

# CP<sup>2</sup> Center Update and PPA

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California Pavement Preservation Center

**Prepared For**  
**Bedroll Conference**  
**July 24 to 26, 2024**  
**Camp Tehama, Mineral CA**





# PRESENTATION OUTLINE

- ▶ Introduction and Objective
- ▶ CP2 Work
  - ▶ Caltrans
  - ▶ CalRecycle
  - ▶ MTC
  - ▶ SB 1
- ▶ Highlights
  - ▶ 2024 Pavement Preservation Academy



# Introduction

California Pavement Preservation Center was established in Chico State by Caltrans on July 1, 2006

Purpose is to accommodate the needs for pavement preservation for both governmental agencies and industry



<https://www.csuchico.edu/cp2c>



# Center's 10<sup>th</sup> Anniversary Celebration in 2016

Center's 20<sup>th</sup> Anniversary Celebration will be in 2026





# Current Caltrans Task Order Update



Task 1: Technical Assistance



Task 2: Investigate New and Innovative Technologies



Task 3: Promote Effective Practices



Task 4: Provide Training and Education



**CP<sup>2</sup> Center**  
**Langdon Hall #203**  
**Chico, CA 95929-0603**

Managing our investments is important and big business

# MTAG Update

## ▶ History

▶ 1<sup>st</sup> version: 2002

▶ 2<sup>nd</sup> version: 2008

## ▶ Next version

▶ 2026



## **MAINTENANCE TECHNICAL ADVISORY GUIDE Volume I – Flexible Pavement Preservation Second Edition**



### **State of California Department of Transportation**

Office of Pavement Preservation  
Division of Maintenance  
1130 N Street, MS-5  
Sacramento, CA 95814

March 7, 2008



# MTAG Current Assignment Table

Chapters	Center Staff	Caltrans SME	Industry SMEs
1 - Introduction	Gary Hicks	Cathrina Barros	Scott Dmytrow Scott Metcalf
2 - Materials	Lerose Lane Ding Cheng	Kee Foo	Edgard Hitti Matt Conarro
3 - Strategy selection	Erik Updyke Gary Hicks	Steve Lee Long Huynh Sarabjit Singh	Scott Dmytrow Cesar Lara
4 - Crack seal/joint reseal	Roger Smith	Steve Lee	Lowell Parkinson Ted Maxwell
5 - Patching and edge repair	Roger Smith	Steve Lee Sri Holikatti	Lowell Parkinson Brandon Milar
6 - Fog and rejuvenating seals	Lerose Lane Ding Cheng	Steve Lee	Matt Conarro Todd Vargason
7 - Chip seals	Gary Hicks	Steve Lee Sri Holikatti	Doug Olsen Dave Pimley

# MTAG Current Assignment Table

Chapters	Center Staff	Caltrans SME	Industry SMEs
8 - Slurry seals	Lerose Lane	Steve Lee	Scott Metcalf Matthew Ferguson
9 - Microsurfacing	Lerose Lane	Steve Lee	Scott Metcalf Matthew Ferguson
10 - Multi Layered Systems	Ding Cheng	Sri Holikatti	Rick Cross Doug Ford
11- Thin Overlays	Erik Updyke Lerose Lane	Kee Foo	Brandon Milar
12 - BWC	Erik Updyke	Sri Holikatti	Scott Metcalf Scott Dmytrow
13 - Interlayers	Roger Smith Gary Hicks	Sri Holikatti	Doug Olsen David Pimley Patty Murray
14 - In Place Recycling (PDR)	Ding Cheng Lerose Lane	Larry Hernandez Christina Pang	Michael Concannon



# Districts 5 and 10 Fiber Modified HMA Overlay Projects

- ▶ Two types of fibers
  - ▶ Type A
  - ▶ Type B
- ▶ Hamburg results show Fiber A and B improved the rutting resistance
- ▶ 4-point Beam results show Fiber A improved the fatigue life, while **Fiber B didn't.**

- Hot Mix with XB-JR-H



Superpave Gyrotory Compactor

APA Hamburg



4-point Beam

# IDEAL-CT and IDEAL-RT Tests for Fiber HMA in District 10



IDEAL-CT Test

Control HMA: CT index 68.44 with std of 9.88

Fiber A reinforced HMA: CT Index 43.64 with std of 11.74

Fiber B reinforced HMA: CT Index 62.57 with std of 7.25



IDEAL-RT Test

Control HMA: RT index 91.79 with std of 1.4

Fiber A reinforced HMA: RT index 282.49 with std of 5.11

Fiber B reinforced HMA: RT index 284.02 with std of 4.35





# CP<sup>2</sup> Center



Newsletter of the California Pavement Preservation Center  
No. 68 December 2023



## In-Place Recycling Guide Available

The Guide for Partial- and Full-Depth Pavement Recycling in California was produced for Caltrans by the UC Pavement Research Center (UCPRC) at UC Davis, by authors D. Jones, S. Louw, and J. Harvey.

[LEARN MORE](#)



## CRCP Rehab of the 'Aerospace Highway'

State Route 14 out of Mojave is also known as the 'Aerospace Highway', and runs due south from the Mojave Air & Space Port. On October 3, 2020, work began on the rehabilitation of this eight-mile stretch of SR 14 in Kern County, that begins 1.4 miles south of the Dawn Road overcrossing and runs to just north of the Silver Queen Road overcrossing.

[LEARN MORE](#)

## 3rd NPPC Conference A Great Success!

Over 650 people participated in the 3rd National Pavement Preservation Conference (NPPC) held in Indianapolis, IN, from September 18 to 21, 2023. The first two were held in Nashville in 2012 and 2016.

[LEARN MORE](#)

## Concrete Overlays

Concrete overlays of either old concrete or asphalt pavements are a strategy in FHWA's Targeted Overlay Pavement Solutions (TOPS) program.

[LEARN MORE](#)

## FDR-C Project with Double Chip Seal Surface Treatment

Glenn County, in northern California, used an innovative approach to restore service levels on portions of County Road 306 between Elk Creek and Chrome in the foothills west of the town of Willows.

[LEARN MORE](#)

# CP2C Newsletters

- ▶ Quarterly Publications
  - ▶ To about 5000 professionals
  - ▶ Caltrans, local agencies, industry, national and international
  - ▶ No advertisements
  
- ▶ Sign up at the CP2C's website or send an email to [dxcheng@csuchico.edu](mailto:dxcheng@csuchico.edu)

# Task Orders for Performance Evaluations of Past Pilot Projects

- ▶ Two-year performance evaluation of asphalt rubber Type II and asphalt rubber Type III on both SR 139 and SR 299 in District 2
- ▶ Five-year performance evaluation of scrub seal pilot project on SR 158 in Mono County in District 9
- ▶ **Six-year performance evaluation of double chip seals over fabric on US 395 in Inyo County in District 9**
- ▶ Seven-year performance evaluation of asphalt rubber double chip seals on US 395 in Inyo County in District 9
- ▶ Ten-year performance evaluation of asphalt rubber and CRR18MB on SR 36 with and without Warm Mix Additives in Tehama County in District 2





TIRE DERIVED AGGREGATE (TDA)  
**USAGE GUIDE**  
EDITION 1.0 | FEBRUARY 2015



### **TDA APPLICATIONS:**

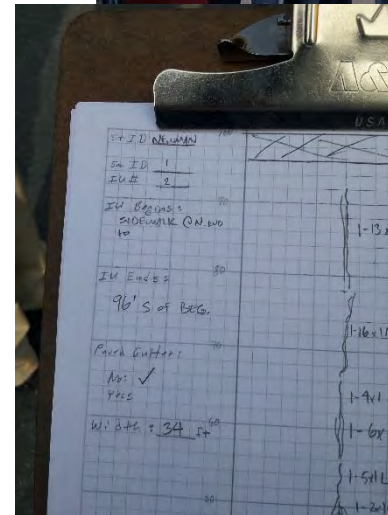
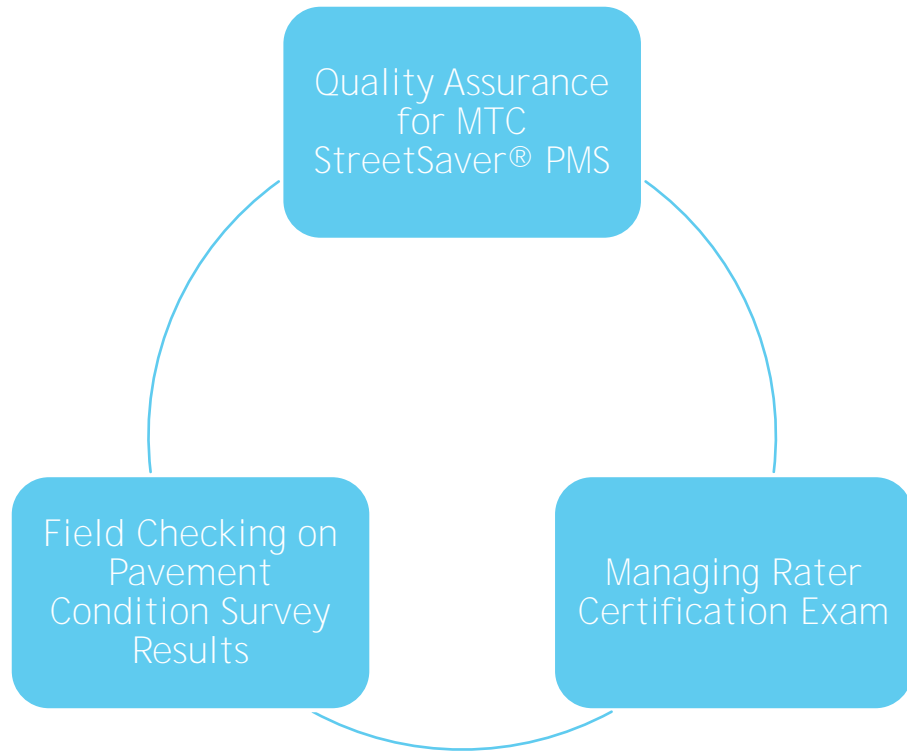
Road Slide Repair  
Embankments  
Retaining Wall Backfill  
Vibration Attenuation  
Landfill Gas Extraction  
Drainage



# CalRecycle Projects

- ▶ Tire Engineering Research Center (TDA Technology Center)
  - ▶ Educational materials
  - ▶ Knowledge-based TDA project database
  - ▶ Lab and field testing services
- ▶ Rubber Turf Infill materials in HMA

# MTC Project

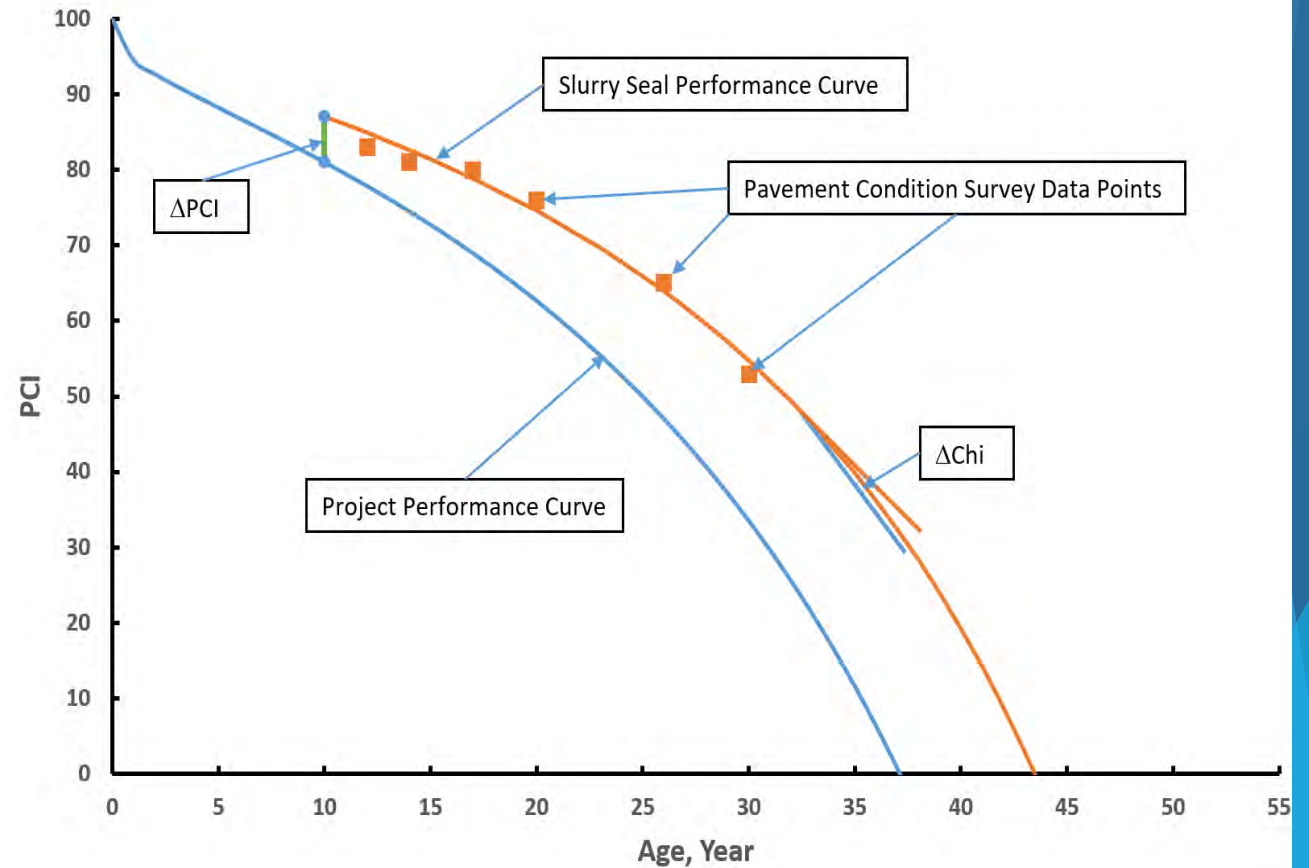


Bay Area Metropolitan Transportation Commission  
9 Counties and 100 Cities



# MTC Project

- ▶ Dynamic Chi
- ▶ Performance curves for various climatic regions
- ▶ Performance models for pavement preservation treatments



# Background of Pavement Preservation Academy - PPA

Funded by SB-1 funds

Help agencies and industry

- Pavement repair and resurfacing preparation
- Chip seals
- Slurry surfacing
- Cape seals
- Thin asphalt overlays



# PP Academy Certificate Program

- Topics covered for each module
  - Overview
  - Project selection
  - Materials and design
  - Construction
  - Quality assurance
  - Troubleshooting
  - Other resources
- Complete all 5 modules and pass an exam to earn a certificate

# Developed First Three Pavement Preservation Manuals


- Manual for Chip Seals (Oct. 2019)

Project 1845A | October 2019

**SJSU** SAN JOSE STATE UNIVERSITY **MTI** MINETA TRANSPORTATION INSTITUTE

**Manual for Chip Seals**

R. Gary Hicks, PhD, PE  
DingXin Cheng, PhD  
Lerose Lane, PE



**CSUTC** California State University Transportation Consortium **CALIFORNIA STATE UNIVERSITY Chico**

CSU TRANSPORTATION CONSORTIUM [transweb.sjsu.edu/csutc](http://transweb.sjsu.edu/csutc)

- Manual for Slurry Surfacing (Dec. 2019)

Project 1845B | December 2019

**SJSU** SAN JOSE STATE UNIVERSITY **MTI** MINETA TRANSPORTATION INSTITUTE

**Manual for Slurry Surfacing**

Lerose Lane, PE  
DingXin Cheng, PhD  
Gary Hicks, PhD, PE



**CSUTC** California State University Transportation Consortium **CALIFORNIA STATE UNIVERSITY Chico**

CSU TRANSPORTATION CONSORTIUM [transweb.sjsu.edu/csutc](http://transweb.sjsu.edu/csutc)

- Manual for Cape Seals (Dec. 2019)

Project 1845C | December 2019

**SJSU** SAN JOSE STATE UNIVERSITY **MTI** MINETA TRANSPORTATION INSTITUTE

**Manual for Cape Seals**

Gary Hicks, PhD, PE  
Lerose Lane, PE  
DingXin Cheng, PhD



**CSUTC** California State University Transportation Consortium **CALIFORNIA STATE UNIVERSITY Chico**

CSU TRANSPORTATION CONSORTIUM [transweb.sjsu.edu/csutc](http://transweb.sjsu.edu/csutc)



# Fourth and Fifth Pavement Preservation Manuals

- Manual for Thin Asphalt Overlays (Dec. 2020)
- Manual for Asphalt Pavement Repair and Resurfacing Preparation (July 2022)


Project 1906 | October 2020

**SJSU** SAN JOSE STATE UNIVERSITY

**MTI** MINETA TRANSPORTATION INSTITUTE

**Manual for Thin Asphalt Overlays**

Lerose Lane, PE  
R. Gary Hicks, PhD, PE  
DingXin Cheng, PhD  
Erik Updyke, PE



**CSUTC** California State University Transportation Consortium

CALIFORNIA STATE UNIVERSITY **Chico**

CSU TRANSPORTATION CONSORTIUM [transweb.sjsu.edu/csutc](mailto:transweb.sjsu.edu/csutc)

Project 2103 | July 2022

**SJSU** SAN JOSE STATE UNIVERSITY

**MTI** MINETA TRANSPORTATION INSTITUTE

**Manual for Asphalt Pavement Repair and Resurfacing Preparation**

DingXin Cheng R. Gary Hicks Roger D. Smith



**CSUTC** California State University Transportation Consortium

**CS** CALIFORNIA STATE UNIVERSITY **Chico**

CSU TRANSPORTATION CONSORTIUM [transweb.sjsu.edu/csutc](mailto:transweb.sjsu.edu/csutc)

# Links to Five PP Manuals

- ▶ Asphalt Pavement Repair and Resurfacing Preparation

[https://scholarworks.sjsu.edu/mti\\_publications/414/](https://scholarworks.sjsu.edu/mti_publications/414/)

- ▶ **Chip Seals:**

<https://transweb.sjsu.edu/research/1845A-Chip-Seal-Manual>

- ▶ **Slurry Surfacing:**

<https://transweb.sjsu.edu/research/1845B-Slurry-Surfacing-Manual>

- ▶ **Cape Seals:**

<https://transweb.sjsu.edu/research/1845C-Cape-Seal-Manual>

- ▶ **Thin Asphalt Overlays:**

<https://transweb.sjsu.edu/research/1906-Manual-Thin-Asphalt-Overlay>





# Evaluation Process

At the end of the five modules

- feedback
- exam
- 3 opportunities
- passing score: 80%
- certificate from the CP2 Center

# Pavement Preservation Certificate

About 70-80% successfully obtained the certificate



# 2024 Pavement Preservation Academy



California Pavement Preservation Center

Instructors:

Roger Smith - AC Repair and Preparation

Gary Hicks - Chip Seals

Lerose Lane - Slurry Surfacing

Ding Cheng - Cape Seals and Multilayers

Erik Updyke - Thin Asphalt Overlays

## Just Google It

[2024 Pavement Preservation Academy](#)

April 2-11, 2024



# Pavement Preservation Academy

During the past 4 years, PPA has trained over 200 participants and covered 38 counties of California



# SUMMARY

- ▶ CP2 is supported by Caltrans and WRAPP
- ▶ CP2 works with Caltrans, CalRecycle, MTC, other agencies, and industry
- ▶ Research and education

**THANK YOU**

# Discussion and Questions

**Keep Good Roads Good**

**Gary Hicks, Ph.D., P.E.  
CP2 Center**

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<http://www.csuchico.edu/cp2c>

