CP² Center News

Newsletter of the California Pavement Preservation Center

No. 29 March 2014

CCSA Workshop A Big Success!

By Roger Smith, CP² Center

Steve Takigawa (4th from left) being awarded the Lifetime Achievement Award with CCSA Board members and other Recipients

The 2014 California Chip Seal Association (CCSA) Workshop drew a crowd of almost 300 to the Sacramento Holiday Inn on February 5- 6, 2014. In addition to a line-up of interesting speakers, the Workshop offered an opportunity for numerous suppliers and vendors to showcase their latest products and interact with pavement specialists from over 30 road agencies.

CCSA's "Lifetime Achievement Award" was presented to Steve Takigawa, Caltrans Deputy Director of Maintenance and Operations for his many years of effort in fostering the ideals and concepts of pavement preservation. Steve is the first non-industry recipient of the award.

There were even some outdoor exhibits for a close look at larger pavement maintenance equipment like chip spreaders, distributor trucks and slurry seal machines. During breaks, the participants were able to meet with vendors.

CCSA's new President for 2014, Scott Dmytrow (Telfer), thanked outgoing President Scott Metcalf (Ergon) for his service and efforts in organizing the Workshop and presented a check for $5000 to Dr. Ding Cheng, Director of the California Pavement Preservation (CP²) Center, to become a "Patron" helping to support the many activities of the Center. He also presented a check for $1000 to the California Transportation Foundation for their Fallen Workers Memorial Fund, which helps support families of highway workers killed in the line of duty.

The 2-day workshop featured a full line-up of speakers whose messages are highlighted below. For more information and the presentations , please go to the CCSA website: *www.chipseal.org*. The following are some of the highlights from the keynote speakers: *Continued, next page*

In this issue

Will Kempton of Transportation CA

- Will Kempton of Transportation CA didn't mince words in reminding the crowd of the impending "fiscal cliff" facing transportation funding in California. With Proposition 1B bond funds drying up, federal funding becoming less reliable, and gas tax revenue dwindling due to more efficient vehicles, other more dependable funding sources are needed. Although it's likely that a combination of funding mechanisms will be necessary, the one avenue that seems to hold a good chance of public approval is increasing the vehicle license fee, which has been frozen at 1% of vehicle value for some time. A thorough discussion of funding options can be found on the TC website: http://transportationca.com/.
- The "fiscal cliff" scenario was reinforced on the 2nd day by Caltrans' pavement maintenance leader, Steve Takigawa, Caltrans Deputy Director for Maintenance and Operations. Because of the funding predicament facing Caltrans, it's be more important than ever to embrace the 'fix it first' mentality – repairing and preserving what we have rather than funding new construction projects. Other non-pavement areas of maintenance (e.g. culverts) will also be competing for the limited funding. Steve noted that a big challenge Caltrans always has is convincing the public that it's worthy of the funding it needs. Public perception of Caltrans' accountability and credibility needs to improve. They somehow need to get more positive credit for the many good things they do day-to-day for the motoring public.

Other speakers on the first day included:

Kiana Buss, CEAC

- *Local Streets & Roads Needs Assessment Report*, Kiana Buss (California State Association of Counties - CSAC). Kiana explained the findings of the California Statewide Needs Assessment Report. The effort attempts to capture the overall needs of cities and counties in the area of road and bridge maintenance and repair. The report is compiled every 2 years with the next scheduled for October 2014. All reports can be found at *http://www.csac.counties.org/statewide-local-streets-and-roads-needs-assessment*.
- *Pavement Distress Identification*, Roger Smith (CP^2 Center), filled in for an ill Lisa Senn (Nichols Engineering) and provided an overview of pavement distress types and how they fit into the big picture of pavement management systems, such as "Street Saver" from the Metropolitan Transportation Commission (MTC) in Oakland.
- *Preparation for Surface Treatments*, Roger Smith (CP^2 Center). Roger stressed the importance of proper planning and surface preparation for surface treatments such as slurry and chip seals. He focused primarily on the importance of establishing policies and standard practices for preliminary crack sealing and patching.

Greg Wilkenson (Granite Rock)

- *Chip Seal Keys to Success,* Jason Lampley (Intermountain Slurry Seal). Jason shared his extensive experience by highlighting some keys to a quality chip seal.

These presentations were followed by excellent Breakout Sessions on practical aspects of chip seals including presentations by:

- Andy Clayton (Western Emulsions) treated attendees to a rare glimpse of laboratory testing of asphalt emulsions including discussions on common tests run on asphalt emulsions and on the asphalt residue from the emulsions.
- Greg Wilkenson (Granite Rock) provided an informative overview and demonstration of tests commonly run on aggregate used in chip seals.
- Quality control is an important element of any chip seal operation. John Fox (Caltrans, Bishop) shared his practical experience with the crowd. I would encourage all to look at his presentation on the website, it was excellent.

John Fox, Caltrans District 9

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During the second day, the focus was on slurry surfacings and innovation. In addition, a workshop on slurry surfacings was provided.

- *Slurry and Micro-Surfacing* (Steve Olsen, Telfer Companies). Steve gave an excellent overview of slurry and micro-surfacing technologies. His historical sketch of the 80 year old industry noted that slurry was first applied using concrete ready mix trucks and slow-setting (SS) emulsions while todays modern slurry machines are capable of placing 3 tons per minute. He also pointed out that multi-layer systems (see article below) involving micro-surfacing and cape seals are also becoming more popular.
- *Multi-Layer Systems*, Patrice Theriot (City of Watsonville). Patrice Theriot reported with the great success the City of Watsonville is having with a pavement maintenance strategy involving three layers. Basically, it's a micro-surfacing covered by an asphalt rubber chip seal and finally, a surface slurry seal. Mendocino County and Fort Bragg also use these multi-layer treatments.
- *Cold In-Place Recycling (CIR)*, Scott Metcalf (Ergon). Scott explained the modern approaches to CIR and how savings of 20-40% can be realized when compared to doing a 'mill and fill' with hot mix asphalt. It's important that the process be done only on structurally sound pavements free of areas of weak subgrade characterized by 'pumping' of fines on the surface.
- *New Ruling on ADA Curb Ramps*, (FP^2 Lobbyist, Tracey Taylor, William & Jenson, LLC). Tracey provided an update on the recent Federal rulings that would require more curb ramps (aka. curb cuts) in conjunction with pavement maintenance treatments. The ruling is puzzling in that it would require the costly curb ramps for some surface treatments and not others. A national campaign is underway to reverse this new policy. (On page 10 in this newsletter.)
- *New Products Overview*, Hans Ho (Telfer Companies). New products and processed always seem to be cropping up in the world of pavement maintenance. Hans Ho of Telfer Companies provided a generic overview of some of the new technologies currently being used in pavement preservation and maintenance.

The second day also included an excellent breakout session on Slurry Seals. Topics covered included the following:

- Mike Hemsley (Paragon) gave an overview of materials used in slurry and micro-surfacing with insight as to the specification tests required for the aggregate and asphalt emulsion. Typical mix design test were also covered, including special rolling wheel stability test that can be run on microsurfacing mixes intended for rut-filling.
- Sally Houston (VSS Emultec) provided a 'table top' demonstration of the effects of a retarder (portland cement) on the breaking speed of a fresh slurry mix. She noted that almost all slurry seal and micro-surfacing work in California now uses polymer modified emulsions.

Katie Blomberg and Sallie Houston of VSS

- Doug Hogue (Reed International) provided valuable insight into the calibration of slurry seal machines. Recalibration should be done if a material source changes, but otherwise a calibration may be good for up to 6 months.

Finally, CCSA Contract Quality Awards were presented to the following agencies and their contractor 'partners:

- *City of San Leandro & Intermountain Slurry Seal* – for a 3-layer system involving a microsurfacing followed by a hot asphalt rubber chip seal, capped with a Type II slurry seal.
- *Mendocino County & VSSI* – for a 3-layer system similar to the above
- *City of Roseville & Telfer Companies*- for a large and complex micro-surfacing project at the heavily trafficked Galleria shopping center area.

All-in-all, this was a most worthwhile event and a key educational opportunity for anyone in pavement maintenance work. Plans are already underway for a repeat performance next year - in southern California.

New Caltrans RAP Specifications

By Byron Berger, P.E., District Materials Engineer and Ward Jenkins, Lab Manager, District Materials Lab, Caltrans District 2

In 2007, the California Department of Transportation (Caltrans) began allowing contractors to use up to 15 % reclaimed asphalt pavement (RAP) in its hot mix asphalt (HMA) pavement. In 2013, Caltrans changed its HMA mix design methodology from the traditional Hveem (California) Method to Superpave. Along with this update, Caltrans incorporated significant other changes, including allowing contractors to use up to 25 % RAP in HMA. This increase, however, comes with two restraints.

First, when using RAP, the contractor must implement new quality control procedures. Qualitatively, this means more control of RAP stockpiles, including segregation of RAP designed for specific mixes and fractionation into two sizes. Also, the RAP used in production for a specific mix must be close in quality to the RAP actually used in the mix design. Quantitatively, the binder content of the RAP during production must be within ± 2.0 % of the mix design RAP's binder content, and the Rice specific gravity must be within ± 0.06. To ensure this, the contractor measures binder content and Rice specific gravity for every 1,000 tons of RAP during production.

Second, Caltrans has introduced a new concept for quantifying the amount of RAP used in a mix. Historically, "% RAP" meant the amount by weight of RAP substituted for virgin aggregate by % of total aggregate in the mix. That is still what Caltrans means when the specifications state a limit of 25 % RAP. However, the alternate way of quantifying the amount of RAP is the "binder replacement" concept, which refers to the amount of total binder replaced by the binder from the RAP. In other words, instead of quantifying RAP by the replacement of RAP aggregate (by total weight of aggregate), the amount is based on the replacement rate of RAP binder for virgin binder (by total weight of binder.)

Converting from one measurement (% RAP) to the other (% binder replacement), and back, is a little complicated. This is because Caltrans now measures binder content by total weight of mix, RAP binder % by total weight of RAP, % RAP by total weight of aggregate, and % binder replacement by total weight of binder. The following formula converts from % RAP to % binder replacement:

$$\text{Binder Replacement} = \frac{\frac{A}{1-A} \times B}{C} \times (1 - C)$$

Where:

A = the binder content of the RAP, measured as a percent of the total weight of the RAP

B = % RAP, as a percent of the total weight of aggregate

C = binder content of HMA, as a percent of the total weight of mix

To simplify this conversion, Caltrans has developed a "calculator" tool that automatically does it. This RAP Calculator is available now from *ward.jenkins@dot.ca.gov*, and soon should be posted on Caltrans' website.

It's important to understand how % RAP and binder replacement work together, because the updated Caltrans specifications place the following limitations on the amount of RAP involved: In the surface course of HMA (the top 0.2 inch of mix, exclusive of open-graded mix), the contractor is limited to 25 % RAP and 25 % binder replacement. In the lower course (all the HMA under the surface course), the contractor is limited to 25 % RAP and 40 %binder replacement. Therefore, both limitations must be kept in mind during contract bidding and construction of Caltrans HMA projects.

For more information contact Byron Berger at: *byron.berger@dot.ca.gov*.

PCCAS Committees Meet in Reno By Roger Smith, CP^2 Center

The various committees of the Pacific Coast Conference on Asphalt Specifications (PCCAS) met in Reno, March 3-4, 2014. PCCAS is a "user-producer" group for the Pacific coast region, which includes California, Nevada, Oregon, Washington, Alaska and Hawaii. State DOT's, FHWA and asphalt producers /suppliers comprise this long standing group. There are PCCAS committees for asphalt binders & mixes, emulsions, and recycling – all with chairpersons and specific charges.

One very hot continuing topic is the development of a 'PG' specification for asphalt rubber binders. This specification will likely involve the use of the dynamic shear rheometer (DSR) test device modified with either a cup-and-bob configuration, or a parallel 'plate-to-plate' configuration. The Pavement Research Center at U.C. Davis gave a report on their research in this area. Round-robin work is underway to zero in on the best approach. The CP^2 Center's lab will participate in this testing plan.

Another hot topic is the possible adoption of a new test for measuring the high temperature characteristics of polymer-modified asphalt binders. The Multiple Stress Creep Recovery (MSCR) test, which also uses the DSR testing device, is being evaluated nationally and a PCCAS Task Group was formed to monitor and contribute to this effort. A national report will be available soon from the Asphalt Institute.

As is usual, the states in attendance gave update reports on their recycling polices for allowing RAP and RAS in their HMA mixes. They also reported on their policies and specifications for controlling moisture sensitivity (stripping). Tests such as the Hamburg wheel tracker and the T-283 test are the primary controls.

The next PCCAS committee meetings are scheduled for October 7-8, 2014 in Reno. For more information visit: *www.pccas.org.*

Asphalt Rubber Grants - Update By Theron Roschen, Quincy Engineering

The California Department of Resources Recycling and Recovery (CalRecycle) provides a Rubberized Pavement Grant Program to promote markets for recycled-content surfacing products derived from waste tires generated in California. This program recently changed when on October 3, 2013, Governor Jerry Brown signed AB 513 (Frazier), which establishes the Rubberized Asphalt Concrete Market Development Act (grant program) to help cities, counties and regional agencies offset the cost of asphalt rubber overlay in road rehabilitation and maintenance projects. Grants would be awarded at a minimum of $2 per Passenger Tire Equivalent. Funding would come from the Tire Fund, revenue from the fee on the sale of new tires in California.

A key difference of the current Rubberized Pavement Grant Program, is that Assembly Bill 513 doesn't limit applications from jurisdictions that have already received such grants. Active users of RAC, will be allowed to compete for the grants against those communities that have never tried the technology. Please monitor the CalRecycle Website at *www.calrecycle.ca.gov/Tires/Grants/Pavement/default.htm* for the next Notice of Funds Availability tentatively scheduled for the spring 2014, with funds to be released after July 1, 2014.

The California Department of Resources, Recycling and Recovery (CalRecycle) has contracted with Quincy Engineering to provide "No Cost" technical assistance to local agencies on the successful applications of these rubberized asphalt products. These services include technical training, specification and mix design review, and on-grade inspection. For more information contact Theron Roschen of Quincy Engineering at: *theronr@quincyeng.com* or (916)368-9181.

PCC PAVEMENT NEWS

Caltrans Seeks Quieter Bridge Decks

By Internatial Grooving & Grinding Association (IGGA)

In April 2013, the International Grooving & Grinding Association (IGGA) reported that California instituted a new specification to reduce noise from concrete bridge decks.

Most states use sound walls to control noise, and with approximately 400 miles of sound walls along its highways, Caltrans has the most in the United States. But Caltrans has determined that it's more economical to control the problem at its source, and reduce the amount of noise generated when tires interface with a bridge surface. Working in conjunction with the FHWA, the department has begun a major program to reduce bridge deck traffic noise.

Prior to 2012, it was common practice in the state to transversely tine concrete bridge decks. The Caltrans Division of Environmental Analysis found they have noise levels that are generally greater than 105 dB, with some measuring as high as 110 dBA. Tining the surface longitudinally, as well as using a longitudinally tined polyester concrete surface, bring dBA levels down into the 103-105 range. Longitudinal textures created by dragging will achieve surface noise levels of 101-102 dBA. The recently implemented Standard Specification 51-1.03F(5)B requires that all bridges outside of freeze-thaw zones and within a Noise Sensitive Area have a grinding and grooving finish, which results in a 100-103 dBA level.

Grinding and grooving are accomplished by adding an additional ¼-inch of concrete thickness to the top of the deck, and then grinding it off to achieve a level, longitudinally grooved surface. For California bridges, this means that the initial clear cover to the top of the rebar will increase from 2- to 2.25-inches.

"For years, motorists and nearby residents have suffered with unwanted tire/pavement noise generated from heavily tined bridge deck surfaces," said John Roberts, executive director of the IGGA. "Caltrans is once again leading the way to a more sustainable transportation network by employing environmentally-friendly, saw-cut surface textures such as diamond grinding and grooving to reduce noise, while increasing safety and smoothness at a competitive cost."

For more information go to: *www.igga.net* or contact Kristin Dispenza at (740)249-4056.

Disposal of Concrete Grinding Residue

By Kari Moosman, Internatial Grooving & Grinding Association (IGGA)

An area of focus within the construction industry throughout the past few years has been the question of how to handle concrete grinding residue (CGR), also known as sawing or grinding "slurry". Generated during sawing and diamond grinding operations, slurry is the byproduct created when a diamond blade's cooling water mixes with concrete fines.

Often times, governmental regulations dictate onerous slurry disposal procedures without knowing what the material really consists of. This can turn into a time-consuming task for construction workers and it unnecessarily increases costs for the taxpayer. To address the multifaceted issue of slurry disposal, the International Grooving & Grinding Association (IGGA) has authored a "Slurry Best Management Practices" guide in which methods are identified that reduce the burden on contractors and taxpayers while ensuring that they act in an environmentally responsible manner.

These recommendations are based, in part, upon research conducted in partnership with North Dakota State University (NDSU). Researchers examined slurry samples from areas throughout the country in order to determine the following: the chemical composition and characteristics of the slurry; the effect slurry has on the mechanical properties of the soil; and what effect slurry has on plant growth. The best management practices (BMP's) that were subsequently developed assist contractors and specifiers in determining the most effective means of disposal on a project-by-project basis.

By following slurry disposal BMP's and keeping abreast of new product developments that address this widespread industry need,

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contractors can choose a disposal method that optimizes their job performance while still complying with environmental regulations.

"Contractors have many options available to them when considering the best method of slurry disposal for a job," said John Roberts, Executive Director of IGGA. "New products and beneficial uses for the slurry product are being developed at a rapid rate, providing greater disposal flexibility than ever."

For more information on best practices, visit *http://igga.net/File/DGSlurryHandlingBMP2013*.pdf. To learn more about CGR, visit http://igga.net/ConcreteGrindingResidueFactSheet.pdf.

CP² CENTER NEWS

CP² Center Services Overview

By Roger Smith, CP² Center

Since its formation in 2006, the services and expertise offered by the CP² Center have continually expanded. We maintain a very experienced staff of pavement experts, and a state-of-the-art asphalt lab facility. Here's an overview of the services and programs currently offered by the Center.

- *Strategy Selection Program*. A software program was developed to help guide Caltrans pavement managers to the properly select pavement preservation strategy(s) for a given set of input parameters. For more information, please go to: *http://www.csuchico.edu/cp2c/Strategy%20Selection.shtml*. This program is also applicable for use by local agencies.
- *Pavement Preservation Database*. This website gives agencies a place to share their pavement preservation project data in a common database. Agencies and others can use this "one-stop" information center to see what pavement strategies other agencies are using. Such a tool will promote interagency awareness and cooperation. For access to the database, please go to *http://www.ecst.csuchico.edu/cp2c/software/pptdb/index.php.*
- *Laboratory Testing.* The Center's laboratory capabilities are continually expanding. We now have complete binder testing capability for the PG grading system, even for asphalt rubber binders. We also have equipment, such as a gyratory compactor for Superpave mix design work, a 4-point beam fatigue test machine, and a Hamburg test device. We also have field equipment for obtaining cores, testing permeability, friction, and surface texture.
- *LCC Analysis Program.* The Center has helped develop a new Life Cycle Cost Analysis (LCCA) software program for Caltrans to compare pavement management alternatives on a life cycle cost basis.
- *Pavement Guide.* The Center is also helping Caltrans to develop a new pavement guide for both concrete and asphalt pavements for Caltrans.

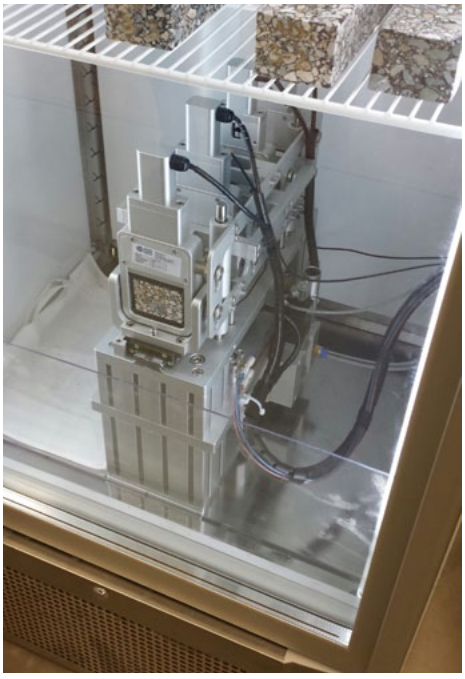

Figure 1. 4 Point Beam Fatigue Testing Apparatus

Since the Center is funded only by contracts, it has no contingency funding to sustain "overhead" activities such as: maintaining lab equipment, preparing contract proposals, organizing meetings and conferences, participating in events to promote pavement preservation, and delivering training classes. This funding must come from non-contract sources such as our Patron supporters, and would include :

- *Education.* The Center has the expertise and capability to provide training in the areas on pavement preservation. This will be a future focus, as time and funding permit.
- *Conference or Workshop Planning.* The Center has taken a lead role in managing Pavement Preservation Conferences in the past. Future conferences will be planned and funding permits.

CP² Center Patrons Program-Additions and Changes

By R. G. Hicks, CP² Center

The CP² Center was established in 2006 at CSU, Chico to provide assistance with the development and use of appropriate pavement preservation strategies. The Center was originally funded by Caltrans and continues to work closely with them, as well as other agencies. We maintain a very experienced staff of pavement experts, and a state-of-the-art asphalt lab facility.

But the Center is funded only by contracts with agencies such as Caltrans and CalRecycle and other clients, and work under those contracts is narrowly defined so that funding may only be used for specific contract tasks. The Center, therefore, has no contingency funding to sustain "overhead" activities such as:

Figure 1. Scott Dmytrow and Scott Metcalf presenting the patrons donation to Director, Ding Cheng

- maintaining lab equipment,
- preparing contract proposals,
- organizing meetings and conferences,
- participating in events to promote pavement preservation, and
- delivering training classes.

This funding must come from non-contract sources such as our Patrons.

Patron supporters of the CP² Center can benefit from:

- general promotion of pavement preservation concepts
- increased market for pavement preservation products and services
- training programs in of pavement preservation technology
- assistance with research, both lab and field
- availability of a credible "3rd party" for technical expertise, and
- participation in special meetings and conferences.

The Center recently received new memberships and renewal of old memberships from the following companies:

- UltraPave has joined the Patrons program for the first time. Thanks to Thomas Murphy for making this happen.
- The California Chip Seal Association (CCSA) has also joined the Patrons group. The notification was made at the recent 2014 CCSA Pavement Preservation Workshop in Sacramento, CA, and a $5000 donation was presented to Dr. Ding Cheng.
- Scott Metcalf of Ergon has also pledged to renew their membership in the Patrons group.

We are still seeking to expand our Patrons group during 2014. For more information on how to join and the benefits of joining, please contact Co-Chairs, Dr. Gary Hicks at *rghicks@csuchico.edu* and/or Dr. Hans Ho at *handsho@telfercompanies.com*. More information on the Patrons program can be found on the Center's website at *http://www.csuchico.edu/cp2c/.*

Regrettably, our first member, Mike Burris of PMI in Carlsbad has decided to resign as a member. We would like to express our gratitude to Mike and his staff for all the past financial and technical support provided to the Center.

CalRecycle Project Update-Development of Performance Models for RAC Pavements by R. Gary Hicks, CP^2 Center

The CP^2 Center is in the final stages of a project funded by CalRecycle dealing with developing performance curves for rubberized asphalt concrete (RAC). The project which began in September 2012 will be completed in May 2014. It consists of 4 tasks as follows;

- *Development of performance curves for rubberized asphalt concrete (RAC) for local agencies.* The Center has been working closely with the MTC of the Bay Area, LA County, and other agencies to obtain performance data for asphalt concrete and conventional HMA. Marissa Garcia, Ding Cheng, and Lerose Lane of the Center have been working with data from these agencies to develop performance curves for each product. Over 800 projects have been studied. One of the shortcomings of some of the databases is the lack of long term performance of the products. To gather this information we have obtained data from Manhole Adjusting for projects as old as 25 years. This data has been used in establishing the long term performance of RAC. The long term performance for projects in northern California is not as readily available. To date, the Center has drafted a report on a summary of performance models used by various agencies around the USA. We are currently in the process of drafting the final report for this task to show the models developed for RAC. The type of performance curves we are expecting are shown in Figure 1.

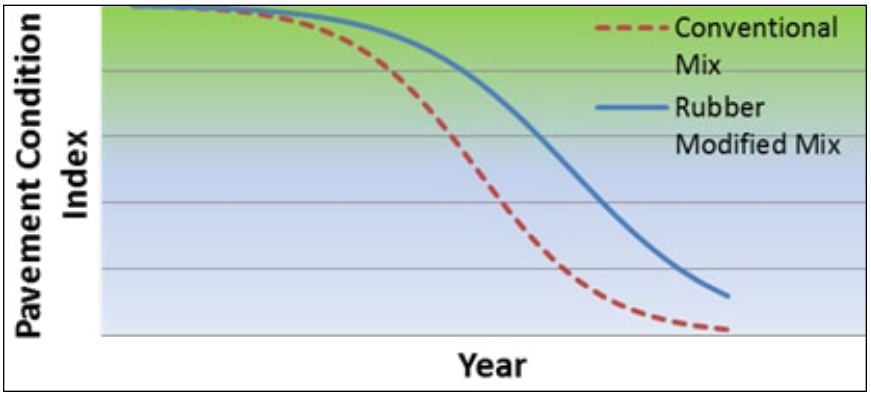

Figure 1.Typical performance curves

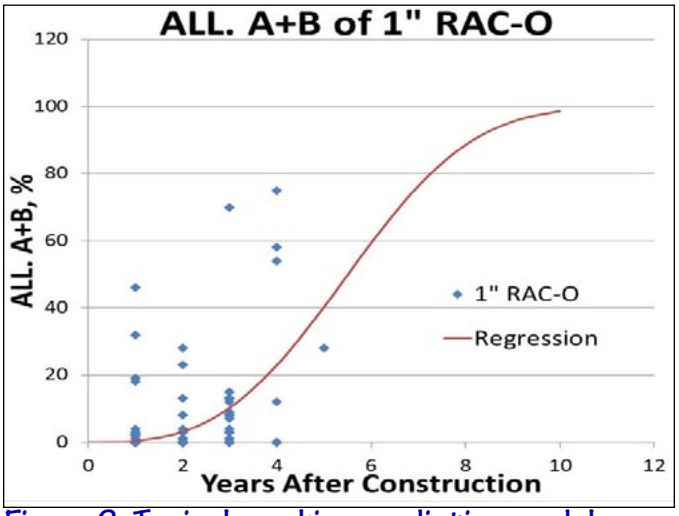

Figure 2. Typical cracking prediction model, Caltrans Data

- *Development of Performance Curves for Caltrans projects.* The Center has been working with Caltrans and the UCPRC to come up with projects included in the Caltrans database. Students Lance Patchin (now at UC Davis) and Nicanor Ceja (who will go to UC Davis next fall) have worked with Ding Cheng on the database to develop prediction models for individual distresses including ride, cracking and rutting. An example of the distress predictions is shown in Figure 2. Once all the data are collected and analyzed, the research team will try to develop a combined pavement condition index (PCI) such as that used by local agencies in their PMS's. Over 100 projects have been studied and the report for this task is now nearly complete.
- *Laboratory testing of mixes.* The Center has also collected samples from several projects around the state to evaluate the following: fatigued resistance of both RAC and conventional HMA and the fatigue resistance of RAC with and without warm mix additives. Materials from a project on Interstate 8 in District 11 near Imperial was used to compare the fatigue properties of conventional RAC with that containing warm mix additives. A project on US 99 in District 3 was sampled to compare the results of RAC with a conventional HMA. The equipment used for compacting the samples and developing the fatigue properties

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Figure 3. Cooper's Rolling Wheel Compactor

was obtained from Cox and Son Equipment in Colfax CA. Photos of the compaction equipment, the asphalt beams tested, and the fatigue equipment are shown in Figures 3 and 4. Students Michael Wiedeman and Xai Lao are currently finishing the testing and preparing the report. This data is also expected to yield shift factors for the performance curves being developed in the earlier tasks.

- Dissemination of Information. This task is associated with developing the final reports as well as papers and presentations to share with local agencies and Caltrans. Drafts of all reports will be completed by April 15, 2014 so they can be finalized prior to the end of the contract.

The project ends on May 15, 2014. Nate Gauff and Bob Fujii of CalRecycle are the contacts for the study. The information from this study as well as other studies on terminal blends and Life Cycle Cost analysis of RAC will be presented at the CalRecycle conference in Sacramento on April 23-24, 2014.

Figure 4. Finished beams and Coppers 4 pt. fatigue test equipment

GENERAL NEWS

What Are the Potential Impacts of the New American with Disabilities Act (ADA) Changes for Local Agencies?

By Tracy Taylor and Jim Moulthrop, FP^2 Inc., and Scott Dmytrow, California Chip Seal Association

At the Feb 5-6, 2014 meeting of the California Chip Seal Association (CCSA) workshop held in Sacramento CA, MAP-21 and changes to the interpretation of the ADA were discussed. MAP-21 is the current transportation reauthorization legislation that was adopted in 2012 and includes pavement preservation. The language in MAP-21 clarified that pavement preservation is eligible for federal funds. This has been a very positive step for those involved with pavement preservation treatments. The FHWA is in the process of reviewing and interpreting the new law and developing performance standards. The legislation expires in September 2014 and the new highway reauthorization is under discussion. The major issue for the next highway reauthorization bill is funding because the Highway Trust Fund, funded through the 18.4 cent a gallon user fee, which has not increased since 1993, can no longer keep pace with our country's transportation needs.

Tracy Taylor

Though the progress made with MAP-21 was beneficial to pavement preservation, a recent DOT/DOJ interpretation changing long standing FHWA practices threatens to take away several cost effective maintenance "tools" for state agencies. The issue is what constitutes an "Alteration" to the pavement for purposes of the 1990 Americans for Disability Act (ADA). The Act requires compliance with ADA when alterations such as

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reconstruction, rehabilitation, resurfacing and widening are planned. Maintenance activities have been exempt.

In July 2013, the Department of Transportation (DOT) and the Department of Justice (DOJ) issued a Joint Technical Assistance (TA) memorandum on Title II of the ADA Requirements to "Provide Curb Ramps When Streets, Roads, or Highways are Altered through Resurfacing". Among other things, this document divided up treatments as either "maintenance" or "alterations" for purposes of defining ADA required modifications such as curb ramps. Some of the classifications make sense, but in several cases, similar thin layer maintenance treatments which have long been used by Agencies as maintenance treatments, were classified as "alterations", while other similar treatments continued to be classified as "maintenance" for purposes of the ADA. The Foundation for Pavement Preservation (FP^2 Inc.) has been working with FHWA to revise the TA to allow Agencies to continue to use thin treatments such as microsurfacing, thin and ultra-thin asphalt overlays, in-place recycling, and cape seals as maintenance treatments for purposes of ADA requirements. The TA issued in 2013 by the DOJ/FHWA applies to all roads, not just the federal ones. It will come into effect with new contracts in 2014 and will have substantial cost impact on public agencies.

The problems with the new interpretations are the following:

- Treats similar maintenance treatments differently
- Due to increased work and costs, it takes important preservation tools away from public agencies at a time of shrinking transportation budgets
- Does not make sense from a technical engineering perspective
- Prevents public agencies from choosing the best way to manage their budgets and improve their streets for the benefit of all citizens

Table 1. Classification of Pavement Treatments by the TA

Alterations	Maintenance
Overlays with or without millings	Striping
New layers of asphalt	Crack sealing
PCC rehab and reconstruction	Chip Seals
Open Graded Friction Course	Fog Seals
Microsurfacing	Slurry Seals
Thin life overlays	Scrub Seals
Cape Seals	Dowel bar Retrofit
Cold in-place recycling (CIR)	Diamond grinding
Hot in-pace recycling (HIR)	Patching

Table 1 defines the new interpretation by the TA. As can be seen microsurfacing is considered an "alternation" whereas slurry seals are not even though they are placed with the same type of equipment and are used in essentially the same thickness. What does this mean to you? Basically, it means microsurfacing will likely be eliminated from the preservation tool box whenever curbs and gutters are present because it will become cost prohibitive to provide curb ramps. Similarly, chip and-slurry seals are "maintenance", but cape seals (the combination of the two are considered alterations). So, in cases, where using a Cape Seal makes the most sense for the road, it may not get used because of the additional cost of ADA curb ramps will be prohibitive. So some valuable maintenance strategies are vulnerable to being eliminated from the preservation tool book for streets with curbs and gutters are present. The basis for these interpretations is not clear.

This TA goes to the heart of pavement preservation by distorting public agencies' abilities to choose the right treatment on the right road at the right time

What is next? AASHTO has put together a resolution asking DOT and DOJ to reach out to stakeholders about this issue. FP^2 Inc. is collecting data to show the cost impacts on agencies if this TA is accepted. Early indications are the cost impacts could be as high as 50%, meaning agencies would have less money for treating roads. FP^2 Inc. is also working with others stakeholders in Washington DC to get support for revising this interpretation. This effort may not be enough. We need your support.

What can you do? Here are some of the things you can do after you study Continued, next page

the DOJ-DOT Technical Advisory in the following link *http://www.fhwa.dot.gov/civilrights/programs/doj_fhwa_ta.cfm.*

- If you are a public agency, let your leaders and legislators know what this will do to your ability to maintain roads
- Explain that microsurfacing, cape seals, thin and ultra-thin asphalt overlays and in place recycling have always been considered maintenance treatments
- How much will this increase your cost of maintaining your roads? If this means you will have to defer preservation treatments, what will this mean to the condition of your road network?
- How will it change how you will contract out work?
- What is the short and long term impact on road safety?

If the answer is that the TA will impact your ability to maintain roads, you need to contact your state and federal policy makers. You also need to let your associations (NACE, MSA, APWA, League of Cities, and the like) know about these impacts. If you are in industry (contactor, material provider, and more), you need to do the same. The only chance of getting this changed will be if policy makers in Washington DC understand the full impact of this interpretation is. Please let them know.

In addition, the California Chip Seal Association will be working with FP^2 Inc. to do a survey of agencies and the impacts of this TA. If you would like to participate in that survey, please send your email address to FP^2 Inc. (see below) and he will add your agency/name to the list and you can help us develop data for the FP^2 Inc. to use in further discussions on this issue.

For more information on this TA and how you can help, please contact Jim Moulthrop at 512-970-8865 or at *jimmoulthrop@gmail.com*. Jim is the Executive Director of FP^2 Inc. and is leading the industry effort on this topic.

MTC is Launching "StreetSaver Plus" By Sui Tan, PE, MTC

For most local agencies, tracking and maintaining non-pavement assets, such as signs, traffic signals, ADA ramps, sidewalk, curb and gutter, streetlights, culverts, storm drains, and other roadway assets, that are essentially within their local jurisdiction's right of way, are daunting tasks. At best, some agencies have inventories of a few such assets, but they are not complete and current.

The Metropolitan Transportation Commission (MTC) faces the same problem when it comes to assessing the non-pavement maintenance needs of local streets and roads for the regional transportation plan in the San Francisco Bay Area region. Because of lack of inventory and information on physical condition, MTC has relied on a model to estimate the need. The model is based on a regression formula that could predict the total regional non-pavement replacement costs by the inventory of curb and gutter and streetlights in the region. These costs are then divided by the average useful life for each of the major non-pavement asset groups to estimate the annual maintenance cost.

Compared to the pavement maintenance needs, non-pavement needs are simply an estimation. They don't have credible data and systematic ways to assess needs, like what is done for pavements. This is because all 109 cities and counties in the Bay Area use StreetSaver®, the popular pavement management software developed by MTC, to analyze the maintenance needs. The passage of the Moving Ahead for Progress in the 21st Century Act (MAP-21) set a new direction for accountability through performance metrics. The legislation establishes an outcome-driven approach that tracks performance and will hold states and metropolitan planning

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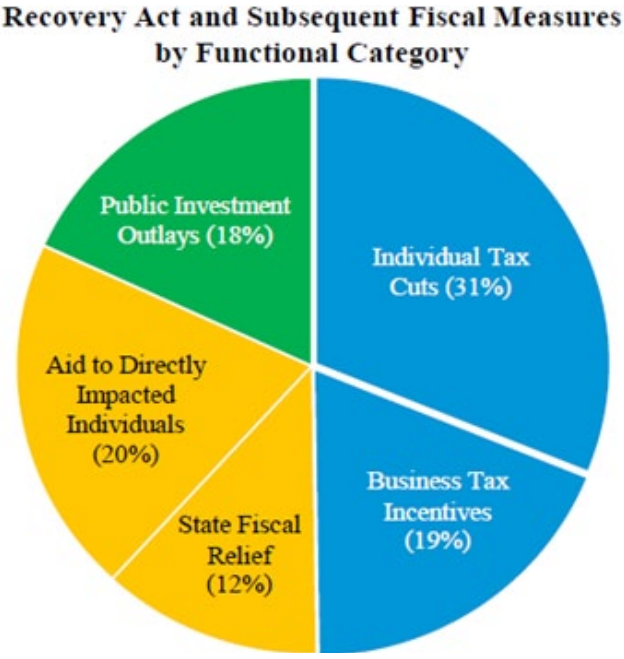
organizations (MPOs) like MTC accountable for improving the conditions and performance of their transportation assets.

This has led to the birth to "StreetSaver Plus", the new asset management software developed by MTC to provide a strategic approach to managing non-pavement assets. A soft launch will be available in late March for limited agencies. StreetSaver Plus will be officially available by July 1st. This multi-year project will have a first phase, which includes a needs assessment based on actual inventory and useful life for signs, traffic signals, curb ramps and sidewalks. Future phases will include other roadway assets, a condition-based assessment, and a trade-off analysis for transportation assets investment.

For more information, please contact Sui Tan, *stan@mtc.ca.gov*, (510)400-8428.

FHWA Update By Steve Healow, FHWA - Sacramento

Section 1304 of MAP-21 is entitled 'Innovative Project Delivery Methods' wherein Congress declared it is in the national interest to "…promote the use of innovative technology and practices that increase the efficiency of construction, raise performance standards, reduce work zone congestion and extend service life of highways…" As an added incentive Congress empowered state DOTs to increase the federal share of a federal-aid highway projects by 5% if the projects include innovative strategies like in-place recycling, intelligent compaction, design-build, and/or include contract incentives for early completion. See the complete list and additional details at: *http://www.fhwa.dot.gov/publications/publicroads/13marapr/01.cfm.*



February 15, 2014, was the five-year anniversary of the American Recovery and Reinvestment Act (ARRA). On that date the Council of Economic Advisers sent their final progress report to congress. The 70-page report is available at *www.whitehouse.gov*. You may recall the purpose of ARRA was to trigger economic activity and create new jobs while increasing accountability and transparency in federal spending.

ARRA nation-wide transportation spending included $28.5 billion invested in highway infrastructure, including 13,000+ state and local projects, thus improving 42,000 miles of roads and 2,700 bridges. In California ARRA transportation spending amounted to $2.9 billion on 1,400 projects on highways, bridges, local streets, rail and ports.

Do you Veda? "Veda" is the free software package which enables the user to download, view, edit and analyze intelligent compaction (I.C.) data, including surface temperature, GPS and stiffness. The users can validate their roller patterns, find soft spots and closely monitor the compaction process. I.C. is a quality control technique for compacting embankment subgrade soils, aggregate base, and asphalt pavement materials. The purpose

Intelligent Compactor

Continued, next page

of I.C. is to improve density and depth of compaction and improved productivity while providing a continuous record of roller patterns, stiffness values and identifying non-compactable areas. On February 11 in Sacramento and February 13 in Irwindale, the author of Veda, Dr. George Chang, presented workshops to approximately forty participants on the finer points of downloading, viewing, editing and analyzing I.C. data. The workshop included hands-on exercises with data from twelve I.C. pilot projects. If you missed these two opportunities do not despair. Check for future training opportunities at *www.intelligentcompaction.com*.

FP² Inc. Update By James S. Moulthrop, P.E., Executive Director, FP² Inc.

FP² Inc. is a national non-profit trade association organized under the Internal Revenue Code Section 501(c)6, and is supported by the pavement preservation industry, contractors, material suppliers, and equipment manufacturers.

Formerly known as the Foundation for Pavement Preservation, FP² Inc. supports the adoption of pavement preservation at all levels of government, and works to ensure that pavement preservation becomes a part of road programs from coast-to-coast. It also supports valuable research in pavement preservation, and works in close cooperation with the Federal Highway Administration (FHWA), the National Center for Pavement Preservation (NCPP), and regional pavement preservation partnerships and state-based pavement preservation centers.

Rod Birdsall, P.E. is the New President of FP² Inc.

As of February 5, 2014, Rod Birdsall, P.E., is the new president of FP² Inc. for a two-year term. He succeeds Mike Buckingham, principal of Buckingham Consulting, LLC. Birdsall is a consultant to All States Materials Group, Sunderland, Mass., and graduated from Purdue University with a degree in Civil Engineering.

The New Hampshire Department of Transportation has been honored by FP², Inc. with the 2013 James B. Sorenson Award for Excellence in Pavement Preservation. The award was presented to NHDOT Commissioner Chris Clement during at the Midwestern Pavement Preservation Partnership meeting in Indianapolis Nov. 11-12, 2013. Intended to recognize agency pavement preservation, the Sorenson Award is usually, but not always, presented to city and county agencies. New Hampshire joins California and Tennessee as the only state DOT winners.

From left: Chris Clement, NH DOT Commissioner; Jim Moulthrop, FP²; and Eric Thibodeau, chief, pavement management for NH DOT

> "The future for state DOTs lies in maintaining and preserving their existing transportation infrastructure and networks," Clement said at the Nov. 12 ceremony in Indianapolis. "Pavements are the largest asset value in some states. That's why it makes sound financial sense to properly maintain and preserve that asset to maximize its useful life."

Plan now to submit your nominee for the 2014 James B. Sorenson Award for Excellence in Pavement Preservation, sponsored by FP² Inc. Deadline for the 2014 award entries is July 1, 2014.

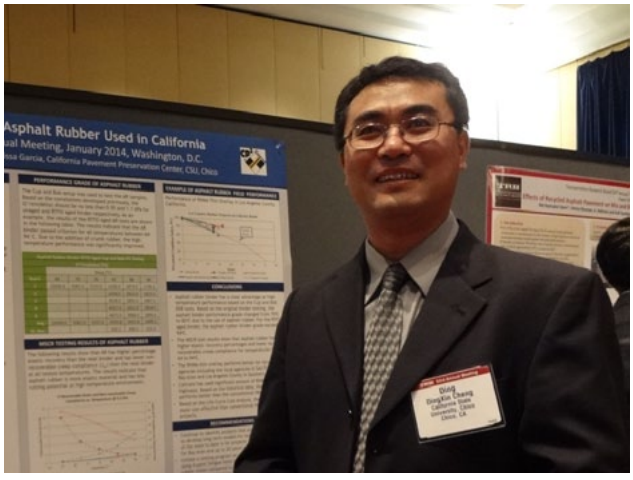
For more information, or to submit nominations, please contact FP²'s executive director, Jim Moulthrop, at *jimmoulthrop@gmail.com* or (512) 970-8865.

93rd Transportation Research Board (TRB) Meeting Held in Washington DC By Ding Cheng, CP2 Center

The 93rd TRB Annual Meeting was held in Washington, D.C. on January 12-16, 2014. The information-packed program attracted nearly 12,000 transportation professionals from around the world. The meeting program covered all transportation modes, with more than 4,500 presentations in nearly 800 sessions and workshops addressing topics of interest to all attendees – mostly policy makers, administrators, practitioners, researchers, and representatives of government, industry, and academic institutions.

The spotlight theme for the 2014 TRB Annual Meeting was Celebrating Our Legacy, Anticipating Our Future. More than 30 sessions and workshops focused on this theme, which reflects the last year of the Annual Meeting at the Connecticut Avenue hotels, where it has been held for nearly 60 years.

Taking the excellent opportunity to promote effective pavement preservation technologies, as well as the CP2 Center, Dr. Ding Cheng attended the conference and presented two papers with co-authors: "Evaluating the Performance of Asphalt Rubber Used in California" and "Emerging Tools for Use in Pavement Preservation Treatment Selection".



Dr. Ding Cheng Presenting a Paper at the 2014 TRB Meeting

Upcoming AHD18 Committee Chair Judith Corley-Lay with Dr. Roger Smith

Dr. Cheng attended multiple committee meetings such as the Pavement Preservation Committee, Pavement Maintenance Committee, Pavement Management Committee, and Asphalt Materials Committee.

At the AHD18 - Pavement Preservation Committee meeting, Dr. Roger Smith was congratulated by the TRB for his excellent three year service as the committee chair.

The new AHD18 committee chair will be Judith Corley-lay with the North Carolina DOT. As the chair of the Activity Subcommittee of the AHD 18, Dr. Cheng presented potential webinars and call for papers for the committee. He also presented an overview of the recent pavement preservation activities of the CP2 Center for Caltrans.

The 2015 TRB meeting will be held at the Walter E. Washington Convention Center of the Washington D.C. The 93rd TRB Compendium of Papers and presentations are available online at: *http://amonline.trb.org.*

Mark Your Calendar (Coming Events)

CEAC Spring Conference, March 26-28, 2014 (Sacramento)

The County Engineers Association of California (CEAC) Conference will include a session titled: "Pavement Strategies - Good for the Environment, Good for your Bottom Line!" Learn how putting pavement preservation, recycling, and pavement materials reuse practices in-place will reduce GHG emissions at less cost than conventional pavement practices as well as continue to support the Global Warming Solutions Act of 2006. For more information visit: *www.ceaccounties.org.*

CalAPA Spring Asphalt Conference & Equipment Show, April 9-10, (Ontario)

Hear from top policy-makers and respected experts from across the country on topics that will directly impact your business or your agency now and in the future.

Topics will include: best practices in Hot Mix Asphalt design; specifications; testing; paving; future trends; research projects. As well as in-depth presentations about asphalt binders, rubber pavements, "intelligent compaction" paving technology, interlayers, pavement preservation and "Superpave." Updates on legislation and funding for road construction and maintenance will also be included. For more information go to: *www.calapa.net.*

CalAPA Technical Meetings & Training, (various dates and locations in CA)

Regional Technical Meetings and Training Days are planned at various locations around California. These events are open to all public agencies. For more information visit the CalAPA website: *www.calapa.net.*

CalRecycle Conference, April 23-24,2014 (Sacramento)

This conference will be hosted by the California Department of Resources Recovery and Recycling (CalRecycle) on April 23-24, 2014 in Sacramento. Topics will include an update on California's scrap tire markets and waste tire law enforcement; CalRecycle's grant programs for the in-state use of tire-derived products including rubberized asphalt and tire-derived aggregate; developing new tire-derived products; and an update on synthetic turf. For more information go to: *http://www.rubbernews.com/article/20140110/NEWS/140109960/calrecycle-schedules-scrap-tire-conference-april-23-24*

International Society for Asphalt Pavements (ISAP), June 1-5, (Raleigh, NC)

The ISAP Conference meets every four years, and the 12th ISAP Conference on Asphalt Pavements will be held in Raleigh, North Carolina. The 2014 Conference will address the critical issues in the four major areas of asphalt pavement engineering, i.e., design, materials, construction, and preservation. Dr. Ding Cheng of our CP^2 Center will be presenters at the Conference and Gary Hicks will be a keynote speaker. For more information go to *http://asphalt.org/*.

Maintenance Superintendents Association (MSA) Training Conference & Equipment Show, October 1-2, Sacramento

Numerous training session, including several on paving and pavement preservation will be included in this year's big 46 annual event. In addition, sessions on supervision, playground safety, equipment, parks and trees will also be featured. For more information and the various MSA chapter meetings around California go to: *http://mainsupt.com/conference/conference.html*.

Caltrans established the California Pavement Preservation (CP^2 Center) CSU, Chico in July 2006, and fully funded the Center in January 2007. Dr. DingXin Cheng is the current Director of the Center.

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.

The Center works closely with the Pavement Preservation Task Group (PPTG), a statewide volunteer group consisting of members from Caltrans, Federal Highway Administration (FHWA), industry, various public agencies and academia to help promote cost-effective pavement preservation.

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