



# CP2 CENTER NEWS

Newsletter of the California Pavement Preservation Center

No. 49

March 2019

## WRAPP Workshop Delivers!

When it comes to maintaining our pavements, there's no better place to hear the latest news than the annual workshop put on by the Western Region Association for Pavement Preservation (WRAPP). This year's event was held at the Doubletree in San Diego on February 7-8 and did not disappoint. Over 250 attendees from the public and private sectors were treated to two days of hearing about the latest info on pavement preservation and maintenance. A wide array of vendor displays also helped make this a 'learning event'.

President **Jim Ryan** (Marathon Oil) welcomed the group and introduced **Steve Olsen** (Enviroad), past President of WRAPP. Steve provided a historical overview of WRAPP's developments from its original formation as the California Chip Seal Association in the late 1980's to its current form, involving over 30 member companies in multiple western states. President Ryan also presented the WRAPP Lifetime Achievement Award to **Dr. Gary Hicks** for his many contributions to pavement preservation technology. **Dr. Hicks** is a former Director of the California Pavement Preservation Center (CP2 Center). (See article elsewhere in this Newsletter.)



Dr. Gary Hicks with WRAPP Board and his Award

This year's keynote Speaker was **Bill Hoffman**, Deputy Director of the Nevada Department of Transportation (NDOT). Bill cited the big trio –

By Roger Smith, CP2 Center

Industry, Road Agencies and Academia – must partner for quality pavements. He also challenged the group to find ways to attract and retain 'millennials' to our industry. He noted that NDOT has had a certification program for pavement workers since 2016, and he hopes to see a program set up for the entire western region.



WRAPP President Jim Ryan welcomes Bill Hoffman of Nevada DOT

Here are a few other highlights of the WRAPP Workshop.

WRAPP has completed "Specification Guidelines" for 3 maintenance strategies: conventional chip seal, rubberized chip seals and slurry seals. **Sallie Houston** (VSS) provided an overview of these new documents that are now available on the WRAPP website

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(<https://wrapp.org/>). More of these will be developed for other maintenance strategies.

An overview of Riverside County's Pavement Management Program (PMP) was provided by **Mojahad Salama** and **Elmer Datuin**. Their county is the size of New Jersey and has 2200 miles of roadway that must be maintained. The PCI of their roadway system is about 72, with their goal being to improve it to 75. They can only visually inspect rate about 1/4 of their system every year, but plan to purchase an automated vehicle to help with that challenge. They cover over 200 miles per year between chip seal and slurry surfacings, and also do a lot of cold in-place recycling (CIR), and follow Greenbook specs for their QC/QA requirements. The County recently used the California Pavement Preservation Center (CP<sup>2</sup> Center) to evaluate their PMP in preparation for an influx of SB-1 funding, and received a lot of valuable input – especially recommendations regarding their 'decision tree' for strategy selection and a process for life cycle cost analyses. A full report was prepared by the CP<sup>2</sup> Center.

A panel of Industry speakers provided the latest thinking on 'Pavement Distress Identification and Treatment Choices', a mini version of the FHWA's 'Every Day Counts' training program. The strategies of chip seals, slurry and micro surfacing seals, cape seals and chip seals on fabric were outlined, along with some information on best practices and comparative costs. The various forms of in-place recycling were also covered.

Following these overviews, **Jason Dietz** (FHWA) led a class exercise where attendees split into small groups, with each group reviewing photos of different pavement conditions to come up with their choice of maintenance strategies.



**Jason Dietz (FHWA) leads an exercise on pavement evaluation**

The second day began with an update on SB-1 funding and remaining challenges was provided by **Kiana Valentine**, a Sacramento political consultant. Since 60% of the funding will go to local agencies (cities & counties), these agencies must respond by delivering road improvement projects. Currently over 1000 projects are underway across the State. She invited industry feedback about any issues of concern. She emphasized the need for building projects, transparency, and accountability.

The 'do's & don'ts' of materials sampling and testing were then covered. **Cameron Richardson** (Vulcan) addressed best practices for getting representative aggregate samples, a challenge due to segregation, contamination and degradation - especially in an aggregate stockpile. **Bob Staugaard** (APART) addressed obtaining samples of liquid binders – both hot asphalt cement and asphalt emulsions. He stressed the importance of using wide-mouthed cans or jars (to allow stirring) and advised using epoxy-lined cans for emulsions. Emulsions samples should be stored or shipped in insulated boxes and tested within 7 days of sampling. An emulsion's asphalt residue should be tested within 30 days.

The topic of inspection was addressed by **Jerry Dankbar** (City of Roseville). They manage 450 mile of streets and do all their crack sealing and patching 'in-house'. In addition to a wealth of details, Jerry stressed the importance of having preconstruction meetings and regular meeting thereafter, and a policy of making the inspector the go-to person for all communications with the contractor. The inspector should keep an on-gong 'punch list' and communicate items to the contractor ASAP – not wait until the end of a job. Roseville is also considering using lead maintenance workers as inspectors on contract work. The final advice provided was... document and communicate! Also worth noting is that Roseville now specifies rolling of their slurry seals, and often a final fog seal for best durability and performance. **Rex Eberly** (Bergkamp, Inc.) provided valuable tips on slurry seal equipment and its calibration.

Preparation for pavement surface treatments was covered by **Roger Smith** (California Pavement Preservation Center – CP<sup>2</sup> Center), who focused on crack sealing and patching. These tasks may be done 'in-house' by agency crews, or bundled into the contract. His tips for crack sealing included avoiding excessive overband

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ing and not attempting to sealing alligator cracking. Agency contract bid documents need to be clear on this. Also, sanding can be used to improve the aesthetics of new crack sealing. For patching he advised laying out cut lines 1 foot beyond visible cracking and making the new patch at least 50% thicker than the existing pavement. Rolling of patches should involve at least 3 passes, with no vibratory action when roller is contacting the surrounding cold pavement.

The **WRAPP Contractor Quality Awards** for 2019 went to:

- Microsurfacing on SR14 in Kern County VSS/Caltrans (Bishop)
- Types 3 & 3 Slurry Seal Program Intermountain/City of Bend, OR

- Chip-on-fabric (GRCS) on US395, Inyo County American Pavement Systems/Caltrans
- Cold In-Place Recycle on SR247, San Bernardino County Match Construction, PRS, Ergon/Caltrans
- Bonded Wearing Course on SR505, Vacaville Telfer/Caltrans

The Workshop ended with the gavel being passed to **Jimmy Kendrick** (Bergkamp, Inc.), the 2019 WRAPP President. Kudos to the WRAPP organization on producing another valuable workshop and for fostering strong relationships between industry and public agencies. Next year's annual WRAPP Workshop will be January 29-31, 2020 in Sacramento. For additional information on WRAPP, the Workshop and all its presentations go to: <https://wrapp.org/> 

## AIA Releases Video Series

**A**sphalt interlayer technologies have contributed substantially to extending pavement service lives and reducing project costs and maintenance needs. To further the dialogue on these materials and newer applications involving micro-milling, the Asphalt Interlayer Association (AIA) has released some informative videos.

In the first of the three videos (posted to YouTube), AIA Executive Director **Ray Myers** outlines the basic technologies and how they achieve key performance goals of the US Federal Highway Administration (FHWA) for smoothness and rideability.

The AIA proposes a 3-step approach to enhancing roadway smoothness and longevity:

1. High-Speed Inertial Profile (HSIP) measurements
2. Micro-Milling of the old pavement surface for smoothness
3. Geosynthetic Reinforced Chip Seal (CRCS)

Utilizing these approaches, AIA notes, leads to a smooth road, while sealing the road, via a paving fabric interlayer. The subsequent dryer aggregate base layer has greater load-bearing strength.

"With the GRCS – basically a double chip seal over paving fabric - we are recommending a surface maintenance treatment that has over 25 years of successful crack reflection mitigation," Myers says, "A definite reduction process you might be using, such as an overlay or a mill-and-fill."

By Ray Meyers, AIA

The videos also provide a history of paving interlayers, including the introduction of paving fabrics, paving mats, and paving grids, and their general benefits.



**Micro-Milled Surface**

### Micro-milled surface

"The pavement maintenance industry has seen a broad range of changes, such as expanded use of warm mix asphalt, rubberized asphalt, a greater use of milling, and new installation methods for interlayers. The GRCS - or chip seal over fabric treatment - may not be known by many, but has proven to be a effective system mitigating crack reflection and waterproofing a pavement structure", says Myers.

The new series of videos will help transfer the information further. As Myers noted in the initial video, the subsequent videos are significantly detailed. Video 2 focuses on Geosynthetic Reinforced Chip Seal, while video 3 introduces the concept of High-Speed Inertial Profiling. Learn more about the Asphalt Interlayer Association, its members, and its initiatives at: [www.aia-us.org](http://www.aia-us.org). [The video series is available here.](#)

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## FDR in Tehama County

By Tyler Bodnar, California Nevada Cement Association

Located almost 120 miles north of Sacramento, Tehama County has a population of approximately 60,000 people and roughly 2,400 lane miles of roads. As a county that offers unlimited recreational activities, its active residents rely upon these roads to get them safely to their destinations.

The October 2016 "California Statewide Local Streets and Roads Needs Assessment," prepared by Nichols Consulting Engineers (NCE), served as a harsh reminder of the difficulties most rural agencies face in maintaining their roadway network – endless lane miles and an insufficient maintenance budget. Tehama County's 2016 Pavement Condition Index (PCI) registered at 53, which declines annually with funding shortfalls and is quickly approaching an overall desperate condition.

The public works team, which includes Senior Civil Engineer **Kevin Rosser** and Civil Engineer **Shawn Furtado**, have long embraced unique preservation techniques that have extended the life of their existing roads. One of their principal strategies is self-performing chip-seal applications, which utilize an existing fleet with trusted in-house operators. This process, combined with the use of local emulsion and aggregate suppliers, has proven to be one of the most cost-effective ways to stretch their budget.

While each annual pavement condition report has shown a steady decline in road conditions, the Public Works staff met new challenges and searched for innovative solutions. They did their homework, devised a plan to resurrect their network, and waited for the day when funding would increase. When SB-1 was signed into law in April of 2017, Tehama County set their plan into action.

The promise of new gas tax funding motivated engineering staff to start tackling the roads that had fallen off the proverbial cliff. Their experience and research have led them to the right solution at the right time. In search of versatility and longevity, Full-Depth Reclamation with Cement (FDR-C) is that "right solution."

FDR-C recycles the existing pavement structure in-place, while binding the materials with dry Portland cement to create a strong, durable, less permeable base. The pulverization process can even penetrate the subgrade to add needed

strength and tackle the base failure that plagues most deteriorated roadways. This process is a 'bottom-up' approach to roadway rehabilitation without the cost, hassle, and waste of traditional removal and replacement.



FDR Machine in Action

In the case of Tehama County, the pulverization went to a depth of 10 inches, mixing in the cement, which was spread on the old pavement surface.

According to Engineer **Shawn Furtado**, "The County's FDR-C 'Pilot Project' was to reinforce a 4.3 mile stretch of Jellys Ferry Road in anticipation of the upcoming Capital Improvement Bridge Replacement Project. A 24-foot cross section was successfully amended and stabilized via FDR-C with 4% cement, yielding an average unconfined compressive strength (UCS) of 360 psi."

After the FDR pulverization and mixing, two sheepsfoot rollers were used to initially compact the loose material. A Cat 140M motorgrader outfitted with automated cross slope grade control was used to establish final grade. Then final rolling was done with a vibratory steel smooth drum roller. Caltrans Standard Specification Section 30-4 "Full Depth Reclamation-Cement" was used as a guide for developing the Mix Design and performing QA/QC. CGI Technical Services Inc. from Redding, CA provided all of the materials testing, including daily moisture monitoring as well as field NDT compaction testing. Four (4) 4000 gallon water trucks were utilized to shuttle water to the remote project area for both the FDR-C process and moisture curing.



Initial Rolling of Pulverized Material

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The final surface placed over the FDR-C was a chip seal.

When Tehama County factored in the economic benefits, recycling components and speed of construction, implementing FDR-C became an easy decision. However, while SB-1 funding has given new light to agency project needs, it falls well short of the total funding necessary to fully reconstruct all the roads. Working within their means, Tehama County has developed a groundbreaking concept of targeting the roadway network's base courses. The trade-off will be foregoing the more expensive surface courses in order to improve a greater number of lane miles.

Another innovative approach to managing their country roads involves leveraging their in-house capabilities of applying chip seals. Tehama County plans to place a chip-seal course over the FDR-C stabilized base to make the road surfaces driveable and safe. Roadways rife with potholes, alligator cracking, and environmental degradation will be turned into pavement preservation-friendly roads. The combination of chip seal surfacing with FDR-C stabilization will provide the best return on the dollar for the Tehama County residents.

From a pavement standpoint, FDR-C uses its unconfined compressive strength (UCS) input

into equations found in the Caltrans Highway Design Manual (HDM) to determine its structural carrying capacity. The Caltrans HDM's accepted UCS range is 300-800 psi, which means FDR-C has a higher gravel factor ( $G_r$ ) than conventional aggregate bases. This type of structural carrying capacity will help serve as the backbone support for the roadway network. If the day ever comes where funding allows for thicker, structural surface courses, Tehama County will be prepared with a sound foundation already in place.

According to Senior Engineer **Kevin Rosser**, "The Sacramento River Bridge Project will begin in the spring of 2019. So this 4.3-mile section of Jellys Ferry Road accessing the project site will see more ESALs (material hauling, bonus permit loading, and construction traffic) in the next two years than since 1870, when the ferry service began. In preparation of this construction, the 4.3-mile stretch of "oil on soil" with successive chip seals went from a potential contractor right-of-way delay problem, to being able to withstand construction truck traffic and reduce future maintenance needs."

For more information contact **Tyler Bodnar** at mail: [tyler.bodnar@cncement.org](mailto:tyler.bodnar@cncement.org) or Tehama County's **Shawn Furtado** at: (530) 385-1462.



## CCPIC Update

There's a lot happening through the City and County Pavement Improvement Center (CCPIC), an excellent resource for local agencies. Here's a brief overview:

### Training

The CCPIC team is at work preparing the CCPIC training program which is planned to start giving its first new class in June, by web, aiming to hit the short period cities and counties have between getting contracts in place and starting construction. Additional new classes are being prepared for the fall, as well as delivery of several existing and updated ITS Tech Transfer pavement classes at CCPIC subsidized costs. Planning for the complete Pavement Certificate program is also moving ahead.

### Information Exchange through the CCPIC Website

A new feature has been set up for regional local government pavement groups to share information through an organized peer-to-peer exchange function on the CCPIC website. We

By John Harvey, UCPRC

are looking for groups to try it out. Contact **Jon Lea** at [jlea@ucdavis.edu](mailto:jlea@ucdavis.edu).

### PWOI Conference

CCPIC will have a table at the 2019 CEAC Public Works Officers Institute (PWOI) being held at the Paradise Point Hotel in San Diego on April 3-5, 2019. Please stop by, pick up some technical information, learn about training opportunities, and take a spin through the web site.

### LCCA Pilot Study

CCPIC is continuing to work with several cities and counties trying out the new Life Cycle Cost Analysis (LCCA) spreadsheet downloadable on the CCPIC website at: <http://www.ucprc.ucdavis.edu/ccpic/DownloadHandlerAsync.ashx?Filename=ToolDownloads/LCCA%20for%20Local%20Governments%20CCPIC%20v%2009apr2018.xlsm>. The pilot study is working with the agencies to review their performance and cost data and to develop agency-specific life cycle cost comparisons of treatments and treatment timing for use

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in their pavement management system (PMS) decision trees.

### Asphalt Compaction Guidance

The CCPIC website has a tool for estimating how long you have to compact an asphalt layer: <http://www.ucprc.ucdavis.edu/MultiCool/MultiCool.exe>. When you have a chance, download and try some scenarios for how long is available. The CCPIC tech brief on asphalt compaction shows that poor compaction can reduce the cracking life of an overlay by

half! There are also suggestions for how to set up your asphalt compaction specification. Now is a good time to take a look as you are putting your specifications together for this summer and fall. Go to:

[http://www.ucprc.ucdavis.edu/ccpic/DownloadHandlerAsync.ashx?Filename=pdf/CCPIC\\_4-pgr\\_asph%20compact\\_final\\_May%202017.pdf](http://www.ucprc.ucdavis.edu/ccpic/DownloadHandlerAsync.ashx?Filename=pdf/CCPIC_4-pgr_asph%20compact_final_May%202017.pdf)

For more information on the CCPIC go to:

<http://www.ucprc.ucdavis.edu/ccpic/>



## PPRA Begins Operations

The Pavement Preservation and Recycling Alliance (PPRA) is a consortium of industry associations (ISSA, AEMA and ARRA) that are focused on the use of asphalt emulsions in various pavement maintenance treatments. According to their website, "Jointly, PPRA assists agencies by providing a centralized repository for comprehensive information related to pavement preservation and asphalt recycling and reclaiming. PPRA seeks to help agencies at the state, county, and local level to make the right choices for their road networks and be the best possible stewards of their roads and of taxpayer dollars."

In a presentation at the recent WRAPP Workshop in San Diego, **Lindsay Matush** of Vario Consu-

By Roger Smith, CP<sup>2</sup> Center

-lting, developers of the website, provided an overview of what should be a very helpful resource for road agencies. Calling it a "1-stop shop" for pavement maintenance information, she outlined the website's features in the areas of maintenance strategy selection, possible combinations of treatments, cost comparisons and expected performance with photos of typical pavement conditions at different ages. The site also offers information on preparation for maintenance treatments and equipment involved, as well as guidelines for construction quality control, inspection and testing. Webinars on the use of the website are planned.

For more information go to: [https://](https://roadresource.org/news)

[roadresource.org/news](https://roadresource.org/news)



## New San Diego Area Group Forms

Late last year, the County of San Diego, Department of Public Works, began working with several industry associations and local agencies to discuss and better understand challenges that the San Diego region faces in regard to pavement preservation. For those that have been involved, the exchange of input, experience, and ideas have been invaluable.

The 'Building Better Roads Working Group', as it has come to be known, and several associated subcommittees, were established and have been working diligently to evaluate and summarize solutions that local agencies can consider for implementation related to innovative, cost-effective, and sustainable

By Mark Perrett, San Diego County

pavement preservation solutions. A series of draft findings have been developed by the various subcommittees that address reclaimed asphalt pavement (RAP), asphalt mix design standardization, alternative pavement types, and contracting procedures.

Other groups/agencies are invited to attend meetings to hear the subcommittee updates and to provide feedback on their findings for their region, in believing that a regional approach to these matters will assist all stakeholders in making better decisions with their programs and limited resources. For more information contact **Mark Perrett** with San Diego County at: [mark.perrett@sdcounty.ca.gov](mailto:mark.perrett@sdcounty.ca.gov).



## Gary Hicks Receives WRAPP Award

On February 8 at its annual Workshop in San Diego, the Western Region Association for Asphalt Pavement Preservation (WRAPP) presented its 'Lifetime Achievement Award' to **Dr. R. Gary Hicks** in recognition of his huge con-

tributions to the field of asphalt pavement maintenance.

Gary, a former technical director of our California Pavement Preservations Center (CP<sup>2</sup> Center) at CSU, Chico, was presented with

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a beautiful plaque inscribed with the following “WHEREAS, the Western Regional Association for Pavement Preservation is dedicated to the pursuit of excellence in all areas of pavement preservation and the education and advancement of the industry; and WHEREAS, R. Gary Hicks has dedicated more than fifty years of his professional career and life to the development and advancement of industry and public works practices concerning civil engineering and, specifically, pavement preservation and; WHEREAS, R. Gary Hicks has administered, developed and delivered curricula, classes and presentations at universities, conferences, workshops and small groups throughout the United States thereby advancing the knowledge and understanding of pavement preservation and practices and; WHEREAS, R. Gary Hicks was instrumental in the founding and development of both the Foundation for Pavement Preservation and the Chico State Pavement Preservation Center benefiting the entire United States; and WHEREAS R. Gary Hicks, has always been an unwavering and stalwart friend and supporter of the California Chip Seal Association and the Western Regional

Association for Pavement Preservation; IT IS HEREBY RESOLVED that the Western Regional Association for Pavement Preservation recognizes and acknowledges these aforementioned unparalleled efforts and expresses its deepest appreciation and sincerest thanks to R. Gary Hicks for his service to our industry; and MAY IT BE FURTHER RESOLVED that as of this 7th Day of February, two thousand nineteen, R. Gary Hicks is hereby granted an Individual Lifetime Membership in the Western Regional Association for Pavement Preservation.”



Dr. Gary Hicks receives award from WRAPP President Jim Ryan

Congratulations to Gary on a well-deserved honor.



## CP<sup>2</sup> Center Works on SB-1 Funded Research Projects

By DingXin Cheng, CP<sup>2</sup> Center

As part of California Senate Bill 1 (SB-1), passed in April of 2017, \$2 million per year is provided to the California State University system to conduct transportation research and related workforce education, training, and development. The California State University Transportation Consortium (CSUTC) led by the Mineta Transportation Institute, fosters synergies of the entire California State University system to conduct impactful transportation research and engage in workforce development initiatives that increase the mobility of people and goods and strengthen California’s economy.



The California Pavement Preservation Center (CP<sup>2</sup> Center) at CSU Chico is one of four outstanding CSU campuses that represent the geographical, cultural, racial, and socioeconomic diversity that makes California and the CSU system strong. The four CSU campuses are Chico, San Jose, Fresno and Long Beach. Figure 1 shows the principal investigators of the CSUTC from the four universities.



Figure 1. Left to Right: DingXin Cheng (CSU Chico), Hamid Rahai (CSU Long Beach), Karen Philbrick (MTI, SJSU), Aly Tawfik (CSU Fresno), Hilary Nixon (MTI, SJSU)

To achieve the improved levels of service on pavement demanded by SB-1, fixing only the ‘poor’ roads is not enough. It is also important to understand the benefits of maintaining and reserving the better roadways. By including pavement preservation strategies, it is possible for agencies to delay good roads from falling below fair condition.

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Due to the lack of research in the past, many local agencies in California simply do not have the needed information on the life extension and economic benefits of the various pavement preservation strategies. So the CP<sup>2</sup> Center is developing performance models for widely used pavement preservation treatments, for use by local agencies in California. With this knowledge, local agencies can estimate life extension and economic benefits of pavement preservation strategies, and also select the optimal treatments to achieve low life-cycle costs and better service for the users.

Currently, many local agencies and contractors also lack proper knowledge and work experience in the various pavement preservation technologies available today. Therefore, this study also includes developing proper training materials for agencies and contractors. Led by **Dr. Gary Hicks, Lerosé Lane, and Dr. Ding Cheng**, the CP<sup>2</sup> Center is working to develop technical manuals for three widely used pavement preservation technologies: chip seals, slurry surfacings, and cape seals. These manuals

will synthesize the most recent knowledge and best practices from Caltrans, FHWA, AASHTO, Southern California Greenbook, the Pavement Preservation and Recycling Alliance (PPRA - <https://roadresource.org/>), and other agency and industry partners, including WRAPP. After internal and external reviews, these manuals will be published at the CSUTC website (<https://transweb.sjsu.edu/csutc>) and the CP<sup>2</sup> Center's website (<https://www.csuchico.edu/cp2c>). The first training using these manuals is expected to begin in the fall of 2019.

Another project that CP<sup>2</sup> Center is working on will develop a quality control method and guidelines for hot mix asphalt (HMA) that uses recycled concrete aggregate (RCA). Teaming with CSU Fresno with Principal Investigator, **Dr. Xiaojun Li** and supported by industry, **Dr. Ding Cheng** and **Dr. Kun Zhang** of the Center are developing proper mix designs to maximize the benefits of using RCA in HMA.

For more information regarding the Center's SB-1 projects, please contact **Dr. Ding Cheng** at [dxcheng@csuchico.edu](mailto:dxcheng@csuchico.edu). 



## Coming Events - Mark Your Calendars!

By Roger Smith, CP<sup>2</sup> Center

### "Asphalt Pavement 101" Class March 19 (Bakersfield), March 20 (Ontario)

CalAPA's popular "Asphalt Pavement 101" class will be offered at 2 locations in April. This half-day class offers an overview of the basics of asphalt pavement including materials and HMA pavement construction.

For more information go to: [www.calapa.net](http://www.calapa.net).



### CalAPASpring Conference and Equipment Expo March 20-21 (Ontario, CA)

The California Asphalt Pavement Association (CalAPA) will hold its Spring Conference and Equipment Expo at the DoubleTree Hotel in Ontario. The Conference will feature speakers from industry, government agencies and academia, as well as vendor displays – both indoor and outdoor.

For more information go to: [www.calapa.net](http://www.calapa.net).

### "Maximizing Pavement life" Class April 1-3 (San Jose)



**ASPHALT INSTITUTE**®

The Asphalt Institute has developed a new class titled Maximizing Pavement Life especially geared to the needs of Local Agencies' Public Works personnel responsible for maintaining roads.

This 16-hour, one-time offering for California, will be taking place at the City of San Jose Training Center, and is designed to provide up-to-date information to agencies, engineers and roadway supervisors on state-of-the-art technology and best practices to maximize the performance of your asphalt pavement structures. Agency, consultant, supplier, and contractor personnel at all experience levels will benefit from this course.

For more information go to: [www.asphaltinstitute.org](http://www.asphaltinstitute.org).

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**"Pavement Maintenance For Local Agencies"  
(IDM-04)**

April 24 (Gilroy)



This popular class, taught by pavement consultant, **Roger Smith**, for the Tech Transfer Program at U.C. Berkeley, provides a solid working knowledge of the most common pavement maintenance and preservation practices. Topics include pavement management system concepts, pavement distress types and causes, asphalt materials, maintenance vs. rehabilitation concepts, repair options and common pavement maintenance/preservation strategies.

For more information or to enroll, go to: <https://registration.techtransfer.berkeley.edu/wconnect/CourseStatus.awp?&course=142IDM041203>.

**"Road Crew Asphalt Pavement Maintenance"  
(IDM-05)**



**Berkeley**  
UNIVERSITY OF CALIFORNIA

Coming soon will be this new class from the Tech Transfer Program at U.C. Berkeley. It will be offered periodically or on-request by an agency. The 1-day class will provide a solid working knowledge of the most common pavement repair and maintenance practices. Topics will include pavement management concepts, pavement distress types and causes, asphalt materials, pavement repair best practices and an overview of pavement maintenance/preservation strategies.

For information on scheduled classes go to: <https://registration.techtransfer.berkeley.edu/>.

**CP<sup>2</sup> Center's Patrons Meeting**

Date - TBD



Companies that are not already Patrons, but have an interest in supporting the Center and knowing more about the Patrons program, are encouraged to attend.

For more information contact Dr. Ding Cheng at: [dxcheng@csuchico.edu](mailto:dxcheng@csuchico.edu).

**Petersen Asphalt Research Conference  
(PARC) 2019**

July 14-17 (Laramie, WY)



The 56th annual PARC is coming up in July. The mission of PARC is to bring together researchers and practitioners, highway officials, producers, suppliers and users, academia, and others

who are working to advance the understanding, characterization, specification, design, usage and performance of asphalt materials. For over 50 years, research presented and discussed at the PARC has led to designing innovative asphalt materials and safer, longer-lasting and more cost-effective highways.

For more information go to: <http://www.petersenasphaltconference.org/>.



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Caltrans established the California Pavement Preservation (CP<sup>2</sup> Center) at CSU, Chico in July 2006, and fully funded the Center in January 2007. Dr. DingXin Cheng is the current Director of the Center. Mr. Hector Romero is the current contract manager of Caltrans.

The purpose of the Center is to provide pavement preservation support services to Caltrans and other public agencies, and to industry. Unique services include developing educational programs in pavement preservation, providing training and staff development opportunities, providing needed technical assistance to public agencies and industry, and managing/conducting research and outreach services, such as this newsletter.

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