



R26 Preservation Of High Traffic Volume Roadways

MnDOT R 26 Workshop

Sept 4, 2014

Jerry Geib



U.S. Department of Transportation
Federal Highway Administration

MINNESOTA

- MN fun facts
- MnROAD HMA cells



MINNESOTA



U.S. Department of Transportation
Federal Highway Administration

BLUEBERRY

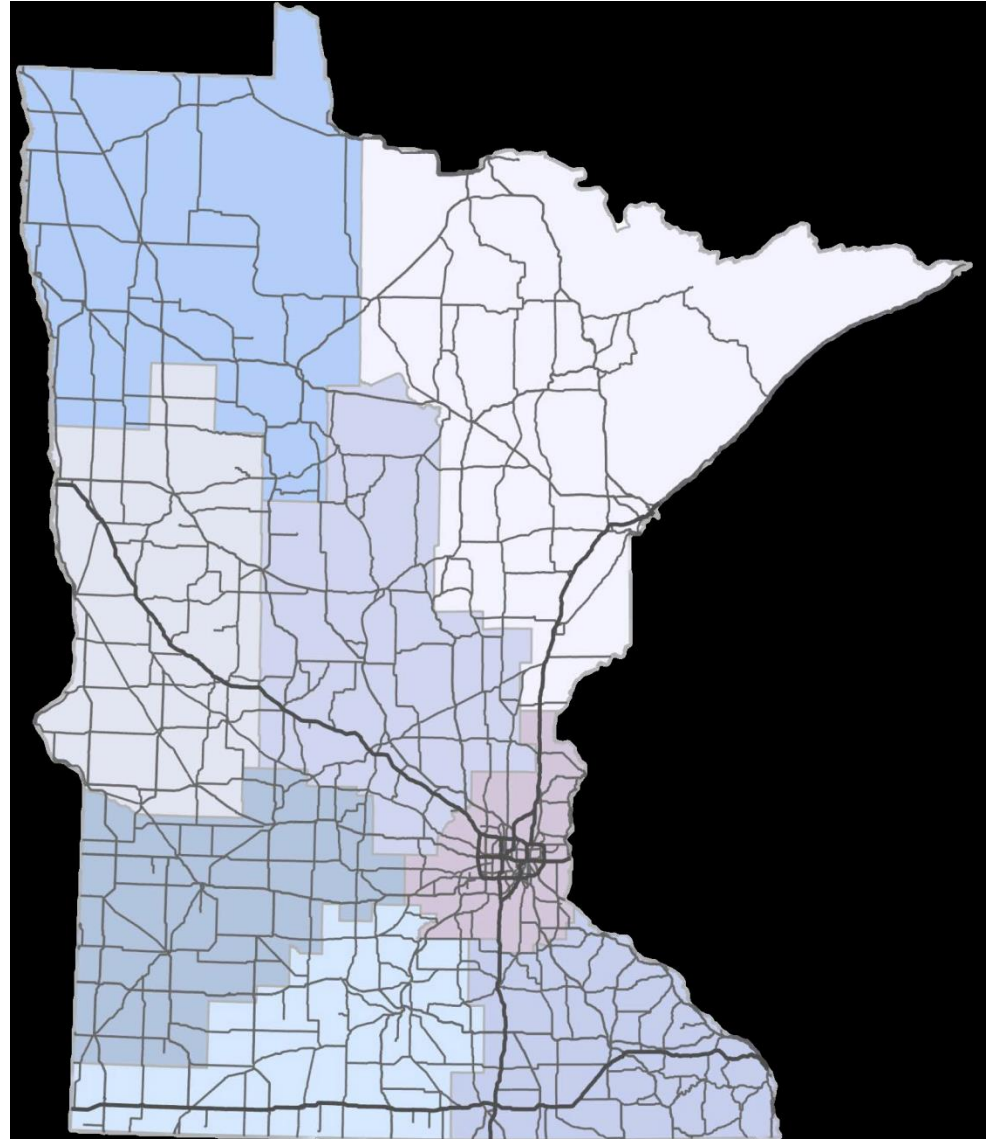
MN *fun* Facts

- **MINNESOTA**
- **12th is total area 86,935 sq. mi.**
- **21st in population 5,420,000**
- **5th !! in lane miles 285,180**
- **MnDOT**
 - **916 Interstate centerline miles**
 - **11,813.9 centerline miles**
 - **29,288 lane miles**



MINNESOTA

- I-90 is 275.7 mi.
- I-94 is 259.3 mi.
- 1-35 is 259.7 mi.



MINNESOTA

ADT	I	US	MN	total	%
>2,000	-	866	4,314	5,180	43.6
2-5,000	-	1,084	2,059	3,143	26.4
5-10k	162	600	784	1,546	13.0
10-50k	521	693	571	1,785	15.0
50-100k	135	-	-	135	1.1
>100k	96	-	-	96	0.8



MINNESOTA



MINNESOTA



Minnesota



Honeycrisp



U.S. Department of
Federal Highway Administration

MnROAD

A long-term pavement testing facility that gives researchers a unique, real-life laboratory to study and evaluate the performance of materials used in roadway construction



Flexible Micro surfacing



HiMA micro surfacing

- MnRoad cell 1
- PG 49-34 base AC (vs. 64-22)
- Kraton SBS polymer D0243, at 6%
- Scratch 12 lbs/sy
- Surface course 15 lbs/sy
- 16% emulsion (vs. 13% typical)
- One lane mile on TH 23, District 3



Cell 1 IRI

	Passing lane	Driving lane
IRI Before	190 in/mi	125 in/mi
Work completed	July 27, 2012	
IRI After ~Aug 2012	96 in/mi	95 in/mi
7/10/2013	100 in/mi	106 in/mi

~ 10 lane miles/day production rate



Ultra Thin Bonded Wear Course

2	3	4
1" UTBWC	1" UTBWC	1" 64-34
2" 64-34	2" 64-34	2" 64-34
6" SFDR	6" SFDR	8" SFDR
6" FDR	2" FDR	
	2" CL 5	9" FDR + Ash
26" CL4sp	33" CL3sp	
Clay	Clay	Clay

- 2 $\frac{3}{4}$ - 3" HMA on Interstate
- Stabilized FDR
- Performance:
 - 3.5 Million ESALs - very little distress



Cell 2, 50/50 RAP to gravel

IRI 54 in/mi driving lane, July 2013

Cell 3 75/25 RAP to gravel

IRI 61 in/mi. driving lane, July 2013

Cell 4 100% RAP

IRI 100 in/mi. driving lane, July 2013



3" WMA overlay, full depth

- Cell 15
- IRI 76.5 in/mi driving lane, July 2013
- Overlay Sept 2008
- Seasonal ride variations occur



5" WMA 2008 on cell16

- 58-34
- 12" of 100% recycle PCC
- Part of a larger study of WMA and different bases
- When built right, similar results after 5 years



MnROAD Chip Seal on I-94



MnROAD Chip Seal on I-94

Video on YouTube "MnDOT chip seal"

By Tom Wood, 3 minutes

CRS-2P on pavement markings

0.36 gal/sy of CRS-2P emulsion

18 lbs/sy of -3/8" granite chip

3 roller passes

Fog seal CSS-1H diluted 1:1 (+shoulders)

0.12 gal/sy and 1' lap at centerline



TH 56 photo in 2009, fogged about 2001-02



Thermal contraction



Pink and White Lady's Slipper



Pink and White Lady's Slipper



Pink and White Lady's Slipper





Contact Information

Jerry Geib

MnDOT

651-234-7352

jerry.geib@state.mn.us

