

The Highways for LIFE Pilot Program

Identifying and supporting innovative methods and technology



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Congress established the "Highways for LIFE Pilot Program" under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) in 2005. The purpose of the pilot program is to advance longer-lasting highways using innovative technologies and practices to accomplish the fast construction of efficient and safe highways and bridges.

Objectives

The U.S. Secretary of Transportation (Secretary) is charged with the responsibility to provide leadership and incentives to demonstrate and promote state-of-the-art technologies, elevated performance standards, and new business practices in the highway construction process that result in improved safety, faster construction, reduced congestion from construction, and improved quality and user satisfaction. The program has the following three key elements:

Technology Transfer

Highways for LIFE has developed a more

effective way to encourage adoption of high-payoff innovations. Teams of technical and marketing experts identify critical needs and obstacles, develop marketing plans, and create implementation tactics and communication tools to support those plans. The teams make presentations at technical meetings and host workshops, peer exchanges, and demonstration projects for potential users. They partner with organizations throughout the highway community to champion the technologies.

Technology Partnerships

The Technology Partnerships program within Highways for LIFE helps private sector innovations make the leap from promising late-stage prototypes to market-ready products. By providing funds to refine and test the best ideas developed by industry under real-world conditions, the program fills a critical gap in development of innovations. The Federal Highway Administration (FHWA) awarded seven grants totaling \$2.3 million in 2008 and 2009. Two concrete-related awards involved fully precast concrete bridge bents for use in seismic

regions and full-depth ultra-high-performance concrete waffle bridge deck panels. FHWA expects to announce additional grant awards in 2010.

Highways for LIFE-Funded Projects

Highways for LIFE offers incentive funding for states to try innovative approaches. Between 2005 and October 2009, the program awarded approximately \$25 million to 25 projects in 21 states, highlighting more than two dozen innovations, such as wider use of accelerated bridge construction techniques and innovative, performance-based contracting.

To be eligible to participate in this element of the program, a state is to submit an application that contains a description of a proposed project to be carried by the state under the pilot program.

A proposed project must meet the following requirements to be eligible:

1. The project must be eligible for federal highway construction funding under Title 23.
2. The owner agency must commit to achievement of all applicable Highways

A full-depth precast concrete deck panel is installed on the 24th Street bridge over I-29/I-80 in Council Bluffs, Iowa, the first Highways for LIFE project in that state. All Photos: Iowa Department of Transportation.



for LIFE performance standards, including at least one standard for each of the three goal areas (safety, construction-related congestion, and quality).

3. The owner agency must commit to facilitate and support collection of the data required for full and complete evaluation of the project prior to, during, and after construction.
4. The owner agency must be willing to support technology transfer activities to promote innovative practices used on the project and participate in related showcases, workshops, training, etc.
5. The project is or will be ready for construction within 1 year of approval of the project proposal. For the purposes of the Highways for LIFE program, the FHWA considers a project to be "ready for construction" when the FHWA Division Office authorizes the construction project.

A project proposal must contain the following information:

1. An identification and description of the project to be delivered
2. A description of how the projects will result in improved safety, faster construction, reduced congestion due to construction, user satisfaction, and improved quality
3. A description of the innovative technologies, manufacturing, processes, financing, and contracting methods that will be used for the proposed projects
4. Identification of how implementation of the proposed feature will improve the quality as experienced by the driver, both during and after construction
5. A commitment to determine (a) How satisfied the user is with the new facility, compared with its previous condition, and (b) How satisfied the user is with the approach used to construct the new facility in terms of minimizing disruption.

Closing Remarks

The Highways for LIFE Pilot Program provides opportunity for stakeholder input and involvement in the development, implementation, and evaluation of the program. The program encourages working together in learning and sharing information on technology used, developed, or deployed under this program. The information will be made available to the transportation community and the public.

The article in the next issue of *ASPIRE*[™] will discuss the successful deployment of innovative technologies through the Highways for LIFE funded projects.



Work on the 24th Street bridge included nighttime installation of precast concrete panels over the traveled lanes in order to minimize traffic interruption.



On the 24th Street bridge, the full-depth precast concrete panels were fabricated in a manufacturing plant using self-consolidating concrete.



Precast concrete panels on the 24th Street bridge were 8 in. thick, 10 ft long, and 52 ft 4 in. wide. Two panels framed the width of the bridge using a center longitudinal joint. Here panels are shown in the precaster's plant following supplemental steam curing. There were a total of 70 panels on the bridge.



A Highway for LIFE project is the Little Cedar Creek Bridge in Wapello County, Iowa. A two-way ribbed deck panel of ultra-high-performance concrete (UHPC) will be grouted to the girders with UHPC. The panel is 8-in. deep with a top flange 2 1/2-in. thick. It weighs one-third as much as a typical deck panel. The panels attained a concrete compressive strength of 29,000 psi. They were on display at a FHWA showcase at the Coreslab Structures Inc. plant in Omaha, Neb.