Welcome to News from the Washington State Transportation Center (TRAC)

The Washington State Transportation Center (TRAC) is now offering on-line news on current and completed transportation-related research. About three times a year, we will be sending an email with short summaries of our latest new or completed projects. If something interests you, you can link directly to additional information.

Below are a few of our latest projects:

BRIDGES and STRUCTURES

Shear Design Expressions for CFT and RCFT Bridge Components. This project experimentally investigated the shear resistance and deformation of concrete-filled steel tubes (CFSTs) and reinforced concrete-filled steel tube (RCFST) members to develop a more accurate shear strength expression. The results may help designers avoid undesirable conservatism and cost and have already been implemented in WSDOT design policy and the WSDOT Bridge Design Manual.

Developing Connections for Longitudinal Joints between Deck Bulb Tees. This project is developing a transverse connection between deck bulb tee flanges by using ultra-high-performance concrete. This will allow WSDOT to construct durable bridge decks with precast decked members, thereby avoiding the need to form, reinforce, and cast the deck on site and resulting in considerable time and cost savings.

ENVIRONMENT

Sustainable Design Guidelines to Support the Washington State Ferries Terminal Design Manual. This project will produce guidelines for sustainable stormwater management practices for treating non-point source pollution, including soluble metals that will specifically address the unique needs and requirements of ferry terminals. The guidelines are intended for incorporation into WSF's terminal design manual.

ITS

Support and Align Operational and Demand Management Strategies and Business Processes with Planning and Programming within WSDOT. Researchers are developing a business outline describing how transportation system management and operations (TSM&O) strategies should be included in WSDOT's planning and programming process at all levels and guidance on each of the TSM&O strategies of interest to WSDOT. A website will allow WSDOT staff to access that guidance and further information about each strategy.

Understanding Opportunities with Connected Vehicles in the Smart Cities Context. By deploying and evaluating several new technologies—primarily a Connected Vehicles device, an associated mobile app, and a variety of sensors for detecting traffic and collecting data across all modes of travel—this project will help WSDOT to improve infrastructure design and operations methods.

Implementing the Routine Computation and Use of Roadway Performance Measures. Software developed for this project will produce both freight performance measures and measures that report on overall roadway performance throughout the state's National Highway System. This will allow WSDOT to incorporate roadway reliability into its planning, project identification, and prioritization processes statewide.

MULTIMODAL TRANSPORTATION PLANNING

Use of New Data Sources for Improved Multimodal Planning. Taking advantage of recent advances in the availability of transit ridership data, transit origin/destination and route choice patterns available through ORCA fare card data, and better sidewalk availability data, this project is demonstrating the use of modern "big data" sources and analytics to improve the design, selection, and implementation of multimodal transportation plans in the I-5 corridor as part of the Puget Sound region's Vision 2040 plan update.

PAVEMENT

Preliminary Study to Develop Standard Acceptance Tests for Pervious Concrete. This study took preliminary steps toward designing quality control and quality-evaluation test procedures that are specific to pervious concrete in hopes of eventually justifying its use in locations with heavier traffic. Researchers investigated the effects of specimen size on the physical properties of pervious concrete, such as hardened porosity and density, as well as compressive strength.

Improved Methodology for Benefit Estimation of Preservation Projects. This project is evaluating and analyzing WSDOT's current process for calculating the benefits of pavement preservation projects to develop better methods for measuring their economic benefits so that preservation-related transportation projects can more accurately and successfully compete for investment dollars.

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TRAC is a cooperative, interdisciplinary transportation research agency. Its members, Washington State University (WSU), the University of Washington (UW), and the Washington State Department of Transportation (WSDOT), formed TRAC in 1983 to coordinate transportation research efforts—both state and commercial, public and private—and to develop research opportunities both nationally and locally. TRAC acts as a link among government agencies, university researchers, and the private sector.

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