



Materials Division Updates VAA Spring Meeting

April 4, 2014

Andy Babish, P.E.

State Materials Engineer

Materials Division Updates

**Quiet Pavement
Technology**

**Pavement Engineering
and Recycling**

Asphalt Program



Quiet Pavement Technology

Excellent ride quality and good wet-skid resistance

Reduce splash and spray

Porous materials do “freeze” more quickly and require more winter maintenance “attention”

First freeze-related safety incidents reported in Leesburg – Winter 2013/14



Quiet Pavement Technology



Fairfax County
Parkway – Feb. 2014

Quiet Pavement

Conventional - SMA



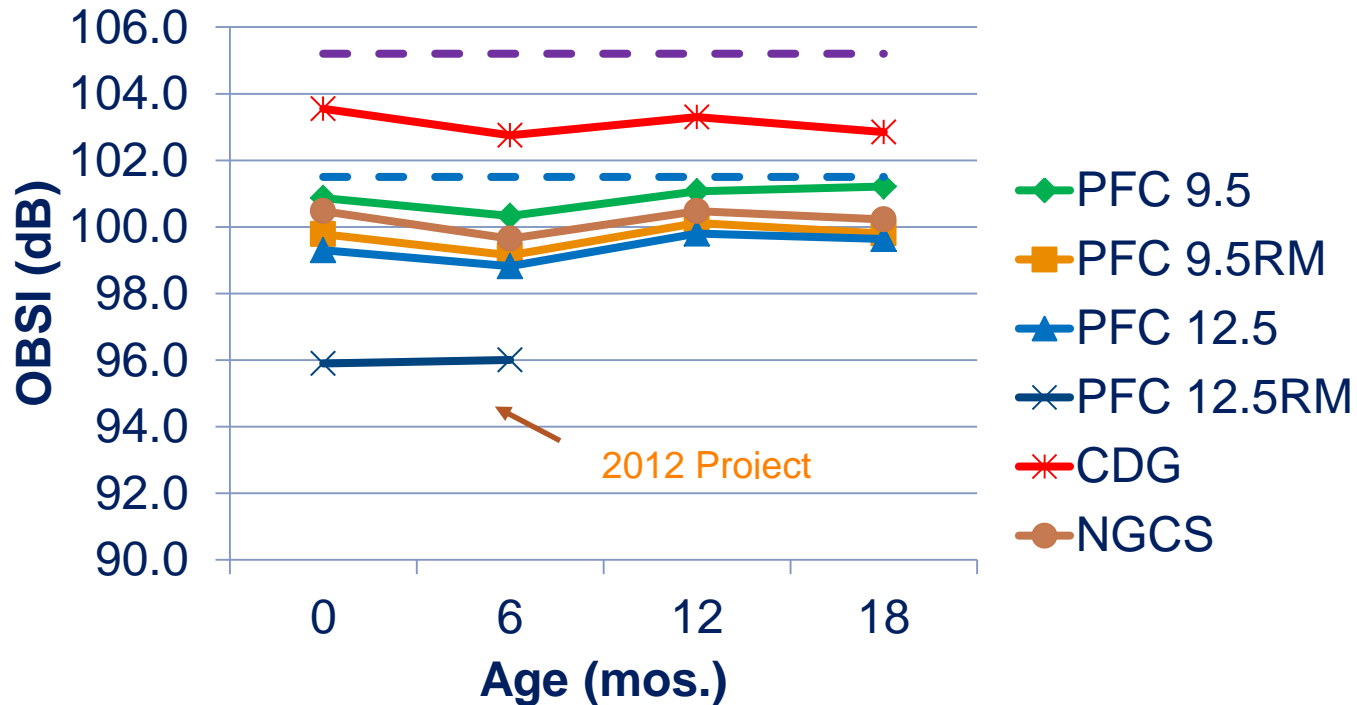
Quiet Pavement Technology

Difference between lowest-noise QP and control surfaces:

After first winter tire-pavement noise levels were readily noticeable ($\geq 5\text{dB}$);
asphalt & concrete

Over past two winters, noise intensity levels have:

decreased slightly for concrete technologies
increased slightly for asphalt technologies



Status – Spring 2014

Functional performance assessment – starts April 1 (Fairfax)

Maintenance experience and costs – ongoing (predominantly winter-related)

Monitor Federal and other state experience

Federal rulings may permit pavement type within traffic noise analysis

State reports concerning recommended use

Final Report – June 2015

To include (Virginia Code):

“...a plan for routine implementation of quiet pavement...”

To include (Objective Evaluation):

Expected performance – noise reduction and its duration, friction, etc.

Expected costs – material, maintenance (winter & other), and safety

Recommended use and other considerations

Pavement Engineering

Pavement Design and Evaluation

**Feb 2014 – Revised VDOT Design Guide for Sec. Roads and Subdivisions to include rigid pavement design
Shadowing AASHTO ME pavement design in 2014 for future implementation**

RIDE Specification

**Approx. 30% of combined IS and PM applied
Looking at opportunities to apply where challenging for conventional spec to improve ride quality (incentive only)**

Pavement Engineering

Pavement Recycling

CPR – Cold Plant Recycling, using RAP mixed in a plant and placed as part of pavement layer, developing permissive specifications

Moving towards programmatic specification instead of project specific.

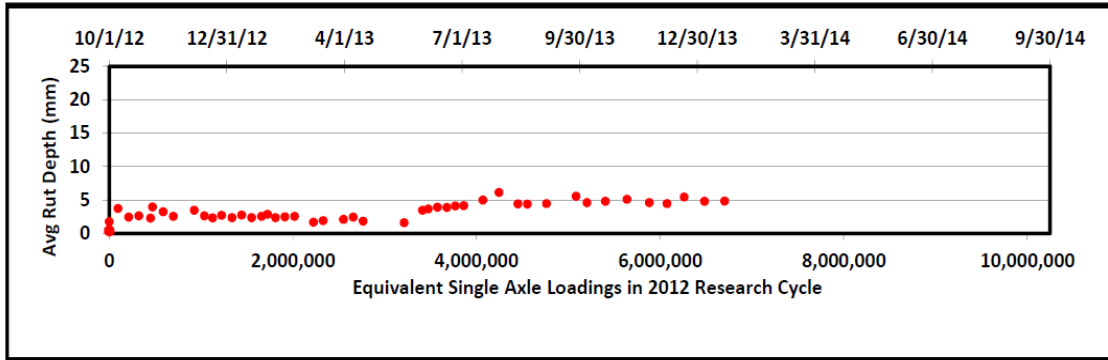
FDR – Full Depth Recycling, opportunities to improve secondary and subdivision roads – improve grade, drainage and long term performance

Districts have design autonomy on Secondary Roads

Pavement Engineering

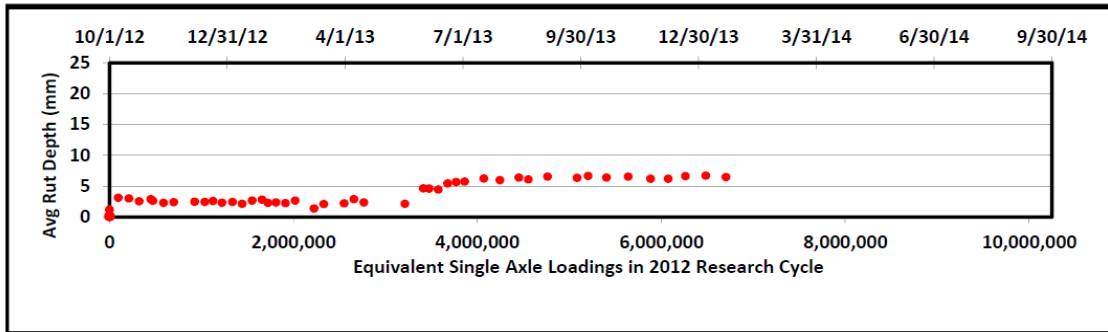
NCAT results

Preliminary Field Performance Data



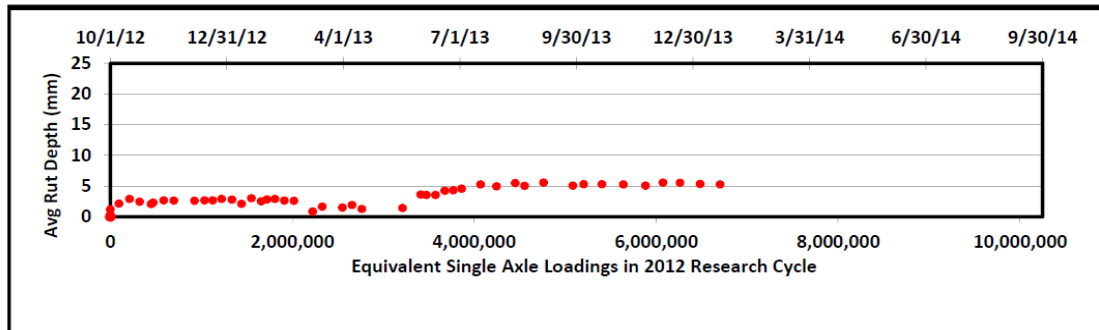
4" HMA
5" CPR
FDR

Preliminary Field Performance Data



4" HMA
5" CPR
Agg. Base

Preliminary Field Performance Data



6" HMA
5" CPR
Agg. Base

Asphalt Program

RAP Usage opportunities

Optimum use is in Hot Mix or CPR

Evaluating increasing the amount of RAP used in Hot Mix Asphalt

Evaluating unbound characteristics and feasibility as a potential alternative pavement layer

Use as fill, shoulder stone, etc. although viable, does not take full advantage of all material properties

Continued focus on Longitudinal Joint Density Testing in 2014

Unconfined and Confined joints reveal no difference in ability to achieve density

If tests fail – do something, some crews in 2013 needed attention, but most crews did well

Asphalt Program

Regional Asphalt Seminars - 2014

Seminars conducted in Fredericksburg, Richmond, Blacksburg
Focused on Density, Quality and Construction – 595 attendees

Asphalt Binder Testing

Will move towards a nationally recognized acceptance method for
asphalt binders – Multiple Stress Creep Recovery (MSCR)
Most suppliers are already in compliance and aware of requirements
Provides for consistency across state lines – Suppliers do not have to
have multiple tanks

Asphalt Program

Technology Upgrades

MITIS/PLAID (Materials Information Testing System/ Producer Laboratory Analysis and Details) web platform system for data input, storage, and analysis.

- **Accessible for use by Aggregate and Asphalt Concrete producers**
- **Eliminates multiple data entry of Producer data**
- **Promotes transparency between Producer – VDOT data**
- **Promotes more timely decision making on data**
- ***Working to develop enhancements to include TL 102 (Weigh Ticket), Control Charts and automatic notification***

Asphalt Program

- **Pavement Marking Upgrades**
 - **Temporary markings**
 - extended to 30 days
 - Relaxed moisture testing
 - **Permanent markings**
 - New Class VI tape product approved





Materials Division Updates
VAA Spring Meeting

Thank you!