

Local Road Research Board MnROAD Implementation and Benefits

MnDOT Peer Exchange
June 2014



Office of Materials and Road Research

LRRB and Road Research Relationship

- LRRB is legislatively funded (1959)
- Up to ½% of State Aid allocation devoted to local road research
- Research is
 - Managed by the LRRB
 - Conducted by DOT, UofMN, MnSCU, Consultants, etc
 - Administered by MnDOT Research Services



LRRB and Road Research Relationship

- Research to improve local roads
 - Design, Construction, Maintenance, and Environmental Compatibility
- Program for implementing results (RIC – 12 members)
- LRRB Structure
 - 4 County, 2 City, MnDOT, State Aid, Research Services, UofMn
- Continuing Programs
 - LTAP, MnROAD, OPERA, Library



LRRB and Road Research Relationship

- LRRB has funded MnROAD Operations since 1994
- LRRB also funds one engineer at MnDOT “Technical Support” to assist engineers
- Low Volume Road (LVR) built with thinner test sections to specifically study local road issues.



LRRB Research Support

(2007-2008 MnROAD Studies)

- MnROAD Pooled Fund Studies
 - Implements of husbandry
 - Low Temperature Cracking
 - Composite Pavements
 - Optimal Timing of Preventive Maintenance
- MnROAD Local Studies
 - Permeable (HMA) Pavements
 - Pervious Concrete Pavements
 - HMA Surface Characteristics
 - Recycled Asphalt Pavements



Research Support - Examples

- Lightly Surface Roadways
 - 2011 SFDR construction with Chip Seal
 - 100% in-place recycling
 - Application for low volume roads and residential streets
 - Performing Well – Lessons Learned
- HMA and PCC Porous Pavements
 - Built in 2008 (6 winters)
 - Constructed rough – high IRI
 - Some HMA Rutting & PCC Cracking
 - Clay subgrade → worse
 - Both slightly raveled
 - Quiet, skid-resistant surfaces
 - Diamond Ground Concrete in 2013 - Worked!!
 - Restored ride
 - Didn't damage the pavement
 - No irreversible clogging



Research Support - Examples

- Color Concrete Research Efforts



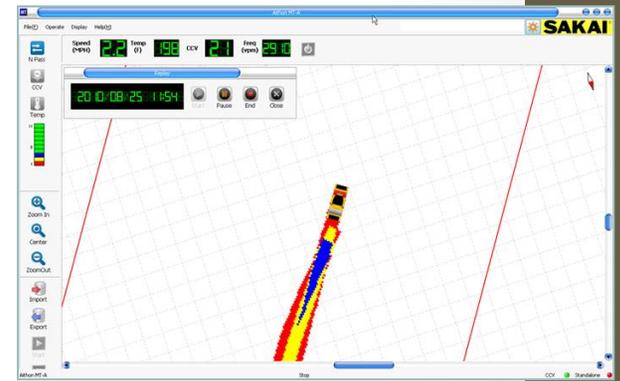
Research Support - Examples

- Thin Concrete Rehabilitation
 - 5" LVR Concrete – built in 2000
 - DBR / Full Depth Repairs / Diamond Grinding
 - Covex Plates, Flat and Round Dowels
 - Tools for thin Rehabilitation
- Precast Pervious Concrete
- Quiet Rumble Strips
- Frost Video



MnDOT Projects with Added Value to Local Agencies

- Super Single Tires (pooled fund)
- HMA Performance Testing - LTC
- Intelligent Compaction on Asphalt
- RoadScience SFDR Partnership
- PCC Partial Depth Repair Materials
- Design Guidelines for Whitetopping and Unbonded Overlays
- Taconite, recycled products
- WIM development - UMN



Technical Support Activities



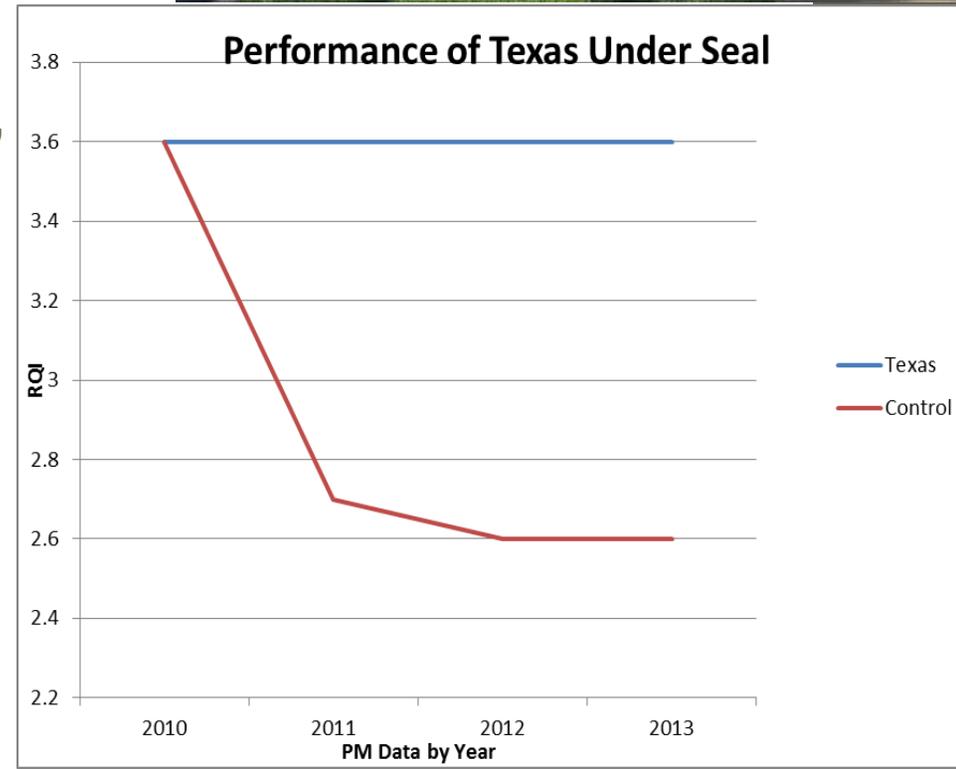
What, How, Where,
When, Why

- Micro Surfacing
 - Project selection, plan/proposal development and inspection training was provided to nine counties
- Chip Seal, Crack Seal Support
 - Mix designs – local agg, etc.
 - Teach LTAP, MPWA, individual class
 - Spec, Construction help: 11 Counties, many Cities



Texas Underseal

- Chip seal placed under a overlay
 - Is Stress Relief Membrane
 - The chip seal acts like supper tack
- TH 101
 - 6 cracks after 3 winters
- Jackson County, Beltrami County, Scott County, City of Eden Prairie, and City of Monticello



Support Activities

- Longer Term Local Research Support

- Minnetonka/Bloomington Pothole Repairs

- 2011 Mastic versus Throw and Roll
- www.mnltap.umn.edu/about/programs/operational/fact/documents/bloomington.pdf

- Olmsted Co.

- WRI: Sealer, Binder National Studies
- Warm Mix Test Sections



Other Projects

- Recreational Trails Research – Implementation
 - RePlay installation on rec trails and testing - Egan
- Continue with Sign Retroreflectivity Test Deck
- Scott County review of aggregate roads and dust collection
- Shorewood Otta seal project reviews



Thank You!



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