



Northeast Pavement Preservation Partnership

Meeting Minutes

**Crown Plaza Hotel
Enfield, Connecticut
20 - 23 October 2008**

Monday, 20 October 2008

Business Meeting

The meeting began at 1:00 p.m. with the Partnership Chairman, **Mr. Ed Denehy**, of the New York State Department of Transportation, welcoming the participants to the 2nd official meeting of the Northeast Pavement Preservation Partnership (NEPPP). **Mr. Denehy** thanked the speakers and attendees (Attachment A) for their participation.

Welcome

Mr. Brad Keazer, Division Administrator, FHWA Connecticut Division Office, welcomed the group to Connecticut and expressed his best wishes for a productive meeting.

NEPPP Directors and Officers

Mr. Denehy then reviewed the Partnership's current leadership:

Directors

Rod Birdsall, All States Asphalt, Industry
Rick Stone, Cimline, Inc., Industry
Ed Block, State - Connecticut
Ed Naris¹, State - Massachusetts
Jim Chisholm, Provincial - Nova Scotia
Brian Luce, State - Maine
Greg Doyle, FHWA
Ed Denehy, State - New York

Officers

Chair - Ed Denehy
Agency Vice-Chair - Ed Block
Industry Vice-Chair - Rod Birdsall
Secretary/Treasurer - Ed Naris¹

¹ Mr. Naris had accepted another position in the Massachusetts Highway Department and was to be replaced.

Mr. Denehy announced that **Mr. Ed Naris'** position change in the Massachusetts Highway Department had created two vacancies that needed to be filled, viz., State / Provincial Director and Secretary / Treasurer.

Mr. Denehy then announced the following proposed task groups and sought comments from the attendees:

- Promotion, Marketing, Public Relations, and Success Stories
- Specifications, QC / QA, and Quality Contracting
- Treatment Performance and Cost Effectiveness
- Workforce Development, Training, Education, and Certification

Mr. Galehouse informed the group that AASHTO's Transportation System Preservation - Technical Services Program (TSP \cong 2) Oversight Panel will be asked to determine the extent of AASHTO funding that can be targeted for task group activities by the various regional partnerships.

Mr. Scott Harris, Suit-Kote Corporation, asked whether there was a liaison between the regional partnerships and AASHTO.

Mr. Galehouse responded that the TSP \cong 2's Oversight Panel, chaired by a member of AASHTO's Standing Committee on Highways (SCOH), was structured so that all the AASHTO regions are represented.

Mr. Rick Stone, Cimline Northeast, suggested building on the Partnership's present assets and expressed his perception that more people needed to become involved.

Minutes

The minutes of the first official meeting, held in December 2007 at Warwick, Rhode Island, were then approved by voice vote.

Treasurer's Report

Mr. Denehy then presented the Partnership's Treasurer's Report and mentioned that AASHTO was tracking whether individual states were current in their contributions. The failure of a state to contribute would not preclude that agency from participating in the Partnership and having its costs reimbursed.

Mr. Colin Franco, Rhode Island Department of Transportation, reminded the agency delegates that they could use State Planning and Research (SPR) funds to pay for their state's membership, but that this should be coordinated through their agency's Research Manager.

Working Groups

Mr. Denehy then announced the Task Groups and their Chairs:

Promotion, Marketing, Public Relations, and Success Stories
Chair **Mr. Rick Stone**

Specifications, QC / QA, and Quality Contracting

Chair Mr. Greg Doyle

Treatment Performance and Cost Effectiveness

Chair Mr. Rick Bennett (Replacing Mr. Ed Naris)

Workforce Development, Training, Education, and Certification

Chair Mr. Rod Birdsall.

Next Meeting - Date / Location

Mr. Denehy stated that the Connecticut area was somewhat central to the geography of the Region. The Westchester County area of New York or New Jersey would be more central geographically, but these locations would be prohibitively expensive. He mentioned that the NCPP handles the meeting logistics and arranges the travel.

The group discussed several possibilities, but repeatedly cited the problems in securing agency approval for out-of-state travel. A suggestion was made to institutionalize the date, i.e., hold the meeting at the same time each year. It would also be possible to have two meetings / year and one of the meetings could be in the spring. **Mr. Denehy** asked for Industry input. The format of previous meetings had been a half day, followed by a full day, followed by a half day. Another decision involved training. Should training be held in conjunction with the meeting, and if so, should it be before or after the meeting. The date / location of the next meeting were not resolved.

Keynote Presentation - "Pothole Politics: The Road To Pavement Preservation", William A. Robertson, Bureau of Street Services, City of Los Angeles, California.

Mr. Robertson began his presentation by stressing the importance of including the local agencies in the pavement preservation effort. He then gave some high level statistics for the City of Los Angeles and its extensive system of streets. Next, he gave a grim assessment of the system's current condition:

- Pavement Condition Index (PCI) = 62,
- Approximately 1,000 miles of failed streets,
- \$2.3 Billion Backlog (PCI 80), and
- Overall system condition is a D+.

Mr. Robertson attributed part of the reason for the poor condition of the City's street system was its failure to adopt an adequate Annual Resurfacing Program (ARP). The City's ARP remained constant at 50 miles between World War II and 1987, despite the fact that in the same period, the system grew from 2,500 to 6,500 miles of paved streets.

Mr. Robertson then described how the City planned to address the problem and made the following points:

- The City's immediate goal is to verify the condition of the system and project the eventual outcome if current funding levels are not increased.
- The City is exploring a mix of preservation treatments and has identified rubberized slurry seal as the most cost effective.

- Other treatments being used include pothole repairs, crack sealing, slurry sealing, overlays, resurfacing, and reconstruction.
- The City spends 80% of its road budget on good, fair, and poor roads, and 20% on failed roads.
- In allocating road revenues, the City presently considers pavement condition, pavement area, and bus / truck traffic in an allocation formula.
- A new Pavement Management Program is being implemented with the following features:
 - Justifies different funding level requests.
 - Provides information to make efficient use of available resources.
 - Produces quantified and accurate information.
 - Tracks pavement performance.
 - Identifies current and future maintenance & rehabilitation (M&R) needs.
 - Selects cost-effective repair strategies.
 - Predicts future pavement condition based on different budget scenarios.
- After analyzing various budget scenarios, the City concluded that an annual Maintenance and Rehabilitation (M&R) budget of \$80M would just hold the line - more and the system's condition would improve; less and its condition would continue to deteriorate.
- The City is interested in asphalt technological innovations and has concluded that Cold In-Place Recycling (CIR) is the key to addressing failed streets in its neighborhoods.
- In addition to devising a new Pavement Management Program, the City is telling its story by reaching out to 89 Certified Neighborhood Councils, elected officials and their staffs, the media, and local colleges and universities.
- The new Pavement Preservation Program has grown from 310 miles in 2002 to 735 miles in 2008, an increase of 137 percent.
- Ten million dollars have been allocated to rebuild the Metro Asphalt Plant to run a 50-50 recycled mix.
- For the first time since World War II the pavement condition index (PCI) of the overall street system will begin to improve.

Finally, **Mr. Robertson** reminded his audience that the road to pavement preservation is never finished.

After his presentation, **Mr. Robertson** answered several questions from the audience.

Q: The Los Angeles DOT appears to be caught in the "worst first" trap. What can they do?

A: Show the City Council the consequences of "worst first". Elected officials just "do not get it". Whereas in the past it was the norm, today, Los Angeles elected officials no longer select projects.

Q: What are the thresholds of treatment applicability?

A: A PCI of 70 / 75 for rubberized slurry (limit). PCIs are reviewed every 3 years. A PCI of 70 - 75 represents a low B category (with some Cs).

Q: What has happened to the agency's culture?

A: This has not been a problem - the agency has been doing recycling for years and the organization was accustomed to it. The problem lay in convincing outsiders and the neighborhood councils.

Q: What is the life of a slurry treatment?

A: 5 - 7 years with a 5-year guarantee. After the initial paving, the agency applies a slurry seal in 3 to 5 years and repeats the slurry seal 5 to 7 years later.

Q: What are the effects of ADT?

A: Traffic volumes go into the agency's Micro Paver System - bus routes are critical. Los Angeles has 40 foot buses and some articulated buses. Some buses run on compressed natural gas (CNG), which makes them even heavier with the result that they tear up the streets.

Q: Utility trenches and potholes cause roadway distress - how much repair is done before pavement preservation?

A: Preservation occurs between 5% and 25% of base failure, after which roadways are reconstructed. Los Angeles has a trench restoration fee - utilities cannot dig up a newly paved road. Utilities are given one year of advance notice before streets are repaved.

Q: Where is CIR used?

A: CIR is used on smaller streets - all failed streets in residential areas. CIR machines are small and use only one truck (emulsion). The key to CIR success is the pre-testing of candidate roadways and the agency has been very pleased with the results.

- Break -

Presentation - "Crack Sealing and Maintenance Program For the Town of Stillwater, NY", Mark R. Minick, Superintendent of Highways, Town of Stillwater, NY.

Mr. Minick began his presentation by stating that his was an elected position and that he had served the Town for 19 years. Being an elected official had afforded **Mr. Minick** a number of advantages, one of which was the ability to organize his own agency. In selling the preservation concept, **Mr. Minick** emphasized the following points:

- People have their own agendas,
- Large budgets run the risk of being "raided" for resources,
- Research can be conducted on small test areas,
- The program can be developed gradually,
- Crack seal is a great tool to prevent the infiltration of water, and
- Freezing and thawing softens the pavement and leads to potholes.

Stillwater's preservation toolbox contains the following treatments:

- Crack seal (D6690)
- Chip seal
- Slurry seal
- Micro-surfacing
- Fiber Mat
- Nova Chip
- HMA overlay.

Mr. Minick mentioned that his treatment cycle was 3 years+, depending on the type of treatment. Other factors affecting the treatment cycle included traffic, pavement type, pavement

movement, and weather. Annual budget changes reinforce the importance of the road infrastructure. For example, **Mr. Minick** reported the following statistics he had gathered for his town:

- 4 miles of rough road increases annual vehicle maintenance by \$400 per vehicle,
- In the 2009 budget, a tax rate of \$1.34 per \$1,000 of valuation levied on an assessment of \$300,000 yields the highway agency \$402, and
- Personal maintenance of a driveway and lawn cost more than \$402 per year.

Finally, **Mr. Minick** contrasted the positive and negative effects of crack sealing as shown in the following table.

Success of Crack Sealing	Negative Effects of Crack Sealing
<ul style="list-style-type: none"> • Cost of men and equipment vs. Cost of treatment, • Crack Sealing Reduces Patching, and • Less time and materials are used for maintenance 	<ul style="list-style-type: none"> • Types of plows used on the road could result in the removal of the crack seal from the road over time, <ul style="list-style-type: none"> ○ Carbide ○ Rubber ○ Steel • Crack seal causes the road to appear rough and less appealing for motorist, if overused.

After his presentation, **Mr. Minick** answered several questions from the audience.

Q: How much patching is done by the town?

A: **Mr. Minick** responded that when he was first elected, a truck was used to perform patching every day. Today, patching is done monthly.

Q: How does Stillwater’s preventive maintenance compare with that of other towns?

A: **Mr. Minick** said he pays more attention to his roads and probably does more preventive maintenance than other towns.

A suggestion was made to use the LTAPs to spread the preservation word.

- Break -

Presentation - “Pavement Preservation: What About Energy and GHG? (Greenhouse Gas Emissions)”, François Chaignon, COLAS, Inc.

Mr. Chaignon began his presentation by stating that his company’s name was derived from Cold Asphalt. He then proceeded to define sustainable development and sustainable pavement.

Sustainable Development: Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Sustainable Pavement: A safe efficient and environmentally-friendly pavement which meets the needs of present-day users without compromising those of future generations.

Mr. Chaignon then presented a number of his company's ideas. Energy consumption and greenhouse gas (GHG) emissions could be reduced by:

- Optimizing the use of natural resources,
- Limiting pollution (air, water, ground, noise, etc.),
- Improving health, safety and risk prevention, and
- Ensuring a high level of user comfort and safety.

Other countries are already taking action in this area. For example, British Columbia has instituted a carbon tax on fossil fuels, while in Europe, hot mix plants are required to be covered. Areas where COLAS could have impacts include:

- HMA plants,
- Quarry plants,
- Emulsion plants,
- Operations,
- Permits, rules, ethics,
- Energy
 - Moisture at the HMA Plant
 - Power Peaks,
- GHG
 - Optimizing burners for example.

Mr. Chaignon then presented COLAS calculations showing energy consumption and GHG emissions resulting from the construction of pavements of various materials. For most road materials, the energy consumed per ton of laid material ranged from 100 MJ to 700 MJ (28 kWh to 194 kWh). However, for concrete pavements, the energy consumed per ton of laid material ranged from 700 MJ to 1,200 MJ (194 kWh to 333 kWh).

Similarly, for most road materials, the GHG emissions per ton of laid material ranged from 10 kg/t to 50 kg/t (22 lb/t to 110 lb/t). However, for concrete pavements, the energy consumed per ton of laid material ranged from 130 kg/t to 200 kg/t (287 lb/t to 441 lb/t).

When pavement construction is disaggregated into its various components, viz., binders, aggregates, mixing, transporting, and paving, concrete pavements are similar to other pavements in all respects except for binders, i.e., Portland cement. The manufacture of Portland cement consumes significantly more energy and produces significantly more GHG emissions than the manufacture of other binders such as liquid asphalt. However, **Mr. Chaignon** showed that over the entire life of any road, energy consumption and GHG emissions associated with construction were insignificant compared with the equivalent impacts of traffic.

Mr. Chaignon also showed that fuel consumption increases with the International Roughness Index (IRI), a fact that should be significant in the promotion of pavement preservation. Other ideas mentioned by **Mr. Chaignon** included:

- Use of racked-in chip seals with fiber reinforcement,
- Replacement of kerosene cutbacks with vegetal flux,
- Use of cold mix micro-surfacing,
- Use of cold in-place recycling (CIR),

- Use of chip seals,
- Use of micro-surfacing, and
- Adoption of European standards for chip seals and micro-surfacing.

Mr. Robertson strongly recommended that we begin to tell the environmental story about preservation.

Mr. Galehouse reported that Hawaii was using porous asphalt in parking lots and Oregon was moving away from thick overlays toward lighter treatments.

Mr. Chaignon said that we do not capitalize enough on preservation's environmental advantages. He also mentioned that Europe has very few concrete roads.

Presentation - "Pavement Preservation: Current FHWA Activities", Joseph M. Huerta, FHWA Resource Center, Baltimore, MD.

Mr. Huerta began by giving an update on the Pavement Preservation Program Appraisals being conducted by the FHWA and NCPP. He said that the appraisals had presented an opportunity to provide technical assistance and had presented a valuable field perspective for the FHWA. He said that the effort would result in an action plan containing:

- A Research Roadmap,
- Policy / Guidance, and
- Training.

Mr. Huerta then mentioned the development of a Maintenance Field Manual to provide internal guidance for the FHWA. A draft version of the manual is expected by early 2009.

The FHWA was also developing a preservation qualification with the following characteristics:

- Based on TCCC Maintenance Core Curriculum
- Identifying training needs for qualification
 - Agencies
 - Contractors
- Evaluating existing materials
- Strategy for directing new training development
- Part of contractor qualification program.

Mr. Huerta then turned his attention to training and cited the growing problem with engineering school curricula in the area of preservation. While DOTs have been undergoing profound changes, engineering curricula have not kept pace. In fact, few college instructors have a preservation or field background and there is a need to convert existing preservation materials to a college format and train these instructors. He then listed several NHI preservation training courses:

- 131114 – Optimal Timing of Pavement Preservation Treatments (web-based)
- 131115 – Preventive Maintenance Treatment, Timing, and Selection (instructor-led)
- 131103 – Design and Construction of Quality Preventive Maintenance Treatments (instructor-led)

- 131110 – Pavement Preservation Treatments (web-based)
- 131116 / 1116A: Pavement Management Systems: Characteristics of An Effective Program
 - 1 day or 1.5 day version
 - 1 lesson links PP to PM
 - Target audience more than PM engineering staff
 - Cost = Free (FY09).

Mr. Huerta then mentioned two new courses under development. The first is “Emulsions Technology Training”. This training is important and needed because emulsions are the heart of many pavement preservation treatments, and proper selection is critical to treatment performance. The training would last a week and course development is scheduled to begin in early 2009.

The second course under development is “Maintenance Leadership Academy”, designed for maintenance supervisors. It consists of 6 modules:

- A. Maintenance Management/ Asset Management
- B. System Preservation
- C. Roadsides/ Drainage
- D. Weather-related Operations
- E. Safety/ Work zones
- F. Environmental.

The course would consist of four weeks of blended learning and feature an extensive resource library. Course development completion is scheduled for January, 2009, with the first presentation planned for spring, 2009.

Presentation - “National Center for Pavement Preservation (NCP) Update”, Larry Galehouse, Director, NCP, Okemos, Michigan.

Mr. Galehouse began by mentioning the NCP’s publication, “At the Crossroads” and describing the Center’s training courses. He then discussed the FHWA Pavement Preservation Technical Appraisal Project, giving the following highlights:

- There is a new sense of urgency and attitudes are improving toward pavement preservation.
- 62% of states have little or no pavement preservation integration with their pavement management systems (PMSs).
- There is significant resistance (51% political) to pavement preservation. Elected officials pose the greatest barrier. Industry (HMA) also provides resistance, mainly on the east coast.
- The most significant obstacles are funding (69% of the states) and agency resistance through entrenched managements.
- Popular preservation treatments include:
 - HMA overlays (97% of states)
 - Chip seals (86% of states)
 - Micro-surfacing (77% of states).

- Chip seals present the greatest potential for success (Minnesota had a 5-month old chip seal that was mistaken by the hot mix industry for a HMA overlay and nearly given a paving award).
- Chip seals also present the greatest potential for failure (43% of states).
- “Worst first” is used to prioritize projects by 63% of states.
- Formal performance tracking is almost universally ignored.
- 20-year design asphalt pavements (left untreated) last from 8 to 12 years.
- 64% of states have difficulty finding quality contractors.

Mr. Galehouse then presented the following interim findings:

- There is a recognized need for pavement preservation,
- Many agencies are in the early stages of a preservation program,
- Agencies have had poor experiences with many treatments,
- There is a limited contractor base,
- There is a limited suite of treatments in agency “toolboxes”,
- There is a great need for training and certification,
- There is a lack of preservation program funding,
- There is high internal resistance to change,
- Public education/awareness need to be expanded,
- Better tracking and PMS integration are needed,
- Greater FHWA Division support is needed, and
- States need to get beyond the “Worst First” project selection paradigm.

Mr. Galehouse then described the TSP \cong 2 concept. He said that although the audience clearly were strong supporters of pavement preservation, it was still necessary to struggle to obtain the necessary preservation resources. Today, roadway products are more expensive, but pavement preservation can help substantially and the sooner it is applied the better. He then went on to describe the acronym TSP \cong 2 which had its genesis at the Pavements Task Force meeting held in conjunction with the AASHTO Subcommittee on Maintenance in Duluth, MN on 14 July 2003. Due to the inflexible nature of traditional pooled funds, AASHTO chose to develop the TSP \cong 2 approach as a more flexible method of promoting and supporting the preservation concept. Its objective is to implement pavement preservation best practices.

TSP \cong 2 has three phases:

- I Pavement Preservation Technical Services Program.
 - Help Desk
 - Website
 - Speakers Bureau
 - Technical Exchange
- II Regional Pavement Preservation Partnerships, e.g., Northeast, Midwestern, Southeast, Rocky Mountains, and Western.
 - Promotion of sound practices by sharing information.
 - All members are invited to share information.
- III Bridge Preservation Technical Services Program and Partnerships (Approved by AASHTO’s Standing Committee on Highways (SCOH) on 18 October 2008).
 - Help Desk

- Website
- Technical Exchange

Mr. Galehouse explained that we were now at Phase III and that on 18 October 2008, AASHTO's SCOH approved the integration of bridges into the program. He then displayed a map showing potential Bridge Preservation Partnerships and explained that it was essential to regard all of our infrastructure components as valuable assets. **Mr. Galehouse** also showed a listing of the members of the TSP \cong 2 Oversight Panel and the Mission and Vision Statements for TSP \cong 2. (The major elements of the TSP \cong 2 Strategic Plan are displayed on the TSP \cong 2's website at <http://www.tsp2.org>). In order to improve the practice of all preservation, **Mr. Galehouse** said that continual training would be needed.

Finally, **Mr. Galehouse** described the Polymer Modified Emulsions Technology Deployment Study being conducted for the FHWA Central Federal Lands Highway Division and the FHWA Office of Asset Management. The NCPP was under contract to develop a best practice guide and model specifications. Currently, there are no national standards to help guide pavement practitioners on the use of Polymer Modified Emulsions (PME). **Mr. Galehouse** listed the following issues:

- Emulsion physical & chemical properties do not always correlate with performance,
- High distillation temperatures can alter physical properties of asphalt emulsion residue, including polymer structure,
- New testing methods may delay shipping and application of emulsions, and
- Superpave PG specifications do not address failure mechanisms of emulsion applications.

The study's two goals are:

1. Develop performance-related specifications for polymer modified:
 - Chip Seals,
 - Slurry Systems (including microsurfacing), and
 - Cape Seals.
2. Create a framework for performance-based asphalt emulsion specifications that address problematic issues:
 - New Residue Recovery Method
 - New Tests to Measure Polymer Modification
 - Longer Time Necessary for Testing
 - Specifications that Reflect Actual Field Performance.

Tuesday, 21 October 2008

“State and Provincial Presentations”, Edgardo Block, Connecticut, Moderator.

Mr. Block opened the session by declaring that to be successful, this Partnership must produce deliverable products and he asked the attendees to consider what the Partnership could deliver this year to demonstrate its value. He then invited the states and provinces to present their reports.

District of Columbia - “Pavement Network Evaluation”, Aaron Horton, District of Columbia Department of Transportation.

Mr. Horton began his presentation by describing his agency’s roadway network of 4,346 lane miles, of which 2,292 lane miles were local streets, while 2,054 lane miles were on the Federal System. He showed the following table illustrating the various condition levels of his network.

Condition / PCI Range	Local		Federal	
	Lane-Miles	% Network	Lane-miles	% Network
Excellent (100 - 86)	632.1	27.6%	845	41.1%
Good (85 - 71)	618	27.0%	786.8	38.3%
Fair (70 - 56)	439.8	19.2%	294.6	14.3%
Poor (55 - 36)	380.4	16.6%	109.5	5.3%
Very Poor (35 - 21)	144.3	6.3%	15.8	0.7%
Failed (20 - 0)	77.81	3.4%	2.1	0.1%

Mr. Horton then showed the results of a series of network analyses his agency conducted for the local network in which the proportions of preservation and budgets were varied. The results are shown in the following table.

Scenario	Budget	LMY Deficit	Network RSL
100% Worst First (WF)	\$4.3M	2,205	5.86
75% WF / 25% Preservation	\$4.3M	2,100	6.43
50% WF / 50% Preservation	\$4.3M	1,895	6.98
50% WF / 50% Preservation	\$10.0M	1,395	9.03
50% WF / 50% Preservation	\$15.0M	973	10.82
50% WF / 50% Preservation	\$30.82M	0	14.54
75% WF / 25% Preservation	\$50.0M	-1,397 (Gain)	16.92

The analyses indicated that network improvements could not be gained with the agency’s present budget expenditures and policy of “worst first”. In fact, just to keep even with normal network deterioration, would require a budget of \$30.82M and a 50% commitment to preservation.

Mr. Horton reported that DC still used a policy of “worst first” and that the Preservation Program runs a substantial risk of being “hijacked” by that policy. He then summarized the characteristics / consequences of the “Worst First” versus “Preservation” approaches.

Worst First	Preservation
<ul style="list-style-type: none"> • Only addresses pavements whose RSLs = 0 • Most expensive way to maintain network • Few lane miles covered per year • Deterioration of the entire network <p>** They are PROJECT BASED decisions</p> <p>** Roadway Network is driven by project level decisions</p>	<ul style="list-style-type: none"> • SLOWS DOWN THE RATE OF PAVEMENT DETERIORATION • Fix MINOR defects before they become MAJOR • Best use of available funds - Less Costly alternatives • Keep the Good sections Good/Better <p>** They are NETWORK BASED decisions</p> <p>** Require system optimization by analysis,</p>

	modeling and simulation with varying inputs ** Depend on Budget and Policy Inputs ** Staff Training and QA/QC
--	---

Mr. Horton said that his agency planned to implement chip seals topped with a slurry mix to resemble hot mix overlays.

Rhode Island - Colin Franco, Rhode Island DOT

Mr. Franco told the audience that Rhode Island had been successful in combining structural rehabilitation with preservation. For example, a 5-mile segment in need of a chip seal may contain a small (say 0.8 mile) section in need of structural rehabilitation. In such a case, the structural repairs would be done first followed by the chip seal.

Mr. Franco also showed a series of slides describing the reconstruction of a low ADT road with poor drainage. The project required obtaining environmental and ADA exceptions, and involved pulverizing and blending; grading; rolling; shaping; the addition of calcium chloride; paving with 3" of HMA; and final rolling. The location was rural (ADT = 200) and the cost was approximately \$250K / 2-lane mile. During its design life, the project will probably experience internal or fatigue cracking, but not rutting.

Rhode Island does not have a rutting problem - the state has silt, but little clay, and it is usual to obtain good compaction with good permeability.

Mr. Franco then announced the First International Conference on Pavement Preservation to be held in 2010 at Newport Beach, California. He gave the following details of the conference which is being planned by **Dr. Gary Hicks**, CP2 Center-CSU, Chico, California:

- When: 12-16 April 2010
- Where: Newport Beach, California
- Why: Sharing Information on Pavement Preservation Practices
- Primary Sponsors: Caltrans: FHWA and FP²
- Other planning participants: NCPP, CP2 Center, AASHTO TSP-2, TRB, Regional Partnerships, APWA, NACE

Further details may be obtained from www.pavementpreservation.org/icpp

Topics to be covered include:

- Benefits of Pavement Preservation (Economic and Environmental)
- Integrating Pavement Preservation into Pavement Management
- Pavement Preservation Treatments (asphalt and concrete pavements)
- Strategy Selection
- Funding Pavement Preservation
- Promoting Pavement Preservation to the Public and our Elected Leaders

New Hampshire - Eric Thibodeau, Pavement Management Chief, New Hampshire DOT
Mr. Thibodeau began his presentation by recounting his agency's principal pavement preservation activities for 2008, which include:

- Resurfacing 280 miles
- I-93 Micro-Surfacing
 - 6.7 miles
- NH 153 Chip Seal:
 - 4.0 miles single chip seal
 - 1.0 mile fiber mat chip seal
- New Data Collection Vehicle
 - Completed Vendor Selection Process
 - Delivery June 2009
- PMS Upgrade - Deighton
 - Upgraded reference system
 - Loading Historical Condition Data
 - Revising Analysis Parameters
 - Revising Treatment Costs
 - Target: Network Analysis by End of 2008

Along with the achievements had come several challenges, political and technical:

Political Challenges

- Unprecedented Cost Increases
- Reduction In Treated Miles
- Network Condition Is Decreasing!
- Continue to Incorporate Preservation and Resist Worst First
- Build or Maintain?

Possible Solutions

- Delay future projects to free up additional Federal dollars for resurfacing
- Continue Preservation Efforts
- Continue to Develop PMS

Technical Challenges

- PM Treatments:
 - Surface Preparation
 - Crack Seal
 - Pavement Markings
 - Plow Damage
 - Treatment Acceptance
 - DOT
 - Public

Finally, **Mr. Thibodeau** listed New Hampshire's 2009 Goals and Initiatives:

- Secondary System Reclamation Program
 - New for 2009
 - Funded at \$3M per year
- Expand Chip Seal Program

- Section for Each District
- Target Sections which have been recently overlaid and are performing well □
Minimize Surface Prep. \$\$
- Continue to Learn and Revise Chip Seal and Micro-Surfacing Specifications
- Continue to Monitor Test Sections and Publicize the Results
- Integrate New Data Collection Vehicle
 - PMS → Calculate New Index Values
 - Entire DOT Network
- Continue to Upgrade PMS
- Increase Funding!

Mr. Thibodeau declared that Paver Shim (3/4" HMA) was New Hampshire's "work horse".

In the subsequent discussion, **Mr. Galehouse** recommended making two passes of waterborne pavement markings (because of the increased texture; i.e., surface area) on chip seal or micro-surfacing treatments and letting the first application cure before applying the second pass.

Mr. Block recommended that agencies use the modified option of GASB 34 based on condition.

Maryland - "Best Practices and Success Stories", Geoff Hall, Chief, Pavement and Geotechnical Division, Maryland State Highway Administration

Mr. Hall told the audience that Maryland's success stories during the past year consisted of:

- Increased use of modified slurry seal (i.e., micro-surfacing)
- Patch-only projects
- Increased use of crack seal
- Thinner overlays
- Beginning implementation of program

Mr. Hall said that Maryland's specifications for modified slurry seal could be obtained by going to www.marylandroads.com and clicking on "Doing Business with SHA". The treatment, virtually unused 5 years ago, is now in significant use in 2 of Maryland's 7 districts. The treatment has resulted in improved friction numbers and reduced cracking.

The use of Patch-only projects has resulted in lowering maintenance costs per lane mile by 25% to 30% in the 2 districts where it has been used.

Although Maryland is beginning to use crack sealing, many districts are still wary and believe its use complicates pavement preparation for overlays. For Maryland, crack sealing has no documented benefit as yet.

The use of thinner overlays has been tried for the past several years by two districts. The result has been that in those two districts, the percent acceptable ride is 10% to 15% higher than the rest of the state and the service life per dollar spent is higher than in other districts.

With respect to Maryland's Preservation Program implementation, **Mr. Hall** made the following points:

- We now know where we are
 - Each District has been interviewed
 - The agency is aware of the current challenges
 - A team has been created to identify more treatments, and their associated specifications
 - The agency must work to overcome objections to using Chip Seal
 - The agency must “prove” that a policy of “worst-first” does not work
 - Data collection quality
 - Service life
- Slight increase in network condition despite decline in overlay lane-miles.

Mr. Hall said that Maryland still has issues. For example, while the agency intends to implement the concept of remaining service life (RSL), there is still great uncertainty about what RSL = 0 means. In addition, the agency has a problem defining design life - what does it mean?

Vermont - Michael Fowler, Vermont Agency of Transportation

Mr. Fowler told the audience that Vermont had begun applying pavement preservation treatments in 2000 when it used chip seals and mill and fill on Interstate highways carrying in excess of 1.5M - 2.0M vehicles / year. The agency had also bought time by successfully filling ruts, some of which were up to 1½” deep. The mill and fill treatments range from 1¼” to 1½”.

In 2006, Vermont experimented with alternate treatments on 8.5 miles of Superpave. On the first 4.25 miles of the segment, the agency used rut fill and micro / slurry, while on the remaining 4.25 miles, they applied Nova Chip. Both sections have performed well.

2007 marked the official start of Vermont’s Pavement Preservation Program. **Mr. Fowler** described a roadway with a failing open graded friction course (OGFC) that had been installed in the 1990s. A full width 9-mile segment was treated with a fog seal and a 2-course micro-surfacing. **Mr. Fowler** indicated that some potholes had developed over the first winter. The agency suspected that water had infiltrated via the rumble strips.

Vermont also had a limited amount of concrete pavement, some of which was exhibiting joint deterioration. The agency had addressed the problem with Techcrete (a Crafcro product) and the result looked promising.

Vermont had been doing 100 to 200 miles of crack seal per year until 2008, when it increased this amount.

Mr. Fowler also said that his agency had also tried some chip seals and received some loose chip complaints, prompting it to plan more sweeping in future.

Nova Scotia - “Cold In-Place Recycling in Nova Scotia”, Matt Covey, Project Engineer, Nova Scotia Department of Transportation and Infrastructure Renewal

Mr. Covey began his presentation by giving some statistics for the highway system of Nova Scotia, a province beset with numerous challenges such as extreme freeze / thaw cycles, poor aggregate durability, spring weight restrictions, poor soils, and water problems.

In 2008, Nova Scotia's capital program had the following highlights:

- \$138 Million for capital repaving projects,
- Paved / treated approximately 800 kilometres, and
- 15% of budget devoted to pavement preservation projects (chip / micro / asphalt overlay).

Mr. Covey told the audience that Nova Scotia had inherited a serious infrastructure deficit dating back to the 1990s when capital expenditures were practically eliminated. Assignment of almost all revenues to operations had caused a serious deterioration of the highway system. As a consequence of this policy, most of the roadwork is beyond the preservation stage and surface treatments / overlays are not an option. Nova Scotia's typical reconstruction options are expensive and largely consist of:

- Pulverization of existing asphalt and gravelling,
- Partial depth reclamation,
- Full depth reclamation,
- 150mm gravel Interlays, and
- Cold planing.

Mr. Covey displayed pie charts showing the proportions of capital treatments by distance (km) and cost. He also showed Nova Scotia's treatment costs per kilometre:

Partial depth reclamation	\$303,000
Full depth reclamation	\$278,000
Pulverization	\$268,000
Cold planing	\$255,000
Gravel overlay	\$220,000
Paving	\$163,000
Surface treatment	\$27,400.

To extend pavement life, Nova Scotia's policy is to install a double chip seal 3 to 5 years after new paving.

Mr. Covey also mentioned that Nova Scotia had embargoed micro-surfacing after experiencing major problems, i.e., stripping off within 2 years.

Nova Scotia uses the following types of Cold In-Place Recycling (CIR):

- Partial Depth Reclamation
 - Emulsion Stabilization to 100mm
 - Expanded Foam Stabilization to 100mm
- Full Depth Reclamation
 - Expanded Foam Stabilization to 200mm

Mr. Covey then showed recent examples of Nova Scotia's CIR projects.

In conclusion, **Mr. Covey** summarized CIR's characteristics and some of the issues his agency had faced when using CIR.

CIR's Characteristics

- 20% of Nova Scotia's 2008 capital program was CIP recycle projects
- CIR is the most expensive treatment but offers unique advantages
 - Mitigates cracking
 - Retains strength
 - Double chip option
 - Maintains road elevation
- Some issues still need to be worked out.

Construction Issues

- On narrow roads planer too wide – mixes in shoulder gravel and creates gutter
- Mix pushes, loss of material/thickness
- Overlap on second pass compromises mix design. Crown off centre
- Seasonal – avoid fall and spring.

Testing Issues

- Mix design – difficulty replicating planings (gradation / liquid demand / fines)
- Difficult to measure compaction and maximum tension
- Disagreements over max. theoretical density
- Mix design and QC testing expensive
- Cores can crumble.

Specification Issues

- Started program as QC/QA – favored dry, open, mixes (mix design by contractor)
- Penalty for compaction, tension, and moisture
- Switched to method specification in 2008
- Department representative controls mix design and construction methods
- Separated binder from unit price.

Massachusetts - Kevin FitzGerald, Massachusetts Highway Department

Mr. Fitzgerald began by citing an unusual example of a local agency using State aid to install a CIR on a numbered State highway! He then displayed photographs of examples of success stories and an Excel spreadsheet showing his agency's 2008 Pavement Preservation Program on the NHS (Interstate Maintenance Surface System). His Chief Engineer wants projects designed in Quarter 1, bid / let in Quarter 2, and constructed in Quarter 3.

To illustrate the recent escalation in costs, **Mr. FitzGerald** said that between 2008 and 2009, average lane-mile costs had risen from \$87,240 to \$104,167.

Mr. FitzGerald told the audience that Massachusetts had started using 1" Open Graded Friction Course (OGFC) and experienced good success. The agency intends to expand this component of its preservation program by adding polymers and two additional gap-graded treatments which will give it a total of three friction treatments.

Mr. FitzGerald reported that, with some exceptions, Massachusetts was deriving 15 years of service from its use of OGFC and had solved its pavement marking problems by using slightly recessed markings. The agency addresses block cracking by installing a Stress Absorbing Membrane Interlayer (SAMI) between a micro-milled surface and the OGFC.

Mr. FitzGerald also showed “before” and “after” photographs of I-295 going east from Rhode Island into Massachusetts. The agency had experimented with 4 treatments - 2 in each direction.

Delaware - “Experimental Pavement Preservation Treatment”, Jennifer Pinkerton, Pavement Program Manager, Delaware DOT

Ms. Pinkerton began by telling the audience that her agency, which was responsible for almost all public roads in Delaware, had instituted an “Experimental Pavement Preservation” treatment to combat serious instances of alkali silica reaction (ASR) on its concrete roads. ASR is appearing in major corridors and causing serious deterioration. An example may be found in an 8-mile segment of I-95 (a major north / south corridor) in Newcastle County.

The segment is less than 20 years old and has suffered complete deterioration characterized by joint spalling (producing loose concrete) across all lanes. The agency treated the section with lithium which slowed the distress and also milled and inlaid an HMA fill on an interchange ramp. Both treatments failed within 6 months and reconstruction is not feasible because it would cost about \$100M.

As a final remedy, the agency collaborated with the FHWA, material suppliers, and local contractors before selecting a final remedy:

- PCC patching,
- 1½” Novachip overlay, and
- 2” Type C, PG 76-22 overlay.

Ms. Pinkerton admitted that the remedy, applied 2 years ago, was a bit of “overkill”, but that it appeared to be effective as there had been no further deterioration.

In the fall of 2008, Delaware plans projects at 4 more locations whose aim is to arrest ASR migration and prevent further surface deterioration on older concrete pavements.

Connecticut - “2009 Pavement Preservation Program”, Edgardo Block, Connecticut DOT

Mr. Block began by referring to the NCPP’s 2006 Technical Appraisal visit and its aftermath - the formation of an ad-hoc pavement preservation group and assistance from the FHWA Connecticut Division Office.

The agency had begun with thin HMA overlays and later added rubberized chip seals and crack sealing. They also developed guidelines for project selection which considered distress data (cracking), a Photo log review, and field verification. Within candidate projects meeting the criteria, priorities were established from oldest to most recent. The agency encountered several challenges:

- Necessity for a project development timeline in order to let projects in time,
- Roles and responsibilities, and
- Agency acceptance (dedicated funding source).

Mr. Block described Connecticut's 2009 Pavement Preservation Program as consisting of 3 projects - 2 mill and fill, and 1 Ultra thin (Nova Chip). Looking ahead, he saw:

- Crack Sealing,
 - Performance measures and reporting,
 - A dedicated funding source,
 - Streamlined and accelerated project delivery, and
 - Training.
-

New York - Rick Bennett, "Pavement Preservation Strategy", Statewide Pavement Manager, New York State DOT

Mr. Bennett started his presentation by showing the audience New York's Pavement Performance Curve and Windows of Opportunity. The curve illustrated the time progression of treatments from "Do Nothing" through "Major Rehabilitation / Reconstruction".

Mr. Bennett then referred to his agency's March 2008 report titled "*Multimodal Transportation Program Submission: 2009 - 2014*". The report contains the following preservation strategy:

- Give priority for preservation to Interstates and Heavily Traveled Roads (3 Tiers²).
- Prioritize segments by cost effectiveness (\$/VMT).
- Use the Surface Rating/IRI Decision Matrix to select treatments.

Mr. Bennett described a 2-dimensional model that the NYS DOT had developed to aid in treatment selection. In the model, treatment severity increases as the surface rating declines and / or the ride quality (IRI inches/mile) increases. The model has the following features:

- Considers ride quality in the treatment selection.
- "Delays" treatment until close to the end of the window.
- Takes into consideration faster-than-normal deterioration rates.
- Assigns lighter treatments on low volume roads.

Mr. Bennett explained that as a network measure of cost effectiveness, the NYS DOT uses the ratio of Treatment Cost to Vehicle Miles of Travel. He then displayed a graph illustrating \$/VMT and Cumulative Costs as functions of Cumulative Lane-Miles.

Finally, **Mr. Bennett** displayed a graphic illustrating the derivation of Pavement Service Rating based on subjective evaluations of distress frequency and severity descriptions.

- Lunch -

Election of Officers

Mr. Denehy declared two vacancies - Director (Public Agency) and Vice-Chair.

² Interstate Highways, Non-Interstate Highways (NHS), and Other Highways (non-NHS).

Director - Public Agency

Mr. Eric Thibodeau (New Hampshire) was nominated and approved unanimously.

Vice-Chair

Mr. Eric Thibodeau (New Hampshire) was nominated and approved unanimously.

Mr. Denehy suggested asking the two absent Directors (Public Agency) if they would be interested in the position of Secretary / Treasurer.

Breakout Sessions

Mr. Rod Birdsall, All States Asphalt, briefed the attendees on the proposed formats and desired products of the four breakout sessions. The four task groups would deliberate in separate rooms for one hour, after which they would reconvene in plenary session when their Chairmen would each present a 5-minute summary identifying the one or two things their task groups want to accomplish during the coming year.

Breakout Session Reports

Specifications, QC / QA, and Quality Contracting, Chair Mr. Greg Doyle

Mr. Doyle reported that his task group had discussed the Partnership's By Laws and had found particular relevance in Objectives 2 and 3.

The task group had arrived at the following recommendations:

- A. Recruit additional members for the task group, which presently has only 9 members.
- B. Draft a list of needs.
 1. Complete an inventory of current state agency specifications by March, 2009.
 2. Construct and send a survey to state agencies, Turnpikes, LTAPs, and Industry asking for information on:
 - Treatments used,
 - Treatments provided by Industry, and
 - Treatments which are working.
 3. Terminology

The work group decided to have quarterly conference calls and to identify potential topics and speakers.

Promotion, Marketing, Public Relations, and Success Stories, Chair Mr. Rick Stone

Mr. Stone reported that his task group had concluded that we must be visible to the people we wish to serve. He mentioned the following points:

- Promotional items - the group would like to acquire sufficient copies of NCPP materials,
- Regional awards - Recognition of preservation achievements would create valuable publicity and help promote the preservation concept,

- Contacts - Efforts should be made to contact state, county, and local agencies and associations such as professional engineering societies to promote the merits and necessity of preservation,
- Success stories - preservation successes should be publicized. It would be helpful to have professional photographs taken of roadways before and after the application of preservation treatments, and
- Priority actions.
 - Contact associations, and
 - Send out promotional materials.

Treatment Performance and Cost Effectiveness, Chair Mr. Rick Bennett

Mr. Bennett reported that his task group has discussed treatment performance and cost effectiveness and recommended the following actions:

- Working to stay focused on treatment performance,
- Gathering existing data, and
- Generating lists of treatment performance experts in each state / province.

The challenges would be to:

- Remain focused on the problem,
- Agreeing on common definitions, and
- Squeezing all these activities into their regular jobs.

Workforce Development, Training, Education, and Certification, Chair Mr. Rod Birdsall.

Mr. Birdsall reported on the following items:

- Workforce Development
 - Succession planning - training young employees
 - Encourage / force DOT managers to recognize and accept pavement preservation benefits
 - Change agency cultures - consider network analyses before projects.
- Training
 - Pavement deterioration relationships - treatment timing
 - Allocation of resources to be used only for preservation
 - Cultural changes
- Education
 - Use of the Internet
 - Mandates for states using Federal aid
 - Abandon “worst first” policies
- Certification
 - Should be included by certification agencies.

Participants noted that Katie Zimmerman was providing training on the integration of pavement preservation into PMSs.

During the session, the following points were discussed:

- Who should be trained?
- What levels?

- Elected officials pose a challenge - they are often gone after just a few years
- What subjects should be covered?
- What training should be given to local agencies?
- Training is essential for design and materials engineers
- Training is needed in project selection / timing
- Training is educating people who actually get the work done - public relations (PR) is not training
- Train employees to use treatments that work.

Additional discussion included:

- Focus
 - Two tracks for training
 - State agencies
 - Local agencies
 - Contractors need training
 - Agencies should be trained in project selection
 - High quality NHI courses are available at the state level
 - Use LTAP services
 - Literature search on available courses
 - Target the local agencies
- Training for next year
 - Needs to be for practitioners
 - Day before or day after
- Certification
 - Employees or contractors or both?
 - Research roadmap
 - Barriers need to be identified
 - Reciprocity is a big problem
 - Need a 1-day course on the benefits of pavement preservation for local agency employees
 - Need training for micro-surfacing workers
 - In New Jersey, the supplier offers a generic, 1-day course once each year

The National Highway Institute (NHI) and the Transportation Curriculum Coordination Council (TCCC) are developing a comprehensive, searchable database containing descriptions of training courses from:

- NHI,
- State agencies,
- Consultants,
- Universities,
- NCPP, and
- Others.

The database being populated now will contain:

- Names of courses,
- Contact persons,
- Course descriptions,

- Costs / conditions,
- Schedules,
- Locations, and
- Continuing education credits, etc.

Presentation - “Concrete Pavement Preservation - Integrating Engineering, Economics, and the Environment”, John Roberts, International Grinding and Grooving Association (IGGA)

Mr. Roberts began by reminding the audience that old priorities have now evolved to:

- Maintain the present system
- Minimize traffic disruptions
- Increase safety
- Address operator comfort
 - Reduce Roughness
 - Reduce Noise
 - Protect the Environment
- Save money.

Concrete pavement preservation employs a range of treatments including:

- Partial-depth repair,
- Slab stabilization,
- Retrofitting dowels,
- Cross-stitching longitudinal cracks/joints,
- Diamond grinding,
- Joint & crack resealing, and
- Full-depth repair.

Mr. Roberts then proceeded to discuss the advantages, performance, and precautions associated with the following treatments:

- Diamond grinding,
- Load transfer restoration (Dowel bar retrofit),
- Full depth patching,
- Pre-cast pavement panels,
- In-situ full depth repair,
- Partial depth (Joint spall) patching,
- Partial depth repairs, and
- Joint / crack resealing.

Mr. Roberts then proceeded to describe the concept of Next Generation Concrete Surface (NGCS), a technique developed to address problems with conventional textures. As a result of research conducted by Purdue University, an improved grinding wheel was developed and used on concrete test segments in Illinois and Minnesota. Among other advantages of the new texture created, was the reduction of traffic noise.

In summary, **Mr. Roberts** made the following points:

- There are many available treatments for PCC pavements
 - Each has advantages and limitations
 - Performance and cost vary with given conditions
 - It is important to apply the right treatment to the right pavement at the right time
 - No universal method exists
 - Take advantage of local contractor experience
 - The IGGA is ready to assist.
-

Presentation - “Hot Mix Asphalt (HMA) Thin Lift Overlay Research Update”, Walaa S. Mogawer, University of Massachusetts at Dartmouth, Massachusetts

Dr. Mogawer began his presentation by describing the objectives of his continuing study as:

1. Development of Thin-Lift HMA Utilizing High Percentages of Recycled Asphalt Pavement (RAP) and Warm Mix Asphalt (WMA) Technology, and
2. Determining the Effect of Polymer Modified Asphalts on the Performance of Thin-Lift HMA.

In his experimental plan, **Dr. Mogawer** varied the following:

- **Virgin Aggregates**
 - 9.5 mm Crushed Stone
 - Manufactured Sand
 - Natural Sand
- **Recycled Asphalt Pavement (RAP)**
 - 4.75 mm NMAS
 - Fractionated RAP
- **Virgin Binders**
 - PG64-28
 - PG52-33
 - PG52-33 (with latex)
- **RAP Percentages**
 - 0%
 - 15%
 - 30%
 - 50%
- **Mix Designs**
 - Superpave 4.75 mm

Dr. Mogawer stated that the two main emphases of the Thin Lift High Percentage RAP project were:

- Mixture Stiffness in Terms of Dynamic Modulus $|E^*|$, and
- Mixture Workability.

With the Polymer Modified Thin-lift HMA, the main emphases were:

- Development of 9.5mm and 4.75mm Superpave Mix Designs Using a Crushed Stone and Gravel Source, and
- Binder Testing (MSCRT, Elastic Recovery, PG Grade).

In a discussion of the Dynamic Modulus $|E^*|$ results, **Dr. Mogawer** reported:

- Data indicated that addition of RAP increased mixture stiffness at low, intermediate and high frequencies.
- Error bars show standard error of the data. Significant difference occurs when error bars between specimens do not overlap.
- Control and 15% RAP using the PG64-28 showed no-significant changes in mixture stiffness.

In developing mix master curves from $|E^*|$ data, **Dr. Mogawer** explained that:

- Dynamic Modulus $|E^*|$ data measured in the Asphalt Mixture Performance Tester (AMPT) device were used to develop mix Master Curves,
- The Master Curve provides an indication of the performance of each mix at different temperatures and loading frequencies, and
- Comparison of mix Master Curves provides a measure to evaluate the performance of one mix versus another.

Dr. Mogawer also explained that workability was significant with these mixes due to the high stiffness of the binder in the RAP and the amount of RAP being used in each mix.

The three principal conclusions of the study were:

- Based on dynamic modulus data and master curves, the mixture stiffness increased as the amount of RAP increased. This potentially indicated that a degree of blending occurs between the virgin and RAP binder.
- Mixtures prepared with the PG64-28 and PG52-33 incorporating 30% and 50% RAP had similar stiffnesses. This potentially indicated that the use of a softer PG52-33 grade for these mixtures had little effect on mixture stiffness.
- Workability testing showed that the addition of WMA technology did not improve the workability of the mixtures with RAP. This indicates that a larger dose of WMA additive or the use of other WMA additives may be more appropriate for these types of mixes.

**Presentation - “SBR and Natural Rubber Latex-Modified Emulsions for Microsurfacing”,
Chris Lubbers, BASF Corporation**

Mr. Lubbers began his presentation by discussing asphalt emulsions - formulations, components, and other ingredients and talked about component distribution. He then described Polymers as being derived from “**Poly**” = many + **Monomers** = small molecules and listed the major latex polymer types:

- SBR Latex
- Natural Rubber Latex
- Ground Tire Rubber - GTR (REAS³).

Mr. Lubbers then proceeded to discuss visco-elastic behavior and said that polymers help improve high temperature behavior and flexibility at low temperatures. In some respects, micro-

³ REAS = **R**ubberized **E**mulsion **A**ggregate **S**lurry

surfacing (polymer + asphalt (hard)) behaves in a manner similar to latex foam (latex + air (soft)).

Finally, **Mr. Lubbers** described the benefits of using polymers in various treatments:

- Chip seals
 - Early and long term chip retention
 - High temperature strength
 - Low temperature flexibility
- Slurry seal and micro-surfacing
 - Improved mix cohesion
 - Reduction in abrasion loss of aggregate
 - Resistance to deformation.

Presentation - “Foundation for Pavement Preservation Update”, Rod Birdsall, All States Asphalt

Mr. Birdsall outlined his presentation as consisting of:

- The Foundation’s Vision and Emphasis Areas,
- Recent Accomplishments, and
- A Look into the Future.

The Foundation had provided leadership in advancing knowledge for managing and preserving pavements. According to **Mr. Birdsall**, one of the ways it had promoted knowledge was through preservation education by:

- Encouraging development and delivery of training courses,
- Enhancing relationships with other national organizations to foster pavement preservation, and
- Encouraging the development of a PP college curriculum.

In the area of research, the Foundation had:

- Continued to promote research activities in Pavement Preservation, and
- Encouraged funding⁴ for projects identified in the Pavement Preservation Strategic Plan.

The Foundation had also fostered the establishment and growth of preservation organizations by:

- Continuing to provide financial and technical support for the National Center for Pavement Preservation at Michigan State University,
- Encouraging coordination between the National and Regional Pavement Preservation Centers, and
- Continuing to support the Regional Pavement Preservation Partnerships.

Recent accomplishments include:

The completion the “*Sealer/Binder Study*” and production of the Compact Disc, “*Spray Applied Polymer Surface Seals*”.

The presentation of findings at various venues, TRB, etc., and

⁴ Funding is totally provided by Industry.

The continued publication of the “*Pavement Preservation Journal*”, for which the Foundation continues to receive subscription requests.

Mr. Birdsall told the audience that four years ago, the Foundation had three specific goals, viz.,

- To support the NCPP,
- To support the regional Pavement Preservation Partnerships, and
- To produce a pavement preservation Research Roadmap containing approximately 58 research statements in areas such as materials, construction practices, etc.

He speculated that, with its initial objectives having been accomplished, the Foundation would probably head in a different direction.

The meeting was then adjourned.

NEPPP Minutes - Enfield, CT Meeting - 20-23 October 2008

NEPPP 20-23 October 2008			
Last Name	First Name	Organization	E-mail Address
Anderson	Jeff	CT DOT	
Babowicz	Craig	CT DOT	
Bellamy	Terry	DC DOT	terry.bellamy@dc.gov
Bennett	Rick	NYS DOT	rbennett@dot.state.ny.us
Birdsall	Rod	All States Asphalt	rbirdsall@allstatesasphalt.com
Block	Edgardo	CT DOT	edgardo.block@po.state.ct.us
Boisvert	Denis	NH DOT	dbosvert@dot.state.nh.us
Calvert	John	Pavement Technology, Inc.	
Chaignon	Francois	Colas	fchaignon@colasinc.com
Chicoine	Alan	All State Asphalt	achicoine@allstatesasphalt.com
Cooper	Gary	Peckham Materials Corp.	gcoop@peckham.com
Cooper	Stephen	FHWA Connecticut Division	
Covey	Matt	NS Transportation & Infrastructure	coveyma@gov.ns.ca
Crouthamel	Terry	Asphalt Maintenance Solutions, LLC.	tc@chameleonways.com
Davis	Job	Crafco, Inc.	
Denehy	Edward	NYS DOT	edenehy@dot.state.ny.us
Derewianka	Michael	CT DOT	michael.derewianka@po.state.ct.us
DeSanti	Rob	Deighton Associates	rob.desanti@deighton.com
Dickerson	Dean	CT DOT	dean.dickinson@po.state.ct.us
Doyle	Greg	FHWA Massachusetts Division	gregory.j.doyle@fhwa.dot.gov
Durante	Colin	Pavement Technology, Inc	mstewart@pavetechinc.com
Ecmejian	Mike	Massachusetts Highway Department	
Edgerton	Ann	Agile Assets, Inc.	
Edgerton	Jim	Agile Assets, Inc.	jedgerton@agileassets.com
Ellis	Patrick	Sealcoating, Inc.	bregan@sealcoatinginc.com
Fekry	Hany	DE DOT	hany.fekry@state.de.us
Fitzgerald	Kevin	Massachusetts Highway Department	kevin.fitzgerald@mhd.state.ma.us
Fowler	Michael	Vermont Agency of Transportation	mike.fowler@state.vt.us
Franco	Colin	RI DOT	cfranco@dot.state.ri.us
Freudenreich	Kurt	Highway Rehabilitation Corp	kandkinc2@verizon.net
Gabriel	Mark	New England Emulsions	mgabriel@allstatesasphalt.com
Galehouse	Larry	NCPP	galehou3@egr.msu.edu
Gensler	Doug	Crafco, Inc.	
Gresavage	Susan	NJ DOT	susan.gresavage@dot.state.nj.us
Guiles	Neil	Vestal Asphalt, Inc.	nguiles@vestalaspalt.com
Hall	Geoff	Maryland State Highway Administration	GHall1@sha.state.md.us
Hankowski	Aaron	All States Materials Group	ahankowski@ASMG.com
Harris	Doug	CT DOT	
Harris	Jeffrey	Ten Cate	jb.harris@tencate.com
Harris	Scott	Suit-Kote Corporation	sharris@suit-kote.com
Headrick	Steve	Suit-Kote Corporation	
Herbold	Keith		
Horton	Aaron S.	DC DOT	aaron.horton@dc.gov
House	Ed	Gorman Group	ehouse@gormanroads.com
Huerta	Joe	FHWA	joseph.huerta@dot.gov
Jamieson	Jared	Cimline Northeast	
Jurovaty	Paul	Gorman Bros.	
King	Bill	Vestal Asphalt, Inc.	bking@vestalaspalt.com
Kissane	Colleen	CT DOT	
Konifka	Todd	Gorman Bros.	
Larsen	Donald	CT DOT	

NEPPP Minutes - Enfield, CT Meeting - 20-23 October 2008

Lewis	Simon	Agile Assets, Inc.	slewis@agileassets.com
Lubbers	Chris	BASF Corporation	christopher.lubbers@basf.com
Mahoney	James	University of Connecticut - CTI	james.mahoney@uconn.edu
Marshia	Kevin	Vermont Agency of Transportation	kevin.marshia@state.vt.us
McCann	Lita	CT DOT	
Mello	Fred	BASF Corporation	shrpfred@cox.net
Miner	John	Ten Cate	j.miner@tencate.com
Minick	Mark	City of Stillwater, New York	
Mitchell	Patrick	Hudson Liquid Asphalts	pmitchell@hudsoncompainies.com
Mogawer	Walaa	University of Mass - Dartmouth	wmogawer@umassd.edu
Montefiore	David	CT DOT	david.montefiore@po.state.ct.us
Montenegro	Paul		
Montenegro	Peter	BASF Corporation	peter.montenegro@basf.com
Noewatne	George	Town of Cheshire	gnoewatne@cheshirect.org
O'Doherty	John	NCPP	odohert1@egr.msu.edu
Olsen	Marvey	NCPP	olsenm@egr.msu.edu
Overturf	Brad	CT DOT	
Patenaude	Dan	New York Bituminous Products Corp.	dpatenaude@nybit.com
Pfuelb	Thomas	Crafco, Inc.	tmp@crafco.com
Pinkerton	Jennifer	DE DOT	jennifer.pinkerton@state.de.us
Roberts	John	IGGA	jroberts@pavement.com
Robertson	William	City of Los Angeles, California	william.robertson@lacity.org
Rourke	Monica	Crafco, Inc.	
Ruiz-Clark	Shari	CT DOT	
Simbari	Ron	All States Materials Group	
Simon	Les	Uretek, USA	les.simon@uretekusa.usa
Steeves	Aron	CT DOT	
Stone	Rick	Cimline Northeast	rstone@cimline.com
Suits	Paul	Suit-Kote Corporation	psuits@suit-kote.com
Thibodeau	Eric	NH DOT	ethibodeau@dot.state.nh.us
Tobin	Mike	CT DOT	
Trotter	Jason	Fugro Roadware, Inc.	info@roadware.com
Turo	Matt		mturo1@aol.com
Van	Tom	FHWA	thomas.van@dot.gov
Wesenberg	Nelson	Colas - Midland Asphalt Marketing, Inc.	Nwesenberg@barrettpaving.com
White	Alan	CT DOT	
Zalinger	Robert	New York Bituminous Products Corp.	rzalinger@nybit.com
Zeitoun	Marcelle	CT DOT	marcelle.zeitoun@po.state.ct.us
Zimmerman	Katie	Applied Pavement Technology, Inc.	kzimmerman@appliedpavement.com