

## Research Notes

Program Steering Committee (PSC): Pavement

June 2014

Title: Improving the Foundation Layers for Concrete Pavements

Task Number: 2020, Pooled Fund TPF-5(183)

Start Date: June 19, 2008

Completion Date: June 30, 2016

Task Manager:

David Lim, Transportation Engineer

[s.david.lim@dot.ca.gov](mailto:s.david.lim@dot.ca.gov)

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### **TITLE:**

Improving the Foundation Layers for Concrete Pavements

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### **WHAT IS THE NEED?**

Quality pavement foundation layers are essential to achieving excellent pavement performance. In recent years as truck traffic has greatly increased, the foundation layers have become even more critical to successful pavement performance. Unfortunately, there are still many pavement failures related to inadequate subbase, natural subgrade, and embankment (commonly referred to as foundation layers or roadbed).

Factors that contribute to pavement foundation problems are believed to be poor construction practices, ineffective QC/QA testing methods and sampling plans, material variability and unpredictable long-term material behavior, poor verification of material properties during construction, insufficient development of performance-related specifications, and low capital investment in the foundation layers. So research needs have been well recognized for improving current practices for the design and construction of foundation layers particularly related to these aforementioned factors.

### **WHAT ARE WE DOING?**

Factors that may contribute foundation layer problems - such as materials selection, construction methods, in-situ testing and evaluation, and development of performance-related specifications - and their effects on the quality of foundation layers are to be investigated.

The study consists of four major tasks; (1) problem identification and economic analysis, (2) design parameter selection and sensitivity analysis, (3) in-situ forensic studies and materials characterization, and (4) documentation.

### **WHAT IS OUR GOAL?**

The main objective of this pooled fund study is to investigate how to improve the current design and construction practices and ultimately the quality of pavement foundation layers.

## **WHAT IS THE BENEFIT?**

The outcome of this study will be conclusive findings that make pavement foundations more durable, uniform, constructible, and economical. Although the focus of this research will be PCC pavement foundations, the results will likely have applicability to AC pavement foundations.

There are many inputs to the pavement design related to foundation layers and this project will provide improved guidelines for each of these. The study will benefit greatly from maximizing the wide range of field conditions possible within the framework of a pooled fund study.

## **WHAT IS THE PROGRESS TO DATE?**

FHWA and six state DOTs including Caltrans are participating in this pooled fund project. Iowa DOT is the lead agency. The project has been extended for two more years with no cost change, so the new end date is March 2016. Research tasks are under progress on the revised schedule.