NCAT Pavement Test Track

Buzz Powell
Cold Central Plant Mix
Content

- Track research overview
- VDOT structural base layers
- Preservation on Lee Road 159
- Preservation on US-280
- Astec Double Barrel Green
Track Research Goals

• Help state DOTs implement positive change
• Promote real innovation for the industry.
Track Research Goals

- Preservation
- Mix & materials
- Thickness design
- Construction
Lanford Brothers Uses
In-Place Recycling
on I-81 Project

Three recycling methods used in combination for the first time on a project in the U.S. will save Virginia both time and money.

By Lisa Cleaver, editor

- 23,000 AADT
- 28% Trucks
- 7.2 Lane Miles
- CIR and FDR+CCPR
- $7.6 Million
CCPR Mix on Track and Lee Road 159

- Virginia I-81 RAP processed (unscalped) to $-\frac{3}{4}$
- 5.77% RAP binder content at 3% moisture
- 2% virgin binder foamed with 2½% water
- 7.73% measured total binder content
- Virgin binder content computed as 1.96%
- Mix moisture content measured at 3.14%
- All dry densities exceeded 100% of lab control
Comparison Test Sections

S12
4-inch AC
5-inch CCPR
8-inch FDR
Subgrade

N4
4-inch AC
5-inch CCPR
6-inch Agg
Subgrade

N3
6-inch AC
5-inch CCPR
6-inch Agg
Subgrade
2012 100% RAP Cold Recycle Mix
2012 100% RAP Cold Recycle Mix
2012 100% RAP Cold Recycle Mix
2012 100% RAP Cold Recycle Mix
2015 Pavement Preservation
CCPR$_{F,E}$ on US-280 (KMA220)
$\text{CIR}_{F,E}$ on US-280 (3800CR)
Cold Recycle$_{F,E}$ Mix
ABR Thinlays on Cold Recycle$_{F,E}$

CCPR (KMA220)

CIR (3800CR)
ABR Thinlays on Cold Recycle

Aged Binder Ratio (from Both RAP and RAS)
Cracking Group (CG) Section Surfaces

- 20% RAP control $N_1@20/0$
- High density control $N_2@20/0$
- Low AC/density control $N_5@21/0$
- Control + 5% RAS $N_8@20/14$
- Control +15% RAP with PG58-28 $S_5@33/0$
- Control with HiMA $S_6@19/0$
- 15% RAP AZ rubber with ARB20 $S_{13}@7/0$. 
Cracking Group (CG) Section Surfaces

- 20% RAP control $_{N1@20/0}$
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- Control + 5% RAS $_{N8@20/14}$
- Control + 15% RAP with PG58-28 $_{S5@33/0}$
- Control with HiMA $_{S6@19/0}$
- 15% RAP AZ rubber with ARB20 $_{S13@7/0}$
Cold Recycle from a Hot-Mix Plant
Cold Recycle from a Hot-Mix Plant
Cold Recycle from a Hot-Mix Plant
Cold Recycle from a Hot-Mix Plant
Key Takeaways

• Best use of 100% of all RAP generated
• Base layers with 100% RAP in high traffic
• Binder layers with 100% RAP in moderate traffic
• Cold recycle via central plant in urban markets
• Cold recycle in-place in rural markets
• Durable, crack resistant surface mixes.
End-of-Cycle Track Conference

- High RAP/RAS balanced mix designs
- Nationwide pavement preservation
- Preventing reflective distresses
- Optimized structural design
- Implementation

Pavement Test Track Conference

March 6-8, 2018

The Hotel at Auburn University and Dixon Conference Center

www.ncat.us
Track Mission Statement

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