

Rock Products Committee
SCOPING DOCUMENT
Concrete Sealer-Hardener
June 13, 2012

Task Group

Pavement Preservation Task Group

Title

Concrete Sealer-Hardener

Problem Statement

The surface of concrete pavement placed in snowy climates rut and wear due to abrasion from tire chains, studded tires, and snow plows. Sealer-hardener products are an alternative but have not been used on a widespread basis to preserve concrete pavement surfaces in California.

Background

Concrete pavement overlay preservation strategies with conventional HMA and bonded wearing course are cost prohibitive and have proven ineffective. Grinding reduces pavement thickness and design life. Caltrans does not currently have specifications, guidelines, or selection criteria for treating concrete pavement surfaces in harsh environments with sealer-hardener products to extend service life.

Purpose

To protect the investment Caltrans is making in new concrete pavement and reduce future maintenance costs the application of concrete sealer-hardener on concrete pavement needs to be implemented in areas of the State where chain use on tires is required during the winter season.

Objectives/Deliverables

The objective is to develop a draft standard special provision (SSP) reflecting the best practices, materials, and critical performance factors for concrete sealer-hardener applications and pilot the specification before being implemented as an SSP.

The deliverables necessary for the objective are:

- Research best practices, material properties, proprietary issues, critical performance factors, and strategy costs
- Develop initial draft SSP (v.1), identify potential projects, and pilot

- Evaluate initial project and specification performance
- Develop materials properties for Qualified Products List (QPL)
- Develop SSP (v.2), guidance, and training
- Complete evaluation of test sections and assess SSP

Timeline

- Initial draft SSP (version 1) September 2012
- Pilot projects and initial performance evaluation will begin in summer 2013 using an initial draft SSP (version 1)
- Revised SSP (version 2) in time for the 2014 construction season.
- Targeted final SSP January 2015.

Benefits

- Identify a cost effective preservation strategy for concrete pavement surfaces in harsh, snowy environments.
- Effective preservation of concrete pavement surfaces will protect recent federal and state investments in the Route 80 corridor.
- Avoid the expense of extensive concrete pavement rehabilitation or replacement due to premature failure from rutting and wear.
- Expedite development of a standardized strategy suitable for use statewide.

Impacts

- New policy requiring the use of concrete sealer-hardener on new concrete pavement therefore increasing initial project costs.
- New policy requiring the use sealer-hardener on new concrete pavement rehabilitation projects therefore increasing project costs
- New standard special provisions for concrete sealer-hardener material and application
- Guidance and training to support statewide usage.

Resource Requirements

Deliverables	Expected Outcome	Resource	PY's	Target Date
Cost analysis and draft SSP (v.1)	Accelerated pilot project evaluation	Pavement	0.10	09/01/12
Pilot projects	Test materials and performance	D3	0.05	06/01/13
Final pre-qualified product list (QPL)	Develop materials properties, selection criteria, and performance factors for QPL	METS	0.35	12/31/12
Updated draft SSP (v.2) and initial performance evaluation	Final draft documents approved by subtask group	Pavement METS Construction Office Engineer	0.050 0.025 0.025 0.025	02/15/14
Draft guidance – <i>MTAG</i> – <i>Construction Manual</i>	Final draft documents approved by subtask group	CP2	0.10	02/15/14
Final SSP Final Guidance	Draft and final circulations	Pavement METS HQ-Const DES-OE	0.050 0.025 0.025 0.025	01/30/15
Performance Report	Analyze performance and revise deliverables	CP2	0.10	TBD
Training	Implementation: teach staff about changes	Pavement	0.05	03/01/15

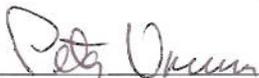
Impediments to Completion of Deliverables

- If product test sections are not placed by contract change order in summer 2012 construction season, initial performance evaluation and SSP will be delayed beyond 2013.
- Delays from existing or new higher priority assignments may affect schedule.
- Potential consultant involvement (CP2) and unpredictable level of oversight may impact schedule and resources

Recommendation and Approval

This scoping document for Concrete Sealer-Hardener was prepared by Pavement Preservation Task Group to address a priority issue that has Statewide significance and is within the Rock Products Committee mission. The Task Group Co-Chairs have determined the scope, resources required and timeline for delivery of this project to ensure that the deliverables are achievable in a timely manner.

Scoping Document Recommended for Approval by:



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Approval Date: 7-23-12