MnROAD Phase II Construction

Background

The MnROAD Phase II Construction project in 2008 was brought about by a partnership with the Transportation Engineering and Road Research Alliance (TERRA).

Funding sources for the construction and research have come from many local and national partners. Funding for Phase II of MnROAD is $10.9 million, which covers construction, research, instrumentation, and administration costs.

Activities in 2008 involved the reconstruction of 16 cells on the MnROAD Mainline and 8 cells on the MnROAD Low Volume Road. Also reconstructed were the inside and outside shoulders and the transition areas to the mainline cells. The new test cells included various asphalt and concrete pavement materials as well as various aggregate base materials. Test cells consisted of both new construction and rehabilitation techniques representing national and regional interests.

Progressive Contractors, Inc. was the prime contractor, and they performed all of the grading and concrete paving work. Hardrives, Inc. was the bituminous paving subcontractor. Mn/DOT Metro Construction staff provided inspection and administration of the construction contract. Construction activities began in late April and were complete in early November, with traffic opening shortly thereafter.

Researchers performed a multitude of field and laboratory tests on the aggregate, concrete, and asphalt materials. In addition, the standard QA testing was performed by Mn/DOT inspectors for each of the materials according to construction specifications.

For Phase II construction MnROAD invested almost $900,000 on instrumentation and the associated infrastructure. These sensors are a key tool at MnROAD for measuring the response of pavement structures to traffic and environmental loadings.

Lessons Learned

During construction, MnROAD staff learned many important lessons about construction processes. They include:

- Require earlier construction end dates. Late season paving makes it difficult to finish construction, all punch list items, and initial monitoring measurements before the ground freezes.
- Perform an accurate structural design for each test section. The base on several cells became soft due to the addition of a clay borrow layer, and it was difficult to support construction traffic in these areas.
- Maintain oversight over all partnership projects to ensure consistency between cells and projects.
- Perform a reality check in the design stage to ensure that the desired structures can actually be built. Several changes were made in the field in order to achieve our goals.
- Mn/DOT and the contractors successfully constructed many test cells using new and innovative technologies including pervious/porous pavements, warm mix asphalt, novachip, tear off shingles, and others.
- Maintain open lines of communication between researchers, field inspectors, and contractors (and countless other key players), which are essential in constructing a research project that meets everyone's needs.

For more information:

For more information about MnROAD and the Road Research program at Mn/DOT:

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A link to the complete 2008 MnROAD Phase II Construction Report can be found at:

www.mrr.dot.state.mn.us/research/pdf/2008MRRDOC037.pdf