

DRISI

CALTRANS DIVISION OF RESEARCH,
INNOVATION AND SYSTEM INFORMATION

Research Notes

Pavement

MAY 2024

Project Title:
Local and State Government
Policies to Improve Pavement
Sustainability with New Materials

Task Number: 3375

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Local and State Government Policies to Improve Pavement Sustainability with New Materials

A framework will be developed for analyzing the expected life cycle environmental and cost outcomes of proposed policy changes and technical decisions.

WHAT IS THE NEED?

There are no magic bullets for reducing greenhouse gas (GHG) emissions and other environmental impacts. Every sector of the economy needs to find ways to both reduce environmental damage and provide cost-effective products and services at the same time.

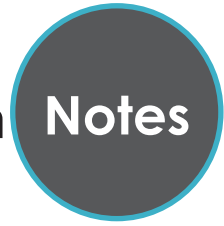
Without consideration of the complete life cycle of the pavement, the full system of interactions between pavement design, materials, construction, use, maintenance, rehabilitation, and end-of-life (EOL), policymakers and decision-makers could make ineffective decisions, and the unintended negative consequences could increase costs with negative environmental effects. This task focuses on developing a clear and consistent framework, a white paper, to identify and prioritize new approaches for policymakers and for those supporting policy development, including engineers and planners. This framework will incorporate technical alternatives and changes in specifications and/or regulations to provide environmental benefits.

WHAT ARE WE DOING?

A white paper is being created to establish a framework and practical procedure for reviewing and comparing pavement-related policies and technical decisions. The key to effective decision-making is based on answering a few questions and the quantification of the expected outcomes in a full system and complete life cycle view. Tools are now available to quantify impacts. Life Cycle Assessment (LCA) is the approach to quantify and compare environmental impact differences between alternatives, and Life Cycle Cost Analysis (LCCA) is the tool to quantify cost differences of alternatives.



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In the same way, the Primary Investigator (PI) will identify safety issues, social impacts, and equity issues by answering relatively simple questions.

The white paper will summarize and employ a few examples on how to use the framework for analyzing the life cycle environmental and cost outcomes of the proposed policy changes and technical decisions, considering feasibility, scaling, opportunities, and obstacles to implementation.

WHAT IS OUR GOAL?

The main goal of this study is to create a white paper summarizing a framework which focuses on incorporating environmental LCA and LCCA into technical decision-making.

WHAT IS THE BENEFIT?

This research will provide Caltrans with a framework for analyzing the expected environmental life cycle and cost outcomes of policy changes and technical decisions.

WHAT IS THE PROGRESS TO DATE?

The research team plans to submit a draft white paper for review by the end of May 2024.