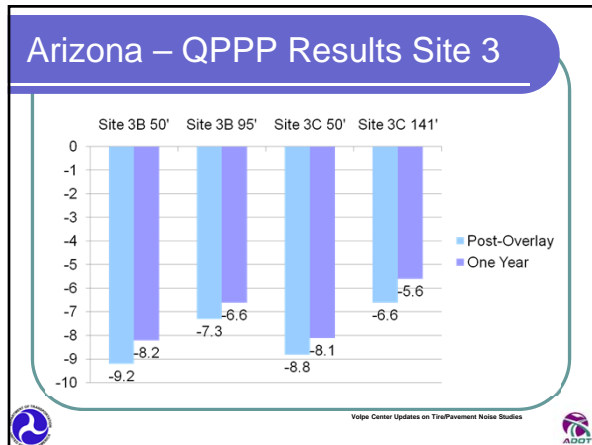
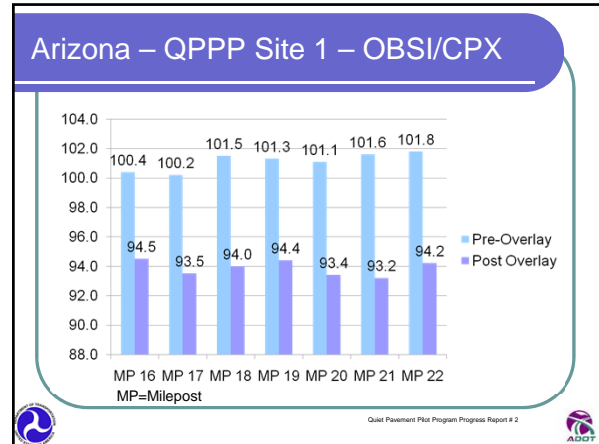
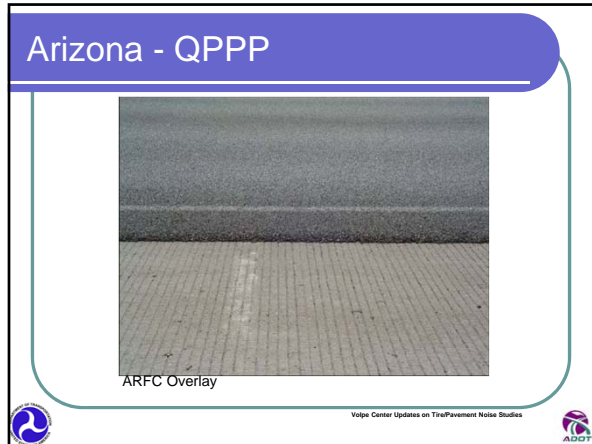
Arizona - QPPP

- Allows a 4 dBA adjustment to modeled results where ARFC is used
 - May understate benefit to nearby receptors
 - May overstate benefit to distant receptors
- Adjustment based on pre-QPPP research results
- Ongoing monitoring – at least 10 years

Arizona - QPPP

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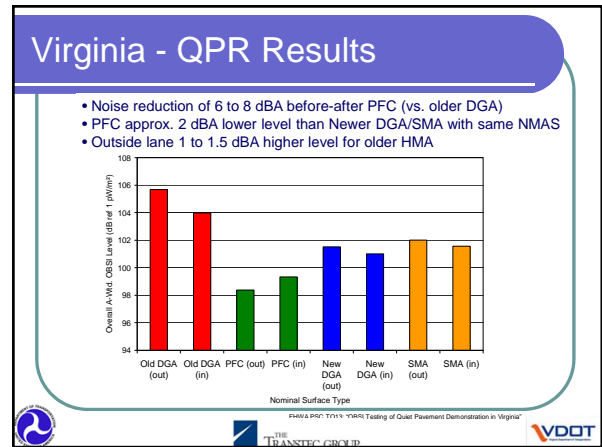
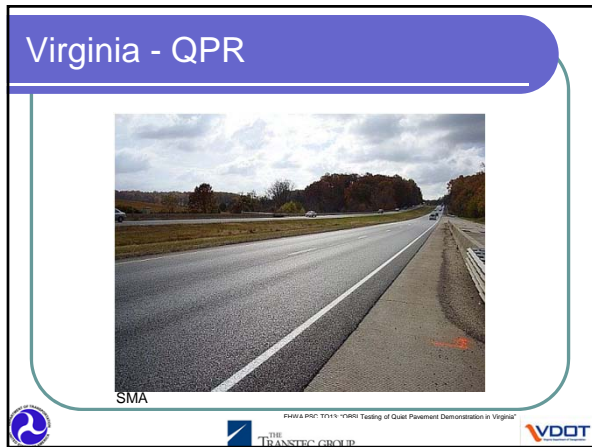
- 115 miles of 1" open-graded Asphalt Rubberized Friction Course (ARFC) overlay
- Old Pavement – random or uniform transverse tined PCC



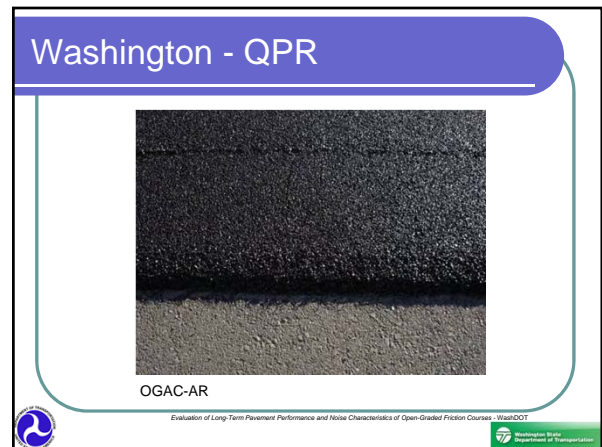
- ### Quiet Pavement Research
- Determine noise effects of pavement
 - Could focus on quieter or louder pavements
 - Ohio DOT currently studying louder pavements
 - Several other states looking at quieter pavements – California, Florida, Texas, Washington, Virginia...
 - Cannot consider pavements as noise abatement
 - Two key issues
 - What is the noise level of the pavement?
 - How long does it stay at that noise level?

- ### Virginia QPR Evaluation
- Sponsored by FHWA and Virginia DOT
 - Tested April 2008 and November 2008
 - 4 nominal surfaces
 - Old DGA – VA 234 Bypass, Manassas
 - Optimized PFC – VA 234 Bypass, Manassas
 - New DGA – VA 234 Bypass, Manassas
 - New SMA – US 15/29, Warrenton
 - Before-after evaluation of PFC
 - Comparison of PFC to DGA to SMA with same (9.5 mm) NMAS
- FHWA PSC TO13: "OBSI Testing of Quiet Pavement Demonstration in Virginia"





- ### Washington - QPR
- Research Study: *Evaluation of Long-Term Pavement Performance and Noise Characteristics of Open-Graded Friction Courses*
 - Studied two pavement types
 - OGAC-AR (Rubberized)
 - OGAC-SBS (Polymer)
 - HMA (Control)
 - Pre-overlay
 - Old HMA
 - New HMA
- Evaluation of Long-Term Pavement Performance and Noise Characteristics of Open-Graded Friction Courses - WashDOT
- Washington State Department of Transportation



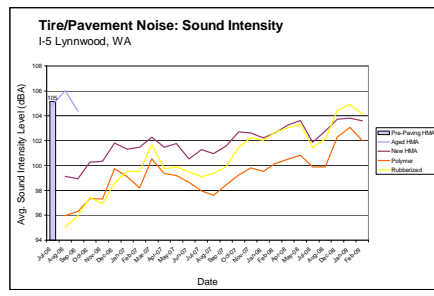
Washington - QPR



OGAC-SBS (Polymer)

Evaluation of Long-Term Pavement Performance and Noise Characteristics of Open-Graded Friction Courses - WashDOT

Washington - QPR



Quarter Pavement Noise Update - WashDOT

Washington - QPR

- Initial measurement shows OGAC pavements quieter than HMA
- One year measurement shows some degradation of acoustical benefit
- Measurements indicate negative effect of studded tire use
 - Reduction of noise benefit occurred in wheel path measurements
 - Measurement results between wheel path similar to initial wheel path measurements

Evaluation of Long-Term Pavement Performance and Noise Characteristics of Open-Graded Friction Courses - WashDOT

Other research

- Pavement Effects Implementation Study (PEI)
- Tire/Pavement Noise Research Consortium
- NCHRP 10-76
- Other OBSI Pavement Studies
 - North Carolina, Florida, Montana, Ohio, Kansas, Texas
 - NCAT

Future Considerations

- Encouraging states to use additional pavements in TNM
- Adding more pavements to TNM
- Consider policy implications of more pavements
- Continue acoustic longevity studies

Adam Alexander
FHWA Noise Team
202-366-1473

adam.alexander@dot.gov