Pavement Preservation Emulsion Task Force
December 15, 2008
Lexington, Kentucky
Asphalt Institute – Library Room

Meeting Minutes

Call to Order - Roger Hayner, Co-Chair Emulsion Task Force

Co-Chair Roger Hayner called the meeting to order and introduced Peter Grass, President of the Asphalt Institute. Mr. Grass welcomed the group to the Asphalt Institute and gave a brief description of the organization. Currently 17 people work in the Lexington headquarters. A breakfast and lunch was arranged by Debbie Risselman of APT and the Asphalt Institute for the meeting participants. Mr. Grass informed the attendees about the pending inclement weather approaching the area.

Roger Hayner thanked Mr. Grass for hosting the meeting and for the forward thinking and support of pavement preservation being a vital approach to extending the life of asphalt pavements.

Vision of the Project Blueprint for Specification Development & Implementation Process - Colin Franco, Co-Chair Emulsion Task Force

Co-Chair Colin Franco began a discussion of ways to make the task force effort more encompassing. He referred to the "Performance Test" spreadsheet that outlines the uses and performance expectations for asphalt emulsions.

1. Emulsion Applications
2. Asphalt Emulsion Grades
3. Manufacturing of Liquid Bitumen Emulsion
4. Design/Preconstruction Engineering
5. Construction
6. In-Service Performance Requirements Function and Durability

The initial consideration is usually, "how is it going to perform?" The spreadsheet should serve as a catalyst to consider the current process gaps. Most importantly is to consider areas #5 – Construction and #6 – In-Service Performance Requirements, as a basis to develop protocols for performance testing. He noted that "Prime Coat" should be added to the spreadsheet in the application/uses section.

Agencies often face issues affecting performance such as wash boarding, debonding, compatibility, etc. Improved performance tests are necessary to simulate conditions encountered in the field. Most state agencies are encouraged to move toward Quality Assurance (QA).

Quality Assurance encompasses planned and systematic actions which are necessary to provide confidence that a product will perform acceptably. All require that a high degree of detail and accuracy be fully implemented at every step.

Quality Control (sometimes called process control) involves those actions and considerations necessary to assess and adjust production and construction processes, to control the quality of the end product.

Acceptance is the sampling and testing, or inspection, to determine the degree of compliance with contract requirements.

Independent Assurance is a management tool that requires a third party, not directly responsible for process control or acceptance, to provide an independent assessment of the product and/or the reliability of test results obtained from process control and acceptance testing.

Verification is the process of determining or testing the truth or accuracy of test results by examining the data and/or providing objective evidence.

Colin stated that there are three elements of quality control that will likely be mandated within the next few years. These include: 1) type of test; 2) frequency of test; and, 3) testing procedure.

Product Evaluation Tests are performed by the AASHTO National Transportation Product Evaluation Program (NTPEP) which was established in 1994. The NTPEP was founded through the Regional Testing Facilities (RTFs) which were organized by FHWA, SASHTO and NASTO. It was chartered through AASHTO. The NTPEP mission is to prequalify transportation products with reduced duplication of efforts by State DOTs and Industry participants.

Research testing is to provide performance-based models and tools that meet current needs of highway stakeholders. Most research testing is conducted by university and industry-based R&D groups.

The meeting participants offered the following comments about quality assurance.
Colin Franco - A third party should be conducting a full blown slate of tests, rather than the agency performing all tests. This is a level of assurance by the contractor and agency to know the materials are selected through a controlled process. Consider having a test for the "retention of stone" that best depicts field conditions.
Chris Abadie – Consider warranty as a possible answer to in-service performance requirements.
Gayle King - The test developed by Richard Kim, North Carolina State University, which is a third-scale Model Mobile Load Simulator (MMLS3), could eliminate a series of tests to meet performance requirements. The third-scale MMLS3 is a variation of a sweep test. Gayle suggested the need for a third party testing/certification program similar to Underwriters Lab (UL) approval for emulsion suppliers.
Kevin VanFrank – Although the liquid asphalt may be certified, it may not be compatible with the different types of aggregates.
Roger Hayner – A new procedure will require that the asphalt emulsion be tested with the stone for compatibility in a mix design approval/qualification process either by the contractor using the aggregate and emulsion, or by the contractor's emulsion supplier to qualify a liquid with the

available aggregate. (The supplier may also qualify his emulsions with several known stone sources so that they could be recommended to the contractors.) An AMRL/AASHTO approved/accredited laboratory will have the equipment and personnel that can provide certification testing of the emulsions and mix testing, a process that is already approved and in place for PG binders. AMRL has standards in place and can be readily adopted for emulsions and many labs are already accredited. An independent, third party certification lab "UL" type approval program is not warranted. Why create another level of bureaucracy and expense when suppliers should be qualified and AMRL participants anyway?
Jim Sorenson – The Regional Pavement Preservation Partnerships should be brought into the process and agree on the proposed framework for third party testing.
Colin Franco – The University Transportation Centers (UTCs), which receive approximately $75M/year, should have the funding for third party testing.
Bob Kluttz – The Superpave Centers and UTCs are not reliable and should not be considered. A separate group is needed to provide third party testing services.

Subcommittee Reviews

Emulsion Testing & Residue Recovery Methods - Arlis Kadrmas, Sem Materials LP

Most residue recovery methods are performed at temperatures that are well above those that the product is exposed to in the field. With the use of polymer-modified or latex additions to emulsions, there is an even greater concern to recover the appropriate material as applied. Evaporative techniques on thin films at 25 ºC (77ºF) and 60ºC (140ºF) have produced encouraging results.

ASTM's approval for the low temperature evaporation method is expected in 2009. This method places the emulsion into a force-draft oven for 24 hours at 25 ºC, followed by another 24 hours at 60ºC. By the time test results are achieved, the process will take approximately three days. Obviously, the task force should investigate revisions to the procedure. The proposed ASTM method is based on a European standard that uses a 12 mil film thickness, which is consistent with a chip seal. Darren Hazlett of TXDOT is currently using the 12mil film thickness in his work.

Arlis compared results of distillation and evaporative recovery techniques using the Dynamic Shear Rheometer (DSR) and Multiple Stress Creep and Recovery (MSCR) test. The comparison tests showed that the evaporation method always gave higher values, thus giving better field comparison. Multiple Refiners were tested. (These tests were done on base asphalts, unmodified.) The MSCR test procedure is being promoted by John D'Angelo, FHWA and AASHTO to replace elastic recovery (ASTM D6084). The values generated for heavy traffic conditions appear to have J_{nr} (non-compliance recovery) too high. (Note: J_{nr} the non-recoverable compliance (kPa) of the binder describes the stress dependency of the binder – the smaller the better). Federal Lands Study is evaluating up to 10,000 Pa and there was some comment that this was too high, because the DSR spun samples.

Arlis expressed concern about getting all the water out of the residue for the MSCR test. Chris Lubbers from BASF commented that their testing established data regarding moisture removal.

They found after 24hrs at 25°C, approximately 95% of all moisture is out, with the balance removed after 24 hours at 60°C.

The general findings of the evaporative recovery technique are as follows:

- Higher DSR values result
- PAV pans are too deep to utilize the evaporation techniques. The use of 50 g samples hampered getting moisture out of the sample due to thickness of film. They are evaluating 25g samples.
- Utilize evaporative residue DSR testing to replace traditional testing
- Questions on performance will eventually need to be addressed.

There is a need to start evaluating the obtained residues and performance tests. Questions were raised regarding performance changes and it was suggested that tests should relate to the method of failure. For example, is there a relationship of MSCR to chip seals or is performance better defined using an adhesive industry type test looking at bonding and bond strength for adhesion and stone retention?

One such performance measure discussed was the Loaded Wheel Test used in micro-surfacing and slurry. However, this test was found to result in greater lateral displacement with latex modified asphalt than with softer base stock asphalt.

Chip Seal Evaluation - Scott Shuler, Colorado State University

Scott is the principal investigator on the NCHRP 14-17 project, Manual for Emulsion-Based Chip Seals for Pavement Preservation for Maintenance Personnel. The objective of the project is to develop a user's manual that incorporates all best chip seal practices and replaces qualitative practices with quantitative. Because this project is not concluded, Scott is restricted in disclosing many details. Field trials were conducted at Arches National Park and Fredrick, Colorado. Their research to date found significant performance-related results. Goals of their study are to define methods for the manual which would include:

- "Time to Traffic Determinations", how to make them?
- "Pavement Texture", how it effects shot rates?
- "What is correct Stone Embedment Depth?"
- "Emulsion Behavior and Performance", what to watch for on jobsite?

They reviewed the Sand Patch Test and its correlation to texture. In New Zealand it was found not to be a good field test and was risky. They determined a faster test was needed.

The sweep test (ASTM D7000) was reviewed as a method of predicting the strength of chip seals. After initial trials it was concluded that the sweep test gives a relative ranking between emulsions, but cannot be used to compare multiple aggregate, emulsion, and the various other factors to predict chip seal field strength. Scott discussed a matrix of assorted test results which reviewed the effects of moisture, which was highly significant when evaluating dry, saturated, and SSD aggregate. He also looked at the effects of cure, cure times, moisture with cure times with various aggregate types. All stone was embedded at 40% for the evaluation. One specific test related emulsion behavior to field viscosity. This test utilized a paint cup with a calibrated orifice in the bottom. A correlation was made between the time to empty the paint cup and

Saybolt Furol viscosity seconds. The paint cup type viscosity could become an easy test for field acceptance.

An easy field method to measure asphalt residue properties is the stirred can test. Throughout the day moisture is a major concern for determining accurate asphalt residue. The stirred can test is a quick and simple method as opposed to a force-draft oven. The stirred can method takes approximately 5 hours, as compared to the force-draft oven, which has a completion time over 48 hours. Mr. Shuler's Progress Report will include residue properties for all 5 emulsions, evaluated by stirred can, evaporation, and distillation methods.

The consensus is that practical tests are needed now.

Performance Tests for Emulsion Residues - Gayle King, GHK Inc

The FHWA Polymer Emulsion Project is nearing completion and the final report was submitted last week. Further work is recommended to collect field data from future projects. Some project objectives were to look at a:

- High Temperature Spec
- Low Temperature Spec
- Polymers, Gelling with HFRS
- Aging Procedure
- No Reheating of Samples

High Temperature- Looking to utilize DSR under AASHTO Test Method for MSCR with Frequency Sweep and reporting Creep Compliance. Currently multiple strain rates beyond the 100 and 3200Pa are being evaluated.

Low Temperature Grading- Looking to eliminate the BBR by utilizing the DSR. The BBR has excessively large variation in results and requires too much sample. The University of Wisconsin work is looking at Frequency Sweep Modeling to extrapolate a low temperature modulus. The Western Research Institute (WRI) is also looking at using 4mm plates with the DSR at T_L.

Polymer Identification- Looking to use MSCR to eliminate the Toughness & Tenacity and Force Ratio, Elastic Recovery, and all other old test methods. Currently it is written for Jnr and Rutting Resistance. A re-write or new method is needed for ASTM that provides recovery replacement w/specs.

High Float Characterization (Gel) - John Casola with Malvern has agreed to run tests using DSR to classify non-linearity of the gel structure. A new method is looking at harmonics.

Raveling- Objective is to characterize chip seal stone loss. Hussein Bahia at University of Wisconsin is looking at determining the loss in modulus as applied strain increases. He is performing DSR Strain Sweep before and after aging.

Program Plan:

Create a "report only" Experimental Field Testing Program under the current FHWA polymer emulsion study. The goal is to evaluate new test procedures and define some performance limits. There is a need to get AASHTO involved.

Chip Seals: Approximately 1,140,000 sq. yd. fogged using CRS-2LM (Latex SBR).

Next Steps-

1.) Get key materials people to attend the Regional Pavement Preservation Partnership Meetings and other meetings included under step 3.
2.) Provide information to User Producer Groups
3.) Make presentations at –
    a. UPG / PPP Meetings
    b. AEMA / ARRA /ISSA
    c. ASTM / TRB / International Pavement Preservation Conference

Residue recovery can be classified into three distinctly different methods:

- Force-Draft Oven
- Stirred Can (being reviewed by NCHRP 14-17)
- Moisture Analyzer (ASTM D7404)

There is an immediate need for several lead states to begin field testing asphalt emulsions.

Lunch Break

Approved Supplier Certification - Roger Hayner, Colas Inc.

Roger discussed the current established asphalt binder certification programs, including AASHTO R26 Guidelines, Kentucky KM 64-445-05, and the Combined State Binder Group (including Iowa, Minnesota, Nebraska, North Dakota, South Dakota and Wisconsin). Each certification process AMRL (AASHTO Materials Reference Library), WCTG (Western Cooperative Test Group), and individual states have similarities but different methods. The goal of an asphalt emulsion certification program is to develop a consistent format that all agencies will follow.

Asphalt emulsion certification program should have proof that a certified lab is running proficiency samples and certification testing histories. It should also have annual inspections by the agencies and the routine inspections by AMRL with miscellaneous spot sampling from the production site. Certification approvals should remain in effect until denied by the jurisdictional authority.

A draft certification plan was developed and circulated by Roger for comments, but no response has been received. The draft plan was built and modified from the AASHTO R26 Guidelines. It is very important to have a universal certification document ready to implement, when the needs arise.

Kevin VanFrank, UDOT, added to subcommittee on Approved Supplier Certification (ASC) development for emulsions.

FHWA Polymerized Emulsion Study Strawman Specification Testing - Laurand Lewandowski, PRI Asphalt Technologies

Laurand Lewandowski reported that PRI Asphalt Technologies had received 4 emulsions and 3 aggregate samples for testing. These include CRS-2P (SBR) and PASS emulsions. The results appear to correlate well, except for the sweep test. The aggregate held by the PASS emulsion was almost completely lost during the sweep tests. Samples of Ralumac® micro-surfacing emulsion material are sent to Sem Materials and BASF. The residues from both the PAV and evaporative processes were sent to the Western Research Institute (WRI).

The run tests include a field viscosity test (WyDOT 538.0), the DSR and MSCR using both evaporative residues and PAV residues, and a sweep test (ASTM D7000). The tests were run at three different temperatures (58ºC, 64ºC, 70ºC) for both the evaporative and PAV residues. The plate was 25 mm, however the PAV residue was originally run on an 8 mm plate, but later determined not effective. The strain was set at 12%, and a full frequency sweep (0.1 Rad/sec to 100 Rad/sec) was run. A complete table of test data will be developed, which is the first step to establish a baseline. The next step is to review the baseline rheological data and select the parameters that work. Finally, this information can be used to determine the optimal polymer content in the asphalt emulsion.

Roger Hayner commented that the Pavement Preservation Research Roadmap is a good starting point to add detail and flush out further research needs. The group should put together a subcommittee for developing Research Needs Statements which can be put forth to the Agencies for consideration and funding to address many of these areas where additional work is needed. Future tests must be specific for various applications, such as fog seals, chip seals, etc and directly relate to performance of those systems. We must be careful not to add new tests for the sake of adding tests without some relationship to performance. For example, are we missing something by trying to utilize MSCR for chip seals? Is there an adhesive industry test that may be more applicable and relative to the bonding power of the liquid to hold stone to the pavement surface?

FHWA Polymerized Emulsion Study Interlab Sweep Test Data – Chris Lubbers, BASF

The sweep tests (ASTM D7000) were run by three laboratories; PRI, Paragon, and BASF. All conditions in the laboratories were the same, which were to run with dry aggregate for 2 hours at 35ºC. Chris presented the sweep test data sets of the CRS-2P placed at Arches National Park and compared percentage of mass loss: 13.1% (PRI), 16.5% (Paragon), and 11.1% (BASF). The results between the laboratories represent fairly high repeatability.

FHWA Pooled Fund Study on Micro-Surfacing – Jim Sorenson, FHWA

The pooled fund micro-surfacing contract was awarded to Fugro of Austin, Texas on July 1, 2003. The objective of the study was to develop a comprehensive mix design and analysis

procedures, including better test methods to predict performance. Due to higher priority work, testing was delayed. A one year contract extension was approved until November 30, 2008.

The project was funded by 15 state DOTs, including California, Delaware, Georgia, Illinois, Kansas, Maine, Michigan, Minnesota, Missouri, North Dakota, Nebraska, New Hampshire, New York, Texas, and Vermont. The International Slurry Surfacing Association (ISSA) also contributed to funding the project. The project is being managed by Caltrans, Division of Research and Innovation. Jim Moulthrop of Fugro, has indicated that the funding for the project has been cancelled and they are in the process of wrapping up and issuing final reports.

The project reference is SPR-3 (073) – Micro-surfacing Mix Design Procedure, and can be viewed at: http://www.pooledfund.org/browse.asp?action=study_number&view or the Caltrans website at:
http://www.dot.ca.gov/research/maintenance/slurry_micro-surface/slurry_micro-surface.htm

Emulsion Technology Course, Joe Gregory, FHWA

A new course will be developed on Emulsion Technology. The objective is to present material sciences and chemistry of emulsion, and how it applies to pavement preservation. The project development will have two phases: Phase 1, which will organize a detailed course outline with completion March 2009; and Phase 2, involves preparing a course with 60 hours of combined classroom and web-based training with a limited amount of laboratory work.

The Emulsion Task Force recommended a panel be assembled to review the course material.

Improvement of Emulsion Characterization - Andrew Hanz, Asphalt Research Consortium, University of Wisconsin Madison

Year 1: Project work began by reviewing the different types of distress, and recommending specific distresses that required an associated test. Next, a more scientific characterization system was developed for emulsified asphalts taking into consideration the type of application. After the characterization system was formulated, development began on specific application tests. The following tasks relate the sequence of work for the project:

Task 1: Review of National and International Standards.
(for asphalt emulsions, aggregates, and performance evaluation of cold applications)
Task 2: Create an International Advisory Group
(including suppliers, users, and researchers)
Task 3: Identify Potential Performance Related Tests (application based)
Task 4: Establish a Materials Reference Library (for cold asphalt applications)
Task 5: Conduct Laboratory Evaluation Plan (developed in Task 3)
Task 6: Develop Performance Guidelines
(for emulsion and aggregates that are application specific)
Task 7: Field Validation of Guidelines and Criteria
Task 8: Cold Mix Asphalt Design
Task 9: Develop Cold Mix Asphalt (CMA) Guidelines

The duration of the research project is three years.

The next Advisory Group meeting will be held during TRB. The sweep test seems to be the test of choice, but the group is also looking at the modified Patti Tests for adhesion of emulsion. They are reviewing the following:

1. Construction Properties including
    a. Viscosity
    b. Breaking and Setting
    c. Spray ability and Drying
    d. Wetting of Aggregates
2. In Service Properties
    a. Resistance to Bleeding
    b. Raveling
    c. Fatigue Resistance
    d. Thermal Cracking

Year 2: Research focused on Construction properties, in particular the setting and adhesion properties through an evaluation of and development of bond strength over time. The Patti Test was utilized for evaluating bond strength through a modification developed by Jack Youtcheff. Testing issues included control of the loading rate and the stub geometry and sensitivity of curing time. Samples were evaluated with slabs of particular aggregates from quarry with 20mm spot of emulsion. A criterion was the pull-off tensile strength.

Setting behavior was evaluated using the DSR. Kucharek evaluated the results looking at curing vs. strain sweep. He observed a strain relationship to cohesion and adhesive failures. He further evaluated limestone versus granite and G* versus time in hours. The limestone was much greater initially, but after 6 hours cure time the samples were essentially the same.

Their test methods for adhesion and setting involved looking at 6, 24, and 30 hours with strain sweeps of 1-50% at 25°C. The MSCR was used at high PG grading. Stress levels were 100 and 3200 Pa. The goal was to correlate with QC tests and compare results with sweep tests. They evaluated rapid set emulsions, both anionic and cationic, with non-modified, SBR Latex modified and SBS polymer modified, over limestone and granite. Environmental conditions evaluated at 20-40%, 50%, and 95% relative humidity.

Year 3: The plan will look at the setting rate on adhesion, Brookfield RV viscosity and breaking, residue properties (under the FHWA Polymer Emulsion Study framework), and performance parameters using sweep testing and other tests.

Dense cold mixes will also be evaluated to identify properties and to devise a mix design procedure.

AASHTO TSP·2 Panel Activities - Colin Franco, RIDOT

Colin described the mission and benefits of the AASHTO TSP•2. The program began in May 2006, as the AASHTO Transportation System Preservation Technical Services Program (TSP•2). It has provided pavement practitioners from State DOTs, local roadway agencies, and private industry with numerous tangible value-added services. Among the benefits offered by the TSP•2 are the creation of regional preservation partnerships, the provision of timely pavement

preservation technical assistance via the Help Desk, an aggressive technical exchange program, and 24/7 on-line access to relevant news items, technical documents, and information exchange through the program website.

The program direction is the responsibility of the TSP•2 Oversight Panel. The oversight panel is comprised of representatives from the AASHTO Subcommittees on Maintenance, Materials, Asset Management, Structures, Design-Joint Technical Pavement Group, and the four AASHTO regions to provide direction for the program. The program will soon incorporate a Bridge Preservation component into a program website, region partnerships, and Help Desk similar to the Pavement Program.

FHWA Field Guide on Use of Polymers in Emulsions – Larry Galehouse, NCPP

The Federal Highway Administration (FHWA) initiated this study through the National Center for Pavement Preservation, to provide a guide for the use of polymer modified asphalt emulsions in surface treatment applications - specifically chip seals, slurry system seals and cape seals. Although FHWA has much experience with best practices using conventional asphalt emulsions, there was no definitive guide for selecting, specifying and using polymer modified asphalt emulsions. Based on the experience of many users and producers of polymer emulsions over the last 25 years, it was generally accepted that polymer modification resulted in better short- and long-term performance, and ultimately result in cost savings over the life of the pavements treated.

During the course of the study, it became evident that the industry felt a need for updated test methods, specifications and recommendations that are better predictors of performance. Draft specifications were developed based on the best available information from experts on both asphalt emulsions and the performance-based test methods for Superpave hot mix asphalt developed by the Strategic Highway Research Program (SHRP).

The study report is nearing final draft form with completion expected in March 2009. Additional work will be necessary to incorporate new test results of asphalt emulsions using SBS polymers, which is expected sometime next summer.

Spray Applied Polymer Surface Seals Study – Gayle King, GHK Inc

Gayle briefly discussed the joint FHWA and FP^2 study for spray applied polymer surface seals. The study was initiated to determine the effectiveness of seals and evaluate the effects and possible mitigation efforts on safety. The project had four main tasks:

- collecting existing subject information
- placing several experimental sections within different climates, traffic levels and surface characteristics
- evaluating field and laboratory test methods and data collected from the experimental sections
- disseminating the lessons learned

Early into the study, it became evident there are two different types of spray applied products: sealers that add new asphalt to seal the surface, and rejuvenators that soften age-hardened asphalt, in an effort to restore desired mixture mechanical properties in the upper d to 2 inch of

the pavement surface. Numerous emulsion products were used in the study for spray applied sealer and rejuvenation applications. The final report is available for review and downloads at: http://www.pavementpreservation.org/

International Pavement Preservation Conference – Jim Sorenson, FHWA

The First International Conference on Pavement Preservation will be held in Newport Beach, California on April 12-16, 2010. It aims to bring researcher and experts working in the field of pavement preservation together to exchange ideas and discuss critical issues and concerns. It is organized by the California Department of Transportation, Federal Highway Administration, and the Foundation for Pavement Preservation.

The theme of the conference is pavement preservation and sustainability. It will address an array of issues relevant to the pavement preservation community. Papers and presentations are invited on the following topic areas.

- Economic and environmental benefits of pavement preservation
- Integrating pavement preservation into pavement management
- Design, materials, constructability and performance of flexible and rigid pavement treatments
- Strategy selection
- Funding pavement preservation programs
- Bringing the preservation message to the public and elected leaders

Abstracts are being accepted until February 1, 2009.

Review of Ongoing Research and NCHRP- Colin Franco, RIDOT

The Transportation Research Board's Research in Progress (RiP) website contains over 11,600 current or recently completed transportation research projects funded by FHWA and State DOTs. There is some university transportation research included. The RiP website is: http://rip.trb.org/

Colin briefly discussed the National Cooperative Highway Research Program **(**NCHRP) and the need to coordinate proposed research projects with the AASHTO RAC and SCOR. The Research Advisory Committee (RAC) rates each year's research problem statements for NCHRP and provides the results to SCOR for its annual selection procedure. The Subcommittee on Research (SCOR) represents AASHTO's interests in all research activities. They screen the research proposals, prioritize them, and then recommend the annual NCHRP program for consideration by AASHTO's Board of Directors. Members of the SCOR are:

Region 1 (NASHTO)

Colin Franco	*Rhode Island DOT*
Neil Pederson	*Maryland SHA*
Glenn Roberts	*New Hampshire DOT*
Robert Sack	*New York State DOT*

Region 2 (SASHTO)

Gary Allen	*Virginia DOT*

Calvin Leggett	*North Carolina DOT*
Richard Long	*Florida DOT*
Vacancy	

Region 3 (Mississippi Valley)

Kevin Chesnik	*Wisconsin DOT*
Eric Harm	*Illinois DOT*
Kevin Keith	*Missouri DOT*
Richard McReynolds	*Kansas DOT*

Region 4 (WASHTO)

Rick Collins	*Texas DOT*
David Huft	*South Dakota DOT*
Randell Iwasaki	*California DOT*
Floyd Roehrich	*Arizona DOT*

Colin provided a "rule of thumb" for research submittals, based on project duration and cost.

Project Length	Project Cost
±1 year	< $100 K
± 2 years	$200K to $300K
± 3 years +	$400K to $500K

Next Meeting

Scheduling of the next meeting was discussed by the task force members. Consensus was reached on a spring meeting. A suggested location was New Orleans, to be timed with the Southeast Pavement Preservation Partnership meeting. Additional details will be forthcoming.

Wrap Up

Many task force members voiced their opinion that this meeting covered too many topic areas, and that future meetings need to focus on only a few manageable topics. Many members expressed the opinion that their time could be better spent concentrating work on one or two topics at a time. It would be helpful if additional time should be allocated for each subgroup to meet individually and then convene with the task force. This approach will be discussed at the next meeting.

The meeting adjourned at 4:30 PM.

Larry Galehouse, NCPP
Meeting Minutes Recorder

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