MnROAD Overview

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

History of Test Sections
★ Original Funding
★ Original Construction (92-93)
★ Open to Traffic (94)

Layout/Current Designs
★ Mainline / Low Volume Road
★ Asphalt and Concrete Sections
★ 3, 5, 10 Year Designs
MnROAD Research Resources

MnROAD Technical Staff
Safe/Accessible Work Zone
Materials Availability
Sensor Data
- Data Collection Network
- 4,600+ Sensors Installed
- Static and Dynamic Data
- Weather Data
- Traffic Data
Lab Testing
Performance Monitoring
Oracle Database
Performance Measures

- FWD
- ALPS
- Core Truck
- Faultmeter
- Saw
- Distress

Graphs and images of equipment related to performance measures.
Typical Instrumentation Installation
Load Testing, Sensor Monitoring
MnROAD Research Partnerships

Equipment Research
★ FHWA Profiler Rodeos
★ Intelligent Compaction Equipment
★ FWD Rodeo and comparisons
★ FHWA 3-D Radar
★ NCHRP Surface Sensor Evaluation
★ Lighted Pavement Marker Evaluation
★ UofMn Ultra Sonic Testing Evaluations
★ Surface Texture/Friction/Noise Testing Equipment
★ Automated Distress Identification
MnROAD Research Partnerships

Non-Pavement Research

- Intelligent Transportation Systems (ITS)
- Lane Markings
- Arrow Boards – Message Signs
- 60 inch Plastic Culverts
- Roadside Vegetation Study
- Michelin and Toyo Tire Demos
- SRF Consultants (Sensor Evaluation)
- University of Minnesota Human Factor Study (Nissan)
- Homeland Security Evacuation “TIGER” Project
Forensic Example

- Sand Cone Density
- Dynamic Cone Penetrometer (DCP)
- Light Weight Deflectometers (LWD)
- Humboldt Stiffness Gauge
- FWD
- GPR
Forensic Examples

- Top-Down Cracking
- Concrete Joint Deterioration
MnROAD’s next phase will have a positive impact on pavements and transportation industry

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