Southfield, LTU in front for bridge replacements

BY PAT MURPHY
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Southfield could play a major role as Michigan and the nation address crumbling bridges and deteriorating infrastructure.

The city’s Bridge Street Bridge — built in conjunction with Lawrence Technological University using carbon fiber polymer reinforcement in lieu of steel — is already considered a structural breakthrough that could double life expectancy.

Testing in the five years since the Bridge Street Bridge was built has thus far bolstered expectations CFPR can play a significant role in making structures lighter and stronger.

The testing has also prompted Southfield and the Michigan Department of Transportation to negotiate with LTU and Nabil Grace, head of the university’s Center for Innovative Materials Research, about more bridges using CFPR.

In 2008, Southfield expects to use CFPR technology on the Beech Road Bridge over the Rouge River. There are about 1,500 similar bridges in Michigan alone, said City Engineer Wayne Bonus. “This (the Beech Road Bridge) would well be a model in terms of better bridges.”

The life expectancy of bridges using CFPR could well be 100 years, rather than the 40 or 50 years expected with conventional construction, said Grace, a distinguished professor at LTU and chair of the civil engineering department.

Furthermore maintenance would be less expensive, he said, because bridges with CFPR are not subject to the freeze and thaw cycles that cause concrete to crumble and other deterioration.

MDOT hopes to use the CFPR technology on several new bridges on M-59, according to Gregory Johnson, MDOT regional engineer. “We’re in a partnership with LTU to develop alternative materials for future bridges,” he said.

MDOT plans to replace bridges in metro Detroit and other parts of the state, he said, “and we’re hoping to make them better.”

Nabil Grace at the LTU Center for Innovative Materials Research where researchers are working on lighter, stronger materials for bridges and other structures.