



CP2 CENTER NEWS

Newsletter of the California Pavement Preservation Center

No. 61

March 2022

WRAPP Workshop Highlights

By Roger Smith, CP2 Center



The annual Workshop of the Western Region Association For Pavement Preservation (WRAPP) took place at the Holiday Inn in downtown Sacramento, February 2-3. More than 100 attended the live event with another 40-plus tuning in virtually. Attendees represented many local agencies, Caltrans and various aspects of the asphalt pavement industry. Once again WRAPP assembled an informative, value-packed agenda featuring informative speakers from industry and public agencies. The meeting room was ringed with informational exhibitors representing various aspects of the pavement preservation world, from patching materials to equipment and engineering services.

2021 WRAPP President Cesar Lara (Ghiradelli Associates) welcomed the group, and passed the President's gavel on to the new 2022 President, Matthew Conarro (Western Emulsions).

Keynote speaker for this years Workshop was Cathrina Barros Dmytrow, Chief of Caltrans' Office of Asphalt Pavements, who reminded the group that 70% of the Caltrans pavement is asphalt, so there will be no shortage of future work for their Industry partners. She presented an optimistic picture for funding for pavement maintenance at the State level. She also took the opportunity to announce that Tom Pyle had been named the new State Pavement Engineer. On the technical side,

she noted that technical updates to Section 37 (Bituminous Seals) of the Caltrans Standard Specifications will be rolled out in April. Caltrans is continuing to seek innovative ideas worthy of pilot projects, and has recently completed chip seal projects by American Pavement Systems involving a Type 3

asphalt-rubber binder (no natural rubber), with a goal of better chip retention in cold climates (e.g., against snow plowing). She also thanked WRAPP for their help with providing technical training of Caltrans personnel. Pressure will have to be kept on Caltrans management to ensure that pavement preservation gets its proper share of the expanded funding that's coming through the pipeline.

An update from the California Pavement Preservation Center (CP2C) at CSU Chico was provided by Dr. Ding Cheng. He reminded people of the Center's popular Newsletter and of the upcoming Pavement Preservation Academy (March 21-25), which will include the following five segments – 1. Repairs and Preparation for Resurfacing, 2. Chip Seals, 3. Slurry/ Microsurfacing, 4. Cape Seals and 5. Thin HMA Overlays. New Manuals have been developed for each segment, and are available on the CP2C website: www.csuchico.edu/cp2c/

The Center also works closely with Caltrans doing field evaluations of their pilot projects.

At the local agency level, the Center assists the Bay Area's Metropolitan Transportation Commission (MTC) with their Quality Assurance Program for the certification of technicians gathering pavement rating data for their Street

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2022 WRAPP President Matthew Conarro (left) receives gavel from outgoing president Cesar Lara.

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Saver pavement management system. The Center also developed a slurry seal 'performance model' using the vast array of MTC's data.

The national perspective on pavement preservation was provided by representatives from the Foundation for Pavement Preservation (FP²), and by the Pavement Preservation and Recycling Alliance (PPRA), who provided a walk-thru of their multi-faceted pavement preservation website, RoadResource.org. The work of the national AASHTO TSP-2 Emulsion Task Force (ETF) was also highlighted. The ETF is developing specifications, and guides for design and construction of pavement preservation treatments.

Highlights of the City of Roseville's pavement maintenance program were presented by Jerry Dankbar, the City's Street Manager. Some elements of the City's very successful program worth noting are:

- Prep work for surface treatments is done 'in-house' with City forces.
- The City owns a mastic machine.
- Gutter lip sealing is important.
- Over-bands on crack sealing should be minimized.
- Type 1 slurry is used on bike trails.
- Microsurfacing is used on arterials and some residential streets.
- Rubber cape seals are often used on arterials.
- Big savings are realized by doing a treatment at the right time.

Certain technical aspects of microsurfacing were addressed by Sally Houston (Arkema Road Science) who addressed concerns such as breaking / curing – both too fast or too slow - and not curing to a black color. Variables like weather, machine calibration, percents of emulsion, polymer modifiers and emulsifiers, and mineral filler (e.g. cement) were covered.

Various options for multi-layer surface treatments covered by Matt Ferguson (VSS). Both 2-layer and 3-layer systems are now in common use. One popular 3-layer system is a leveling course of microsurfacing followed by a chip seal, followed by a final surfacing of slurry or microsurfacing. He recommended doing comparative analyses of annualized cost using the www.RoadResource.org website.

Frank Farshidi, Pavement Manager for City of San Jose, presented an overview of their pavement management program. They have been able to raise their PCI ratings using a menu of strategies including microsurfacing (often with a tack coat), mill & fill with HMA, and some cold in-place recycling (CIR). Projects with micro-milling followed by a thin overlay or microsurfacing are also planned. The City maintains a well-equipped lab to support its street work.

The use of reclaimed asphalt pavement (RAP) millings in pavement preservation treatments was covered by James Emerson (PRS). He refers to streets as "urban quarries" because of they are a vast source for the 'mining' of aggregate, often with a value of \$30 - \$40 per ton. With the proper processing, RAP can be used as aggregate in chip seals, slurry / microsurfacing, as well as the more structural cold in-place (or central plant) recycling (CIR) projects.

The Workshop ended up with WRAPP presenting much-deserved Lifetime Achievement Awards to Jon James (VSS) and Jerry Dankbar (City of Roseville). Several project awards were also presented to owner-agencies and their contractors.

Be sure to watch for this very informative and popular event in 2023!

For more information on the 2022 Workshop go to the WRAPP website at: www.wrapp.org



Jon James receives WRAPP award



Jerry Dankbar receives WRAPP award

2022 Pavement Preservation Academy Announced

By Ding Cheng and Gary Hicks, CP² Center



As part of the Senate Bill 1 (SB-1) funding through the CSU Transportation Consortium headed up by Mineta Transportation Institute (MTI) in San Jose State University, the California Pavement Preservation Center (CP²C) will be providing training for its Certificate Program in pavement preservation, via **"The Pavement Preservation Academy"**. The purpose of the Certificate Program is to help state and local agencies improve the design and construction of pavement preservation treatments.

The effort began in 2018 with the development of technical manuals for chip seals, slurry surfacing, Cape seals, and thin hot mix overlays. These four manuals can be found with the following links:

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

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

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

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

The fifth manual, on Pavement Repairs & Preparation

Resurfacing is scheduled to be released soon .

The Academy is designed to empower state and local agency staff, and contractors, through training, to choose and properly construct the right treatment, at the right time, to optimize preventative maintenance funds. Most local agencies defer road maintenance over many years, and there are thousands of miles of public roads that are currently in poor condition. With new state funding (e.g. SB1) available for maintenance and construction projects, proper preventative maintenance is an issue of paramount importance. Treatments that can preserve pavements and defer the need for costly road reconstruction are very important.

The instructors for the various modules will be recognized names in the field, including Gary Hicks, Leros Lane, Ding Cheng, Roger Smith and Erik Updyke.

Registration information can be found on the Center website at: <https://www.csuchico.edu/cp2c/educational-opportunities/pp-academy.shtml>.

For more information, please contact Dr. Ding Cheng, the CP² Center Director, at dxcheng@csuchico.edu.



Model HMA 'Superpave' Specification for Local Agencies

By John Harvey, PhD, P.E., and Erik Updyke, CCPIC

As mentioned in the previous (December) Newsletter, the City and County Pavement Improvement Center (CCPIC) website now houses a model specification for use by cities and counties for hot-mix asphalt (HMA) produced using the Superpave mix design method. The model specification, referred to as Hot-Mix Asphalt - Local Governments (HMA-LG), is posted in Word format on the CCPIC website: www.ucprc.ucdavis.edu/ccpic . Here's some additional information about the new specification.

The specification was developed by the CCPIC team of Erik Updyke and John Harvey at UC Davis, Ashraf Rahim of Cal Poly San Luis Obispo, and Shadi Saadeh of Cal State Long Beach, and Frank Farshidi from the City of San Jose, in cooperation with the California Asphalt Pavement Association (CalAPA).

Once the new draft specification was created, starting from the current Caltrans specification,

experience was brought by Farshidi and Milar from a previous effort more than 5 years ago. Brandon Milar of CalAPA, acting as industry liaison, coordinated industry review of the specification.

The HMA-LG specification is based on the current Caltrans Section 39, but has been extensively restructured, revised and simplified for local agency use. Similar to Section 39, HMA-LG is based on Superpave mix design methods and is written towards contractor quality control and agency quality assurance and acceptance testing. Required tests and test frequencies have been revised to better reflect local agency capabilities and economies, while still ensuring a quality mixture will be produced.

For mix design, the current Caltrans Section 39 specifies the number of gyrations (N Design) in the laboratory gyratory compactor as 85, which is excessive

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for the traffic levels on many city and county roads. HMA-LG accommodates lower traffic levels by specifying three design Levels: Level 1 (traffic index 5.0 to 7.5, 50), Level 2 (traffic index 8.0 to 10.0, 65), and Level 3 (traffic index 10.5 to 13.5, 85). For mix design, the number of compaction gyrations and the percent air voids specified for each Level are intended to ensure the binder content is sufficient to prevent a mix with insufficient binder from being produced.

Each design Level has corresponding aggregate quality requirements, which are intended to reflect both the aggregate availability across the state as well as the appropriate aggregate quality requirements for each design level. HMA-LG includes 3/8", 1/2", and 3/4" gradations. The combined aggregate gradations specified are those in the Asphalt Institute "MS-2" publication.

HMA-LG is compatible with both neat and modified (except asphalt rubber) paving asphalt binders. The specifier will need to specify the asphalt binder 'PG grade' required.

Binder replacement from the inclusion of reclaimed asphalt pavement (RAP) is limited to 25 percent. Lime treatment and liquid antistrip requirements are based on the job mix formula (JMF) and aggregate quality.

In-place density requirements are

based on maximum theoretical density (MTD), with California Test 375 modified to use AASHTO T209, similar to Section 39. The HMA-LG specification also includes a table of reduced payment factors for failure to achieve a field density in the range of 92 -97% of MTD.

The HMA-LG specification is a model, intended to be edited by the user agency. Since it is based on Caltrans Section 39, it is most readily adapted by agencies currently using the 2018 Caltrans Standard Specifications, but may be used with earlier editions, or with other standard specifications such as the Greenbook.

The CCPIC is currently soliciting interest from local agencies in constructing pilot projects using the HMA-LG model specification. The CCPIC may be able to offer assistance with mix designs and other technical support. Interested agencies should contact John Harvey (jtharvey@ucdavis.edu), Erik Updyke (erikup59@gmail.com), Shadi Saadeh (shadi.saadeh@csulb.edu), Ashraf Rahim (arahim@calpoly.edu), or Dingxen Cheng (dxcheng@csuchico.edu) for further information and support. The HMA-LG specification can be found at: www.ucprc.ucdavis.edu/ccpic



'Asphalt Emulsions 102': Advanced Emulsion Technology

By Gary Hicks, CP² Center

A FHWA/ PPRA webinar, Asphalt Emulsions 102, was delivered by Sallie Houston of Arkema-Road Science and Andrew Braham of the University of Arkansas on January 27, 2022, where nearly 200 people attended this virtual event. It was a follow-up to Asphalt Emulsions 101 given in Feb 27, 2020, by Christine Gorsuch and Joe Brandenburg of Nouryon, which covered materials and behavior as well as manufacturing. This initial presentation can be found at: <https://www.youtube.com/watch?v=nOxa6nacwsQ>. This second webinar covered asphalt binder, asphalt emulsions, emulsifiers and performance, and advanced asphalt emulsion tests and recovery methods and how these can affect the performance of emulsions. The second presentation can be found at https://www.youtube.com/watch?v=J0a_n4LTDv4.

Sallie Houston first discussed what asphalt is, where it came from, what asphalts are best for emulsions and how performance can be

achieved when using emulsions. Next, she provided a quick review of Asphalt Emulsions 101 (mentioned above). This included a discussion of the types of emulsions, what is a stable or unstable emulsion, the effects of the emulsifier types and dosages, and the sources of emulsifiers-past and present. She also reviewed the important properties of emulsions including particle size, stability, adhesion, viscosity, and surface tension, and how they relate to performance. Finally, she discussed how the chemistry of emulsions is evolving and how an agency can get good performance from the various products.

Andrew Braham then discussed how emulsion technology is beginning to move from the more traditional testing to a new form of performance-based testing. Traditional tests that revolve around composition, consistency, stability and residue (many of which can be found in AASHTO T 59)

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are upwards to 50 years old. Before digging into the newer tests, he examined asphalt emulsions at an advanced level, describing the 'stern layer', 'slip plane', and 'micelles', as seen in the Figure 1.

This allowed for an overview of the newer tests for quantifying the properties and behavior of asphalt emulsion including:

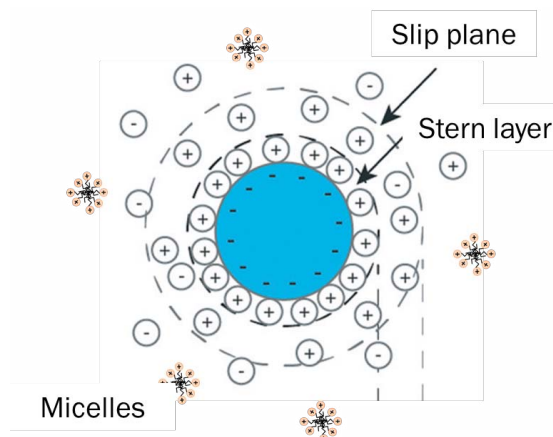


Figure 1 – A more complete representation of an asphalt emulsion droplet (modified from Lowry et al., 2016)

- Paddle Viscometer (ASTM D7226)
- Particle Size (including a review of research that has begun to develop preliminary specifications based around D10 (size of droplet where 10% of all droplets are smaller), D50, D90, and 'span'. Span is defined as $[(D90 - D10)/D50]$. See Figure 2)
- Zeta Potential (the potential difference

between the bare slip plane around the asphalt droplet and the aqueous solution)

- Low-temperature recovery methods (AASHTO R 78, Procedure B, ASTM D7403, Simple aging test, and ASTM D7227)
- Moving toward Superpave 'PG' grading system (NCHRP report 680, NCHRP report 837, and NCHRP Project 9-63).

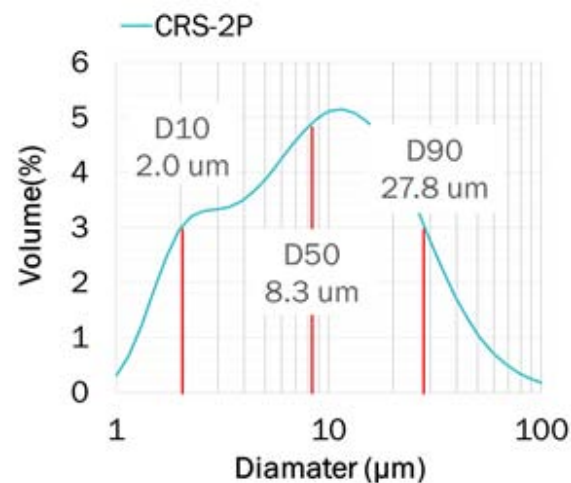


Figure 2 – An example of particle size distribution with D10, D50, and D90 labeled (Diaz-Romero, 2021)

Both presentations and the recording will be posted on www.roadresource.org in the near future. For more information on the FHWA/PPRA webinar series and future webinars, please contact Jason Dietz of FHWA at jason.dietz@dot.gov.



Spring – The Pavement Maintenance Season

By Roger Smith, CP² Center

In many parts of California, the arrival of spring means shifting into high gear on pavement maintenance. The winter months always take their toll on pavements, so it's good to review a few timely strategies for bringing our pavements back to life and serviceability. This information is also available in manuals produced by CP2C and available on our website at: www.csuchico.edu/cp2c/

• Potholes

The winter and spring rains have revealed weak spots in our pavement soften to the point of pothole formation. Patching potholes should be considered high-priority item since they can pose a real safety hazard to vehicles – especially the 2-wheeled kind.



Typical pothole

• Quick-Patch Products

Fortunately there are excellent 'quick patch' products for making simple and immediate repairs to hazardous potholes. They usually produce good service life and excellent 'bang for the buck'.

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These special cold mix products use small aggregate and proprietary asphalt binders to produce a very sticky mass that will adhere well and stay put in potholes and small patches. But trying to use them in larger less confined areas will sometimes lead to their displacement / movement and their rutting or shoving out of the void area. With only minimal compaction via a hand tamper or a truck tire, these product densify to form a strong cohesive mass. A light sanding of the surface will help them blend in for aesthetics and prevent any tracking of the asphalt binder. Be sure to sweep up any excess and as it can become a slip / skid hazard – especially to motorcycles.

At the recent WRAPP Workshop, I spoke with Nathan Mayo of Syar Industries (Napa). He's an ex-county road manager, with extensive experience with these products. Now with Syar Industries, he manned a hands-on display of their Easy Street quick-product. Various other brand names products are also available – some even at home stores in 50 lb. bags. A few bags of



Quick-Patch Placement

these special materials in the back of a maintenance pickup can make everyone a pothole patcher. On lower traffics areas and residential streets, the work can even be done without any traffic controls. According to Mayo, their product is available in bags, bulk sacks, or bulk for stockpiling. In addition to potholes, they also recommend it for edge patching and utility cuts – in any type of climate.

But a word of caution! These products usually contain various volatile cutter oils, and stay workable at most temperatures. When patching in colder climates, they should not be excessively heated in a closed patcher truck or trailer. Fire or explosion may result!

• Digout Patches

For those larger localized failed areas, it's usually necessary to remove the severely failed material and replace it with hot mix asphalt (HMA). In these cases best practices include laying out a cut line at least 1 foot beyond the visible cracking and making the cut with a pavement saw, a jackhammer or a small milling device – either a small self-propelled machine, or a milling head attached to a front-end loader bucket.

The old pavement should be excavated deep enough to allow placement of HMA at least 50% thicker than the old HMA layer. With the costs of lane closures, and crew time, the cost of material for making a thicker patch is trivial. The underlying material – often aggregate base (AB) - should be re-compacted and a heavy tack coat applied to the faces of the vertical cut faces to help promote a good seal. Heated patcher vehicles (trucks or trailers) should be used to keep hot mix hot for making multiple patches.



HMA Patcher trailer

New HMA should be placed slightly thicker than the depth of the digout to allow for compaction. Compaction should be with a vibratory plate or a small steel drum roller. Repeat passes are necessary with each pass achieving a bit more densification. You should place enough loose material so that it requires 3 to 4 passes of the roller to make it flush with the old pavement. The goal is a flush patch surface on a well compacted patch. Checking the final surface of your patch with a straightedge can help prevent a 'patch bump', especially important on higher speed roadways.

It's important to note that a steel drum roller should not be used in 'vibratory' mode if it's touching the old surrounding pavement. A vibratory steel drum contacting old cold pavement will cause cracking surrounding your new patch. This means that on smaller digout patches, only 'static' rolling should be used.

• Hot Mastic Patches

Hot mastic products can also be used for patching – both for potholes and for larger patches. These proprietary products use hot thermoplastic elastomeric binders, which tend to retain flexibility to accommodate pavement movement. They contain high quality aggregate to provide a repair that stays stable under wheel loads. Of course these hot mastic blends require special heating / melting equipment, which can be either purchased or rented.

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Hot Mastic Patching

At the recent WRAPP Workshop, Ted Maxwell of Maxwell Products manned a display booth and pointed out that equipment needed for these products can be rented or purchased. Jerry Dankbar (City of Roseville) noted that the City owns the equipment and makes use of hot mastics in their maintenance program.

- **Pavement Smoothness**

The ravages of winter also can contribute to a rough-riding pavement. I recently spent time in a couple of 'wine trail' areas and was disappointed in the lack of pavement smoothness in areas totally dependent on tourist roaming. Often these pavements are in acceptable condition structurally, and just need a surface 'smoothing'. In a recent chat with Jon James (VSS), he touted the benefits of microsurfacing, not only as a surface seal, but also as a lower cost way to improve smoothness. Remember... smoothness is how the public rates a pavement!



Microsurfacing application

Unlike a conventional slurry seal, microsurfacing mixtures have enough stability to be put down thicker without distorting under wheel loads. This is due to the fact they contain cement, and also polymer modifiers, that combine with high-quality aggregate to create a tougher, more stable mix that can help smooth out a

rough pavement. Microsurfacing can even be used for leveling wheelpath ruts up to about an inch deep. This is accomplished in a single-pass application. To further enhance performance, James also recommends fiber reinforcement, which microsurfacing machines are equipped to provide. It's worth a reminder that although microsurfacing products involve water-based emulsion, which usually require warmer weather, the 'break' on these microsurfacing treatments can be enhanced by the addition of chemical additives – to the point of allowing placement in cooler air temperatures, or even night work.

- **Crack sealing**

It's also worth mentioning that Spring and Fall are the ideal seasons to do crack sealing – mainly because air temperatures are more moderate and cracks are not too wide open or tightly closed. This allows for an optimum amount of sealant to be placed in the crack without producing bumps due to bulging as the crack closes with pavement expansion in warmer summer weather.

These and other maintenance practices are covered in the new Manuals developed by the CP2 Center for our Pavement Preservation Academy.

For more info go to: www.csuchico.edu/cp2c/



Pavement Maintenance Best Practices Webinar

By R. Gary Hicks, CP² Center

The Federal Highway Administration (FHWA) delivered a webinar on best practices for pavement maintenance techniques in June 2021. The webinar was based on a report developed under contract with NCE, and under the direction of Morgan Kessler of FHWA. The report and the webinar dealt with maintenance techniques for both asphalt and concrete pavements. Linda Pierce and Sarah Stolte of NCE discussed the treatments for asphalt pavements, while Jerod Gross, of Snyder & Associates, discussed the treatments for concrete pavements. The study objective was to develop a comprehensive best practice guide and tech briefs for specified maintenance activities, techniques and materials. The target audience was state and local maintenance managers and field crew leaders. The report has been

completed and is expected to be released in the spring of 2022.

Maintenance techniques considered for asphalt treatments were crack sealing and filling, pothole repair, and patching, while those considered for concrete treatments included crack sealing and joint resealing, partial depth spall repair, and localized full depth repair. Topics covered for each treatment included project selection, materials selection, design considerations, construction, troubleshooting, opening to traffic, quality control and acceptances, and performance and cost.

A recording of the webinar can be found at <https://connectdot.connectsolutions.com/p3vp16ciavjp/>



Other products resulting from the study will include:

- Quick -Reference Field Guides - one for each treatment type. This will be a tri-fold (two-page format) and will include information on project selection, materials, construction steps, trouble shooting and more.

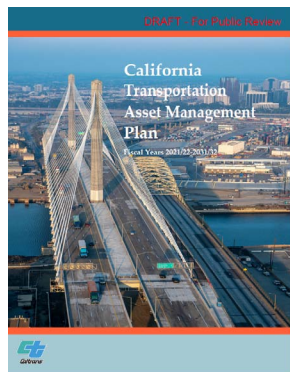
- Mobile Phone Applications – one for each treatment type, which are available at <https://preview.paviasystems.com/micros/FHWA/index.html>

For more information on the research study or the webinar, please contact Morgan Kessler at morgan.kessler@dot.gov



FHWA Update By Chu Wei, FHWA – Sacramento

California Transportation Asset Management Plan



The Draft 2022 California Transportation Asset Management Plan (TAMP) has been developed. This is the second TAMP developed for California's transportation system. California Department of Transportation (Caltrans) welcomes feedback prior to the submission to the California Transportation Commission and Federal Highway Administration (FHWA).

The TAMP was produced through the collaborative effort of numerous stakeholders, starting with listening sessions and then structured around a regular series of workshops, and a robust feedback loop with the transportation partner entities. The TAMP is a living document. It will be regularly reviewed and updated, using performance outcomes and drawing from the 10-year project plan coming from the State Highway System Management Plan.

The TAMP contains a wide variety of asset classes, including pavements, bridges, drainage, transportation management system (TMS), signs, bicycle/pedestrian infrastructure, signals, and others. California's TAMP also addresses NHS pavement and bridge assets, and SHS pavement, bridges, drainage, TMS, and supplementary

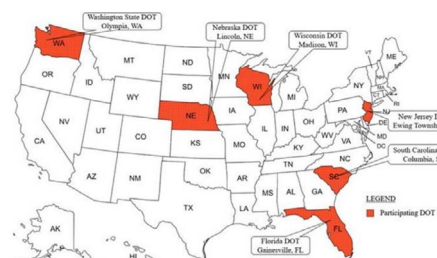


Image: University of Nevada Reno
Figure 1. Map of Participating State DOTs.

assets. The draft TAMP can be downloaded at California Transportation Asset Management Plan (TAMP) | Caltrans.

FHWA Technical Briefs

FHWA has published three Technical Briefs developed in cooperation with the University of Nevada Reno. These Technical Briefs are described below:

- Delta Tc Binder Specification Parameter. This Technical Brief provides an overview of the binder parameter Delta Tc (Tc). Delta Tc

is an indicator of the effect of aging and additives on the asphalt rheology. More specifically, Tc provides insight into the relaxation properties of an asphalt binder that can contribute to non-load related cracking or other age-related embrittlement distresses in an asphalt pavement. This Technical Brief provides information for responsible deployment of the Tc as a specification parameter should State DOTs be considering implementation at: https://www.fhwa.dot.gov/pavement/asphalt/HIF_Delta_Binder_Spec_TchBrf.pdf

- Resource Responsible Use of Reclaimed Asphalt Pavement in Asphalt Mixtures. This Technical Brief summarizes techniques employed by State DOTs in the use of high doses of reclaimed asphalt pavement (RAP) in asphalt mixtures and communicates the benefits observed at: <https://www.fhwa.dot.gov/pavement/asphalt/pubs/hif22003.pdf>
- Practices and Lessons Learned When Using Reclaimed Asphalt Shingles in Asphalt Mixtures. This Technical Brief summarizes information related to practices and suggestions implemented by States and local agencies based on the literature and on-site visits in six States at: <https://www.fhwa.dot.gov/pavement/asphalt/pubs/hif22001.pdf>

If you have questions about the Technical Briefs, please contact Tim Aschenbrener at timothy.aschenbrener@dot.gov or 720-963-3247.

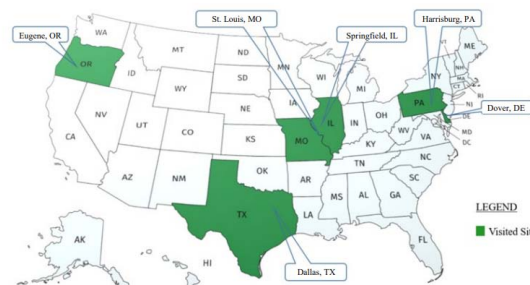


Figure 2. Participating Agencies.



PCCAS Meetings Resume

The Pacific Coast Conference On Asphalt Specifications (PCCAS) is a long-standing multi-state group that provides a valuable forum for asphalt pavement specialists from State DOT's to meet with industry producers of asphalt products to discuss asphalt pavement technology, with a goal of having more uniform and effective specifications and practices across the Pacific Coast region. Member states include California, Nevada, Oregon, Washington, Alaska and Hawaii, and also Western Federal Lands, a division of FHWA. The group has often been referred to as the 'User-Producer' Conference.

The various committees of the Conference regrouped in Reno on January 25 -26 after a 2-year hiatus due to COVID, and laid out plans for moving forward. The three established Committees of PCCAS are for Paving Asphalt/HMA, Asphalt Emulsions and Recycling. The CP2 Center participates in the group's committees.

Each Committee will develop a list of Tasks addressing concerns of regional (multi-state)

By Roger Smith, CP² Center
interest. A more formal process for Tasks is being developed. Some possible subjects for Tasks include:

- AASHTO Specifications for Asphalt Binders (M320 and M332)
- Anti-strip Technologies
- New 'Paddlewheel' Viscosity Testing of Emulsions
- Cold In-Place Recycling (CIR) Technology
- Other Tasks are under consideration.

The Committees also heard an 'national update' on asphalt binder research from Mike Anderson of the Asphalt Institute, and a presentation by the Nevada DOT on it's cold in-place recycling (CIR) project on SR 232.

The PCCAS Committees will meet again in October to prioritize and move forward with their specific Tasks. For more information on this group go to:

<http://www.pccas.org/index.html>



Coming Events – Mark Your Calendar!

Pavement Preservation Academy

March 21 -24 (Online)

The California Pavement Preservation Center (CP2C) is pleased to announce training classes for its certificate program in pavement preservation, via "The Pavement Preservation Academy". The purpose of the program is to help state and local agencies improve the design and construction of pavement preservation treatments including pavement repairs, chip seals, slurry surfacing, Cape seals, and thin hot mix overlays. For more information visit the Center's website at: <https://www.csuchico.edu/cp2c/educational-opportunities/pp-academy.shtml>.

CalAPA Spring "Tech Tune Up"

April 5 , Brea , CA

The 2022 Spring Asphalt Pavement Conference "Tech Tune Up" will be held on Tuesday, April 5 at the Embassy Suites by Hilton Brea-North Orange County Hotel, 900 E. Birch St. in Brea, Calif. Caltrans District 7 Director Tony Tavares is the confirmed keynote speaker. These events feature a diverse lineup of speakers covering updates on asphalt pavement technical topics. Conference registration will

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open soon. For more information go to: www.calapa.net



U.C. Berkeley Technology Transfer Courses

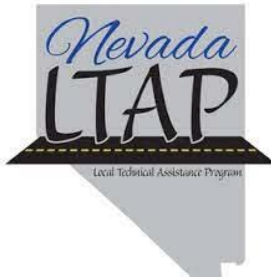
These courses were developed in partnership with the City and County Pavement Improvement Center (CCPIC) and funded by California Senate Bill 1, the Road Repair and Accountability Act of 2017.

Classes currently open for enrollment are:

- Introduction to Pavement Engineering and Management June 6-9 (Online)

The course introduces the functional requirements of pavement for different purposes, including streets, roads, highways, and bicycle/pedestrian paths, and the types of pavement that can meet those functional requirements. The class provides a basic understanding of how pavement materials, structural design, construction, and asset management interact to affect pavement performance for each pavement type.

Registration information is at: <https://www.techtransfer.berkeley.edu/> Continued, next page



Nevada LTAP Center Classes

Various Dates (Online)

The Nevada center for the Local Technical Assistance Program (NV-LTAP) regularly offers classes on a variety of pavement maintenance topics.

For more information go to: <https://nvltap.com/>



FHWA / PPRA Webinars

Various Dates (Online)

FHWA will continue to team up with the Pavement Preservation and Recycling Association (PPRA) to offer short webinars on various popular pavement maintenance treatments, including crack sealing, slurry surfacing, chip seals, Cape seals, and proper handling of asphalt emulsion products. Registration is at: <https://connectdotcpub1.connectsolutions.com/content/connect/c1/7/en/events/catalog.html?folder-id=1296478025&from-origin=connectdot.connectsolutions.com>

Find more information and dates contact: Jason.Deitz@dot.gov



The Asphalt Institute and NAPA Webinars (Online)

The Asphalt Institute offers national training on pavement design, asphalt binders, mix design

and asphalt construction. For more information go to: <http://www.asphaltinstitute.org/training/seminars/>

The National Asphalt Pavement Association (NAPA) offers webinars on various asphalt pavement topics. For current listings go to: <https://www.asphaltpavement.org/programs/napa-webinars>



The National Center for Pavement Preservation (NCPP) Training (Online)

NCPP was established by Michigan State University and FP2, Inc. to lead collaborative efforts among government, industry, and academia in the advancement of pavement preservation by advancing and improving pavement preservation practices through education, research and outreach. Training is an integral part of any Pavement Preservation Program. Preservation practices are constantly evolving as new techniques and products are developed. Currently, the NCPP offers courses in:

- Applied Asset Management
- Chip Seal Best Practices
- Slurry Seal & Micro-surfacing
- Top of the Curve: Fog Seals, Rejuvenators, Crack Sealing and Filling
- Basic Concepts for Pavement Preservation

Courses are offered periodically throughout the year and are advertised on this website. www.pavementpreservation.org.



Caltrans established the California Pavement Preservation (CP² 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. Rukesh Maharjan 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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