DRISI

CALTRANS DIVISION OF RESEARCH, INNOVATION AND SYSTEM INFORMATION

TRANSFORMING IDEAS INTO SOLUTIONS

Research Notes

Technology Transfer Concrete Consortium, Phase II [TPF-5(437)]

Identifying and examining new concrete pavement research initiatives to foster new technologies and practices.

Pavement

MAY 2025

Project Title:
Technology Transfer Concrete Consortium [TPF-5(437)]

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WHAT IS THE NEED?

State departments of transportation (DOTs) are challenged to design and build longer-life concrete pavements which provide the greatest economic value over the long term for taxpayers and end users. One of the strategies for achieving longer-life pavements is to use innovative materials and construction optimization technologies and practices. Led by Iowa DOT, experts from state DOTs, Federal Highway Administration (FHWA), academia and industry collaborate to identify and examine new concrete pavement research initiatives to foster new technologies and practices.

WHAT ARE WE DOING?

The objectives of this pooled-fund study include:

- Identifying and guiding the development and funding of technology transfer materials such as technical brief summaries, web-based courses, and training materials from research activities
- Identifying and instigating needed research projects, and providing research ideas to funding agencies
- Maintaining the Technology Transfer Concrete Consortium (TTCC) pooled fund listserv – a forum for state representatives to post questions to the other state representatives and hear how similar problems or situations have been mitigated – tracking and categorizing the posted problems and discussions
- Developing research problems statements for possible pooled fund projects to address research needs identified by member state representatives
- Acting as a technology exchange forum for the participating entities

Caltrans

DRISI provides solutions and knowledge that improves California's transportation system.

- Contributing to a technology transfer newsletter on concrete pavement research activities

WHAT IS OUR GOAL?

The main goal of this pooled fund project are as follows:

- Identifying needed research projects
- Developing pooled fund initiatives
- Providing a forum for technology exchange between participants
- Developing and funding technology transfer materials
- Providing on-going communication of research needs faced by state agencies to the FHWA, industry, and the National Concrete Pavement Technology Center (CP Tech Center)

WHAT IS THE BENEFIT?

The California Department of Transportation (Caltrans) significantly benefits from this project by integrating innovative materials and construction optimization technologies aimed at achieving longer-lasting concrete pavements. The collaboration with other state DOTs, FHWA, academia, and industry will allow Caltrans to stay at the forefront of technological advancements, enhancing the quality and durability of infrastructure. Additionally, through the technology transfer initiatives, Caltrans gains access to cutting-edge research and practical applications, which will improve construction practices and user satisfaction, ultimately leading to more sustainable and cost-effective pavement solutions.

WHAT IS THE PROGRESS TO DATE?

Significant deliverables have continuously been produced, including guides, technical briefs, case studies, and reports that document advancements. Additionally, the project maintains active engagement through biannual meetings at the National Concrete Consortium (NC2), fostering a rich environment for exchanging ideas and practical outcomes. The 2025 Spring meeting of NC2 was held in Chicago. This meeting focused on Alkali-Silica Reaction (ASR) mitigation, advances in cementitious materials (supplementary cements, blended and low clinker formulations), structural reinforcement technologies (textured steel, glass fiber reinforced polymer [GFRP], basalt), performance evaluation methods (Super Air Meter, resistivity testing), and the implementation of next generation cementitious materials. These efforts collectively aim to improve the sustainability, cost-efficiency, and user satisfaction of concrete pavements, setting a standard for future infrastructure projects.