

MnDOT Preservation Update



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Performance Measures of MnDOT Roads

- Ride Quality Index (RQI)

System	RQI	
	"Good" RQI Target	"Poor" RQI Target
Interstate	70% or more	2% or less
Other-NHS	65% or more	4% or less
Non-NHS	60% or more	10% or less

- Surface Rating (SR)
- Pavement Quality Index (PQI)
- Remaining Service Life (RSL)
- http://www.dot.state.mn.us/materials/pvmtmgmtdocs/AnnualReport_2014.pdf



2016 Preventative Maintenance Plan

- Total PM planned in the STIP (State Transportation Improvement Plan) = \$19.6 million
 - Chip Seal = \$4.02 million
 - Crack Fill = \$1.55 million
 - Crack Seal = \$4.84 million
 - Micro Surfacing = \$6.60 million
 - Concrete Joint Seal = \$0.18 million
 - Minor CPR and/or Diamond Grind = \$1.15 million
- Districts also have BARC (Bridge and Road Construction) money to use
 - Not limited to preservation, striping, drainage, snow and ice, safety, etc.



Preservation Guidelines and Documents

- Currently working on a Pavement Preservation Manual
 - Draft completed by end of this year
 - Using some from South Dakota and Illinois
- Pavement Management Decision Trees Based on Current conditions



ADT by Preservation Treatment

- Pavement Management Decision Trees Currently State
 - Chip Seal <10,000ADT
 - Micro Surfacing >10,000 ADT
- Have used chip seals on much higher ADT roads
 - MnROAD ~ 58,000 ADT
 - <https://www.youtube.com/watch?v=OI5R7n8zGoc>
 - I35 north of the Twin Cities ~ 18,000 – 20,000 ADT



Successful Preservation Treatments in Minnesota

- MnDOT has great success with both chip seals and micro surfacing
 - Our Specification is one of the best in nation. AASHTO is using parts for national specification
- Some Different Projects we are Trying
 - Micro Milling with a surface treatment with success
 - UTBWC, Micro Surfacing, and Chip Seals
 - Micro Surfacing with softer base asphalt
 - UTBWC, Micro Surfacing, and Chip Seals
 - Texas Underseal – chip seal and then overlay
 - Reduces reflective cracking



Micro Mill Projects

UTBWC on micro milled surface

- TH5 (2013): 3 miles, 2 lanes
- TH10 (2014): 15 miles, 4 lanes

Chip seals on micro milled

- TH89 (2013)*: 14 miles with chip seal on micro milled and 2 miles on existing surface (control)
- TH9 (2014): 13 miles, 2 lanes

Microsurfacing on micro milled

- TH12 (2014): 5 miles, 2 lanes
- TH64 (2014): 19 miles, 2 lanes
- TH23 (2014): 6 miles, 4 lanes
- Interstate 94 (2015) Moorhead, MN
- TH10 (2015) Wadena, MN: EB Lanes (2) 8.5 miles



Micro Mill with Micro Surface (TH64)

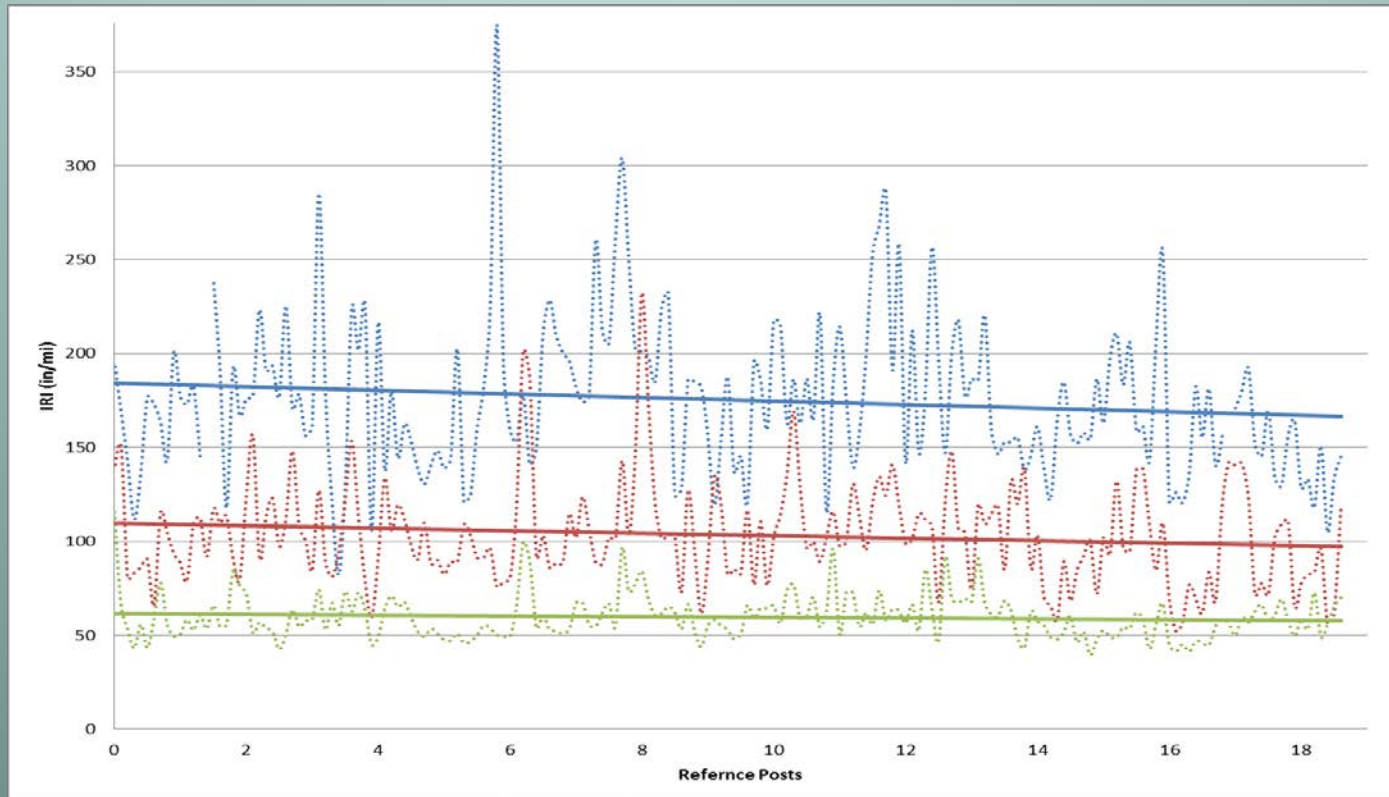
- **Used Destination Innovation Monies**
 - Max micro milled 3/8”
 - Used a Micro Surfacing that included
 - Base asphalt PG 49-34 (standard is 58-28 in MN elsewhere 64-22)
 - Used higher % emulsion of 14.5% vs. usually 13%
 - Added 4% SBS Polymers instead of latex
- **Observations:**
 - Cracks are reflecting through are fine and holding together
 - Much Improved Ride
 - Striping appears to have less snow plow damage after 1 winter



Micro Mill with Micro Surface (TH64)

TH64 Southbound (RP 0-18.6)							
	Before Micro Mill IRI (in/mi) (2014)	After Micro Mill IRI (in/mi) (2014)	After Microsurfacing* IRI (in/mi) (2014)	After 1 year (2015)	Percent Improvement after Micro Mill	Percent Improvement after Microsurfacing*	Percent Improvement after 1 year (2015)
Average Both Wheel Path	175.4	103.5		59.6	41%		65%
Average Left Wheel Path	137.5	87.9		54.2	36%		61%
Average Right Wheel Path	209.4	119.2		65	43%		69%

* IRI was not collected in 2014 after completion of the microsurfacing due to late in season completion date and early snow



Micro Mill with Micro Surface (TH64)



Before (2014)

ADOPT A
HIGHWAY
Don & Maureen
Milless Family,
SINCE 2002

MILE
2



After One Winter
(2015)

ADOPT A
HIGHWAY
Don & Maur
Milless Fam
SINCE 2002

MILE
2

Texas Underseal

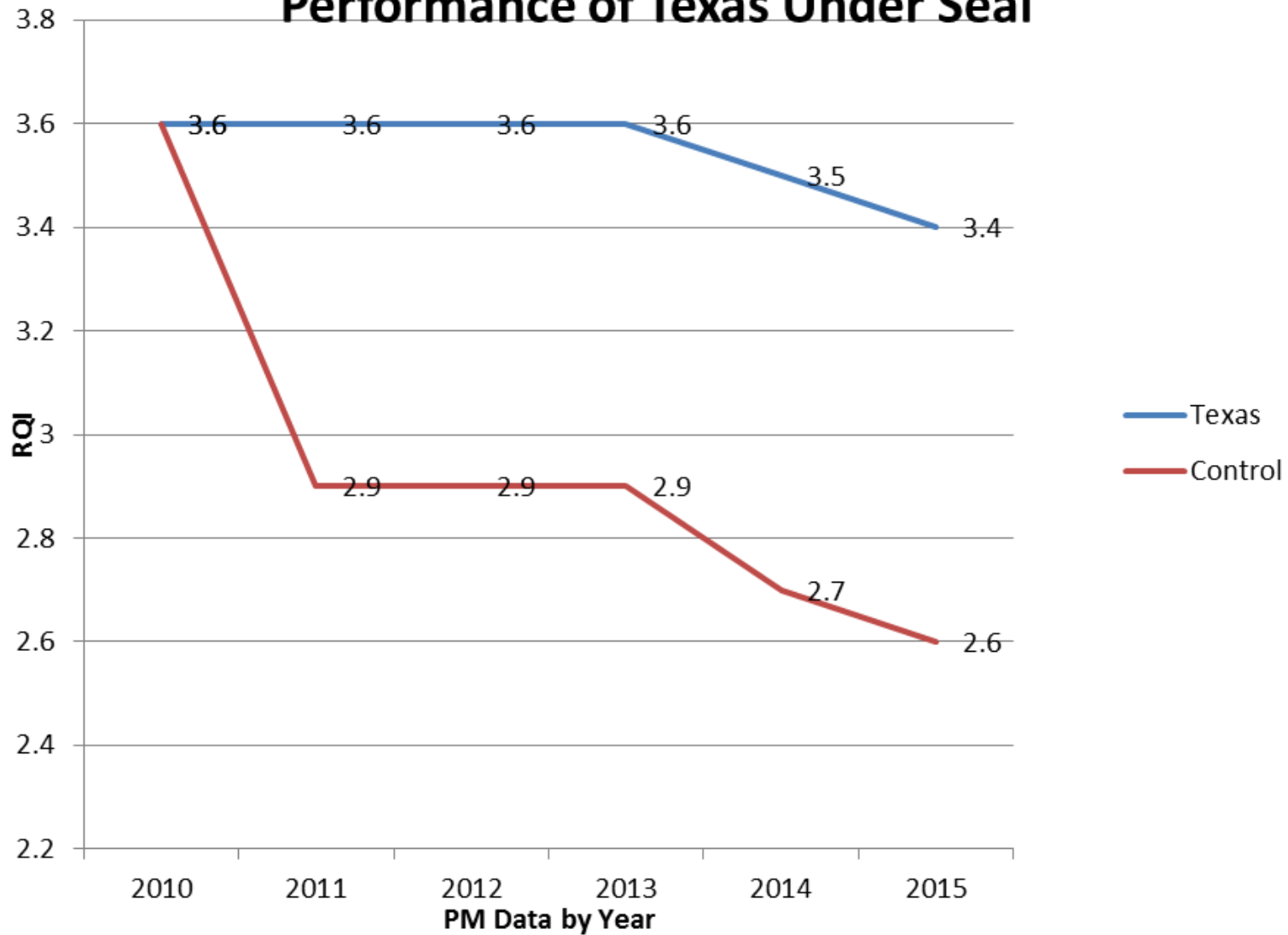


Texas Underseal

- Chip Seal applied before HMA Overlay
 - Milled surface
 - Non milled surface
- $\frac{3}{8}$ " minus chip
- CRS-2p
- Light on cover aggregate
- Pave when rolling and sweeping is complete



Performance of Texas Under Seal



Agency Preservation Training

- LTAP (Local Technical Assistance Program) Micro Surfacing and Chip Sealing classes have been offered yearly for 8+ years
 - Moving forward they will be offered every other year
- We offer individual training and support as requested



MnDOT's Forecasting Reliability

Statewide RQI Category	Actual 2013 Data	Predicted 2014 Data*	Actual 2014 Data	Difference Actual vs. Predicted
Good	67.6%	67.2%	69.8%	2.6%
Poor	4.7%	4.4%	3.5%	-0.9%

<http://www.dot.state.mn.us/materials/pvmtmgmtdocs/AnnualReport2014.pdf>





Questions?

