

***Coordination of Pavement Activities
in the Northeast***

**A Proposal for Continuation
TPF-5(062)**



Coordination of Pavement Activities in the Northeast
Proposal for 2004-2005

Project Number TPF-5(062)

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I. Introduction and Background Summary

In the mid 1990's, five Superpave® centers were established throughout the United States by the Federal Highway Administration (FHWA) to aid in the transition to the Superpave® mix design system for Hot-Mix Asphalt (HMA) Pavements. At that time, the Northeast Center for Excellence for Pavement Technology (NECEPT) at Penn State University was designated as the Superpave® Center for the Northeastern United States. To support the activities at NECEPT, a pooled-funds project involving the northeastern states was undertaken. Throughout the duration of the pooled-funds project, the Connecticut Advanced Pavement Laboratory (CAP Lab) at the Connecticut Transportation Institute (CTI) was an active partner with NECEPT.

After several renewals of the pooled-funds project with NECEPT, revised contractual procedures within the Pennsylvania Department of Transportation made it impractical to renew the pooled-funds project with NECEPT. In 2003, in order to fill the void created from the lack of a pooled-funds project with NECEPT, other states were polled to act as the lead state. As a result, the Connecticut Department of Transportation initiated a pooled-funds project to coordinate pavement technology activities for the transportation agencies in the northeastern United States. The project was supported financially by six of the twelve transportation agencies in the region, however, all state transportation agencies in the region were involved in meetings and were invited to provide input on project activities. An important product resulting from this project was the document titled *Summary of Pavement Technology Needs in the Northeastern United States* authored by Dr. Charles Dougan. The findings of this report were based on visits to transportation agencies within the northeast states where Dr. Dougan met with designated engineers and others involved with pavement technology.

This proposal is a follow up to the one-year project initiated in 2003. There is a continued need for training, resolution of implementation issues, and additional research for refining Superpave® and other HMA issues that can best be accomplished

cooperatively by a regional pooling of resources in the northeastern states. Furthermore, the results of the first year work at CTI have pointed to specific needs for further collaborative study. This proposal contains an 18 month plan for a series of activities lead by James Mahoney, Dr. Lisa Aultman-Hall and Donna Shea at the Connecticut Transportation Institute. Dr. Jack Stephens will be available as a special advisor on this project. This team can draw on the infrastructure and technical strengths of CTI's CAP Lab staff, together with the strong training and technical assistance record of the Connecticut Technology Transfer Center staff, to deliver effective coordination of the pavement activities in the northeast. As such, the proposal includes the following activities: development of an Internet-based binder database; analysis of direct tension data gathered by suppliers and transportation agencies; visits to each agency's central laboratory; conduct roundtable discussions on pavement issues; development and implementation of an interactive Internet-based communication tool for use by agency personnel in member states; and provide for administrative functions related to coordination.

II. Problem Statement

The pavement industry, especially the HMA industry, has undergone large-scale changes during the past decade. The largest change has been the implementation of Superpave® and its related technologies. Additionally, advances in asphalt binder modifiers provide the promise of increased service life. These technological changes have revolutionized the methods used to both design and test asphalt pavement materials. The advances in asphalt pavement technology pose both opportunity of improvement and risk of unintended outcomes.

Since the Superpave® system was implemented, numerous issues have arisen and training has been recognized as a continuing need. Many of these problems are regional in nature and are therefore better resolved by a collaboration of northeastern states, especially when additional active research work is required. Active and frequent communication between state and university personnel is beneficial for optimal and

timely solutions to these paving needs. This project provides centralized, coordinated and active leadership to coordinate pavement technology activities in the northeast. It provides help to identify, organize, and resolve issues on a regional scale as well as providing a conduit to contribute to the discussion and resolution of these issues at the national level. Coordination of these activities requires both lab and field transportation materials expertise, technology transfer, active communication and administration.

III. Objectives

The overall goal of this project is to provide a mechanism to fund regional coordination and technical expertise to address HMA pavement activities and issues. This will ultimately increase the performance and longevity of HMA pavements, as well as the efficiency of handling user-producer issues in the northeastern United States. The primary focus of this project will be on HMA technology. Portland cement concrete and related activities will be addressed as needed.

The following objectives will be undertaken in this project and contribute to this goal:

- The development and implementation of a region-wide asphalt binder database;
- Analysis of binder test data collected to compare the PG grade determined by using AASHTO MP-1a versus AASHTO M320;
- Focused agency lab visits, conducted by CTI staff at participating state laboratories, will enable collaborative and constructive information sharing related to particular HMA tests. (The inclusion of a limited number of producer's labs may be appropriate if the Advisory Committee decides that producers may provide a technical contribution.);
- Frequent inter-state communication and the dissemination of new information on paving technology and procedures will be facilitated by:
 - Developing an interactive Internet-based communication tool and
 - Conducting a series of Asphalt Roundtable discussions.

IV. Evaluation Plan

This project will improve HMA pavement technology and lab testing in the northeast. This will be accomplished by improving the level of communication between transportation agencies throughout the region, and an improved understanding of the commonality of issues associated with specific testing techniques. The level of interaction occurring on the electronic forums will be tracked using website “hit counters”. This will be used to provide an early indication as to the success of the electronic forums.

During the fourteenth month of this project, a survey will be prepared and distributed to the participating transportation agencies. This survey will be designed to gauge how well the objectives of this project have been met. Additionally, the participants of the Asphalt Roundtable Discussions will be surveyed at the end of each meeting day to ensure the discussion met their expectations. Feedback forms will be submitted with all reports and publications. The CTI Technology Transfer Center team, lead by Donna Shea, has extensive experience in program evaluation processes and measuring effectiveness. Dr. Aultman-Hall has extensive experience designing survey instruments and addressing sampling issues. Dr. Aultman-Hall will lead this evaluation effort.

Furthermore, the project will be considered successful if journal papers or national/regional conference presentations are made as a result of the project to increase the awareness of activities and contributions of the northeastern states in this area.

V. Benefits

Providing regional technical expertise to address HMA pavement technology benefits all of the states throughout the northeastern United States. These benefits include the

indirect cost savings gained by increasing the service life of pavements, but more immediately, the reduction in initial implementation costs and the savings gained by avoiding duplication of efforts through pooling of efforts. Leadership of a coordination project can also aid in the formulation of a common viewpoint to present on a national scale, as well as the personnel to actively present this viewpoint at national meetings. Additionally, this project would provide a regional forum for practitioners to receive training and draw on regional expertise to find solutions to their own technical issues.

VI. Research Results

The research results will be presented in report format throughout the project so that they are immediately available to member states. These reports will include:

- Quarterly progress reports
- Direct Tension Data Analysis Report
- Laboratory Visitation Report
- Asphalt Roundtable Discussions whitepaper
- Final report summarizing the results of the evaluation surveys
- Executive Summary

These reports will be distributed to all of the members of the Advisory Committee in draft form for review and comment prior to being finalized.

VII. Implementation

The results of this project relating to testing techniques would be forwarded to AASHTO for their consideration in modifying specifications. These results will be approved by the Advisory Committee before being forwarded to AASHTO through the lead state. The product of the Roundtable Discussions will take the form of a “white paper” documenting a recommended course of action or short-term strategy to address

challenges in the focus area. The focus area will be selected by the Advisory Committee. The “white papers” will be distributed to all of the states in the region.

The analysis of the direct tension data gathered by both suppliers and transportation agencies will help to clarify whether or not the additional testing to determine the critical cracking temperature is warranted. Clarifying when the additional testing for determining the critical cracking temperature is worthwhile, will help to reduce the burden placed on both suppliers and transportation agencies by the additional testing.

The electronic forums, developed as part of the interactive Internet-based communication tool, will provide critical opportunities for HMA professionals (engineers and technicians) to exchange information on problems, different technologies and methodologies. The lab visits and roundtable discussions will also increase the exchange of information within the region.

VIII. Work Plan

The following tasks will be undertaken to meet the previously outlined objectives.

Task 1: Management of Asphalt Binder Database

Most asphalt binder suppliers ship material to multiple states. States require each lot of asphalt binder to be accompanied by a certificate of analysis containing test results that verify the grade of the binder. The collection of this data on a regional basis in a unified format would assist both the Transportation Agencies and the asphalt binder producers. This would prevent asphalt binder producers from having to generate multiple test reports containing the same test results but in different formats. Having the information in a central repository will assist Transportation Agencies by providing a central location at which to post and obtain test results. The posting of test results on a centralized database will aid producers by providing Agency test results in a timely manner. It will also provide Transportation Agencies the ability to cross reference their test results with results obtained by other Transportation Agencies on particular Lots of materials. This

cross referencing of test results will benefit both the Agencies and producers for material not meeting specification requirements. It will provide a method for determining whether the failing material was an isolated problem or a more widespread problem.

A great deal of work has been performed developing a database capable of handling this type of information. The first step of this task would be to examine the different databases available. These databases would be examined to determine the information needed to meet the requirements of both the Agencies and Producers. This would then be adapted to an appropriate Internet client/server database. Information would be posted into the database by both Agencies and producers using typical Internet browsing software. The ability to access the data would be password-protected to protect the confidentiality of producers test results. This database would be hosted on servers at the University of Connecticut. This would allow the data to be accessed by both Agencies and Producers remotely. Also, any updates made to the database will be accessible instantaneously, thereby eliminating the potential for the existence of multiple versions of the database.

Task 2: Direct Tension Data Analysis

Asphalt binder suppliers have been required to determine the critical cracking temperature of one Lot of material each month during the past year. The collection of this information is proposed to continue through the next construction season. This data will be collected into the binder database implemented as part of Task 1. All information collected will be confidential and lab identification will be blinded prior to distribution. The data collected will be used to determine if the additional testing required as part of MP-1a had any significant effect on the low-end of the PG grade. Suppliers will be asked to delineate modified asphalt binder samples from neat asphalt binder samples.

This data will be analyzed to compute the standard deviation for each grade tested. Results will be analyzed to determine each laboratory's standard deviation as well as

lab bias for any split sample testing that has occurred and been reported. The data will also be analyzed to establish the grading differences between using AASHTO M-320 and MP-1a.

This collected data will be forwarded to the Federal Highway Administration for their use. In order for this information to be of maximum use, the results of each individual test specimen must be reported. The database will provide the ability to report the data.

This Task will be completed by January 31, 2005. This will allow the Agencies and Suppliers time to review the results and make decisions about the data that needs to be collected during the 2005 construction season. The Advisory Committee will review the report on this Task before it released.

Task 3: Focused Laboratory Visits

In this project, Mr. James Mahoney will lead visitations to each participating state's central HMA testing laboratory. During these visits, the focus will not be on the procedures followed, but on problems encountered by technicians when performing testing on a daily basis. An entire day will be spent in two-way communication and discussion regarding the challenges and issues faced in sample handling and/or testing procedures. Innovations in sample handling and preparation, as well as testing observed at particular labs, will be noted and shared with other labs via the Northeast Pavement Coordination website.

The focused laboratory visits will be very different from AASHTO Materials Reference Laboratory (AMRL) inspections conducted approximately every 22 months. AMRL inspections are aimed at only ensuring that testing procedures follow the protocols designated by AASHTO and/or ASTM specifications. These AMRL lab inspections are limited in that the discussion of problems with testing procedures is limited to ensuring the procedures used follow the specifications.

The focus of the laboratory visits will be on a particular aspect of HMA testing as identified in a mail-back pre-survey of member labs. The results of the pre-survey will be presented to the Advisory Committee and the focus area for the lab visits will be approved by the Advisory Committee. Therefore, the focus topic will be of general concern to engineers and technicians throughout the region. Standard samples will be brought to each laboratory for use during the visit. This data will be compiled, analyzed, the variability examined and the results presented to the Advisory Committee. Care will be used to ensure laboratory identities remain confidential. This visit will also be used to gather information on testing techniques and the frequency of their use in each state's laboratory.

Any problems experienced with testing procedures will be documented and forwarded through the lead state to AASHTO for their consideration. A mutual concern of several labs will strengthen this communication. The findings from these visits will be the basis of the discussion topics during the roundtable discussions for technicians. This particular item is further discussed in Task 4.

Task 4: Asphalt Roundtable Discussions

The Technology Transfer Center at CTI conducted half-day Asphalt Roundtable Discussions during the summer of 2003, as a part of their *Road Scholar* Program. The discussions were conducted by a CTI instructor and an FHWA Facilitator with a focus towards municipal employees. These events provided a forum for questions on all facets of HMA pavement. The topics for discussion were determined, in advance, by the participants who submitted questions during the advanced registration process. The CTI instructor and FHWA facilitator were pleased with the level of interaction between people from different municipalities in attendance. The general pattern of interaction consisted of one group raising problems they encounter on a routine basis in their region and other groups suggesting resolutions for these problems.

This task proposes that the success of the Asphalt Roundtable Discussions be extended for state personnel within the region. Within this project we would provide a forum for practitioners (maximum 20 to promote meaningful discussions) to come together to discuss issues. There will be roundtable discussions for engineers as well as for technicians. It is envisioned that these day-long, facilitated roundtable discussions would be held at 2 centralized locations in the region. Both technician roundtables would be completed prior to the engineer roundtables. The engineer roundtables would include a portion of the discussions held during the technician roundtables. This will promote the dissemination of information between technicians and engineers. The events would take place in a single day from approximately 10AM until 3PM to accommodate easy travel and minimize costs by avoiding overnight stays. In the event travel restrictions prohibit states from traveling to attend the discussions, consideration would be given to conducting a roundtable discussion using videoconferencing technology.

The findings from the laboratory visits will be used to generate discussion topics for the roundtable discussions. A “white paper” summarizing the discussions will be generated and distributed to the participants as well as to the Advisory Committee. The “white paper” will also contain a plan of action for the implementation of recommendations.

Task 5: Development of an Interactive Internet-based Communication Tool

This proposal is based on the premise that continual communication between lab personnel within the region is of paramount importance. CTI already receives approximately 25-30 calls per year from personnel within the region. The proposal of this task is to promote and formalize this function. The need for communication is recognized as testing procedures are continuously evolving and laboratory technicians are constantly forced to interpret the changes. Different interpretations will lead to the tests being performed differently, which may cause differences in test results. Unique pavement problems will also likely occur. Having an electronic forum for raising these

issues, where other agencies in the region may have experienced similar problems, will allow the communication and sharing of methods used to solve problems.

The development of electronic discussion forums involves two functions of the Northeast Paving Coordination website, created in 2003 – 2004, and located within the CTI website. The first function will allow for submitting technical questions pertaining to the testing of asphalt binder and HMA. Replies will be based upon CAP Lab expertise in this area. If the question is outside the CAP Lab's expertise, the CAP Lab will research the question to formulate a response.

The second function will allow for problems to be posted. As this area will be interactive, others who have experienced similar problems may respond with a suggested solution to the posed problem. The CTI moderator of the electronic forum will facilitate the discussions by posing the questions to others in the region. The moderator will also filter the postings made to the website to ensure their appropriateness.

Each week the content of the discussion groups will be reviewed by the moderator and any changes or updates deemed necessary will be made. The goal will be to respond to information inquiries within two business days. In the event additional research is needed, a response will be sent indicating the anticipated date by which a response can be expected.

The option to set up a "call the expert" system is also possible if the Advisory Committee deems this more appropriate. CTI personnel will monitor the related discussion forums of other regions and other groups to ensure matters of interest are directed to the member states when they are raised elsewhere.

Task 6: Administrative and Support Services

The project requires support personnel to perform activities necessary for managing the project. The following will be funded through this task:

- Project evaluation
- Partial funding of salaries and benefits for secretarial, financial and technical personnel needed to respond to the needs of the region and to ensure readily accessible technical contact for the participating states. Activities funded under this task include:
 - Organization of Advisory Committee Meetings
 - Video conferencing would be used for Advisory Committee meetings to reduce travel when the Advisory Committee deems it appropriate.
 - Communications (both telephone and electronic)
 - Updating the website as needed
 - Financial accounting
 - Preparation of progress reports
 - Preparation, distribution and compilation of evaluation surveys
 - Preparation of Final Report

IX. Summary of Qualifications

The Connecticut Transportation Institute (CTI) is a center within the School of Engineering at the University of Connecticut. Established in 1974, CTI is devoted to transportation research, education and service. The personnel at CTI consists of program coordinators, research engineers, technicians, graduate students and faculty in addition to its own financial and administrative personnel. In addition to contract research and programs, CTI is comprised of three special programs (the Connecticut Cooperative Highway Research Program, the New England Transportation Consortium

and Connecticut Technology Transfer Center) and one specialized facility: the Connecticut Advanced Pavement Laboratory (CAP Lab).

The Connecticut Transportation Institute is uniquely positioned to lead this project. The experience and successful programming at the CAP Lab and Connecticut Technology Transfer Center are outlined here. Numerous programs and projects similar to those proposed here have been undertaken by these units in the recent past.

Connecticut Advanced Pavement Laboratory

The CAP Lab is a 10,000 square foot research and testing facility for HMA. The CAP Lab is accredited under the AASHTO Accreditation Program for Aggregate, Performance Graded Binder as well as HMA testing. The CAP Lab has all of the necessary equipment to perform the required testing for Superpave® HMA mix designs. This equipment includes; Dynamic Shear Rheometers, Bending Beam Rheometers, an asphalt binder Direct Tension Tester, a Rotational Viscometer, Pressure Aging Vessels, a Rolling Thin Film Oven, Superpave® Gyratory compactors, an Ignition Oven as well as applicable aggregate testing equipment. The CAP Lab is also equipped to perform dynamic modulus testing of HMA mixtures.

The CAP Lab has two key personnel that provide the backbone of its qualifications in addition to research engineers, graduate students and technicians. Mr. James Mahoney is currently the Head Research Engineer and Operations Manager. In addition to his eight years of research experience, he has acted as instructor for approximately 60 workshops and courses providing guidance to approximately 1,200 professionals and technicians. He is respected as a regional authority and field expert especially in the area of HMA materials. Dr. Jack Stephens brings over 50 years of research, administration and teaching experience to bear in his current role as special technical advisor.

The CAP Lab staff have recently completed a number of large research projects funded by state DOTs and industry. These projects include: *E* - Dynamic Modulus Test Protocol, Problems and Solutions, Application of Thermographic Imaging to Bituminous Concrete Pavements, Determination of the PG Binder Grade for Use in a RAP Mix as well as Connecticut Superpave® Gyrotory Compactor Round Robin*. The Dynamic Modulus project examined the testing protocol and made suggested revisions to eliminate problems encountered determining the Dynamic Modulus. As the Dynamic Modulus is being integrated into the newest Pavement Design Guide, improving the testing protocol to provide accurate and reproducible results is critical.

The CAP Lab personnel are very active with the New England Transportation Technician Certification Program (NETTCP). Certification courses for NETTCP in the Soils and Aggregate Inspector, Soils and Aggregate Laboratory Technician and the Performance Graded Asphalt Binder courses are conducted for state, local and private industry personnel. The CAP Lab staff is involved in NETTCP committees governing the content of Quality Assurance Technologist, HMA Paving Inspector, as well as PG Binder Technician certification courses. The CAP Lab is also represented on the NETTCP Board of Directors. CAP Lab staff members are certified in areas such as PG Binder Technician, HMA Plant Technician, HMA Paving Inspector, Soils and Aggregate Lab Technician, Soils and Aggregate Inspector, Concrete Technician, Concrete Inspector as well as Quality Assurance. The CAP Lab works in conjunction with the Technology Transfer Center at the Connecticut Transportation Institute to offer approximately five workshops per year involving HMA pavement technology.

Connecticut Technology Transfer Center

The Connecticut Technology Transfer Center was established in 1983 at the University of Connecticut School of Engineering's Connecticut Transportation Institute. The center is one of a national network of 58 Local Technical Assistance Programs (LTAP). For the past 20 years, the center has been devoted to its mission of "fostering the safe, efficient, environmentally sound roadway system required to maintain and improve the

economy and quality of life for the citizens of the state of Connecticut by providing training and technical assistance to the local transportation agencies.”

The comprehensive services offered by the Technology Transfer Center include:

- Technical Assistance on problems relating to road and bridge design, construction, maintenance, traffic safety and operation and the latest in transportation technology.
- The Connecticut Road Master Certificate Program
- The Connecticut Road Scholar Certificate Program
- The Connecticut Municipal Legal Traffic Authority Program
- Other workshops, seminars and conferences on a wide variety of contemporary topics related to the planning, design and operation of the local transportation system
- A quarterly newsletter that provides members of the Connecticut transportation community with information on the latest techniques and practices being used throughout the United States for the management, construction and maintenance of local roads
- An extensive on-line resource library with technical publications, video training tapes and technical information on CD-ROM
- The loan of traffic counting/vehicle speed recording equipment
- The loan of our “safety town” for children
- Circuit Rider Program for municipalities to provide updated information, answer specific questions, and discuss various road and safety concerns

In total, the Connecticut Technology Transfer Center had 3,500 people attend their programs in 2003.

CTI has three professional staff members who devote 100% of their time to Technology Transfer. Donna Shea, the Program Director for the center, has been with the program for five years and brings almost 20 years of leadership experience to the institute. Mary

McCarthy, the center's Workshop Coordinator, and Stephanie Merrall, the Technical Information Specialist, bring many years of valuable experience to their current roles of coordinating the core training and technical assistance services for the center. Numerous other CTI staff members active in technology transfer programming include: a large group of faculty and other professional instructors, program assistants, technicians, and graduate and undergraduate students.

X. Anticipated Work Schedule – Operational Procedures

The work on this project is anticipated to begin in September 2004 and be completed in 18 months. Figure 1 is a detailed work schedule for this project. This schedule may need to be revised based upon the actual start date due to the need to hold certain activities during the winter to work around the construction season.

The pre-survey of the participating transportation agencies regarding the laboratory visits would start immediately in the first month. The development of the asphalt binder database would also begin in the first month with the review of existing databases. The first technical Advisory Committee meeting would be convened in the third month. At this meeting, a revised work schedule will be submitted, if necessary, for approval based upon the actual project start date. During its first meeting, the Advisory Committee will review the draft format developed for the asphalt binder database, the focus area for the laboratory visits and the content and approach of the Internet-based communication tools. The focused lab visits would begin in the fourth month. A draft of the direct tension analysis report would be submitted to the Advisory Committee on the fifth month and revisions would be made promptly after receiving them in order to finalize the report. The Advisory Committee would be convened in month nine to review the draft reports on the laboratory visits and provide feedback regarding the asphalt binder database. The Asphalt Roundtables would begin in month nine. The project evaluation process would be undertaken during months fourteen and fifteen. The Advisory Committee would meet during month sixteen to review the draft of the roundtable white paper. A draft of the final report will be submitted during month

Figure 1
 Coordination of Pavement Activities in the Northeast
 2004-2005

Tasks	Months																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
I. Binder Database (DB)																		
Review Existing Binder DB	■	■																
Develop Draft Binder DB		■	■															
Submit Draft DB to Advisory Committee			■															
Revise DB per Advisory Committee				■														
Make DB available via Internet					■	■	■	■	■	■	■	■	■	■	■	■	■	■
Revise DB as Necessary					■	■	■	■	■	■	■	■	■	■	■	■	■	■
II. Direct Tension Analysis																		
Collect Data	■	■	■															
Compile Data		■	■															
Conduct Analysis		■	■	■														
Prepare Draft Report			■	■														
Submit Draft Report					■													
Finalize Report						■												
III. Focused Laboratory Visits																		
Conduct Pre-survey	■	■																
Finalize Testing Area for Visits			■															
Conduct Visits				■	■	■												
Compile Observations				■	■	■	■											
Prepare Draft Report						■	■											
Submit Draft Report								■										
Finalize Report										■	■							
IV. Asphalt Roundtable Discussions																		
Prepare Advanced Questionnaire						■	■											
Distribute Questionnaire							■	■										
Compile Responses								■										
Conduct Technician Roundtables									■	■								
Conduct Engineer Roundtables										■	■							
Compile Results											■	■						
Prepare Draft White Paper												■	■					
Submit Draft White Paper														■				
Finalize White Paper																	■	
V. Internet Communication Tool																		
Develop Forum Format	■	■																
Finalize Forum Format			■															
Respond to Technical Questions	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Program and Moderate Forums				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
VI. Project Administration																		
Prepare Quarterly Progress Reports			■			■			■			■			■			■
Advisory Committee Meetings			■						■							■		■
Conduct Project Evaluation												■	■	■				
Financial Accounting	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Prepare Draft Final Report												■	■	■	■	■		
Submit Draft Final Report																	■	
Finalize Final Report																		■

seventeen, and this, along with the project evaluation, will be reviewed during an Advisory Committee meeting conducted during month eighteen.

XI. Budget and Budget Justification

The overall project cost is estimated to be \$147,564 over an eighteen month period. This includes a reduced University of Connecticut indirect rate of 20%. The fringe rates are those currently negotiated by the State of Connecticut at the University of Connecticut and published for fiscal year 2005. Table 1 contains the breakdown of estimated costs by task for the project. Due to the nature of this project, involving mail-back surveys and telephone assistance with out of state labs conducting experiments, phone and mail costs are charged as direct items. This section contains a justification and explanation of costs by task outlined in this previous section of this proposal.

Task 1: Binder Database

This task involves the PI, Computer Programmer II, Research Assistant I as well as student labor. (This would require 85, 175, 35 and 75 hours respectively) The majority of the salary budget corresponds to the main work on this task being conducted by the Computer Programmer II at CTI under the direction of the project PI. The supply line of the task is anticipated for the purchase of supplies necessary for the completion of the task. The contractual item for this task consists of the costs associated with the distribution of draft copies of the database as well as costs associated with the distribution of any documentation necessary to use the database.

Task 2: Direct Tension Analysis

This task involves the PI, Co-PI 1, Research Assistant I as well as student labor. (This would require 105, 20, 105 and 25 hours respectively) The salary budget for this task corresponds with the anticipated effort required to complete the analysis of the data collected. The contractual budget line for this task consists of costs associated with the reproduction of the report generated from this effort.

Table 1 - Cost Estimate by Task
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Personnel	Binder Database		Direct Tension Analysis		Focused Lab Visits		Roundtable Discussions		Internet Communication		Project Administration		Total
	hrs	Task 1	hrs	Task 2	hrs	Task 3	hrs	Task 4	hrs	Task 5	hrs	Task 6	
James Mahoney (PI)	85	\$2,943	105	\$3,635	260	\$9,001	140	\$4,847	175	\$6,059	100	\$3,462	\$29,947
Lisa Aultman-Hall (co-PI 1)			20	\$1,000	20	\$1,000					40	\$2,000	\$4,000
Donna Shea (co-PI 2)									140	\$3,920	140	\$3,920	\$7,840
Jack Stephens (Sp Research Advisor)				\$500									\$500
Technical Assistant II - DaDalt					35	\$808							\$808
Financial Assistant II - Mather											150	\$3,450	\$3,450
Computer Programmer II - Smith	175	\$5,856							100	\$3,346			\$9,202
Program Assistant I - Barrett							210	\$4,620	100	\$2,200			\$6,820
Research Assistant I	35	\$827	105	\$2,481	70	\$1,654			70	\$1,654	40	\$945	\$7,561
Student Labor	75	\$600	25	\$200	25	\$200	50	\$400	175	\$1,400			\$2,800
Fringes	Fringe Rate												
James Mahoney	32.3%	\$951		\$1,174		\$2,907		\$1,566		\$1,957		\$1,118	\$9,672
Lisa Aultman-Hall	32.3%			\$323		\$323						\$646	\$1,292
Donna Shea	32.3%								\$1,266			\$1,266	\$2,532
Jack Stephens	10.3%			\$52									\$52
Technical Assistant II - DaDa	32.3%					\$261							\$261
Financial Assistant II - Mathe	48.3%											\$1,666	\$1,666
Computer Programmer II - S	48.3%	\$2,828								\$1,616			\$4,445
Program Assistant I - Barrett	32.3%							\$1,492		\$711			\$2,203
Research Assistant I	32.3%	\$267		\$801		\$534				\$534		\$305	\$2,442
Student Labor	1.0%	\$6		\$2		\$2		\$4		\$14			\$28
Supplies		\$1,000										\$1,800	\$2,800
Contractuals		\$750		\$750		\$750		\$5,000		\$200		\$2,000	\$9,450
Travel													
In-State						\$100		\$400				\$450	\$950
Out of State						\$5,000		\$3,000				\$4,250	\$12,250
Total Direct		\$16,028		\$10,918		\$22,540		\$21,329		\$24,877		\$27,278	\$122,970
20% Indirect		\$3,206		\$2,184		\$4,508		\$4,266		\$4,975		\$5,456	\$24,594
Total including Indirects		\$19,233		\$13,102		\$27,049		\$25,594		\$29,852		\$32,734	\$147,564

Task 3: Focused Lab Visits

This task involves the PI, Co-PI 1, Technical Assistant II, Research Assistant I as well as student labor. (This would require 260, 20, 35, 70 and 25 hours respectively) Therefore, Mr. Mahoney will personally visit each lab. The contractual budget line for this task consists of costs associated with the distribution of surveys by mail, phone charges associated with phone surveys, as well as costs associated with the reproduction of the report generated from this effort. In-state travel funds are requested to travel to laboratories within Connecticut. Out of state travel funds are requested to conduct laboratory visits in states throughout the Northeast.

Task 4: Round Table Discussions

This task involves the PI, Program Assistant I as well as student labor. (This would require 140, 210 and 50 hours respectively) The contractual budget line for this task consists of the costs associated with hosting 6 Round Table Discussions throughout the region as well as the reproduction and distribution costs associated with the whitepaper that will be generated from this task. In-state travel funds are requested for the proposed Roundtable Discussion held in Connecticut. Out-of-state travel funds are requested for the Round Table Discussions conducted in other states in the region.

Task 5: Interactive Internet-based Communication Tool

This task involves the PI, Co-PI 2, Program Assistant I, Research Assistant I as well as student labor. (This would require 175, 140, 200, 70 and 175 hours respectively) The contractual budget line for this task consists of the costs associated with maintaining communications with the participating member states.

Task 6: Project Administration

This task involves the PI, Co-PI 1, Co-PI 2, Financial Assistant II and Research Assistant I. (This would require 100, 41, 140, 150 and 40 hours respectively) The supplies to be purchased for this project will be project-related. The contractual budget line for this task consists of the costs associated with conducting the Advisory Committee meetings as well as the reproduction of the Final Report for this project. In-

state travel funds are requested for meetings with lead-state personnel in the Connecticut DOT. Out-of-state travel funds are requested to attend Advisory Committee meetings conducted in other states, as well as for attending pavement related conferences.

XII. Potential Additional Services

CTI can provide additional pavement related services to the northeastern states. The services discussed below are not part of the work plan previously described and would require additional financial resources. These services include:

- Develop training for the new Pavement Design Guide including Dynamic Modulus testing of HMA
- Conducting thermographic imaging analysis of paving operations
- Pavement related specification development
- Conduct focused laboratory visits to the producer labs
- Participate in National Superpave Center Newsletter by providing funding for the production of the Northeastern Regional insert and distribution of the newsletter in the region
- Coordination of Regional video conferences for Pavement Management personnel as well as Bituminous Engineers

CTI has conducted a large research project examining Dynamic Modulus testing of HMA. This project has provided CTI staff with a unique understanding of the concepts associated with the new Pavement Design Guide. Thermographic imaging of paving operations is an excellent tool for identifying temperature anomalies incurred during construction. These temperature anomalies are generally associated with areas in the pavement that may fail prematurely. The development of pavement related specifications requires an intimate knowledge of material properties as well as statistical analysis. CTI is well equipped to provide assistance with specification development.

The Northeastern Pavement Management Conference is an annual event which began in the late 1980's as a method to promote new technology and best practices, as well as discussing regional pavement program issues. The conference target audience is transportation agency pavement management staff. Attendance by consultants, academia, and other interested stakeholders has been steadily increasing each year. The average attendance for this two-day conference is typically 100 people. The location of the conference usually rotates throughout the northeast region. There are no states in a position to host this conference for the current year. CTI has extensive experience organizing and conducting conferences, developing curriculum for training and organizing technical programs. The ability of CTI to take the lead on regional conferences has been raised as a possible task related to this project. (Conferences are typically intended to be financially self-sustaining and therefore difficult to include in a project proposal and budget. However, committing to a conference would require funds that might be used if cancellation occurs due to unforeseen events such as bad weather).

XIII. References Reviewed

American Association of State Highway and Transportation Officials, *Standard Specifications for Transportation Materials and Methods of Sampling and Testing*, 23rd Edition, Washington, DC, 2003.

Dougan, Charles E., *Summary of Pavement Technology Needs in the Northeastern United States*, Connecticut Transportation Institute, January 2004.

Appendix A
Resumes of Key Personnel

James Mahoney
5 Birch View Drive
Ellington, CT 06029
(860) 870-5959 H
(860) 486-5956 W

**PROFESSIONAL
EXPERIENCE**

Operations Manager, Connecticut Advanced Pavement Laboratory (CAP Lab), March 1996 - Present.

Manage daily lab operations and scheduling, including project management and AASHTO Accreditation. Projects managed include "Superpave Implementation" sponsored by the New England Transportation Consortium, North Eastern States Pooled Fund subcontract between the North East Center of Excellence for Pavement Technology (Northeastern Superpave Center at Penn State) and the CAP Lab, "Application of Thermal Imaging to Bituminous Concrete Pavements sponsored by ConnDOT and several projects sponsored by the Joint Highway Research Advisory Council. Instructed several New England Transportation Technician Certification Program (NETTCP) certification courses including Superpave PG binder Technician. Taught National Highway Institute training courses dealing with Superpave. Instructed Technology Transfer Center course "Superpave for Municipalities". Participated in various ConnDOT Task Force Committees for Asphalt Pavement Improvement. Designed Superpave pavements for experimental test sections as part of the Federal Long-Term Pavement Performance program. Member of the Board of Directors for NETTCP. Serving as co-chair for the NETTCP HMA Paving Technician Committee. Developed modified Superpave procedures for addition of RAP. Designed numerous Superpave mixes for various traffic design levels for contractors.

Adjunct Lecturer, University of Connecticut - Torrington Branch, Fall 1995-Present. Classes taught include Foundations of Engineering, Applied Mechanics I and II.

Computer Consultant, Cornwall Planning Group, 1993-Present. Research, recommend and secure new equipment, maintain computer operations, and oversee the development of database and specialized business applications.

James Mahoney

EDUCATION **Master of Science: Geotechnical Engineering**, University of Connecticut, August 1995. Thesis research included the development and implementation of a laboratory testing program.

Bachelor of Science; Civil Engineering, University of Connecticut, May 1993.

CERTIFICATIONS:The following are New England Transportation Technician Certification Program (NETTCP) certifications:

HMA Plant Technician
HMA Paving Inspector
Soils and Aggregate Laboratory Technician
Soils and Aggregate Inspector
PG Binder Technician
QA Technologist

PUBLICATIONS & TECHNICAL REPORTS Anderson, David A., M. O. Marasteanu, C. E. Antle, A. Stonex, J. M. Mahoney, J. E. Stephens, "Background Information for the Development of a Statistically Based Acceptance Plan for Performance Graded Binders", NECEPT Pooled Fund Study - Task R6, February 2000.

Anderson, David A., Mihai Marasteanu, James Mahoney and Jack E. Stephens, "Factors Affecting the Variability in the SHRP Binder Tests", The Transportation Research Board Presentation and Publication, 1999.

Dougan, Charles E., Jack E. Stephens, James Mahoney and Gilbert Hansen, "E* - DYNAMIC MODULUS Test Protocol - Problems and Solutions", Report Number CT-SPR-0003084-F-03-3, April 2003.

Mahoney, James and Jack E. Stephens, "Connecticut Superpave Gyratory Round Robin - 2003 Final Report", CAP Lab Report Number 2003-01, April 2003.

Mahoney, James and Jack E. Stephens, "Moisture Sensitivity for Hot Mix Asphalt Evaluation for Connecticut Department of Transportation Modified AASHTO T283 Method Versus the Strict AASHTO T283 Interpretation", Connecticut Department of Transportation, June 1999.

James Mahoney

Mahoney, James and Jack E. Stephens, "Superpave Implementation of Binder Testing", NETC Project. 96-1, September 1999.

Mahoney, James, Scott A. Zinke, Jack E. Stephens, et al, "Application of Infrared Thermographic Imaging to Bituminous Concrete Pavements", Final Report - Draft, Connecticut DOT Report Number 2229-F-03-04, July 2003.

Myers, Leslie A., James Mahoney and Jack E. Stephens, "Application of Infrared Thermographic Imaging to Bituminous Concrete Pavements", Interim Report, Connecticut Department of Transportation, August 2001.

Stephens, Jack E., James Mahoney and Charles Dougan, "Early Distress of Open-Graded Friction Course", NETC Proj. 97-4, August 1999.

Stephens, Jack E., James Mahoney and Cory Dippold, "Development of a Test to Measure the Tendency for a Hot-Mix Asphalt to Segregate", JHR99-274, February 2000.

Stephens, Jack E., James Mahoney and Cory Dippold, "Determination of PG Binder to Use in Hot Mix Containing RAP", Final Report, JHRAC Project Number 99-1, Report Number 00-278, April 2001.

AWARDS

E. Russell Johnston, Jr. Award, 1992. Excellence in Civil Engineering Award; Top ranked Junior Civil Engineering student.

Tau Beta Pi, National Engineering Honor Society, Inducted in 1992.

Chi Epsilon, National Civil Engineering Honor Society, Inducted in 1992.

LISA AULTMAN-HALL
32 Bakos Road, Tolland, CT 06084
(860) 486-4396 (860) 805-9393 (cell)

FULL-TIME EMPLOYMENT

University of Connecticut (August 2003 - present)
Director, Connecticut Transportation Institute

University of Connecticut (August 2001 - present)
Associate Professor (Transportation Systems), Department of Civil and Environmental Engineering

University of Kentucky (August 1996 - August 2001)
Assistant Professor (Transportation), Department of Civil Engineering

EDUCATION

Ph.D. 1996 Dept. of Civil Engineering (Transportation), McMaster University, Hamilton, Ontario
Thesis: Commuter Bicycle Route Choice: Analysis of Major Determinants and Safety Implications

Master of Science (Eng.) 1993 Traffic Engineering, Queen's University, Kingston, Ontario
Thesis: An Evaluation of the Modeling of Freeways in the INTEGRATION Simulation Model

Bachelor of Engineering 1991 Civil Engineering, McMaster University, Hamilton, Ontario

TEACHING EXPERTISE

- Transportation safety
- Statistical analysis and probability
- Transportation planning and traffic engineering
- Surveying, Geographic Information Systems (GIS) and Global Positioning Systems (GPS)
- *Professional Short Courses (taught multiple times in Connecticut or Kentucky, 1997- 2003):*
Bicycle/Pedestrian Facility Design, Highway Capacity Analysis, Traffic Signal Optimization

RECENT RESEARCH GRANTS

- 2003 National Science Foundation. "Modeling the Spatial Distribution of Fine Particulate Matter Emissions from Transportation Vehicles" – \$318,000 – PI
- 2003 New England University Transportation Center, "Modeling Modal Transient Events for Vehicle Emission Models" – \$53,421- PI
- 2003 National Science Foundation. "Women Engineering Faculty Leadership Network" \$200,000 – co-PI
- 2003 New England University Transportation Center, "Parking Demand Management for Sustainable Development: Learning from Innovative New England Communities" –\$63, 348 - co-PI
- 2003 Connecticut Cooperative Highway Research Program, "Factors Affecting Young Drivers Safety" \$31,540 – PI
- 2002 England University Transportation Center, "Route Behavior Analysis from a System Efficiency Perspective" \$56,500 – PI
- 2002 Connecticut Cooperative Highway Research Program, "Incorporating Truck Flows into the

- State-wide Planning Traffic Model” \$50,000 – PI
- 2002 Connecticut Cooperative Highway Research Program, “Developing a Methodology to Evaluate the Safety of Shared-use Paths” \$25,000 – PI

PAPERS, PUBLICATIONS AND PRESENTATIONS¹

Summary:

Refereed Journal Papers: 19 total, 16 in print, 3 in-press (3 additional papers in review)

Conference Participation: 40 total

Full Papers in Conference Proceedings (full paper-reviewed) - 3

Full Papers in Conference Proceedings (abstract reviewed) - 11

Presentations by Dr. Aultman-Hall or graduate students under her supervision - 17

Invited Conference Presentations - 9

Invited Academic Seminars: 9

Technical Reports: 59

Recent Peer-Reviewed Journal Publications

An * indicates a graduate student working under my supervision while ** indicates other students employed as research assistants. ^ indicates one of my Ph.D. advisors.

1. Jason Yaw Cheuk Hing**, Nikiforos Stamatidis and Lisa Aultman-Hall, “Evaluating the Impact of Passengers on the Safety of Older Drivers” accepted June 2003 and forthcoming in *Journal of Safety Research*.
2. Sarah T. Bowling* and Lisa Aultman-Hall, “The Development of a Random Sampling Procedure for Local Road Traffic Count Locations” accepted for publication May 2003 to appear in *The Journal of Transportation Statistics*.
3. Charles Dougan, Lisa Aultman-Hall, Soon-Nam Choi, Bradley Overturf and Christine Hobson**, “Lateral Variation in Pavement Smoothness: Implications for Performance Based Contracting” accepted for publication March 2003 in *Transportation Research Record* the journal of the Transportation Research Board.
4. Sarah Lynn Schulte*, Lisa Aultman-Hall, Matt McCourt** and Nikiforos Stamatidis. “Consideration of Driver Home County Prohibition and Alcohol-related Vehicle Crashes” *Accident Analysis and Prevention*, Volume 35, No. 5, pages 641-648, 2003.
5. Stewart Robertson* and Lisa Aultman-Hall. “Impact of Road Conditions on Elderly Drivers” *ASCE Journal of Transportation Engineering* May/June 2001, Volume 127, Number 3, pages 244-246.
6. Lisa Aultman-Hall, Bradford Johnson** and Brian Aldridge* “Statewide Commodity Flow Data and Assessing the Potential for Modal Substitution” *Transportation Research Record* the journal of the Transportation Research Board #1719, pages 10-16, 2000.
7. Lisa Aultman-Hall, Sarah Bowling* and Jill Asher* “ARTIMIS Telephone Traveler Information Service: Current Use Patterns and User Satisfaction” *Transportation Research Record* the journal of

¹ An * indicates a graduate student working under my supervision while ** indicates other students I employed as research assistants.

the Transportation Research Board, #1739, pages 9-14, 2000.

8. Sean T. Doherty, Lisa Aultman-Hall and Jill Swaynos**. "Commuter Cyclist Accident Patterns in Toronto and Ottawa, Canada" American Society of Civil Engineers *Journal of Transportation Engineering* Volume 126, No. 1, pages 21-26, January/February 2000.

9. Lisa Aultman-Hall and K. Georgina Kaltenecker**. "Toronto Bicycle Commuter Safety Rates," *Accident Analysis and Prevention*, Volume 31, pages 675-686, 1999.

10. Lisa Aultman-Hall, Michael L. Hill* and Ken Agent. "A Methodology for Evaluating Large Truck Access to Intermodal and Other Facilities" *Transportation Research Record* the journal of the Transportation Research Board 1653, pages 61-68, 1999.

11. Brian Aldridge*, Meredith Himmeler**, Lisa Aultman-Hall, and Nikiforos Stamatiadis. "The Impact of Passengers on Young Driver Safety" *Transportation Research Record* the journal of the Transportation Research Board 1693, pages 25-30, 1999.

Recent Conference Proceedings

Lisa Aultman-Hall, "Assessing the Demand for Bicycle Commuter Travel on Shared-Use Paths", Transportation Research Board Annual Meeting, Washington, DC January 2002.

Sarah T. Bowling* and Lisa Aultman-Hall, "The Development of a Random Sampling Procedure for Local Road Traffic Count Locations" Transportation Research Board Annual Meeting January 2002.

Feng Guo and Lisa Aultman-Hall. "Towards Continental Freight Transportation Planning Models" European Transport Conference, October 8-10, 2003, Strasbourg France.

Jianhe Du*, John Ivan, Per Garder and Lisa Aultman-Hall. "Public Perceptions of Traffic Calming Devices" 2003 *Institute of Transportation Engineers Annual Meeting and Exhibit*, August 2003.

Lisa Aultman-Hall, "ARTIMIS Telephone Travel Information Service: Overall Public Awareness" 2001 *ITS America Meeting* Conference Proceedings.

Lisa Aultman-Hall, "A Summary of the Safety Related Results of a Canadian Bicycle Commuter Survey" *Traffic Safety on Two Continents*, Malmo, Sweden, September 1999.

Invited Conference Presentations

American Association of State and Highway Officials Non-motorized Task Force Meeting, "Refining the Role of Non-motorized Transportation for Context Sensitive Design", Burlington VT, September 2003.

Association of Pedestrian and Bicycle Professionals, Professional Development Series, "Existing University Programs – Making the Most of What We've Got" Cambridge MA June 24, 2003.

Connecticut Conference on Bicycling and Walking, "Trail Safety – What are the Facts?" May 16, 2003.

Connecticut Conference on Bicycling and Walking, "Incorporating Bicycles and Pedestrians into Transportation Projects – The Kentucky Experience" May 16, 2003.

Uncovering Freight Trends Seminar, Reebie Associates, Cambridge MA, "State Level Freight Transportation Planning Needs" October 16-17, 2001

National Highway Traffic Safety Administration (NHTSA) Young Drivers Safety Conference, Atlanta, GA, "The Impact of Passengers on Young Driver Safety" Dec 6-8, 2000.

DONNA M. SHEA
256 Captain Road
Longmeadow, MA 01106
(413) 567-5607

WORK EXPERIENCE

- 1999 – Present **University of Connecticut - Storrs, CT**
Program Director, Technology Transfer Center
- Direct the development and implementation of technical assistance and educational programs for the transportation community in Connecticut.
 - Serve on state, regional and national advisory committees to develop the strategic direction of the local technical assistance community.
- 1997 - 1999 **Dartmouth College – Tuck School of Business - Hanover, NH**
Program Manager, Executive Education
- Manage Tuck’s largest general management program generating 1.5 million dollars in annual revenue. Program participants are an international group of senior executives from Fortune 500 firms.
 - Develop and manage budget for Executive Education and prepare quarterly revenue analyses.
 - Coordinate on-site corporate custom programs.
- 1996-1997 **Pico Mountain Resort – Rutland, VT**
Manager, Marketing Administration
- Develop marketing budget and revenue tracking system
 - Develop media plans, print advertising and promotional materials.
 - Provide analyses of the success of promotional campaigns.
- 1991-1995 **Executive Risk Consultants – Longwood, FL**
Manager, Group Health Underwriting
- Designed proposals and presentations of employee benefit plans relating to group life and health insurance programs.
 - Responsible for new business underwriting and renewal of self-funded group insurance programs.
 - Participated on corporate strategic planning team
- 1988 – 1991 **Medical Insurance Administrators – Longwood, FL**
Account Executive, Group Life and Health Division
- Marketed group life and health insurance programs, including on-site presentations and customer service calls to client companies.

1980 – 1988

Provident Mutual Life Insurance Company – Philadelphia, PA
Group Service Manager

- Provided on-site service to group life and health clients
- Trained service staff in 16 nationwide group offices

Marketing/Promotion Coordinator

- Responsible for advertising, promotional materials, and educational support seminars for group health account representatives.
- Coordinated on-site annual sales conference.

EDUCATION

University of Connecticut – Storrs, CT
Currently a graduate student in the School of Education
Working toward MA in Adult Education

College of St. Joseph – Rutland, VT
B.A., Business Administration – Organizational Leadership

INTERESTS

Stained Glass Design
Tai Chi

UNIVERSITY OF CONNECTICUT

Department of Civil Engineering

Resume of Jack E. Stephens

Education:

	1941 – 43 Liberal Arts, Miami U, Oxford Ohio
B. S.	1947 Civil Eng., University of Connecticut
	1949-50 Part time CE Grad, Yale
M. S.	1955 Civil Eng, Purdue University
	1955 Summer, U of Cal, Berkeley, Trans & Materials
Ph.D.	1959 Civil Eng, Purdue University

Current Position at Uconn: 1989- Professor Emeritus
1989- Public Service Specialist, Tech. Transfer Ct.
2004- Senior Research Advisor for CAP Lab

Current Research: Joint Highway Research Advisory Council
Prevention of Rust of Rebar (With G. Frantz)
CT Advanced Pavement Laboratory
Application of Infrared Thermographic Imaging to
Bituminous Concrete Pavements
Correlation of Nuclear Densities to Core Densities
Performance of Natural Red Sands in Bituminous Concrete

Accomplishments for CE Dept at UConn:

Enabled CE PhD Program as first CE Prof with PhD
Created the Joint Highway Research Program with ConnDOT by act of legislature
Set up the Transportation Institute
Established the Technology Transfer Program
Conceived and set up the CT Advanced Pavement Lab
Taught 4,500 students over 42 years

Honors & Distinctions: Automobile Safety Foundation Fellowship, 1958 – 59
Asphalt Institute Fellowship, 1955
Citation , Teaching Excellence, Western Electric Fund, 1974
University of Connecticut Alumni Association
Distinguished Public Service Award, 1982
University of Conn. Engineering Alumni Award 1986
Conn. Section ASCE, Benjamin Wright Award, 1989
UConn Senate 1966-1988

CERTIFICATIONS; The following are New England Transportation Technician Certification Program (NETTCP) certifications:

HMA Plant Technician
Soils and Aggregate Laboratory Technician
Soils and Aggregate Inspector
Concrete Inspector
QA Technologist

Selected Publications:

Anderson, David A., Mihai Marasteanu, James Mahoney and Jack E. Stephens, "Factors Affecting the Variability in the SHRP Binder Tests", The Transportation Research Board Presentation and Publication, 1999

Stephens, J. E., Geissert, D. G. & Frantz G. C. 1999 Splitting Prism Test Method To Evaluate Concrete-to-Concrete Bond Strength. ACI Materials Journal, Vol 96 May-June 99

Stephens, J. E. 1990. The Effects of Temperature Cycles on the Aging of Bituminous Concrete, Final Report JHRAC Project 86-9, Rep. No. 90-190, CE Dept. U. Conn.

Stephens, J. E. & Santosa, W. 1992. Aging of Bituminous Concrete, Final Report JHRAC Project 87-5, Rep. No. 92-211, CE Dept. U. Conn.

Stephens, J. E. 1995. New Additive for Improved Durability of Concrete and Prevention of Reinforcing Corrosion, NCHRP Contract 94-ID013, IDEA Program Transportation Research Board, National Research Council

Stephens, J. E., Allyn, Mark & Frantz, G. 1998. Protection of Reinforcement with Corrosion Inhibitors, Final Report Phase I JHRAC Project 96-2, Rep. No. 98-266 CE Dept. U. Conn.

Stephens, J. E. & Mahoney, J. M. 1999. Implementation of the Use of Superpave in New England, Final Report Ct Advanced Pavement Lab, Transportation Institute, U. Conn.

Stephens, J. E., Mahoney, James, Dougan, Charles, 1999 "Early Distress of Open-Graded Friction course, NETC Proj. 97-4

Mahoney, James and Stephens, Jack E., "Superpave Implementation of Binder Testing", NETC Project 96-1, September 1999

Anderson, David A., M. O. Marasteanu, C. E. Antle, A. Stonex, J. M. Mahoney, J. E. Stephens, "Background Information for the Development of a Statistically Based Acceptance Plan for Performance Graded Binders", NECEPT Pooled Fund Study – Task R6, February 2000.

Stephens, J. E., Mahoney, J. M. & Dippold, C. 2000. Development of a Test to Measure the Tendency for a Hot-Mix Asphalt to Segregate, JHRAC Project 97-1 supported by JHRAC and CT. Bit. Conc. Association, Final Report Number 00-274

Stephens, J. E., Goodwon, Paul D. & Franz, Gregory Protection of Reinforcement with Corrosion Inhibitors Phase II – Final Report. Report Number JHR00-279, Dec 2000

Stephens, J. E., Mahoney, James & Dippold, Cory, "Determination of the PG Binder Grade to Use in Hot Mix Containing RAP" Mix Final Report, JHRAC Project Number 99-1, Report Number JHR00-278, April 2001

Myers, Leslie A., Mahoney, James and Stephens, J. E., "Application of Infrared Thermographic Imaging to Bituminous Concrete Pavements", Interim Report, Connecticut Department of Transportation, Report Number 2229-1-01-9 August 2001

Dougan, Charles E., Stephens, Jack E., Mahoney, James M. and Hansen, Gilbert, "E* - DYNAMIC MODULUS Test Protocol – Problems and Solutions", Report Number CT=SPR-0003084-F-03-3, April 2003

Mahoney, James and Stephens, J. E., "Connecticut Superpave Gyrotory Round Robin –

2003 Final Report”, Connecticut Advanced Pavement Laboratory, CTI Report
Number 2003-01, April 2003

Mahoney, James, Zinke, Scott A. and Stephens, Jack E., Meyers, Leslie A. and A. John
Dadalt, “Application of Infrared Thermographic Imaging to Bituminous Concrete
Pavements”, Final Report, Connecticut DOT Report Number 2229-F-03-04,
July 2003

Javidi, Bahram, Stephens, Jack, Kishk, Sherif, Naughton, Thomas, McDonald, John and
Issaac, Atef “Pilot for Automated Detection and Classification of Road Surface
Degradation Features” Report Number JHRAC 03-293