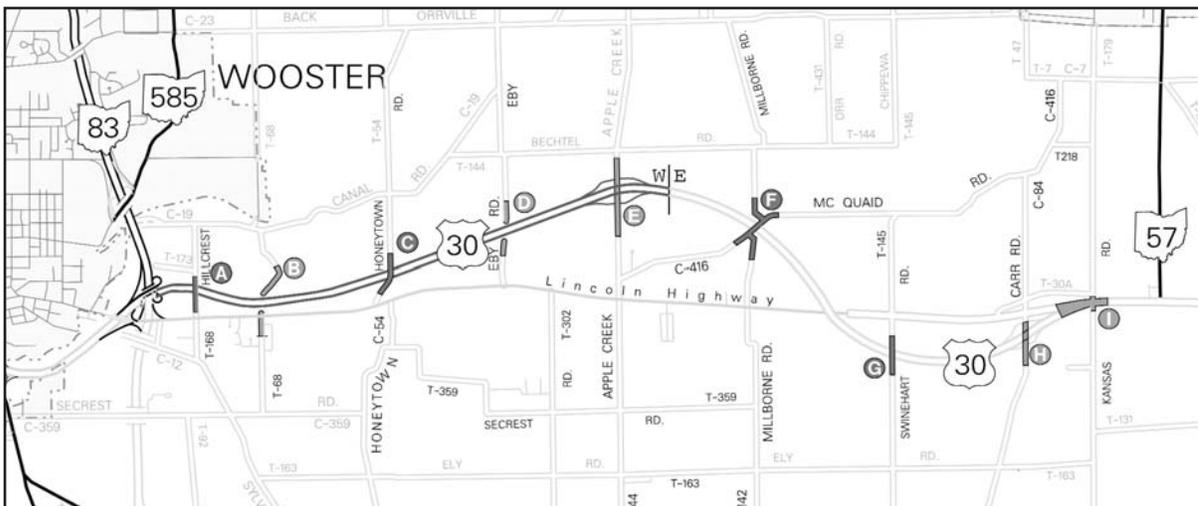


ODOT Tests the Perpetual

The Ohio Department of Transportation perpetual pavement demonstration project, Wayne, U.S. 30, 11.86/16.14, Project 44 (2004), was bid on Feb. 20, 2004. The project is a four-lane divided highway relocation of U.S. 30 in Wayne County. The project begins just east of Wooster at an interchange with State Route. 83 and extends east to Kansas Rd. near S.R. 57.



Pavement Concept

Despite the project being divided into two parts, a west and an east section, for bidding, The Beaver Excavating Company received the entire project for \$41,934,662.08. Shelly and Sands, Inc. will be the paving sub-contractor on the project.

The project has been designed to test the concept of perpetual pavement. The thickness of the asphalt perpetual pavement design is based on a mechanistic analysis performed by Ohio University's Dr. Sang-Soo Kim with input from a task force with representation from ODOT, AI, Heritage Group, NAPA, NCAT, FPO, and the universities: Ohio State, Ohio, Akron, Toledo and Cincinnati. The asphalt perpetual pavement will be constructed in the westbound lanes of the project. The pavement build-up consists of typical ODOT specification materials, but with a premium surface course and a density requirement on the asphalt concrete base, to ensure long life. The perpetual pavement cross section is 16 1/4 inches of

asphalt concrete on an aggregate base with a build-up as shown in the following table:

Perpetual Pavement Build-Up

Course	Thickness (inches)	Item Number	Description
Surface	1.5	856	Stone Mastic Asphalt, 12.5mm, PG76-22 (446)
Intermediate	1.75	442	Superpave Asphalt Concrete, Type A, 19mm, (446)
Base	9	302	Asphalt Concrete Base, PG 64-22, APP
Fatigue resistant Layer	4	Special	Fatigue Resistant Base Layer
Aggregate Base	6	304	Aggregate Base

The project also includes construction of what the concrete industry is calling a long-lasting, economical concrete pavement design consisting of a 10-inch thick non-reinforced concrete pavement of special composition on three inches of asphalt concrete base, on four inches of aggregate base. The concrete pavement will be built on the eastbound lanes.

The average bid costs per mile of the two pavement designs are:

Pavement Construction Cost Comparison

Pavement Type	Average Bid Cost per Mile	% Difference
Asphalt, Perpetual Pavement	\$614,665.70	Least Costly
Concrete, long lasting, economical pavement	\$665,383.60	Plus 8.25% More Costly

ODOT has developed a work plan for evaluating the validity of the pavement design concepts as well as the cost and performance of the pavement designs, both during initial construction and over the long term. The items to be measured under the evaluation plan include:

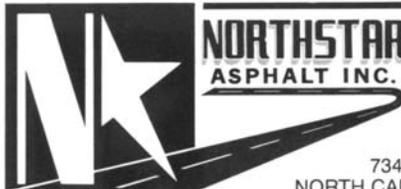
- Initial construction costs
- Pavement rehabilitation costs
- Routine pavement maintenance costs, including salt usage and pavement marking costs
- Safety (accident) experience
- Pavement skid resistance
- Construction time and user delay during initial construction and any subsequent rehabilitation
- Pavement profile (smoothness)

- Pavement condition and response to loads (structural damage)
- Sub-grade moisture and weather data
- Tire noise

The pavement design validation will be performed under three research contracts awarded to Ohio University. The first project is titled "Determination of Mechanical Properties of Materials used in the WAY-30 Test Pavements." OU will perform sampling and testing to determine the relationship between the material coefficients assumed for pavement design against those actually achieved in the project construction. The second research project, titled "Instrumentation of the WAY-30 Test Pavements" is for placing instruments in the test pavements during construction to measure the pavement response to load and environmental conditions. A load test of the pavements is to be conducted as part of this project. The final research project is titled "Validation of the Design Procedures used for the WAY-30 Test Pavements." The tasks of this project include monitoring the construction to determine the effect of the required specification enhancements on the project and to compare, using the data from the first two projects, the actual field pavement response to that predicted by the design methodology. All of the evaluation tasks, except the long-term performance and cost monitoring, are expected to be complete by 2007. ODOT will use these results to compare lifecycle costs of the pavement designs and to adjust its design procedures if necessary.

Nationally, much work has and is being performed to prove the perpetual pavement design concept and to develop suitable design procedures. We look forward to the results of this demonstration project evaluation to show how the concept can be applied using typical ODOT specification materials under Ohio environmental conditions.





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