California City and County Pavement Improvement Center (CCPIC)

By John Harvey, Laura Melendy, and Erik Updyke
Presented by Gary Hicks, CP2 Center
9-19-23

NATIONAL PAVEMENT PRESERVATION CONFERENCE
nppc23
IMPACTS AND BENEFITS FROM PAVEMENT PRESERVATION
MICHIGAN STATE UNIVERSITY
AASHTO TSP2 PAVEMENT PRESERVATION
ROCKY MOUNTAIN WEST PAVEMENT PRESERVATION PARTNERSHIP
SOUTHEAST PAVEMENT PRESERVATION PARTNERSHIP
MIDWESTERN PAVEMENT PRESERVATION PARTNERSHIP
NORTHEAST PAVEMENT PRESERVATION PARTNERSHIP

CCPIC Mission and Vision

- Mission
  - CCPIC works with local governments to increase pavement technical capability through timely, relevant, and practical support, training, outreach and research
- Vision
  - Making local government-managed pavement last longer, cost less, and be more sustainable

City and County
Pavement Improvement Center

- Sponsored by the League of California Cities, County Engineers Association of California, and the California State Association of Counties
- Chartered September 28, 2018

City and County Pavement Improvement Center

- **University of California Partners**
  - University of California Pavement Research Center (lead)
  - UC Berkeley ITS Tech Transfer
- **California State University Partners**
  - CSU-Chico, CSU-Long Beach, Cal Poly San Luis Obispo

City and County Pavement Improvement Center

www.ucprc.ucdavis.edu/ccpic

ncpp National Center for Pavement Preservation

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CCPIC Organization

- **Governance**
  - Governance Board consisting of 6 City and 6 County transportation professionals

- **Current Funding**
  - Seed funding from SB1 through:
    - Institute of Transportation Studies at UC Davis, UC Berkeley, UC Los Angeles, UC Irvine
    - Mineta Transportation Institute at San Jose State University

CCPIC Scope

- **Technology Transfer:**
  - Training courses
  - Pavement engineering and management certificate program for working professionals through UC Berkeley ITS Tech Transfer
  - Outreach
- **Technical Resources:**
  - Technical briefs, guidance, sample specifications, tools, and other resources
- **Resource Center:**
  - Outreach, questions, pilot study documentation, and forensic investigations
- **Research and Development:**
  - For local government needs that are not covered by State and Federal efforts
  - Adapting work done for state government

Pavement Engineering & Management (PEM) Certificate Program

- **PEM Certificate Program Overview:**
  - For engineers, asset managers, upper-level managers, technicians and construction inspectors
  - 88.5 hours of training
  - 56.5 hours in core classes, 32 hours in electives
  - Majority of classes to be offered online or self-paced
  - Four categories:
    - Fundamentals
    - Management
    - Materials and Construction
    - Design

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Pavement Engineering & Management Certificate: Curriculum

	Fundamentals		Hrs	Management		Hrs	Materials and Construction		Hrs	Design		Hrs
CORE 56.5 required	CCA-01	Introduction to Pavement Engineering and Management	10	CCB-01	Life Cycle Cost Analysis	4	CCC-01	Asphalt Concrete Materials and Mix Design	8			
	CCA-02	Pavement Sustainability	4	CCB-02	Pavement Management Systems and Preservation Strategies	10	CCC-02	Pavement Preservation Treatments, Materials, Construction, Quality Assurance	8			
							CCC-03	Pavement Construction Specifications and Quality Assurance	12.5			
56.5	**Fundamentals, CORE**		14	**Management, CORE**		14	**Materials and Construction, CORE**		28.5	**Design, CORE**		0
ELECTIVE 32 required 84 offered				CCB-21	Financing and Cash Flow for Pavement Networks	4	CCC-21	Concrete Materials & Mix Design	8	CCD-21	Asphalt Pavement Structural Section Design	8
				CCB-22	Integrated Asset Management for Multi-Functional Pavements	8	CCC-22	In-Place Recycling	8	CCD-22	Design, Construction, and Maintenance of Interlocking Concrete Pavers	6
							CCC-23	Gravel Roads Engineering, Construction, and Management	8	CCD-23	Concrete Pavement Design	8
							CCC-24	Roadway Construction Phasing, Scheduling, and Traffic Control	4			
							MISC	Classes from Pavement Construction Inspection Certificate curriculum				
							CCC-26	Pavement Construction Management	8			
							CCC-27	Asphalt Pavement Maintenance Construction	6			
							TS-10	Work Zone Safety	8			
84	**Fundamentals, ELECTIVE**		0	**Management, ELECTIVE**		12	**Materials and Construction, ELECTIVE**		50	**Design, ELECTIVE**		22
Total for Certificate 88.5 hours	**Fundamentals**		14	**Management**		26	**Materials and Construction**		78.5	**Design**		22

Pavement Construction Inspection (PCI) Certificate Program

- **PCI Certificate Program Overview**
  - For engineers, material testing technicians and construction inspectors
  - 80.5 hours of training
  - 68.5 hours in core classes, 12 hours in electives
  - Majority of classes to be offered online or self-paced

Pavement Construction Inspection Certificate: Curriculum

	Core		Hrs
CORE 68.5 required	PD-01	Construction Inspection	16
	CCI-01	Asphalt Pavement Construction Inspection	4
	CCI-02	Concrete Pavement Construction Inspection	4
	CCI-03	Concrete Street Improvements Construction Inspection	4
	CCI-04	Pavement Preservation Construction Inspection	4
	CCC-02	Pavement Preservation Treatments, Materials, Construction, Quality Assurance	8
	CCC-03	Pavement Construction Specifications and Quality Assurance	12.5
	CCC-26	Pavement Construction Management	8
	TS-10	Work Zone Safety	8
68.5	**Core**		**68.5**
	Electives (choose 12 hours from list below)		**Hrs**
ELECTIVE 12 required 26 offered	CCC-22	In-Place Recycling	8
	CCC-24	Roadway Construction Phasing, Scheduling, and Traffic Control	4
	CCI-06	Construction Inspection of Asphalt-Rubber Pavement Materials	2
	PD-02	Construction Inspection of Traffic Signals	8
	TS-18	Excavation and Trenching Safety	4
12	**Electives**		**26**
80.5	**Total required for certificate**		

PEM Certificate Program Class Status

- **Core Classes (7):**
  - All courses offered (dates scheduled, online delivery)

- **Elective Classes (12):**
  - Currently offered (online delivery): 1
  - Ready for recording (self-paced delivery): 2
  - Under development (self-paced delivery): 6
  - Awaiting Instructors: 3

PCI Certificate Program Class Status

- Core Classes (9):
  - Currently offered (online delivery): 4
  - Completed, to be offered (self-paced delivery): 1
  - Under development (self-paced delivery): 3
  - Awaiting Instructor: 1 (CCC-26)

- Elective Classes (5):
  - Currently offered (online delivery): 1
  - Ready for recording (self-paced delivery): 2 (CCC-22, CCI-06)
  - Awaiting Instructor: 1 (CCC-24)
  - No longer offered: 1 (TS-18)

CCPIC Classes Held to Date

Code	Title	Date	Attended
CCB-02	Pavement Management Systems and Preservation Strategies	April 17-21	32
CCC-03	Pavement Construction Specifications and Quality Assurance	March 13-21	42
CCC-01	Asphalt Concrete Materials & Mix Design	Feb 27 - Mar 3	20
CCA-02	Pavement Sustainability	February 13-15	24
2022	5 classes held in calendar year 2022, average attendance 40	Various	199
2021	8 classes held in calendar year 2021, average attendance 34	Various	272
2020	3 classes held in calendar year 2020, average attendance 31	Various	92
2019	6 classes held in calendar year 2019, average attendance 80	Various	481
2018	4 classes held in calendar year 2018, average attendance 35	Various	138
TOTAL	**30 classes held to date, average attendance 43**		**1,300**

Technical On-Site or Online Presentations

- 2022
  - The Importance of Asphalt Compaction, Effective Pavement Management:
    - 20 Agencies/240 attendees
- 2023
  - Specifications:
    - 200 attendees (conference)
  - Effective Pavement Management:
    - 60 attendees (conference)
    - 60 attendees (lunch presentation)
  - The Importance of Asphalt Compaction:
    - 60 attendees (conference)

Summary of Accomplishments (to date)

- Developed and posted a model Superpave specification ("HMA-LG") for city and county streets and roads applications.
- Developed and posted HMA/AC compaction Special Provisions.
- Developed and posted tack coat Special Provisions.
- Developed and posted a model specification for concrete pavement.
- Developed and posted a technical paper on the weakness of managing pavements based on PCI only.
- PEM Core Courses all offered.

Challenges

- **Geographic Diversity**
  - Reaching all areas of California and range of expertise and conditions:
    - 58 Counties (population range: 1 thousand to 9.7 million)
    - 482 Cities (population range: 200 to 3.8 million)
- **Different Standard Specifications:**
  - Caltrans:
    - Used by most cities and counties in Central and Northern California, and 3 Southern California Counties
  - Standard Specifications for Public Works Construction ("Greenbook"):
    - Used by most cities and 3 counties in Southern California
- **Long-Term Funding**

The Next 3 Years

- Complete development and offering of PEM/PCI Certificate Program classes
- Develop technical papers and PowerPoint presentations on Warm Mix Asphalt Technologies and the effect of RAP on AC/HMA mixtures
- Complete development and publish a “Site Investigation Guide” for use by cities and counties as a reference for pavement structural section and subgrade testing and analysis
- Continue outreach and raise awareness of the CCPIC and its mission and vision

Agency Perspective

- *"The training provided by CCPIC is a very attractive and convenient way for agencies such as us to train our engineers and inspectors in the wide range of issues involved in maintaining a roadway system. The courses are affordable, available on-line for busy people, and we can choose the exact topics that we need to meet our challenges. The catalogue of courses offered is comprehensive and well-prepared by seasoned experts."*
  Chris Hooke Ventura County

References, Contacts:

- **City and County Pavement Improvement Center**
  - http://www.ucprc.ucdavis.edu/ccpic/
  - John Harvey, PhD, P.E., Director: jtharvey@ucdavis.edu
  - Erik Updyke, P.E., Specialist, eupdyke@ucdavis.edu

- **University of California, Berkeley, Institute of Transportation Studies**
  - https://www.techtransfer.berkeley.edu/home
  - Laura Melendy, Associate Director: melendy@berkeley.edu

Thank You

Gary Hicks, CP2Center
rghicks2@csuchico.edu