ANNUAL SUMMARY OF ACTIVITIES

DIVISION OF RESEARCH

July 1, 2009 to June 30, 2010

Prepared by: Research Staff

August 2010

Report Number
CT-222-48-10-7

Connecticut Department of Transportation
Division of Research
James M. Sime, P.E.
Manager for Research

Office of Research and Materials
Ravi V. Chandran, P.E.
Transportation Division Chief, Research and Materials

PREFACE

The following is an administrative summary of the activities of the Division of Research for the Fiscal Year 2009-2010 (FY10). Previous work, implemented research results and significant reports are listed herein.

Of the projects shown: six (6) were closed during Fiscal 2010 [SPR-2223, SPR-2245, SPR-2249, SPR-2251, SPR-2259 and SPR-2267]; fifteen (15) in Part A are estimated to be completed and closed in Fiscal 2011 [SPR-1346, SPR-2221, SPR-2237, SPR-2239 (Phase 1B), SPR-2250, SPR-2252, SPR-2254, SPR-2255, SPR-2256, SPR-2261, SPR-2263, SPR-2264, SPR-2265, SPR-2266 and SPR-2268]; and the remaining will be continued to an acceptable conclusion. Five (5) new projects were initiated during FY10 [SPR-2265, SPR-2266, SPR-2267, SPR-2268 and SPR-2269]. Up to nine (9) new projects, subject to proposal and funding approvals, may be initiated during FY11 (See Part G).

Part D presents information on the implementation of research results into departmental operations during FY10.

Part E lists projects that in Fiscal Year 2009-2010 have been completed, discontinued or reassigned.

Part F outlines ConnDOT commitments to FHWA Pooled Funds and Cooperative Research Projects.

Part G lists new research projects proposed for FY11.

Parts H, I and J list reports on completed projects with federal and state funding, respectively. Parts K and L list film and video information available for departmental use in Research and Materials. Part M lists streaming media available on the Internet.

Parts N and O list research projects undertaken through the New England Transportation Consortium (NETC) and the Connecticut Cooperative Transportation Research Program (CCTRP), respectively. Separate annual reports for these two programs are published.

Part P reports personnel assignments to various committees and panels engaged in transportation research.

Part Q lists Trading Cards developed for distributing information about research projects.

The Internet homepage for Connecticut’s transportation research program is:

http.//www.ct.gov/dot/research.

James M. Sime, P.E.
Manager of Research

DIVISION OF RESEARCH STAFF (as of June 30, 2010)

James M. Sime, P.E.	Manager of Research
Susan G. Hulme	Secretary 2

RESEARCH, TECHNOLOGY TRANSFER & IMPLEMENTATION SECTION STAFF

Vacant	Trans. Supervising Engineer
Drew M. Coleman	Trans. Engineer 3 (Eng.)
Richard C. Hanley, P.E.	Trans. Engineer 3 (Eng.)
John W. Henault, P.E.	Trans. Engineer 3 (Eng.)
Jeffery J. Scully	Trans. Engineer 2 (Eng.)
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Anne-Marie H. McDonnell, P.E.	Trans. Engineer 3 (Eng.)
Dionysia F. Oliveira	Trans. Engineer 3 (Eng.)
James V. Moffett	Trans. Planner 1
Vacant	Trans. Engineer 3

PRODUCT EVALUATION SECTION STAFF

Andrew J. Mroczkowski	Trans. Engineer 3 (Eng.)
Vacant	Trans. Engineer 2

DATA SERVICES SECTION STAFF

Bradley J. Overturf	Trans. Photolog Supervisor, RC
Matthew A. Herboldt	Trans. Engineer 2 (Eng.)
Robert K. Kasica	Trans. Engineer 2 (Eng.)
Lester A. King	Trans. Engineer 2 (Eng.)
Michael Longo	Trans. Engineer 2 (Eng.)

PAVEMENT NETWORK ANALYSIS SECTION STAFF

Louis Allegro	Trans. Engineer 3 (Eng.)
Jeannine A. Moriarty	Trans. Engineer 3 (Eng.)

COMPUTER SUPPORT SECTION STAFF

Vacant	Information Technology Analyst 2

SPECIAL STUDIES SECTION STAFF

David J. Kilpatrick	Trans. Supervising Engineer (Eng.)

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PART A

State Planning and Research Funded Projects

Implementation of Research Findings

OBJECTIVE(S)

To cooperate with the FHWA, other Agencies and Towns toward implementation of research findings as they relate to Part II of the Approved SP&R Work Program and other research programs and projects.

PROJECT WORK STATUS

Project Started - July 1972

Project Status - Active

Work Done - July 1, 2009 to June 30, 2010

1. Project-by-project statements on implementation are presented in Part D of this administrative report.

2. Maintained and updated Internet World Wide Web pages on transportation research at the Department. The web pages cover the program of transportation research, product evaluation, and highway photologging. The research homepage URL is http://www.ct.gov/dot/research.

3. Received inquiries and forwarded additional reports and information to requestors.

4. Updated the on-line research summary statement for the Connecticut transportation research program. From Research Homepage, select "Research Highlights."

5. Developed seven (7) new Research trading cards for the following projects: SPR-2243, SPR-2256, SPR-2259, SPR-2262 and SPR-2265. and two (2) services (SPR-2260, photolog digital archive, and SPR-1417, pavement friction testing). The cards, in addition to being used for project-related briefings, were used for the Transportation Research Board Annual Meeting, Annual New England Materials & Research Engineers Meeting, and visitors.

6. Continued to add hyperlinks for new research on-line publications from Connecticut DOT, Connecticut Cooperative Highway Research Program, and New England Transportation Consortium (NETC).

7. Continued to supply electronic publications to the Transportation Research Information Service/National Transportation Library (TRIS/NTL) as they are published.

8. Implementation Log - the following reports, totaling 466, were logged during the year and made available to appropriate units. Again this past year, Connecticut received many research summaries and report PDFs of research via email, which were not logged.

a) FHWA – 6 General, 0 IP/DP, 0 RD, 0 TS/TO, 0 Tech Briefs.

b) 42 other states and countries, 5 miscellaneous reports, 267 Books/Manuals/Magazines, and 19 reports received electronically (mostly from state DOTs).

9. Forwarded TRB 2010 Annual Meeting Pre-Print Papers CD-ROM to the ConnDOT Library, which is responsible for lending them to requesting units in ConnDOT and other State Agencies.

10. Forwarded to staff the following periodic transportation-research web and electronic journals/newsletters: AASHTO Journal, Arizona DOT, New Jersey DOT, Kansas DOT, Florida DOT Planning & Research Online, LTPP Newsletter, NETC Newsletter, Ohio DOT R&D Newsletter, South Carolina DOT, Texas DOT and Utah DOT.

11. Responded to numerous inquiries from within ConnDOT and from other states, FHWA, and other interested parties. Transmitted the results of ConnDOT research studies, non-ConnDOT technical reports, 82 questionnaires and surveys to inquiring parties. Details were reported in our quarterly reports.

    a) Distributed FHWA Technical Summaries to interested units.

    b) Reviewed and processed Category II work plans and reports, as required.

12. TRIS – During the fiscal year, on-line searches were conducted for: various units and Research Need Statements, including: NETC problem statements. Utilized TRIS/RIP search facility on the Internet (http://rip.trb.org). Also, continued to provide an Internet-based subscription to the TRIS/Transport bibliographic database to both our office personnel at the Rocky Hill research facility and the Connecticut Transportation Institute/Technology Transfer Center at the University of Connecticut.

13. Continued support for the Connecticut TRAC program through classroom and after-school programs in 25 schools located in 16 school districts. Approximately 30 trained volunteers are presently active volunteers. They visit their assigned schools at least two times per month. Connecticut TRAC reaches approximately 700 students each year. Researchers updated the ConnDOT website for TRAC, at URL http://www.ct.gov/dot/trac.

14. Photolog Supervisor, Bradley Overturf, continued to work with Rex Joffray at Connecticut Judicial Branch Law Libraries, Office of Information Systems, in East Hartford to support photolog software on Judicial's computers in two of eight Connecticut branch law libraries (http://www.jud.state.ct.us/LawLib/).

Please see the Implementation Section of this report for more information about the implementation of research findings during FY2010.

REPORT(S)

None

SPR-1346

Monitoring of Cathodic Protection Systems

OBJECTIVE(S)

1. Obtain operating power usage of alternate anode systems.

2. Monitor the operating characteristics and effectiveness of each type of anode system.

3. Continue monitoring all existing CP systems.

4. Prepare final report.

PROJECT WORK STATUS

Project Started – March 10, 1989

Project Status - Active

Work Done - July 1, 2009 to June 30, 2010

1. Continued routine site visits and recorded CP operating parameters for all Cathodic Protection Systems.

2. Continue site visits to coordinate repairs and check operating parameters of CP Bridge Rectifiers, which includes circuit boards, fuses, meters, outlets, and miscellaneous items.

3. Repairs have been made and the power has been restored to the Cathodic Protection Rectifier on CP Bridge #3571, Norwalk (Rte. 7 over the Norwalk River), N #1 on ramp to Route 7 North.

4. Coordinating with District 4 Bridge Maintenance to recover the CP Rectifier from CP Installation Bridge #0604, Route 8 NB over Fenn Road. The entire bridge has been slated for replacement and construction is underway. Then CP rectifier and all other parts will be recovered and saved. Parts can be used to repair other CP installations.

5. Bridge #0279, Norwich, Lawler Street over I-395 had a blown main fuse and two zone fuses. Fuses were replaced and currently there is power established to one of the two zones on the bridge deck. Troubleshooting continues on identifying the cause of short on the other zone.

6. In FY09, New England Transportation Consortium (NETC) Research Problem Statement No. N10CT11 was approved for inclusion in the NETC program as NETC Project No. NETC 10-4. The objective of NETC 10-4 is to investigate the spray-on version of Hycrete/DSS on one of ConnDOT’s CP installation sites.

7. Continued working with Offices of Bridge Safety & Evaluation and Bridge Operations in gathering, summarizing and evaluating bridge inspection reports on all of the CP installations.

8. Continued to investigate the possibility of using Bridge #0242, Old Lyme, I-95 over the Lieutenant River as a possible candidate for NETC Research Project No. N10CT11, which will study the spray-on version of Hycrete/DSS. The bridge has a partial CP System installed with already imbedded reference cells, but no CP rectifier was ever installed. The imbedded reference cells can be used to collect pre-installation/application baseline data.

9. Continued work on CP final report, incorporating post-draft report review comments and suggestions.

10. Anticipate study will recommend future project to assess the feasibility of remote monitoring equipment for CP Bridges in Connecticut.

REPORT(S)

None

Management – New England Transportation Consortium (NETC)

OBJECTIVE(S)

To provide administrative support as the lead state for NETC, which includes responsibility for management of all NETC contracts under the associated Transportation Pooled Fund Research projects, Nos. SPR-3(029) and SPR-3(089). The NETC was formed as a regional approach to developing innovative solutions to common transportation problems among the New England states. Its purpose is to pool the financial, professional and academic resources of the region and to use them to research and develop improved methods of dealing with common problems in the planning, design, construction, maintenance, rehabilitation, reconstruction, and operation of transportation systems in the participating states. The program is intended to supplement, not to replace, ongoing state and federal research activities and other national programs such as NCHRP.

The following goals were established for NETC in order to focus the resolve of participating state transportation agencies and universities:

- Implementation of a three-pronged program for the New England region consisting of research and development; technology transfer; and, education and training.
- Development of improved methods for dealing with common transportation problems.
- Providing an important source of trained professionals for employment in the region.

PROJECT WORK STATUS

Project Started – January 1, 1996

Project Status - Active

Work Done - July 1, 2009 to June 30, 2010

ConnDOT Tasks

1. Attended the following meetings to discuss the transfer of the Lead Agency designation.
   - Meeting with personnel from the Federal Highway Administration, Connecticut Division (FHWA-CT) on August 4, 2009, in Glastonbury, CT.
   - Meeting with personnel from FHWA-CT and the Transportation Research Board (TRB) on August 18, 2009, in Glastonbury, CT.
2. Attended a meeting with FHWA-CT to discuss NETC finances on July 22, 2009, in Glastonbury, CT.
3. Attended an NETC Advisory Technical Advisory Committee Teleconference Meeting on September 8, 2009.
4. Attended an NETC Advisory Technical Advisory Committee Teleconference Meeting on November 17, 2009.
5. Attended an NETC Advisory Technical Advisory Committee Teleconference Meeting on November 30, 2009.
6. Attended an NETC Advisory Technical Advisory Committee Meeting on June 30, 2010, in Concord, NH.

7. Attended an NETC Advisory Technical Advisory Committee Teleconference Meeting on November 30, 2009.

8. Attended an NETC Advisory Technical Advisory Committee Meeting on June 30, 2010, in Concord, NH.

9. Prepared documentation in preparation of a transfer of the Lead Agency designation.

10. Completed literature searches for NETC backlog projects to determine the current relevance/need of the backlog projects.

11. Distributed the following reports:

    a. "Annual Report for Calendar Year 2009 – New England Transportation Consortium," (1,044 kb), Annual Report, NETC Report No. NETCR79, March 2010.

       http://www.netc.umassd.edu/annualreport09.pdf

    b. NETC 01-1 (T2 Phase 1), "NETC Advanced Composite Materials in New England's Transportation Infrastructure – Technology Transfer Phase 1: Selection of Prototype"

       "Advanced Composite Materials in New England's Transportation Infrastructure – Technology Transfer Phase 1: Selection of Prototype," (pdf 107 kb), Final Report, Sergio F. Breña and Scott A. Civjan, New England Transportation Consortium, Project No. NETC 01-1 (T2 Phase I), Report No. NETCR77, November 01, 2009.

       http://www.ct.gov/dot/LIB/dot/documents/dresearch/NETCR77_01-1P1.pdf

    c. NETC 02-1 (Phase I), "Relating Hot Mix Asphalt Pavement Density to Performance"

       "Relating Hot Mix Asphalt Pavement Density to Performance," (pdf 449 kb), Final Report, Walaa S. Mogawer, Alexander J. Austerman and Jo Sias Daniel, New England Transportation Consortium, Project No. NETC 02-1 (Phase I), Report No. NETCR76, April 1, 2010.

       http://www.netc.umassd.edu/netcr76_02-1.pdf

    d. NETC 04-4, "Determining the Effective PG Grade of Binder in RAP Mixes"

       "Determining the Effective PG Grade of Binder in RAP Mixes," (pdf 2,618 kb), Final Report, Jo Sias Daniel and Walaa S. Mogawer, New England Transportation Consortium, Project No. NETC 04-4, Report No. NETCR78, January 2010.

       http://www.ct.gov/dot/LIB/dot/documents/dresearch/NETCR78_04-4.pdf

12. Sent an electronic version of the following NETC reports to TRIS/NTL:

    None

13. Received report URLs from TRIS for the following NETC research reports:

    None

14. Agreements:

a. Agreement Issues

- Significant and repeated delays on processing Personal Service Agreements (PSAs) have occurred during the last three years because of new State contracting procedures and requirements. This continues to be an on-going problem.

- The State now requires every contractor to sign a certification stating that the contractor will comply with newly enacted State civil rights legislation. The NETC contractors, all of whom are New England state land grant universities, will not sign the certification claiming that the requirement to do so infringes on the sovereignty of their individual states. At its November 8, 2007, Commission Meeting, the Connecticut Commission on Human Rights and Opportunities (CHRO) granted an 18-month waiver from the civil rights certification requirements for the NETC program.

- During FY08, the Connecticut Office of the Attorney General advised the Department that language indemnifying the State of Connecticut (Indemnification Clause) must now be included in all NETC PSAs.

  Historically, the NETC contractors, i.e., the New England state land-grant universities, have objected to the Indemnification Clause on the grounds that inclusion of such language in the PSA infringes on the sovereignty of their individual state governments. Indeed, the universities' position is that they can comply with any State of Connecticut law only to the extent that their individual state laws allow; "Paragraph N" was included in the first version of the NETC Standard Format Agreement to accommodate the universities' concerns. "Paragraph N" states that:

  "(N) Schedule A is attached hereto and made a part of this Agreement hereof. To the extent permitted by law, NETC and each of the state universities which belong to NETC shall, as part consideration for the promises of the State, fully comply with each of the terms and conditions set forth within Schedule A. It is understood and agreed among the parties that nothing within this subparagraph of this Agreement may be construed as a waiver of or limitation upon the sovereign immunity, if any, of any of the state universities which belong to the NETC or the NETC membership itself."

  Schedule A contains language pertaining to State of Connecticut laws, most of which deals with civil rights legislation.

  At the time the first version of the NETC Standard Format PSA was negotiated, the universities still could not sign the PSA with the Indemnification Clause included in the Standard Format Agreement, "Paragraph N", notwithstanding.

  Since there were so many PSAs being held up at the Office of the Attorney General for various issues, the Indemnification Clause issue was being addressed on a case-by-case basis with the most critical PSAs being handled first, "critical" being defined as timing or other "unforeseen" issues.

- In addition, during FY08, legal counsel for the Department (ConnDOT) and the University of Connecticut (UConn) have advised both organizations that the contracting mechanism between the two agencies must be by Memorandum-of-Understanding (MOU) instead of Personal Service Agreement (PSA). ConnDOT and UConn have used the PSA contracting mechanism ever since ConnDOT has been the NETC Lead Agency. During the 2nd Quarter of FY08, ConnDOT, UConn and FHWA concluded negotiating the terms of a Standard Format MOU; the MOU is now the sole contracting mechanism between ConnDOT and UConn.

- New PSA delegation-of-signature-authority certification requirements declared by a State Assistant Attorney General have further impeded ConnDOT's ability to enter into PSAs with other state governments, in particular with the six New England state land grant universities that conduct NETC-sponsored research. This continues to be an on-going problem and is being addressed on a case-by-case basis.

- Because of these on-going contractual problems, the Department and the NETC Advisory Committee have requested either FHWA or one of the other NETC member state transportation agencies to assume the Lead Agency designation. In that capacity, the new Lead Agency will then assume all contractual obligations for NETC. The Department has provided informational documentation to FHWA and the other NETC member state transportation agencies to facilitate the process of transferring the Lead Agency designation.

  - ❖ The Department has been the Lead Agency for NETC, since 1995, under the auspices of two pooled-fund studies:

    - ➢ SPR-3(029), "New England Transportation Consortium (NETC): 1995-1999"; and,

    - ➢ SPR-3(089), "New England Transportation Consortium (NETC): 2000-2006".

  - ❖ In FY09, the Department established a new pooled-fund study: TPF-5(168), "New England Transportation Consortium (NETC) IV: 2007+." No contractual commitments have been assigned to TPF-5(168), to date.

  - ❖ During FY09, FHWA offered to assume the Lead Agency designation and established a a pooled fund study, TPF-5(201), "New England Transportation Consortium (NETC) V." No contractual commitments have been assigned to TPF-5(201), to date. During the first quarter of FY10, FHWA withdrew its offer to assume the Lead Agency designation due to manpower and work load restrictions.

    FHWA has offered and, during FY10, began the process to contract, by Purchase Order Contract, with the Universities for the completion of any project that was not completed during the contract period under a Department Agreement.

- ❖ During FY10, the Vermont Agency of Transportation (VAOT) offered to assume the Lead Agency designation and has established a new Transportation Pooled Fund (TPF) project, TPF-5(222), "New England Transportation Consortium (NETC) (VI)." However, VAOT still has some legal issues that they have to resolve.

- ❖ Because of the uncertainty over the designation of the new NETC Lead Agency, there was a lack of uniformity, among the NETC member states, in the transfer of funds to any of the existing NETC TPF projects. FHWA-CT and the Department are currently in the process of auditing the NETC program to determine the financial status of commitments (pledges), transfers, project expenditures and project balances for each of the NETC TPF projects; once this audit has been finalized, the Department and/or FHWA will notify the NETC member states of the corrective action, if any, to be undertaken. In the meantime, several NETC member states have begun transferring funds to SPR-5(022) to satisfy financial mandates within their individual state.

- The Department will continue to administer any contractual obligations for currently active Agreements. However, any new contractual activity, including Amendments to currently active Agreements, is not being processed at this time. It is anticipated that the new Lead Agency will initiate contracting with the universities for the completion of any such projects.

  As previously stated, by directive of the Office of the Attorney General, the contracting mechanism with the University of Connecticut is Memorandum-of-Understanding (MOU). The procedure for executing MOUs is much easier than that for Agreements because most of the new State contractual requirements are not applicable to MOUs. Therefore, the Department is still initiating new NETC contractual activities, including Amendments to currently active Agreements, with the University of Connecticut.

b. In a letter, dated November 5, 2009, from Mr. Robert J. Brothers, Jr., Executive Director, Connecticut Commission on Human Rights and Opportunities (CHRO), to Mr. Ravi V. Chandran, Division Chief, Research and Materials, Bureau of Engineering and Construction, Connecticut Department of Transportation, CHRO approved a 24-month blanket exemption (from July 1, 2009, to June 30, 2011) to the contract compliance requirements, as set forth in Conn. Gen. Stat. §4a-60(a) and §4a-60a(a) Pursuant to Conn. Gen. Stat. §46a-56(b), for all NETC Agreements.

   Submitted an "Exemption from Non-Discrimination Report for the Period from July 1, 2009, to December 31, 2009, for the New England Transportation Consortium (NETC)" to the Connecticut Commission on Human Rights and Opportunities (CHRO).

c. Completed processing of a 4th Amendment Agreement [Agreement No. 8.18-03(09)] with the University of Massachusetts, Dartmouth, to provide administrative, fiscal and technical management of the New England Transportation Consortium (NETC) for CY10.

d. NETC 05-1, “Development of Supplemental Resistance Method for the Design of Drilled Shaft Rock Sockets”

Cancelled processing of a 1st Amendment Agreement [Agreement No. 3.05-04(07)] with the University of Maine to extend the term of the study from December 31, 2007, to December 31, 2008, at no additional cost, to conduct a research study for NETC Project No. 05-1.

The Federal Highway Administration entered into a Purchase Order Contract with the University of Maine to complete the work tasks for NETC Project No. 05-1.

e. NETC 05-3, “Practicable Calibration Procedures to Enhance the Accuracy of Analytical and Microsimulation Software for Modern Four-Legged Single-Lane Roundabouts”

ConnDOT), as Lead Agency for NETC since 1995, was entering into agreements with the NETC member universities, one of which is the University of Vermont (UVM), to conduct NETC research. An agreement was prepared and forwarded to UVM in March 2006, but delays were encountered when new agreement provisions were added to the Agreement by the Connecticut Office of the Attorney General. The revisions were forwarded to UVM, which found certain new provisions unacceptable and would not sign the revised agreement. Months of delay ensued. Ultimately, the contract time in the agreement expired, at which point the Connecticut Office of the Attorney General announced that it could not approve an agreement once the contract period had passed. Because of these difficulties that resulted from changes in the contracting procedure in the State of Connecticut, ConnDOT was unable to fully execute the agreement.

Under 23 CFR 1.9 (b), a recipient may request that costs incurred prior to complete authorization be considered for reimbursement, subject to the five conditions stated in the rule. The Vermont Agency of Transportation (VAOT), as the new Lead Agency designee, is preparing a a request for reimbursement for costs under 23 CFR 1.9(b).

f. The Department has not initiated any contractual activities for the following projects, pending the transfer of the NETC Lead Agency designation to FHWA or one of the other NETC member state transportation agencies. (Refer to Item 14.a above.) It is anticipated that the new Lead Agency will initiate contracting with the Universities for the completion of the following projects:

i. NETC 03-6, "Fix it First: Utilizing the Seismic Property Analyzer and MMLS to Develop Guidelines for the Use of Polymer Modified Thin Lift HMA vs. Surface Treatments"

On April 30, 2008, the NETC Advisory Committee approved a request from the University of Massachusetts, Dartmouth, to extend the term of the study from November 30, 2008, to May 31, 2009, at no additional cost, to conduct a research study for NETC Project No. 03-6.

ii. NETC 05-6, “Employing Graphic-Aided DMS to Assist Elder Drivers’ Message Comprehension”

On February 25, 2008, the NETC Advisory Committee approved a request from the University of Rhode Island to extend the term of the study from April 30, 2008, to July 31, 2008, at no additional cost, to conduct a research study for NETC Project No. 05-6.

iii. NETC 05-8, “Evaluation and Implementation of Traffic Simulation Models for Work Zones”

On July 10, 2008, the University of Massachusetts, Amherst, requested an extension of the term of the study from August 31, 2008, to December 31, 2008, at no additional cost, to enable the University of Massachusetts, Amherst, to conduct a research study for NETC Project No. 05-8.

iv. NETC 06-1, “New England Verification of NCHRP 1-37A Mechanistic-Empirical Pavement Design Guide with Level 2 & 3 Inputs”

On May 2, 2008, the Principal Investigator for the project requested an extension of the term of the study from July 31, 2008, to July 31, 2009, at no additional cost, to enable the University of New Hampshire to conduct a research study for NETC Project No. 03-6.

NETC Coordination Tasks (University of Massachusetts, Dartmouth)

1. Prepared documentation in preparation of the transfer of the Lead Agency designation.

2. Attended an NETC Advisory Technical Advisory Committee Teleconference Meeting on September 8, 2009.

3. Attended an NETC Advisory Technical Advisory Committee Teleconference Meeting on November 17, 2009.

4. Attended an NETC Advisory Technical Advisory Committee Teleconference Meeting on November 30, 2009.

5. Attended an NETC Advisory Technical Advisory Committee Meeting on June 30, 2010, in Concord, NH.

6. Attended one (1) Policy Committee Meeting during the fiscal year.

7. Exhibited the NETC display booth at the 2009 AASHTO National Meeting on October 22-26, 2008, in Palm Desert, CA.

8. Continued implementation of the recommendations delineated in the Final Report for the 10-Year Review of the NETC Program held on November 29, 2004, to December 1, 2004, at the Nathan Hale Inn in Storrs, CT.

9. Conducted screening and project selection of NETC backlog projects based on the current relevance/need of the backlog projects.

10. Continued RFP process for projects approved for inclusion in the NETC program.

11. Closed the following projects:

    a. NETC 01-1 (T2 Phase 1), “NETC Advanced Composite Materials in New England’s Transportation Infrastructure – Technology Transfer Phase 1: Selection of Prototype”

       NETC Project No. 01-1 (T2 Phase 1) was closed on June 30, 2010.

    b. NETC 02-1 (Phase 1), “Relating Hot Mix Asphalt Pavement Density to Performance”

       NETC Project No. 02-1 (Phase 1) was closed on June 30, 2010.

    c. NETC 04-4, “Determining the Effective PG Grade of Binder in RAP Mixes”

       NETC Project No. 04-4 was closed on June 30, 2010.

    d. NETC 05-8, “Evaluation and Implementation of Traffic Simulation Models for Work Zones”

       NETC Project No. 05-8 was closed on June 30, 2010.

    e. NETC 06-5, “The Winter Severity Index for New England”

       NETC Project No. 06-5 was closed on June 30, 2010.

12. Cancelled the following projects:

    a. NETC 06-2, “Infrastructure Management Systems Enhancement and Integration to Support True Integrated Decision-Making”

       NETC 06-2 was withdrawn from the NETC program on June 30, 2010.

    b. NETC 07-4, "Estimating and Predicting Traffic Conditions for Traveler Information and Emergency Response"

       NETC 07-4 was withdrawn from the NETC program on June 30, 2010.

13. Distributed the following reports:

    a. “Annual Report for Calendar Year 2009 – New England Transportation Consortium,” (1,044 kb), Annual Report, NETC Report No. NETCR79, March 2010.

       http://www.netc.umassd.edu/annualreport09.pdf

    b. NETC 01-1 (T2 Phase 1), “NETC Advanced Composite Materials in New England’s Transportation Infrastructure – Technology Transfer Phase 1: Selection of Prototype”

       “Advanced Composite Materials in New England’s Transportation Infrastructure – Technology Transfer Phase 1: Selection of Prototype," (pdf 107 kb), Final Report, Sergio F. Breña and Scott A. Civjan, New England Transportation Consortium, Project No. NETC 01-1 (T2 Phase I), Report No. NETCR77, November 01, 2009.

       http://www.ct.gov/dot/LIB/dot/documents/dresearch/NETCR77_01-1P1.pdf

c. NETC 02-1 (Phase I), “Relating Hot Mix Asphalt Pavement Density to Performance”

“Relating Hot Mix Asphalt Pavement Density to Performance,” (pdf 449 kb), Final Report, Walaa S. Mogawer, Alexander J. Austerman and Jo Sias Daniel, New England Transportation Consortium, Project No. NETC 02-1 (Phase I), Report No. NETCR76, April 1, 2010.

http://www.netc.umassd.edu/netcr76_02-1.pdf

d. NETC 04-4, “Determining the Effective PG Grade of Binder in RAP Mixes”

“Determining the Effective PG Grade of Binder in RAP Mixes," (pdf 2,618 kb), Final Report, Jo Sias Daniel and Walaa S. Mogawer, New England Transportation Consortium, Project No. NETC 04-4, Report No. NETCR78, January 2010.

http://www.ct.gov/dot/LIB/dot/documents/dresearch/NETCR78_04-4.pdf

14. Produced the following papers and presentations:

None

REPORT(S)

See Item 13 above.

SPR-2108

LTPP (Long-Term Pavement Performance) Coordination in Connecticut

OBJECTIVE(S)

To cooperate as a participant in the Federal Highway Administration's Long Term Pavement Performance Program (FHWA-LTPP).

PROJECT WORK STATUS

Project Started – December 7, 2000

Project Status - Active

Work Done - July 1, 2009 to June 30, 2010

1. Conducted work for the close-out and forensic testing of Specific Pavement Studies (SPS-9A) test sites (LTPP Numbers 090900, 090901, 090902, 090961, 090962, 090963) due to the ARRA resurfacing under Connecticut Construction Project 28-197. Work included:

    a. Worked with the FHWA-LTPP Regional Contractor to schedule and develop testing plans for both the non-destructive and destructive (material sampling) testing. Worked with FHWA-LTPP, FHWA-LTPP Regional Contractor, FHWA Office of Infrastructure Research & Development, and the University of Connecticut Advanced Pavement Laboratory (CAP Lab) to develop and plan for testing needs.

    b. Conducted special Photolog image and data collection for communication with LTPP Regional Contractor, as well as for milling estimation purposes on the project.

    c. Met with ConnDOT Maintenance personnel from the Colchester garage to plan lane closures, request additional hours of operation, and plan and stake lane closure areas in the field on October 15, 2010.

    d. Conducted pavement texture measurements and permeability testing.

    e. Conducted coordination to conduct testing of six test sections during the week of October 19-23, 2010, including:

        i. Both fixed and rolling lane closures.

        ii. FHWA-LTPP Regional Contractor conducted profile testing, falling-weight deflectometer (FWD) testing, transverse profile testing using a dip-stick device, rod and level surveys, soil testing, manual distress surveys, as well as on-site technical expertise for selection of core locations and diagnostics, pavement core documentation, including photographs, measurements, labeling and wrapping according to LTPP protocols with a team of experienced engineers.

        iii. Personnel and equipment to conduct pavement coring and testing from ConnDOT Division of Materials Testing, ConnDOT Division of Research, and UConn CAP Lab.

        iv. Engineers from CAP Lab marked out and obtained surface level cores to validate density and permeability measurements in the laboratory.

        v. Marked sections for relocation of sections after rehabilitation treatment.

vi. Documented all testing with video and still photographs.

2. Worked with ConnDOT Office of Construction as part of Construction Project 28-197.

   a. Conducted work to develop contract specifications for removal and reinstallation of traffic monitoring equipment.

   b. Conducted work for the removal and reinstallation of traffic monitoring equipment.

   c. Conducted Photolog and data collection measurements including profile measurements on February 22, 2010 to determine optimum location of the WIM sensors for the newly pave Route 2 test areas.

   d. Contacted FHWA and their contractor for assistance using the ProVal software and OWL (Optimum WIM Locator) software.

   e. Utilized analysis of profile measurements on the newly paved Route 2 test areas conducted by Steve Karahimas at the University of Michigan (UMTRI) to determine the optimum location to relocate the Weigh-in-Motion sensors. This was an innovative practice that yielded promising results.

3. Shared information regarding Connecticut's SPS-9A Close-out and Forensic Activities with other states and LTPP partners at the LTPP State Coordinator's Meeting on January 10, 2010. The PowerPoint was distributed via disk to all states by FHWA-LTPP, cited in the FHWA-LTPP newsletter and recorded for distribution on the Connecticut's Streaming Media Library.

4. Met at UConn CAP Lab with representatives from ConnDOT's Materials Testing (R. Donato and J. Varhue) to examine and subdivide cores for testing and shipment. Packaged and shipped cores to Turner Fairbank.

5. Conducted work to determine availability of material samples from the Route 2 1997 construction at the MRL (Materials Reference Library). Requested small amount of binder samples to be shipped to UConn for testing.

6. Requested images and testing results from FHWA Turner Fairbank are shared with ConnDOT and UConn.

7. Coordinated testing plan for materials sampled to be part of 2011-2012 work plan.

8. Work was conducted for the collection of traffic data at the LTPP sites including:

   a. Resolved downloading of data issues at the Manchester site. Issues were associated with the security software installed on laptops by the State of Connecticut.

   b. Continued to collect traffic data at the Manchester, Groton and Vernon LTPP sites.

   c. Resumed data collection at the Lebanon site in May 2010. Collected calibration data at the Lebanon site as part of the reinstallation and conducted a check of the classification scheme using video and manual comparisons.

9. Participation and leadership in the TRB LTPP Expert Task Group (ETG) including review of documents, serving as the TAC for Long-Term Pavement Performance (LTPP) Specific Pavement Study (SPS) Traffic Pooled Fund Study, TPF-5(004) and technical advisory for several LTPP data analysis projects.

10. Served on the steering committee for the LTPP Data Analysis Forum 2010.

11. Coordinated with District II Permits regarding the installation of water service for a housing development in proximity to the test site (091803) in Groton.

12. Attended the LTPP State Coordinator's meeting, January 20, 2010.

13. Presented information on "LTPP in Connecticut" at the University of Connecticut Senior Seminar held February 8, 2010. Presentation included information on work conducted in Connecticut, in addition to encouraging students to utilize LTPP data and enter the ASCE/FHWA 2010 Data Analysis Contest.

14. Met with professor from the University of Hartford (Dr. Fang), who expressed an interest in using traffic data collected in Connecticut for LTPP for determining load spectra.

15. Discussed LTPP with UConn student and provided technical input for submittal to Data PAVE contest.

16. Provided lane closure for testing by Regional Contractor for FWD, distress collection and remarking of site at Groton on June 17, 2010.

17. Provided information and experience from LTPP work in Connecticut as needed. This included information for the UConn Research Forum held November 5, 2009 and reporting to FHWA at ConnDOT Planning and Research 3rd Quarter Meeting.

REPORT(S)

None

Testing and Evaluation of an Automated Sign Identification System (ASIS)

OBJECTIVE(S)

The objective of this study is to establish a statement of accuracy for the Automated Sign Identification System (ASIS) that identifies stop signs from videolog images. Stop signs are regulatory signs critical for safe driver operation on the highway network.

PROJECT WORK STATUS

Project Started - August 27, 1998

Project Status - Active

Work Done - July 1, 2009 to June 30, 2010

1. Continued preparation of final report. Completion due by October 1, 2010.

REPORT(S)

None

SPR-2223

Evaluation of Alternative Fuel Light Trucks and Automobiles

OBJECTIVE(S)

To gather first- and second-hand data and information about the performance of alternative fuel light trucks and automobiles; analyze and synthesize the materials; and, develop findings to aid State and Federal officials that must comply with Section 507(o), the Energy Policy and Conservation Act of 1992 (EPACT).

PROJECT WORK STATUS

Project Started - February 16, 1999

Project Status - Closed

Work Done - July 1, 2009 to June 30, 2010

1. Completed final report on dual-fuel CNG/gasoline vehicle (CNG).

2. Published final report on dual-fuel CNG/gasoline vehicle (CNG).

3. Closed project on March 31, 2010.

REPORT(S)

Sime, J.M., “Evaluation of Nickel Cadmium Battery-Electric Subcompact Automobile in Connecticut as an Alternative for Work-Trips and Commutes,” Report Number CT-2223-1-04-6, May 2004.

Henault, J.W., Sime, J.M. and Romano, F.J., “Connecticut Department of Transportation’s Evaluation of Nickel Cadmium Battery Electric Vehicles,” TRB Paper No. 08-0157, November 15, 2007.

Henault, J.W., Sime, J.M. and Romano, F.J., “Integrated Photovoltaics in Nickel Cadmium Battery Electric Vehicles, “ Report No. CT-2223-F-08-8, December 2008.

Kilpatrick, D.J. and Sime J. M., “Evaluation of Bi-Fueled Vehicles as an Alternative for Work-Trip and Business Commutes,” Report No. CT-2223-2-05-3, December 2009.

SPR-2236

Advanced Photolog Technologies

OBJECTIVE(S)

ConnDOT's Data Services Section (DSS) will identify high-resolution and high-definition camera systems and implement them for advanced applications, such as automated roadway sign, bridge number, utility pole number, lane and sign striping and curb attribute recognition. Recent developments in high-resolution digital cameras and high-definition television cameras (HDTV) will enhance current imaging applications and support the development of new applications. The project will also establish the feasibility of an automated bridge underclearance module installed on the photolog collection platform.

PROJECT WORK STATUS

Project Started - February 2003

Project Status - Active

Work Done - July 1, 2009 to June 30, 2010

1. Completed fourth full season of image collection in all HDTV.

2. Completed HDTV portion of the final report.

3. Final report with bridge underclearance system detail will be completed by December 1, 2010.

REPORT(S)

None

SPR-2237

Field Evaluation of Concrete Containing Disodium Tetrapropenyl Succinate (DSS)

OBJECTIVE(S)

1. Study the field performance of concrete barriers containing the DSS additive and its ability to reduce concrete permeability, increase passivity of the embedded reinforcing steel and provide air entrainment for greater durability.

2. Monitor corrosion of the reinforcing steel in experimental and control barriers with the use of embedded half-cell probes.

PROJECT WORK STATUS

Project Started – February 20, 2003

Project Status - Active

Work Done - July 1, 2009 to June 30, 2010

1. Completed field work to identify locations of remaining DSS barriers.

2. Began preparation of final report.

REPORT(S)

None

SPR-2239 (Phase 1B)

Development of Internet-Based Computer Databases for the Connecticut Department of Transportation

Phase 1B: Development of an Internet-Based Protocol for the Connecticut Product Evaluation Database (ConnPED) Application

OBJECTIVE(S)

This project seeks to reduce the manual effort required for Connecticut to report and maintain its information through the development of the following two databases, with corresponding Internet protocols for transfer/dissemination of data, in several phases:

- Phase 1A: Development of the Connecticut Product Evaluation Database (ConnPED) Application.
- Phase 1B: Development of an Internet protocol to allow vendors to submit product information on-line; and to allow ConnDOT personnel and vendors to view product information on-line. Explore the application of Geographic Information System (GIS) technology to supplement documentation and reporting of field evaluation sites in Connecticut's transportation infrastructure.
- Phase 2A: Development of the Connecticut Research-In-Progress Database (ConnRiP) Application.
- Phase 2B: Development of an Internet protocol to allow ConnRiP records to be directly uploaded to the national FHWA Transportation Research Board (TRB) Transportation Research Information Service (TRIS) Research-In-Progress (RiP) database. Explore the application of GIS technology to supplement documentation and reporting of field evaluation sites in Connecticut's transportation infrastructure.

This proposal addresses Phase 1B. A proposal for Phase 1A has already been developed. Proposals for Phases 2A and 2B will be developed for consideration in the future.

ConnDOT's current system for accepting applications for products to be considered for the product evaluation process, as well as distributing information on the product evaluation process, is based on postal service and E-Mail. Because of the volume of data, the information is provided to a limited number of individuals on an as-needed basis. Development of ConnPED Internet/Intranet-based application(s) to submit and disseminate product evaluation information will allow a broader audience to efficiently learn, participate, and contribute to the overall body of knowledge regarding the product evaluation process in Connecticut.

The objectives of Phase 1B of this project are to:

- Develop an Internet/Intranet database application to allow dissemination of pertinent data related to the product evaluation process in Connecticut.
- Develop an Internet/Intranet database application to allow on-line submittal of the Preliminary Product Evaluation Information Forms along with pertinent, supplementary/background information on the product under consideration.
- Provide support for legacy computer systems.
- Prepare for future enhancements involving the application of Internet and GIS technology

PROJECT WORK STATUS

Project Started – January 1, 2005

Project Status - Active

Work Done - July 1, 2009 to June 30, 2010

1. The draft Final Report and User Manual were submitted to ConnDOT for review.

REPORT(S)

Phase 1A:

Smith, D.E., “Development of the Connecticut Product Evaluation Database Application – Phase 1A,” Report No. 2239-01-06-3, March 2006.

Smith, D.E., “Product Evaluation Database 1.0 System Documentation,” Report No. 2239-02-05-12, October 2005.

Smith, D.E. and Ruz, G., “Product Evaluation Database 1.0 User’s Manual,” Report No. 2239-03-05-13, February 2005.

SPR-2243

Enhancements to ConnDOT's Pavement Friction Testing Program

OBJECTIVE(S)

The objectives of the research are to: (1) update friction number speed correction factors based upon pavement mix designs in use in Connecticut today with an upgraded friction tester (hardware and software); (2) evaluate the effect of roadway geometry on friction (3) evaluate the potential use of the International Friction Index (IFI) in Connecticut; and, (4) implement the appropriate latest technology and procedures for pavement friction data request, collection and processing.

PROJECT WORK STATUS

Project Started - August 13, 2004

Project Status - Active

Work Done - July 1, 2009 to June 30, 2010

1. During the first quarter of FY10, wrote TRB Paper No. 10-0426, "Historical Overview of Pavement Friction Testing in Connecticut." The paper was reviewed by TRB's Transportation History Committee, which provided peer-review results.

2. In September 2010, prepared for and provided a presentation of the Connecticut Pavement Friction Testing Program at the Rocky Hill Lab to colleagues from ConnDOT's Traffic Division, Pavement Management, Maintenance, Materials Testing and Research. In addition, over fifty internet viewers tuned in via the Lab's streaming media facilities. These viewers tuned in from universities and federal/state highway agencies, including FHWA, from around the country, as well as Canada. The presentation was part of an effort to disseminate research findings of Transportation Pooled Fund Study TPF-5(141), "Pavement Surface Properties Consortium: A Research Program," for which Connecticut is a participant. Dr. Gerardo Flintsch, the principal investigator (PI) for the study, was the keynote speaker. Further details of the pooled-fund study are available at http://www.pooledfund.org/projectdetails.asp?id=371&status=4.

3. Also in September 2010, received a fixed-slip continuous friction measurement device (GripTester) on loan from FHWA via the Virginia Transportation Research Council and TPF-5(141), and commenced a field evaluation. Engineers from Virginia Tech's Transportation Institute delivered the GripTester and provided training for its operation and data analysis.

4. Prepared for and presented TRB Paper 10-0426, “Historical Overview of Pavement Friction Testing in Connecticut,” at the 89th TRB Annual Meeting in Washington, DC, in a Meet-the-Author Poster Session. This was presented at Session Number 580, “Traveled Surface Texture, Friction, Noise, and Profile,” on January 12, 2010. It was sponsored by the Surface Properties – Vehicle Interaction (AFD90) Committee. Preparatory work included developing and printing a poster and trading card for the session. In the third and fourth quarters, converted TRB Paper 10-0426 to a ConnDOT report and published as Report No. CT-2243-1-10-1, “Historical Overview of Friction Testing in Connecticut.” Distributed to ConnDOT officials, as well as per the distribution requirements of SP&R Part II research reports. These copies were provided for all distribution requirements within the USDOT, including FHWA, Office of Technology Applications, HTA-22.

5. During the fourth quarter of FY10, attended an equipment roundup at the Virginia Smart Road facility in Blacksburg, VA, as part of Transportation Pooled Fund Study No. TPF-5(141), “Pavement Surface Properties Consortium: A Research Program.”

6. During the fourth quarter of FY10, submitted a paper for consideration for presentation at the Pavement Surface Properties Consortium meeting in Roanoke, VA, in October 2010.

7. During the fourth quarter of FY10, submitted draft report No. CT-2243-2-10-3, “Characterizing the Macrotexture of Asphalt Pavement Designs in Connecticut,” for internal review.

8. During the fourth quarter of FY10, submitted draft Report No. CT-2243-F-10-4, “Enhancements to ConnDOT’s Pavement Friction Testing Program, Final Report,” for internal review.

REPORT(S)

Henault, John W., "Historical Overview of Pavement Friction Testing in Connecticut," TRB Paper No. 10-0426, Presented at the 2010 Transportation Research Board (TRB) Annual Meeting, Washington, D.C., January 2010.

Henault, John W., "Historical Overview of Pavement Friction Testing in Connecticut," Report No. CT-2243-1-10-1, March 2010.

Feasibility of Implementing Additional AASHTO Trns•port Modules in Connecticut

BACKGROUND

The Connecticut Department of Transportation currently uses a mixture of computer software and manual information systems that were designed over several years to meet the Departments pre-construction management needs. PCMS and BMIS are nonintegrated computer systems that operate independently of one another. There are also many PC-based systems to supplement mainframe data, many of which contain duplicate information. These multiple stand alone systems lack a comprehensive central database of information, as well as field and data definition standardization. There is also a lack of checks and balances for information updates and corrections, and a delay in response to questions and requests for reports.

In an effort to further streamline current business practices, the Department will investigate the feasibility of implementing the entire Trns•port preconstruction suite of products. This suite consists of the following modules:

PES (Proposal and Estimate System) – Addresses the needs of the highway design agency during the pre-letting phase of construction. Provides design, project administration, and estimation sections with tools to assist in project definition, funding specification, project cost estimation, contract proposal creation, and bid letting packaging.

LAS (Letting and Award System) – Designed to assist highway agency personnel with automated assistance for activities associated with letting, analyzing bids, and awarding proposals. These activities include advertising bids, maintaining and invoicing plan holders, maintaining DBE/WBE commitments, processing bid information, evaluating bids, and making award decisions.

Expedite – An electronic bid system which allows bidders to receive proposal item schedules and submit item bids in a secure, machine readable format. Integration of these new modules with our current Trns•port products will require an upgrade to both DSS and Estimator and a migration of applicable data.

OBJECTIVE(S)

The main objective of this research project is to obtain information that is vital to making implementation decisions regarding PES, LAS, Expedite, DSS, and Estimator. The detailed analysis study will perform the following functions:

1. Document current and proposed workflow.

2. Identify report requirements.

3. Inventory current network architecture, hardware, and software. It should also list any new required hardware and software.

4. Provide an assessment of future training needs.

5. Provide recommendations and alternatives for system security.

6. Identify issues that may impact the implementation and integration of the products.

7. Provide a breakdown of the estimated cost and personnel requirements to maintain each product.

8. Provide a breakdown of the estimated cost and personnel requirements to maintain each product.

9. Define potential benefits that could be achieved with the implementation of the software products.

PROJECT WORK STATUS

Project Started – Pending (Approved February 3, 2005)

Project Status - Closed

Work Done - July 1, 2009 to June 30, 2010

1. Published the final report, prepared by InfoTech, the developer of the AASHTO Trns•port suite of products. The final report is the deliverable for the requirements analysis for Trns•port Estimation, Preconstruction, Construction, Decision Support and Electronic Bidding Systems for the Connecticut Department of Transportation. The Requirements Analysis Report outlined the tasks and requirements for implementation of the selected estimation, pre-construction, construction, electronic bidding system, and decision support products. It also included projected costs and schedules for InfoTech services to assist ConnDOT with the implementation activities.

2. In FY09, the Department initiated a decision-making process to choose a support option and related tasks leading to possible future use of necessary AASHTO Service Units for that work. The Department continues to utilize the decision-making process.

3. Closed project on September 25, 2009.

REPORT(S)

Info Tech, "Requirements Analysis Report for Trns•port Estimation, Preconstruction, Construction, Decision Support and Electronic Bidding Systems," Report No. CT-2245-F-09-1, January 2009.

SPR-2249

Longitudinal Joint Performance Study

OBJECTIVE(S)

The main objective of this research is to improve the performance of longitudinal joints in hot mix asphalt pavement. This will be accomplished as follows:

Document the current state of the practice for constructing longitudinal joints. This documentation will include information available through literature and from observing techniques used in Connecticut.

Develop recommendations and host training seminar to implement construction procedures that provide extended performance of longitudinal joints.

Verify accuracy improvements of a new methodology for the measurement of longitudinal-joint density. The method adjusts nuclear density gauge readings based on the density of pavement cored from the mat.

PROJECT WORK STATUS

Project Started - March 1, 2006

Project Status - Closed

Work Done - July 1, 2008 to June 30, 2009

1. Published final report.

2. Project closed on November 16, 2009.

REPORT(S)

Zinke, S., Mahoney, J.M. and Shaffer, G., “Summary of the 2006 Use of a Notched Wedge Joint in Connecticut Pilot Projects,” Report No. CT-2249-1-07-3, August 14, 2007.

Zinke, S., Mahoney, J.M. and Shaffer, G., “Comparison of the Use of a Notched Wedge Joint vs. Traditional Butt Joints in Connecticut - Phase 1 Report”, Report No. CT-2249-2-07-6, May 14, 2008.

Zinke, S., Mahoney, J.M., Jackson, E.D. and Shaffer, G., “Comparison of the Use of a Notched Wedge Joint vs. Traditional Butt Joints in Connecticut Final Report”, Report No. CT-2249-F-08-4, November 7, 2008.

SPR-2250

Hot Mix Asphalt Research Investigation for Connecticut

OBJECTIVE (S)

Part A – Reduction in the Number of Superpave Mix Design Levels.

The objective of Part A is to determine if there is any difference in permanent deformation performance of Superpave HMA mixtures that are designed with the same aggregate structure but different asphalt contents to meet the Superpave volumetric requirements.

Part B – Develop Guidelines for Minimum Asphalt Content.

The objective of this portion of the research is to determine if the current minimum asphalt binder contents used by ConnDOT will improve the long-term performance of HMA pavements by increasing their durability while still being able to resist permanent deformation.

Part C – Permeability/Porosity Testing of HMA Mix Designs.

The objective of Part C of this research is to determine if the current Superpave mixes used in Connecticut limit the permeability of the pavements to values available in the literature.

Part D – Evaluate the Feasibility of Using Permeability for In-Place Density Dispute Resolution on Bridge Decks.

The objective of this work is to determine if measuring the permeability of a pavement on a bridge deck will work as a non-destructive dispute resolution for the in-place density of the pavement.

Part E – Compare Field Performance of Superpave and Traditional Mixes.

The objective of Part E of this research is to study Superpave pavements that appear to be aging/cracking much quicker than other Superpave mixes as well as conventional pavements designed using the Marshall Mix design method.

Part F – Process HMA Test Data For Compliance with PWL.

A request was submitted to ConnDOT by the PI to remove this task from the work plan.

Part G – Prepare Final Report, Executive Summary and Presentation.

The objective of Part G of this research project is to produce a final report that summarizes the work performed, findings and recommendations for each part of the project. An Executive Summary and presentation are also included in this part of the project.

PROJECT WORK STATUS

Project Started - March 1, 2006

Project Status - Active

Work Done - July 1, 2009 to June 30, 2010

Part A – Reduction in the Number of Superpave Mix Design Levels.

Task A-1 - Literature Review.

In a prior fiscal year, the research team attempted to conduct a literature review on the reduction of Superpave Mix Design Levels, but was unable to locate any literature on the subject. The research team did conduct a survey of regional transportation agencies to establish their current practices for Superpave mix designs.

Task A-2 - Collect HMA Samples.

In a prior fiscal year, the research team collected additional samples of aggregates from several additional sources to include in the testing.

Task A-3 - Evaluate HMA Samples in the Rut Tester.

APA and Hamburg testing was conducted on laboratory prepared specimens. This testing was completed in the previous fiscal year.

Task A-4 - Conduct Data Analysis.

The analysis of the data collected was conducted and it was completed in the previous fiscal year.

Task A-5 - Prepare Report for Part A.

The Draft Report for Part A was completed and submitted to ConnDOT during the previous fiscal year.

Part B – Develop Guidelines for Minimum Asphalt Content.

Task B-1 - Literature Review.

The research team completed a survey of regional states as to whether or not their specifications contain minimum asphalt contents. The research team has updated the minimum asphalt content survey to incorporate any changes that have occurred recently to their specifications as well as addressing any changes to the number of gyrations they use for their mix designs as this, in effect, has a similar influence of installing a minimum asphalt content. The literature review was completed in the previous fiscal year.

Task B-2 - Use Existing Mix Designs To Determine Maximum Asphalt Contents Before Rutting Becomes a Problem.

This work has commenced since mechanical problems with the rut tester hindered progress however those problems have been resolved and work is continuing. It is anticipated that this work will be completed during this coming fiscal year.

Task B-3 - Prepare Report for Part B.

No work was undertaken on this task in FY10.

Part C – Permeability/Porosity Testing of HMA Mix Designs.

Task C-1 - Literature Review.

This task was completed during a prior fiscal year.

Task C-2 - Determine Best Measurement Parameter for Permeability/Porosity.

Work on this task has been completed during a prior fiscal year.

Task C-3 - Acquire Laboratory and Field Equipment for Measuring Permeability.

Work on this task has been completed during a prior fiscal year.

Task C-4 - Conduct Laboratory Evaluation of Superpave Mixes Used in Connecticut.

An extensive laboratory testing program of cores was conducted during a prior fiscal year.

Task C-5 - Measure Field Permeability.

This work was completed during the previous fiscal year.

Task C-6 – Establish Mix Design Recommendations to Limit Permeability.

This work was completed during the previous fiscal year.

Task C-7 - Prepare Report for Part C.

The report for Part C was drafted and submitted to ConnDOT during FY10.

Part D – Evaluate the Feasibility of Using Permeability for In-Place Density Dispute Resolution on Bridge Decks.

Task D-1 - Literature Review.

This was completed during a prior fiscal year.

Task D-2 - Conduct Field Testing of Permeability on Bridge Decks.

This work was completed in FY10.

Task D-3 - Conduct Laboratory Permeability Testing of HMA Mixes Used in Task D-2.

This work was completed during a prior fiscal year.

Task D-4 - Develop Recommendations for Bridge Deck Permeability.

This work was initiated in FY10 and will be completed during FY11.

Task D-5 - Prepare Report for Part D.

This work took place during FY10 and will be completed during FY11.

Part E – Compare Field Performance of Superpave and Traditional Mixes.

Task E-1 - Literature Review.

Work on the literature review was completed during a prior fiscal year.

Task E-2 - Identify Pavements for Study.

This task was completed during a prior fiscal year.

Task E-3 - Obtain Construction Data.

Data collection took place during prior fiscal years and was completed during FY10.

Task E-4 - Conduct Field Evaluation.

The first round of cracking and distress analysis and data collection took place during a prior fiscal year. The final round of analysis was completed in early FY10.

Task E-5 - Conduct Laboratory Testing of Cores.

No work was undertaken on this task in FY10.

Task E-6 - Prepare Report for Part E.

No work was undertaken on this task in FY10.

Part F – Process HMA Test Data For Compliance with PWL.

Task F-1 - Analyze Current Method of Data Collection/Storage.

This task was removed from the work plan. A revised work plan has been submitted to ConnDOT and approved in a prior fiscal year.

Task F-2 - Develop Software for Converting the Data and Conducting F and T Tests.

This task was removed from the work plan. A revised work plan has been submitted to ConnDOT and approved in a prior fiscal year.

Task F-3 - Develop User Guide.

This task was removed from the work plan. A revised work plan has been submitted to ConnDOT and approved in a prior fiscal year.

Part G – Prepare Final Report, Executive Summary and Presentation.

Task G-1 – Prepare Draft Final Report.

No work was undertaken on this task in FY10.

Task G-2 – Submit Draft Final Report to ConnDOT.

No work was undertaken on this task in FY10.

Task G-3 – Prepare Executive Summary.

No work was undertaken on this task in FY10.

Task G-4 – Make Presentation of the Findings.

No work was undertaken on this task in FY10.

REPORT(S)

None

SPR-2251

Short-Term Bridge Monitoring in Connecticut

OBJECTIVE(S)

To conduct short-term monitoring studies of six to eight bridges over the next two years. The focus will be on bridges in work zones and concrete bridges. While it is expected that these bridges will be monitored with strain gages, other cost-effective sensors will be considered in this project.

PROJECT WORK STATUS

Project Started - July 1, 2006

Project Status - Closed

Work Done - July 1, 2009 to June 30, 2010

1. During this past year the project was completed.

2. Using the new portable strain monitoring system, two extended studies were completed under this project: (1) unexpected cracking on the 190 bridge; and (2) bridge weigh-in-motion.

3. Completed and published Report No. CT-2251-2-09-4, “Field Strain Monitoring to Evaluate Unexpected Cracking in a Non-Redundant Steel Plate Girder Bridge.”

4. Completed and published Report No. CT-2251-3-09-5, “A Non-Intrusive Bridge Weigh-in-Motion System for a Single Span Steel Girder Bridge Using Only Strain Measurements.”

5. Completed and published final report, Report No. CT-2251-F-09-6, “History of Connecticut's Short-term Strain Program for Evaluation of Steel Bridges.”

6. Based on the studies completed under this project, two journal articles have been prepared and are in the process of being submitted.

7. Closed project on June 10, 2010.

REPORT(S)

Troiano, Jr., G.P., D’Attillo, P.F., Olund, J.K. and DeWolf, J.T., “Field Strain Monitoring to Evaluate Unexpected Cracking in Non-Redundant Steel Plate Girder Bridge,” TRB Paper, August 1, 2007.

D’Attillo, P.F. and Feldblum, E.F., “Short-Term Bridge Monitoring – Deflection of Deck Units on Belden Road Bridge, Burlington”, Report 1, Report No. CT-2251-1-07-2, February 2007.

Christopher J. Wall, Richard E. Christenson, Anne-Marie H. McDonnell, Alireza Jamalipour, “A Non-Intrusive Bridge Weigh-in-Motion System for a Single Span Steel Girder Bridge Using Only Strain Measurements,” Report No. CT-2251-3-09-5, August 2009.

Gino P. Troiano Jr., John T. DeWolf, “Field Strain Monitoring to Evaluate Unexpected Cracking in a Non-Redundant Steel Plate Girder Bridge,” Report No. CT-2251-2-09-4, July 2009.

John T. DeWolf, “History of Connecticut's Short-term Strain Program for Evaluation of Steel Bridges,” Final Report, Report No. CT-2251-F-09-6, July 2009.

SPR-2252

Assessing ConnDOT's Portland Cement Concrete (PCC) Testing Methods, Phase II – Field Trials and Implementation

OBJECTIVE(S)

The primary objectives of this study are to develop and implement a protocol for using the concrete maturity method for estimating in-place PCC strength and for performing PCC temperature profiling.

PROJECT WORK STATUS

Project Started – July 26, 2006

Project Status - Active

Work Done - July 1, 2009 to June 30, 2010

1. Continued analyzing data.

2. Leant IntelliRock Maturity kit to consultant working on Project No. 92-619. They are pouring concrete pier columns with Class F concrete and wanted to check temperatures because the contractor is not curing the concrete properly and the pier columns are developing cracks immediately after stripping the forms.

REPORT(S)

None

SPR-2253

Development of the Digital Design Environment

OBJECTIVE(S)

The overall objectives are: 1) to develop a digital environment to utilize and evaluate electronic data systems; and, 2) to improve the efficiency and effectiveness of ConnDOT's project delivery workflow by streamlining and improving workflow in the design process.

PROJECT WORK STATUS

Project Started – Pending (Approved May 28, 2008)

Project Status - Active

Work Done - July 1, 2009 to June 30, 2010

1. Work continued on developing the framework and documentation for the interim benchmarking of the new system, using seven ongoing design/construction projects presently underway by the Department.

2. Completed consultant IT Services for the scope of work and recommendations, including configuration of ProjectWise's Managed Workspaces to the Digital Design Environment and Audit Report and Recommendation deliverables.

3. Internal development of a ProjectWise production system was abandoned in favor of a hosted solution with Bentley, the ProjectWise supplier. This approach was adopted due to reduced costs, differing internal architecture requirements, and the ability of the State to contract with a hosted solution vendo

4. Consultant services were extended to include continued testing/development of CAD Applications for the Bentley Hosted Environment.

5. Department of Information Technology's (DOIT) Architecture Group approved the proposed System Design for a Bentley Hosted Solution, including a Disaster Recovery Proposal

6. ConnDOT acquired new Adobe Acrobat licenses for ProjectWise implementation of a digital signature solution

7. New pilot projects were chosen for digital review/submission of contract plans using ProjectWise. These pilot programs are both in-house (State Design) and Consultant Design. These will utilize the digital review and submission throughout the entire project cycle.

8. Started migrating projects from ConnDOT servers into Bentleys Hosted Environment (approximately 500 projects), including a project archiving schedule.

9. Initiated a project modification for additional work to explore utilization of DDE data in construction, where GPS-based data collectors might be the basis for daily inspection reports of installed item quantities and accurate as-built plan sheets. Worked with Dr. Thomas Meyer from the University of Connecticut to develop proposed project modification that would cover this work, and prepared to submit this project modification, along with several others, to FHWA for approval.

REPORT(S)

None

SPR-2254

Advancing the Use of Streaming Media and Digital Media Technologies at ConnDOT

OBJECTIVE(S)

1. To continue to refine ConnDOT's current Webcasting capability in order to reduce the laboriousness and cost for conducting Webcasts and recording "live" presentations and meetings.

2. To continue to enhance the readability of video captured from the presenter's PC desktop for the benefit of the Web-based audience.

3. To document the steps required to conduct Webcasts, as well as how to capture and record presentations and meetings. It is envisioned that this primer will be useful to even those individuals unfamiliar with traditional video production techniques and values.

4. To identify methods and hardware that will reduce the time required during video post production and, therefore, improve product turn-around time.

5. To continue to run quantitative reporting software on a quarterly basis on the Web-based media server at CATER. All streaming media usage is submitted to the Manager of Research.

6. Employ high-definition video technologies for improving the quality and utility of Webcasts and streaming video presentations.

7. To enhance and improve internal communications within the Agency by testing and evaluating multicasting of live Executive directives.

8. To help ensure that the infrastructure is in place to support the expanding uses of streaming video technologies at ConnDOT.

PROJECT WORK STATUS

Project Started - October 19, 2006

Project Status - Active

Work Done - July 1, 2009 to June 30, 2010

1. Produced and published a quantity of new streaming video presentations.

Products Produced for Video-on-Demand		
Title	**Media Category**	**Duration**
The CT State Libraries Internet Search Tool	Staff Dev. and e-Learning	15 min
Winter Construction Inspection Training Series	Staff Dev. and e-Learning	3hrs - 32 min
History of Bridge Monitoring in Connecticut	Bridge Topics	41 min
TRB Annual Correlation Visit 2009	National Conferences/Orgs.	24 min
Fundamentals of Analyzing and Solving Local Traffic Problems	Technology Transfer Center	4 hrs - 42 min
Minimum Sign Retro-Reflectivity Requirements	Technology Transfer Center	1 hr - 16 min
Lead Awareness	Presentations for In-house	39 min
Asbestos Awareness	Presentations for In-house	54 min
New Haven Rail Yard Component Change Out Shop	Construction Projects	26 min
Structural Health Monitoring I-35 W Bridge	Bridge Topics	2 hrs - 27 min
Connecticut Transp. Institute Research Forum	Technology Transfer Center	3 hrs - 20 min
About ConnDOT’s Newest Photolog Vehicle	Public Service Excellence	1 min - 20 sec
Q-Bridge Voluntary Pre-Bid Conference	Construction Projects	54 min
History and Advancement of Streaming Media Technologies at ConnDOT	Staff Dev. and e-Learning	20 min
DigitalHIWAY for Power Users	Staff Dev. and e-Learning	49 min
DigitalHIWAY Training	Staff Dev. and e-Learning	1 min - 14 sec
About the 2009 Technology Transfer Expo	Technology Transfer Center	2 min - 8 sec
Concrete Testing Training for Dist1	Presentations for In-House	1 min - 47 sec
		SUB TOTAL 20.73 hrs
Live Events Conducted as Webcasts		
Pavement Surface Properties Consortium Webcast	Transportation Research	2 hrs - 30 min
NEAUPG Webcast – Multi Stress Creep Recovery	Pavement Topics	4 hrs - 21 min
NEAUPG 2010 Steering Committee Webcast	Pavement Topics	3 hrs
		SUB TOTAL 9 hrs 51 min

REPORT(S)

None

SPR-2255

Self-Consolidated and No-Slump Concretes: A Synthesis of Research Findings and Best Practices

OBJECTIVE(S)

The objectives of this study are to: survey and document practices in other states; document ConnDOT contractor/plant practices; and, combine research findings on self-consolidating and no-slump concretes into one report on the best practices for precasting catch basins and box culverts, including quality assurance.

PROJECT WORK STATUS

Project Started – November 26, 2007

Project Status - Active

Work Done - July 1, 2009 to June 30, 2010

1. Continued literature review.

2. In the fourth quarter of FY10, drafted a proposal for related research, Proposal No. P-10-4, “Implementation of Test Methods for Assessing the Workability of Self-Consolidating Concrete.”

3. In the fourth quarter of FY10, drafted a survey to be submitted to other State Highway Officials.

4. In the fourth quarter of FY10, began drafting synthesis report.

REPORT(S)

None

Expansion and Refinement of a Bridge Monitoring Network in Connecticut

OBJECTIVES

To continue development and refinement of the network of monitored bridges in the state of Connecticut, providing further information on the performance of a variety of bridge types, developing long-term structural health monitoring for each bridge and demonstrating to engineers the value of using remote monitoring to better track the bridge infrastructure. The systems are being designed to be economical, i.e. using minimal number of sensors and to track the overall performance. The systems also operate using normal traffic loading so that it is not necessary to close a bridge to do load testing or perform other tests. The approach used provides for continuous evaluation, and thus it supplements current biennial field inspections. Because the systems operate continuously, they will provide authorities with notice when there are major changes in the structural integrity. The data collected over multi-year periods also provides information that can be used to determine how bridges age with time.

PROJECT WORK STATUS

Project Started: July 1, 2007

Project Status: Active

Work Done: July 1, 2009 - June 30, 2010

Overall: The prime effort during the past year has involved: (1) Work to upgrade the monitoring systems, resulting in improved reliability in both data collection and archiving, addition of new monitoring abilities, flexibility to increase both the number and type of sensors in the future, and an expanded ability to automate the field monitoring systems; and, (2) Publication of research results at both conferences and in journals.

Below is a summary of this work for each bridge in the study.

East Hartford Bridge

The updated bridge monitoring system at the East Hartford Bridge provides:

1. Increased sampling rates of from 0.023 sec (43 Hz) to 0.001 sec (1000 Hz).
2. Improved resolution of the sensor measurements with the data acquisition analog to digital (A/D) converter increased from 16-bits to 24-bits.
3. Extended bandwidth of the dynamic measurements of accelerometers from 0.01-2 Hz to 0.01-420 Hz, with a 1000 Hz sampling frequency, and for the strain gages from 0-7 Hz to 0-450 Hz, again with a 1000 Hz sampling frequency.
4. Connectivity to the Connecticut Department of Transportation computer network over the internet allowing for full access to the bridge monitoring computers.
5. Real-time remote viewing of the bridge monitoring data from any PC on the ConnDOT network using a java-based Real-Time Data Viewer (RDV).
6. Automated data archival to an offsite FTP server.

Flyover Bridge

The updated bridge monitoring system at the Flyover Bridge provides:

1. Increased sampling rates from 0.011 sec (91.91 Hz) to 0.001 sec (1000 Hz).
2. Improved resolution of the sensor measurements with the data acquisition analog to digital (A/D) converter increased from 16-bits to 24-bits.
3. Extended bandwidth of the dynamic measurements of accelerometers from 0.01-2 Hz to 0.01-420 Hz, with a 1000 Hz sampling frequency.

4. Connectivity to the Connecticut Department of Transportation computer network over the internet allowing for full access to the bridge monitoring computers.
5. Real-time remote viewing of the bridge monitoring data from any PC on the ConnDOT network using a java-based Real-Time Data Viewer (RDV).
6. Video imaging with a fixed dome network camera and streaming video synchronized with streaming data.
7. Automated data archival to an offsite FTP server.

Cromwell Bridge

The updated bridge monitoring system at the Cromwell Bridge provides:

1. Increased sampling rates from 0.02 sec (50 Hz) to 0.001 sec (1000 Hz).
2. Improved resolution of the sensor measurements from 1 □□ (MicroStrain) with the original system to 0.06 □□ with the 24-bit system and associated amplifiers.
3. Extended bandwidth of the dynamic measurements of strain gages from 0-5 Hz to 0-450 Hz, with a 1000 Hz sampling frequency.
4. Connectivity to the Connecticut Department of Transportation computer network over the internet allowing for full access to the bridge monitoring computers.
5. Real-time remote viewing of the bridge monitoring data from any PC on the ConnDOT network using a java-based Real-Time Data Viewer (RDV).
6. Video imaging with a fixed dome network camera and streaming video synchronized with streaming data.
7. Automated data archival to an offsite FTP server.

Sikorsky Bridge

Work has been conducted on the Sikorsky Bridge to identify upgrades that will improve the dynamic strain and acceleration measurements for this bridge. The updated bridge monitoring system at the Sikorsky Bridge will need to provide the following:

1. Improved quality of the acceleration data by adding anti-aliasing filters.
2. Improved signal-to-noise ratios for the acceleration and strain measurements by providing amplifiers at the data acquisition units to increase the signal prior to being digitized by the 14 bit analog to digital converter (this 14 bit converter has been identified as the major source of the existing measurement noise).
3. Real-time remote viewing of the bridge monitoring data from any PC on the ConnDOT network using a java-based Real-Time Data Viewer (RTD).
4. automated data collection.
5. automated data archival to an offsite FTP server.

Efforts are underway to identify the appropriate equipment upgrades to meet these needs.

Baldwin Bridge

The updated bridge monitoring system at the Baldwin Bridge will provide:

1. Improved resolution of the sensor measurements with the 24-bit system.

2. Connectivity to the Connecticut Department of Transportation computer network over the internet, allowing for full access to the bridge monitoring computers.
3. Real-time remote viewing of the bridge monitoring data from any PC on the ConnDOT network using a java-based Real-Time Data Viewer (RTD).
4. Automated data archival to an offsite FTP server.

Goldstar Bridge

The monitoring system on this bridge has continued to have data collection problems. Field visits have been carried out to establish the source of the problems, with review of the solar panels, the individual sensor arrangements, wireless data transmission and current field data acquisition system. New equipment has been purchased for installation. This should solve the problems so that data collection, using the solar panels can continue.

Summary Remarks

1. A significant benefit of system upgrades have been: 1) higher quality data; 2) higher reliability in both data collection and archiving; and, 3) the compact nature of this equipment saves significant space in the equipment cabinets at each bridge.

2. Educating the next generation workforce will be critical in the acceptance and advancement of bridge monitoring. Monitored bridges in the network have been used for outreach activities during the past year. A field trip to two of the monitored bridges was organized for the University of Connecticut Experimental Structural Dynamics class in March 2010. Seven students visited Flyover and Cromwell bridges as well as ConnDOT Research Lab at Rocky Hill. Later in the spring, April 2010, a field trip to two monitored bridges was organized for a National Science Foundation (NSF) sponsored Research Experience for Undergraduates (REU) field trip. Six undergraduate students from around the country visited Flyover and Bigfoot bridges. These outreach opportunities provide engineering students with first-hand knowledge and understanding of bridge monitoring.

REPORT(S)

Below is a list of publications that have been published during the year: These publications include work carried out during previous years, as well as recent work.

C. Liu, J.K. Olund, A.J. Cardini, P.F. D'Attilio, E. Feldblum and J.T. DeWolf. 2008. Structural Health Monitoring of Bridges in the State of Connecticut. Earthquake Engineering and Engineering Vibration, Vol. 7, No. 4:423-433.

A.J. Cardini and J.T. DeWolf. 2009. Long-term Structural Health Monitoring of a Multi-girder Steel Composite Bridge Using Strain Data. Journal of Structural Health Monitoring, Vol. 8, No. 1:47-58.

J.T. DeWolf, A.J. Cardine, J.K. Olund and P. F. D'Attilio. 2009. Structural Health Monitoring of Three Bridges in Connecticut. Annual Meeting of Transportation Research Board, Washington, D.C., 17 pages.

A.M. Scianna and R.E. Christenson. 2009. A Probabilistic Structural Health Monitoring Method Applied to the Bridge Health Monitoring Benchmark Problem. Annual Meeting of Transportation Research Board, Washington, D.C., 11 pages.

H.A. Trivedi. 2009. A Proposed Data Qualification Procedure for the Connecticut Bridge Monitoring Network. M.S. Thesis, University of Connecticut, Storrs, CT.

C. Liu, J.T. DeWolf and J. Kim. 2009 Development of a Baseline for Structural Health Monitoring for a Curved Post-Tensioned Concrete Box-Girder Bridge. Engineering Structures, Vol. 31, No. 12:3107-3115.

A.J. Cardini and J. T. DeWolf. 2009. Implementation of a Long-Term Bridge Weigh-In-Motion System for a Steel Girder Bridge in the Interstate Highway System. Journal of Bridge Engineering, ASCE, Vol. 14, No. 6:418-423.

J.T. DeWolf. 2009. History of Connecticut's Short-Term Strain Program for Evaluation of Steel Bridges. Report No. CT-2251-F-09-6, Connecticut Dept. of Transportation.

A.M. Scianna and R.E. Christenson, 2009 Probabilistic Structural Health Monitoring Method Applied to the Bridge Health Monitoring Benchmark Problem. Transportation Research Record: Journal of the Transportation Research Board, No. 2131, pp. 92–97.

A.M. Scianna and R.E. Christenson, "Implementation of a Probabilistic Bridge Health Monitoring Method on an In-Service Highway Bridge", 5th New York City Bridge Conference, New York City, August 2009.

A.M. Scianna and R.E. Christenson, "Implementation of an Automated Bridge Health Monitoring System to Connecticut's Long-Term Bridge Monitoring Network", Asian-Pacific Network of Centers for Research in Smart Structure Technology (ANCRiSST) 5th Annual Workshop, Boston, MA, July 2009.

H.A. Trivedi and R.E. Christenson 2009 Data Qualification and Error Quantification for Bridge Monitoring Systems in Connecticut. International Workshop for Structural Health Monitoring, Stanford, CA, September 2009.

SPR-2259

Field Evaluation of a Cold-in-Place Recycled Pavement Base Overlaid with Hot Mix Asphalt

OBJECTIVE(S)

Evaluate and document the performance, consistency and durability of cold-in-place recycled (CIR) pavement after ten years of service on S.R. 695.

PROJECT WORK STATUS

Project Started – March 10, 2008

Project Status - Closed

Work Done - July 1, 2009 to June 30, 2010

1. Completed final report.

2. Published final report.

3. During the first quarter, prepared and published a Research Advisory Committee (RAC) Handout, which presented findings and recommendations.

4. During the first quarter of FY10, wrote TRB Paper 10-0163, “Assessing Pavement Rehabilitation with Photolog Data,” and submitted for consideration for presentation and publication at the TRB 89th Annual Meeting in January 2010. The paper was submitted in response to a call for papers: “Assessment of Pavement Rehabilitation and Maintenance Techniques.” The paper was subsequently recommended for presentation in a poster session.

5. During the first quarter of FY10, Mr. John W. Henault, the Project Principal Investigtor, met at the Legislative Office Building in Hartford, CT, with State Representative Steve Mikutel, ConnDOT’s Legislative Program Manager, ConnDOT’s Acting Transportation Engineering Administrator, and representatives from the Gorman Group to discuss cold in-place recycling (CIR). Research findings from this study were presented. Representative Mikutel was informed that a CIR base was used on S.R. 695 eleven years ago in order to mitigate reflective cracking, and it performed as expected, i.e., reflective cracking was mitigated. He was also informed that rutting is still a concern and, therefore, ConnDOT recommends limiting CIR applications to lower-volume roadways (8,000 ADT), at this time. ADT levels may be increased as ConnDOT gains experience and rutting is shown to be minimized. Considering the research results, Representative Mikutel is interested in ConnDOT continuing the use of CIR for pavement rehabilitations.

6. During the second quarter of FY10, revised TRB Paper 10-0163 in light of committee reviewer comments and resubmitted for inclusion in the Annual Meeting Compendum of Papers.

7. Prepared for TRB Paper 10-0163 Meet the Author Poster Session (Session No. 386) presented at the TRB 89th Annual Meeting in Washington, DC. This work included finalizing and printing posters and trading cards for dissemination of research findings. It also included making travel arrangements for trip to Washington, DC and back.

8. Presented findings at the above-mentioned poster session on January 11, 2010. The session event was titled “Automated Distress Data for Pavement Management.”

9. Closed project on July 9, 2009.

REPORT(S)

Henault, J.W. and Kilpatrick, D.J., “Evaluation of a Cold In-Place Recycled Rehabilitation Treatment,” Report No. CT-2259-F-09-2, June 2009.

Henault, J.W. and Overturf, B.J., “Assessing Pavement Rehabilitation with Photolog Data,” TRB Paper No. 10-0163, Presented at the 2010 Transportation Research Board (TRB) Annual Meeting, Washington, D.C., January 2010.

SPR-2260

Digital Preservation of a Highway Photolog Film Archive in Connecticut

OBJECTIVE(S)

To increase use of historical Connecticut photolog images that date back to 1973 by improving image quality and ease of access through digital methodologies, and to develop guidelines on digital preservation of historical highway photolog film.

PROJECT WORK STATUS

Project Started – May 2009

Project Status - Active

Work Done - July 1, 2009 to June 30, 2010

1. It was determined that UConn would house the film to be transferred, conduct film quality control checks, manage shipping and receiving operations and perform LT0 tape to digital transfers at their CTI facility on the Univerity Depot Campus.

2. Technicolor was chosen as the vendor to perform film to 4K transfers.

3. Modified project to add more funding for editing supplies, LTO tape drive and additional DigitalHIWAY software.

4. Purchased splicer and film editing supplies.

5. UConn Principal Investigator and UConn researcher attended the 2010 National Association of Broadcasters Convention, in Las Vegas, NV, on April 10-16, 2010, to gain hands-on knowledge of the 3D cameras.

6. Images from all 81 reels of film, shipped in February 2010, were scanned and saved to LTO4 data tapes by Technicolor, NY.

7. The LTO tapes were shipped to UConn. Two tapes were rejected due to general tape failure. Technicolor has agreed to provide the images on new tapes.

8. Overall image quality was reviewed and approved by UConn and ConnDOT.

9. UConn staff extracted the .dpx full resolution digital images to external hard drives. Final jpeg compression is being determined by UConn, ConnDOT and the DigitalHIWAY software developer.

10. Delivered initial JPEGs to DigitalHIWAY developer.

11. A 3D component was added to the project via project and budget modification. The project is providing funds for a portable 3D HD camera system for one photolog van as a test platform. To learn more about 3D, the project team visited ESPN Studios in Bristol, CT, on June 3, 2010, and were given an in-depth tour of all facilities , along with a lenghty 3D discussion with ESPN’s technical team.

REPORT(S)

None

SPR-2261

CASE: Design/Build, A Transportation Project Methodology for Connecticut's Consideration

OBJECTIVE(S)

The objective of this study was to conduct a literature review to identify how ConnDOT's use of design-build contracting methodology may benefit the State of Connecticut.

PROJECT WORK STATUS

Project Started: - May 16, 2009

Project Status: - Active

Work Done: - July 1, 2009 to June 30, 2010

1. Several CASE Study Committee meetings were held throughout the project:

   — July 30, 2009: This meeting was an introductory session to introduce the Study Committee to the project and to secure their input on the draft project scope.

   — September 16, 2009: This meeting included two guest speakers: Bruce Bockstael, Chief Architect, CT Department of Public Works; and, Christine Mizioch, Manager, Design-Build Program, MassHighway.

   — October 15, 2009, and November 20, 2009: Presentations to the Committee were conducted by guest speakers including: William Meier, Jr., Director of Special Projects, Lane Construction Company; Gerald Yakowenko, Contract Administration Group, Office of Program Administration, FHWA; and, Bradley Mallory, Chief Operating Officer, Michael Baker Corporation, and formerly Commissioner of PennDOT. The purpose of these presentations was to gain insights into the use of design build contracting from a variety of perspectives.

   — February 19, 2010: Presentations to the Committee were conducted by guest speakers including: Teresa Bruton, PE, Transportation Program Management, North Carolina Department of Transportation; Bruce Bergstrom, Vice-President and Regional Surety Manager, Arch Insurance Group; and, Ray Oneglia, Vice Chairman of the Board, O & G Industries. The purpose of these presentations was to gain insights into the use of design build contracting from a variety of perspectives. The committee also drafted preliminary study findings and recommendations and reviewed and provided comments and suggestions regarding the draft project report.

   — May 3, 2010: A final Study Committee meeting was held to review final draft report. The study report was finalized based on comments received from study committee.

2. Meetings with ConnDOT Staff:

   — September 2, 2009: A meeting was held on with ConnDOT management (R. Armstrong, S. Hill, J. Norman, and M. Rolfe) to provide ConnDOT's study contacts with an overview of the project, and for the purpose of discussing current and design-build contracting methodologies. Issues regarding design-build implementation for transportation projects were discussed.

   — October 30, 2009 and November 13, 2009: Meetings were held with ConnDOT staff, respectively from the offices of design and construction to discuss issues regarding design-build implementation for transportation projects from their perspective.

3. Other Meetings/Discussions:

   — A meeting was held on March 19, 2010, with UConn capital project staff. The study manager, CASE staff and two members of the study committee met with James Bradley, Associate Vice President architectural and Engineering Services, UConn to discuss UConn's experience with Design-Build projects for the purpose exploring the results of two design-build dormitory construction projects, as well as other experience Mr. Bradley has had with other Design-Build projects.

   — Discussions were held with Metro-North, and other transit agencies regarding their Design-Build experience.

4. State Survey:

   — Drafted "state survey" for review by Study Committee. Drafted criteria for the selection of states that will be asked to complete the "state survey" to assess design-build experience of participating states.

   — Administered the design-build survey to selected transportation agencies that was developed by the Study Management Team with input and review by the Study Committee. A summary of the survey results is in the process of being developed, along with follow-up questions to survey respondents.

   — Survey results were incorporated into the study report.

5. Conducted literature review for final report regarding design-build and design-did-build contracting methods.

   — Secured input from the Design Build Institute of America regarding their 50-state design-build overview and map and requested example of design-build projects for potential use as case studies.

6. Study Report and Briefings

— Developed draft study report for review of the Study Committee and for their use in developing study findings and recommendations. The study report was finalized with input from the study committee and ConnDOT study contacts.

— Study Briefing for ConnDOT staff was conducted on June 1, 2010.

— Study Briefing for ConnDOT Commissioner and senior staff was conducted on June 9, 2010.

— ConnDOT and FHWA authorized publication of the study report.

— The study report was approved by the CASE Governing Council for Public Release on June 10, 2010.

— 150 printed copies and an electronic version of the study report were delivered to ConnDOT.

REPORT(S)

Jackson, E. and Mahoney, J., “The Design-Build Contracting Methodology for Transportation Projects: A Review of Practice and Evaluation for Connecticut Applications,” Report No. CT-2261-F-10-6, June 2010.

Abstract: Two primary contracting methods are used by most state transportation agencies to design and build infrastructure: design-bid-build and design-build. Advantages and disadvantages to design-build and design-bid-build are discussed in this report with respect to transportation projects in Connecticut. The report focuses on the challenges that must be overcome to make design-build viable in Connecticut. The primary conclusion of this study is that ConnDOT should be able to utilize the DB contracting methodology for design and construction of transportation-related projects. It is noted that DB is not entirely new to ConnDOT as the commissioner has the authority to modify or eliminate the bidding process for emergency declaration projects. The General Assembly should adopt legislation permitting use of DB contracting as an option for transportation projects. The legislation should require ConnDOT to periodically report on its experience in utilizing DB contracting to the Transportation Committee and other relevant committees of the Connecticut General Assembly for the purposes of determining the value and benefits of this method of contracting to the state and the public.

Water-Quality Monitoring and Assessment Due to Addition of a Lane on a Divided Highway in Southeastern Connecticut

OBJECTIVE(S)

The Federal Highway Administration (FHWA) and the Connecticut Department of Transportation (ConnDOT) are in the process of developing an Environmental Impact Statement (EIS) for the expansion of I-95 between Old Lyme and New London Connecticut.

Federal and state regulations require state transportation agencies (STAs) to develop an Environmental Impact Statement (EIS) for each proposed expansion, rehabilitation or new construction on the highway infrastructure system. The United States Environmental Protection Agency (USEPA) requires STAs to evaluate the effects of any highway construction work on biological and water-related resources in the waterways and water systems that cross the construction project area. In the northeast, seasonal variations in chloride levels in waterways are of particular concern because of the use of deicing agents during the winter season. ConnDOT has recently adopted (2007-2008) new road deicing practices to reduce the use of sand for traction control, and increase the use of anti-icing practices on State roads.

It is necessary to establish baseline levels of chloride concentrations at the selected site for the I-95 expansion project. The data will be used to determine the effect the proposed expansion will have on the water quality of the local hydrological ecosystem. The United States Geological Survey (USGS) is conducting a 3-yr monitoring program to determine chloride concentrations and loads from streams associated with the I-95 project and typical development patterns, and to understand the chloride dynamics during deicing events, as well as during base-flow conditions. The USGS study is funded separately through an FHWA-led study.

The objective of the USGS study is to provide water-quality data and interpretations to be used in the establishment of baseline water-quality conditions of the I-95 corridor, including the effects of upstream land use, and the variations in chloride concentrations during deicing events as well as during base-flow conditions. Analysis and monitoring will be used to determine upstream influences, as well as the influence of I-95 on current water quality. This analysis focuses primarily on water quality related to road deicing practices.

The objective of this SPR study is to provide resources for technical, advisory oversight of the USGS study.

ConnDOT has entered into a contract with the Connecticut Academy of Science and Engineering (CASE) to: 1) conduct a literature review to identify and establish best practices as pertaining to monitoring and predicting the impact of deicing salts on the environment (Task A); and, 2) provide resources for the technical advisory oversight and guidance of the USGS water quality monitoring project through participation on ConnDOT’s USGS Project Technical Advisory Committee (Task B). CASE, in turn, has contracted with the University of Connecticut (UConn) to undertake primary research and to serve as principal writer of the study report for Task A with oversight and guidance from CASE.

ConnDOT, CASE, FHWA, USGS and UConn (through review of the USGS Interim Report) are among the agencies represented in the project Technical Advisory Committee.

PROJECT WORK STATUS

Project Started: May 8, 2009

Project Status: Active

Work Done: July 1, 2009 to June 30, 2010

ConnDOT Tasks

1. Attended a project CASE Study Committee Meeting, including representatives of the Technical Advisory Committee, on August 3, 2009, in Old Lyme, CT.

2. Visited field sites with personnel from the CASE Study Committee and the project Technical Advisory Committee on August 3, 2009.

3. Reviewed CASE field visit-based recommendations for the USGS water quality monitoring project.

4. Attended a project Teleconference Meeting with personnel from FHWA, ConnDOT and USGS to discuss the CASE field visit-based project recommendations for the USGS water quality monitoring project on August 13, 2009.

5. Attended a project Technical Advisory Committee Committee Meeting and CASE Study Committee Meeting, on October 21, 2009, and February 3, 2010, in Glastonbury, CT.

6. Attended a CASE Study Committee Meeting on March 24, 2010, in Rocky Hill, CT, to review state survey and CASE draft report, including preliminary recommendations.

7. Attended a CASE Study Committee Meeting on May 10, 2010, in Rocky Hill, CT.

8. Attended a meeting between ConnDOT, CASE and UConn personnel, on June 16, 2010, to discuss the ConnDOT comments on the draft final report and draft decision tree.

9. Reviewed several versions of the CASE draft final report and decision tree.

Connecticut Academy of Science (CASE) Tasks

1. Conducted a CASE Study Committee Meeting, including representatives of the Technical Advisory Committee, on August 3, 2009, in Old Lyme, CT.

2. Visited field sites with personnel from the CASE Study Committee and the project Technical Advisory Committee on August 3, 2009.

3. Developed and submitted recommendations for the USGS water quality monitoring project, based on the field visit, to FHWA for consideration.

4. Completed background literature review of road salt toxicity and elevated concentrations due to increased runoff from winter maintenance practices including: a) toxicity limitations and regulatory requirements; and, b) respective impacts of Cl^- addition, including secondary effects. The literature review was linked with the USGS literature review provided by G. Granato (FHWA – RI).

5. Developed and completed a survey of New England state transportation agencies and state environmental regulatory agencies to assess current state of practice regarding regulatory monitoring.

6. Attended a project Technical Advisory Committee Committee Meeting and CASE Study Committee Meeting, on October 21, 2009, and February 3, 2010, in Glastonbury, CT.

7. Conducted a CASE Study Committee Meeting on March 24, 2010, in Rocky Hill, CT, to review state survey and CASE draft report, including preliminary recommendations.

8. Conducted a CASE Study Committee Meeting on May 10, 2010, in Rocky Hill, CT.

9. Attended a meeting between ConnDOT, CASE and UConn personnel, on June 16, 2010, to discuss the ConnDOT comments on the draft final report and draft decision tree.

10. Developed several versions of the CASE draft final report and decision tree in response to comments by the CASE Study Committee.

11. USGS delay in releasing the USGS I-95 Water Quality monitoring (WQM) Interim Report will delay release of the CASE study report, as results of this report should be reviewed by the CASE Study Management Team and CASE Study Committee to determine if there is any impact on the Study Committee’s recommendations.

12. The CASE contract with UConn was extended from June 30, 2010, to August 31, 2010, at no additional cost, to accommodate the delay in the release of the USGS Interim Report.

REPORT(S)

None

SPR-2263

Evaluating the Impacts of Reducing the Number of Hot Mix Asphalt Plant Testing Acceptance Criteria on Mix Variability

OBJECTIVE(S)

The objective of this study is to statistically analyze data collected by ConnDOT from the 2007, 2008, 2009 and 2010 construction seasons to determine what impact the change in specifications may have on the variability and overall quality of the mixes being produced.

Furthermore this analysis will allow ConnDOT to evaluate if the changes to HMA acceptance characteristics need to be revised further.

PROJECT WORK STATUS

Project Started - May 18, 2009

Project Status - Active

Work Done - July 1, 2009 to June 30, 2010

1. Conduct Literature Review.
    - Initiated work on literature review.
    - Initiated detailed survey of states.
2. Obtained 2007, 2008 and 2009 Construction Data.
    - Determined best format to transfer data.
    - Initiated process to transfer data. 2007 and 2008 data have been transferred and are ready for analysis. 2010 data have not been collected yet since the 2010 paving season is still in process.
3. Conduct Data Analysis.
    - Initiated process to analyze data. Data format has been established and finalized. A database has been constructed, error checked and preliminary analysis has been conducted. Final analysis is dependent on 2010 data yet to be collected.
4. Prepare Interim and Final Report.
    - Worked on draft interim report.

REPORT(S)

None

SPR-2264

Performance Comparison of PG 64-22 versus PG 64-28 Asphalt in Hot Mix Asphalt Placed in Connecticut

OBJECTIVE(S)

Beginning in 2009, the Connecticut Department of Transportation (ConnDOT) required Hot Mix Asphalt (HMA) suppliers to use PG 64-22 for all paving projects. This was a change from the previously required asphalt binder grade of PG 64-28. Connecticut had been using PG 64-28 as the standard asphalt binder grade since the HMA industry converted to the Superpave grading system in 1997. There are several factors that have led to this specification change for the 2009 construction season. These factors include performance, constructability issues, product availability, material costs and climatic considerations.

The change to the ConnDOT specifications for 2009, which require PG 64-22 for the entire State of Connecticut, does not meet the 98% reliability for pavement service temperatures for all of Connecticut. In 2006, two test sections were constructed using both PG 64-22 and PG 64-28 in Easton and Kent, Connecticut. The test section placed in Easton started at the intersection of Routes 59 and 25 and went south on Route 59. The test section in Kent started at the New York border on Route 341 and headed east. It is important to document the performance of the pavement using -22° C for the low temperature grade as compared with pavements containing -28° C asphalt binders. This documentation is critical in determining whether this specification change jeopardizes the long-term performance of the pavement. If this specification change does shorten the pavement’s service life, there are some significant financial implications that can only be identified with studying these pavements’ performance over time.

The primary objective of this research is to begin to document the impact on long-term performance caused by changing from a PG 64-28 to a PG 64-22. This change is being made throughout the entire State during the 2009 construction season.

PROJECT WORK STATUS

Project Started: May 18, 2009

Project Status: Active

Work Done: July 1, 2009 to June 30, 2010

1. Establish Technical Advisory Committee (TAC).

   - ConnDOT and FHWA have been contacted for recommendations for the Technical Advisory Committee.

2. Complete Testing of Materials Collected at Time of Construction.

   - Testing was completed and the results are currently being analyzed. The following testing was performed:

     Asphalt Binders:

     Bending Beam Rheometer (BBR)
     Direct Tension (DT)
     Dynamic Shear Rheometer (DSR)

Asphalt Mixtures:

Advanced Pavement Analyzer (APA)
Tensile Strength Ratio (TSR)
Semi-Circular Bending (SCB)

3. Conduct Survey of Region DOT's for Asphalt Grades Used.

- The list was prepared based on the information found on the DOTs' website and their current specifications:

State	Asphalt Grades
Connecticut	PG 64-22
Maine	PG 64-28, PG 58-34
Massachusetts	PG 64-28, PG 52-34
New Hampshire	PG 58-28, PG 64-28
Rhode Island	PG 64-28, PG 58-28, PG 58-34, PG 52-34
Vermont	PG 58-28, PG 58-34, PG 64-28, PG 64-34

4. Assemble Documentation of Existing Test Sections.

- The construction relevant data was requested from ConnDOT and contractor and Team waits for their response.

5. Work with TAC to Establish and Construct Additional Test Section(s).

- No work on this task has been undertaken in FY10.

6. Perform Field Evaluations of Test Sections.

- Field evaluations of all test sections were performed on November 23, 2009. The team plans to perform another set of evaluations in later summer 2010 and collect pavement core samples at the same time.

7. Investigate Constructability Issues.

- No work on this task was done in FY10.

8. Prepare Interim and Final Report.

- No work on this task was done in FY10.

REPORT(S)

None

SPR-2265

Development and Evaluation of a Dual Purpose Bridge Health Monitoring and Weigh-in-Motion System for a Steel Girder Bridge

OBJECTIVE(S)

The primary objective of this project is the exploration and development of a permanent dual purpose BHM/BWIM system on a short-span steel-bridge for testing, demonstration and field evaluation of bridge weigh-in-motion and health monitoring over an extended period of time. A subsequent objective is to assess and document how the results from a leveraged BHM/BWIM system can benefit enforcement, bridge health monitoring and traffic monitoring efforts at federal, state and local transportation agencies.

PROJECT WORK STATUS

Project Started: August 3, 2009

Project Status: Active

Work Done: July 1, 2009 to June 30, 2010

1. Conducted work on the literature search and technology scan.

2. A field test was conducted on September 15, 2009, to examine the use of different sensor technologies and identify the amplitude and frequency ranges present on the structure. Work was conducted by ConnDOT to provide lane closure, bucket truck and personnel to access the structure. Data were collected, processed, and examined to determine the peak strain and acceleration responses and the corresponding frequency bandwidth of the measured responses from truck traffic.

3. Work was conducted to identify expert technical advisory counsel.

4. A meeting was held with Mr. Tom Kearney, FHWA Motor Vehicle Size and Weight, Mr. Stephen J. Cooper, FHWA-CT, and ConnDOT Research staff to discuss the project preliminary work, project scope and to visit the test site on September 25, 2009.

5. Work was conducted to review and conduct further analysis from the data collected at the test site from the November 2008 pilot test.

6. Work was conducted to train a graduate student on the existing work, including literature on bridge weigh-in-motion, structural health monitoring, and MATLAB programs used for BWIM calculations.

7. Dr. Richard E. Christenson, UConn, presented project-related information at the UConn Transportation Forum on November 5, 2009. This information was also made available through streaming media and by follow-up request by ConnDOT Commissioner Joseph F. Marie and State Representative David McClusky.

8. Developed research project specific trading card for distribution at the 2010 Transportation Research Board Annual Meeting in Washington, DC, in January 2010.

9. Completed and published report from the November 2008 Pilot Study entitled, “A Non-Intrusive Bridge Weigh-in-Motion System for a Single Span Steel Girder Bridge Using Only Strain Measurements.” Report No. CT-2251-3-09-5, under SPR-2251.

10. Work was conducted to design system including:

    a. Identification of best possible strain sensor(s) and accelerometer options for application to bridge monitoring and weigh-in-motion, based on discussions and meetings with sensor manufacturer representatives, identified five sensors for this application, including two alternative technologies for acceleration and strain measurements, which allow for the direct comparison of these sensing technologies.

    b. Developed the sensor layout for the specific bridge and research needs application.

    c. Identified necessary signal conditioning and power for the sensors identified.

    d. Developed detailed specifications of data acquisition equipment and wiring.

11. Met with Mr. Richard Van Allen, ConnDOT Office of Bridge Maintenance, on March 8, 2010 to discuss plans and request technical input on the proposed work.

12. Conducted project-related work during the 2010 Transportation Research Board (TRB) Annual Meeting, in Washington, DC, including:

    a. Distribution of project trading cards generally and specifically during TRB WIM ABJ35(2) meeting on January 10, 2010.

    b. Shared project information with representatives at ISWIM (International Society of Weigh-In-Motion) Board Meeting, January 12, 2010.

    c. Discussed project with Mr. David Huft, South Dakota DOT, and invited him to join TAC. Mr. Huft has considerable experience working on Bridge WIM from South Dakota in the 1970s and 1980s.

13. Obtained quotes and conducted purchasing of materials and equipment needed for monitoring system.

14. Work began to extend the previous nothing-on-the-road approach to improve the accuracy of speed and axle measurements.

15. ConnDOT Facilities developed plan for installation of power and conduit.

16. ConnDOT District I Electrical installed power and network of conduit at the Meriden Test Bridge.

17. Work was conducted for coordination and documentation of conduit installation.

18. Anne-Marie H. McDonnell presented project information entitled, “Dual-Purpose Bridge Health Monitoring and Weigh-in-Motion System,” at the National Traffic Data Acquisition Conference on June 24, 2010.

REPORT(S)

None

SPR-2266

CASE: Environmental Mitigation Alternatives

OBJECTIVE(S)

The objective of this study is to determine whether consolidated mitigation alternatives such as In-lieu Fee (ILF) and Wetland Banking (WB) programs are viable options to be implemented in Connecticut. Specifically, the study focuses on whether the Connecticut Department of Transportation (ConnDOT) may be able to develop such programs for their own use.

PROJECT WORK STATUS

Project Started: August 16, 2009

Project Status: Active

Work Done: July 1, 2009 to June 30, 2010

1. Initial project activities were completed including the selection of the study management team (CT Transportation Institute) and the formation of the Academy Study Committee. Additionally, ConnDOT and CTDEP representatives were identified to serve as technical liaisons throughout the project period.

2. Discussed the current status in Connecticut of Environmental Mitigation Alternative issues with CT DEP and ConnDOT personnel prior to 1st Study Committee Meeting

3. Study Committee Meetings:

   — October 14, 2009: This meeting provided committee members with an introduction to the study and plans for the study process.

   — December 2, 2009: This meeting included presentations from Ruth Ladd, Chief, Policy Analysis and Technical Support Branch, Regulatory Division, New England District, Army Corps of Engineers, and Matt Schweisberg, Manager, Wetlands Protection Program, Office of Ecosystem Protection, New England Region, U.S. EPA. These presentations provided information regarding the use of environmental mitigation alternatives including experiences of other states, and a discussion of issues particularly as related to Connecticut. ConnDOT and CT DEP staff also attended.

   — April 5, 2010: This meeting included a presentation of preliminary results of the state survey conducted by the Study Management Team and an update on progress with the draft report. Additionally, Kevin Moody, Ecologist, FHWA Office of Technical Services, Atlanta, Georgia, attended the meeting and made a presentation on FHWA Environmental Technical Services Team perspectives.

   — June 7, 2010: A final Study Committee meeting was held to review final draft report. The study report was in the process of being finalized based on comments received from study committee as of June 30, 2010.

4. Conducted a literature review of existing legislation and case studies from other states to identify: a) states that have effective wetland banking and in-lieu fee program, and b) what were and continue to be the challenges in establishing sustainable programs.

5. Survey:

   — Developed a survey to distribute to New England state DOTs and DEPs to assess current state of practice regarding wetland banking and in-lieu fees. Survey was reviewed by CASE Study Committee with comments incorporated.

   — Identified state and federal agency contacts to receive the survey.

6. Study Report

   — Developed study report for review of the Study Committee and for their use in developing study findings and recommendations. As of June 30, 2010, the study report was in the process of being finalized.

   — A briefing for ConnDOT staff will be conducted following completion of the report.

   — Publication is pending authorization from ConnDOT and FHWA.

REPORT(S)

At the end of June 2010, the study report was in final review by the CASE study committee, ConnDOT and DEP contacts and the study management team. The draft report, which is expected to be finalized in August, 2010 indicated that:

ConnDOT is interested in the potential for alternative mitigation strategies for decreasing costs and improving construction timing while potentially increasing wetland environmental benefits. To address this objective, published literature was reviewed concerning mitigation practices and surveys of other states and potential third parties were conducted to identify possible solutions. The primary study recommendation is for ConnDOT to more thoroughly evaluate the cost-benefits of implementing an ILF EMA program. As significantly less money is required upfront for an ILF program than that required for a WB program, it is recommended that an ILF program is the most appropriate mechanism to provide EMAs in Connecticut, and that ConnDOT consider developing an ILF program for its transportation projects. ConnDOT’s decision to develop an ILF program should take into consideration potential cost savings and user and public relations benefits for eliminating construction delays associated with more timely mitigation approval, as well as the increased environmental benefits of larger, more contiguous mitigation projects. Furthermore, in Connecticut the regulation of private impacts by municipalities prevents the private sector from buying into an EMA program.

Until state law is amended to allow for private participation in an EMA program, ConnDOT would need to establish an EMA program accounting for only state impacts, hoping that a successful program will serve to prompt the General Assembly to update the state’s legal structure regarding wetland mitigation.

SPR-2267

Evaluation of the Nonnuclear Density Gauge for Quality Control of Hot-Mix Asphalt

OBJECTIVE(S)

The objectives of this project were to evaluate the nonnuclear density gauge for QC of HMA, and to acquire a better understanding of the effects of moisture on gauge readings. Strategies for using nonnuclear gauges within rolling patterns to minimize pavement moisture were examined.

PROJECT WORK STATUS

Project Started - July 29, 2009

Project Status - Closed

Work Done - July 1, 2009 to June 30, 2010

1. During the first and second quarters of FY10, collected field data with the nonnuclear gauge. Density readings were taken with the PQI side-by-side with nuclear density gauges. The PQI's H2O Number and Temperature were also recorded for each reading. In addition, PQI density readings were taken at locations cored for Dispute Resolution purposes. PQI densities were compared to laboratory densities determined from cores. PQI measurements were taken over a broad range of H2O Numbers. Compaction was also monitored with the PQI, by taking readings immediately behind paver screeds, and then again at the same locations as the mat was compacted, after each pass with a roller.

2. During the second quarter of FY10, PQI density measurements were taken during paving operations on Project 28-197. This project was located in Colchester and Lebanon on Route 2, and included SHRP Test Sites 090901, 090902, 090903, 090960, 090961, and 090962. Five (5) cores were drilled at each of the SHRP Test Sites, and subsequently maximum specific gravities and bulk specific gravities were measured. From these measurements, the percent air voids and compaction were determined, and then compared to PQI densities, which were taken at the core locations prior to drilling. Nuclear density gauge readings were also taken at these locations.

3. During the third quarter of FY10, data were analyzed and a final report was drafted.

4. During the fourth quarter of FY10, completed and published Report No. CT-2267-F-10-2, "Evaluation of the Nonnuclear Density Gauge for Quality Control of Hot-Mix Asphalt." Then, the report was distributed to ConnDOT officials as outlined in the SP&R Part II direct distribution procedure.

5. Closed project on April 9, 2010.

REPORT(S)

Henault, J.W., "Evaluation of the Nonnuclear Density Gauge for Quality Control of Hot-Mix Asphalt," Report No. CT-2267-F-10-2, April 2010.

SPR-2268

The Use of Polymer Modified Asphalt Binder for High Friction Thin Lift Overlays in Connecticut

OBJECTIVE(S)

The primary objective of this research is to develop a high friction thin lift (HFTL) surface treatment specification with a polymer modified asphalt binder (PMAB) that can be placed with conventional paving equipment. It is planned to construct one pilot test section using proposed PMAB-HFTL specifications during 2010 construction season. It would be desirable to place a section of Nova Chip in the same area for comparison purposes.

PROJECT WORK STATUS

Project Started: April 1, 2010

Project Status: Active

Work Done: April 1, 2010 to June 30, 2010

1. Establish Technical Advisory Committee

ConnDOT has been asked to provide recommendations for the Technical Advisory Committee for this project.

2. Conduct Literature Review

The Research Team has begun the Literature Review for similar applications.

3. Survey States for their Experience and Specifications for PMAB-HFTL

No work was undertaken on this task in this fiscal year.

4. Interim Report

No work was undertaken on this task in this fiscal year.

5. Construction of Test Section

No work was undertaken on this task in this fiscal year.

6. Testing During Construction

No work was undertaken on this task in this fiscal year.

7. Collection of PMAB-HFTL Materials

No work was undertaken on this task in this fiscal year.

8. Frictional Testing of the Test Section Location

No work was undertaken on this task in this fiscal year.

9. Document Snow and Ice Removal Difficulties

No work was undertaken on this task in this fiscal year.

10. Final Report

No work was undertaken on this task in this fiscal year.

Problems Encountered:

Given the timing of the letting of construction projects for the current construction season, it is apparent that the construct of the test section will not be possible until the 2011 construction season. Unlike the warm mix project (SPR-2269), the construction of this test section will incur a cost greater than substituting warm mix for hot mix asphalt.

REPORT(S)

None

SPR-2269

Warm Mix Asphalt Pilot Project Development

OBJECTIVE(S)

The Connecticut Department of Transportation (ConnDOT) does not have any experience with warm mix asphalt (WMA). As this technology becomes ubiquitous, it is quite likely to become the standard method for producing asphalt pavement materials. It is important for ConnDOT to gain experience with WMA to verify if the specifications currently in-place for hot mix asphalt (HMA) will still be appropriate for WMA. It is also important to place several WMA projects under very controlled conditions to ensure that there are no problems with the performance of the WMA over time. The placement under controlled conditions is critical in order to identify the source of any potential problems that are encountered and if they are related to the WMA or other factors.

The construction of several pilot projects under controlled conditions will allow ConnDOT to evaluate the effectiveness of their current Superpave specifications for WMA. These pilot projects will not contain any Recycled Asphalt Pavement (RAP). It will also allow ConnDOT to establish confidence that the use of WMA will not reduce the service life of the pavements being placed.

The objectives of the research are to develop specification and quality assurance guidelines for WMA pavement. This research will collect samples and construction data at the time of placement. This research will also conduct follow-up condition surveys of the test sections to determine how they are performing.

PROJECT WORK STATUS

Project Started: April 1, 2010

Project Status: Active

Work Done: April 1, 2010 to June 30, 2010

1. Establish Technical Advisory Committee

The research team originally anticipated using the Warm Mix Subcommittee formed by the Connecticut Aggregate and Asphalt Producers Association (CAAPA) as the Technical Committee for this project. CAAPA originally agreed to this request but has since decided against this. Therefore, the research team is in the process of soliciting names from ConnDOT of potential members of the Committee.

2. Conduct Literature Review

The research team has begun work on the literature review. As the warm mix process is being used in more and more locations, the literature available is growing exponentially. Therefore, the literature review will need to be updated throughout the life of this project.

3. Survey Northeastern States for their WMA Experience and Specifications

The research team has made contact with most of the states in the region and will be conducting the survey later this summer as many states are experimenting with warm mix during this construction season.

4. First Interim Report

No work on the interim report was undertaken during this fiscal year.

5. Photologging of Pilot Projects Before Construction

The research team has submitted a request for ConnDOT to photolog the section of Route 70 that is being proposed as the location of the pilot project.

6. Construction of the First Pilot Project in Year 2010

The research team, with assistance from ConnDOT and Tilcon Connecticut, has identified Project #171-349D as the location for the first pilot project. This is Route 70 in Meriden, CT.

7. Collection of Construction Data on Pilot Projects

No work on this task was undertaken in this fiscal year.

8. Second Interim Report

No work on this task was undertaken in this fiscal year.

9. Construction of the Second Pilot Project in Year 2011

No work on this task was undertaken in this fiscal year.

10. Performance Evaluations of Pilot Projects

No work on this task was undertaken in this fiscal year.

11. Final Report

No work on this task was undertaken in this fiscal year.

Problems Encountered:

The project chosen for the first pilot project is smaller than described in the project proposal. As the first pilot project is to be constructed on a previously bid state project, the vendor needed to volunteer to place the two different types of warm mix asphalt. Tilcon was the only vendor that volunteered to do this as there will be costs associated with the additives. This limited the number of potential projects since Tilcon wanted to produce the mix from their New Britain, CT, facility.

REPORT(S)

None

SPR-2305

Connecticut Advanced Pavement Laboratory (CAP Lab)

OBJECTIVE(S)

1. To provide fee-based testing, for highway pavement materials, utilizing the SHRP methods.

2. To provide guidance in mix design for private industry.

3. To advise on mix acceptance and field construction.

4. To educate engineers and train technicians and inspectors in the SHRP methods.

5. To provide research on the SHRP methods.

PROJECT WORK STATUS

Project Started – July 12, 1995

Project Status - Active

Work Done - July 1, 2009 to June 30, 2010

1. Administration of CAP Lab.

   a. Conducted two (2) CAP Lab Advisory Board Meetings.

   b. Participated on CAAPA-CT DOT work group to improve HMA pavements.

   c. Agreements:

      - Completed preparation of an Original Memorandum-of – Understanding [MOU No. MOU-S2305-2-2009-5] to conduct FY10 activities for SPR-2305.

   d. Other Administrative Activities:

      - Moved the majority of CAP Lab equipment from old building to new space in the Longley Building. This included the coordination of the installation of electrical wiring to run the equipment.

      - Conducted informational meetings with Connecticut Legislators, in January and February 2010, to attempt to preserve bond funds allocated for CAP Lab renovations.

      - Addressed and submitted resolutions for the few deficiencies identified during the AMRL on-site inspection conducted during the December 2009 inspection.

      - Continued to work with the integration of CTI (including CAP Lab) into the Consortium of Infrastructure and Transportation Centers. This includes developing a plan to share resources between the three centers that comprise the Consortium.

2. Training and Technical Services.

a. Attended the following meetings and conferences:

- Hosted TRB visitor to UConn July 9, 2009, in Storrs, CT.
- Attended joint CT DOT and CAAPA meeting, July 24, 2009, in Wethersfield, CT.
- Attended meeting with CT DOT's Pavement Preservation Group and the Chief Engineer, August 6, 2009, in Newington, CT.
- Attended NETTCP Board of Director's meeting, September 10, 2009, in Methuen, MA.
- Attended joint CT DOT and CAAPA meeting, September 17, 2009, in Wethersfield, CT.
- Attended NESMEA/NEAUPG Annual Meeting, October 5-8, 2009, in Portland, ME.
- Attended joint CT DOT and CAAPA meeting, November 12, 2009, in Wethersfield, CT.
- Attended meeting with CT DOT's Pavement Preservation Group and the Chief Engineer, December 2, 2009, in Newington, CT.
- Attended meeting with CT DOT to discuss the possibility of developing an equivalent ACI Concrete Technician course for CT DOT employees only, December 14, 2009, in Rocky Hill, CT.
- Attended meeting to discuss the lab testing of materials collected from Route 2, February 2, 2010, in Rocky Hill, CT.
- Presented to the CT Legislature's MORE Commission about Pavement Preservation, February 22, 2010, In Hartford, CT.
- Attended meeting to discuss the Warm Mix Pilot Project, February 26, 2010, in Rocky Hill, CT.
- Attended, NEAUPG Steering Committee Meeting, March 23, 2010, in Rocky Hill, CT.
- Attended meeting with CT DOT's Pavement Preservation Group, March 25, 20010, in Newington, CT.
- Attended CAAPA- CT DOT Annual Paving Conference, April 5, 2010, in Newington, CT.
- Attended NETTCP Board of Directors meeting, May 20, 2010, in Marlboro, MA.
- Attended TRB webinar on Warm Mix Asphalt, May 24, 2010, in Rocky Hill, CT.
- Attended, NEAUPG Steering Committee Meeting, March 23, 2010, in Rocky Hill, CT.

- Attended New England Materials Engineers meeting, June 17, 2010, in Concord, NH.

b. Conducted the following training:

- Conducted NETTCP Re-Test, on July 28, 2009, in Storrs, CT.
- In conjunction with NEAUPG, organized a training workshop for the MSCR and Table 3 Asphalt Binders, September 22, 2009, in Rocky Hill, CT.
- Hosted the CTI Research Forum, November 5, 2009, in Storrs, CT.
- Conducted NETTCP PG Binder Re-Certification, December 2-3, 2009 in Storrs, CT.
- Conducted NETTCP Soils and Aggregate Lab Technician Certification, January 19-22, 2010, in Storrs, CT.
- Conducted NETTCP HMA Plant Technician Re-Certification, January 27-29, 2010, in Storrs, CT.
- Conducted NETTCP Soils and Aggregate Inspector, Recertification, February 4-5, 2010, in Storrs, CT.
- Conducted NETTCP HMA Plant Technician Certification, February 22-26, 2010, in Storrs, CT.
- Conducted NETTCP Soils and Aggregate Inspector, March 1-3, 2010, in Storrs, CT.
- Conducted NETTCP PG Binder Technician Re-Certification, April 26-27, 2010, in Storrs, CT.
- Conducted NETTCP PG Binder Technician Certification, April 28-30, 2010, in Storrs, CT.
- Conducted NETTCP PG Binder Technician Re-Certification, May 3-4, 2010, in State College, PA.
- Conducted NETTCP PG Binder Technician Certification, May 5-7, 2010, in State College, PA.
- Conducted NETTCP Soils and Aggregate Inspector Certification, May 11-13, 2010, in Storrs, CT.

c. Provided the following technical services to ConnDOT and others (where noted):

- Completed freeze-thaw testing of concrete containing “white” sand and standard sand. A draft report of the findings is being drafted.
- Reviewed comments regarding the core correlation procedure and provided feedback.
- Completed report on Freeze-Thaw Durability of Portland cement concrete made with dolomitic sand.

- Coordinated with CT DOT the collection of field samples from the Route 2 close out of the LTPP sections. Also, began developing a testing matrix for the samples collected from Route 2.

- Packaged and shipped 39 cores from the Route 2 close out of the LTPP sections to FHWA's Turner Fairbank facility.

- Developed proposal for conducting a concrete technician certification program for CT DOT that would be equivalent to the ACI Field Technician Grade 1.

- Prepared HMA specimens using the beam compactor that contain dolomitic white sand as well as control samples that utilize natural sand in lieu of the white sand. The specimens are currently undergoing freeze-thaw testing to check their durability. There is no standard for conducting this testing, so the results will be qualitative.

- Developed proposal for conducting a pooled fund project for the purchase of asphalt binder equipment.

- A proposal for the testing of the Route 2 cores was submitted to CT DOT for review.

3. Round Robin Testing.

   a. Continued participation in the AMRL Proficiency Samples, as applicable.

4. Conduct research to improve Superpave Technology.

   a. Submitted draft report on the TSR round robin conducted for review by ConnDOT.

5. Develop HMA Designs.

   a. Completed two Superpave mix designs for JSL Asphalt.

6. Provide Independent Test Results and Independent Assurance Testing.

   a. Conducted asphalt binder testing for samples submitted by VHB, Inc.

   b. Conducted aggregate testing for American Industries and Killingly Asphalt.

   c. Conducted asphalt binder testing for asphalt binder sample submitted from ATC Associates in Massachusetts

   d. Conducted aggregate testing/TSR testing for AEN, American Industries and Killingly Asphalt.

   e. Conducted asphalt binder testing for asphalt binder sample submitted from ATC Associates in Massachusetts.

REPORT(S)

Dougan, C.E., “Strategic Plan for the Connecticut Advanced Pavement Laboratory,” January 1998.

Mahoney, J.M. and Stephens, J.E., “Comparison of AASHTO Moisture Sensitivity Test (T-283) with Connecticut Department of Transportation Modified Test Method – Final Report,” Cap Lab Report No. CAPLAB 99-1, August 1999.

Mahoney, J.M. and Stephens, J.E., “Connecticut Superpave Gyratory Round Robin – 2003, Final Report,” Cap Lab Report No. CAPLAB 1-2003, April 2003.

O’Brien, C.T., Mahoney J. M. and Zinke, S., “An Evaluation of the Direct Tension Test for Asphalt Binders in the Northeast – Final Report”, ConnDOT Report No. CT-2305-1-06-7, Cap Lab Report No. CAPLAB 1-2006, June 1, 2006.

Zinke, S. and Mahoney, J.M., “Connecticut Superpave Gyratory Round Robin 2006 – Final Report”, Cap Lab Report No. CAPLAB 2-2006, December 1, 2006.

Zinke, S. and Mahoney, J. M., “Evaluation of Laboratory Freeze-Thaw Performance Testing of a Dolomitic Marble Sand ‘White Sand’ for Use in a Structural Portland Cement Concrete,” CAP Lab Report No. 7-2009, December 16, 2009.

PROJECT-RELATED WEB SITE(S)

http://www.caplab.uconn.edu

http://www.neaupg.uconn.edu

http://www.nesmea.uconn.edu

ConnDOT Web Site:

http://www.ct.gov/dot/research

SPR-2306

Installation and Evaluation of a Weigh-In-Motion System Utilizing Quartz-Piezo Sensor Technology

OBJECTIVE(S)

The objective of this study is to install a Quartz-Piezo based WIM System, and to determine sensor survivability, accuracy and reliability under actual traffic conditions in Connecticut's environment.

PROJECT WORK STATUS

Project Started – October 1, 1997

Project Status - Active

Work Done - July 1, 2009 to June 30, 2010

1. Conducted work as part of SPR-2108, LTPP Activities in Connecticut.
2. Conducted work in preparation of pavement resurfacing under ConnDOT Construction Project 28-107 including:
    a. Disconnected all sensors and recorded final output readings.
    b. Removed all electronics from cabinet.
    c. Contacted several states for input regarding Quartz Piezoelectric Weigh-in-Motion system specifications.
    d. Drafted specifications for WIM system replacement.
    e. Worked with ConnDOT Highway Design on items for sensor removal.
    f. Contacted sensor vendor to determine if there was a value in forensic testing of the sensors.
    g. Met with construction staff at site and reviewed system questions. Provided sample sensor for communications about sensor removal with paving contractor.
    h. Sought input on sensor configuration options from other states and experts in the field of vehicle dynamics.
    i. Documented removal of sensors.
3. Reviewed summary sensor output readings plotted by cooperative education intern.
4. Provided information on the project, upon request. Information included providing technical input to ConnDOT Highway Design for application of WIM systems, based on experience from SPR-2306.

REPORT(S)

McDonnell, A.H., “Preliminary Report on the Installation and Evaluation of Weigh-In-Motion Utilizing Quartz-Piezo Sensor Technology,” Report No. 2306-1-98-3, June 1998.

Larsen, D.A. and McDonnell, A.H., “Second Interim Report on the Installation and Evaluation of Weigh-In-Motion Utilizing Quartz-Piezo Sensor Technology,” Report No. 2306-2-99-7, November 1999.
McDonnell, A.H., “Evaluation of Quartz-Piezoelectric WIM Sensors: Second Year Study, North American Travel Monitoring Exhibition and Conference (NATMEC) 2000, August 2000.

McDonnell, A.H., “Evaluation of a Weigh-In-Motion System Utilizing Quartz-Piezoelectric Sensor Technology,” Pre-Proceedings of the Third International Conference on Weigh-In-Motion (ICWIM3), May 2002.

PART B

Non-SPR Funded Projects

R.P. 175-116 #44

Performance Monitoring of Superpave Pavements at Project 83-220

OBJECTIVE(S)

To monitor and compare the condition and performance of Superpave mixes using PG 64-28 and PG 76-22 asphalts on highway ramps between I-95 and Woodmont Road in Milford.

PROJECT WORK STATUS

Project Started - July 1, 2003

Project Status - Active

Work Done - July 1, 2009 to June 30, 2010

1. Project delayed due to staff reductions.

NOTE: These ramps were originally paved for comparison with whitetopping, however, the whitetopping was not placed under project 83-220.

REPORT(S)

None

Investigate Durability and Longevity of Inductive Loops for Traffic Detection

OBJECTIVE(S)

To investigate the durability and longevity of inductive loops for traffic detection in Connecticut.

PROJECT WORK STATUS

Project Started – June 1, 2005

Project Status - Active

Work Done - July 1, 2009 to June 30, 2010

1. Gathered information, as encountered.

2. Project delayed due to staff reductions.

REPORT(S)

None

PART C

Operational Tasks

Technology Transfer Center

http://www.t2center.uconn.edu/

OBJECTIVES

1. Expand and enhance existing efforts of ConnDOT and UConn in transferring highway and transportation technology to local agencies.

2. Improve communication on technical transportation issues between Federal, State, Local and Technology Transfer Center organizations.

3. Encourage implementation of effective highway and transportation procedures and technology at the local level.

4. Compile and disseminate the experience of the selected participants to further optimize the technology transfer program for all concerned parties.

PROJECT WORK STATUS

Project Started - July 1, 1983

Project Status - Active

Work Done - July 1, 2009 to June 30, 2010

1. The Center held three (3) Advisory Committee Meetings during the fiscal year.

2. The mailing list for the Center's Technology Newsletter was updated and increased from 4,343, at the start of the fiscal year, to 4,347, at the end of the fiscal year.

3. Four (4) newsletters have been published during the fiscal year.

4. Presented seventy-two (72) workshops, demonstrations, seminars, conferences and/or short courses on forty-five (45) subjects of interest to local agencies. Approximately 2,490 individuals attended the workshops. The workshops, demonstrations and/or short courses were:

	TITLE	DATE	LOCATION
a.	Traffic Calming	July 7, 2009	Farmington, CT
b.	Effective Communication Skills: Level I	July 14, 2009 July 15, 2009 July 16, 2009	Burlington, CT Colchester, CT Bethel, CT
c.	Creating a Culture of Professionalism in Public Works (Roundtable Discussion)	July 17, 2009	Hartford, CT
d.	Surveying Methods for Local Roads	July 21, 2009 July 22, 2009	Storrs, CT Storrs, CT
e.	ATSSA Flagger Certification Training (Custom)	July 21, 2009 July 23, 2009 May 6, 2010	New Canaan, CT New Canaan, CT Woodstock, CT
f.	Competent Person (Custom)	July 22, 2009	Ellington, CT
g.	Superpave for Municipalities	August 4, 2009 August 5, 2009	Torington, CT East Lyme, CT

	TITLE	DATE	LOCATION
h.	Principles of Drainage for Local Roads	August 11, 2009 August 12, 2009 August 13, 2009	New Canaan, CT Farmington, CT Storrs, CT
i.	Maintaining Traffic Sign Retroreflectivity	August 19, 2009 August 20, 2009	Rocky Hill, CT East Lyme, CT
j.	Where & When to Use Signs, Signals and Markings	August 24, 2009 August 25, 2009	Danbury, CT Windsor, CT
k.	Chainsaw Safety & Operations During Storm Clean-Up	September 1, 2009 September 3, 2009	Willington, CT Willington, CT
l.	Pavement Preservation Management	September 30, 2009	Glastonbury, CT
m.	The Effect of Winter Operations on Municipal Fleets: A Mechanics' Roundtable Discussion	October 7, 2009	Cheshire, CT
n.	Backhoe Training (Custom)	October 19, 2009 October 22, 2009 October 23, 2009	New Canaan, CT New Canaan, CT New Canaan, CT
o.	Front-End Loader – Train the Trainer,	October 20-21, 2009	South Windsor, CT
p.	Fleet Safety Best Practices	October 21, 2009 October 22, 2009	Burlington, CT Storrs, CT
q.	Work Zone Safety (Custom)	October 22, 2009	East Hartford, CT
r.	Complete Streets: Planning Safer Communities for Pedestrians and Bicyclists	October 23, 2009	Newington, CT
s.	Flagger Certification Training (Custom)	October 28, 2009	Monroe, CT
t.	The Role of Public Works in Emergency Response: What is Happening in Connecticut? A Roundtable Discussion,	November 3, 2009	Rocky Hill, CT
u.	Sign Retroreflectivity Webinar	November 17, 2009	Storrs, CT
v.	Implementing Low Impact Development in Your Community	November 19, 2009	Glastonbury, CT
w.	Statewide Public Works Education Summit	December 4, 2009	Storrs, CT
x.	Pavement Coffee Break (Special Event)	December 11, 2009	Storrs, CT
y.	Assessing Materials and Methods - 2010 Winter Operations Online Training Series	January 19, 2010	Storrs, CT

	TITLE	DATE	LOCATION
z.	Winter Operations Audits - 2010 Winter Operations Online Training Series	February 8, 2010	Storrs, CT
aa.	Sustainable Winter Operations: Anti-Icing, Pre-Wetting, and Best Practices - 2010 Winter Operations Online Training Series	February 18, 2010	Storrs, CT
bb.	DEMHS Region 4, After the Storm: Dangerous Trees, Critical Thinking and Making Them Safe (Custom)	March 10,2010 March 11, 2010 March 12,2010 March 15, 2010 March 16, 2010	Griswold, CT Colchester, CT Groton, CT Woodstock, CT Willington, CT
cc.	Safe and Effective Use of CT Law Enforcement Personnel in Work Zones	March 24, 2010	Farmington, CT
dd.	On the Job Safety and OSHA Regulations	March 29,2010 March 31,2010	Colchester, CT Burlington, CT
ee.	DEMHS Region 4, Operational Safety for Public Works Emergency Responders (Custom),	April 13, 2010 April 14, 2010 April 27, 2010 April 28, 2010 April 29, 2010	Canterbury, CT Woodstock, CT Lebanon, CT Coventry, CT East Lyme, CT
ff.	ATSSA Flagger Certification Training	April 20, 2010 April 22, 2010	Storrs, CT Morris, CT
gg.	The Public Works Budget: How to Build It, How to Sell It	April 21, 2010	Colchester, CT
hh.	Public Works Academy, Session 1: Professionalism in Public Works / Communication Skills	May 5, 2010	Storrs, CT
ii.	Public Works Academy, Session 2: Road Fundamentals	May 12, 2010	Storrs, CT
jj.	Effective Communication Skills - Level II	May 18, 2010 May 19, 2010	Lebanon, CT Bethel, CT
kk.	Public Works Academy, Session 3: Operational Safety for Public Works	May 19, 2010	Storrs, CT
ll.	Public Works Academy, Session 4: ATSSA Flagger Certification / Work Zone Safety	May 26, 2010	Storrs, CT
mm.	Public Works Academy, Session 5: Chainsaw Safety	June 2, 2010	Storrs, CT

	TITLE	DATE	LOCATION
nn.	Public Works Academy, Session 6: Safe Operation of a Snow Plow / Winter Operations (Including Sander Calibration)	June 9, 2010	Storrs, CT
oo.	Risk Management	June 9, 2010 June 10, 2010	East Lyme, CT Burlington, CT
pp.	Basics of a Good Road	June 22, 2010 June 23, 2010 June 29, 2010	Thomaston, CT East Lyme, CT Windsor, CT
qq.	Mechanics' Roundtable: 2010 Emissions Update	June 24, 2010	Cheshire, CT
rr.	Developing a Culture of Safety in Your Department: A Roundtable Discussion	June 30, 2010	Glastonbury, CT

5. The Center was represented at the following meetings, conferences, workshops, demonstrations, seminars and/or short courses, related to new technologies, program development, staff development and program administration:

	TITLE	DATE	LOCATION
a.	Transportation Research Board (TRB) Visitor at the University of Connecticut (UConn)	July 9, 2009	Storrs, CT
b.	Course Development Meeting for CT APA Partnership Courses	July 9, 2009	Storrs, CT
c.	2009 Technology Transfer Center Expo Planning Committee Meeting	July 20, 2009	Storrs, CT
d.	Meeting with the Tree Warden's Association Board of Directors	July 23, 2009	Storrs, CT
e.	2009 National LTAP/TTAP Conference	July 27-31, 2009	Pittsburgh, PA
f.	New Hire Training Work Group Meeting	August 21, 2009	Storrs, CT
g.	Streaming Video Presentation of Maintaining Traffic Sign Retroreflectivity Program	August 26, 2009	Rocky Huill, CT
h.	RESF#3 Emergency Response Committee Meeting	August 27, 2009	Storrs, CT
i.	DEMHS Special Funding Information Meeting	September 1, 2009	Colchester, CT
j.	ARTBA Reauthorization Meeting via Webinar	September 2, 2009	Storrs, CT

	TITLE	DATE	LOCATION
k.	Connecticut Department of Transportation (ConnDOT) Roadway Departure Committee Meeting	September 9, 2009 December 3, 2009	Newington, CT Newington, CT
l.	Connecticut Interlocal Risk Management Agency (CIRMA) Defensive Driving Course and Instructor Review	September 10, 2009	East Hartford, CT
m.	2009 Technology Transfer Expo	September 16, 2009	Storrs, CT

	TITLE	DATE	LOCATION
n.	Project Development Meeting for Connecticut Department of Environmental Protection (DEP) Stormwater Training Project	September 22, 2009	Hartford, CT
o.	Technology Transfer (T2) Center Advisory Committee Meeting	September 23, 2009 December 2, 2009 March 17, 2010 June 16, 2010	Storrs, CT Storrs, CT Waterford, CT East Lyme, CT
p.	Preview of Public Works Budgeting Workshop	September 24, 2009	Northampton, CT
q.	Online Education Conference	September 25, 2009	Storrs, CT
r.	Connecticut Tree Wardens Association Emergency Debris Management Seminar	September 29, 2009	West Hartford, CT
s.	Connecticut Council of Municipalities 2009 Convention	October 8, 2009	Hartford, CT
t.	Fleet Safety Training Instruction	October 21, 2009 October 22, 2009	Burlington, CT Storrs, CT
u.	2009 Connecticut Construction Career Day Planning Meeting	October 27, 2009	Rocky Hill, CT
v.	2009 Technology Transfer Center Graduation and Award Ceremony	October 29, 2009	Storrs, CT
w.	2010 Connecticut Technology Transfer (CT) Center Planning Retreat	November 4, 2009	Storrs, CT
x.	Connecticut Transportation Institute (CTI) Transportation Research Forum	November 5, 2009	Storrs, CT
y.	Connecticut Department of Transportation (ConnDOT) Debris Management Conference	November 13, 2009	Newington, CT
z.	Connecticut Advanced Pavement Laboratory (CAP Lab) Advisory Committee Meeting	November 17, 2009	Storrs, CT

	TITLE	DATE	LOCATION
aa.	Flagger Techniques Streaming Video Production	November 20, 2009	Rocky Hill, CT
bb.	HRRP Meeting with ConnDOT/FHWA	December 3, 2009	Newington, CT
cc.	New Directors Orientation – New Hampshire Local Technical Assistnace Program (LTAP) Center	December 9-10, 2009	Durham, NH
dd.	Lessons Learned from the Paving Season	December 11, 2009	Storrs, CT
ee.	Meeting with the University of Connecticut (UConn) Web Designer to discuss the Connecticut Technology Transfer (T2) Center Web Redesign	December 31, 2009	Storrs, CT
ff.	Curriculum Meeting for Public Works Academy	January 4, 2010	Storrs, CT
gg.	Work Zone Safety Council Meeting	January 7, 2010	Newington, CT
hh.	American Public Works Academy (APWA) Education Committee Meeting	January 15, 2010	Rocky Hill, CT
ii.	Curriculum Development Meeting for “Safe and Effective Use of Law Enforcement Personnel in Connecticut Work Zones”	January 21, 2010	Waterford, CT
jj.	Meeting with Senator Joan Hartley	January 25, 2010	Hartford, CT
kk.	Connecticut Interlocal Risk Management Agency (CIRMA) Annual Meeting	January 28, 2010	Rocky Hill, CT
ll.	Connecticut Interlocal Risk Management Agency (CIRMA) Risk Control Advisory Meeting	February 3, 2010	Middletown, CT
mm.	Transportation Security Committee Meeting	February 9, 2010	Newington, CT
nn.	New England American Public Works Academy (APWA) Board of Directors Meeting	February 17, 2010	Worcester, MA
oo.	Meeting To Preview FirstNet On-Line Education System with Connecticut Occupational, Safety and Health Association (ConnOSHA) and Connecticut Interlocal Risk Management Agency (CIRMA)	February 19, 2010	Wethersfield, CT

	TITLE	DATE	LOCATION
pp.	Transportation Leadership Program Work Group Meeting	February 24, 2010	Storrs, CT
qq.	Connecticut Training and Development Network (CTDN) Monthly Meeting	March 5, 2010 May 14, 2010	Hartford, CT Wethersfield, CT
rr.	2010 Connecticut Paving Conference	April 5, 2010	Newington, CT
ss.	2010 CASHO Equipment Show	May 13, 2010	Wallingford, CT
tt.	CIRMA Risk Control Awards Ceremony	May 21, 2010	Rocky Hill, CT
uu.	2010 LTAP Region One Meeting	May 24-26, 2010	Quechee, VT
vv.	Streaming Video Taping Session with ConnDOT Research	June 15, 2010	Rocky Hill, CT

6. Responded to 105 requests from people from local government agencies, Universities, State government agencies, federal government agencies, consultants, contractors, and private citizens, for Information Services/Technical Assistance and publications/videotapes/software.

7. Provided 40 publications, 3 software packages, 1 traffic monitoring equipment systems, 2 Safety Town kits, 61 processed traffic monitoring reports, 1 ball bank indicators, 3 technical assistance, 1 field assistance, 10 verbal information dissemination and 4 web references, in response to these requests. In addition, 6,086 publications and software packages were distributed at training programs, trade shows and conferences.

8. The Technology Transfer Circuit Rider Program provided the following services: None.

9. Agreements: None.

10. The 2009 Connecticut Construction Career Days were cancelled due to funding restrictions.

11. The 2009 Technology Transfer Expo was held on September 16, 2009, in Storrs, CT. 500 individuals were in attendance.

12. The 2009 Road Master/Road Scholar/Legal Traffic Authority Graduation Ceremony was held on October 29, 2009, in Storrs, CT. 135 individuals were in attendance.

13. Connecticut Transportation Institute (CTI) researchers continued their task of developing ways to aid in the implementation of ConnDOT sponsored research results on a local and national level.

14. Developed and launched the new Connecticut Public Works Academy Program.

15. Developed the new Connecticut Transportation Leadership Program, which will be launched in the Fall of 2010.

16. Developed public works training programs geared toward emergency response.

17. Developed and introduced a series of Technical and Safety Briefs, which will be posted on the Technology Transfer (T2) Center website.

18. Redesigned the Technology Transfer (T2) Center website. The new website can be found at : www.T2center.uconn.edu.

SPR-1417

Pavement Friction Testing and Safety Evaluation Services

OBJECTIVE(S)

To provide friction testing and roadway safety evaluation services to ConnDOT Offices and Connecticut municipalities upon request, in order to ensure that all roadway surfaces owned or maintained by this Department provide an acceptable level of surface friction.

PROJECT WORK STATUS

Project Started - July 1, 1990

Project Status - Active

Work Done - July 1, 2009 to June 30, 2010

1. During the first quarter of FY10, prepared for and provided a presentation of the Connecticut Pavement Friction Testing Program at the Rocky Hill Lab to colleagues from ConnDOT's Traffic Engineering, Pavement Management, Maintenance, Materials Testing and Research. In addition, over fifty internet viewers tuned in via the Lab's streaming media facilities. These viewers tuned in from Universities and State Highway Agencies, including FHWA, from around the country, as well as Canada. The presentation was part of an effort to disseminate research findings of Transportation Pooled Fund Study TPF-5(141), "Pavement Surface Properties Consortium: A Research Program," for which Connecticut is a participant. Dr. Gerardo Flintsch, the PI for the study, was the keynote speaker. Further details of the pooled-fund study are available at http://www.pooledfund.org/projectdetails.asp?id=371&status=4.

2. Planned for and brought the pavement friction tester to the Evaluation and Field Test Center for Skid Measurement Systems (EFTC) in East Liberty, Ohio for calibration and evaluation services during the period from October 12, 2009 to October 23, 2009.

3. Calibrated the pavement texture sensor as per the Dynatest 1295 Pavement Friction Tester Operation Manual at the Rocky Hill Lab upon return from above trip to Ohio.

4. Performed friction testing at approximately fourteen (14) locations in response to requests from various ConnDOT units.

5. Measured pavement texture during friction testing to provide data for SP&R Research Study SPR-2243, "Enhancements to ConnDOT's Pavement Friction Testing Program."

6. In the fourth quarter of FY10, participated in an equipment roundup for Transportation Pooled Fund Study TPF-5(141), *Pavement Surface Properties Consortium: A Research Program* at Virginia's Smart Road in Blacksburg, VA.

REPORT(S)

None

(Memoranda containing friction test results were provided to requesting parties.)

Connecticut Cooperative Transportation Research Program (CCTRP)
with the
University of Connecticut

In 1962, the Connecticut State Legislature established a continuing joint highway research program between the Connecticut Department of Transportation (ConnDOT) and the state's Land Grant University, the University of Connecticut (UConn). Section 13a-256 of the General Statutes, as amended, provides for continuing funding of this research program. The continuing agreement between ConnDOT and UConn created the eight-member Joint Highway Research Advisory Council (JHRAC or Council) with complete authority over the research program. The Council consists of four members designated by the Commissioner of Transportation and four members designated by the President of the University of Connecticut.

Under Connecticut Pubic Act 768, the state legislature created the multimodal Department of Transportation on October 1, 1969. The Department brought together the former Department of Highways (established in 1895), the Department of Aeronautics (established in 1927), the Connecticut Transportation Authority (established 1963), and the Commission of Steamship Terminals (established 1911). The legislature established goals for the Department, to integrate the overall transportation needs of the estate with elements of public safety, service, and convenience.

TRANSPORTATION RESEARCH GOALS

The governing Council of the CCTRP developed new goals for the cooperative research program with the University of Connecticut that reflected the multimodal mission of the newly created Department of Transportation. The following goals were formally adopted by Council on September 19, 1972 and are still in effect today.

> Whereas the State of Connecticut is committed to create, maintain and operate a viable, safe and economical, transportation system in the State, and, whereas the Joint Highway Research Advisory Council is authorized, under the "Agreement for a Continuing Cooperative Highway Research Program to be undertaken by the Connecticut Highway Department and the University of Connecticut," to provide technical facilities and professional services to accomplish this commitment; the Council adopts the following goals:
>
> 1. To improve and facilitate the movement of goods and services on the state system.
>
> 2. To introduce improved materials and methods of operation for the design, construction, maintenance, and management of the state system.
>
> 3. To increase the safety and convenience of the state system for the people of this state.
>
> 4. To minimize any undesirable environmental impact of existing and proposed transportation facilities on adjacent properties and communities.
>
> Identifying, evaluating and researching transportation related problems shall achieve these goals. The results of various research projects are to be disseminated and implemented to effect beneficial changes in the State Transportation System.

PROJECT WORK STATUS

Project Started - July 9, 1962

Project Status - Active

Work Done - July 1, 2009 to June 30, 2010

1. Because of fiscal constraints in the State, the future of the CCTRP is jeopardized by a loss of funding for the governing Council within the State budget for the biennium, FY10 and FY11.

2. All of the funds provided to the 'Council' flow to the University of Connecticut to reimburse expenses for research. The University of Connecticut reported that CCTRP was supporting 20 percent of its Civil and Environmental Engineering graduate students prior to the budget cut.

3. The JHRAC council decided to formally change the name of the research program from Connecticut Cooperative Highway Research Program (CCHRP) to Connecticut Cooperative Transportation Research Program (CCTRP). The name change reflects the multimodal focus of the program, although the program has been multimodal since 1972.

4. The JHRAC council decided to develop and implement a two-year Research Work Plan for FY10 and FY11 to complete research projects initiated in prior years. Funding for the two-year Work Plan is provided through "buffer" funding, a reserve that was established and maintained for the last several years.

5. If the State legislature does not restore funding for FY12, this collaborative multi-modal transportation research program with the University of Connecticut will likely end on its 60th anniversary.

6. Projects, funded under the two-year (FY10-FY11) Work Plan are listed in PART O, "Listing of Connecticut Cooperative Transportation Research Program (CCTRP) Projects," of this publication. In addition, a link to the work program document appears under the reports section, below.

REPORT(S)

2009-2011 CCTRP/JHRAC Work Program
http://www.ct.gov/dot/LIB/dot/documents/dresearch/JH_09-11_WP.pdf

Listed in Council's most recent annual 'Summary of Activities' publication at http://www.ct.gov/dot/LIB/dot/documents/dresearch/CCTRP_summ_act.pdf.

Research reports, 1953-present, are available online through an UConn Web site (http://www.cti.uconn.edu/chwrp/completedprojects.php) and the National Transportation Library (http://ntl.bts.gov).

Council policies and procedures governing the program are at http://www.ct.gov/dot/LIB/dot/documents/dresearch/jhrac.pdf.

UConn maintains an informational Web site for the Connecticut Cooperative Transportation Research Program through its Connecticut Transportation Institute, http://www.cti.uconn.edu/chwrp. You may freely view the site to learn about transportation research conducted under this research program.

Evaluation of New Products, Materials and Processes
http://www.ct.gov/dot/gpl

OBJECTIVE(S)

The Department shall, through research, assure that new and innovative materials, products and methods which offer cost-effective improvements and solutions to Department needs or problems are evaluated for merit.

PROJECT WORK STATUS

Project Started - July 1969

Project Status - Active

Work Done - July 1, 2009 to June 30, 2010

1. Product evaluation efforts continued during FY10. Product Evaluation forms were sent out in response to inquiries for 70 products. Sixty-five (65) products were submitted for review. Three meetings of the Research Liaison Committee were held during FY10 in order to review new products.

2. Continued liaison with industrial representatives. Attended demonstrations, meetings and PowerPoint presentations concerning new products, materials and methods.

3. Replied to product inquiries, ballots, surveys from Federal and State Agencies.

4. Assembled information on new products for presentation to the Research Liaison Committee. Kept product files for reference purposes.

5. The ConnPED database is up and running and beta testing of the application is being done to test features such as data entry and queries.

6. Continued incorporating final draft review comments for SPR-2239 (Phase 1B), Connecticut Product Evaluation Database (ConnPED) final report.

7. Updated, revised and published the 2010 “Qualified Product List (QPL) for Connecticut Department of Transportation Projects” for current availability via internet or e-mail PDF distribution.

8. The PDF or electronic version of the 2010 “Qualified Product List (QPL) for Connecticut Department of Transportation Projects” is located at http://www.ct.gov/dot/gpl. Revisions and updates are posted quarterly.

9. Arranged for laboratory and field investigations, ADA truncated domes, high friction surface treatments, traffic safety items, bridge expansion joints and various maintenance items.

10. Participation continued in AASHTO’s (APEL) Approved Product Evaluation Listing national web site. APEL aided by providing product information status from the other state DOTs. ConnDOT utilized this information regularly for product evaluation reviews.

11. Attended the 2010 National Transportation Product Evaluation Program (NTPEP) National Meeting, which was held May 10-14, 2010, in Orlando, FL.

12. Work with ConnDOT IT to develop system enhancements for the Connecticut Product Evaluation Database (ConnPED) to address needs of the Department, such as additional querying and report generation.

13. Work with ConnDOT IT to develop system documentation for the Connecticut Product Evaluation Database (ConnPED) running on Oracle server (dot-sdcdbs40) in Bureau of Policy and Planning.

REPORT(S)

Research Liaison Committee, “Product Use Status Lists for Connecticut Department of Transportation Projects,” Report No. 211-1-92-10, June 1992.

Research Liaison Committee, "Product Use Status Lists for Connecticut Department of Transportation Projects," Report No. 211-2-94-7, May 1994.

Research Liaison Committee, “Product Use Status Lists for Connecticut Department of Transportation Projects,” Report No. 211-3-95-6, August 1995.

Research Liaison Committee, “Product Use Status Lists for Connecticut Department of Transportation Projects,” Report No. 211-4-96-9, June 1996.

Research Liaison Committee, "Product Use Status Lists for Connecticut Department of Transportation Projects," Report No. 211-5-97-3, June 1997.

Research Liaison Committee, “Product Use Status Lists for Connecticut Department of Transportation Projects,” Report No. 211-6-98-5, June 1998.

Research Liaison Committee, “Product Status Lists for Connecticut Department of Transportation Projects,” Report No. 211-7-99-4, March 1999.

Research Liaison Committee, “Product Status Lists for Connecticut Department of Transportation Projects,” Report No. 211-8-00-2, July 2000.

Research Liaison Committee, “Product Status Lists for Connecticut Department of Transportation Projects,” Report No. 211-9-01-8, August 2001.

Research Liaison Committee, “Product Status Lists for Connecticut Department of Transportation Projects,” Report No. 211-10-02-3, August 2002.

Research Liaison Committee, ““Qualified Product List (QPL) for Connecticut Department of Transportation Projects,” Report No. 211-11-03-8, September 2003.

Research Liaison Committee, “Product Status Lists for Connecticut Department of Transportation Projects,” Report No. 211-12-04-4, April 2004.

Research Liaison Committee, “Qualified Product List (QPL) for Connecticut Department of Transportation Projects,” Report No. 211-13-05-9, September 2005.

Research Liaison Committee, “Qualified Product List (QPL) for Connecticut Department of Transportation Projects,” Report No. 211-13-05-9, September 2005, Revised October 17, 2006.

Research Liaison Committee, “Qualified Product List (QPL) for Connecticut Department of Transportation Projects,” Report No. 211-13-05-9, September 2005, Revised March 2007.

Research Liaison Committee, “Qualified Product List (QPL) for Connecticut Department of Transportation Projects,” Report No. 211-14-07-4, June 2007.

Research Liaison Committee, “Qualified Product List (QPL) for Connecticut Department of Transportation Projects,” Report No. 211-14-07-4, June 2007, Revised July 2008.

Research Liaison Committee, “Qualified Product List (QPL) for Connecticut Department of Transportation Projects,” Report No. 211-15-08-6, August 2008.

Research Liaison Committee, “Qualified Product List (QPL) for Connecticut Department of Transportation Projects,” Report No. 211-16-09-8, September 2009.

Photologging of the Connecticut State Highway System

OBJECTIVE(S)

To Photolog the entire state highway system annually using state of the art data collection vehicles; maintain photolog software systems that validate, process, and distribute high definition imaging, and related geometric and condition data elements current for the Department.

PROJECT WORK STATUS

Project Started - May 1986

Project Status - Active

Work Done - July 1, 2009 to June 30, 2010

1. The entire state-maintained roadway network containing 6004 route kilometers (12,008 photolog kilometers) was photologged at .005 kilometer intervals using two Automatic Road Analyzer (ARAN) systems. Both ARANs are equipped with forward-pointing HDTV cameras, downward-pointing pavement imaging system called WISECRAX and the following data modules: Geographic Positioning System (GPS); roadway geometrics (horizontal and vertical curvature, grade and crossfall); and, roughness (IRI) and underclearance measurement systems. ARAN 7 has an additional rutting-data-capture capability.

2. Approximately 1.2 million forward facing HDTV photolog images. Images were indexed, videolinked and distributed to DVD/LAN photolog retrieval stations. Network roughness (IRI), and grade were forwarded to the Planning, Inventory and Data Division for HPMS submittal. WISECRAX pavement images and network roughness (IRI) were forwarded to Pavement Management.

3. Installed and/or upgraded DigitalHIWAY client software on 500 BLU-RAY/DVD/LAN retrieval stations, which are Department PC’s.

4. Monitored BLU-RAY/DVD/LAN library usage and determined estimated cost savings through analysis of usage data. Also, ascertained user and prospective-user needs, as well as provided on-site familiarization, and maintenance of second-generation photolog and DigitalHIWAY distribution technology, as required.

5. Provided web-based image access, CD/DVDs containing images, and images on user-supplied portable drives on 22 occasions in 2010 for purposes of municipality, local councils of government and litigation use, as requested.

REPORT(S)

Products of this activity are: network accessible storage area network (SAN) with all photologged Connecticut state maintained highways for the period 1985 to 2010 which contain forward facing images of the State Highway System; databases of engineering parameters from photolog-system instrumentation; WISECRAX pavement condition images; and, image hardcopy prints.

Collection of Roughness Data for HPMS

OBJECTIVE

To provide international roughness indices (IRI) on HPMS roadway sections to the Planning, Inventory and Data Section for their annual HPMS submission to the FHWA.

PROJECT WORK STATUS

Project started: May 1990

Project status: Active

Work Done: July 1, 2009 to June 30, 2010

1. ARAN data-acquisition systems were used to collect IRI roughness values on the entire state-maintained roadway network and selected local sections in 2009. The average IRI for each HPMS section was obtained and forwarded to the Planning, Inventory and Data Section for their annual submission to the FHWA.

REPORTS

None

Part D

Implementation of Research Results During FY09/10

Below are summarized, by project, the research results which have been incorporated into Department operations and/or policy.

HPR-343, "IMPLEMENTATION OF RESEARCH FINDINGS"

Part Q records the growing list of Research Trading Cards. This new communication device, developed in 2004, is designed in the style of a baseball card with an engaging color photograph on one side and succinct facts and contact information on the reverse side. To date, thirty-two (32) research trading cards have been developed. In FY08, guidelines for preparation of the trading cards were provided to American Association of State Highway and Transportation Officials (AASHTO) Research Advisory Committee (RAC) and posted to http://research.transportation.org where other states can access the information. Now, at the annual National RAC Meeting, attending states prepare and bring their own research trading cards to swap. The cards are used for communication purposes at the Annual New England Materials & Research Engineers Meeting, Annual Technology Transfer Expo in September, Connecticut Construction Career Days in the fall, Annual Transportation Research Board Meeting, Annual AASHTO Research Advisory Committee Meeting, and other meetings, symposiums, workshops and expositions.

Internet World Wide Web pages were updated to disseminate information about the Department's program of transportation research, product evaluation and highway photologging. The URL for Connecticut's Division of Research is http://www.ct.gov/dot/research.

Research highlights were updated and published in the spring. The research highlights flyer was designed in Microsoft Publisher for presentation at the annual national meeting of the AASHTO Research Advisory Committee and was included in a bound collection of research highlight statements prepared by the Region 1 chairperson in Maine DOT. All thirteen years of research highlight flyers are available from the research web pages at http://www.ct.gov/dot/research.

The Research Web pages also include a growing collection of on-line reports at http://www.ct.gov/dot/researchreports. ConnDOT research reports, available in Adobe PDF format files, were accessed and downloaded freely from Department, TRB/TRIS, and National Transportation Library Web sites by the public, governmental agencies and companies. Aside from newly published research, ConnDOT's research reports were provided on request in hardcopy and electronically to other Department units, governmental agencies and companies.

Personnel in Research, the ConnDOT librarian and an unspecified number of ConnDOT personnel freely accessed the Internet on-line TRIS and Research-In-Progress (RiP) facilities to perform literature searches. ConnDOT Research received more than 466 new publications during the year. The library received and cataloged new publications through OCLC/Techpro. ConnDOT Research coordinated and responded to over 67 surveys and questionnaires from other organizations. An unspecified additional number of questions received via email ListServs were also responded to or forwarded to appropriate units for response.

SPR-1271, "Technology Transfer Center"

Center personnel provided 40 publications, 3 software packages, 1 traffic monitoring equipment systems, 2 Safety Town kits, 61 processed traffic monitoring reports, 1 ball bank indicators, 3 technical assistance, 1 field assistance, 10 verbal information dissemination and 4 web references, in response to these requests. In addition, 6,086 publications and software packages were distributed at training programs, trade shows and conferences.

Seventy-two (72) workshops, demonstrations, seminars, conferences and/or short courses on forty-five (45) topics, sponsored by the T2 Center, were well-attended (2,490 individuals). Details are presented in the summary for HPR-1271 elsewhere in this annual report. Also, four (4) newsletters were distributed to a mailing list of 4,347 names.

SPR-2018, “LTPP Coordination in Connecticut”

Connecticut conducted one of the first comprehensive close-out and forensic samplings at its LTPP SPS-9A test site in October 2010. This work was the demonstration of a successful partnership between state, federal and academic partners. Information about the project was documented in a streaming media clip entitled, "Connecticut's SPS-9A Site - Harvesting for the Greatest Yield." This clip is available on-line at:

mms://159.247.0.209/mediapoint/research_projects/SPS-9A_01_10_10.wmv.

Ms. Anne-Marie H. McDonnell presented information on the close-out and forensic sampling conducted on the SPS-9A in Connecticut at the LTPP Annual State Coordinator’s Meeting held as part of TRB in January 2010. At this presentation, she provided information regarding what was involved to conduct the non-intrusive and intrusive (pavement coring) work including, multiple and simultaneous lane closures, coordination of FHWA, state and university forces to carry-out this task. She shared both lessons learned and recommendations, in addition to outlining the benefits of this work for other states to learn from Connecticut’s experience for their own applications. FHWA distributed the PowerPoint presentation from the Coordinator’s meeting to all states and was recorded for viewing as part of Connecticut’s streaming media library.

The partnership of work on LTPP in Connecticut was highlighted in a presentation by FHWA Administrator, Mr. Jeffrey Paniati, at the UCONN Research Forum, held on November 5, 2009.

Ms. McDonnell presented information on LTPP Activities in Connecticut at the UCONN Senior Seminar on February 8, 2010. Information included an overview of the program, work conducted in Connecticut and information on the opportunities to use LTPP data in their research and as part of the National ASCE- FHWA contest.

Experience from Connecticut’s traffic data collection at LTPP sites was implemented through work on the FHWA Pooled Fund Study TPF-5(004) Technical Advisory Committee and through the TRB Expert Task Group on Traffic data.

LTPP Research Trading cards were distributed to provide information on this project and the work in Connecticut.

Information on the LTPP program, experiments and data availability were provided upon request.

SPR-2216, "'350' CRASH TESTING OF CONNECTICUT IMPACT-ATTENUATION SYSTEMS"

Informational web sites were maintained for all three attenuator systems, where visitors can obtain information and download shop plans that can be used to fabricate systems.

Research trading cards were developed earlier in the spring of 2005 for each of the three attenuator systems to facilitate communication about the availability of free information and shop plans. Web site URLs for each attenuator are provided on the cards. The trading cards were distributed at various meetings and conferences during the year.

SPR-2223, "Evaluation of Alternative Fuel Light Trucks and Automobiles"

The Department initiated this research to gather field data and performance information on alternative fueled vehicles, both electric and compressed natural gas, to assist the State and Federal Officials with information about these options, which could be used to comply with the Energy Policy and Conservation Act of 1992, Section 507. The main purpose of this report is to document the Department's experience operating a bi-fuel compressed natural gas vehicle for business travel.

The benefits of powering a bi-fuel vehicle with natural gas in the State fleet have not been fully realized in Connecticut due to several factors: a) For employees, a lack of familiarity with CNG fueling may have discouraged usage of the vehicle by staff (less than 490 miles per month). b) Lack of conveniently located CNG refueling facilities in Connecticut discouraged CNG refueling. c) The fact that it was possible to operate the Chevy Cavalier exclusively on gasoline discouraged CNG refueling. d) Lack of meaningful price differential between CNG and gasoline in Connecticut discouraged CNG refueling. e) Under EPACT 1992, State Fleets are not required to report alternate-fuel usage, i.e., displacement of gasoline. The Act only requires equipment purchases.

In conclusion, the bi-fuel CNG Chevy Cavalier did function as described by the automobile manufacturer's literature. The bi-fuel capability of this vehicle worked well and provided a means of operating fleet automobiles on an alternative fuel. However, the limited CNG supply infrastructure in Connecticut, together with no requirement to report the amount of CNG fuel consumed by fleet operations and the lack of price-differential incentives between the two fuels in Connecticut, limited its acceptance in the State Fleet.

SPR-2233, "Alternative Merge Signs at Signalized Intersections"

This project was closed in FY2006, but the Department continues to receive requests from other State transportation agencies and universities for final reports and to speak with the principal investigator. Additional implementation activities will be directed supporting the incorporation of the sign into MUTCD and widespread adoption of the new sign. A TRB Presentation on this project on Alternate Merge Highway Sign continues to be available for viewing at http://www.ct.gov/dot/2-500ex).

SPR-2234, “Performance Evaluation of Whitetopping”

Although this project was concluded early due to a policy decision to not consider using whitetopping as a pavement-type alternative at this time, the final report was published in FY07 and there has been interest in the final report. The report presents information from the literature and state-of-the-art review, and serves as a starting point should the Department decide to consider utilizing this pavement type in the future.

The final report is available on-line at http://www.ct.gov/dot/researchreports.

SPR-2236, “New Technologies for Photolog Image and Data Acquisition

Implementation of High Definition Television (HDTV) camera systems and annual image distribution is essentially complete. Connecticut is the first StateDOT to complete Photologging (and on-line HD image distribution) with images from HDTV cameras.

High Definition (HD) Photolog or ‘PhotologHD’ images are anticipated to help all users to see the highway and roadside much more clearly due to its wide aspect ratio (16:9) and higher resolution images. The HDTV camera gathers images with 1910 x 1080 pixels, which are about 670 percent sharper than images ConnDOT collected in 1997 with ConnDOT’s first digital-video photolog cameras.

Implementation of an automated bridge underclearance module on ConnDOT’s two Photolog vehicles is also complete as to the field data-collection system. Now, software to access, view, manipulate and visualize the data is under development.

Under this project, ConnDOT implemented a new data processing system in the photolog office. For users connected to ConnDOT’s LAN/WAN, it provides the unique capability of viewing newly-photologged highway images in the same week as collected in the field.

DigitalHIWAY client software is now installed on about 500 desktop computers, and 425 have access to ConnDOT’s internal LAN/WAN network. Users include personnel from the Commissioner’s office to remote maintenance garages. The network-based distribution system provides images to the 425 on-line users. The additional 75 off-line photolog users get their images later when DVDs are produced, unless some special arrangement is made to provide an off-line user with a large (1TB) external hard-drive storing photolog images.

PhotologHD is anticipated to facilitate continued gains in efficiency for users. It is estimated that users save over two million dollars a year by avoiding field trips. Future PhotologHD uses may include manual or possibly automated recognition of roadway sign, bridge number, utility pole number, lane striping, and curb attributes.

At the close of the fiscal year, the Bridge Underclearance portion of the final project report is being written.

SPR-2237, “Field Evaluation of Concrete Containing Disodium Tetrapropenyl Succinate” (DAS)

Admixtures that can protect reinforcing steel from corrosion and at the same time provide the desired air entrainment to increase the long-term resistance to freeze-thaw cycles have enormous potential to save money. The technology under study could significantly reduce the amount of repairs needed if adequate corrosion protection and durability can be achieved. Corrosion of reinforcing steel in concrete and the cost of repairing deteriorated concrete has been a major problem for highway agencies throughout the United States. The delays caused by closing roads and bridges for rehabilitation also create additional costs when travel is restricted. Various materials have been used to try to prevent corrosion of reinforcing steel and with varying degrees of success. A present method of coating the steel with an epoxy layer is expensive and any discontinuity of the epoxy from handling during construction creates a place for active corrosion to begin. The use of stainless steel reinforcing to eliminate corrosion has been investigated but is not practical from an economic standpoint.

This on-going field study of an inexpensive chemical admixture seeks to answer questions about the actual field performance of a concrete additive that emerged from two earlier laboratory studies as an additive with performance superior to all other corrosion-fighting additives examined in those studies.

Earlier research was conducted under the National Cooperative Highway Research Program’s IDEA (Innovations Deserving Exploratory Analysis) project No. 13. The title of No. 13 was, “New Additive for Improved Durability of Concrete.” In this study, the experimental concrete “showed excellent freeze thaw resistance” and researchers observed that the chemical had “potential to be an effective air-entraining agent.”

Following that exploratory research, the Joint Highway Research Advisory Council (JHRAC), in cooperation with the University of Connecticut, undertook JHRAC project 96-2, entitled “Protection of Reinforcement with Corrosion Inhibitors.” Corrosion tests on embedded rebar were done through a 100-week test program (two-years of accelerated testing). Each cycle was comprised of soaking the test and control specimens for four days in a 15 percent salt solution, followed by air drying for three days. The conclusion was that DSS prevented the initiation of corrosion in intact samples and greatly reduced the rate of corrosion in saw-cut samples, which simulated cracked concrete. The experimental DAS admixture significantly outperformed all standard inhibitors presently used by ConnDOT.

This study was followed by research by the University of Massachusetts under New England Transportation Consortium (NETC) project No. 97-02. More than 84 weeks of testing were conducted on concrete with admixtures and combinations of admixtures designed to enhance the durability of steel-reinforced concrete. The results of this testing were that the DAS admixture did, in fact, provide excellent corrosion resistance. The final report stated, “overall, mix designs containing DSS exhibited the least corrosion, even in cracked concrete,” and recommended further study of this admixture in a field study, which was endorsed by the project Technical Committee and the NETC Advisory Committee.

SPR-2237, "Field Evaluation of Concrete Containing Disodium Tetrapropenyl Succinate" (DAS) (continued)

The New England Transportation Consortium (NETC) conducted field studies in the six New England States under NETC project No. 03-2, "Field Studies of Concrete Containing Salts of an Alkenyl-Substituted Succinic Acid," which was completed in FY09. The NETC 03-2 report was published in FY09. ConnDOT project SPR-2237 and NETC 03-2 are complementary investigations of different concrete transportation-infrastructure applications for the DAS admixture, so duplication has been avoided. SPR-2237 results are anticipated to be published in FY2011.

To date, one company has commercialized this non-proprietary chemical, making it possible to implement the use of the concrete additive.

SPR-2239 (Phase 1B), "Development of Internet-Based Computer Databases for the Connecticut Department of Transportation: Phase 1B – Development of the Internet-Based Protocol for the Connecticut Product Evaluation Database (ConnPED) Application"

The software, converted to Oracle in FY09, is hosted on a ConnDOT Policy and Planning server in Newington, CT. In FY10, networking issues were resolved that previously restricted remote access to the software when trying to access the database from the Research Lab in Rocky Hill.

Final documents for SPR-2239 (Phase 1B), Connecticut Product Evaluation Database (ConnPED) Application, are anticipated to be published in the near future and include the Final Report, User Manual and System Documentation.

SPR-2242, "Correlation of Nuclear Density Readings with Cores Cut from Compacted Roadways

This research was conducted by the CAP Lab. As the title indicates, CAP Lab studied the correlation of nuclear density gauges to cores cut from compacted roadways. The research resulted in ConnDOT changing its position on the use of cores during disputes regarding in-place density. As a result, during FY08, ConnDOT began allowing the use of cores as the basis of payment when disputes arise from in-place density measurements.

Implementation of new field procedures for nuclear testing has been deferred pending the outcome of research project No. SPR-2249, "Longitudinal Joint Performance Study." The SPR-2249 report was published in FY10. At that time refer to the SPR-2249 portion of this Part D Section for information on the implementation of SPR-2249.

SPR-2243, "Enhancements to ConnDOT's Pavement Friction Testing Program"

A historical overview of pavement friction testing in Connecticut was presented at a Meet the Author Poster Session at the 89th TRB Annual Meeting in Washington, D.C., in January 2010. The session, which was entitled, "Traveled Surface Texture, Friction, Noise, and Profile," was sponsored by the TRB Committee on Surface Properties – Vehicle Interaction.

SPR-2243, "Enhancements to ConnDOT's Pavement Friction Testing Program" (continued)

The presentation, a TRB paper (No. 40-0426), and a research report were prepared on this subject in FY10. Photographs of early pavement friction testers are provided, including vintage photos of a skid trailer from a Federal Highway Administration (formally Bureau of Public Roads) demonstration in 1968. Early documents that were pivotal in initiating a pavement friction testing program in Connecticut were cited. The report provides insight into a state highway agency's perspective as friction testing services evolved. It covers the equipment used and explains the interpretation of data output. The report documents ConnDOT literature pertaining to pavement friction testing, and lists research studies that have been conducted in Connecticut. ConnDOT policies and procedures are reviewed. Early pioneers in pavement friction testing services are acknowledged.

The report provides future transportation professionals with a concise background of pavement friction testing. This compliments succession planning associated with retirements and other employee movements within the Department and other transportation agencies.

During FY10, friction testing procedures were revised in light of the SPR-2243 research findings. Testing procedures now include the regular use of the ASTM E 524 Standard Smooth Tire, in addition to the ASTM E 501 Standard Rib Tire, which is the traditional tire used for these tests.

A final report is anticipated to be published in FY2011. Future research is needed to refine the characterization of pavement texture via the use of laser instruments, including the Circular Texture Meter and high-speed, truck-mounted laser instrument attached to the friction tester.

SPR-2245, "Feasibility of Implementing Additional AASHTO Trns•port Modules in Connecticut"

InfoTech, the developer of the AASHTO Trns•port suite of products, prepared the final report deliverable for the requirements analysis for Trns•port Estimation, Preconstruction, Construction, Decision Support and Electronic Bidding Systems for the Connecticut Department of Transportation. The Requirements Analysis Report outlined the tasks and requirements for implementation of the selected estimation, pre-construction, construction, electronic bidding system, and decision support products. It also included projected costs and schedules for InfoTech services to assist ConnDOT with the implementation activities.

The Department has continued its decision-making process to choose a support option and related tasks leading to possible future use of necessary AASHTO Service Units for that work.

SPR-2249, "Longitudinal Joint Performance Study"

In hot mix asphalt paving, for 1 1/2- to 3-inch thick lifts, the use of the notched wedge longitudinal joint has become the preferred joint construction method for the Connecticut Department of Transportation. This is a direct result of the research conducted under this project.

During FY10, documentation was gathered and organized for 2009 paving to record where the notched wedge and traditional butt joint were used. A future study will use this information to compare long-term performance of the two types of joints.

SPR-2250, "Hot Mix Asphalt Research Investigation for Connecticut"

During prior fiscal years, the research conducted into reducing the number of traffic levels used for Superpave mix designs was incorporated into ConnDOT's specifications. This resulted in the removal of the highest traffic level mixes, benefiting the state by reducing the complexity of Superpave mix design engineering in Connecticut.

SPR-2251, "Short-Term Bridge Monitoring in Connecticut"

The Connecticut Department of Transportation, in cooperation with the University of Connecticut, has developed a quick response process involving electronics and sensors to measure and monitor stresses, strains, and other data elements on State-maintained bridges. This technology is available for use with bridges that are identified by the State as needing further analysis for unusual or unique investigative issues. During FY07, the system was deployed on the Route 190 Bridge over the Connecticut River to study unexplained tie-plate failures. A 2007 video presentation on the bridge is available at http://www.ct.gov/dot/FSBM. A final report was published in FY2010. This project has demonstrated the value of using non-destructive testing to supplement both conventional visual inspections and analytical studies. As the study shows, structural health is best evaluated with data from testing.

Field monitoring under this project has directly benefitted the maintenance and replacement program for Connecticut's bridges. Research showed that problems identified through visual inspections should be evaluated with non-destructive strain monitoring. The resultant analysis helps engineers avoid unnecessary repairs. When short-term monitoring verified the need for repair, field data was used to provide guidance on how best to make the repair, both economically and so that the remaining service life is not impacted by the initial problem. The monitoring system is available in the future for similar situations as identified by State bridge-inspection forces.

SPR-2252, "Assessing ConnDOT's Portland Cement Concrete (PCC) Testing Methods, Phase II – Field Trials and Implementation"

During the project, construction personnel on selected projects had an opportunity to utilize the maturity method for a variety of concrete pour applications. During FY09, the method was used to on Project 92-618 for mass concrete operations on Pearl Harbor Memorial Bridge in New Haven. The system monitored both peek temperatures and temperature differences to ensure they were not excessive. During FY10, the method was used to on Project 92-619 during pours of concrete pier columns. It appears that the implementation path for the maturity method will be through their inclusion in special provisions for mass concrete pours.

SPR-2254, "Advancing the Use of Streaming Media and Digital Media Technologies at ConnDOT"

Video-on-Demand is available at http://www.ct.gov/dot/video and a listing of available streaming media is presented in Part M of this summary of activities report. During FY10, eighteen (18) additional presentations were produced for the Streaming Video Library website. In addition, three live events were produced during FY10. These webcasts demonstrate the service that is available through webcasting.

Rigorous testing and demonstration of streaming media technologies to ConnDOT's management has led to it being mainstreamed into several of this Agency's business processes, including research-project close-out presentations. During FY10, 40,837 video clips were viewed by the public and state personnel.

SPR-2257, "A Study of Weigh Station Technologies (CASE Study)"

The final report, published in FY09, identified technologies and practices that have the potential to increase the efficiency and effectiveness of weigh and inspection stations to deter the passage of overweight and unsafe vehicles across the state's highways; increase the transit efficiency for the large percentage of commercial vehicles that are compliant with Connecticut laws and regulations; and utilize information gathered through weigh system technologies for the multiple purposes of enforcement and transportation infrastructure decision-making and budgeting, including pavement design and highway maintenance and rehabilitation. Suggestions include installation of a high-speed mainline WIM and electronic screening system for the Greenwich Weigh and Inspection Station; as well as developing a comprehensive network of weigh and inspection stations utilizing WIM technology at existing weigh stations plus other sites that could be utilized as virtual weigh and inspection stations.

SPR-2258, "Transportation Asset Management System, Including Comprehensive Pavement Life-Cycle Cost Analysis (CASE Study)"

The project was closed in FY09.

The final report, published in FY09, presented a detailed review of those states that utilize transportation asset management systems that may be applicable for Connecticut's consideration, and included as well the identification of a comprehensive pavement lifecycle analysis tool. The primary conclusion of this study is that, across the US, states are finding the shift to Transportation Asset Management Systems worthwhile and productive as they are steadily seeing the condition of their assets improve and their resource allocation decisions galvanizing around an increasingly coherent vision for their transportation infrastructure. The findings indicate that ConnDOT should consider utilizing five concepts (Clarity, Communication, Champion, Consistency, and Comprehensive), the 5Cs, as a strategy for TAM implementation. The 5C's provide a focus for ConnDOT's development of a sustainable TAM program to guide the state's investment in the acquisition, construction, repair, and preservation of the state's transportation assets

SPR-2259, “Evaluation of a Cold In-Place Recycled Rehabilitation Treatment”

During the first quarter of FY10, Mr. John W. Henault, the Project Principal Investigator, met at the Legislative Office Building in Hartford, CT, with State Representative Steve Mikutel, ConnDOT’s Legislative Program Manager, ConnDOT’s Acting Transportation Engineering Administrator, and representatives from the Gorman Group to discuss cold in-place recycling (CIR). Research findings from this study were presented. Representative Mikutel was informed that a CIR base was used on S.R. 695 eleven years ago in order to mitigate reflective cracking, and it performed as expected, i.e., reflective cracking was mitigated. He was also informed that rutting is still a concern and, therefore, ConnDOT recommends limiting CIR applications to lower-volume highways (8,000 ADT), at this time. ADT levels may be increased as ConnDOT gains experience and rutting is shown to be minimized. Considering the research results, Representative Mikutel is supportive of ConnDOT implementing the use of CIR for pavement rehabilitations on lower-volume highways.

SPR-2265, “Development and Evaluation of a Dual Purpose Bridge Health Monitoring and Weigh-in-Motion System for a Steel Girder Bridge”

Work was conducted to share information about the project at numerous forums including: a meeting and site visit with FHWA; meeting with ConnDOT Bridge Maintenance; Trading Cards distributed at TRB including mention at the TRB ABJ35(2) Subcommittee on Weigh-In-Motion Meeting and the International Society of Weigh-In-Motion (ISWIM) Board Meeting at TRB on January 12, 2010; Dr. Christenson presented information about the project during the UCONN Transportation Forum on November 5, 2010, and Ms. Anne-Marie H. McDonnell presented information at the National Traffic Data Acquisition Meeting (NATMEC) on June 24, 2010.

SPR-2267, “Evaluation of the Nonnuclear Density Gauge for Quality Control of Hot-Mix Asphalt”

The Department currently permits the use of nuclear gauges for acceptance testing, but beginning in 2011, will only allow laboratory density tests of cores for agency acceptance. The results presented in this report support the decision to allow contractors to implement the use of nonnuclear density gauges in their quality control plans.

SPR-2269, "Warm Mix Asphalt Pilot Project Development"

During FY10, preparations and planning were undertaken for the placement of the pilot project, in July 2010, on Route 70 in Meriden, CT.

SPR-2305, “Connecticut Advanced Pavement Laboratory (CAP Lab)”

- Conducted NETTCP Re-Test, July 28, 2009, in Storrs, CT.
- In conjunction with NEAUPG, organized a training workshop for the MSCR and Table 3 Asphalt Binders, September 22, 2009, in Rocky Hill, CT.
- Hosted the CTI Research Forum, November 5, 2009, in Storrs, CT.
- Conducted NETTCP PG Binder Re-Certification, December 2-3, 2009, in Storrs, CT.
- Conducted NETTCP Soils and Aggregate Lab Technician Certification, January 19-22, 2010, in Storrs, CT.
- Conducted NETTCP HMA Plant Technician Re-Certification, January 27-29, 2010, in Storrs, CT.
- Conducted NETTCP Soils and Aggregate Inspector, Recertification, February 4-5, 2010, in Storrs, CT.
- Conducted NETTCP HMA Plant Technician Certification, February 22-26, 2010, in Storrs, CT.
- Conducted NETTCP Soils and Aggregate Inspector, March 1-3, 2010, in Storrs, CT.
- Conducted NETTCP PG Binder Technician Re-Certification, April 26-27, 2010, in Storrs, CT.
- Conducted NETTCP PG Binder Technician Certification, April 28-30, 2010, in Storrs, CT.
- Conducted NETTCP PG Binder Technician Re-Certification, May 3-4, 2010, in State College, PA.
- Conducted NETTCP PG Binder Technician Certification, May 5-7, 2010, in State College, PA.
- Conducted NETTCP Soils and Aggregate Inspector Certification, May 11-13, 2010, in Storrs, CT.

The CAP Lab participated with the Asphalt Institute in the development of the written exam for PG Binder Technician Certification for the 2010 training season. This is the exam used by NETTCP and the Asphalt Institute for the PG Binder Technician certification course.

SPR-2306, “Installation and Evaluation of WIM Utilizing Quartz-Piezo Sensor Technology

Provided information to numerous inquiries regarding this project and ConnDOT’s experience with testing WIM technology. These included: ConnDOT Highway Operations for weigh station operations; ConnDOT Highway Design; AASHTO Strategic Plan for Achieving Effective and Efficient Commercial Vehicle Weight Enforcement; TRB LTPP (Long Term Pavement Performance) Expert Task Group on Traffic Data Collection and Analysis; as well as inquires from other states and countries.

Information learned from this project was applied to write specifications for items on Construction Project No. 28-197.

Completed, Discontinued or Reassigned Projects and Items in 2009-2010

Refer to Part A for details on projects, and Parts H, I and J for published report references.

SPR-2223 – Evaluation of Alternative Fuel Light Trucks and Automobiles

Closed March 31, 2010.

SPR-2245 – Feasibility of Implementing Additional AASHTO Trns•port Modules in Connecticut

Closed September 25, 2009.

SPR-2249 – Longitudinal Joint Performance Study

Closed November 16, 2009.

SPR-2251 – Short-Term Bridge Monitoring

Closed June 10, 2010.

SPR-2259 – Field Evaluation of a Cold-in-Place Recycled Pavement Base Overlaid with Hot Mix Asphalt (I-395)

Closed July 9, 2009.

SPR-2267 – Evaluation of the Nonnuclear Density Gauge for Quality Control of Hot-Mix Asphalt

Closed April 9, 2010.

PART F
ConnDOT Participation in FHWA Transportation Pooled Fund Program Research Projects
FY10

TPF Project Number	NOTE	TPF Project Title	Project Status	Objective(s)	Lead Organization	Contractor(s)	Personnel Assignments to TPF Committees		Funding Information										Notes
							Type of Assignment	Person(s)	Federal Fiscal Year	Pledge	Pledge Date	NOTE	Obligation Request	Obligation Request Date	NOTE	Transfer Request	Transfer Request Date	NOTE	
SPR-2(172)	[1]	Aerial Platform System for Bridge Inspection (Phase II)	Completed	To enhance stability characteristics of an aerial vehicle, equipped with a vision sensing system to inspect fracture-critical bridges, through the development of an integrated arm that is capable of attaching to a structure and with the addition of proximity sensors and air speed indicators to integrate with the computer controls.	California Department of Transportation (CALTRANS)	California Department of Transportation (CALTRANS)	TAC Member	Joseph C. Kozlowski	1994	$5,000	7/23/93		$5,000	4/25/94					[1] Formerly SPR-0002(172)
									1995	$5,000	7/23/93		$5,000	10/11/94					
SPR-2(203)	[1]	Truck/Pavement Economic Modeling and In-Situ Field Testing Data Analysis Applications	Completed	To merge and analyze dynamic response data obtained on full-scale pavement facilities for the purpose of determining how various design features and truck configurations affect pavement performance.	Federal Highway Administration	Ohio Department of Transportation and Federal Highway Administration	TAC Member	David J. Kilpatrick	2000	$5,000	6/30/99		$5,000	10/25/99					[1] Formerly SPR-0002(203).
									2001	$5,000	6/30/99		$5,000	12/5/00					
SPR-2(207)	[1] [2]	Transportation Management Center Pooled Fund Study (TMC PFS)	Active	To assemble a consortium composed of regional, State, and local traffic management agencies, and the FHWA to (1) identify human-centered and operational issues that are common among TMC operators and managers; (2) suggest approaches to addressing identified problems; (3) initiate and monitor projects intended to address identified problems; (4) disseminate results; and (5) assist in solution deployment.	Federal Highway Administration	PB Farradyne and Texas Transportation Institute and University of Virginia and MRF Associates	TAC Member	Harold J. Decker, Jr.	2000	$5,000	8/23/99		$5,000	3/8/00					[1] Formerly SPR-0002(207). [2] SPR-2(207) is TPF-5(052) for the Wahsington Department of Transportation only.
									2001	$5,000	8/23/99		$5,000	12/5/00					
									2002	$10,000	5/16/01		$10,000	10/29/01					
									2003	$10,000	11/26/01		$10,000	10/10/02					
									2004	$10,000	11/26/01		$10,000	10/2/03					
									2005	$10,000	11/26/01		$10,000	12/27/04					
SPR-2(208)	[1]	Pavement Subgrade Performance Study	Active	To develop improved mechanistic subgrade criteria for pavements and to integrate the study findings into improved mechanistic-empirical design methodologies for new and reconstructed flexible pavements.	Federal Highway Administration	Cold Regions Research and Engineering Laboratory (CRREL)	TAC Member	Leo L. Fontaine	2000	$5,000	10/26/99		$5,000	5/3/00					[1] Formerly SPR-0002(208).
									2001	$5,000	10/26/99		$5,000	12/5/00					
									2003	$5,000	3/13/03		$5,000	3/31/03					

PART F
ConnDOT Participation in FHWA Transportation Pooled Fund Program Research Projects
FY10

TPF Project Number	NOTE	TPF Project Title	Project Status	Objective(s)	Lead Organization	Contractor(s)	Personnel Assignments to TPF Committees		Funding Information										Notes
							Type of Assignment	Person(s)	Federal Fiscal Year	Pledge	Pledge Date	NOTE	Obligation Request	Obligation Request Date	NOTE	Transfer Request	Transfer Request Date	NOTE	
SPR-2(800)	[1]	SHRP Implementation of Asphalt Test Equipment	Completed	To purchase asphalt-test equipment and deliver to participating states for use with evaluation of performance-based asphalt specifications developed by SHRP. Early use of the test methods, specifications and equipment will aid in AASHTO adoption of "Superpave" standards. (Superpave combines new tests, performance-based specifications and a computerized mix design process.)	Federal Highway Administration	Federal Highway Administration (FHWA) Office of Technology Applications	TAC Member	James M. Sime	1992	$10,000	3/18/92		$10,000	3/17/92					[1] Formerly HPR-0002(800).
									1995	$260,000	-	[2]	$260,000	-					[2] $260,000 was transferred from STPA 000S(680) to SPR-2(800).
									1997	($70,000)	5/1/97	[3]	($70,000)	5/1/97					[3] $70,000 was transferred from SPR-2(800), "SHRP Implementation of Asphalt Test Equipment," to SPR-3(029), "New England Transportation Consortium (NETC): 1995-1999," on 5/1/97.
SPR-3(017)	[1] [2] [3]	Midwest States Pooled Fund Crash Test Program	Active	To crash test bridge rail, guardrail, sign supports as well as other highway appurtenances and traffic control devices having potential for injury to highway users.	Nebraska Department of Roads	University of Nebraska, Lincoln	TAC Member	Dionysia F. Oliveira	2000	$5,000	7/13/99		$5,000	10/25/99					[1] Formerly SPR-0003(017). [2] HPR-2(164), "Development of a Thrie Beam Bullnose Median Barrier Terminal," has been incorporated into SPR-3(017). [3] TPF-5(193), "Midwest States Pooled Fund Crash Test Program," is the continuation of SPR-3(017). ConnDOT has not pledged any funds to TPF-5(193).
									2001	$5,000	7/13/99		$5,000	12/5/00					
									2002	$5,000	7/16/01		$5,000	10/29/01					
									2003	$5,000	7/16/01		$5,000	10/2/02					
									2004	$5,000	6/11/03		$5,000	10/2/03					

PART F
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TPF Project Number	NOTE	TPF Project Title	Project Status	Objective(s)	Lead Organization	Contractor(s)	Personnel Assignments to TPF Committees		Funding Information										Notes
							Type of Assignment	Person(s)	Federal Fiscal Year	Pledge	Pledge Date	NOTE	Obligation Request	Obligation Request Date	NOTE	Transfer Request	Transfer Request Date	NOTE	
SPR-3(029)	[1]	New England Transportation Consortium (NETC): 1995-1999	Active	The objectives of the NETC program are: 1) Implementation of a three-pronged program for the New England region consisting of research and development; technology transfer; and, education and training; 2) Development of improved methods for dealing with common transportation problems; and, 3) Providing an important source of trained professionals for employment in the Region.	Connecticut Department of Transportation	University of Connecticut	Policy Committee Member	Comr. Joseph F. Marie	1995	$75,000	11/10/94		$75,000	10/21/94					[1] Formerly SPR-0003(029).
							Advisory Committee Member	James M. Sime											
							Advisory Committee Member and Lead Engineer	Dionysia F. Oliveira											
									1996	$63,833	12/6/95 [$75,000] and 10/3/97 [($11,167)]	[2]	$63,833	12/6/95 [$75,000] and 10/3/97 [($11,167)]	[2]				[2] FY96 Pledge and Obligation reduced by $11,167, from $75,000 to $63,8333, requested on 10/3/97 and approved on 10/9/97, for transfer from SPR-3(029), "New England Transportation Consortium (NETC): 1995-1999," to SPR-3(052), "Procedures for the Evaluation of Sheet Membrane Waterproofing."
									1997	$145,000	12/6/96 [$75,000] and 5/1/97 [$70,000]	[3]	$145,000	12/6/96 [$75,000] and 5/1/97 [$70,000]	[3]				[3] $70,000 was transferred from SPR-2(800), "SHRP Implementation of Asphalt Test Equipment," to SPR-3(029), "New England Transportation Consortium (NETC): 1995-1999," on 5/1/97.
									1998	$75,000	2/23/98		$75,000	2/23/98					
									1999	$75,000	12/8/98		$75,000	12/8/98					
SPR-3(031)	[1]	Reusable Truck Mounted Attenuator	Completed	To design and successfully crash test a Test Level 3 (100 km/h) Truck Mounted Attenuator (TMA) in which energy is dissipated with HMW/HDPE cylinders that will be self restoring and reusable. The crash testing program is to be conducted in accordance with the requirements of "NCHRP Report 350."	Washington State Department of Transportation	N/A	TAC Member	Dionysia F. Oliveira	1996	$10,000	4/29/96		$10,000	4/29/96					[1] Formerly SPR-0003(031).
									1997	$10,000	12/17/96		$10,000	12/17/96					
SPR-3(043)	[1]	Development of a Self-Restoring Impact Attenuator	Completed	To develop a non-proprietary, self-restoring crash cushion that meets the crash worthiness requirements of National Cooperative Highway Research Program (NCHRP) Report 350, Test Level 3 (100 km/h. In addition, it will require low maintenance, cost less than comparable proprietary crash cushions, and be installed either parallel to the shoulder or flared away.	California Department of Transportation (CALTRANS)	California Department of Transportation (CALTRANS)	TAC Member	Dionysia F. Oliveira	1998	$5,000	10/3/97		$5,000	8/28/98					[1] Formerly SPR-0003(043), "Development of a New Guardrail End Treatment – Phase II."
									1999	$5,000	10/3/97		$5,000	12/8/98					

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SPR-3(050)	[1]	New England Traffic Monitoring System	Completed	To enable the New England states to share traffic data, particularly vehicle classification and truck weight data, by obtaining a traffic monitoring system that would be uniform in its data formatting, editing and storage functions while enabling each state to analyze the data and produce reports from the data that fulfill state requirements.	Vermont Agency of Transportation	GIS Trans.	TAC Member	Joseph T. Cristalli, Jr.	1997	$95,000	-	[2]	$95,000	-	[2]				[1] Formerly SPR-0003(050). [2] Funding was provided from Planning portion of SPR. FY97 funds were pledged and obligated under Pooled Fund Project No. STPZ-0003(050).
SPR-3(081)	[1] [2]	High-Speed Electromagnetic Roadway Mapping and Evaluation System (HERMES II)	Completed	To develop the second generation of a high-speed system for bridge deck condition assessment, known as High Speed Electromagnetic Roadway Measurement and Evaluation System (HERMES II), with the end goal to commercialize it, and make the technology available to all state transportation agencies around the United States.	Federal Highway Administration	Lawrence Livermore National Laboratory	TAC Member	Eric G. Feldblum	2000	$10,000	2/15/00		$9,715.13	2/29/00 [$10,000] and 8/7/09 [($284.87)]	[2]				[1] Formerly SPR-0003(081) [2] Project deobligation and Close-Out request was sent on 8/7/09.
SPR-3(082)	[1]	Evaluation of PQI	Completed	To assemble a group of states to: (1) run HMA density tests using the non-nuclear PQI device; (2) gather data – dry vs. wet asphalt, use of different aggregate sources, changes in size of aggregate; (3) supply this data for analysis to the Turner-Fairbank Highway Research Center in McLean, Virginia; and, (4) to determine the viability of using the PQI device vs. the conventional nuclear density gauges.	Maryland Department of Transportation	Transtec Systems, Inc.	TAC Member	Donald A. Larsen	1999	$5,000	1/4/00		$5,000	3/7/00					[1] Formerly SPR-0003(082), "Evaluation of the Next Generation Pavement Quality Indicator (PQI) Device," and subsequently retitled, "Quantifying Segregation in Hot Mix Asphalt Pavements."
									2000	$5,000	1/4/00		$5,000	3/7/00					
									2003	$16,000	12/18/02		$16,000	3/14/02					
									2004	$16,000	12/18/02		$16,000	10/2/03					
SPR-3(084)	[1]	Use of Dynamic Modulus (E*) in Hot-Mix Asphalt Designs	Completed	The objectives of this study are: 1. to determine the applicability of Dynamic Modulus (E*) testing to characterize HMA mixes; 2. to determine the practical range of E* testing to characterize an HMA mix; and, 3.to determine variations in E* values as a function of aggregate type, including typical recycled materials.	Connecticut Department of Transportation	University of Connecticut, Connecticut Advanced Pavement laboratory (CAP Lab)	TAC Member	James M. Sime	2000	$10,000	6/19/00		$10,000	6/19/00					[1] Formerly SPR-0003(084).
									2001	$35,000	12/7/00 [$60,000] and 3/14/01 [($25,000)]		$35,000	12/7/00 [$60,000] and 3/14/01 [($25,000)]					

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SPR-3(089)	[1]	New England Transportation Consortium (NETC): 2000-2006	Active	The objectives of the NETC program are: 1) Implementation of a three-pronged program for the New England region consisting of research and development; technology transfer; and, education and training; 2) Development of improved methods for dealing with common transportation problems; and, 3) Providing an important source of trained professionals for employment in the Region.	Connecticut Department of Transportation	University of Connecticut and University of Massachusetts, Dartmouth	Policy Committee Member Advisory Committee Member Advisory Committee Member and Lead Engineer	Comr. Joseph F. Marie James M. Sime Dionysia F. Oliveira	2000	$100,000	10/25/99		$100,000	10/25/99					[1] Formerly SPR-0003(089).
									2001	$100,000	12/6/00		$100,000	12/6/00					
									2002	$100,000	10/30/01		$100,000	10/30/01					
									2003	$100,000	10/1/02		$100,000	10/7/02					
									2004	$100,000	11/18/03		$100,000	12/1/03					
									2005	$100,000	12/13/04		$100,000	12/13/04					
									2006	$100,000	10/20/05		$100,000	12/19/05					
									2007	$105,000	10/12/06	[2] ~~[3]~~ [3]	-	-	[4]				[2] An additional $5,000 was added to the SPR-3(089)) FY07 Pledge to cover NETC-related travel. ~~[3] The FY08 pledge of $105,000 was included in the FY09 pledge to TPF-5(201).~~ [3] The FY07 pledge of $105,000 for SPR-3(089) is included in the FY09 pledge to TPF-5(201). [4] FY07 funds were provided, by transfer process, in the FY09 transfer to TPF-5(201).
TPF-5(002)	[1]	Updating "A Guide to Standardized Highway Lighting Pole Hardware"	Active	To prepare, in printed and electronic formats, an update to the 1980 "A Guide to Standardized Highway Lighting Pole Hardware," and to recommend an ongoing process for compiling, incorporating and disseminating pertinent new as updated standards and catalog information to keep the publication up to date.	Wyoming Department of Transportation	N/A	TAC Member	Jon Andrews	2001	$5,000	7/20/00		$5,000	12/5/00					[1] Formerly SPR-0003(103).
									2002	$10,000	7/20/00		$10,000	10/29/01					

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TPF-5(004)	[1]	Long Term Pavement Performance (LTPP) Specific Pavements Study (SPS) Traffic Data Collection	Active	To implement procedures, including installation of equipment and monitoring of data collection through analysis of data, improve the quality and quantity of traffic data (volumes, classifications and weights) that is collected under the auspices of the LTPP Specific Pavements Study (SPS) Program. (for LTPP SPS 1, 2, 5, 6 and 8 projects) A core objective of the SPS studies is to understand and quantify the relationship between pavement performance and truck volumes and axle loadings.	Federal Highway Administration	International Road Dynamics, Inc. and MACTEC	TAC Member	Anne-Marie H. McDonnell	2001	$5,000	11/1/00		$5,000	12/5/00					[1] Formerly SPR-0002(217), "LTPP Specific Pavements Study (SPS) Traffic Data Collection."
									2002	$5,000	11/1/00		$5,000	10/29/01					
TPF-5(009)	[1]	Computer-Based, Self-Operating Training System on Anti-Icing/Road Weather Information Systems (AI/RWIS)	Active	Anti-icing and road weather information systems (AI/RWIS) are relatively new tools that improve the efficiency of winter storm maintenance and, as a result, improve highway safety. Because these are new concepts, standard training programs for all levels of AI/RWIS users are not yet available. The objective of this project is to coordinate and leverage several individual training and educational initiatives into one consistent training program for AI/RWIS.	Iowa Department of Transportation	GanTek	TAC Member	George E. Carbonell	2002	$5,000	11/8/01		$5,000	11/8/01					[1] Formerly SPR-0003(104).
TPF-5(010)		Structural Improvement of Flexible Pavements Using Geosynthetics for Base Course Reinforcement	Completed	1. To determine whether geosynthetics (geogrids and geotextiles) can be used to increase the structural capacity of pavements typically constructed by state DOTs. 2. To measure in-situ stress/strain response of the reinforced material for use in current or future pavement design processes. 3. To determine whether geosynthetics can be used to increase the service life of pavements typically constructed by state DOTs. 4. To compare the performance of base course reinforced pavements subjected to traffic loading during non-frost periods with performance during thaw. Thus, the influence of thaw weakening on pavement performance will be assessed independently of the degree of traffic loading.	Maine Department of Transportation	Cold Region Research and Engineering Laboratory (CRREL)	TAC Member TAC Member	Leo L. Fontaine David J. Kilpatrick	2002	$5,000	11/7/00		$5,000	10/29/01					
									2003	$5,000	11/7/00		$5,000	10/10/02					
									2004	$5,000	11/7/00		$5,000	10/2/03					
									2005	$5,000	11/7/00		$5,000	12/27/04					

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TPF-5(019)		Full-Scale Accelerated Performance Testing for Superpave and Structural Validation	Active	This pooled fund research study will investigate a suite of emerging pavement technologies at the Turner-Fairbank Highway Research Center (TFHRC). The Pavement Testing Facility (PTF) is a permanent pavement testing laboratory equipped with two accelerated loading machines that can test various pavement configurations using controlled climate and axle loading. The objective of this project is to study, select, build and test up to twelve (12) lanes of newly constructed pavement. This multi-task, multi-level experiment can include one or more of the following technologies: 1. Modified Asphalt Binders in Superpave Mixes. 2. Pavements Designed with the 2002 Design Guide. 3. Measurements Made With Various Falling Weight Deflectometers. 4. Crumb Rubber Modified (CRM) Asphalt Pavements. 5. Recycled Materials in Base Layers.	Federal Highway Administration	Turner-Fairbank Highway Research Center (TFHRC)	TAC Member	Edgardo D. Block	2002	$10,000	10/31/01		$10,000	10/30/01					
TPF-5(024)	[1]	Next Generation Retro-Reflective Beads for Traffic Paints	Completed	To develop and evaluate the performance of surface-modified polymethacrylate (PMMA) beads as a replacement to the salinized glass beads currently used to provide retroreflectivity in traffic paints.	New Hampshire Department of Transportation	University of New Hampshire	TAC Member	John P. Carey	2002	$20,000	1/29/01		$17,722.02	10/30/01 [$20,000] and 8/7/09 [$(2,277.97)]	[1]				[1] Project deobligation and Close-Out request was sent on 8/7/09.
TPF-5(026)	[1]	Durability of Segmented Retaining Wall Blocks	Completed	To establish design and durability performance criteria for Segmental Retaining Wall (SRW) blocks, service evaluation and inspection guidance, and acceptance testing protocol.	Federal Highway Administration	N/A	TAC Member	Robert G. Lauzon	2001 2002	$5,000 $5,000	11/1/00 11/1/00		$5,000 $5,000	1/23/01 10/30/01					[1] Formerly SPR-0002(218). Funds obligated under SPR-0002(218).
TPF-5(036)		Transportation Asset Management Research Program	Active	To enable participating states to leverage limited resources in an ongoing program of synthesis, research and analysis to facilitate implementation of asset management. The intent is to supplement current national asset management research efforts of the MRUTC, prevent duplicity of existing efforts, and provide a means for regional state DOTs to share resources, technology and ideas in a coordinated environment.	Wisconsin Department of Transportation	Midwest Regional University Transportation Center	TAC Member	Colleen A. Kissane	2008	$10,000	11/13/07					$10,000	8/14/08		
TPF-5(045)		Performance Guidelines for the Selection of Hot-Pour Crack Sealants	Active	This project will result in extended pavement surface life and thus reduced roadway rehabilitation and maintenance costs. Guidelines for sealant selection are being proposed because the durability of crack sealants used on the North American roadways is often shorter than expected, even though crack sealing is the most common method of preventative maintenance.	Virginia Department of Transportation	Virginia Polytechnic Institute and State University and National Research Council of Canada	TAC Member	Charles A. Drda	2003 2004 2005 2006	$5,000 $5,000 $5,000 $5,000	10/18/02 10/18/02 10/18/02 10/18/02		$5,000 $5,000 $5,000 $5,000	10/21/02 10/2/03 12/27/04 12/19/05					

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TPF-5(046)		Transportation Curriculum Coordination Council (TCCC) Training Management and Development	Completed	To facilitate management of the TCCC at the national level and for the development of curriculum and core training materials identified by the TCCC technical panel.	Federal Highway Administration	National Highway Institute (NHI)	TAC Member	Cheryl L. Malerba	2003	$15,000	4/23/02		$15,000	10/2/02					
									2004	$15,000	4/23/02		$15,000	10/2/03					
									2005	$15,000	4/23/02		$15,000	12/27/04					
									2006	$15,000	4/23/02		$15,000	12/19/05					
TPF-5(062)		Coordination of Pavement Activities in the Northeast	Completed	State transportation agencies in the northeastern United States are heavily involved with the implementation and use of the SuperPave method of designing hot-mix asphalt (HMA) mixtures. It has been determined that there are several unanswered issues before the full benefits of using the SuperPave system and related concepts can be totally embraced and integrated into the operations of state transportation agencies. Many issues vary regionally and to address these regional issues and other paving and pavement problems, the Federal Highway Administration (FHWA) established five centers of excellence in paving technology that were unfunded. To overcome the lack of financial resources needed to address regional pavement issues, state transportation agencies in the northeast have pooled their resources and developed a pooled funds project to provide guidance to the state transportation agencies on all current paving and pavement problems. SuperPave was its initial focus. The specific objectives of this project are: • Coordination of new innovative research and paving proje and related activities in the area of pavement technology o the regional level and to distribute this information to affect state transportation agencies and other agencies, including the private sector. • Completion of various studies and evaluations. • Upgrading and operation of a website devoted to paveme technology. • Conducting various training and workshop efforts devoted to paving technology.	Connecticut Department of Transportation	University of Connecticut, Connecticut Advanced Pavement laboratory (CAP Lab)	TAC Member	Keith R. Lane	2003	$39,000	6/3/03 [$44,000] and 6/5/04 [($5,000)]	[1]	$39,000	6/3/03 [$44,000] and 6/5/04 [($5,000)]	[1]				[1] $39,352 was pledged on 5/9/03 and an obligation request memo was sent on 5/12/03. The pledge was revised to $44,000 on 6/3/03; the pledge was reduced by $5,000 when Delaware's FFY04 pledge was obligated. The obligation process was initiated when State Project No. 175-1563 (Temporary Project No. 017-H091) was modified on 6/3/03.
									2005	$15,000	9/14/04	[2]	$15,000	12/27/04					[2] The FY05 pledge of $15,000 was in response to Solicitation No. 882.

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TPF-5(063)		Improving the Quality of Pavement Profiler Measurement	Active	This project is designed to: • Deliver sample procurement specifications, equipment maintenance guidelines and profile analysis software. • Establish criteria for verification centers assist with the development of these locations. • Develop and deploy a traceable verification center. • Provide technical review of software that: o Locates surface imperfections that require corrective repair during construction. o Relates the surface imperfections to the highway users. o Procures for general distribution.	Federal Highway Administration	Federal Highway Administration, Midwestern Resource Center	TAC Member	David J. Kilpatrick	2003	$10,000	7/29/02		$10,000	10/7/02					
									2004	$10,000	7/29/02		$10,000	10/2/03					
									2009	$2,500	11/13/09					$2,500	11/13/09		
TPF-5(068)		Long-Term Maintenance of Load and Resistance Factor Design Specifications	Active	The objective of this project is to provide assistance to the AASHTO Highway Subcommittee on Bridges and Structures in interpreting, implementing, revising and refining the AASHTO Load and Resistance Factor Design (LRFD) documents.	Iowa Department of Transportation	American Association of State Highway Transportation Officials (AASHTO)	TAC Member	TBD (Formerly Gordon D. Barton)	2003	$20,000	8/1/02	[1]	$20,000	8/1/02	[1]				[1] The 12/9/02 $10,000 pledge for FY03 and $10,000 pledge for FY05 was rescinded on 1/8/03. The initial $20,000 was paid directly to AASHTO, at the direction of Comr. James F. Byrnes, Jr., by the Director of Fiscal/Special Projects, in 8/02. Another $20,000 will be paid directly to AASHTO, by the same source at a later date.
									2005	$20,000	8/1/02	[1]			[1]				
TPF-5(069)	[1]	Core Program Services for a Highway Research, Development, and Technology Program: FFY 2003-2005 (TRB FY 2004-2006)	Completed	Every three years, a triennium agreement is developed among the supporting members of the TRB, including FHWA and the American Association of State and Transportation Officials (AASHTO), which outlines the TRB core program for that period and includes a 3-year budget. The objective of this study is to provide a mechanism for State transportation departments to support the TRB's core program and services.	Federal Highway Administration	Transportation Research Board	TAC Member	James M. Sime	2003	$108,960	1/31/03		$108,960	1/31/03					[1] The project was formerly entitled, TPF-5(069), "Core Program Services for a Highway Research, Development, and Technology Program: 2004-2006."
									2004	$108,960	1/31/03		$108,960	10/2/03					
									2005	$108,960	1/31/03		$108,960	12/27/04					

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TPF-5(074)		Evaluation of Pre-Stressed Losses in Long-Span Post-Tensioned Bridges	Active	The overall reearch objective is to asess the time-dependent lump sum and refined prestress loss estimates based ont he current AASHTO LRFD Bridge Design Specifications. Previous or more recent research that shows promise will be reviewed. Changes to the current lump sum and refined prestress loss models will be suggested, if necessary, for application to cast-in-place post-tensioned bridges. The prestress loss models should be assessed by means of long-term field measurements and computer time-step analyses of cast-in-place post-tensioned box girder bridges.	California Department of Transportation	N/A	TAC Member	Paul F. D'Attilio	2004	$5,000	6/9/03	[1]	$5,000	12/27/04	[1]				[1] The FY04 Pledge was obligated with FY05 funds.
TPF-5(076)		Development of Geotechnical Procedures/Operations Manual	Completed	The objective of this project is to develop a manual that provides detailed technical guidance on geotechnical procedures and selection, management, quality, and cost control of products/services from geotechnical consultants and drillers. The project will also include development of a web-enabled template with an implementation plan and a user interface application that will allow state transportation agencies to adopt the manual in a form that is most suitable to their needs.	Federal Highway Administration	N/A	TAC Member	Leo L. Fontaine	2004	$5,000	6/7/03		$5,000	10/2/03					
									2005	$5,000	6/7/03		$5,000	12/27/04					
TPF-5(088)		NDE/NDT for Highways and Bridges	Active	The objective of this study is to improve the state-of-the-practice for infrastructure condition assessment through the application of nondestructive evaluation (NDE) technologies. The study will investigate and develop standards and certification procedures to enable the widespread application of NDE by State highway agencies. The study will also examine the common needs of State highway agencies and identify critical condition assessment challenges. The study will promote interaction among highway agencies to share best practices; cross-train engineers and develop knowledge; and, working groups will be formed to examine critical issues.	Federal Highway Administration	N/A	TAC Member	David J. Kilpatrick	2004	$10,000	10/20/03		$10,000	10/24/03					

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TPF-5(096)		Validation of NDT Results for Condition Assessment of Rock Reinforcements	Completed	The work proposed under this pooled-fund study consists of validation of NDT results for the condition assessment of rock reinforcements through limited destructive testing including lift-off tests and exhumation of selected reinforcements. The proposed project will take advantage of extensive NDT results already obtained in accordance with NCHRP Report 477 at an interstate site in New Hampshire. Verification of NDT results is unique and of significant value to the transportation community, enhancing the ability of engineers to perform accurate service life estimates from NDT results in the future. The conclusions and recommendations contained in NCHRP Report 477 state that uncertainty about the precision, accuracy, sensitivity, reliability and limitations of the NDT remain. There is a need to examine the application of NDT under field conditions where corrosion conditions and details of distressed elements are known. It is expected that this pooled-fund study will contribute to improved confidence in NDT, reducing the need for invasive testing in the future and lowering the overall costs and uncertainty associated with the condition assessment of metal reinforcements in geotechnical applications.	New Hampshire Department of Transportation	McMahon & Mann Consulting Engineers, P.C. (MMCE)	TAC Member	Leo L. Fontaine	2005	$10,000	9/14/04		$10,000	12/27/04					
TPF-5(099)		Evaluation of Low Cost Safety Improvements	Active	The objective of the proposed research is to develop reliable estimates of the safety effectiveness of safety improvements identified as strategies in the NCHRP Report 500 Guidebooks through scientifically rigorous before-after evaluations of sites within the U.S. where these strategies are being implemented.	Federal Highway Administration	N/A	TAC Member TAC Member	John F. Carey Joseph P. Ouellette	2005 2006 2007	$30,000 $30,000 $30,000	11/22/04 11/22/04 11/22/04	[1] [1] [1]	$30,000 $30,000 $30,000	3/16/05 12/19/05 11/17/06					[1] The FY05, FY06 and FY07 pledges were in response to Solicitation No. 884.

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TPF-5(100)		Deicer Scaling Resistance of Concrete Pavements, Bridge Decks and Other Structures Containing Slag Cement	Completed	The objectives of this study are: • Document the field performance of existing concrete pavements, bridge decks, and other structures made with slag cement that have been exposed to cyclical freeze-thaw cycles in the presence of deicing chemicals. • Determine from the field study and construction/design records which mixtures and construction parameters have produced scale-resistant concrete containing slag. • Determine the effectiveness of ASTM C672 in predicting the deicer scaling behavior of field concrete. If discrepancies are noted, an attempt will be made to explain why the lab tests do not adequately mimic field performance and alternative procedures will be recommended to improve the correlation between lab tests and field performance.	Iowa Department of Transportation	N/A	TAC Member	John W. Henault	2005	$8,000	1018/04		$8,000	3/16/05					
									2006	$8,000	10/18/04		$8,000	12/19/05					
									2007	$9,000	10/18/04		$9,000	11/17/06					
TPF-5(105)		Transportation Library Connectivity	Active	This pooled fund project on Transportation Library Connectivity focuses on making transportation information more readily available through better communication and coordination among state, federal, academic and private sector libraries. The study aims to institutionalize the best practices of individual transportation libraries and regional Transportation Knowledge Networks.	Wisconsin Department of Transportation	N/A	TAC Member	Betty S. Ambler	2009	$5,000	9/23/08					$5,000	11/3/08		
									2010	$5,000	8/28/09					$5,000	12/10/09		
TPF-5(107)		Refinement and Field Validation of Mix Design Criteria for 4.75 mm Superpave Mixes	Completed	The objective of this study will be to refine and field validate design criteria for 4.75 mm NMAS Superpave mixes. Additionally, guidelines for the production, construction, and use of this mix type will be developed.	Alabama Department of Transportation	N/A	TAC Member	Nelio J. Rodrigues	2005	$15,000	6/1/04		$15,000	3/16/05		$15,000	3/16/05		
									2006	$15,000	6/1/04		$15,000	12/19/05		$15,000	12/19/05		

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TPF-5(109)	[1]	Core Program Services for a Highway Research, Development, and Technology Program: FFY 2006-2008 (TRB FY 2007-2009)	Active	Every three years, a triennium agreement is developed among the supporting members of the TRB, including FHWA and the American Association of State and Transportation Officials (AASHTO), which outlines the TRB core program for that period and includes a 3-year budget. The objective of this study is to provide a mechanism for State transportation departments to support the TRB's core program and services.	Federal Highway Administration	Transportation Research Board	TAC Member	James M. Sime	2006	$126,650	3/16/06	[1]	$126,650	11/17/06	[2]				[1] The project was formerly entitled, "TPF-5(109), "Core Program Services for a Highway Research, Development and Technology Program: 2007-2009." [2] The 11/17/06 obligation memo requested an obligation for FY07 because of the old title.
									2007	$126,650	3/16/06	[1]				$126,650	8/14/08	[3]	[2] The 8/14/08 transfer E-Mail requested an obligation for FY08 because of the old title.
									2008	$126,650	3/16/06	[1]				$126,650	4/7/09		
TPF-5(111)		Development of Standards for Geotechnical Management Systems	Active	The first objective is to survey state and federal agencies and their consultants to define their geotechnical field and laboratory testing practices and the types of geotechnical data that they collect, archive and reuse through a web based survey method. Specifically of interest is the type of field and laboratory tests that are routinely performed, associated data collected, as well as metadata (data describing data: type of equipment, etc). Also of concern is the uniformity of testing practices (i.e. ASTM, AASHTO, etc.), and description of the data (e.g. soil classification, strengths, etc.). The survey will cover data at the dictionary level and will require very detailed and specific information. From the survey information, develop a consensus of data definitions to be accepted in the standard schema. The data dictionary specifies the meaning of the terms used in the data base. The second objective involves the development of an open and flexible XML (GML compliant) based data structure and data dictionary geotechnical management systems. The data structure will defin the form and content (alpha or numeric) of the data, the precision, the units, the field size, the type of data acquired, other data attributes, and the relationships between the attributes.	Ohio Department of Transportation	N/A	TAC Member	Leo L. Fontaine	2006	$12,500	8/18/05		$12,500	12/19/05					
									2007	$12,500	8/18/05		$12,500	11/17/06					

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TPF-5(120)	[1]	Deer Vehicle Crash Information and Research (DVCIR) Center Pooled Fund Study	Active	A significant amount of money has been spent on the implementation and study of deer-vehicle crash (DVC) countermeasures in the last several decades, but their expected crash reduction effectiveness is still largely unknown. The complexity and interdisciplinary requirements of implementation and long-term study of the correct potential DVC countermeasure(s) in the appropriate locations has limited the usefulness and transferability of past studies. A need exists to create a focal point for the definition and implementation of DVC-related research. This pooled fund would allow for the creation of a DVC Information and Research Center (DVCIR Center) to more properly address issues related to the DVC problem. This pooled fund will create a focal point (and/or location of first consideration) for the collection of DVC-related data/information (e.g., deer populations, vehicle travel, reported DVCs, and roadside carcasses). It will also guide, define, and fund an organized strategy of well-designed and properly staffed DVC-related research. The center created by this pooled fund is expected to become the primary resource for well-defined DVC-related data/information and research results, and an entity where only those projects that meet minimum scope, experimental design, staffing, and documentation requirements are funded.	Federal Highway Administration, Office of Human and Natural Environment	Texas Transportation Institute	TAC Member	Scott C. Williams	2006	$10,000	7/12/06		$10,000	8/25/06					[1] At the inception of TPF-5(120), the University of Wisconsin-Madison Midwest Regional University Transportation Center (MRUTC) was the Contractor for the project since the Principal Investigator, Dr. Keith K. Knapp, was affiliated with the University of Wisconsin-Madison MRUTC. When Dr. Knapp accepted a position at the Texas Transportation Institute (TTI), effective August 15, 2006, the Contractor was changed to TTI.
									2008	$10,000	4/2/08					$10,000	8/14/08		

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TPF-5(132)	[1]	Investigation of Low Temperature Cracking in Asphalt Pavements – Phase II (MNRoad Study)	Active	The main objective of this study is to validate the laboratory test procedures, models, and pavement design procedures that come out of Phase I of this study. This will be accomplished by monitoring two new test sections at the Minnesota Road Research Facility (MnROAD). Phase I was aimed at developing a fracture mechanics-based specification for a better selection of asphalt binders and mixtures with respect to their resistance to crack formation and propagation. This fracture mechanics approach will also be used to investigate the detrimental effects of aging and moisture on the fracture resistance of asphalt materials. This pooled fund study is strictly to perform the low temperature cracking research on newly built test sections at MnROAD, and its funding will come from Mn/DOT and other participating states. The funding for the construction of new test sections will be obtained separately from Mn/DOT and other partners.	Minnesota Department of Transportation	Minnesota Road Research Facility (MnROAD)	TAC Member	David J. Kilpatrick	2007	$10,000	5/8/06		$10,000	11/17/06		$10,000	11/17/06		[1] Phase 1 of the study was performed under the auspices of TPF-5(080), "Investigation of Low Temperature Cracking in Asphalt Pavements."
									2008	$10,000	5/8/06					$10,000	8/14/08		
									2009	$10,000	5/8/06					$10,000	4/8/09		
									2010	$10,000	5/8/06					$10,000	1/6/10		
									2011	$10,000	5/8/06								
TPF-5(141)		Pavement Surface Properties Consortium: A Research Program	Active	The objective of the proposed pool fund is to establish a research program focused on enhancing the level of service provided by the roadway transportation system through optimized pavement surface texture characteristics. The initial focus of the program will be the application of inertial and laser-based equipment for measuring these properties. Other questions and issues will be identified in cooperation with the pool fund participants. An interactive project solicitation process will be used to request feedback from all participants.	Virginia Department of Transportation	Virginia Tech	TAC Member	John W. Henault	2008	$10,000	9/11/07					$10,000	8/14/08		
									2009	$10,000	9/11/07					$10,000	4/8/09		

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TPF-5(146)		Evaluation of Modified Performance Grade Binders in Thin Lift Maintenance Mixes, Surface Mix and a Reflective Crack Relief Layer Mix	Active	The primary objective of this research project is to design and evaluate maintenance and rehabilitation HMA mixes as well as develop a reflective crack relief layer (RCRL) mix utilizing modified binders. Specifically, thin lift mixes with a NMAS of 4.75 mm and 9.5 mm and a surface mix with a NMAS of 12.5 mm will be developed as maintenance and rehabilitation mixes using Superpave design methodology. These mixes will then be evaluated for their resistance to low temperature cracking and rutting. The secondary objective is to compare the performance of these modified mixes. Finally, a RCRL mix will be developed and tested for its potential to prevent or mitigate reflective cracking.	Massachusetts Highway Department	University of Massachusetts, Dartmouth	TAC Member	Nelio J. Rodrigues	2006	$10,000	5/11/06		$10,000	8/25/06					
									2007	$10,000	5/11/06		$10,000	11/17/06					
TPF-5(154)		Census Transportation Planning Products (CTPP) From the American Community Survey	Active	To provide data tabulations from the American Community Survey (ACS) that are designed specifically for the needs of transportation planners. This data project will be called Census Transportation Planning Products (CTPP). This will include tabulations for residence, workplace, and flow between home and work. Both 3-year ACS data aggregates, and 5-year ACS data aggregates will be used for the tabulations. The geographic level of detail for the 5-year ACS will include Transportation Analysis Zones (TAZs) and census tracts. The data will be distributed to State DOTs and MPOs using the best format available which may include Internet or CDs and DVDs. In addition to data tabulations, the project will include technical support, training and capacity building, research, and project oversight.	Federal Highway Administration	American Association of State Highway Transportation Officials (AASHTO)	TAC Member TAC Member	Charles S. Barone Donna L. Weaver	2007	$67,678	3/28/07		$67,678	3/28/07	[1]				[1] FHWA appears to have obtained all funds as direct payments from the states. The TPF-5(154) record in the FMIS M85A report has disappeared. Through efforts independent of this office, the Department has deobligated its TPF funds and send payment directly to AASHTO. The type of funds used (maybe 100% federal SPR?) is unknown. TPF-5(154) remains in the www.pooledfund.org website.
TPF-5(168)		New England Transportation Consortium (NETC) IV: 2008	Completed	The objectives of the NETC program are: 1) Implementation of a three-pronged program for the New England region consisting of research and development; technology transfer; and, education and training; 2) Development of improved methods for dealing with common transportation problems; and, 3) Providing an important source of trained professionals for employment in the Region.	Connecticut Department of Transportation	University of Massachusetts, Dartmouth	Policy Committee Member Advisory Committee Member Advisory Committee Member and Lead Engineer	Comr. Joseph F. Marie James M. Sime Dionysia F. Oliveira	2008	$105,000	-	[1] [2]	-	-	[3]				[1] An additional $5,000 was added to the TPF-5(168) FY08 Pledge to cover NETC-related travel. [2] The FY08 pledge of $105,000 was included in the FY09 pledge to TPF-5(201). [3] FY08 funds were provided, by transfer process, in the FY09 transfer to TPF-5(201).

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TPF-5(171)		Evaluation of Non Intrusive Traffic Detection Technologies (Phase III)	Active	The objective of the proposed project is to conduct field tests of the latest generation of non-intrusive traffic sensors. The field tests will assess the capabilities and limitations in detecting traffic under a variety of conditions. Specific test conditions will be driven by the needs of participating state agencies.	Minnesota Department of Transportation	N/A	TAC Member	Anne-Marie H. McDonnell	2007	$10,000	7/30/07					$10,000	8/14/08		
									2008	$5,000	7/30/07					$5,000	8/14/08		
TPF-5(178)		Implementation of the Asphalt Mixture Performance Tester (AMPT) for Superpave Validation	Active	This pooled fund study is open to any highway agency interested in using simple performance tests to aid in material characterization for design and analysis of flexible pavements. The objectives of this pooled fund study are to: (i) nationally procure the SPT for highway agencies interested in obtaining and using the SPT to characterize asphalt mixtures designed using Superpave technology; (ii) provide support in training technicians to use the SPT to perform the proposed standard practices for measuring dynamic modulus, flow number and flow time of asphalt mixtures compacted using the Superpave Gyratory Compactor (SGC); and (iii) evaluate the nation-wide implementation and use of the SPT for assessing performance of asphalt mixtures over a wide range of climatic conditions, materials, and structures.	Federal Highway Administration	N/A	TAC Member	Eric D. Jackson	2008	$60,000	4/1/08					$60,000	8/14/08		
									2009	$60,000	4/1/08					$60,000	4/8/09		
									2010	$60,000	4/1/08					$60,000	1/6/10		
TPF-5(192)		Loop and Length Based Classification Pooled Fund	Active	Evaluate field test installation methods for loops to determine the most cost effective and best performing procedures and materials. Determine the number of bins and the length spacing for each of those bins for uniform collection of length based classification data. Establish calibration standards for vehicle length based meaurements.	Minnesota Department of Transportation		TAC Member	Anne-Marie H. McDonnell	2009	$10,000	12/3/08					$10,000	4/8/09		
									2010	$10,000	12/3/08					$10,000	1/6/10		
									2011	$10,000	12/3/08								
TPF-5(195)		Core Program Services for a Highway RD&T Program - FFY 2009 (TRB FY 2010)	Active	To provide a mechanism for State transportation departments to support the TRB's core program and services.	Federal Highway Administration	TBD	TAC Member	James M. Sime	2009	$126,650	3/16/09					$126,650	4/7/09		

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TPF-5(196)		2009 National Asset Management Conference	Active	The 8th National Conference on Transportation Asset Management, co-sponsored by TRB and AASHTO and others, to be held in November 2009, is designed to be a forum for practitioners, researchers, and others to share information on a variety of transportation asset management topics. The conference will cover surface transportation modes only. Sessions will cover a broad range of topics that will be of interest to agencies that are in the early stages of implementation of asset management as well as agencies that are in later stages of the implementation process. The objectives of the conference are to: 1. To enhance the working knowledge of the asset managment personnel in the many state Departments of Transportation concerning the best practices for the asset management; and, 2. To provide a conduit for enhancing the practical knowledge of pool members concerning their asset management activities.	Federal Highway Administration	Transportation Research Board (TRB)	TAC Member TAC Member	Colleen A. Kissane Donald A. Larsen	2009	$10,000	11/19/08					$10,000	5/19/09		

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TPF-5(201)		New England Transportation Consortium (V)	Active	To pool the financial, professional, and academic resources of the region and to use them to research and develop improved methods of dealing with common problems in the planning, design, construction, maintenance, rehabilitation, reconstruction, and operation of transportation systems in the participating states. The program is intended to supplement, not to replace, ongoing state and federal research activities and other national programs such as the Cooperative Research Programs of the National Academies. This is a transportation research program, where research projects are conducted primarily by the Land Grant Universities of the New England states. This study was preceded by TPF-5(168), SPR-3(089), SPR-3(029), and SPR-3(009). Other State DOTs may participate in individual research projects by providing funds and a project technical committee member to represent their agency.	Federal Highway Administration	TBD	Policy Committee Member Advisory Committee Member Advisory Committee Member and Lead Engineer	Comr. Joseph F. Marie James M. Sime Dionysia F. Oliveira	2009	$315,000	3/18/09	[1] [2]				$315,000	5/19/09	[3]	[1] An additional $5,000 per year for FY07, FY08 and FY09, was added to the TPF-5(201) FY09 Pledge to cover NETC-related travel. [2] The FY07 pledge of $105,000 for SPR-3(089) and FY08 pledge of $105,000 for TPF-5(168) were included in the FY09 pledge to TPF-5(201). [3] FY07 funds for SPR-3(089) and FY08 funds TPF-5(168) were provided, by transfer process, in the FY09 transfer to TPF-5(201).
									2010	$105,000	3/18/09	[4] [5]							[4] An additional $5,000 was added to the TPF-5(201) FY10 Pledge to cover NETC-related travel. [5] The FY10 Pledge of $105,000 was originally pledged to TPF-5(201) and then repledged to TPF-5(222). FY10 funds for the NETC program will be provided, by transfer process, to TPF-5(222).
									2011	$105,000	3/18/09	[6] [7]							[6] An additional $5,000 was added to the TPF-5(201) FY11 Pledge to cover NETC-related travel. [7] The FY11 Pledge of $105,000 was originally pledged to TPF-5(201) and then repledged to TPF-5(222). FY11 funds for the NETC program will be provided, by transfer process, to TPF-5(222).

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TPF-(201) (continued)		New England Transportation Consortium (V)	Active						2012	$105,000	3/18/09	[8] [9]							[8] An additional $5,000 was added to the TPF-5(201) FY12 Pledge to cover NETC-related travel. [9] The FY12 Pledge of $105,000 was originally pledged to TPF-5(201) and then repledged to TPF-5(222). FY12 funds for the NETC program will be provided, by transfer process, to TPF-5(222).
									2013	$105,000	3/18/09	[10] [11]							[10] An additional $5,000 was added to the TPF-5(201) FY13 Pledge to cover NETC-related travel. [11] The FY13 Pledge of $105,000 was originally pledged to TPF-5(201) and then repledged to TPF-5(222). FY13 funds for the NETC program will be provided, by transfer process, to TPF-5(222).
TPF-5(220)		Accommodating Oversize/Overweight Vehicles at Roundabouts	Active	The objectives are to: 1. Compile current practice and research by various states and countries related to the effects that oversize/overweight vehicles (also called super loads) have on roundabout location, design and accommodation, and 2. Fill in information gaps with respect to roundabout design and operations for these classes of vehicles.	Kansas Department of Transportation	Kansas State University	TAC Member	William W. Britnell	2009	$10,000	2/4/08					$10,000	10/29/09		
									2010	$10,000	2/4/08					$10,000	1/6/10		
									2011	$10,000	2/4/08								

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							Type of Assignment	Person(s)	Federal Fiscal Year	Pledge	Pledge Date	NOTE	Obligation Request	Obligation Request Date	NOTE	Transfer Request	Transfer Request Date	NOTE	
TPF-5(222)		New England Transportation Consortium (VI)	Active	To pool the financial, professional and academic resources of the region and to use them to research and develop improved methods of dealing with common problems in the planning, design, construction, maintenance, rehabilitation, reconstruction, and operation of transportation systems in the participating states. The program is intended to supplement, not to replace, ongoing state and federal research activities and other national programs such as the Cooperative Research Programs of the National Academies.	Vermont Agency of Transportation		Policy Committee Member Advisory Committee Member Advisory Committee Member and Lead Engineer	Comr. Joseph F. Marie James M. Sime Dionysia F. Oliveira	2010	$105,000	12/31/09	[1] [2]				$5,000	TBD	[3]	[1] An additional $5,000 was added to the TPF-5(201) FY10 Pledge to cover NETC-related travel. [2] The FY10 Pledge of $105,000 was originally pledged to TPF-5(201) and then repledged to TPF-5(222). FY10 funds for the NETC program will be provided, by transfer process, to TPF-5(222). [3] In FY10, $5,000 to cover NETC-related travel will be transferred to TPF-5(222). The remainder of the FY10 pledge, $100,000, will be transferred to TPF-5(222), in FY11.
									2011	$105,000	12/31/09	[4] [5]				$205,000	TBD	[6]	[4] An additional $5,000 was added to the TPF-5(201) FY11 Pledge to cover NETC-related travel. [5] The FY11 Pledge of $105,000 was originally pledged to TPF-5(201) and then repledged to TPF-5(222). FY11 funds for the NETC program will be provided, by transfer process, to TPF-5(222). [6] The remainder of the FY10 pledge, $100,000, will be transferred to TPF-5(222), in FY11.
									2012	$105,000	12/31/09	[7] [8]							[7] An additional $5,000 was added to the TPF-5(201) FY12 Pledge to cover NETC-related travel. [8] The FY12 Pledge of $105,000 was originally pledged to TPF-5(201) and then repledged to TPF-5(222). FY12 funds for the NETC program will be provided, by transfer process, to TPF-5(222).

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TPF-5(222) (continued)		New England Transportation Consortium (VI)	Active						2013 2014	$105,000 $105,000	12/31/09 12/31/09	[9] [10] [11]							[9] An additional $5,000 was added to the TPF-5(201) FY13 Pledge to cover NETC-related travel. [10] The FY13 Pledge of $105,000 was originally pledged to TPF-5(201) and then repledged to TPF 5(222). FY13 funds for the NETC program will be provided, by transfer process, to TPF-5(222). [11] An additional $5,000 was added to the TPF-5(201) FY14 Pledge to cover NETC-related travel.
TPF-5(408)		National Cooperative Highway Research Project - FY2008	Active	To conduct research in acute problem areas that affect highway planning, design, construction, operation, and maintenance, nationwide for FFY 2008. Administered by the Transportation Research Board (TRB) and sponsored by the member departments (i.e., individual state departments of transportation) of the American Association of State Highway and Transportation Officials (AASHTO), in cooperation with the Federal Highway Administration (FHWA), the National Cooperative Highway Research Program (NCHRP) was created in 1962 as a means to conduct research in acute problem areas that affect highway planning, design, construction, operation, and maintenance, nationwide.	Federal Highway Administration	Transportation Reseaarch Board	TAC Member	James M. Sime	2008	$493,500	10/1/07					$493,500	10/2/08		
TPF-5(409)		National Cooperative Highway Research Project - FY2009	Active	To conduct research in acute problem areas that affect highway planning, design, construction, operation, and maintenance, nationwide for FFY 2009. Administered by the Transportation Research Board (TRB) and sponsored by the member departments (i.e., individual state departments of transportation) of the American Association of State Highway and Transportation Officials (AASHTO), in cooperation with the Federal Highway Administration (FHWA), the National Cooperative Highway Research Program (NCHRP) was created in 1962 as a means to conduct research in acute problem areas that affect highway planning, design, construction, operation, and maintenance, nationwide.	Federal Highway Administration	Transportation Reseaarch Board	TAC Member	James M. Sime	2009	$496,484	11/20/08 [$198,594] and 5/20/09 [$297,890]	[1] [2]				$496,484	4/709 [$198,594] and 6/1/09 [$297,890]	[3] [4]	[1] The 11/20/08 pledge date is the date of the FHWA Acceptance Memo for a partial (40%) transfer of $198,594 for FY09. [2] The 5/20/09 pledge date is the date of the FHWA E-Mail Transfer Request E-Mail for a partial (60%) transfer of $297,890 for FY09. [3] The 4/7/09 transfer request was for a partial (40%) transfer of $198,594 for FY09. [4] The 6/1/09 transfer request was for a partial (60%) transfer of $297,890 for FY09.

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TPF Project Number	NOTE	TPF Project Title	Project Status	Objective(s)	Lead Organization	Contractor(s)	Personnel Assignments to TPF Committees		Funding Information										Notes
							Type of Assignment	Person(s)	Federal Fiscal Year	Pledge	Pledge Date	NOTE	Obligation Request	Obligation Request Date	NOTE	Transfer Request	Transfer Request Date	NOTE	
TPF-5(410)		National Cooperative Highway Research Project - FY2010	Active	To conduct research in acute problem areas that affect highway planning, design, construction, operation, and maintenance, nationwide for FFY 2009. Administered by the Transportation Research Board (TRB) and sponsored by the member departments (i.e., individual state departments of transportation) of the American Association of State Highway and Transportation Officials (AASHTO), in cooperation with the Federal Highway Administration (FHWA), the National Cooperative Highway Research Program (NCHRP) was created in 1962 as a means to conduct research in acute problem areas that affect highway planning, design, construction, operation, and maintenance, nationwide.	Federal Highway Administration	Transportation Reseaarch Board	TAC Member	James M. Sime	2010	$531,490	12/23/09 [$198,594] and 4/29/10 [$332,896]	[1] [2]				$531,490	3/9/10 [$198,594] and 5/28/10 [$332,896]	[3] [4]	[1] The 12/23/09 pledge date is the date of the FHWA Acceptance Memo for a partial (40%) transfer of $198,594 for FY10. [2] The 4/29/10 pledge date is the date of the FHWA E-Mail Transfer Request E-Mail for a partial (60%) transfer of $332,896 for F10. [3] The 3/9/10 transfer request was for a partial (40%) transfer of $198,594 for FY10. [4] The 5/28/10 transfer request was for a partial (60%) transfer of $332,896 for FY10.
Soliciation Number 1267		Demonstration and Purchase of PG Binder Testing Equipment	Proposed	To conduct a Pooled Fund project, similar to the one conducted earlier by FHWA, here in the northeastern part of the country. In Phase 1, researchers will arrange, for participating state DOTs, a demonstration of lab equipment options for PG binder testing. Then, in a second phase, CAP Lab will facilitate a pooled-fund purchase of asphalt-binder laboratory test equipment for interested state DOTs.	Connectcut Department of Transportation	University of Connecticut, Connecticut Advanced Pavement laboratory (CAP Lab)	TAC Member	Ravi V. Chandran	2010	$5,000	6/16/10					$5,000	TBD		
Soliciation Number TBD		Core Program Services for a Highway RD&T Program - FFY 2010 (TRB FY 2011)	Proposed	To provide a mechanism for State transportation departments to support the TRB's core program and services.	Federal Highway Administration	TBD	TAC Member	James M. Sime	2010	$126,650	TBD					$126,650	TBD		
Soliciation Number TBD		Core Program Services for a Highway RD&T Program - FFY 2011 (TRB FY 2012)	Proposed	To provide a mechanism for State transportation departments to support the TRB's core program and services.	Federal Highway Administration	TBD	TAC Member	James M. Sime	2011	$126,650	TBD								
Soliciation Number TBD		Core Program Services for a Highway RD&T Program - FFY 2012 (TRB FY 2013)	Proposed	To provide a mechanism for State transportation departments to support the TRB's core program and services.	Federal Highway Administration	TBD	TAC Member	James M. Sime	2012	$126,650	TBD								

PART G

Proposed Research Projects for FY10/11

One of the responsibilities of the Division of Research is to gather descriptions of transportation-related problems and innovative ideas to be researched through numerous state, regional and national transportation-research programs. In the past, solicitations for suggested research for each program were done at different times throughout the year. Since 1997, the Division has streamlined this process by combining most requests into a single annual bulletin titled, "Combined Solicitation of Research Needs." The annual solicitation is released each November. Research needs are reviewed and directed to the research program best able to address the need. In Part G are those research needs that are anticipated to be addressed by the Department's research engineers, either through in-house projects or in cooperation with the Connecticut Transportation Institute at the University of Connecticut.

TITLE: Research Peer Exchange Follow-Up

PROJECT NUMBER: Unassigned

RESEARCH AGENCY: ConnDOT Division of Research

OBJECTIVE(S):

To follow-up on the 2006 Connecticut Research Peer Exchange with a prioritization and development of procedures and applications for those practices and concepts identified in the Exchange that appear to have applicability to ConnDOT.

TITLE: E-HIWAY: A Web-Based Photolog Viewing Tool

PROJECT NUMBER: Unassigned

RESEARCH AGENCY: ConnDOT Division of Research

OBJECTIVE(S):

To provide a Photolog viewing and printing capability over the Internet using Microsoft's Internet Explorer or equivalent Web browser. This project would specifically address Photolog digital-image retrieval by outside governmental agencies, the public and private sector using various means to connect to a Photolog-image Web server. Develop, also, a system for password-protected accounts and a user-order management system for certified Photolog prints.

TITLE: Quiet Pavement Research in Connecticut

PROJECT NUMBER: Unassigned

RESEARCH AGENCY: ConnDOT Division of Research

OBJECTIVE(S):

To evaluate and compare the contribution of existing pavement to traffic noise produced in Connecticut; install, monitor, and evaluate pavement new to Connecticut to determine if noise can be reduced at the tire/pavement interface without compromising road safety and the durability of the pavement; and test modifications to existing pavement mix designs to determine if quieter pavements can be placed without compromising road safety and the durability of the pavement.

NOTE: Project anticipated to be funded primarily by Legislature through bonded project, where UConn CAP Lab directed to conduct the study. ConnDOT anticipated to participate in supporting role.

TITLE: Evaluation of the Laser Transverse Profiler (Laser XVP™)

PROJECT NUMBER: Unassigned

RESEARCH AGENCY: ConnDOT Division of Research

OBJECTIVE(S):

To evaluate the benefits of data collected with a transverse profiler/scanning laser (Laser XVP™) as compared to existing photolog equipment (ARAN® Smart Rutbar and Laser SDP™); develop accuracy statements for the new laser transverse profiler; implement access to laser transverse profiler data in DigitalHIWAY client/server software; and, develop an implementation plan with Pavemetn Management to utilize the new laser transverse profiler data.

TITLE: Applications of Retro-Reflective Wire Rope

PROJECT NUMBER: Unassigned

RESEARCH AGENCY: ConnDOT Division of Research

OBJECTIVE(S):

To install, monitor, and evaluate the performance of a reflective coating on the wire rope used with the Narrow Connecticut Impact Attenuation System (NCIAS); upgrade the six existing NCIAS systems with retro-reflective wire rope and to meet NCHRP Report 350 requirements; and investigate other possible applications and uses for reflective wire rope, such as on certain sections of cable guide rail.

TITLE: Integration of Welder Certification System with SiteManager

PROJECT NUMBER: Unassigned

RESEARCH AGENCY: ConnDOT Division of Research

OBJECTIVES:

To detect and prevent fraud in ConnDOT's Welder Certification System, and thereby improve quality assurance by field inspectors, as well as reduce the risk of unqualified welders performing welds on steel structures and thereby compromising weld quality by replacing a system first developed in 1997 through a research project. The specific goals are to redesign, procure and implement a new Welder-Photo ID System that provides identification card printing and certified welder tracking capabilities; imports existing welder databases to the system; exports updated databases to SiteManager for field inspector access; provides management access to welder certification reports; and, provides inspector access to welder information in the field for welder verification.

TITLE: Long-Term Monitoring of Connecticut's "Dragnet" Truck Escape Ramp (TER)

PROJECT NUMBER: Unassigned

RESEARCH AGENCY: ConnDOT Division of Research

OBJECTIVE(S):

To monitor and evaluate performance of new truck escape ramp techniques.

TITLE: Implementation of Test Methods for Assessing the Workability Characteristics of Self-Consolidating Concrete

PROJECT NUMBER: Unassigned

RESEARCH AGENCY: ConnDOT Division of Research

OBJECTIVE(S):

1. To implement the use of test methods for assessing the workability characteristics of self-consolidating concrete (SCC) used at precast concrete plants. These characteristics include: filling ability, passing ability, filling capacity, and segregation resistance.

    a. To measure filling ability of SCC with the slump flow and the T_{50} (ASTM 1611) test methods.

    b. To measure passing ability of SCC with the J-Ring flow (ASTM C 1621) and L-box test methods.

    c. To measure the filling capacity of SCC with the caisson test.

    d. To measure the segregation resistance of SCC with the column technique (ASTM C 1610), the visiual stability index (ASTM C 1611), and the surface settlement test.

2. To document the workability characteristics of SCC mixes used at precast plants producing concrete products for ConnDOT.

3. To draft specifications for requiring the use of these test methods.

TITLE: Multicasting and Internet Webcasting for Transportation Research and Implementation

PROJECT NUMBER: Unassigned

RESEARCH AGENCY: ConnDOT Division of Research

OBJECTIVE(S):

To evaluate multicasting on WAN-based Windows Media server within the Department’s wide area network, to deliver implementation of research materials; and, evaluate streaming on Internet World Wide Web-based Windows Media server at the DOIT state data center to deliver high-definition materials facilitating implementation of research.

PART H

Listing of Reports on 100% Federally Funded Research Projects

Completed, Discontinued, or Reassigned

Highway Safety Projects

R.P. HS 412-002-180 - Skid Resistance of Pavement and Bridge Decks

1. Dougan, C. E., "Preliminary Observations on Pavement Surface Skid Resistance," May 1968.

2. Dougan, C. E., "Skid Resistance on Connecticut Highways," September 1968.

3. Ganung, G. A., "Development and Implementation of a Skid Test Program in Connecticut, Report 1," April 1971.

4. Ganung, G. A., and Christman, R., "Development and Implementation of a Skid Test Program in Connecticut, Report 2, 1971 Activities," April 1972.

R.P. HS 7412-1206 - Friction Testing of the Secondary Road System in Connecticut

1. Ganung, G. A., "Friction Survey of the State Secondary System, Report 1," April 1973.

2. Ganung, G. A., "Friction Survey of the State Secondary System, Report 2," March 1974.

R.P. 170-158 - FHWA Task Order No. 1, Field Installation and Evaluation of Post-Mounted Delineators

1. Liptak, R. E., "Field Installation and Evaluation of Post-Mounted Delineators - Final Report," Report No. 158-F-80-9, July 1980.

R.P. 170-199 - FHWA Task Order No. 2, Pavement Patching Demonstration and Evaluation

1. Ganung, G. A., et al., "Field Application and Evaluation of Pavement Patching Materials - Final Report," Report No. 199-F-81-1, January 1981.

R.P. 170-983 - Development of an FHWA Implementation Package for the Connecticut Impact Attenuation System (CIAS)

1. Division of Research Staff, "A Guide for the Repair of the Connecticut Impact-Attenuation System (CIAS)," Report No. FHWA-CT-91-983, November 1991.

2. Lohrey, E. C., "Connecticut Impact Attenuation System (CIAS)," Informational Brochure, Report No. FHWA-CT-91-983, November 1991.

Highway Safety Projects (continued)

R.P. 170-1884 – CTTRANSIT Demonstration and Evaluation of Hybrid Diesel Electric Transit Buses

1. Connecticut Academy of Science, “Review of CTTRANSIT Diesel Bus Research Program,” Published March 18, 2003.

2. Warren, S. W., “Demonstration and Evaluation of Hybrid Diesel Electric Transit Buses, Interim Report No. 1,” Report No. CT-170-1884-1-03-12, September 2003.

3. Warren, S. W., “Demonstration and Evaluation of Hybrid Diesel Electric Transit Buses, Interim Report No. 2,” Report No. CT-170-1884-2-04-1, December 2003.

4. Warren, S. W., “Demonstration and Evaluation of Hybrid Diesel Electric Transit Buses, Interim Report No. 3,” Report No. CT-170-1884-3-04-5, March 2004.

5. Warren, S. W., “Demonstration and Evaluation of Hybrid Diesel Electric Transit Buses, Interim Report No. 4,” Report No. CT-170-1884-4-04-11, June 2004.

6. Warren, S. W., “Demonstration and Evaluation of Hybrid Diesel Electric Transit Buses, Interim Report No. 5,” Report No. CT-170-1884-5-04-12, October 2004.

7. Warren, S. W., “Demonstration and Evaluation of Hybrid Diesel Electric Transit Buses, Interim Report No. 6,” Report No. CT-170-1884-6-05-1, January 2005.

8. Connecticut Academy of Science and Engineering, “Demonstration and Evaluation of Hybrid Diesel Electric Transit Buses,” Report No. CT-170-1884-F-05-10, October 2005.

R.P. 77-171 - RTAP Project #65, Local Road Superintendents Handbook on Supervisory Practices

1. Transportation Institute, Technology Transfer Center, "RTAP Project #65 Pilot Workshop Summary Report," June 1990.

2. Huffmire, D. W., "Successful Supervision for Local Road Supervisors - A Handbook to Help You Manage, Motivate, Communicate," June 1990.

3. Huffmire, D. W., "Managing, Motivating and Communicating Your Way to Successful Supervision - An Instructor's Guide for a Workshop for Local Road Supervisors," June 1990.

R.P. 300-77 – Devon Railroad Bridge Monitoring

1. D’Attilio, P.F., Feldblum, E.G., Lauzon, R.G., “Strain Monitoring of the Devon Railroad Bridge,” December 2001.

Highway Safety Projects (continued)

SPR 704-902 – Safety Project and Program Evaluation

1. Annino, Julie M., “Rumble Strips in Connecticut: A Before/After Analysis of Safety Benefits,” Report No. CT-902-F-04-3, August 2003.

TPF-5(062) – Coordination of Pavement Activities in the Northeast

1. Dougan, C. E., “Policies and Procedures for the Coordination of Pavement Activities in the Northeastern United States,” Report No. CT-TPF-5(062)-2-04, January 2004.

Listing of Reports on Federally Funded Research Projects

State (Highway) Planning and Research Projects

HPR-36 - Continuously Reinforced Concrete Pavement, I-84, Southington

1. Dougan, C. E., "Construction of the Continuously Reinforced Concrete Pavement, I-84, Southington," January 1964.

2. Dougan, C. E., "Performance of the Continuously Reinforced Concrete Pavement After Three Years of Service, I-84, Southington," November 1965.

3. Sternberg, F.E., "Report on Distressed Area in the Continuously Reinforced Concrete Pavement, I-84, Southington," April 1965.

4. Sternberg, F. E., "Report on Condition and Performance of the Steel Bridge Finger-Type Terminal Joints on Continuously Reinforced Concrete Pavement, I-84, Southington," July 1965.

5. Sternberg, F. E., "Report on Failure of Welded Wire Fabric Reinforcement in Continuously Reinforced Concrete Pavement, I-84, Southington," March 1967.

6. Sternberg, F. E., "Performance of Continuously Reinforced Concrete Pavement, I-84, Southington - Final Report," June 1969.

HPR-39 - Experimental Bituminous Concrete Study, Southbury-Middlebury

1. Bowers, D. G., "Experimental Bituminous Concrete Pavement Study, Southbury-Middlebury I, Construction Report," January 1967.

2. Sternberg, F. E., "Experimental Bituminous Concrete Pavement Study, Route I-84, Southbury and Middlebury, Report 2 Analysis of Various Data Obtained During and After Construction," February 1968.

3. Sternberg, F. E., "Recommended Additional Control of the Depth of Bituminous Pavement During Construction," May 1965.

HPR-40 - Experimental Bituminous Concrete Study, Groton

1. Bowers, D. G., "Experimental Bituminous Concrete Pavement Study, Rt. I-95, Groton, Report I, Construction," June 1965.

2. Bowers, D. G., "Experimental Bituminous Concrete Pavement Study Rt. I-95, Groton, Report II, Analysis of Various Data Obtained During and After Construction," October 1970.

3. Bowers, D. G. and Sternberg, F. E., "Final Report on Experimental Bituminous Concrete Pavements - I-84, Southbury-Middlebury, I-95, Groton," August 1972.

HPR-55 - Experimental Self-Stressing Concrete, Route 2, Glastonbury

1. Dougan, C. E., "An Experimental Self-Stressing Concrete Pavement, Rt. 2, Glastonbury I, Construction Report," April 1964. Published in TRB Transportation Research Record (TRR) No. 112.

2. Dougan, C. E., "An Experimental Self-Stressing Concrete Pavement, Route 2, Glastonbury: II, Four Year Pavement Evaluation," March 1968.

3. Bowers, D. G., "An Experimental Self-Stressing Concrete Pavement, Route 2, Glastonbury: III, Final Report," January 1971. Published in TRB Transportation Research Record (TRR) No. 291.

4. Christman, R., "Corrosion on Reinforcement, Experimental Self-Stressing Concrete Pavement, Route 2, Glastonbury," May 1971.

HPR-219 - Statistical Quality Control of Plant-Mixed Bituminous Concrete

1. Sternberg, F. E., Statistical Quality Control of Plant-Mixed Bituminous Concrete," March 1971.

SPR-0222(1), "A Study of Bus Propulsion Technologies Applicable in Connecticut" (CASE Study)

1. "A Study of Bus Propulsion Technologies Applicable in Connecticut: Executive Summary," Report No. CT-222-44-01-11, 2001.

2. Foyt, George, "Study Update: Bus Propulsion Technologies Applicable in Connecticut," Report No. CT-222-42-03-15, March 2003.

SPR-0222(2), " Transportation Investment Evaluation Methods and Tools: A Preliminary Best-Practices Survey" (CASE Study)

1. Werle, Michael, "Transportation Investment Evaluation Methods and Tools: A Preliminary Best-Practices Survey," Report No. CT-222-45-02-10, February 15, 2002.

SPR-0222(3), "Review of CTTRANSIT Diesel Bus Research Program" (CASE Study)

1. Hoffnagle, Gale, Levinson, Herbert, Robson, Fred and Sangiovanni, Joseph, "Review of CTTRANSIT Diesel Bus Research Program," Report No. CT-222-41-03-14, March 18, 2003.

SPR-0222(4), "A Study of Railcar Lavatories and Waste Management Systems" (CASE Study)

1. Strauss, Richard H., "A Study of Railcar Lavatories and Waste Management Systems," Report No. CT-222-36-04-7, May 2004.

SPR-0222(5), "Information Technology Systems for Use in Incident Management and Work Zones" (CASE Study)

1. Fang, Clara, "Information Technology Systems for Use in Incident Management and Work Zones," Report No. CT-222-39-06-01, February 2006.

HPR-227 - Comparison of Traffic Paints

1. Button, E. F., DeLoach, W. and Kos, F., "Evaluation of Centerlines Applied by Contractors During 1969," February 1970.

2. Button, E. F., "Comparison of Representative Traffic Paints," April 1972.

HPR-228 - Vehicle Behavior Under Real Conditions at Impact-Attenuation Devices

1. Bowers, D. G. and Hudson, J. H., "Photographic Surveillance of Highway Safety Devices," March 1973.

2. Bowers, D. G., "Vehicle Behavior Under Real Conditions at Impact-Attenuation Devices - Final Report," June 1975.

HPR-331 - Effects of Deicing Salts on Soils and Vegetation

1. Button, E. F., "Determination of the Effects of Deicing Salts Upon Trees, Shrubs, and Soils - Report 1," November 1973.

2. Rubins, E. J., "Summary of 175-331 Soil Samples - 1973," December 1973.

3. Button, E. F., Rubins, E. J., Woodward, M. A. and Griffin, G. F., "Effects of Deicing Salts and Lead Upon Trees, Shrubs and Soils in Connecticut," Final Report, January 1977. Report No. 331-F-76-9.

HPR-332 - Loading History of Selected Bridges - I-95

1. Bowers, D. G., "Loading History, Span No. 10, Yellow Mill Pond Bridge, I-95, Bridgeport, Connecticut," June 1971.

2. Bowers, D. G., Summary Report - Loading History - Span No. 10, Yellow Mill Pond Bridge, I-95, Bridgeport, Connecticut," January 1973.

HPR-339 - Photologging

1. Bowers, D. G., Hudson, J. H. and Sugland, L. E., "Operations Manual for Photolog System," Connecticut Department of Transportation, March 1974.

2. Bowers, D. G., "Photologging Guidelines for the Update and Refilming of the State Highway System," Connecticut Department of Transportation, April 1976. Report No. 339-2-76-5

HPR-343 - Implementation of Research Findings

1. Button, E. F., "Implementation Package for Vegetation and Erosion Control Under Guide Rails and Median Barriers," March 1969.

2. Christman, R., "Report to the Legislature on the Performance and Effects of Studded Tires," December 1972.

3. Christman, R., "Report to the Legislature on the Performance and Effects of Studded Tires - Report II," January 1974.

4. Lane, K. R., "Installation of a Tire-Sand Internal Barrier System in Connecticut," August 1975.

5. Buckley, W., Hudson, J. and Bowers, D., "An Open-Graded Bituminous Concrete Overlay, I-91, Cromwell-Wethersfield - Construction Report," October 1975.

6. Button, E. F. and Kasinskas, M. M., "Snow and Ice Control - ConnDOT Research, Operations and Policy," December 1975.

7. Christman, R., "Comments Offered by the Connecticut Department of Transportation on Kennametal, Inc. Report Entitled 'Studded Tires, The Winter Winner,'" February 1976.

8. Dougan, C. E., "ConnDOT Use of the Transportation Research Board's (TRB) Research Correlation Service," Report No. 343-1-76-8, July 1976.

9. Lane, K. R., "Laboratory Tests on a Mechanical Strain Gage Recorder," Report No. 343-1-76-12, October 1976.

10. Button, E. F., "Performance of a Tire-Sand Inertial Barrier System in Connecticut - Final Report," Report No. 343-F-77-6, May 1977.

11. Bowers, D. G., "Performance of an Open-Graded Bituminous Concrete Overlay," Report No. 343-4-78-11, October 1978.

12. Christman, R. and Sime, J. M., "Summary Report - The Performance and Effects of Studded Tires in Connecticut," Report No. 343-3-78-5, March 1978.

13. Button, E. F., "Implementation of Research - Annual Report," Report No. 343-13-79-11, June 1979.

14. Button, E. F., "Implementation of Research - Annual Report," Report No. 343-14-80-5, June 1980.

15. Dougan, C. E., et. al., "Photologging - A Maintenance Management Tool," Report No. 343-15-80-8, May 1980. Published in TRB Transportation Research Record (TRR) No. 781.

16. Carney, J. F., III, and Larsen, D. A., "Accident Experience with the Connecticut Crash Cushion," Report No. 343-16-80-19, December 1980.

17. Dougan, C. E., "Performance Observations on Open-Graded Bituminous Concrete Overlays in Connecticut," Report No. 343-17-81-7, May 1981.

HPR-343 - Implementation of Research Findings (continued)

18. Dougan, C. E., "Patching Materials for Portland Cement Concrete Pavements," Report No. 343-18-81-9, May 1981. Published by TRB, "National Seminar on PCC Pavement Recycling and Rehabilitation."

19. Dougan, C. E., "Bridge Inspection: Its Purpose and the Nationwide Needs," Report No. 343-19-84-7, August 1984, for presentation at the International Public Works Congress and Equipment Show. Philadelphia, Pa., September 15-20, 1984.

20. Division of Research Staff, "Report to the General Assembly on the Feasibility of Expanding the Use of Demolition Materials in Projects Undertaken by the Department of Transportation," Report No. 343-20-88-13, December 1988.

21. Larsen, D. A., "Feasibility of Utilizing Waste Glass in Pavements," Report No. 343-21-89-6, June 1989.

22. Dougan, C. E., "Nomination of the Connecticut Crash Cushion for the Administrator's Highway Safety Award," Report No. 343-22-87-7, October 1987.

23. Dougan, C. E., "Nomination of the Connecticut Impact-Attenuation System for the Administrator's Highway Safety Award," Report No. 343-23-87-8, October 1987.

24. Division of Research Staff, "Nomination of the Connecticut Impact-Attenuation System for the Federal Highway Administration's Biennial Award for Excellence in Highway Design," Report No. 343-24-90-7, May 1990.

25. There is no Report No. 343-25.

26. Division of Research Staff, "Past and Current Use of Recycling by the Connecticut Department of Transportation," Report No. 343-26-91-1, March 1991.

27. Lewis, T., "Analysis of Axially and Laterally Loaded Rock-Socketed Drilled Shafts with Steel Casings (Tom Lewis' Master Thesis, UConn)," Report No. 343-27-91-8, November 1991.

28. Division of Research Staff, "Recycling in Connecticut Department of Transportation Construction and Maintenance Projects - A Progress Report to the General Assembly," Report No. 343-28-92-1, February 1992.

29. Antin, Vikram, “A Comparison of Compressive Strengths of Cylindrical Concrete Specimens Size 4 x 8 Inch with Size 6 by 12 Inch,” Report No. 343-29-94-6, December 1993.

30. Sime, J. M., “Evaluation of Electric Vehicles as an Alternative for Work-trip and Limited Business Commutes – Final Report,” Report No. 343-30-99-1, January 1999.

31. Moffett, J.V., “The 2008 Transportation Design Challenge for Connecticut High School & Middle School Students,” TRB Paper No. 09-1099, Presented at the 2009 Transportation Research Board (TRB) Annual Meeting, Washington, D.C., January 2009.

HPR-344 - Mechanical Strain Gages on Bridges

1. Jackson, C. A. and Feldt, G. V., "Interim Engineering Report - Investigation of Mechanical Strain Recorder System for Monitoring Traffic-Induced Strains on Connecticut Highway Bridges," January 1974, Technology Inc., Dayton, Ohio.

2. Dickey, R. L. and Severyn, T. P., "Final Report - Mechanical Strain Recorder on a Connecticut Bridge," July 1974, Technology Inc., Dayton, Ohio.

HPR-356 - Friction Characteristics of Paving Materials in Connecticut

1. Ganung, G. A., "Friction Characteristics of Paving Materials in Connecticut - Report 1," April 1973.

2. Ganung, G. A., "Friction Characteristics of Paving Materials in Connecticut - Report 2," May 1974.

3. Ganung, G. A., "Friction Characteristics of Paving Materials in Connecticut - Final Report," May 1975.

HPR-357 - Evaluation of Motorist-Aid Call Box System

1. Korb, S. R., "Experimental Motorist-Aid Call Box Systems (Two-Way Radio Voice)," Report No. 357-F-76-10, October 1976.

HPR-360 - Development of a Laboratory Data System

1. Christman, R., "Development of a Laboratory Data System - Report 1," March 1973.

2. Christman, R., "Development of a Laboratory Data System - Report 2," November 1973.

3. Buckley, W., "Data Processing Equipment Justification for the Materials Testing Section," December 1975.

4. Lane, K. R. and Attardi, S., "Development of a Laboratory Data System - Report III," Report No. 360-3-76-4, May 1976.

5. Lane, K. R., "Materials Testing Data Processing System: MATDAPS - STATPAC - Final Report," Report No. 360-F-77-4, April 1977.

6. Lane, K. R., "Development of a Laboratory Data System - Executive Summary," Report No. 360-S-78-4, March 1978.

HPR-361 - Field Observations of a High-Performance Bridge Barrier System

1. Kasinskas, M. M., "An Energy-Absorbing Frangible-Tube Barrier System - Report I - Construction," August 1974. Presented at the January 1975 Annual Meeting of the Transportation Research Board. Published in TRB Transportation Research Record (TRR) No. 566.

2. Lane, K. R., "An Energy-Absorbing Frangible-Tube Bridge Barrier System - Final Report," Report No. 361-F-77-2, April 1977.

HPR-372 - Friction Survey of the Interstate and Primary Systems in Connecticut

1. Ganung, G. A., "Friction Survey of the Interstate and Primary Systems in Connecticut - Report 1," August 1975.

2. Ganung, G. A., "Friction Survey of the Interstate and Primary Systems in Connecticut - Report 2," October 1975.

HPR-373 - Experimental Noise Berm

1. Pulaski, J. B., "Experimental Earth Berm Noise Barrier Study, Route I-84, West Hartford - Final Report," Connecticut Department of Transportation, March 1976.

HPR-376 - Implementation of Statistical Specifications for Bituminous Concrete

1. Sternberg, F. E., "Statistical Specifications for Two-Course Bituminous Concrete," December 1972.

2. Sternberg, F. E., "Implementation of Statistical Specifications for Control of Bituminous Concrete - Report I, February 1974.

3. Lane, K. R., "Implementation of Statistical Specifications for Control of Bituminous Concrete - Report II," February 1975.

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5. Lane, K. R., "Implementation of Statistical Specifications for Control of Bituminous Concrete - Report IV," Report No. 376-4-76-11, September 1976.

6. Bowers, D. G. and Lane, K. R., "Implementation of Statistical Specifications for Control of Bituminous Concrete - Report V, Final Report," Report No. 376-F-76-13, November 1976.

HPR-379 - Acoustic Crack Detector (ACD) - Magnetic Crack Definer (MCD) Evaluation

1. "ACD-MCD Report," Connecticut Department of Transportation, September 1974. Presented at FHWA-State Seminar and Conference on ACD-MCD Equipment in San Antonio, Texas, September 15-22, 1974.

2. Nyser, D. T., "Field Inspection and Evaluation of the Acoustic Crack Detector and Magnetic Crack Definer," Connecticut Department of Transportation, October 1975.

HPR-395 - Performance of a CRC Overlay in Connecticut

1. Bowers, D. G., "Performance of a Continuously Reinforced Concrete Overlay in Connecticut, Report 1, Construction," Report No. 395-1-76-7, June 1976.

2. Bowers, D. G., "Longitudinal Cracking in CRC Overlay in Connecticut," Report No. 395-2-76-14, November 1976.

3. Bowers, D. G., "Three-Year Performance of a CRC Overlay in Connecticut," Report No. 395-3-78-7, May 1978.

4. Bowers, D. G., "Five-Year Performance of a CRC Overlay," Report No. 395-F-80-2, March 1980.

HPR-396 - Evaluation of the Use of Salt Brine for Deicing Purposes

1. Kasinskas, M. M., "Evaluation of the Use of Salt Brine for Deicing Purposes - Report 1," April 1975.

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16mm FILM

HPR-332 - Loading History of Selected Bridges - I-95

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HPR-396 - Evaluation of the Use of Salt Brine for Deicing Purposes

1. "Liquid Roadway Deicing," June 23, 1978.

HPR-402 - Crash Testing of an Energy-Absorbing Truck Bumper System

1. "Portable Barrier - Truck Mounted, Crash Test #1," 1971 Maverick, 2260 lbs., Calspan, October 13, 1976.
2. "Portable Barrier - Truck Mounted, Crash Test #2," 1970 Pontiac, 4500 lbs., Calspan, October 13, 1976.
3. "Portable Barrier - Truck Mounted, Crash Test #3," 1973 Plymouth, 4480 lbs. Calspan, November 1, 1976.
4. "Portable Barrier - Truck Mounted, Crash Test #4," 1973 Plymouth, 4470 lbs., Calspan, November 1, 1976.
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7. "Crash Cushion - Truck Mounted, Crash Test #3777-2," Plymouth Fury, 4470 lbs., Texas Trans. Institute, July 27, 1978.

HPR-876 - Connecticut Impact-Attenuation System (CIAS)

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2. "Connecticut Impact-Attenuation System (CIAS), Crash Test No. RF4765-2," 1800-lb. veh., Texas Transportation Institute, October 25, 1982.
3. "Connecticut Impact-Attenuation System (CIAS), Crash Test No. RF4765-3," 4500-lb. veh., Texas Transportation Institute, December 15, 1982.
4. "Connecticut Impact-Attenuation System (CIAS), Crash Test No. RF4765-4," (Rerun of 3, modified), 4500-lb. veh., Texas Transportation Institute, March 2, 1983.

16mm FILM (continued)

HPR-876 - Connecticut Impact-Attenuation System (CIAS) (continued)

5. "Connecticut Impact-Attenuation System (CIAS), Crash Test No. RF4765-5," 4500-lb. veh., Texas Transportation Institute, August 9, 1983.

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HPR-1221 - Crash Testing of a Narrow-Site Crash Cushion

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3. "Connecticut Narrow Site Impact Attenuator (NCIAS); Crash Test No. 1794-3-87," Type 52, (Contract #2 Original), Ensco, Inc., May 19, 1987.

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16mm FILM (continued)

HPR-1221 - Crash Testing of a Narrow-Site Crash Cushion (continued)

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HPR-1340 - Generalized Design for the Connecticut Impact-Attenuation System - Phase II, Crash Tests, and Phase III, Field Evaluation

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3. "Generalized Connecticut Impact-Attenuation System (GCIAS), Design 2, Crash Test No. 2088-2-91," Ensco, Inc., February 8, 1991.

4. "Generalized Connecticut Impact-Attenuation System (GCIAS), Design 2, Modified, Crash Test No. 2088-3-91," Ensco, Inc., August 29, 1991.

5. "Generalized Connecticut Impact-Attenuation System (GCIAS), Design 3, Crash Test No. 2088-4-91," Ensco, Inc. November 19, 1991.

6. "Generalized Connecticut Impact-Attenuation System (GCIAS), Design 2, Crash Test No. 2088-5-91," Ensco, Inc., November 20, 1991.

7. "Generalized Connecticut Impact-Attenuation System (GCIAS), Design 2, Crash Test No. 2088-6-92," Ensco, Inc., December 8, 1992.

SPR-2216 - “350” Crash Testing of Connecticut Impact-Attenuation Systems

1. “Connecticut Truck-Mounted Attenuator (CTMA) Test No. 405214-1 (NCHRP Report 350. Test No. 2-51),” 16mm Work Print Film, Connecticut DOT, November 2, 1994.

2. “Connecticut Truck-Mounted Attenuator (CTMA) Test No. 405214-2 (NCHRP Report 350. Test No. 2-52),” 16mm Work Print Film, Connecticut DOT, November 3, 1994.

3. “Connecticut Truck-Mounted Attenuator (CTMA) Test No. 405214-3 (NCHRP Report 350. Test No. 2-53),” 16mm Work Print Film, Connecticut DOT, January 3, 1995.

175-225 - Development of the Air Jet Snow Plow

1. "Airplow Testing," 1971.

Miscellaneous

1. "Timber Barrier Tests," 1975.

2. "Highway As Environment, Research Project," 1975.

VIDEOTAPE

HPR-396 - Evaluation of the Use of Salt Brine for Deicing Purposes

1. "Liquid Roadway Deicing," June 23, 1978.

HPR-402 - Crash Testing of an Energy-Absorbing Truck Bumper System

1. "Development of the Connecticut Crash Cushion, Truck Mounted Attenuator (TMA)," 1978.

(Individual test films listed in 16mm FILM section of PART X.)

HPR-876 - Connecticut Impact-Attenuation System (CIAS)

1. "Connecticut Impact-Attenuation System (CIAS)," January 28, 1985.

(Individual test films listed in 16mm FILM section of PART X.)

HPR-1084 - Installation and Evaluation of Protective Coatings for Structural Steel in Connecticut

1. "Metallizing: Theory and Application," December 1, 1989.

HPR-1221 - Crash Testing of a Narrow-Site Crash Cushion

1. "NCIAS" (Narrow Connecticut Impact-Attenuation System)," May 1, 1991.

(Individual test films listed in 16mm FILM section of PART X.)

HPR-1340 - Generalized Design for the Connecticut Impact-Attenuation System - Phase II, Crash Tests, and Phase III, Field Evaluation

1. "Generalized Connecticut Impact-Attenuation System (GCIAS), Crash Test No. G1-50-1," S.W. Research Inst., May 11, 1989.

2. "Generalized Connecticut Impact-Attenuation System (GCIAS), Design 2, Crash Test No. 2088-2-91," Ensco, Inc., February 8, 1991.

3. "Generalized Connecticut Impact-Attenuation System (GCIAS), Design 2, Modified, Crash Test No. 2088-3-91," Ensco, Inc., August 29, 1991.

4. "Generalized Connecticut Impact-Attenuation System (GCIAS), Design 2, Crash Test No. 2088-4-91," Ensco, Inc., November 19, 1991.

5. "Generalized Connecticut Impact-Attenuation System (GCIAS), Design 2, Crash Test No. 2088-5-91," Ensco, Inc., November 20, 1991.

6. "Generalized Connecticut Impact-Attenuation System (GCIAS), Design 2, Crash Test No. 2088-6-92," Ensco, Inc., December 8, 1992.

VIDEOTAPE (continued)

HPR-1346 - Monitoring of Cathodic Protection Systems

1. "Cathodically Protected Bridge, Southington, CT," November 1, 1989.

SPR-2216 - "350" Crash Testing of Connecticut Impact-Attenuation Systems

1. "NCHRP 350 Crash Tests 2-50, 51, 52 & 53, Connecticut Truck Mounted Attenuator - Tests 405241/1,2&3, Abbreviated VHS Video Version," Connecticut DOT, December 1, 1994.

2. "NCHRP 350 Crash Tests 2-50, 51, 52 & 53, Connecticut Truck Mounted Attenuator - Tests 405241/1,2&3, Full VHS Video Version," Connecticut DOT, December 1, 1994.

3. "Connecticut Truck-Mounted Attenuator (CTMA) Tests Nos. 405214-1, 2 & 3 (NCHRP Report 350 Tests Nos. 2-51, 2-52 & 2-53)," Abbreviated VHS Video Version, Connecticut DOT, January 1995.

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5. "Merritt Parkway Timber Rail (MPG) Test No. 405501-1 (NCHRP Report 350 Test No. 3-11)," VHS Video, Connecticut DOT, December 14, 1995.

6. "Merritt Parkway Timber Rail (MPG) Test No. 405501-2 (NCHRP Report 350 Test No. 3-10)," VHS Video, Connecticut DOT, February 7, 1996.

7. "Merritt Parkway Timber Rail (MPG) Test No. 405501-3 (NCHRP Report 350 Test No. 3-11 w/curb)," VHS Video, Connecticut DOT, February 8, 1996.

8. "Merritt Parkway Timber Rail (MPG) Test No. 405501-4 (NCHRP Report 350 Test No. 3-21)," VHS Video, Connecticut DOT, February 28, 1996.

9. "NCHRP 350 Crash Test No. 405501-1, Merritt Parkway Timber Rail," Connecticut DOT, April 1, 1996.

10. "NCHRP 350 Crash Test No. 405501-2, Merritt Parkway Timber Rail," Connecticut DOT, April 1, 1996.

11. "NCHRP 350 Crash Test No. 405501-3, Merritt Parkway Timber Rail," Connecticut DOT, April 1, 1996.

12. "NCHRP 350 Crash Test No. 405501-4, Merritt Parkway Timber Rail," Connecticut DOT, April 1, 1996.

13. "Connecticut Impact Attenuation System (CIAS) Tests Nos. 405651-1&2 (NCHRP Report 350 Tests Nos. 3-32 & 3-38)," VHS Video, Connecticut DOT, May 1996.

14. "NCHRP 350 Crash Test No. 405651, Parts 1 & 2, Connecticut Impact Attenuation System," Connecticut DOT, August 1, 1996.

VIDEOTAPE (continued)

SPR-2216 - "350" Crash Testing of Connecticut Impact-Attenuation Systems (continued)

15. "Connecticut Impact Attenuation System (CIAS) Test No. 405651-3 (NCHRP Report 350 Test No. 3-35)," VHS Video, Connecticut DOT, October 14, 1997.

16. "Connecticut Impact Attenuation System (CIAS) Test No. 405651-4 (NCHRP Report 350 Test No. 3-33)," VHS Video, Connecticut DOT, October 27, 1997.

17. "Narrow Connecticut Impact Attenuation System (NCIAS) Test No. 404231-1 (NCHRP Report 350 Test No. 3-33)," VHS Video, Connecticut DOT, October 28, 1997.

18. "Narrow Connecticut Impact Attenuation System (NCIAS) Test No. 404231-2 (NCHRP Report 350 Test No. 3-32)," VHS Video, Connecticut DOT, December 15, 1997.

19. "Narrow Connecticut Impact Attenuation System (NCIAS) Test No. 404231-3 (NCHRP Report 350 Test No. 3-37)," VHS Video, Connecticut DOT, December 16, 1997.

20. "Narrow Connecticut Impact Attenuation System (NCIAS) Test No. 404231-4 (NCHRP Report 350 Test No. 3-38)," VHS Video, Connecticut DOT, March 2, 1998.

21. "Narrow Connecticut Impact Attenuation System (NCIAS) Test No. 404231-5 (Repeat of NCHRP Report 350 Test No. 3-38)," VHS Video, Connecticut DOT, June 8, 1998.

22. "Narrow Connecticut Impact Attenuation System (NCIAS) Test No. 404231-6 (NCHRP Report 350 Test No. 3-39)," VHS Video, Connecticut DOT, June 9, 1998.

23. "Connecticut Impact Attenuation System (CIAS) Test No. 404231-7 (NCHRP Report 350 Test No. 3-34)," VHS Video, Connecticut DOT, April 19, 1999.

SPR-2219 – Demonstration and Evaluation of SUPERPAVE™ Technologies

1. "Roads that Last Superpave," FOX 61 and ConnDOT, July 1997.

Miscellaneous

1. "Corrosion on the Bridge Over Rt. 17, Middletown," September 29, 1989.

2. "Hydrodemolisher - Waterbury," Field Tape, October 12, 1989.

3. "Q-Bridge: Overlay Removal, Sounding and Patching," Field Tape, October 30, 1990.

4. "Chipping Paint - Overhead Sign Support," Field Tape, M. M. Kasinskas, September 4, 1991.

5. "New Inspection Instrumentation for Steel Structures," 1970.

VIDEOTAPE (continued)

Miscellaneous (continued)

6. "NCIAS & CIAS Crashes - Actual Impacts with Unmanned Camera," December 1991.

7. "1. Connecticut Impact Attenuation System (CIAS) and 2. Narrow Connecticut Impact Attenuation System (NCIAS)" combined copies of two videotapes, 1992.

8. "They Move Connecticut - The Department of Transportation," October 1991.

9. “Open House December 4, 1993, 2800 Berlin Turnpike, Newington, CT,” December 1993.

10. “Business Today Show Preservation Pointers EAS Inc. Triton Barrier,”

11. “Demonstration of Telespar’s Unistrut Breakaway Sign Support. Installation and Vehicle Impact. Brook St.,” ConnDOT, October 17, 1994.

12. “National Traffic Data Acquisition Conference 1994 (NATDAC ‘94), Rocky Hill, CT, September 18-22, 1994, Volumes 1-16,” ConnDOT, September 22, 1995.

13. “National Traffic Data Acquisition Conference 1994 (NATDAC ‘94), Rocky Hill, CT, September 18-22, 1994, 28 Tapes (original unedited editions),” ConnDOT, September 22, 1995.

14. “ConnDOT Managers’ Meeting, Unedited - Volume 1” November 17, 1993.

15. “ConnDOT Managers’ Meeting, Unedited - Volume 1” November 17, 1995.

16. “Construction of the Arrigoni Bridge,” ConnDOT, February 1998.

PART L

Listing of Films, Videotapes, and Streaming Media Obtained from Other Sources

VIDEOTAPE

Federal Agencies, NCHRP & SHRP

1. "Open Roads: A Look at FHWA – Freeway Incident Management," FHWA-SA-91-011, March 1, 1991.

2. "Ramp Metering: Signal for Success," FHWA.

3. "Go for the Green," FHWA.

4. "Truck Impact on Pavements," FHWA, April 15, 1988.

5. "Caution, Litigation Ahead: The Road to Effective Risk Management," FHWA, April 15, 1988.

6. "Better Inductive Loop Detectors," FHWA & NY DOT, January 27, 1986.

7. "AAMAS," NCHRP 9-6, SHRP, June 21, 1991.

8. "SHRP – Long Term Pavement Performance Study Overview," SHRP.

9. "Technical Advancements for Maintenance Workers – for Maintenance Managers and Work Crews," SHRP, October 10, 1990.

10. "Technical Advancements for Maintenance Workers – for Chief Administrative Officers," SHRP, October 10, 1990.

11. "Paving the Way for Tomorrow's Highways," SHRP, January 15, 1989.

12. "Washington State Traffic Data Collection – Nichols Consulting," SHRP, June 1, 1991.

13. "Pavement Management Systems," U.S. Army CRREL, July 2, 1991.

14. "Unsurfaced Road Management," U.S. Army CRREL, July 2, 1991.

15. "Scrap Rubber in Pavement," U.S. Army CRREL, July 2, 1991.

16. "Inspecting Unsurfaced Roads," U.S. Army CRREL, July 2, 1991.

17. "Introduction to FERF (Frost Effects Research Facility)," U.S. Army CRREL, July 2, 1991.

18. "FERF (Frost Effects Research Facility)/Technical," U.S. Army CRREL, July 2, 1991.

19. "Crack Sealing Flexible Asphalt Pavement," U.S. Army CRREL, July 2, 1991.

20. "Safety Restoration During Snow Removal," FHWA, October 1989.

21. "FWD Calibration Centers: Why Do We Need Them? Contract P-007A," SHRP, September 1989.

VIDEOTAPE (continued)

Federal Agencies, NCHRP & SHRP (continued)

22. "SUPERPAVE: Asphalt Pavements That Perform," SHRP, February 1992.

23. "Concrete Bridge Protection Repair and Rehabilitation, Contract C-103," SHRP, March 1992.

24. "New Work Zone Safety Devices, Contract H-109 & H-110," SHRP, March 1992.

25. "Effective Snow Fences; Contract H-110: Part 1 – Benefits (For Chief Admin. Officers); and Part 2 – Key Elements (For Technical and Operational Staff)," SHRP, January 1991.

26. "NOW Exhibit – 191 AASHTO Technology Transfer Fair (Topics: Worker Safety, Snow and Ice Control, Highway Maintenance, Concrete, Asphalt, LTPP)," SHRP, January 1991.

27. "Pontis, A New Generation Bridge Management System," U.S. DOT.

28. "Maintenance Data Collection," NCHRP.

29. "Northeast States Asphalt User/Producer Group Workshop on Asphalt Binder Equipment and Specifications." (6 cassetts), FHWA, October 29, 1992.

30. "MPO PM Practices – Local Road Management System," FHWA, October 19, 1993.

31. "ISTEA PM Elements – PM Concepts and Theory," FHWA, October 19, 1993.

32. "Opening Remarks: National Perspectives Regional Perspectives," FHWA, October 19, 1993.

33. "Metrication for Pavement Management: Institutional Barriers," FHWA, October 19, 1993.

34. "1993 AASHTO Pavement Design Guide & Computer Program – Crumb Rubber Asphalt," FHWA, October 19, 1993.

35. "Traffic Barriers and Control Treatments for Restricted Work Zones, NCHRP 17-8," NCHRP.

36. "Snow and Ice Control," H-200 Series Contracts, No. 20, SHRP.

37. "New Research Into Cost-Effective Pavement Repairs," Contract H-106, No. 4, SHRP.

38. "Evaluation Procedures for Deicing Chemicals," Contract H-205, SHRP.

39. "Distress Identification Manual," Contract, SHRP.

40. "Pavement Management and Worker Safety," H-100 Series Contracts, No. 19, SHRP, March 11, 1993.

41. "Plows of the Future," Contract H-206, No. 21, SHRP.

VIDEOTAPE (continued)

Federal Agencies, NCHRP & SHRP (continued)

42. "Introduction to Rehabilitation of Highway Concrete #22," SHRP, June 1, 1994.

43. "Quality Control of Concrete Site, Part 1," SHRP, June 1, 1994.

44. "Quality Control of Concrete Site, Part 2," SHRP, June 1, 1994.

45. "Quality Control of Concrete Site, Part 3," SHRP, June 1, 1994.

46. "Quality Control of Concrete Site, Part 4," SHRP, June 1, 1994.

47. "Concrete Pavement Overlays #27," SHRP, June 1, 1994.

48. "Bridge Deck Overlays," SHRP, June 1, 1994.

49. "Alkali-Silica Testing #29," SHRP, June 1, 1994.

50. "Freeze-Thaw Testing," SHRP, June 1, 1994.

51. "Full-Depth Repair of Jointed Concrete Pavement," SHRP, June 1, 1994.

52. "Early Opening of Full-Depth Concrete Repairs," SHRP, June 1, 1994.

53. "Partial-Depth Repair of Concrete Pavement #33," SHRP, June 1, 1994.

54. "GIS-T Pooled Fund Study, Phase A Overview," FHWA Pooled Fund, July 1994.

80. "Staying Ahead of the Storm," Road Weather Information Systems, Contract H-107, January 1, 1995.

56. "Access Management Overview," FHWA Office of Technology, May 1997.

57. "Visualization in Transportation," Transportation Research Board, November 1998.

58. "Visualization in Transportation – NCHRP Synthesis 229," Transportation Research Board, November 1998.

Other State & Connecticut Agencies

1. "The Forgiving Highway," CAL TRANS.

2. "Leaf Composting – Windrows of Opportunity," Connecticut Department of Environmental Protection, July 1, 1990.

3. "Videolog Van," Idaho Transp. Dept.

4. "Pasco Road Survey, Demo Proj. 72," Iowa DOT.

5. "1 for 3 Pasco Road Survey System (PRS) Development," Iowa DOT.

6. "ARAN, Maine," ME DOT, June 21, 1991.

7. "GPS/GIS Multi-State Project," OH DOT, September 1, 1990.

VIDEOTAPE (continued)

Other State & Connecticut Agencies (continued)

8. “Idea Store, Ed. 1,” PA DOT, January 15, 1989.

9. “Idea Store, Ed. 2,” PA DOT, May 15, 1989.

10. “Idea Store, Ed. 3,” PA DOT, November 24, 1989.

11. “Idea Store, Ed. 4,” PA DOT, June 6, 1990.

12. “Idea Store, Ed. 5,” PA DOT, March 26, 1991.

13. “Idea Store, Ed. 6,” PA DOT, September 6, 1991.

14. “Idea Store, Ed. 7,” PA DOT, August 1, 1992.

15. “The So. Dakota Road Profiler,” S. Dakota DOT.

16. “Getting There From Here,” Vermont Agency of Trans., January 1, 1987.

17. “Video Logging,” Washington State DOT.

18. “California’s Heavy Duty Vehicle Inspection Program,” CALTRANS, March 5, 1993.

19. “Headlight Glare Screen Material Performance Impact Test, February 17 and March 5, 1993,” Nevada DOT, February 17, 1993.

20. “Research Review Day,” Oklahoma DOT, April 1998.

21. “Emergency Response to Electric Vehicles,” California Department of Forestry and Fire Protection, February 1999.

22. “Bicycle-Friendly Rumble Strips,” Colorado Department of Transportation, September 2001

Industry Materials

1. “MAGLEV – Hudson Valley.”

2. “Sil-Act,” Advanced Chem. Technol.

3. “Pavement Marking Inspection: Thermoplastic,” Am. Traf. Safety Serv. Assn.

4. “Sound Off,” Sound Barriers, Cor Tec.

5. “Applause II – Demonstration Video for Software,” Ashton Tate, April 1, 1991.

6. “Zinc Metallizing,” Zinc Institute.

7. “Application of LMC (Latex Modified Concrete), Training Video,” BASF, June 21, 1991.

8. “BASF Styrofan 1186, Latex Modified Concrete – The Crossing of Lake Washington,” BASF, June 21, 1991.

9. “C-LOC, Michigan Fisheries Installation,” C-Loc.

VIDEOTAPE (continued)

Industry Materials (continued)

10. “Coating Demonstration of IC Coating 531 Water Based Inorganic Zinc Silicate Coating System,” CSI Blaster/Painters, April 16, 1986.

11. “Dura-phalt Applications,” Dura-Phalt, Inc., May 3, 1990.

12. “Elgard Anode Ribbon Installation Over Exposed Rebar,” Elgard, February 17, 1988.

13. “G-R-E-A-T, Greater, Greatest,” Energy Absorp. Syst., Inc.

14. “ARAN: Keeping an Eye on the Road,” Highway Products Int’l, March 18, 1991.

15. “The C50L Huckbolt Fastening System,” Huck Mfg. Co., September 1, 1990.

16. “IBC MK-VII Barrier Maintenance,” Int’l Barrier Corp.

17. “IBC vs. Concrete Barrier Cost Comparison,” Int’l Barrier Corp., May 3, 1989.

18. “IBC – A New Highway Barrier NTSC 525,” Int’l Barrier Corp., May 15, 1988.

19. “IBC – Introduction, Technical Briefing and Assembly,” Int’l Barrier Corp.

20. “IBC – MK-7 Barrier Truck,” Int’l Barrier Corp., July 15, 1989.

21. “IBC – Mark IX Barrier Median,” Int’l Barrier Corp.

22. “Perma-Zyme,” Int’l Enzymes, Inc., February 1, 1991.

23. “Ipanex Concrete – Pennsylvania Turnpike, Case History,” IPA Systems, Inc., June 13, 1990.

24. “Jack Carney – News Story – CIAS Crash Test – NBC TV Nashville,” Jack Carney, January 28, 1991.

25. “Rubbish Plant-Mixed Pavement,” This Old House, February 1, 1990.

26. “An Introduction to Polymer Modified Microsurfacing,” Koch Materials Co.

27. “ODT Ralumac,” Koch Materials Co.

28. “Pavetech,” Pavetech.

29. “VERGLIMIT – Demo of Installation on Tappan Zee Bridge,” PK Innovations.

30. “I-90 Reconstruction in South Dakota & Minnesota, 1986” Portland Cement Assn., November 15, 1986.

31. “Rehabilitation of Interstate I-20/I-59 Meridian, Mississippi,” Portland Cement Assn., November 15, 1986.

32. “Dragnet Vehicle Arresting System,” Rdway. Safety Serv., Inc.

VIDEOTAPE (continued)

Industry Materials (continued)

33. “It’s Nature’s Way – The Composting Solution,” Solid Waste Composting Co., April 1, 1991.

34. “CAT – Crash Cushion Attenuating Terminal, ET-2000,” Syro Steel Co.

35. “The Tire Pond,” The Tire Pond, Inc., November 15, 1990.

36. “Thorotop HCR,” Thoro System Products.

37. “Projection 16X7 TUBIG – WALL,” Tubig.

38. “QPR 2000 – Quality Pavement Repair,” U.S. Protec, Inc.

39. “Vari Spec Batteryless Flasher,” Vari Spec.

40. “Bituthene System 4000,” W. R. Grace, February 17, 1989.

41. “Bituthene Contractor Training Video,” W. R. Grace, February 17, 1989.

42. “LoCorr Deicer – Good News Travels Fast,” Akzo.

43. “Telecommunications and Office Automation Specialists for the 90’s,” Shared Technologies, Inc.

44. “Syro Steel Co., 1. C-A-T, 2. ET-2000, 3. ADIEM, 4. CIAS, 5. NCIAS,” Syro Steel Company.

45. “Making Rheology Accessible to the Asphalt Paving Industry,” Bohlin Instruments.

46. “Macrovision – Protecting Your Image,” Macrovision.

47. “Cine Magnetics Video – A World of Difference,” Cine Magnetics.

48. “The C50L Huckbolt Fastening System,” Huck.

49. “American Inland Divers, Inc. Sonar Scour Vision Demo,” American Inland Divers, Inc.

50. “PageTap, The Door to Tomorrow,” PageTap, Inc.

51. “The Diamond Advantage in Highway Grinding,” International Grooving and Grinding, October 7, 1993.

52. “GlasGrid Reinforcing Mesh,” Bay Mills, March 19, 1992.

53. “Josto (CONN) LTD Water Hydromilling Tape,” Josto (CONN) LTD.

54. “Poxy Coat II,” Int’l Coating and Chemical Co., August 5, 1994.

55. “Highway Cold In-Place Recycling,” C&R Associates, August 11, 1994.

56. “PH-100 Pothole Repair Compound,” Plastic Flamecoat Syst., April 1, 1995.

VIDEOTAPE (continued)

Industry Materials (continued)

57. “Dia-Thane 2000 & RX101 for Lead Abatement Encapsulation,” Pyrochek International,” January 1, 1995.

58. “Enduraseal 300 Asphalt Rejuvenator,” Cascadia International.

59. “ProScan – Computerized Scanning and Reduction of Manual Profilograph Traces,” Devore Systems, Inc., September 1, 1990.

60. “A Day in the Life of Video F/X,” Digital F/X.

61. “Plastic Flamecoat Systems,” Plastic Flamecoat Systems.

62. “LOTUS – Make the Smart Move to Lotus Ami Pro,” LOTUS.

63. “Matrix-UPS Series,” American Power Conversions.

64. “Sopralene Antirock Soprema Roofing,” Soprema Roofing Waterproofing.

64. “Pile Cap Underwater Pile Encapsulation System,” Pile Cap.

65. “Turner Company Plastic Manhole Rings,” Turner Company.

66. “Alacrity E-Quip Work Group Imaging,” Alacrity Systems Incorporated.

67. “Sedimat,” Indian Valley Industries, February 27, 1996.

68. “Nevada DOT Headlight Glare Screen Impact Test,” Nevada DOT, February 27, 1993.

69. “Safe Hit ITL Reports,” Safe Hit.

70. “Futerra Clearly the Leader,” Conwed Fibers, May 9, 1996.

71. “Watchdog Perimeter Workzone Intrusion Alarm System,” Kenco International Inc., June 17, 1996.

80. “Raupave,” Waymark Group, June 19, 1996.

73. “Poz-Loc Slipbase System,” Southwestern Pipe, Inc., 1996.

74. “Guardian Safety Barrier, NCHRP 350 Test Level 3,” Safety Barrier Systems, 1997.

75. “Stormceptor,” Stormceptor Corporation, 1997.

76. “Asphalt Rubber Chip Seal,” All States Asphalt, 1997.

77. “The Gripper,” Trident Technologies, June 1997.

78. “Guardian Safety Barrier,” Safety Barrier Systems, June 1997.

79. “Pagetap – The Door to Tomorrow,” Pagetap Inc., June 1997.

80. “The Minnesota Local Road Research Board,” Minnesota LRRB, March 1998.

VIDEOTAPE (continued)

Industry Materials (continued)

81. “Sonic Dry Clean,” U.S. Filter, April 1998.

82. “NETC 4 Bar Sidewalk Mounted Bridge Railing NCHRP 350 TL 4,” Southwest Research Institute, April 1999.

83. “Driving the Chevy S-10 Electric Pickup Truck,” General Motors, June 1999.

PART M

Listing of Streaming Media Hosted on ConnDOT Research Streaming Server

Streaming Video Library (http://www.ct.gov/dot/video)

Public Service Excellence

Title	Description	Publication Date	Captions [1]
State-of-the-Art Photolog Van	ConnDOT's Newest Data/Image System - June 2010.	2010	Yes
ConnDoT Workers Honored by the Motor Transport Association of Connecticut	Recognition of ConnDOT staff for their quick response in reopening I-95 after a fiery accident.	2004	Yes
2008 Transportation Design Challenge	This contest, held in October 2008, at the Connecticut Convention Center, introduced high school students to transportation practices.	2008	No
Connecticut Highway Motorist Patrol	Presented by Mr. James Mona, ConnDOT Incident Management.	2004	Yes
Champion of Industry	The ConnDOT Bureau of Public Transportation is recognized for excellence in business practices.	2004	Yes

Public Meetings

Title	Description	Publication Date	Captions [1]
Salem Four-Corners Proposed Roundabout Meeting, held at the Salem Town Hall	Originally recorded on June 17, 2009.	2009	No
Salem Four-Corners Proposed Roundabout Simulation	Narrated by Will Britnell in June 2009.	2009	No
Draft Long-Range Transportation Plan	Presented by Ms. Roxane M. Fromson, ConnDOT, on April 2, 2009.	2009	No

Highway Safety

Title	Description	Publication Date	Captions [1]
Don't be a Conehead	27th Annual Telly Award winner.	2006	No
No Zone	27th Annual Telly Award winner.	2006	No
At The Office	Work Zone Safety Public Service Advertisement.	2004	Yes
In the Elevator	Work Zone Safety Public Service Advertisement.	2004	Yes
Splat	Motorcycle Safety Public Service Advertisement.	2004	Yes
Work Zone Safety 1	Work Zone Safety Public Service Advertisement.	2004	Yes
Work Zone Safety 2	Public Service Announcement.	2004	Yes

[1] Captions: Is a synchronized text of the transcript provided for the video presentation? Yes or No.
(Missing - The synchronized text is not functioning.)

PART M

Listing of Streaming Media Hosted on ConnDOT Research Streaming Server

Streaming Video Library (http://www.ct.gov/dot/video)

Construction Projects

Title	Description	Publication Date	Captions [1]
Q-Bridge Voluntary Pre-Bid Conference	Contract E Project No. 92-531/622/627, May 26, 2010.	2010	No
New Haven Rail Yard Component Change Out Shop	Pre-Bid Conference for State Project No. 301-0106. Presented on June 23, 2009.	2009	No
DRAGNET Vehicle Arrestor System	About a vehicle attenuation system.	2008	Yes
Traffic Simulator	Proposed Improvements on CT State Routes 6 and 44 in Manchester, CT, at East Catholic and Cheney Technical High Schools.	2008	Missing
"The Big Pick"	The 1,000-ton lift of the Church St. bridge truss span in New Haven, CT, was made in the early morning hours of May 4, 2003. The 3-hour move is compressed here into less than 3 minutes.	2003	No

Bridge Topics

Title	Description	Publication Date	Captions [1]
Structural Health Monitoring using Fiber Optic Technologies on the I-35 W Bridge over the Mississippi River	Dr. Daniele Inaudi, Roctest Group, November 4, 2009.	2009	No
History of Bridge Monitoring in Connecticut	Presented by Dr. John DeWolf, University of Connecticut, on July 29.	2009	No
Data Qualification for the Connecticut Bridge Monitoring Network	Presented by Mr. Harinee Trivedi, University of Connecticut, on May 15, 2009.	2009	No
Structural Monitoring of the Sikorsky Bridge	Presented by Ms. Varsha Singh, University of Connecticut, on September 20, 2007.	2007	No
Field Strain Monitoring to Evaluate Unexpected Cracking of a Non-redundant Steel Plate Girder Bridge	Presented by Mr. Gino Troiano, University of Connecticut, in March 2007.	2007	No

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PART M

Listing of Streaming Media Hosted on ConnDOT Research Streaming Server

Streaming Video Library (http://www.ct.gov/dot/video)

Pavement Topics

Title	Description	Publication Date	Captions [1]
NEAUPG 2010 Steering Committee Meeting and Webcast	A Webcast Conducted in Rocky Hill, CT, on 3/23/2010.	2010	No
NEAUPG - Understanding and Implementing the Multi Stress Creep Recovery Test Workshop and Webcast	A Webcast Conducted in Rocky Hill, CT, on 9/22/2009.	2009	No
Workshop on Best Practices for Concrete Pavements	Presented on April 29-30, 2009.	2009	No
NEAUPG 2009 Steering Commitee Meeting	Presented on March 31, 2009.	2009	No
Overview of the Pavetrack Program	Presented by Mr. Michael Cruz.	2008	No
Intelligent Compaction	Presented by Mr. Chuck Dheal to the HMA Task Force on December 16, 2006.	2006	Yes
FHWA - Use of PMS Data Workshop	September 20, 2006, in Rocky Hill, CT.	2006	Yes
FHWA - Climatic Inputs Workshop	September 19, 2006, in Rocky Hill, CT.	2006	Yes
FHWA - Traffic Data Workshop	September 18, 2006, in Rocky Hill, CT .	2006	Yes
Historical Perspective on Use of Rubber and Recycled Rubber in Asphalt Pavements	Presented by Mr. Donald A. Larsen, ConnDOT.	2005	Yes
Materials Inputs for Mechanistic Empirical Pavement Design Workshop	March 30-31, 2005.	2005	Missing
NEAUPG Steering Committee Meeting and Webcast	North East Asphalt User/Producer Group (NEAUPG) Meeting held at the Rocky Hill Lab on March 29, 2005.	2005	No
Pro Val 2.5 Workshop	Pavement Profile Software, Webcast on March 3, 2005.	2005	No
Mr. John D'Angelo, FHWA	"Why We Need a New Pavement Design System" - 2005.	2005	Yes
Super Pave 2005	Presented by Mr. Nelio Rodrigues, ConnDOT - 2005.	2005	Yes
FHWA's Introduction to the NCHRP 1-37A Pavement Design Workshop	August 2th, 2004.	2004	Yes
Modified Asphalt Course/Webcast	Hosted by the Northeast Asphalt User/Producer Group - July 15, 2004.	2004	No

[1] Captions: Is a synchronized text of the transcript provided for the video presentation? Yes or No.
(Missing - The synchronized text is not functioning.)

PART M Listing of Streaming Media Hosted on ConnDOT Research Streaming Server Streaming Video Library (http://www.ct.gov/dot/video)			
Coordination of Pavement Activities in the Northeast	Presented by Dr. Charles E. Dougan for the Northeast Asphalt User/Producer group meeting March 24, 2004.	2004	Missing

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Listing of Streaming Media Hosted on ConnDOT Research Streaming Server

Streaming Video Library (http://www.ct.gov/dot/video)

Pavement Topics (continued)

Title	Description	Publication Date	Captions [1]
Experimental Use of Ultra-Thin Lift Maintenance Treatment	Technical brief on pavement maintenance treatment, presented by Mr. Keith R. Lane.	2003	Missing

Staff Development and E-Learning

Title	Description	Publication Date	Captions [1]
The History and Advancement of Streaming Media Technologies at ConnDOT	Hosted by ConnDOT State Highway Design Section - Presented by Mr. Drew M. Coleman, ConnDOT Division of Research - Newington, CT- May 12, 2010.	2010	No
DigitalHIWAY for Power Users	Hosted by ConnDOT State Highway Design Section - Presented by Mr. Bradley J. Overturf, ConnDOT Division of Research - Newington, CT- May 12, 2010.	2010	No
DigitalHIWAY Training	Presented by Mr. David Burns - About new video tutorials and quicktips - May 2010.	2010	No
The CT State Libraries Internet Search Tool	About IConn.org - 2008.	2008	No
Winter Construction Inspection Training Series	Held in Rocky Hill, CT - Winter 2007.	2007	No
Ethics Training For State Employees	Office of State Ethics - 2008.	2008	Yes
Material Stock Request for CORE-CT	Presented by Mr. Thomas Vaughan in November 2008.	2008	No
DAS Procurement-101	Webcast on June 8, 2005.	2005	Yes
Site Manager Training	Introduction to Site Manager - Presented by Mr. Joseph Bouchey.	???	No
CT Training and Development Network Meeting	Held in Rocky Hill, CT - December 16, 2005.	2005	Yes

Distance Learning

Title	Description	Publication Date	Captions [1]
Digital Design Environment Presentation	Hosted by ConnDOT's Engineering Applications.	2006	Yes
CT-e PASS Automated Routing Training	Using the CT-ePASS Oversize/Overweight Vehicle Permitting System.	2005	Yes

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Streaming Video Library (http://www.ct.gov/dot/video)

National Conferences and Organizations

Title	Description	Publication Date	Captions [1]
TRB Annual Correlation Visit - 2007	Presented by Ms. Christine Gerencher, TRB, in May 2007.	2007	Yes
TRB Annual Correlation Visit - 2006	Presented by Ms. Kimberly Fisher, TRB, in 2006.	2006	Yes
2004 National Research Advisory Committee	Held in Mystic, CT, July 18-22, 2004.	2004	No

Transportation Research

Title	Description	Publication Date	Captions [1]
Pavement Surface Properties Consortium: a Collaborative Research Program	Conducted by Mr. Gerardo Flintsch - Virginia Tech. Live webcast from Rocky Hill, CT, first aired on September 24, 2009.	2009	No
A Study of the Weigh Station Technologies and Practices	Presented on September 21, 2008.	2008	No
About New Product Evaluation Procedures	Presented by Mr. Andrew J. Mroczkowski, ConnDOT Division of Research, in 2008.	2008	No
Field Evaluation of Concrete Containing DSS	Presented by Mr. Richard C. Hanley, ConnDOT Division of Research, in 2008.	2008	Yes
Automated Stop Sign Identification System	Presented by Mr. Richard C. Hanley, ConnDOT Division of Research, in 2008.	2008	No
About ConnDOT's Photolog Program	Presented by Mr. Bradley J. Overturf, ConnDOT Division of Research, in May 2008.	2008	No
About ConnDOT's Pavement Friction Testing and Safety Evaluation Program	Presented by Mr. John W. Henault, ConnDOT Division of Research, in 2008.	2008	No
Investigation of Low Strength Concrete Test Results	Presented by Mr. John W. Henault, ConnDOT Division of Research, in 2007.	2007	No
Transportation Pooled Fund Study No. TPF-5(100)	Deicer Scaling Resistance of Concrete Pavements, Bridge Decks and Other Structures Containing Slag Cement - Presented by Dr. Scott Schlorholtz.	2006	Yes

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Listing of Streaming Media Hosted on ConnDOT Research Streaming Server

Streaming Video Library (http://www.ct.gov/dot/video)

Transportation Research (continued)

Title	Description	Publication Date	Captions [1]
Executive Summary for SPR-2231	Feasibility of Streaming Media for Transportation Research and Implementation - Presented by Mr. Drew M. Coleman, ConnDOT Division of Research, in 2006.	2006	No
Thermal Imaging of Hot Mix Asphalt in CT	Presented by Mr. John W. Henault, ConnDOT Division of Research, in the fall of 2005.	2005	Yes
Alternate Merge Sign	Alternate Merge Sign at Signalized Intersections - Presented by Mr. Eric G. Feldblum, ConnDOT Division of Research, in February 2005.	2005	Yes
Synopsis of the NCIAS	A Discussion of the Narrow Connecticut Impact Attenuation System - Presented by Ms. Erika B. Lindeberg, ConnDOT Division of Research, in January 2004.	2004	Missing
Transportation Research Showcase	Held at UConn in Storrs, CT, on March 19, 2002,	2002	No
Research and Implementation Activities	A sample of ongoing & completed research projects: Streaming Media for Transportation Research & Implementation; Quality Assurance in Construction; Personal Digital Assistants for HMA Inspectors; Whitetopping Pavement in Connecticut; Bridge Monitoring; Alternative Merge Sign; Connecticut Crash Attenuators; Quartz Piezo Weigh-in-Motion; and, Pavement Quality Indicator.	2003	Yes

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PART M

Listing of Streaming Media Hosted on ConnDOT Research Streaming Server

Streaming Video Library (http://www.ct.gov/dot/video)

Connecticut Transportation Institue (CTI) - Technology Transfer Center

Title	Description	Publication Date	Captions [1]
About the Technology Expo-2009	Recorded on September 16, 2009, in Storrs, CT.	2010	No
Flagger Safety Training	Presented by Mr. Scott Zincke, December 2009,	2009	No
CTI Research Forum	Filmed on location, in Storrs, CT, on November 5, 2009.	2009	No
Retroreflectivity	Presented by Mr. Mark M. Hood on August 26, 2009,	2009	No
Analyzing and Solving Local Traffic Problems	Presented by Mr. Mark M. Hood on August 19, 2008.	2008	No
Roadway Safety Fundamentals	Presented by Mr. Mark M. Hood on July 08, 2008.	2008	Yes
Infrastructure Asset Management	Presented by Mr. Paul Brown on July 11, 2007.	2007	Yes
About the Technology Transfer Center	Presented by Ms. Donna M. Shea, Program Director, Technology Transfer Center, University of Connecticut.	2005	Yes

New England Transportation Consortium (NETC)

Title	Description	Publication Date	Captions [1]
Employing Graphic-Aided Dynamic Message Signs to Assist Elder Driver's Message Comprehension	Presented by Dr. Jay Wang for NETC Project 05-6 in 2007.	2007	Yes

Miscellaneous Videos

Title	Description	Publication Date	Captions [1]
Reducing Fatigue in Wind-Excited Traffic Signal Support Structures using Smart Dampening Technologies	NCHRP-IDEA Project 141 - Presented by Dr. Richard E. Christenson, University of Connecticut, in Storrs, CT, on June 17, 2010.	2010	No
History of NESMEA	Presented by Mr. Philip E. McCyntire.	2008	Missing
Invasive Plant Control – Purple Loosestrife	Using Galerucella Beetles to control Purple Loosestrife by Ms. Donna Ellis, University of Connecticut.	2007	Yes
Bradley Intl Airport	Go Easy Commercial.	2004	No
The Segway People Mover	Transportation Device Demonstration, held at the Rocky Hill Lab.	2003	Yes

[1] Captions: Is a synchronized text of the transcript provided for the video presentation? Yes or No.
(Missing - The synchronized text is not functioning.)

PART M

Listing of Streaming Media Hosted on ConnDOT Research Streaming Server

Streaming Video Library (http://www.ct.gov/dot/video)

CEAB (Connecticut Energy Advisory Board)

Title	Description	Publication Date	Captions [1]
Air Quality-101	Presented by Tracy R. Babbidge, Connecticut Department of Environmental Protection (DEP), on November 7, 2008.	2008	No
High Electric Demand Days	Presented in 2008 by Richard G. Rodrigue, Connecticut Department of Environmental Protection (DEP), on 11/07/08.	2008	No
Climate and Energy Challenges and Opportunities	Presented by Mr. Paul E. Farrell, Connecticut Department of Environmental Protection (DEP), on November 7, 2008.	2008	No
Introduction to the Electric System	Presented by Connecticut Department of Public Utiliites (DPUC) Chairman Donald Downes on September 5, 2008.	2008	No
Introduction to the Natural Gas System	Presented by Connecticut Department of Public Utiliites (DPUC) Commissioner Anne C. George on September 5, 2008.	2008	No

Presentation for In-House Communication

Title	Description	Publication Date	Captions [1]
Concrete Testing Training	Provided by Central Lab/Materials Testing, May 18, 2010.	2010	Yes
Generational Communications	Sponsored by the Diversity Council, April 29, 2010.	2010	Yes
Benefits and Pitfalls of Designing with Architectural Concrete	Presented by Mr. John Glover, LM Scofield Co. Hosted by ConnDOT State Design Section, April 2010.	2010	No
H1N1/Seasonal Flu Awareness and Prevention	Ms. Cheryl Marenick, ConnDOT Occupational Health Nurse, January 2010.	2010	No
MTG Pavement Design Catalog	Mr. Michael Derewianka, ConnDOT Pavement Management, April 8, 2010.	2010	No

[1] Captions: Is a synchronized text of the transcript provided for the video presentation? Yes or No.
(Missing - The synchronized text is not functioning.)

PART M

Listing of Streaming Media Hosted on ConnDOT Research Streaming Server

Streaming Video Library (http://www.ct.gov/dot/video)

Presentation for In-House Communication (continued)

Title	Description	Publication Date	Captions [1]
Interacting with Persons with Disabilities	Sponsored by the Diversity Council, November 25, 2009.	2009	Yes
2010 Annual Hazardous Materials Training for the Central Lab	Developed for ConnDOT Materials Testing Personnel in Rocky Hill, CT.	2010	No
Lead Awareness Training	Presented by Mr. Martin Lewis, TRC Environmental, in July 2009.	2009	No
Asbestos Awareness Training	Presented by Martin Lewis, TRC Environmental, in July 2009.	2009	No
Performance Measures - 2009	Presented by Mr. Donald A. Larsen, ConnDOT, on April 21, 2009.	2009	No

[1] Captions: Is a synchronized text of the transcript provided for the video presentation? Yes or No.
(Missing - The synchronized text is not functioning.)

PART N
Listing of New England Transportation Consortium (NETC) Projects
FY10

Study Number	Study Title	Status	Anticipated Completion Date	Project Closed Date	Personnel Assignments to NETC Committees		Contractor
					Type of Assignment	Person(s)	
Pre-1994 Series Projects							
Pre-1994 Project	Construction Costs of New England Bridges - Phase II	Closed	-	4/2/03	TAC Member	William Duff	-
Pre-1994 Project	Tire Chips as Lightweight Backfill – Phase II: Full-Scale Testing	Closed	-	4/2/03	TAC Member	Not named	University of Maine
Pre-1994 Project	Bridge Rail Crash Test – Phase II: Sidewalk Mounted Rail	Closed	-	4/2/03	TAC Member	Dionysia F. Oliveira	Federal Highway Administration
Pre-1994 Project	New England Vehicle Classification and Truck Weight Program	Closed	-	4/2/03	TAC Member	William Duff	-
1994 Series Projects							
NETC 94-1	Structural Analysis of New England Subbase Materials and Structures	Closed	3/31/99	4/5/02	TAC Member	Leo L. Fontaine	University of Rhode Island
NETC 94-2	Nondestructive Testing of Reinforced Concrete Bridges Using Radar Imaging Techniques	Closed	9/30/99	12/16/03	TAC Member	Kevin J. Bernard	University of Vermont
NETC 94-3 [1]	Procedures for the Evaluation of Sheet Membrane Waterproofing	Closed	9/30/99	4/2/03	TAC Member	Not named	N/A
NETC 94-4	Durability of Concrete Crack Repair Systems	Terminated [2]	12/31/99	4/9/01	TAC Member	Kevin J. Bernard	University of Rhode Island
1995 Series Projects							
NETC 95-1	Use of Tire/Chips/Soil Mixtures to Limit Frost Heave and Pavement Damage of Paved Roads	Closed	12/31/97	9/21/00	TAC Member	Donald A. Larsen	University of Maine
NETC 95-2	Suitability of Non-Hydric Soils for Wetland Mitigation	Closed	Completion of Work (2/28/97)	12/2/97	TAC Member	Steven Ladd	University of New Hampshire
NETC 95-3	Implementation and Evaluation of Traffic Marking Recesses for Application of Thermoplastic Pavement Markings on Modified Open Graded Mixes	Closed	8/31/99	4/11/01	TAC Member	John R. Giannini	University of Rhode Island
NETC 95-5	Buried Joints in Short Span Bridges	Terminated [3]	Completion of Work (8/31/99)	4/9/01	TAC Chairperson	Robert G. Lauzon	University of Rhode Island
NETC 95-6	Guidelines for Ride Quality Acceptance for Pavements	Closed	Completion of Work (4/30/97)	4/2/03	TAC Member	Keith R. Lane	University of Massachusetts - Amherst
					TAC Member	Colleen A. Kissane	
1996 Series Projects							
NETC 96-1	SUPERPAVE Implementation	Closed	8/31/99	4/5/02	TAC Member	Nelio J. Rodrigues	University of Connecticut
NETC 96-2	Optimizing GPS Use in Transportation Projects	Terminated and Closed [4]	6/30/99	9/2/04 and 4/27/05	TAC Member	Bradley J. Overturf	University of Connecticut
NETC 96-3	Effectiveness of Fiber Reinforced Composites as Structural and Protective Coverings for Bridge Elements Exposed to Deicing-Salt Chlorides	Closed	12/31/00	4/2/03	TAC Member	John W. Henault	Rutgers - State University of New Jersey

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Study Number	Study Title	Status	Anticipated Completion Date	Project Closed Date	Personnel Assignments to NETC Committees		Contractor
					Type of Assignment	Person(s)	
1997 Series Projects							
NETC 97-1 (Phase 1)	Portable Method to Determine Chloride Concentration on Roadway Pavements – Phase 1	Closed	8/31/99	12/16/03	TAC Member	Donald A. Larsen	University of Connecticut
NETC 97-1 (Phase 2)	Portable Method to Determine Chloride Concentration on Roadway Pavements – Phase 2	Closed	9/30/01	12/16/03	TAC Member	Donald A. Larsen	University of Connecticut
NETC 97-2	Performance Evaluation and Economic Analysis of Combinations of Durability Enhancing Admixtures (Mineral and Chemical) in Structural Concrete for Bridge Applications in the Northeast U.S.A.	Closed	8/30/02	12/16/03	TAC Member	Steven A. Gage	University of Massachusetts - Amherst
NETC 97-3 (Phase 1)	Determining Properties, Standards and Performance of Wood Waste Compost as an Erosion Control Mulch and as a Filter Berm – Phase 1	Closed	2/1/00	4/11/2001	TAC Member	Donald A. Larsen	University of Connecticut
NETC 97-3 (Phase 2)	Determining Properties, Standards and Performance of Wood Waste Compost as an Erosion Control Mulch and as a Filter Berm – Phase 2	Closed	12/31/00	4/11/2001	TAC Member	Donald A. Larsen	University of Connecticut
NETC 97-4	Early Distress of Open-Graded Friction Courses	Closed	12/31/99	4/5/2002	TAC Member	Nicholas R. Corona	University of Connecticut
1998/1999 Series Projects							
NETC 99-1	Bridge Rail Transitions – Development and Crash Testing	Closed	12/31/05	4/10/06	TAC Member	Dionysia F. Oliveira	Texas Transportation Institute
NETC 99-2	Evaluation of Asphaltic Plug Joints	Closed	12/31/03	4/27/05	TAC Member	Donald A. Larsen	University of Massachusetts - Dartmouth
NETC 99-3	Development of Priority Based Statewide Scour Monitoring Systems in New England	Closed	3/31/01	4/5/02	TAC Chairperson	Ahmad A. Sarshory	University of Massachusetts - Amherst
					TAC Member	Paul F. D'Attilio	
					TAC Member	James E. Hamilton	
NETC 99-4	Quantifying Roadside Rest Area Usage	Closed	2/28/01	4/2/03	TAC Member	Dionysia F. Oliveira	University of Maine
NETC 99-6	Analytical and Experimental Investigations of the Effects of Concrete Removal Operations on Adjacent Concrete that is to Remain	Closed	2/28/02	11/19/02	TAC Chairperson	Ravi V. Chandran	University of Connecticut
2000 Series Projects							
NETC 00-1	Ground-Based Imaging and Data Acquisition Systems for Roadway Inventories in New England: A Synthesis of Practice	Closed	8/31/01	4/2/03	TAC Chairperson	Bradley J. Overturf	University of Massachusetts - Amherst
NETC 00-2	Evaluation of Permeability of Superpave Mixes	Closed	12/15/01	11/19/02	TAC Member	Nelio J. Rodrigues	University of Massachusetts - Dartmouth
NETC 00-3	Design, Fabrication, and Preliminary Testing of A Composite Reinforced Timber Guardrail	Closed	4/30/04	9/2/04	TAC Member	Dionysia F. Oliveira	University of Maine
NETC 00-4	Portable Falling Weight Deflectometer (FWD) Study	Closed	12/31/04	9/21/05	TAC Member	Donald A. Larsen	University of Maine
NETC 00-5	Guard-Rail Testing – MELT @ NCHRP 350 TL-2	Closed	4/30/02	11/19/02	TAC Member	Andrew J. Mroczkowski	Texas Transportation Institute
NETC 00-6	Implementation of Visualization Technologies to Create Simplified Presentations by Highway Agencies	Closed	6/30/03	9/21/05	TAC Member	William S. Pratt	University of Connecticut
NETC 00-7	A Complete Review of Incident Detection Algorithms and Their Deployment: What Works and What Doesn't	Closed	6/20/02	4/27/05	TAC Member	John F. Korte	University of Massachusetts - Amherst
NETC 00-8 [5]	Performance and Effectiveness of a Thin Pavement Section Using Geogrids and Drainage Geocomposites in a Cold Region	Closed	6/30/05	5/12/08	TAC Member	David J. Kilpatrick	University of Maine

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Study Number	Study Title	Status	Anticipated Completion Date	Project Closed Date	Personnel Assignments to NETC Committees		Contractor
					Type of Assignment	Person(s)	
2001 Series Projects							
NETC 01-1 [6]	Advanced Composite Materials (Fiber Reinforced Polymers or Polymer Matrix Composites) for New England's Highway Infrastructure: A Synthesis of Technology and Practice	Closed	12/31/04	8/15/06	TAC Member	Paul F. D'Attilio	University of Massachusetts - Amherst
NETC 01-1 (T2 Phase 1)	Advanced Composite Materials in New England's Transportation Infrastructure – Technology Transfer Phase 1: Selection of Prototype	Closed	11/30/08	6/30/10	TAC Member	Paul F. D'Attilio	University of Massachusetts - Amherst
NETC 01-2	Development of a Testing Protocol for Quality Control/Quality Assurance of Hot Mix Asphalt	Closed	12/31/02	4/27/05	TAC Member	Jonathan T. Boardman	University of Massachusetts - Dartmouth
NETC 01-3	Design of Superpave Hot Mix Asphalt for Low Volume Roads	Closed	2/29/04	4/27/05	TAC Member	Nelio J. Rodrigues	University of Massachusetts - Dartmouth
NETC 01-4 [5]	Eliminating Premature Pavement Failure: Creation of a Positive Drainage Layer for Reconstructed and Reclaimed Pavements	N/A	-	-	TAC Member	David J. Kilpatrick	N/A
NETC 01-5	Procedures for the Evaluation of Liquid-Applied Membrane Waterproofing	Withdrawn [7]	-	-	TAC Member	Andrew J. Mroczkowski	N/A
NETC 01-6	Field Evaluation of a New Compaction Device	Closed	7/31/03	4/27/05	TAC Member	Leo L. Fontaine	University of Massachusetts - Dartmouth
2002 Series Projects							
NETC 02-1 (Phase I)	Relating Hot Mix Asphalt Pavement Density to Performance	Closed	6/30/10	6/30/10	TAC Member	Edgardo D. Block	University of Massachusetts - Dartmouth
NETC 02-2 (Phase I)	Formulate an Approach for 511 Implementation in New England - Phase I	Closed	12/31/03	8/15/06	TAC Member	William W. Stoeckert	University of Massachusetts - Amherst
NETC 02-2 (Phase II)	Formulate an Approach for 511 Implementation in New England - Phase II	Closed	5/31/05	8/15/06	TAC Member	Harold J. Decker, Jr.	University of Massachusetts - Amherst
NETC 02-3	Establish Subgrade Support Values (Mr) for Typical Soils in New England	Closed	7/31/05	8/15/06	TAC Chairperson	Leo L. Fontaine	University of Connecticut
NETC 02-5	Determination of Moisture Content of De-Icing Salt at Point of Delivery	Closed	12/31/03	4/27/05	TAC Member	John R. Giannini	University of Connecticut
NETC 02-6 (Phase I)	Sealing of Small Movement Bridge Expansion Joints	Closed	7/31/05	8/15/06	TAC Member	Andrew J. Mroczkowski	University of Connecticut
NETC 02-6 (Phase II)	Sealing of Small Movement Bridge Expansion Joints - Phase II: Field Demonstration and Monitoring	Active	7/31/11	-	TAC Member	Andrew J. Mroczkowski	University of Connecticut
NETC 02-7	Validating Traffic Simulation Models to Inclement Weather Conditions With Applications to Arterial Coordinated Signal Systems	Closed	11/30/04	4/27/05	TAC Member	Norman Miller	University of Vermont
					TAC Member	Eric G. Feldblum	
NETC 02-8	Intelligent Transportation Systems Applications to Ski Resorts in New England	Closed	3/1/04	9/2/04	TAC Member	Harold J. Decker, Jr.	University of Vermont

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Study Number	Study Title	Status	Anticipated Completion Date	Project Closed Date	Personnel Assignments to NETC Committees		Contractor
					Type of Assignment	Person(s)	
2003 Series Projects							
NETC 03-1	Ability of Wood Fiber Materials to Attenuate Heavy Metals Associated With Highway Runoff	Closed	8/31/08	10/22/08	TAC Member	Mark W. Alexander	University of Connecticut
NETC 03-2	Field Studies of Concrete Containing Salts of an Alkenyl-Substituted Succinic Acid	Closed	12/31/08	5/21/09	TAC Chairperson	Paul F. D'Attilio	University of Massachusetts - Amherst
NETC 03-3 (Phase 1)	Feasibility Study and Design of an Erosion Control Laboratory in New England - Phase 1	Closed	8/31/04	4/10/06	TAC Chairperson	Donald A. Larsen	University of Connecticut
NETC 03-3 (Phase 2)	Feasibility Study of Erosion Control Laboratory in New England: Addendum, Design Considerations for a Prototype Erosion Control Testing Plot - Phase 2	Closed	7/31/05	4/10/06	TAC Chairperson	Donald A. Larsen	University of Connecticut
NETC 03-4	Measuring Pollutant Removal Efficiencies of Storm Water Treatment Units	Closed	8/31/05	4/10/06	TAC Member	Paul N. Corrente	University of Massachusetts - Lowell
NETC 03-5	Evaluation of Field Permeameter as a Longitudinal Joint Quality Control Indicator	Closed	2/28/06	11/6/07	TAC Member	Erika B. Lindeberg (Formerly Erika B. Smith)	University of New Hampshire
NETC 03-6 [8] [16]	Fix it First: Utilizing the Seismic Property Analyzer and MMLS to Develop Guidelines for the Use of Polymer Modified Thin Lift HMA vs. Surface Treatments	Active	9/30/12	-	TAC Member	James M. Sime	University of Massachusetts - Dartmouth
NETC 03-7	Basalt Fiber Reinforced Polymer Composites	Closed	11/15/05	11/6/07	TAC Chairperson	Anne-Marie H. McDonnell	University of Connecticut
2004 Series Projects							
NETC 04-1 (Phase 1)	Recycling Asphalt Pavements Containing Modified Binders - Phase 1	Active	12/31/10	-	TAC Member	Edgardo D. Block	University of Connecticut
NETC 04-1 (Phase 2)	Recycling Asphalt Pavements Containing Modified Binders - Phase 2	Active	12/31/10	-	TAC Member	Edgardo D. Block	University of Connecticut
NETC 04-2	Driver-Eye-Movement-Based Investigation for Improving Work Zone Safety	Closed	12/31/08	5/21/09	TAC Member	Joseph T. Cristalli, Jr.	University of Massachusetts - Amherst
NETC 04-3 [16]	Estimating the Magnitude of Peak Flows for Steep Gradient Streams in New England	Active	9/30/10	-	TAC Member	Michael E. Hogan	University of New Hampshire
NETC 04-4	Determining the Effective PG Grade of Binder in RAP Mixes	Closed	6/30/10	6/30/10	TAC Member	Nelio J. Rodrigues	University of New Hampshire
					TAC Member (Alternate)	Raffaele Donato	
NETC 04-5 (Phase 1)	Network-Based Highway Crash Prediction Using Geographic Information Systems: Phase 1	Closed	8/22/06	10/22/08	TAC Chairperson	Erika B. Lindeberg (Formerly Erika B. Smith)	University of Connecticut
NETC 04-5 (Phase 2)	Network-Based Highway Crash Prediction Using Geographic Information Systems: Phase 2	Closed	9/30/08	10/22/08	TAC Chairperson	Erika B. Lindeberg (Formerly Erika B. Smith)	University of Connecticut
NETC 04-6	Development of Truck Lane Software That Uses a Current Model of Truck Performance	Withdrawn [9]	-	-	TAC Member	Daniel A. Gladowski	N/A

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Study Number	Study Title	Status	Anticipated Completion Date	Project Closed Date	Personnel Assignments to NETC Committees		Contractor
					Type of Assignment	Person(s)	
2005 Series Projects							
NETC 05-1 [16]	Development of Supplemental Resistance Method for the Design of Drilled Shaft Rock Sockets	Active	12/31/10	-	TAC Chairperson TAC Chairperson (Alternate)	Leo L. Fontaine Michael F. McDonnell	University of Maine
NETC 05-2 (Phase 1)	Enhancing the Reflectivity of Concrete Barriers [10]	Proposed	TBD	-	TAC Member	David J. Kilpatrick	University of Massachusetts - Amherst
NETC 05-3 [18]	Microscopic Simulation for Modeling Modern Roundabouts in New England: Accuracy, Sensitivity and Calibration [17]	Proposed	TBD	-	TAC Member	Robert Kasica	University of Vermont
NETC 05-4	Characterization of the Rate Constant of Pozzolan Available Alkalis	Withdrawn [11]	-	-	TAC Member	Paul F. D'Attilio	N/A
NETC 05-5 [16]	Measurement of Adhesion Properties Between Topcoat Paint and Metallized/Galvanized Steel with 'Surface Energy' Measurement Equipment [12]	Active	8/21/10	-	TAC Member	Andrew J. Mroczkowski	University of Rhode Island
NETC 05-6 [16]	Employing Graphic-Aided DMS to Assist Elder Drivers' Message Comprehension	Active	9/30/10	-	TAC Chairperson	Drew M. Coleman	University of Rhode Island
NETC 05-7 (Phase 1)	Warrants for Exclusive Left Turn Lanes at Unsignalized Intersections and Driveways - Phase 1	Closed	11/22/07	5/21/09	TAC Member	Eric G. Feldblum	University of Connecticut
NETC 05-7 (Phase 2)	Warrants for Exclusive Left Turn Lanes at Unsignalized Intersections and Driveways - Phase 2	Closed	7/31/08	5/21/09	TAC Member	Eric G. Feldblum	University of Connecticut
NETC 05-8 [16]	Evaluation and Implementation of Traffic Simulation Models for Work Zones	Closed	3/22/10	6/30/10	TAC Chairperson	Erika B. Lindeberg (Formerly Erika B. Smith)	University of Massachusetts - Amherst
NETC 05-9	Financing Intermodal Transportation in New England	Withdrawn [13]	-	-	TAC Member	Anne-Marie H. McDonnell	N/A
2006 Series Projects							
NETC 06-1 [16]	New England Verification of NCHRP 1-37A Mechanistic-Empirical Pavement Design Guide with Level 2 & 3 Inputs	Active	9/30/11	-	TAC Member	Edgardo D. Block	University of New Hampshire
NETC 06-2	Infrastructure Management Systems Enhancement and Integration to Support True Integrated Decision-Making	Withdrawn [20]	-	-	TAC Member	Colleen A. Kissane	University of Vermont
NETC 06-3	Establishing Default Dynamic Modulus Values for New England	Active	12/31/10	-	TAC Chairperson	David J. Kilpatrick	University of Connecticut
NETC 06-4	Preventative Maintenance and Timing of Applications	Proposed	TBD	-	TAC Member	Louis Allegro	University of Massachusetts - Dartmouth
NETC 06-5	The Winter Severity Index for New England [14]	Closed	9/30/11	6/30/10	TAC Member	Patrick F. Rodgers	Plymouth State University

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Study Number	Study Title	Status	Anticipated Completion Date	Project Closed Date	Personnel Assignments to NETC Committees		Contractor
					Type of Assignment	Person(s)	
2007 Series Projects							
NETC 07-1	Effects of In-Place Properties of Recycled Layers Due to Temperature and Moisture Variations	Proposed	TBD	-	TAC Member	David J. Kilpatrick	University of New Hampshire
NETC 07-2	Exploring the Potential of Intelligent Intersections Deployment in New England	Proposed	TBD	-	TAC Member	Donald A. Larsen	University of Massachusetts - Amherst
NETC 07-3	Determining Optimum Distance for a Lane Drop Downstream from a Signalized Intersection	Proposed	TBD	-	TAC Chairperson	Erika B. Lindeberg (Formerly Erika B. Smith)	University of Vermont
					TAC Member	Charles S. Harlow	
NETC 07-4	Estimating and Predicting Traffic Conditions for Traveler Information and Emergency Response	Withdrawn [21]	-	-	TAC Member	Anne-Marie H. McDonnell	University of Vermont
2008 Series Projects							
NETC 08-1	Applying the Highway Safety Manual in New England	Proposed	TBD	-	TAC Chairperson	James V. Moffett	TBD
NETC 08-2	Evacuation Modeling to Assist Hazard Management and Response in Urban and Rural Areas of New England	Proposed	TBD	-	TAC Member	Judy B. Raymond	TBD
NETC 08-3	Best Management Practices for the Invasive Polygonum Cuspidatum (Japanese Knotweed) Along Transportation Corridors	Proposed	TBD	-	TAC Member	Bruce R. Villwock	University of Rhode Island
NETC 08-4	An Assessment of the Implementation of NETC Research Results [15]	Proposed	TBD	-	TAC Member	Richard C. Hanley	TBD
NETC 08-5	NETC/UVM-UTC Transportation Research Challenge	Proposed	TBD	-	TAC Member	TBD	TBD
					Contact Person	Dionysia F. Oliveira	
NETC 08-6	Interaction Between Salinity, Soil Quality and Amendments in Roadside Plantings	Proposed	TBD	-	TAC Member	TBD	TBD
2009 Series Projects							
NETC 09-1 (Phase 1)	Active Structural Control of Cantilevered Support Structures	Proposed	TBD	-	TAC Chairperson	Alireza Jamalipour	TBD
NETC 09-2	Effective Establishment of Native Grasses on Roadsides	Proposed	TBD	-	TAC Member	TBD	TBD
NETC 09-3	Advanced Composite Materials: Prototype Development and Demonstration	Proposed	TBD	-	TAC Member	TBD	TBD
2010 Series Projects							
NETC 10-1	Synthesis of Practice: Electronic Bridge Inspection Document Management Systems	Proposed	TBD	-	TAC Member	TBD	TBD
NETC 10-2	A Field Evaluation of SuperPave Hot Mix Asphalt Pavement Containing 30% RAP	Proposed	TBD	-	TAC Member	TBD	TBD
NETC 10-3	Low Temperature and Moisture Susceptibility of RAP Mixtures With Warm Mix Technology	Proposed	TBD	-	TAC Member	TBD	TBD
NETC 10-4	Field Evaluation of Corrosion Protection on Bridges With a Spray Application of Disodium Tetrapropenyl Succinate (DSS)	Proposed	TBD	-	TAC Member	TBD	TBD

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Study Number	Study Title	Status	Anticipated Completion Date	Project Closed Date	Personnel Assignments to NETC Committees		Contractor
					Type of Assignment	Person(s)	

Notes:

[1] The work for Project No. NETC 94-3 was performed under Pooled Fund Project No. SPR-0003(052), “Procedures for the Evaluation of Sheet Membrane Waterproofing.” Vermont was the Lead State.

[2] The Agreement for NETC Project No. 94-4, “Durability of Concrete Crack Repair Systems,” expired on December 31, 1999. At its September 21, 2000, Meeting, the NETC Advisory Committee passed a motion that the Agreement for NETC Project No. 94-4 be terminated. A Notice of Expiration Letter, dated April 9, 2001, was sent to the University of Rhode Island, requesting that all work activities be ceased upon receipt of the Notice of Expiration Letter and that all materials relating to the project be submitted to NETC. At its April 5, 2002, Meeting, the NETC Advisory Committee passed a motion to approve the Technical Committee recommendations that: the Final Report not be published; and, that the outstanding unpaid invoices not be paid.

[3] At its September 21, 2000, Meeting, the NETC Advisory Committee passed a motion that the Agreement for NETC Project No. 95-5, “Buried Joints in Short Span Bridges,” be terminated. The Agreement for NETC Project No. 95-5 was terminated in a Termination Letter, dated April 9, 2001, that was sent to the University of Rhode Island, requesting that all work activities be ceased upon receipt of the letter and that all materials relating to the project be submitted to NETC. At its September 26, 2001, Meeting, the NETC Advisory Committee passed a motion to approve the Technical Committee recommendations that: the Final Report not be published; and, that the outstanding unpaid balance of $3,204.39 be witheld since only 70% of the work was completed.

[4] At its September 2, 2004, Meeting, the NETC Advisory Committee passed a motion that the Agreement for NETC Project No. 96-2, “Optimizing GPS Use in Transportation Projects,” be terminated. At its At its April 27, 2005, Meeting, the NETC Advisory Committee passed a motion that the Agreement for NETC Project No. 96-2, “Optimizing GPS Use in Transportation Projects,” be closed.

[5] NETC Project No. 01-4, “Eliminating Premature Pavement Failure: Creation of a Positive Drainage Layer for Reconstructed and Reclaimed Pavements,” is incorporated into NETC Project 00-8, “Performance and Effectiveness of a Thin Pavement Section Using Geogrids and Drainage Composites in a Cold Region.”

[6] The University of New Hampshire terminated the Agreement for NETC Project No. 01-1, “Advanced Composite Materials (Fiber Reinforced Polymers or Polymer Matrix Composites) for New England’s Highway Infrastructure: A Synthesis of Technology and Practice,” in a Termination Letter, dated August 14, 2002. The project was then awarded to the the University of Massachusetts, Amherst, the bidder ranked second highest in the Screening and Ranking process.

[7] NETC Project No. 01-5, “Procedures for the Evaluation of Liquid-Applied Membrane Waterproofing,” was withdrawn from the NETC program on March 4, 2004, by E-mail ballot.

[8] NETC 03-6, "Fix it First: Utilizing the Seismic Property Analyzer and MMLS to Develop Guidelines for the Use of Polymer Modified Thin Lift HMA vs. Surface Treatments," is the project selected for the New England Land Grant University Consortium Members Transportation Challenge.

[9] NETC Project No. 04-6, “Development of Truck Lane Software That Uses a Current Model of Truck Performance,” was withdrawn from the NETC program on February 16, 2004, by E-Mail ballot, since it would duplicate the research findings of NCHRP Report 505, "Review of Truck Characteristics as Factors in Roadway Design."

[10] NETC 05-2 (Phase 1), “Enhancing the Reflectivity of Concrete Barriers,” was formerly NETC 05-2, "Safety of Reflective Median Barriers.”

[11] At its April 10, 2006, Meeting, the NETC Advisory Committee passed a motion that NETC Project No. 05-4, “Characterization of the Rate Constant of Pozzolan Available Alkalis,” be withdrawn from the NETC program.

[12] NETC 05-5, “Measurement of Adhesion Properties Between Topcoat Paint and Metallized/Galvanized Steel with 'Surface Energy' Measurement Equipment,” was formerly entitled, "Measurement of Work of Adhesion Between Paint and Metallized/Galvanized Steel.”

[13] At its December 19, 2005, Meeting, the NETC Advisory Committee passed a motion that NETC Project No. 05-9, “Financing Intermodal Transportation in New England,” be withdrawn from the NETC program.

PART N Listing of New England Transportation Consortium (NETC) Projects FY10							
Study Number	Study Title	Status	Anticipated Completion Date	Project Closed Date	Personnel Assignments to NETC Committees		Contractor
					Type of Assignment	Person(s)	

[14] NETC 06-5, “The Winter Severity Index for New England,” was formerly entitled, "Winter Severity Indices for New England.”

Notes (continued):

[15] NETC 08-4, “An Assessment of the Implementation of NETC Research Results,” was formerly entitled, "NETC Research Implementation Survey and Synthesis.”

[16] This project is beiing completed under contract to FHWA.

[17] NETC 05-3, "Practicable Calibration Procedures to Enhance the Accuracy of Analtical and Microsimulation Software for Modern Four-Legged Single-Lane Roundabouts," was formerly entitled, "Microscopic Simulation for Modeling Modern Roundabouts in New England: Accuracy, Sensitivity and Calibration."

[18] ConnDOT could not put an Agreement into place for UVM to perform the work for NETC 05-3, ""Practicable Calibration Procedures to Enhance the Accuracy of Analtical and Microsimulation Software for Modern Four-Legged Single-Lane Roundabouts." UVM did proceed with the work despite the fact that an Agreement was not in place. In June 2010, the Vermont Agency of Transportation (VAOT) has requested authorization from FHWA for reimbursement of costs incurred prior to the award of the Agreement, as provided under 23CFR Section 1.9. If the request is approved, VAOT will identify the best way to contract with UVM to complete the project.

[19] At its June 30, 2010, Meeting, the NETC Advisory Committee passed a motion that NETC Project No.06-2, “Infrastructure Management Systems Enhancement and Integration to Support True Integrated Decision-Making,” be withdrawn from the NETC program.

[20] At its June 30, 2010, Meeting, the NETC Advisory Committee passed a motion that NETC Project No.07-4, “Estimating and Predicting Traffic Conditions for Traveler Information and Emergency Response,” be withdrawn from the NETC program.

Refer to the NETC Annual Report published annually on a Calendar Year basis.

PART O
Listing of the Connecticut Cooperative Transportation Research Program (CCTRP) Projects
FY10

Study Number	Study Title	Status	Anticipated Completion Date	Project Closed Date
Regular Projects				
JH 06-10	Improving Survey Accuracy and Efficiency in Connecticut: An Accuracy Assessment of GEOID03	Closed	5/31/10	6/10/10
JH 07-5	Incorporating Wet Pavement Friction Into Traffic Safety Analysis	Active	11/30/10	-
JH 08-1	Structure and Properties of Ionomer Modified Asphalts	Active	5/22/10	-
JH 08-5	Assessing and Quantifying Public Transportation Access	Active	1/15/11	-
JH 08-6	Experimental Testing of Controllable Damping Devices toward Extending the Lifespan of Existing Highway Bridges	Active	11/30/10	-
JH 09-1 **[1]**	Design and Feasibility Study: Connecticut Transportation Planning Data - Phase II	Withdrawn	-	-
JH 09-6	Preparation of the Implementation Plan of AASHTO Mechanistic-Empirical Pavement Design Guide (M-E PDG) in Connecticut	Proposed	TBD	-
JH 09-7	National and In-State Review of Surface Treatment Techniques for Pavement Preservation in Connecticut	Proposed	TBD	-

[1] JH 09-1, "Design and Feasibility Study: Connecticut Transportation Planning, Phase II," was withdrawn from consideration under the CCTRP program and was funded by ConnDOT's Bureau of Policy and Planning under a Memorandum-of-Understanding (MOU).

Refer to the Joint Highway Research Advisory Council (JHRAC) Work Program and the JHRAC Summary of Activities, each published annually on a Fiscal Year basis.

PART P
Personnel Assignments to Research Committees
FY10

Project/Committee/Program	Project/Committee/Program Status	Type of Assignment	Person(s)
Committee/Program			
AASHTO Research Advisory Committee	Active	Member	James M. Sime
ASCE Transportation Infrastructure Management	Active	Member	Richard C. Hanley
FHWA SHRP State Coordinator	Active	State Coordinator	James M. Sime
FHWA SHRP II State Coordinator	Active	State Coordinator	James M. Sime
Connecticut Technology Transfer Center Advisory Committee	Active	Advisory Committee Member and Lead Engineer	Dionysia F. Oliveira
		Advisory Committee Member	James M. Sime
		Advisory Committee Member	Kathleen Bradford
		Advisory Committee Member	Robert Brown
		Advisory Committee Member	Donna M. Shea
		Advisory Committee Member	James M. Mahoney
Connecticut Cooperative Transportation Research Program (CCTRP)	Active	Committee Oversight Designee	Comr. Joseph F. Marie
		Chairperson	Michael L. Accorsi
		Vice-Chairperson	Thomas A. Harley
		Member	Michael W. Lonergan
		Member	Ravi V. Chandran
		Member	Robert C. Card
		Member	Norman W. Garrick
		Member	Kazem Kazerounian
		Member	John N. Ivan
		Ex-Officio Member and Secretary	James M. Sime
LTPP State Coordinator	Active	State Coordinator	Ravi V. Chandran
NCHRP-IDEA Project 141, "Reducing Fatigue in Wind-Excited Traffic Signal Support Structures Using Smart Damping Technologies"	Active	NCHRP-IDEA Advisor	Alireza Jamalipour
		NCHRP-IDEA Advisor	Louis Allegro
NCHRP-IDEA Project No. 146, "Advance Methods for Mobile Retroflectivity Measurement on Pavement Marking"	Active	NCHRP-IDEA Advisor	James M. Sime
NCHRP-IDEA Proposal N-1351, "A Test for Low Temperature Strength of Asphalt Mixtures"	Active	NCHRP-IDEA Advisor	Daviid J. Kilpatrick
National Transportation Product Evaluation Program (NTPEP)	Active	Representative	Andrew J. Mroczkowski
		Representative	James M. Sime
		Representative	Ravi V. Chandran
Research Liason Committee	Active	Committee Oversight Designee	Thomas A. Harley
		Member and Chairperson	James M. Sime
		Member and Secretary	Andrew J. Mroczkowski
		Member	Ralph D. Daily, Jr.
		Member	John R. Giannini
		Member	Edward F. Girolamo
		Member	Charles S. Harlow
		Member	Janice A. Snyder
		Member	Peter E. Talarico
		Member	Donald L. Ward
TRB State Representative	Active	State Representative	James M. Sime
TRB ABJ35, "Highway Traffic Monitoring"	Active	Member	Anne-Marie H. McDonnell
ABJ25T, "Task Force on the Traffic Monitoring Conferences"	Active	Member	Anne-Marie H. McDonnell
TRB ADC80, "Committee on Alternative Transportation Fuels and Technologies"	Active	Member	James M. Sime
Pavement Management Systems	Active	Member	Edgardo D. Block
TRB AFD20 (A2BO6), "Pavement Monitoring, Evaluation and Data Storage"	Active	Member	Edgardo D. Block
TRB B0002, "TRB Information Services Committee"	Active	Member	James M. Sime
TRB D0144, "Quiet Pavement Pilot Project Study" [NCHRP 1-44, "Measuring Tire-Pavement Noise at the Source] [Formerly, TRB D0144, "Measuring Tire-Pavement Noise at the Source"]	Active	NCHRP Project Panel Member	Keith R. Lane
TRB D0378, "Crossing Solutions at Roundabouts and Channelized Turn Lanes for Pedestrians with Vision Disabilities"	Active	NCHRP Project Panel Member	Norman W. Garrick
TRB D0380 [NCHRP 3-80], "Traffic Enforcement Strategies for Work Zones" [Formerly, TRB D0380, "Work Zone Enforcement Effectiveness"]	Active	NCHRP Project Panel Chairperson	Arthur W. Gruhn
TRB D0851 [NCHRP 8-51], "Enhancing Internal Trip Capture Estimation for Mixed-Use Developments"	Active	NCHRP Project Panel Member	Michael J. Connors

PART P
Personnel Assignments to Research Committees
FY10

Project/Committee/Program	Project/Committee/Program Status	Type of Assignment	Person(s)
Committee/Program (continued)			
TRB D0870 [NCHRP 8-70], "Target-Setting Methods and Data Management To Support Performance-Based Resource Allocation by Transportation Agencies" [Formerly, TRB D0870 [NCHRP 8-70], "Setting Effective Performance Targets for Transportation Programs, Plans, and Policy"]	Active	NCHRP Project Panel Member	Colleen A. Kissane
TRB D0939, "Development of Procedures for Determining the Mixing and Compaction Temperatures of Superpave Asphalt Binders in Hot Mix Asphalt" [NCHRP 9-39, "Procedure for Determining Mixing and Compaction Temperatures of Asphalt Binders in Hot Mix Asphalt]	Completed	NCHRP Project Panel Member	Nelio J. Rodrigues
TRB D0949 [NCHRP 09-49], "Performance of WMA Technologies: Stage I - Moisture Susceptibility"	Active	NCHRP Project Panel Member	Ravi V. Chandran
TRB D0949 [NCHRP 09-49A], "Performance of WMA Technologies: Stage II - Long-Term Field Performance"	Active	NCHRP Project Panel Member	Ravi V. Chandran
TRB D1083 [NCHRP 10-83], "Alternative Quality Systems for Highway Construction"	Active	NCHRP Project Panel Member	Ravi V. Chandran
TRB D1418 [NCHRP 14-18], "Determining Highway Maintenance Costs"	Active	NCHRP Project Panel Member	Edgardo D. Block
TRB D1421 [NCHRP 14-21], "Optimization of Resource Allocation for Highway Preservation Needs"	Active	NCHRP Project Panel Member	Edgardo D. Block
TRB D1732, "Balancing the Benefits and Tradeoffs of Shoulder Rumble Strips and Centerline Rumble Strips on Divided and Undivided Highways in Urban and Rural Areas" [NCHRP 17-32, "Guidance for the Design and Application of Shoulder and Centerline Rumble Strips"]	Completed	NCHRP Project Panel Member	Erika B. Lindeberg (Formerly Erika B. Smith)
TRB D1907 [NCHRP 19-07], "GASB 34 - Methods for Condition Assessment and Preservation"	Completed	NCHRP Project Panel Member	Edgardo D. Block
TRB D2030 {NCHRP 20-30], "NCHRP - IDEA (Innovations Deserving Exploratory Analysis)"	Active	NCHRP Project Panel Member	James M. Sime
TRB D2039, "Improved User Access to TRIS Through the AASHTO VAN"	Completed	NCHRP Project Panel Chairperson	James M. Sime
[NCHRP 20-39(2), "Improved Transportation Research-In-Progress Data System"	Active	NCHRP Project Panel Chairperson	James M. Sime
TRB D2065 [NCHRP 20-65], "Research for the AASHTO Standing Committee on Public Transportation"	Active	NCHRP Project Panel Member	Michael A. Sanders
TRB D2065 [NCHRP 20-65/Task 20], "Analysis of Rural Intercity Bus Strategy"	Active	NCHRP Project Panel Member	Michael A. Sanders
TRB D2065 [NCHRP 20-65/Task 22], "Cost/Benefit Analysis of Converting a Lane for Bus Rapid Transit – Phase II Evaluation & Methodology"	Active	NCHRP Project Panel Member	Michael A. Sanders
TRB D2065 [NCHRP 20-65/Task 23], "Identification of State and Local Matching Fund Requirements for State-Administered Federal, and Non-Federal, Public Transportation Programs"	Active	NCHRP Project Panel Member	Michael A. Sanders
TRB D2065 [NCHRP 20-65/Task 24], "State DOT Role in the Implementation of Transportation Demand Management Programs"	Active	NCHRP Project Panel Member	Michael A. Sanders
TRB D2065 [NCHRP 20-65/Task 25], "Evaluate Requirements for the Utilization of Section 5311(f) Funds for Intercity Bus Service"	Active	NCHRP Project Panel Member	Michael A. Sanders
TRB D2065 [NCHRP 20-65/Task 26], "An Analysis and Evaluation of States' Implementation of the FTA 5310, 5316 and 5317 Programs"	Active	NCHRP Project Panel Member	Michael A. Sanders
TRB D2065 [NCHRP 20-65/Task 27], "Innovative Financing Techniques and Best Practices for Providing Match on Federal Transit Administration Projects"	Active	NCHRP Project Panel Member	Michael A. Sanders
TRB D2065 [NCHRP 20-65/Task 28], "An Analysis of Automated Transit Data Collection and Analysis Processes in State DOT Transit Units and a Toolkit for Next Generation Transit Data Analysis"	Active	NCHRP Project Panel Member	Michael A. Sanders
TRB D2065 [NCHRP 20-65/Task 29], "Public Transportation Performance Measures: State of the Practice and Future Needs"	Active	NCHRP Project Panel Member	Michael A. Sanders
TRB D2065 [NCHRP 20-65/Task 30], "Local Practices in Developing Coordination Partnerships with Taxicab Companies"	Active	NCHRP Project Panel Member	Michael A. Sanders
TRB D2065 [NCHRP 20-65/Task 31], "Transporting Oversize Wheelchairs"	Active	NCHRP Project Panel Member	Michael A. Sanders
TRB D2065 [NCHRP 20-65/Task 32], "Models to Support State-Owned Park and Ride Lots and Intermodal Facilities"	Active	NCHRP Project Panel Member	Michael A. Sanders

PART P Personnel Assignments to Research Committees FY10			
Project/Committee/Program	**Project/Committee/Program Status**	**Type of Assignment**	**Person(s)**
Committee/Program (continued)			
TRB D2065 [NCHRP 20-65/Task 33], "Determination of State DOT Financial Auditing Requirements for their Public Transportation Assistance Programs"	Active	NCHRP Project Panel Member	Michael A. Sanders
TRB D2065 [NCHRP 20-65/Task 34], "Statewide Transit Goal Setting"	Active	NCHRP Project Panel Member	Michael A. Sanders
TRB D2065 [NCHRP 20-65/Task 35], "Development of Appropriate Tools to Evaluate the Efficiency and Effectiveness of Selected Specialized Public Transportation Programs"	Active	NCHRP Project Panel Member	Michael A. Sanders
TRB D2065 [NCHRP 20-65A], "Research for the AASHTO Standing Committee on Public Transportation"	Active	NCHRP Project Panel Member	Michael A. Sanders
TRB D2082 [NCHRP 20-82], "Next Generation of theTransportation Pooled Fund (TPF) Website"	Active	NCHRP Project Panel Member	James M. Sime
TRB D2085 [NCHRP 20-85], "Renewable Energy Guide for Highway Maintenance Facilities"	Active	NCHRP Project Panel Chairperson	James M. Sime
TRB E1002-C, "TRB Expert Task Group on Long-Term Pavement Performance Traffic Data"	Active	Task Group Member	Anne-Marie H. McDonnell
TRB TA23, “Implementation Guidelines for Bus Rapid Transit Systems” [TCRP A-23A, "Cost and Effectiveness of Selected Bus Rapid Transit Components]	Active	TCRP Project Panel Member	Michael A. Sanders

PART P
Personnel Assignments to Research Committees
FY10

Project/Committee/Program	Project/Committee/Program Status	Type of Assignment	Person(s)
Category 2 Experimental Projects			
CT 84-01A, "Asphalt Additives (Carbon Black)" [Construction Project No. 171-127]	Completed	Principal Investigator	Eric C. Lohrey
CT 84-01B, "Asphalt Additives (Verglimit)" [Construction Project No. 53-144 - Bridge 2]	Completed	Principal Investigator	Eric C. Lohrey
CT 84-02A, "Protective Coatings for Structural Steel (Organic Zinc)" [Construction Project No. 82-216]	Completed	Principal Investigator	Eric C. Lohrey
CT 84-02B, "Protective Coatings for Structural Steel (Thermal Spray - Metallizing)" [Construction Project No. 82-216]	Completed	Principal Investigator	Eric C. Lohrey
CT 84-02C, "Protective Coatings for Structural Steel (Lead Silico - Chromate)" [Construction Project No. 82-216]	Completed	Principal Investigator	Eric C. Lohrey
CT 88-01, "Sentre Guardrail End Treatment" [Construction Project No. 100-151 - IR-0005(337)]	Completed	Principal Investigator	Richard A. Zbrozek
CT 88-02, "Esco Strip Seal" [Construction Project No. 92-224 - BHF-1(137)]	Completed	Principal Investigator	Peter B. Barlow
CT 88-04, "Wabocrete F.M.V. Elastomeric Concrete Strip Seal System" [Construction Project No. 164-177 - I-91-3(102)43]	Completed	Principal Investigator	Peter B. Barlow
CT 88-05, "Wabocrete F.M.V. Elastomeric Concrete Strip Seal System" [Construction Project No. 140-148 - F-000S(225)]	Completed	Principal Investigator	Peter B. Barlow
CT 88-06, "Ceva 300 Expansion Joint System" [Construction Project No. 170-448 - 68-6H05]	Completed	Principal Investigator	Peter B. Barlow
CT 88-07, "Melnar Membrane Waterproofing" [Construction Project No. 170-448 - 68-6H05]	Completed	Principal Investigator	Peter B. Barlow
CT 88-08, "Polyguard No. 665 Membrane Waterproofing" [Construction Project No. 170-448 - 68-6H05]	Completed	Principal Investigator	Peter B. Barlow
CT 88-12, "Delcrete Expansion Joint System" [Construction Project No. 512-230]	Completed	Principal Investigator	Peter B. Barlow
CT 88-13, "Bascule Pier Waterproofing" [Construction Project No. 44-102 - BRM-1363(3)]	Completed	Principal Investigator	Robert R. Gamache
CT 88-14, "Paint System - Zinc Silicate, Epoxy, Urethane" [Construction Project No. 44-102 - BRM-1363(1)]	Completed	Principal Investigator	Peter B. Barlow
CT 88-15, "Paint System - Zinc Silicate, Epoxy, Urethane" [Construction Project No. 63-358 - I-91-3(129)38]	Completed	Principal Investigator	Peter B. Barlow
CT 88-17, "Sentre Guardrail End Treatment" [Construction Project No. 87-125 - F-19(142)]	Completed	Principal Investigator	Richard A. Zbrozek
CT 88-18, "Sentre Guardrail End Treatment" [Construction Project No. 15-167 - IR-95-1(72)27]	Completed	Principal Investigator	Michael E. Masayda
CT 89-01, "Trend Transition End Treatment" [Construction Project No. 148-144 - HES-2552(103)]	Completed	Principal Investigator	Michael E. Masayda
CT 89-02, "Nitocote Dekguard Graffiti Resistant Coating" [Construction Project No. 15-167 - IR-95-(1)-(72)27]	Completed	Principal Investigator	Peter B. Barlow
CT 89-03, "Sentre Guardrail End Treatment" [Construction Project No. 83-204 - IR-95-1(89)37]	Completed	Principal Investigator	Bradley J. Smith
CT 89-04, "Keeler and Long 4400 Series Paint" [Construction Project No. 83-180]	Completed	Principal Investigator	Peter B. Barlow
CT 89-05, "Bondtech/ES-Series Expansion Joint" [Construction Project No. 78-83]	Completed	Principal Investigator	Peter B. Barlow
CT 89-06, ""Delcrete Expansion Joint System" [Construction Project No. 42-253]	Completed	Principal Investigator	Peter B. Barlow
CT 89-07, "Harcrete/Onflex 40SEQ Expansion Joint" [Construction Project No. 42-254]	Completed	Principal Investigator	Peter B. Barlow
CT 89-08, "Interspan Flexible Expansion Joint System" [Construction Project No. 42-253]	Completed	Principal Investigator	Peter B. Barlow
CT 89-09, "Sentre Guardrail End Treatment" [Construction Project No. 36-160 - F-19(146)]	Completed	Principal Investigator	Jeffrey A. Scala
CT 90-01, "Evaluation of Geocomposite Edge Drains (Hydraway)" [Construction Project No. ST 142-136]	Completed	Principal Investigator	Charles D. Larson
CT 90-02, "Evaluation of Geocomposite Edge Drains (Akwadrain)" [Construction Project No. ST 142-136]	Completed	Principal Investigator	Charles D. Larson
CT 90-03, "Evaluation of Geocomposite Edge Drains (ADS Advanedge)" [Construction Project No. ST 142-136]	Completed	Principal Investigator	Charles D. Larson
CT 90-04, "Aqua-Kolor 9400 V.O.C. Conforming Paint System" [Construction Project No. 104-150]	Completed	Principal Investigator	Ralph D. Daily, Jr.

PART P
Personnel Assignments to Research Committees
FY10

Project/Committee/Program	Project/Committee/Program Status	Type of Assignment	Person(s)
Category 2 Experimental Projects (continued)			
CT 90-05, "Acrythaney-1 V.O.C. Conforming Paint System" [Construction Project No. 104-150]	Completed	Principal Investigator	Ralph D. Daily, Jr.
CT 90-06, "Hemucryl 5803 V.O.C. Conforming Paint System" [Construction Project No. 104-150]	Completed	Principal Investigator	Peter B. Barlow
CT 90-07, "Thorma-Joint Ealstomer Strip Overlay Expansion Joint" [Construction Project No. 79-176]	Completed	Principal Investigator	Peter B. Barlow
CT 90-08, "Petrotac Bridge Deck Membrane" [Construction Project No. 156-156]	Completed	Principal Investigator	Ralph D. Daily, Jr.
CT 90-09, "Thorma-Joint Ealstomer Strip Overlay Expansion Joint" [Construction Project No. 63-375 - IR-84-4(125)61]	Completed	Principal Investigator	Peter B. Barlow
CT 91-01, "Inverset Bridge System to Replace Existing Superstructure" [Construction Project No. 138-195 - BHM-2862(2)]	Completed	Principal Investigator	Peter B. Barlow
CT 91-02, "Inverset Bridge System Applied Transversely to Replace Existing Deck" [Construction Project No. 18-112 - BHM-2755(1)]	Completed	Principal Investigator	Peter B. Barlow
CT 91-03, "Robek Modualr Expansion Joint" [Construction Project No. 171-133 - BRM-2207(1)]	Completed	Principal Investigator	Ralph D. Daily, Jr.
CT 91-04, Variable Message Sign - LED" [Construction Project No. 63-376 - IXAI-91-3(153)]	Completed	Principal Investigator	Ravi V. Chandran
CT 92-01, "Keeler and Long 4400 Series Paint" [Construction Project No. 63-375]	Completed	Principal Investigator	Peter B. Barlow
CT 93-01A, "Rockwood Retaining Wall" [Construction Project No. 76-164 - STPE-BIKE(9)]	Completed	Principal Investigator	Ralph D. Daily, Jr.
CT 93-01B, Tensar Keystone Retaining Wall" [Construction Project No. 76-164 - STPE-BIKE(9)]	Completed	Principal Investigator	Ralph D. Daily, Jr.
CT 94-01, "Tensar/Keystone Retaining Wall""Rockwood Retaining Wall" [Construction Project No. 153-102 - STPZ-7153(3)]	Completed	Principal Investigator	William Grant
CT 95-01A, "Safe Hit Glare Screen System" [Construction Project No. 63-458 - IRD-IM-91-3(157)37]	Completed	Principal Investigator	Robert O'Connor
CT 95-01B, "Carsonite Modular Glare Block" [Construction Project No. 63-458 - IRD-IM-91-3(157)37]	Completed	Principal Investigator	Robert O'Connor
CT 95-02, "Jacor Asphaltic Plug Joint" [Construction Project No. 131-179]	Active	Principal Investigator	Ralph D. Daily, Jr.
CT 98-01, "Snap-Tite Culvert Lining System" [Construction Project No. 143-167]	Active	Principal Investigator	Daniel P. Foley

PART P
Personnel Assignments to Research Committees
FY10

Project/Committee/Program	Project/Committee/Program Status	Type of Assignment	Person(s)
Part I - SPR Funded Research Activities			
"Collection of Roughness and Geometric Data for HPMS"	Active	Principal Investigator	Bradley J. Overturf
"Photologging of the Connecticut State Highway System"	Active	Principal Investigator	Bradley J. Overturf
SPR-1154, "ConnDOT Library"	Active	Principal Investigator	Betty Amber
SPR-1417, "Friction Testing and Safety Evaluation Services" [Formerly HPR-1417]	Active	Principal Investigator	John W. Henault

PART P
Personnel Assignments to Research Committees
FY10

Project/Committee/Program	Project/Committee/Program Status	Type of Assignment	Person(s)
Part II - SPR Funded Research Projects			
HPR-36, "Continuously Reinforced Concrete Pavement, I-84, Southington"	Completed	Principal Investigator	Charles E. Dougan
		Principal Investigator	Fred E. Sternberg
HPR-39, "Experimental Bituminous Concrete Study, Southbury-Middlebury"	Completed	Principal Investigator	David G. Bowers
		Principal Investigator	Fred E. Sternberg
HPR-40, "Experimental Bituminous Concrete Study, Groton"	Completed	Principal Investigator	David G. Bowers
HPR-55, "Experimental Self-Stressing Concrete, Route 2, Glastonbury"	Completed	Principal Investigator	Charles E. Dougan
		Principal Investigator	David G. Bowers
		Principal Investigator	Robert Christman
HPR-219, "Statistical Quality Control of Plant-Mixed Bituminous Concrete"	Completed	Principal Investigator	Fred E. Sternberg
SPR-0222, “Administration – Part II Research” (Formerly HPR-222)	Active	Principal Investigator	James M. Sime
SPR-0222(1), "A Study of Bus Propulsion Technologies Applicable in Connecticut" (CASE Study)	Completed	Principal Investigator	George Foyt
SPR-0222(2), "Transportation Investment Evaluation Methods and Tools: A Preliminary Best-Practices Survey" (CASE Study)	Completed	Principal Investigator	Michael Werle
SPR-0222(3), "Review of CTTRANSIT Diesel Bus ResearchProgram" (CASE Study)	Completed	Principal Investigator	Gale Hoffnagle
		Principal Investigator	Herbert Levinson
		Principal Investigator	Fred Robson
		Principal Investigator	Joseph Sangiovanni
SPR-0222(4), "A Study of Railcar Lavatories and Waste Management Systems" (CASE Study)	Completed	Principal Investigator	Richard H. Strauss
SPR-0222(5), "Information Technology Systems for Use in Incident Management and Work Zones" (CASE Study)	Completed	Principal Investigator	Clara Fang
HPR-227, "Comparision of Traffic Paints"	Completed	Principal Investigator	Ed F. Button
HPR-228, "Vehicle Behavior Under Real Conditions at Impact-Attenuation Devices"	Completed	Principal Investigator	David G. Bowers
HPR-331, "Effects of Deicing Salts on Soils and Vegetation"	Completed	Principal Investigator	Ed F. Button
		Principal Investigator	E. J. Rubins
		Principal Investigator	M. A. Woodward
		Principal Investigator	G. F. Griffin
HPR-332, "Loading History of Selected Bridges - I-95"	Completed	Principal Investigator	David G. Bowers
HPR-339, "Photologging"	Completed	Principal Investigator	David G. Bowers
SPR-0343, “Implementation of Research Findings” (Formerly HPR-343)	Active	Principal Investigator	James M. Sime
HPR-344, "Mechanical Strain Gages on Bridges"	Completed	Principal Investigator	Curtis A. Jackson
		Principal Investigator	Gary V. Feldt
		Principal Investigator	Raymond L. Dickey
		Principal Investigator	Thomas P. Severyn
HPR-356, "Friction Characteristics of Paving Materials in Connecticut"	Completed	Principal Investigator	George A. Ganung
HPR-357, "Evaluation of Motorist-Aid Call Box System"	Completed	Principal Investigator	Steele R. Korb
HPR-360, "Development of a Laboratory Data System"	Completed	Principal Investigator	Robert Christman
		Principal Investigator	William Buckley
		Principal Investigator	Keith R. Lane
		Principal Investigator	Saverio C. Attardi
HPR-361, "Field Observations of a High-Performance Bridge Barrier System"	Completed	Principal Investigator	Michael M. Kasinskas
		Principal Investigator	Keith R. Lane
HPR-372, "Friction Survey of the Interstate and Primary Systems in Connecticut"	Completed	Principal Investigator	George A. Ganung
HPR-373, "Experimental Noise Berm"	Completed	Principal Investigator	Joseph B. Pulaski
HPR-376, "Implementation of Statistical Specifications for Bituminous Concrete"	Completed	Principal Investigator	Fred E. Sternberg
		Principal Investigator	Keith R. Lane
		Principal Investigator	David G. Bowers
HPR-379, "Acoustic Crack Detector (ACD) - Magnetic Crack Definer (MCD) Evaluation"	Completed	Principal Investigator	D. T. Nyser
HPR-395, "Performance of a CRC Overlay in Connecticut"	Completed	Principal Investigator	David G. Bowers
HPR-396, "Evaluation of the Use of Salt Brine for Deicing Purposes"	Completed	Principal Investigator	Michael M. Kasinskas
HPR-402, "Crash-Testing of an Energy-Absorbing Truck Bumper System"	Completed	Principal Investigator	John F. Carney, III

PART P
Personnel Assignments to Research Committees
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Project/Committee/Program	Project/Committee/Program Status	Type of Assignment	Person(s)
Part II - SPR Funded Research Projects (continued)			
HPR-403, "Wet Weather High Hazard Locations, Identification and Evaluation"	Completed	Principal Investigator	George A. Ganung
HPR-466, "Use of Waste Materials in Transportation Construction"	Completed	Principal Investigator	James M. Sime
HPR-471, "Recycled Rubber in Roads"	Completed	Principal Investigator	Jack E. Stephens
HPR-492, "Use of Asphalt Emulsions in Connecticut"	Completed	Principal Investigator	James M. Sime
HPR-495, "Raised Pavement Markers at Hazardous Locations"	Completed	Principal Investigator	Robert E. Liptak
HPR-565, "Evaluation of Sedimentation Basins Constructed on Transportation Projects"	Completed	Principal Investigator	Donald A. Larsen
HPR-568, "Friction Survey of the Interstate and Primary Systems in Connecticut"	Completed	Principal Investigator	George A. Ganung
HPR-569, "Pavement Recycling - Phase I"	Completed	Principal Investigator	Robert Christman
		Principal Investigator	Keith R. Lane
HPR-570, "Assessment of the Rapid, Non-Destructive Testing of Concrete Structures"	Completed	Principal Investigator	David G. Bowers
HPR-646, "Portland Cement Concrete Pavement Recycling - Phase II"	Completed	Principal Investigator	Donald A. Larsen
HPR-647, "Bituminous Concrete Pavement Recycling - Phase II"	Completed	Principal Investigator	Donald A. Larsen
HPR-722, "Development of a Steel-Pipe Attenuation System"	Completed	Principal Investigator	John F. Carney, III
HPR-723, "Energy Considerations in ConnDOT Decisionmaking and Operations"	Completed	Principal Investigator	Donald A. Larsen
HPR-724, "Passive Solar-Heating Retrofit of a ConnDOT Maintenance Facility"	Completed	Principal Investigator	James M. Sime
		Principal Investigator	John M. Callahan
		Principal Investigator	David R. Jackson
HPR-801, "Sulphur-Extended Asphalt in Connecticut"	Completed	Principal Investigator	Michael M. Kasinskas
HPR-854, "Pavement Management in Connecticut - Phase I - Feasibility"	Completed	Principal Investigator	Donald A. Larsen
HPR-874, "Alternate Energy Sources for ConnDOT's Materials Testing Laboratory - Phase I"	Completed	Principal Investigator	George A. Ganung
HPR-876, "Connecticut Impact Attenuation System (CIAS)"	Completed	Principal Investigator	John F. Carney, III
		Principal Investigator	Charles E. Dougan
		Principal Investigator	Michael M. Kasinskas
		Principal Investigator	Eric C. Lohrey
HPR-887, "Pavement Management in Connecticut - Phase II - Development"	Completed	Principal Investigator	Donald A. Larsen
HPR-1008, "Installation and Evaluation of a Cathodic Protection System for Reinforced Concrete Bridge Decks in Connecticut"	Completed	Principal Investigator	Michael M. Kasinskas
HPR-1080, "Development of a Metal Tube Crash Cushion for Narrow Hazard Sites"	Completed	Principal Investigator	John F. Carney, III
HPR-1084, "Protective Coatings for Structural Steel"	Completed	Principal Investigator	Michael M. Kasinskas
		Principal Investigator	Eric C. Lohrey
HPR-1085, "Evaluation of Asphalt Additives"	Completed	Principal Investigator	Frank M. Augeri
		Principal Investigator	Eric C. Lohrey
HPR-1086, "Dynamic Bridge Formula Compliance Analyzer (DBFCA) Demonstration"	Completed	Principal Investigator	George A. Ganung
HPR-1221, "Crash Testing of a Narrow-Site Crash Cushion"	Completed	Principal Investigator	Charles E. Dougan
		Principal Investigator	John F. Carney, III
		Principal Investigator	Eric C. Lohrey
HPR-1222, "Generalized Design for the CIAS"	Completed	Principal Investigator	John F. Carney, III
HPR-1340, "Generalized CIAS Design"	Completed	Principal Investigator	John F. Carney, III
HPR-1341, "Computerized Bridge Inormation System"	Completed	Principal Investigator	Robert G. Lauzon
HPR-1342, "Connecticut Long-Term Pavement Performance Study"	Completed	Principal Investigator	Donald A. Larsen
HPR-1343, "Evaluation of the South Dakota Road Profiler for the Measurement of Pavement Rut Depths"	Completed	Principal Investigator	Donald A. Larsen
HPR-1344, "Detection of Frost-Prone Road Beds"	Completed	Principal Investigator	Jeffery J. Scully
		Principal Investigator	Anne-Marie H. McDonnell
HPR-1345, "Videodisc-Based Sign Inventory System (VSIS)	Completed	Principal Investigator	Richard C. Hanley
HPR-1408, "Full-Scale Bridge Test to Monitor Vibrational Signatures"	Completed	Principal Investigator	Robert G. Lauzon
HPR-1409, "Evaluation of Concrete Removal Methods"	Completed	Principal Investigator	Eric C. Lohrey
HPR-1410, "Effect of Ambient Lighting During Photolog Filming on Visual Rating of Pavements"	Completed	Principal Investigator	Donald A. Larsen
		Principal Investigator	Dionysia F. Oliveira
HPR-1535, "Conversion of Pavement Management Data System from Mainframe to Personal Computer"	Completed	Principal Investigator	Richard C. Hanley
HPR-1538, "Development of a Videowindows PLV Viewing System"	Completed	Principal Investigator	John H. Hudson
HPR-2303, "Analysis for a Geographic Information System (GIS)"	Completed	Principal Investigator	L. M. Minor

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Project/Committee/Program	Project/Committee/Program Status	Type of Assignment	Person(s)
Part II - SPR Funded Research Projects (continued)			
HPR-2304, "National Traffic Data Acquisition Conference, 1994"	Completed	Principal Investigator	Donald A. Larsen
		Principal Investigator	Anne-Marie H. McDonnell
SPR-1213, "Strategic Highway Research Program Coordination"	Completed	Principal Investigator	Anne-Marie H. McDonnell
SPR-1271, "Technology Transfer Center" [Formerly HPR-1271]	Active	Principal Investigator	Donna M. Shea
SPR-1346, "Monitoring of Cathodic Protection Systems" [Formerly HPR-1346]	Active	Principal Investigator	Andrew J. Mroczkowski
SPR-2107, "Management – New England Transportation Consortium (NETC)"	Active	Principal Investigator	Dionysia F. Oliveira
SPR-2108, "LTPP (Long-Term Pavement Performance) Coordination in Connecticut"	Active	Principal Investigator	Anne-Marie H. McDonnell
SPR-2202 (R.P. 170-2202), "Connecticut DOT Photolog-Based Highway Curvature Measurement"	Completed	Principal Investigator	Robert Kasica
SPR-2214 (JH 93-4), "Hydrodynamic and Transport Models of Coastal Waters for Use in Design and Management of Highway Structures"	Completed	Principal Investigator	Jia D. Lin
		Principal Investigator	Michael W. Lefor
SPR-2216, "'350' Crash Testing of Connecticut Impact-Attenuation Systems"	Completed	Principal Investigator	Dionysia F. Oliveira
SPR-2217, "Monitoring of Highway Bridges in Connecticut"	Completed	Principal Investigator	Paul F. D'Attilio
		Principal Investigator	John T. DeWolf
SPR-2219, "Demonstration and Evaluation of Superpave Technologies"	Completed	Principal Investigator	Donald A. Larsen
SPR-2220, "Evaluation of a Vertical Clearance Sensor for Photolog"	Completed	Principal Investigator	Robert G. Lauzon
SPR-2221, "Testing and Evaluation of an Automated Sign Identification System (ASIS)"	Active	Principal Investigator	Richard C. Hanley
SPR-2222, "Development and Guidelines for Reduction of Temperature Differential Damage (TTD) for Hot Mix Asphalt Pavement Projects in Connecticut"	Completed	Principal Investigator	Jeffery J. Scully
SPR-2223, "Evaluation of Alternative Fuel Light Trucks and Automobiles"	Completed	Principal Investigator	James M. Sime
SPR-2224, "Development and Implementation of Digital Versatile Disk (DVD) for Photolog"	Completed	Principal Investigator	Drew M. Coleman
SPR-2225, "Evaluation of Lightweight Non-Contact Profilers for Use in QC/QA Specifications on Pavement Smoothness"	Completed	Principal Investigator	Donald A. Larsen
SPR-2226, "Smoothness of Pavements in Connecticut"	Completed	Principal Investigator	Charles E. Dougan
SPR-2227, "Evaluation of the Next Generation Pavement Quality Indicator (PQI) Device"	Completed	Principal Investigator	John W. Henault
SPR-2228, "Implementation of Personal Digital Assistant (PDA) Devices for Superpave Field Data Collection"	Completed	Principal Investigator	Richard C. Hanley
SPR-2229, "Application of Infrared Thermographic Imaging to Bituminous Concrete Pavements"	Completed	Principal Investigator	Jack E. Stephens
		Principal Investigator	James M. Mahoney
SPR-2230, "Development and Implementation of a Highway Construction Quality Assurance Program for the Connecticut Department of Transportation, Phase I – HMA Concrete"	Completed	Principal Investigator	Edgardo D. Block
SPR-2231, "Feasibility of Streaming Media for Transportation Research and Implementation"	Completed	Principal Investigator	Drew M. Coleman
SPR-2232, "Lateral Variation in Pavement Smoothness"	Completed	Principal Investigator	Charles E. Dougan
		Principal Investigator	Lisa Aultman-Hall
		Principal Investigator	Bradley J. Overturf
SPR-2233, "Alternative Merge Signs at Signalized Intersections"	Completed	Principal Investigator	Eric G. Feldblum
SPR-2234, "Performance Evaluation of Whitetopping and Superpave at High Volume Intersections"	Completed	Principal Investigator	Erika B. Lindeberg (Formerly Erika B. Smith)
SPR-2235, "Program Development for the Connecticut Transportation Institute"	Completed	Principal Investigator	Charles E. Dougan
		Principal Investigator	Lisa Aultman-Hall
		Principal Investigator	John H. Hudson
SPR-2236, "New Technologies for Photolog Image and Data Acquisition"	Active	Principal Investigator	Bradley J. Overturf
SPR-2237, "Field Evaluation of Concrete Containing Disodium Tetrapropenyl Succinate (DSS)"	Active	Principal Investigator	Richard C. Hanley
SPR-2238, "Quantifying Segregation Using Non-Nuclear Density Devices"	Completed	Principal Investigator	Donald A. Larsen
SPR-2239 (Phase 1A), "Development of Internet-Based Computer Databases for the Connecticut Department of Transportation: Phase 1A – Development of the Connecticut Product Evaluation Database (ConnPED) Application"	Completed	Principal Investigator	James M. Mahoney
		Principal Investigator	Lisa Aultman-Hall
		Principal Investigator	Andrew J. Mroczkowski

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Project/Committee/Program	Project/Committee/Program Status	Type of Assignment	Person(s)
Part II - SPR Funded Research Projects (continued)			
SPR-2239 (Phase 1B), "Development of Internet-Based Computer Databases for the Connecticut Department of Transportation: Phase 1B – Development of an Internet-Based Protocol for the Connecticut Product Evaluation Database (ConnPED) Application"	Active	Principal Investigator	James M. Mahoney
		Principal Investigator	Eric D. Jackson
		Principal Investigator	Andrew J. Mroczkowski
SPR-2240, "Evaluating the Long-Term Performance of Pavements Thermally Imaged During Construction - Phase 1: Developing Spatial Tools for Location Identification"	Completed	Principal Investigator	James M. Mahoney
		Principal Investigator	Lisa Aultman-Hall
SPR-2241, "Evaluation of Pavement Crack Treatments - Phase 1: Literature and Data Review"	Completed	Principal Investigator	James M. Mahoney
SPR-2242, "Correlation of Nuclear Density Readings with Cores Cut from Compacted Roadways"	Completed	Principal Investigator	James M. Mahoney
SPR-2243, "Enhancements to ConnDOT's Pavement Friction Testing Program"	Active	Principal Investigator	John W. Henault
SPR-2244, "Assessing ConnDOT's Portland Cement Concrete Testing Methods"	Completed	Principal Investigator	John W. Henault
SPR-2245, "Feasibility of Implementing Additional AASHTO Trns.port Modules in Connecticut"	Completed	Principal Investigator	Michael W. Lonergan
SPR-2246, "Winter Highway Operations: Alternatives to Sand/Salt Mixtures" (CASE Study)	Completed	Principal Investigator	Lisa Aultman-Hall
SPR-2247, "Hydrogen Fueled Transportation in Connecticut" (CASE Study)	Completed	Principal Investigator	Joseph M. King, Jr.
SPR-2248, "Asphalt Pavement Analyzer"	Completed	Principal Investigator	James M. Mahoney
SPR-2249, "Longitudinal Joint Performance Study"	Completed	Principal Investigator	James M. Mahoney
SPR-2250, "Hot Mix Asphalt Research Investigation for Connecticut"	Active	Principal Investigator	James M. Mahoney
SPR-2251, "Short-Term Bridge Monitoring"	Completed	Principal Investigator	Alireza Jamalipour
		Principal Investigator	John T. DeWolf
		Principal Investigator	Richard E. Christenson
SPR-2252, "Assessing ConnDOT's Portland Cement Concrete (PCC) Testing Methods - Phase II, Field Trials and Implementation"	Active	Principal Investigator	John W. Henault
SPR-2253, "Development of a Digital Design Environment (DDE) for the Connecticut Department of Transportation"	Active	Principal Investigator	William S. Pratt
SPR-2254, "Advancing the Use of Streaming Media and Digital Media Technologies at ConnDOT"	Active	Principal Investigator	Drew M. Coleman
SPR-2255, "Self-Consolidating and No-Slump Concretes: A Synthesis of Research Findings and Best Practices"	Active	Principal Investigator	John W. Henault
SPR-2256, "Expansion and Refinement of a Bridge Monitoring Network in Connecticut"	Active	Principal Investigator	Alireza Jamalipour
		Principal Investigator	John T. DeWolf
		Principal Investigator	Richard E. Christenson
SPR-2257, "A Study of Weigh Station Technologies" (CASE Study)	Completed	Principal Investigator	David S. Pines
		TAC Member	Anne-Marie H. McDonnell
SPR-2258, "Transportation Asset Management System, Including Comprehensive Pavement Life-Cycle Cost Analysis" (CASE Study)	Completed	Principal Investigator	Nicholas E. Lownes
		Principal Investigator	Adam Zofka
SPR-2259, "Field Evaluation of a Cold-in-Place Recycled Pavement Base Overlaid with Hot Mix Asphalt (I-395)"	Completed	Principal Investigator	John W. Henault
SPR-2260, "Digital Preservation of a Highway Photolog Film Archive in Connecticut"	Active	Principal Investigator	Bradley J. Overturf
		Principal Investigator	Eric D. Jackson
		Principal Investigator	James M. Mahoney
SPR-2261, "Design Build, A Transportation Project Methodology for Connecticut's Consideration" (CASE Study)	Active	Principal Investigator	Eric D. Jackson
		Principal Investigator	James M. Mahoney
		TAC Member	James H. Norman
		TAC Member	Scott A. Hill
		TAC Member	Richard B. Armstrong
		TAC Member	Mark D. Rolfe

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Project/Committee/Program	Project/Committee/Program Status	Type of Assignment	Person(s)
Part II - SPR Funded Research Projects (continued)			
SPR-2262, "Water-Quality Monitoring and Assessment Due to Addition of a Lane on a Divided Highway in Southeastern Connecticut" (USGS Study)	Active	Principal Investigator	John R. Mullaney
		Principal Investigator	Jonathan Morrison
		CASE Study Manager and TAC Member	Joseph Bushey
		CASE Adminstrative Contact and TAC Member	Richard H. Strauss
		FHWA Technical Contact and TAC Member	Robert W. Turner
		ConnDOT Techncial Contact and TAC Member	Paul N. Corrente
		ConnDOT Research TAC Member	Dionysia F. Oliveira
		ConnDOT Materials Testing TAC Member	Vittorio P. Castro
SPR-2263, "Evaluating the Impacts of Reducing the Number of Hot Mix Asphalt Plant Testing Acceptance Criteria on Mix Variability"	Active	Principal Investigator	James M. Mahoney
SPR-2264, “Performance Comparison of PG 64-22 versus PG 64-28 Asphalt in Hot Mix Asphalt Placed in Connecticut”	Active	Principal Investigator	James M. Mahoney
		Principal Investigator	Adam Zofka
SPR-2265, "Development and Evaluation of a Dual Purpose Bridge Health Monitoring and Weigh-in-Motion System for a Steel Birder Bridge"	Active	Principal Investigator	Richard E. Christenson
		Principal Investigator	Anne-Marie H. McDonnell
SPR-2266, "Environmental Mitigation Alternatives for Transportation Projects" (CASE Study)	Active	Principal Investigator	Joseph Bushey
SPR-2267, "Evaluation of the Nonnuclear Density Gauge for Quality Control of Hot-Mix Asphalt"	Active	Principal Investigator	John W. Henault
SPR-2268, "The Use of Polymer Modified Asphalt Binder for High Friction Thin Lift Overlays in Connecticut"	Active	Principal Investigator	James M. Mahoney
		Principal Investigator	Adam Zofka
		TAC Member	John W. Henault
SPR-2269, "Warm Mix Asphalt Pilot Project Development"	Active	Principal Investigator	James M. Mahoney
		Principal Investigator	Adam Zofka
		TAC Member	David J. Kilpatrick
SPR-2305, “Connecticut Advanced Pavement Laboratory (CAP Lab)”	Active	Principal Investigator	James M. Mahoney
SPR-2306, "Installation and Evaluation of a Weigh-In-Motion System Utilizing Quartz-Piezo Sensor Technology"	Active	Principal Investigator	Anne-Marie H. McDonnell

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Project/Committee/Program	Project/Committee/Program Status	Type of Assignment	Person(s)
Federally-Funded Research Projects			
R.P. HS 412-002-180, "Skid Resistance of Pavement and Bridge Decks"	Completed	Principal Investigator	Charles E. Dougan
		Principal Investigator	George A. Ganung
		Principal Investigator	Robert Christman
R.P. 7412-1206, "Friction Testing of the Secondary Road System in Connecticut"	Completed	Principal Investigator	George A. Ganung
R.P. 77-171, "RTAP Project #65, Local Roads Superintendents Handbook on Supervisory Practices"	Completed	Principal Investigator	Donald W. Huffmire
R. P. 170-158, "FHWA Task Order No. 1, Field Installation and Evaluation of Post-Mounted Delineators"	Completed	Principal Investigator	Robert E. Liptak
R.P. 170-199, "FHWA Task Order No. 2, Pavement Patching Demonstration and Evaluation"	Completed	Principal Investigator	George A. Ganung
R.P. 170-983, "Development of an FHWA Implementation Package for the Connecticut Impact Attenuation System (CIAS)"	Completed	Principal Investigator	Eric C. Lohrey
R.P. 170-1884, "CTTRANSIT Demonstration and Evaluation of Hybrid Diesel Electric Transit Buses" (CASE Study)	Completed	Principal Investigator	Stephen W. Warren
R.P. 300-77, "Devon Railroad Bridge Monitoring"	Completed	Principal Investigator	Paul F. D'Attilio
		Principal Investigator	Robert G. Lauzon
		Principal Investigator	Eric G. Feldblum
SPR 704-902, "Safety Project and Program Evaluation"	Completed	Principal Investigator	Julie M. Annino

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Project/Committee/Program	Project/Committee/Program Status	Type of Assignment	Person(s)
State-Funded Research Projects			
R.P. 92-616, "A Study of the Feasibility of Utilizing Fuel Cells to Generate Power for the New Haven Rail Line" (CASE Study)	Completed	Principal Investigator	Joseph M. King, Jr.
R.P. 165-01, "Pavement Evaluation of Runways 6-24 and 15-33"	Completed	Principal Investigator	David G. Bowers
R.P. 170-2164, "Oversize/Overweight Permitting (OSOW) System Support and Commercial Vehicle Information System Network (CVISN) Support"	Completed	Principal Investigator	Richard C. Hanley
R.P. 170-2202 (SPR-2202), "Connecticut DOT Photolog-Based Highway Curvature Measurement"	Completed	Principal Investigator	Robert Kasica
R.P. 175-34, "Deflection Study of Bituminous Concrete Pavements"	Completed	Principal Investigator	Fred E. Sternberg
R.P. 175-116, "Miscellaneous Minor Research"	Active	Principal Investigator	John W. Henault
R.P. 175-116 #1, "Rumble Strips"	Completed	Principal Investigator	L. E. Miller
		Principal Investigator	O. A. Strassenmeyer
		Principal Investigator	J. O. Wilson
R.P. 175-116 #2 (now #19), "Deicer Experiment"	Completed	Principal Investigator	L. E. Miller
R.P. 175-116 #4, "Thin Pavement Overlays"	Completed	Principal Investigator	R. Gregson
		Principal Investigator	Robert E. Liptak
R.P. 175-116 #7, "Analysis of Experimental Fencing"	Completed	Principal Investigator	O. A. Strassenmeyer
R.P. 175-116 #8, "Guide Rail and Median Barriers"	Completed	Principal Investigator	O. A. Strassenmeyer
		Principal Investigator	Michael M. Kasinskas
		Principal Investigator	Ed F. Button
R.P. 175-116 #9, "Bridge Deck and Pavement Patching Materials"	Completed	Principal Investigator	Charles E. Dougan
		Principal Investigator	J. O. Wilson
R.P. 175-116 #13, "Traffic Paint Equipment"	Completed	Principal Investigator	Ed F. Button
R.P. 175-116 #15, "Snow Plow Blades"	Completed	Principal Investigator	George A. Ganung
		Principal Investigator	Charles E. Dougan
R.P. 175-116 #16, "Vinyl Longitudinal-Joint Strip"	Completed	Principal Investigator	John H. Hudson
R.P. 175-116 #17, "Bridge Safety"	Completed	Principal Investigator	George A. Ganung
R.P. 175-116 #19, "Evaluations and Observations - Chemical Deicers"	Completed	Principal Investigator	Michael M. Kasinskas
R.P. 175-116 #20, "Cold Weather Paving"	Completed	Principal Investigator	David G. Bowers
		Principal Investigator	John H. Hudson
		Principal Investigator	R. Donovan
R.P. 175-116 #21, "Concrete-Chelating Compound"	Completed	Principal Investigator	Ed F. Button
R.P. 175-116 #22, "Chlorides in Plant Tissue"	Completed	Principal Investigator	Ed F. Button
R.P. 175-116 #23, "Artificial Grass"	Completed	Principal Investigator	Ed F. Button
R.P. 175-116 #24, "Stone Gradation Variability"	Completed	Principal Investigator	William B. Perruccio
		Principal Investigator	Fred E. Sternberg
R.P. 175-116 #25, "Accident and Pavements, I-95"	Completed	Principal Investigator	Fred E. Sternberg
R.P. 175-116 #26, "Post Tensioned Tube-Slab Bridges, Route 11, Colchester"	Completed	Principal Investigator	Ed F. Button
R.P. 175-116 #27, "Evaluation of Overhead Sign Coatings"	Completed	Principal Investigator	Robert E. Liptak
R.P. 175-116 #28, "Permeability of CRC Cores"	Completed	Principal Investigator	Michael M. Kasinskas
		Principal Investigator	Fred E. Sternberg
R.P. 175-116 #29, "Performance Evaluation of Runway Improvements"	Completed	Principal Investigator	Fred E. Sternberg
R.P. 175-116 #31, "Ecofuel Bituminous Pavement"	Completed	Principal Investigator	Donald A. Larsen
R.P. 175-116 #32, "Rubberized-Asphalt Pavement"	Completed	Principal Investigator	Donald A. Larsen
R.P. 175-116 #33, "Reflection Cracking Study (I-95)"	Completed	Principal Investigator	Donald A. Larsen
R.P. 175-116 #34, "Drier Drum (I-95)"	Completed	Principal Investigator	James M. Sime
R.P. 175-116 #35, "Bituminous Concrete Patch Study"	Completed	Principal Investigator	James M. Sime
R.P. 175-116 #37, " Extended Evaluation of Hot-Mix Recycling, Rt. 4, Burlington"	Completed	Principal Investigator	Dionysia F. Oliveira
R.P. 175-116 #39, "Evaluation of Post-Tensioned Strands and Ducts on the Bissell Bridge"	Completed	Principal Investigator	Michael M. Kasinskas
R.P. 175-116 #40, "Longitudinal Joint Repair Procedures"	Completed	Principal Investigator	Jonathan T. Boardman
R.P. 175-116 #42, " Evaluation of Compost Installations on ConnDOT Construction Projects"	Completed	Principal Investigator	Donald A. Larsen
R.P. 175-116 #43, "Support Activities for the Connecticut Guide Rail Activities"	Completed	Principal Investigator	Richard C. Hanley
R.P. 175-116 #44, "Performance Monitoring of Superpave Pavements at Project 83-220"	Active	Principal Investigator	Richard C. Hanley
R.P. 175-116 #45, "Investigate Durability and Longevity of Inductive Loops for Traffic Detection"	Active	Principal Investigator	Anne-Marie H. McDonnell

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State-Funded Research Projects (continued)			
R.P. 175-117, "Salt Effect on Vegetation"	Completed	Principal Investigator	Ed F. Button
R.P. 175-118, "Concrete Protective Applications"	Completed	Principal Investigator	O. A. Strassenmeyer
		Principal Investigator	L. E. Miller
		Principal Investigator	Michael M. Kasinskas
R.P. 175-119 #1, "Crack Control Joints"	Completed	Principal Investigator	J. O. Wilson
R.P. 175-120 #1, " Load Transfer Dowels"	Completed	Principal Investigator	Fred E. Sternberg
		Principal Investigator	David G. Bowers
		Principal Investigator	Charles E. Dougan
R.P. 175-120 #2, "Joint Formers-Plastic"	Completed	Principal Investigator	David G. Bowers
R.P. 175-120 #3, "Joint Former Inserts"	Completed	Principal Investigator	Robert Christman
R.P. 175-120 #4, "Joint Former-Unitube"	Completed	Principal Investigator	David G. Bowers
R.P. 175-120 #5, "Blow Ups"	Completed	Principal Investigator	David G. Bowers
		Principal Investigator	L. E. Miller
R.P. 175-120 #7, "Mudjacking"	Completed	Principal Investigator	O. A. Strassenmeyer
		Principal Investigator	J. O. Wilson
R.P. 175-120 #9, "Pressure Relief Sections"	Completed	Principal Investigator	Fred E. Sternberg
R.P. 175-120#10, "Wire Mesh Reinforced Overlay"	Completed	Principal Investigator	Fred E. Sternberg
		Principal Investigator	David G. Bowers
R.P. 175-120 #11, "Crack Formation in Non-Reinforced Concrete Pavement"	Completed	Principal Investigator	Fred E. Sternberg
		Principal Investigator	Frank J. Kos
R.P. 175-123, "Subbase - Quarry Run Stone"	Completed	Principal Investigator	Charles E. Dougan
		Principal Investigator	Fred E. Sternberg
R.P. 175-131, "Bituminous Concrete Shoulders, I-91"	Completed	Principal Investigator	Fred E. Sternberg
		Principal Investigator	David G. Bowers
R.P. 175-137, "Experimental Joint Forming and Sealing, Route 2, Colchester"	Completed	Principal Investigator	David G. Bowers
R.P. 175-169, "Bridge Deck Inspection, I-91"	Completed	Principal Investigator	J. O. Wilson
R.P. 175-204, "Traffic Surveillance and Control"	Completed	Principal Investigator	L. A. Chimini
		Principal Investigator	Robert F. Dawson
		Principal Investigator	William B. Perruccio
		Principal Investigator	Kumares C. Sinha
R.P. 175-205 #1, "Signal Progression"	Completed	Principal Investigator	J. Bruno
		Principal Investigator	William B. Perruccio
R.P. 175-205 #2, "Capacity Program"	Completed	Principal Investigator	Charles E. Dougan
R.P. 175-210, "Asphalt Molecular Size by GPC"	Completed	Principal Investigator	Charles E. Dougan
R.P. 175-211, “Evaluation of New Products, Materials and Processes”	Active	Principal Investigator	Andrew J. Mroczkowski
R.P. 175-212 - South Road Curved Girder Bridge	Completed	Principal Investigator	R. F. Victor
R.P. 175-216 - Pavement Grooving and Grooved Line Striping, I-84, Waterbury	Completed	Principal Investigator	O. A. Strassenmeyer
		Principal Investigator	George A. Ganung
		Principal Investigator	Frank J. Kos
		Principal Investigator	Robert Christman
R.P. 175-225, "Development of the Air Jet Snow Plow"	Completed	Principal Investigator	Michael M. Kasinskas
R.P. 850-50, "Development of a Rail Photolog"	Completed	Principal Investigator	David G. Bowers
R.P. 850-51, "Highway User Cost in Connecticut"	Completed	Principal Investigator	Charles E. Dougan
"Moisture and Density Determinations by Nuclear Methods"	Completed	Principal Investigator	O. A. Strassenmeyer
"Highway Illumination, Warrants - Design - Maintenance - Costs"	Completed	Principal Investigator	H. S. Ives
"A Statistically Based Plan for Acceptance Control"	Completed	Principal Investigator	F. E. Sternberg
JH 83-100, "Increased Funding Needs of the Cooperative Highway Research Program"	Completed	Principal Investigator	Charles E. Dougan
		Principal Investigator	James M. Sime

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Project/Committee/Program	Project/Committee/Program Status	Type of Assignment	Person(s)
Connecticut Cooperative Transportation Research Program (CCTRP) Projects			
JH 51-1, "Study of Hydraulic Design of the Curb Inlet Grate"	Completed	Principal Investigator	V. E. Scottron
		Principal Investigator	C. J. Pelletier
JH 51-2, "Investigation of Run-off from Small Drainage Areas"	Completed	Principal Investigator	Jack E. Stephens
JH 51-3, "Variation in Amount of Frost Heave with Depths of Ground Water Table"	Completed	Principal Investigator	R. J. Leonard
		Principal Investigator	Edward V. Gant
JH 51-4, "Effect of Washed Concrete Sand in Increasing Capillary Rise and Frost Heaving"	Completed	Principal Investigator	E. Budzik
JH 51-5, "Capillary Potential of Various Materials"	Completed	Principal Investigator	A.V . Giodano
JH 51-6, "Filter Test of Various Materials"	Completed	Principal Investigator	E. R. Phelisse
		Principal Investigator	B. K. Ramiah
JH 53-1, "Development of Miniature Filter Test"	Completed	Principal Investigator	B. K. Ramiah
JH 54-1, "Pile Drag Study - New Haven Harbor"	Completed	Principal Investigator	Edward V. Gant
		Principal Investigator	Jack E. Stephens
JH 54-2, "Laboratory Evaluation of Frost Characteristics"	Completed	Principal Investigator	P. V. Cuomo
JH 57-1, "Study of the Relationship between the Degrees of Consolidation and the Shearing Strength of Varved Clays and Marine Muds"	Completed	Principal Investigator	Unavailable
JH 57-2, "Study of the Relationship between the Orientation of the Principal Stresses and the Shearing Strength of Varved Clays"	Completed	Principal Investigator	T. M. Meda
JH 57-3, "Attempt to Correlate Laboratory Triaxial Shear Tests with Miniature Laboratory and Larger Field Vane Shear Tests"	Completed	Principal Investigator	Unavailable
JH 57-4, "Development and Use of Consolidation Apparatus, Which Will Make Use of Extra-Thick Samples of Varved Clay"	Completed	Principal Investigator	Unavailable
JH 63-1, "Split Cylinder Tests of Flexible Pavements"	Completed	Principal Investigator	Joseph J. Breen
		Principal Investigator	Jack E. Stephens
JH 63-2, "Fatigue Characteristics of Flexible Pavements under Repeated Loads at Various Temperatures"	Completed	Principal Investigator	Joseph J. Breen
		Principal Investigator	Jack E. Stephens
JH 63-4, "Study of Bridge Vibrations and Deflection - Effect on Slab Durability"	Completed	Principal Investigator	James C. Longley
JH 63-5, "Effect of Aging in Asphalt"	Completed	Principal Investigator	D. Anderson
JH 63-6, "Density of Bituminous Concrete Pavement by Nuclear Methods"	Completed	Principal Investigator	Jack E. Stephens
JH 63-7, "An Investigation of the Brittle Plastic Behavior of Asphalt Mixtures by Use of an Impact Device"	Completed	Principal Investigator	Jack E. Stephens
JH 63-9, "Effects of Aggregate Shape on Bituminous Mix Characteristics"	Completed	Principal Investigator	Jack E. Stephens
JH 64-1, "Salt Concentration in Run-off Water"	Completed	Principal Investigator	Wilbur J. Widmer
JH 64-2, "Erosion Control in Ditches and Waterways"	Completed	Principal Investigator	C. J. Posey
JH 64-3, "Triaxial Consolidation of Varved Clay"	Completed	Principal Investigator	Kent A. Healy
JH 65-1, "Quality Control of Asphaltic Concrete"	Completed	Principal Investigator	Jack E. Stephens
JH 65-2, "Field Control of Deck Concrete"	Completed	Principal Investigator	Kent A. Healy
JH 65-3, "Laboratory Simulation of Deck Deterioration"	Completed	Principal Investigator	Kent A. Healy
JH 65-4, "Salt Build-Up in Roadway Soils"	Completed	Principal Investigator	George A. Prior
		Principal Investigator	Paul M. Berthouex
JH 66-1, "Effect of Straightening Damaged Steel"	Completed	Principal Investigator	E. R. Johnston
JH 66-3, "I-84 Freeway Surveillance and Control"	Completed	Principal Investigator	Robert F. Dawson
		Principal Investigator	William B. Perruccio
JH 66-4, "Expressway Traffic Simulation"	Completed	Principal Investigator	Kumares C. Sinha
JH 66-5, "Hyperland Function as a Traffic Model"	Completed	Principal Investigator	Robert F. Dawson
JH 66-6, "Salt Concentration in Vegetation"	Completed	Principal Investigator	Ed F. Button
		Principal Investigator	D. E. Peaslee
JH 67-1, "Frost Susceptible Soil, I-91, Wallingford"	Completed	Principal Investigator	Kent A. Healy
JH 67-2, " Prefabricated Underdrains"	Completed	Principal Investigator	Kent A. Healy
		Principal Investigator	Richard P. Long
JH 67-3, "Applicability of Electro-Osmosis to Marginal Soils"	Completed	Principal Investigator	Richard P. Long
JH 67-4, "Correlation of Molecular Size and Asphalt Characteristics"	Completed	Principal Investigator	Jack E. Stephens
JH 67-5, "Bituminous Mix Density by Coated Specimens"	Completed	Principal Investigator	Jack E. Stephens
JH 67-6. "Control of Moisture Under Pavements"	Completed	Principal Investigator	Kent A. Healy
		Principal Investigator	Richard P. Long
JH 67-7, "Stresses in Curved Girder"	Completed	Principal Investigator	Unavailable
JH 68-1, "Study of Permeability of Calcium Chloride Stabilized and Crusher Run Bases"	Completed	Principal Investigator	Richard P. Long
		Principal Investigator	Kent A. Healy
JH 68-2, "Pilot Roadway Design Project ROADS Subsystem of ICES"	Completed	Principal Investigator	Robert F. Dawson
JH 69-1, "Effect of Heat and Air on Asphalt by Gel Permeation Chromatography"	Completed	Principal Investigator	Charles E. Dougan

PART P
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Project/Committee/Program	Project/Committee/Program Status	Type of Assignment	Person(s)
Connecticut Cooperative Transportation Research Program (CCTRP) Projects (continued)			
JH 70-2, "Analysis of Thermally Loaded Laminated Circular Plates"	Completed	Principal Investigator	John F. Carney, III
JH 70-3, "Field Consolidation of Varved Clay"	Completed	Principal Investigator	Richard P. Long
		Principal Investigator	Kent A. Healy
JH 70-4, "Air Jet Snow Plow"	Completed	Principal Investigator	Michael M. Kasinskas
JH 70-5, "Simulation of Traffic Flow of the I-291 and Route 15 Three-Level Diamond Interchange"	Completed	Principal Investigator	Charles H. Knapp
		Principal Investigator	Rajendra P. Jain
JH 71-1, "Multiple Truck Loading on Bridges"	Completed	Principal Investigator	Richard D. Desrosiers
JH 72-1, "Effects of Deicing Salts and Lead Particulates upon Chemical Composition of Trees and Shrubs"	Completed	Principal Investigator	Ed F. Button
		Principal Investigator	E. J. Rubins
		Principal Investigator	M. A. Woodward
		Principal Investigator	G. F. Griffin
JH 72-2, "Measurement of Bridge Deck Status by Dynamic Modulus"	Completed	Principal Investigator	Jack E. Stephens
JH 73-1, "Negative Skin Friction on Piles and Foundation Design Methods for Poles and Towers"	Completed	Principal Investigator	Richard P. Long
		Principal Investigator	Kent A. Healy
JH 73-2, "Analysis of Connecticut Department of Transportation Traffic Paints"	Completed	Principal Investigator	Robert Fitch
		Principal Investigator	Jack E. Stephens
JH 73-3, "Short Term Effects of Highway Construction"	Completed	Principal Investigator	Robert H. Wortman
JH 73-4, "A Portable Energy Absorbing System for Highway Service Vehicles"	Completed	Principal Investigator	John F. Carney, III
JH 74-1, "Measurement of Foundation Strains under Lateral Loads"	Completed	Principal Investigator	Richard P. Long
		Principal Investigator	Kent A. Healy
JH 74-3, "A Review of Traffic Restraint Concepts and the Potential Application in Connecticut"	Completed	Principal Investigator	Robert H. Wortman
JH 74-4, "Design of Test Installation of Bitumen Coated Piles"	Completed	Principal Investigator	Richard P. Long
JH 75-2, "Split Cylinder Test for Tension Strength of Concrete"	Completed	Principal Investigator	Jack E. Stephens
JH 75-4, "Statistical Utilization of Past Quality Control Data"	Completed	Principal Investigator	Jack E. Stephens
JH 77-1, "Reducing Highway Maintenance through Effective Drainage"	Completed	Principal Investigator	Richard P. Long
		Principal Investigator	Kent A. Healy
JH 77-2, "Development of a Process for the Review of Queuing Models to be used in Air Quality Analysis"	Completed	Principal Investigator	Christian F. Davis
JH 77-3, "A Legal Determination of the Navigability of the Quinebaug and Shetucket Rivers"	Completed	Principal Investigator	Karla Fox
JH 77-4, "Solar Energy Augmentation for Hot Water Needs in Connecticut Highway Rest Areas"	Completed	Principal Investigator	David R. Jackson
		Principal Investigator	J. M. Callahan
		Principal Investigator	Wallace W. Bowley
JH 77-5, "False-Color Infrared Aerial Photography as an Aid in Evaluating Environmental Impacts on Inland Wetlands by Proposed Highways in "Connecticut: A Feasibility Study"	Completed	Principal Investigator	William C. Kennard
		Principal Investigator	Michael W. Lefor
JH 77-6, "Chemical Reactivity of Selected Connecticut Rock Strata"	Completed	Principal Investigator	I. Kaseoru
JH 78-1, "Development of a Steel Pipe Vehicle Impact Attenuation System"	Completed	Principal Investigator	John F. Carney, III
JH 78-2, "Assessment of Highway Environmental Impact in Connecticut Using Remote Sensing Procedures"	Completed	Principal Investigator	W. C. Kennard
		Principal Investigator	Michael W. Lefor
JH 78-3, "Analysis of Air Pollution, Traffic Congestion and Fuel Consumption by Computer Simulation"	Completed	Principal Investigator	Christian F. Davis
JH 78-4, "Determining the Shear Strength of Varved Clay Using Vane Shear"	Completed	Principal Investigator	Richard P. Long
JH 79-1, "A Study of Para-Transit in Connecticut"	Completed	Principal Investigator	Christian F. Davis
JH 80-1, "Residential Relocation as a Conservation Strategy to Cope with Rising Gasoline Prices and Uncertain Supply"	Completed	Principal Investigator	Charles B. Monroe
		Principal Investigator	Thomas Maziarz
JH 80-2, "A Performance Test for Bitumen Coated Piles"	Completed	Principal Investigator	Richard P. Long
JH 80-3, "The Addition of Lignin from Gasohol Plants to Asphalts"	Completed	Principal Investigator	Jack E. Stephens
JH 80-4, "Energy Efficiencies of Transportation Modes"	Completed	Principal Investigator	Christian F. Davis
JH 80-6, "Estimating Bus Ridership"	Completed	Principal Investigator	Herbert S. Levinson
JH 81-1, "Rate and Quantity of Distillate Evaporation from Bitumen Concrete"	Completed	Principal Investigator	Jack E. Stephens
		Principal Investigator	George E. Hoag
JH 82-1, "PCB Analysis in Bituminous Materials"	Completed	Principal Investigator	George E. Hoag
JH 82-3, "Transportation Management in Connecticut"	Completed	Principal Investigator	Herbert S. Levinson
JH 82-4, "Development of Optimum Pavement Maintenance/Reconstruction Strategies Based on Serviceability and Fiscal Parameters"	Completed	Principal Investigator	Jack E. Stephens
		Principal Investigator	Christian F. Davis
JH 83-1, "Further Development of Optimization Procedures in Pavement Management"	Completed	Principal Investigator	Jack E. Stephens
		Principal Investigator	Hallas H. Ridgeway
JH 83-3, "Aging of Recycled Bituminous Binder"	Completed	Principal Investigator	Jack E. Stephens

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Project/Committee/Program	Project/Committee/Program Status	Type of Assignment	Person(s)
Connecticut Cooperative Transportation Research Program (CCTRP) Projects (continued)			
JH 84-1, "Study of Bridge Vibrations for Connecticut"	Completed	Principal Investigator	John T. DeWolf
		Principal Investigator	Edward V. Gant
JH 84-2, "Monitoring and Remediation of Gasoline Storage Facilities"	Completed	Principal Investigator	George E. Hoag
JH 86-2, "Monitoring and Remediation of Gasoline Storage Facilities"	Completed	Principal Investigator	George E. Hoag
		Principal Investigator	David P. Ahlfeld
JH 86-3, "Development of an Automated Bridge Monitoring System"	Completed	Principal Investigator	John T. DeWolf
JH 86-5, "Determining the Permeability of Granular Soils by Air Flow"	Completed	Principal Investigator	Richard P. Long
		Principal Investigator	Kenneth R. Demars
JH 86-6, "Conversion to Unified Soil Classification System"	Completed	Principal Investigator	Richard P. Long
		Principal Investigator	Kenneth R. Demars
JH 86-7, "Adapting the Quick-Load Method of Pile Testing to Connecticut Soils Needs"	Completed	Principal Investigator	Richard P. Long
		Principal Investigator	Kenneth R. Demars
JH 86-8, "Evaluation of Rubber Modified Pavement Sections"	Completed	Principal Investigator	Jack E. Stephens
JH 86-9, "Aging of Bituminous Concrete"	Completed	Principal Investigator	Jack E. Stephens
JH 86-10, "Proposal to Install and Monitor the Performance of a Post-Tensioned Laminated Timber Deck Bridge at Wadsworth Falls State Park"	Completed	Principal Investigator	Michael L. Accorsi
JH 86-11, "Developing and Financing Independent Transit Districts"	Completed	Principal Investigator	Herbert S. Levinson
JH 86-12, "Improving Rural Transit Efficiency"	Completed	Principal Investigator	Herbert S. Levinson
JH 86-13, "A Feasibility Study of the Use of Video as an Aid in the Guidance/Navigation Driving Task"	Completed	Principal Investigator	Christian F. Davis
		Principal Investigator	Hallas H. Ridgeway
JH 87-1, "Evaluation, Training and Reevaluation of Management at the Connecticut Department of Transportation"	Completed	Principal Investigator	Donald W. Huffmire
JH 87-2, "High Pressure Gel Permeation Chromatographic Color Analysis of Asphalt"	Completed	Principal Investigator	Norman W. Garrick
JH 87-3, "Tests on Prestressed Concrete Bridge Beams"	Completed	Principal Investigator	Gregory C. Frantz
JH 87-4, "Development of a Strain Monitoring System for Bridges"	Completed	Principal Investigator	John T. DeWolf
JH 87-5, "Daily Temperature Cycles and Bituminous Concrete"	Completed	Principal Investigator	Jack E. Stephens
JH 87-6, "Wetland Mitigation"	Completed	Principal Investigator	Michael W. Lefor
JH 88-1, "Resilient Modulus of Subgrades"	Completed	Principal Investigator	Richard P. Long
JH 88-2, "Measurement of Capacity of Drilled Shaft Foundation"	Completed	Principal Investigator	Richard P. Long
JH 88-3, "Age and Origin of Small Upland Wetlands in Connecticut"	Completed	Principal Investigator	Robert M. Thorson
JH 89-1, "Research Planning for the Joint Highway Research Advisory Council"	Completed	Principal Investigator	Richard P. Long
		Principal Investigator	Gerald M. McCarthy
JH 89-2, "Insitu Detection of Pile Corrodibility"	Completed	Principal Investigator	Richard P. Long
JH 89-3, "A Developmental Model for Upland Red-Maple Swamps in Connecticut"	Completed	Principal Investigator	Robert M. Thorson
JH 89-4, "Development of Micro-Computer Based Optimization Model for Pavement Management"	Completed	Principal Investigator	Christian F. Davis
JH 89-5, "Effects of Hot Storage on the Properties of Asphalt Concrete Mixes"	Completed	Principal Investigator	Norman W. Garrick
JH 90-1, "Full-Scale Bridge Testing to Monitor Vibrational Signatures"	Completed	Principal Investigator	John T. DeWolf
JH 90-3, "Development of a Screening Model for Prioritizing the Remediation of Groundwater Contamination Sites"	Completed	Principal Investigator	David P. Ahlfeld
JH 90-4, "Measurement of Resilient Modulus of Connecticut Soils"	Completed	Principal Investigator	Richard P. Long
JH 90-6, "Comprehensive Planning Study of Maintenance Facilities for the Connecticut Department of Transportation"	Completed	Principal Investigator	Christian F. Davis
JH 90-7, "Demonstration of Low Capital Technologies to Reduce Diesel Bus Engine Emissions"	Completed	Principal Investigator	Baki M. Cetegen
		Principal Investigator	E. K. Dabora
		Principal Investigator	M. Gendron
JH 90-8, "A Demonstration Geographic Information System for ConnDOT Operations"	Completed	Principal Investigator	C. R. Ferguson
JH 91-1, "An Experimental and Analytical Study of Timber Bridges Comprised of Longitudinal Stringers, Transverse Decking, and Diaphragms"	Completed	Principal Investigator	Michael Accorsi
JH 92-1, "Assessment of Transit Management Training Needs"	Completed	Principal Investigator	Gerald M. McCarthy
		Principal Investigator	A. C. Rusaw
JH 92-2, "Cracking in Connections between Floor Beams and Supporting Girders"	Completed	Principal Investigator	John T. DeWolf
JH 92-3, "Durability of High Performance Concrete (HPC) Repair Materials"	Completed	Principal Investigator	Gregory C. Frantz
		Principal Investigator	Jack E. Stephens

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Connecticut Cooperative Transportation Research Program (CCTRP) Projects (continued)			
JH 92-4, "Investigation of Steel Pile Foundations in Corrosively Active Locations"	Completed	Principal Investigator	Richard P. Long
JH 92-5, "Development of a Two-Stage Facility Location Model for ConnDOT's Maintenance System"	Completed	Principal Investigator	Christian F. Davis
JH 92-6, "Use of Incinerator Ash as a Construction Fill"	Completed	Principal Investigator	Kenneth R. Demars
		Principal Investigator	Richard P. Long
		Principal Investigator	Norman W. Garrick
JH 93-1, "Feasibility Study for the Establishment fo a GIS/GPS Resource Center"	Terminated	Principal Investigator	Christian F. Davis
JH 93-2, "Evaluating the Applicability of Analytical Decision Support Tools for the Connecticut Department of Transportation"	Completed	Principal Investigator	Gerard M. Campbell
		Principal Investigator	Christian F. Davis
JH 93-3, "Strategies for Using Stabilized Wastes in Connecticut"	Completed	Principal Investigator	Domnic Grasso
		Principal Investigator	Richard P. Long
JH 93-4 (SPR-2214), "Hydrodynamic and Transport Models of Coastal Waters for Use in Design and Management of Highway Structures"	Completed	Principal Investigator	Jia D. Lin
		Principal Investigator	Michael W. Lefor
JH 93-6, "Fatigue Tests of 27 Year Old Bridge Beams"	Completed	Principal Investigator	Gregory C. Frantz
JH 94-2, "Implementing Decision Support Techniques for the Selection of Pavement Markings"	Completed	Principal Investigator	Gerard M. Campbell
		Principal Investigator	Christian F. Davis
JH 94-3, "An Automated System for Pavement Distress Evaluation (Phase II)"	Completed	Principal Investigator	Norman W. Garrick
		Principal Investigator	Luke E. K. Achenie
JH 94-4, "Effective Use of the ConnDOT GPS Base Station"	Completed	Principal Investigator	C. Roger Ferguson
		Principal Investigator	John E. Bean
JH 94-6, "Simplifying Analysis Procedures for Seismic Retrofit of Irregular Bridges"	Completed	Principal Investigator	Ramesh B. Malla
JH 95-1, "Decision and Risk Analysis Applications for Congestion Management"	Completed	Principal Investigator	Christian F. Davis
		Principal Investigator	John N. Ivan
		Principal Investigator	Gerard M. Campbell
JH 95-2, "Data Reconciliation Based on Traffic Count Analysis System"	Completed	Principal Investigator	Norman W. Garrick
		Principal Investigator	Luke E. K. Achenie
JH 95-3, "Safety Belt/Motorcycle Helmet Usage Survey"	Completed	Principal Investigator	Christian F. Davis
		Principal Investigator	Charles I. Vinsonhaler
JH 95-4, "Evaluation of Community Traffic Safety Programs and Motorcycle Operator Training Programs"	Completed	Principal Investigator	Christian F. Davis
JH 96-1, "Field Treatment of Soil Contaminated with Lead"	Completed	Principal Investigator	Richard P. Long
		Principal Investigator	Nikolaos P. Nikolaidis
JH 96-2 (Phases 1 and 2), "Protection of Reinforcement with Corrosion Inhibitors: Phases 1 and 2"	Completed	Principal Investigator	Jack E. Stephens
		Principal Investigator	Gregory C. Frantz
JH 96-3, "Peak Period Trip Estimation Considering Level of Service and Socio-Economic Characteristics"	Completed	Principal Investigator	John N. Ivan
JH 96-4, "Relaxation in High-Strength Bolted Connections on Galvanized Steel"	Completed	Principal Investigator	John T. DeWolf
JH 96-5 (ENV 1139), "Evaluation of Source-Separated Compost for Connecticut Department of Transportation Projects"	Completed	Principal Investigator	Kenneth R. Demars
		Principal Investigator	Richard P. Long
JH 97-1 (Phase I), "Estimating Benefits from Specific Highway Safety Improvements: Phase I - Feasibility"	Completed	Principal Investigator	John N. Ivan
		Principal Investigator	Norman W. Garrick
		Principal Investigator	Christian F. Davis
JH 97-1 (Phase II), "Estimating Benefits from Specific Highway Safety Improvements: Phase II – Initial Implementation"	Completed	Principal Investigator	John N. Ivan
		Principal Investigator	Norman W. Garrick
		Principal Investigator	Christian F. Davis
JH 97-1 (Phase III), "Estimating Benefits from Specific Highway Safety Improvements: Phase III - Safety Benefits from Left Turn Treatment"	Completed	Principal Investigator	John N. Ivan
		Principal Investigator	Norman W. Garrick
JH 97-2, "Estimating the Temporal Distribution of Traffic Within the Peak Period"	Completed	Principal Investigator	John N. Ivan
JH 97-3, "Enhancement of Photolog Applications and Display Environment"	Completed	Principal Investigator	Christian F. Davis
JH 97-4, "State-of-the-Art Rapid Non-Destructive Pavement Assessment: Ground Penetrating Radar (GPR) in Monostatic Survey Mode"	Completed	Principal Investigator	Lanbo Liu
JH 98-1, "Development of a Test to Measure Tendendcy for a Hot Mix to Segregate"	Completed	Principal Investigator	Jack E. Stephens
		Principal Investigator	James M. Mahoney
		Principal Investigator	Cory Dippold
JH 98-3 "Evaluation of Sign Support Structures"	Completed	Principal Investigator	John T. DeWolf
JH 99-1, "Determination of PG Binder to Use in RAP-Mix"	Completed	Principal Investigator	Jack E. Stephens
		Principal Investigator	James M Mahoney
JH 99-3, "Estimating Traffic Link Volumes by Month, Day of Week and Time of Day"	Completed	Principal Investigator	John N. Ivan
		Principal Investigator	Wael M. El-Dessouki
JH 00-2, "GPR for Fast Pavement Assessment: Experimental Tests"	Completed	Principal Investigator	Lanbo Liu

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Connecticut Cooperative Transportation Research Program (CCTRP) Projects (continued)			
JH 00-4, "Automated Detection and Analysis of Speed-Limit Signs"	Completed	Principal Investigator	Bahram Javidi
JH 00-5, "Field Monitoring and Evaluation for Sign Support Structures Subject to Dynamic Loads"	Completed	Principal Investigator	John T. DeWolf
JH 01-4, "A Best Practices Guide for the Design of Context Sensitive Roadway Cross-Sections"	Completed	Principal Investigator	Norman W. Garrick
JH 01-7, "An Automated Detection for Highway Geometry Using Image Recognition Models"	Terminated	Principal Investigator	Wael M. El-Dessouki
JH 02-1, "Incorporating Truck Flows into the Sate-Wide Planning Traffic Model"	Completed	Principal Investigator	Lisa Aultman-Hall
JH 02-2, "Developing A Methodology to Evaluate the Safety of Shared-Use Paths"	Completed	Principal Investigator	Lisa Aultman-Hall
JH 02-11, "Pilot for Automated Detection and Classification of Road Surfaces Degradation Features"	Completed	Principal Investigator	Bahram Javidi
		Principal Investigator	Jack E. Stephens
JH 03-2, "A Laser-Based 3D Data Acquisition System for the Analysis of Pavement Distress and Roughness"	Completed	Principal Investigator	Bahram Javidi
		Principal Investigator	Jack E. Stephens
JH 03-5, "Factors Affecting Young Driver Safety"	Completed	Principal Investigator	Lisa Aultman-Hall
JH 03-7, "Development of New Rheological Tools for Asphalt Binder and Concrete Characterization"	Completed	Principal Investigator	Patrick T. Mather
		Principal Investigator	Montgomery Shaw
JH 03-8, "Comparison of Ultrafine Particle Emissions from Hybrid-Electric and Particle-Trap Diesel Connecticut Transit Buses"	Completed	Principal Investigator	Britt A. Holmén
JH 04-1, "Pavement Crack Treatments - Emulsified vs. Traditional Hot-Pour Materials"	Completed	Principal Investigator	James M. Mahoney
JH 04-6, "Designing Roads that Guide Drivers to Choose Safer Speeds"	Completed	Principal Investigator	John N. Ivan
		Principal Investigator	Norman W. Garrick
JH 05-6, "Value Pricing in Connecticut: Policy Simulations and Economic Impacts"	Completed	Principal Investigator	Norman W. Garrick
		Principal Investigator	Fred V. Carstensen
		Principal Investigator	Stanley McMillen
JH 05-7, "Design and Feasibility Study: Connecticut Transportation Planning Data"	Completed	Principal Investigator	Lisa Altman-Hall
		Principal Investigator	John N. Ivan
JH 05-9, "Detailed Modal Analysis of Particulate Emissions from Connecticut Transit Buses for Emissions Modeling"	Completed	Principal Investigator	Britt A. Holmén
JH 06-3, "Extending the Lifespan of Existing Highway Bridges Through Controllable Stiffness and Damping Devices"	Completed	Principal Investigator	Richard E. Christenson
JH 06-9, "Evaluating Stormwater Quality Associated With Milling of HMA Surfaces"	Completed	Principal Investigator	Allison A. MacKay
		Principal Investigator	James M. Mahoney
JH 06-10, "Improving Survey Accuracy and Efficiency in Connecticut: An Accuracy Assessment of GEOID03"	Completed	Principal Investigator	Thomas H. Meyer
		Principal Investigator	Robert J. Baron
		Principal Investigator	Steven Fish
		Principal Investigator	Darek Massalski
JH 07-2, "Creating Useful Products From Connecticut's 2000 LIDAR Data Set"	Completed	Principal Investigator	Thomas H. Meyer
		Principal Investigator	John L. David
JH 07-5, "Incorporating Wet Pavement Friction Into Traffic Safety Analysis"	Active	Principal Investigator	John N. Ivan
		Principal Investigator	Nalini Ravishanker
JH 08-1, "Structure and Properties of Ionomer Modified Asphalts"	Active	Principal Investigator	Robert A. Weiss
JH 08-5, "Assessing and Quantifying Public Transportation Access"	Active	Principal Investigator	Nicholas E. Lownes
JH 08-6, "Experimental Testing of Controllable Damping Devices toward Extending the Lifespan of Existing Highway Bridges"	Active	Principal Investigator	Richard E. Christenson
JH 09-1, "Design and Feasibility Study: Connecticut Transportation Planning Data - Phase II"	Withdrawn	Principal Investigator	Nicholas E. Lownes
		Principal Investigator	Eric D. Jackson
JH 09-6, "Preparation of the Implementation Plan of AASHTO Mechanistic-Empirical Pavement Design Guide (M-E PDG) in Connecticut"	Proposed	Principal Investigator	Adam Zofka
		Principal Investigator	James M. Mahoney
JH 09-7, "National and In-State Review of Surface Treatment Techniques for Pavement Preservation in Connecticut"	Proposed	Principal Investigator	Adam Zofka
		Principal Investigator	James M. Mahoney
		TAC Chairperson	Donald A. Larsen

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Project/Committee/Program	Project/Committee/Program Status	Type of Assignment	Person(s)
New England Transportation Consortium (NETC) Projects			
NETC Pre-1994 Project, "Construction Costs of New England Bridges - Phase II"	Completed	TAC Member	William Duff
NETC Pre-1994 Project, "Tire Chips as Lightweight Backfill – Phase II: Full-Scale Testing"	Completed	TAC Member	Not named
NETC Pre-1994 Project, "Bridge Rail Crash Test – Phase II: Sidewalk Mounted Rail"	Completed	TAC Member	Dionysia F. Oliveira
NETC Pre-1994 Project, "New England Vehicle Classification and Truck Weight Program"	Completed	TAC Member	William Duff
NETC 94-1, "Structural Analysis of New England Subbase Materials and Structures"	Completed	TAC Member	Leo L. Fontaine
NETC 94-2, "Nondestructive Testing of Reinforced Concrete Bridges Using Radar Imaging Techniques"	Completed	TAC Member	Kevin J. Bernard
NETC 94-3, "Procedures for the Evaluation of Sheet Membrane Waterproofing"	Completed	TAC Member	Not named
NETC 94-4, "Durability of Concrete Crack Repair Systems"	Terminated	TAC Member	Kevin J. Bernard
NETC 95-1, "Use of Tire/Chips/Soil Mixtures to Limit Frost Heave and Pavement Damage of Paved Roads"	Completed	TAC Member	Donald A. Larsen
NETC 95-2, "Suitability of Non-Hydric Soils for Wetland Mitigation"	Completed	TAC Member	Steven Ladd
NETC 95-3, "Implementation and Evaluation of Traffic Marking Recesses for Application of Thermoplastic Pavement Markings on Modified Open Graded Mixes"	Completed	TAC Member	John R. Giannini
NETC 95-5, "Buried Joints in Short Span Bridges"	Terminated	TAC Chairperson	Robert G. Lauzon
NETC 95-6, "Guidelines for Ride Quality Acceptance for Pavements"	Completed	TAC Member	Keith R. Lane
		TAC Member	Colleen A. Kissane
NETC 96-1, "SUPERPAVE Implementation"	Completed	TAC Member	Nelio J. Rodrigues
NETC 96-2, "Optimizing GPS Use in Transportation Projects"	Terminated	TAC Member	Bradley J. Overturf
NETC 96-3, "Effectiveness of Fiber Reinforced Composites as Structural and Protective Coverings for Bridge Elements Exposed to Deicing-Salt Chlorides"	Completed	TAC Member	John W. Henault
NETC 97-1 (Phase 1), "Portable Method to Determine Chloride Concentration of Roadway Pavements – Phase 1"	Completed	TAC Member	Donald A. Larsen
NETC 97-1 (Phase 2), "Portable Method to Determine Chloride Concentration of Roadway Pavements – Phase 2"	Completed	TAC Member	Donald A. Larsen
NETC 97-2, "Performance Evaluation and Economic Analysis of Combinations of Durability Enhancing Admixtures (Mineral and Chemical) in Structural Concrete for Bridge Applications in the Northeast U.S.A."	Completed	TAC Member	Steven A. Gage
NETC 97-3 (Phase 1), "Determining Properties, Standards and Performance of Wood Waste Compost as an Erosion Control Mulch and as a Filter Berm – Phase 1"	Completed	TAC Member	Donald A. Larsen
NETC 97-3 (Phase 2) , "Determining Properties, Standards and Performance of Wood Waste Compost as an Erosion Control Mulch and as a Filter Berm – Phase 2"	Completed	TAC Member	Donald A. Larsen
NETC 97-4, "Early Distress of Open-Graded Friction Courses"	Completed	TAC Member	Nicholas R. Corona
NETC 99-1, "Bridge Rail Transitions – Development and Crash Testing"	Completed	TAC Member	Dionysia F. Oliveira
NETC 99-2, "Evaluation of Asphaltic Plug Joints"	Completed	TAC Member	Donald A. Larsen
NETC 99-3, "Development of Priority Based Statewide Scour Monitoring Systems in New England"	Completed	TAC Chairperson	Ahmad A. Sarshory
		TAC Member	Paul F. D'Attilio
		TAC Member	James E. Hamilton
NETC 99-4, "Quantifying Roadside Rest Area Usage"	Completed	TAC Member	Dionysia F. Oliveira
NETC 99-6, "Analytical and Experimental Investigations of the Effects of Concrete Removal Operations on Adjacent Concrete that is to Remain"	Completed	TAC Chairperson	Ravi V. Chandran
NETC 00-1, "Ground-Based Imaging and Data Acquisition Systems for Roadway Inventories in New England: A Synthesis of Practice"	Completed	TAC Chairperson	Bradley J. Overturf
NETC 00-2, "Evaluation of Permeability of Superpave Mixes"	Completed	TAC Member	Nelio J. Rodrigues
NETC 00-3, "Design, Fabrication and Testing of a Composite Reinforced Timber Guardrail"	Completed	TAC Member	Dionysia F. Oliveira
NETC 00-4, "Portable Falling Weight Deflectometer (FWD) Study"	Completed	TAC Member	Donald A. Larsen
NETC 00-5, "Guard Rail Testing – MELT at NCHRP 350 TL2"	Completed	TAC Member	Andrew J. Mroczkowski
NETC 00-6, "Implementation of Visualization Technologies to Create Simplified Presentations by Highway Agencies"	Completed	TAC Member	William S. Pratt

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Project/Committee/Program	Project/Committee/Program Status	Type of Assignment	Person(s)
New England Transportation Consortium (NETC) Projects (continued)			
NETC 00-7, "A Complete Review of Incident Detection Algorithms and Their Deployment: What Works and What Doesn't"	Completed	TAC Member	John F. Korte
NETC 00-8, "Performance and Effectiveness of a Thin Pavement Section Using Geogrids and Drainage Geocomposites in a Cold Region"	Completed	TAC Member	David J. Kilpatrick
NETC 01-1, "Advanced Composite Materials (Fiber Reinforced Polymers or Polymer Matrix Composites) for New England's Highway Infrastructure: A Synthesis of Technology and Practice"	Completed	TAC Member	Paul F. D'Attilio
NETC 01-1 (T2 Phase I), "Advanced Composite Materials in New England's Transportation Infrastructure - Technology Transfer Phase I: Selection of Prototype"	Completed	TAC Member	Paul F. D'Attilio
NETC 01-2, "Development of a Testing Protocol for Quality Control/Quality Assurance of Hot Mix Asphalt"	Completed	TAC Member	Jonathan T. Boardman
NETC 01-3, "Design of Superpave Hot Mix Asphalt for Low Volume Roads"	Completed	TAC Member	Nelio J. Rodrigues
NETC 01-4, "Eliminating Premature Pavement Failure: Creation of a Positive Drainage Layer for Reconstructed and Reclaimed Pavements" [NETC Project No. 01-4, "Eliminating Premature Pavement Failure: Creation of a Positive Drainage Layer for Reconstructed and Reclaimed Pavements," is incorporated into NETC Project 00-8, "Performance and Effectiveness of a Thin Pavement Section Using Geogrids and Drainage Composites in a Cold Region."]	N/A	TAC Member	David J. Kilpatrick
NETC 01-5, "Procedures for the Evaluation of Liquid-Applied Membrane Waterproofing"	Withdrawn	TAC Member	Andrew J. Mroczkowski
NETC 01-6, "Field Evaluation of a New Compaction Device"	Completed	TAC Member	Leo L. Fontaine
NETC 02-1 (Phase 1), "Relating Hot Mix Asphalt Pavement Density to Performance"	Completed	TAC Member	Edgardo D. Block
NETC 02-2 (Phase I), "Formulate an Approach for 511 Implementation in New England - Phase I"	Completed	TAC Member	William W. Stoeckert
NETC 02-2 (Phase II), "Formulate an Approach for 511 Implementation in New England - Phase II"	Completed	TAC Member	Harold J. Decker, Jr.
NETC 02-3, "Establish Subgrade Support Values for Typical Soils (Mr) in New England"	Completed	TAC Chairperson	Leo L. Fontaine
NETC 02-5, "Determination of Moisture Content of Deicing Salt at Point of Delivery"	Completed	TAC Member	John R. Giannini
NETC 02-6 (Phase I), "Sealing of Small Movement Bridge Expansion Joints"	Completed	TAC Member	Andrew J. Mroczkowski
NETC 02-6 (Phase II), "Sealing of Small Movement Bridge Expansion Joints - Field Installation and Monitoring"	Active	TAC Member	Andrew J. Mroczkowski
NETC 02-7, "Validating Traffic Simulation Models to Inclement Weather Conditions with Applications to Arterial Coordinated Signal Systems"	Completed	TAC Member TAC Member	Norman Miller Eric G. Feldblum
NETC 02-8, "Intelligent Transportation Systems Applications to Ski Resorts in New England and Northeastern New York State"	Completed	TAC Member	Harold J. Decker, Jr.
NETC 03-1, "Ability of Wood Fiber Materials to Attenuate Heavy Metals Associated With Highway Runoff"	Completed	TAC Member	Mark W. Alexander
NETC 03-2, "Field Studies of Concrete Containing Salts of an Alkenyl-Substituted Succinic Acid"	Completed	TAC Chairperson	Paul F. D'Attilio
NETC 03-3 (Phase 1), "Feasibility Study and Design of An Erosion Control Laboratory in New England - Phase 1"	Completed	TAC Chairperson	Donald A. Larsen
NETC 03-3 (Phase 2), "Feasibility Study of Erosion Control Laboratory in New England: Addendum, Design Considerations for a Prototype Erosion Control Testing Plot - Phase 2"	Completed	TAC Chairperson	Donald A. Larsen
NETC 03-4, "Measuring Pollutant Removal Efficiencies of Storm Water Treatment Units"	Completed	TAC Member	Paul N. Corrente
NETC 03-5, "Evaluation of Field Permeameter as a Longitudinal Joint Quality Control Indicator"	Completed	TAC Member	Erika B. Lindeberg (Formerly Erika B. Smith)
NETC 03-6, "Fix it First: Utilizing the Seismic Property Analyzer and MMLS to Develop Guidelines for the Use of Polymer Modified Thin Lift HMA vs. Surface Treatments" (NETC 03-6 is the project selected for the New England Land Grant University Consortium Members Transportation Challenge.)	Active	TAC Member	James M. Sime

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New England Transportation Consortium (NETC) Projects (continued)			
NETC 03-7, “Basalt Fiber Reinforced Polymer Composites”	Completed	TAC Chairperson	Anne-Marie H. McDonnell
NETC 04-1 (Phase 1), “Recycling Asphalt Pavements Containing Modified Binders - Phase 1”	Active	TAC Member	Edgardo D. Block
NETC 04-1 (Phase 2), “Recycling Asphalt Pavements Containing Modified Binders - Phase 2”	Active	TAC Member	Edgardo D. Block
NETC 04-2, “Driver-Eye-Movement-Based Investigation for Improving Work Zone Safety”	Completed	TAC Member	Joseph T. Cristalli, Jr.
NETC 04-3, “Estimating the Magnitude of Peak Flows for Steep Gradient Streams in New England”	Active	TAC Member	Michael E. Hogan
NETC 04-4, “Determining the Effective PG Grade of Binder in RAP Mixes”	Completed	TAC Member	Nelio J. Rodrigues
		TAC Member (Alternate)	Raffaele Donato
NETC 04-5 (Phase 1), “Network-Based Highway Crash Prediction Using Geographic Information Systems: Phase 1”	Completed	TAC Chairperson	Erika B. Lindeberg (Formerly Erika B. Smith)
NETC 04-5 (Phase 2), “Network-Based Highway Crash Prediction Using Geographic Information Systems: Phase 2”	Completed	TAC Chairperson	Erika B. Lindeberg (Formerly Erika B. Smith)
NETC 04-6, "Development of Truck Lane Software That Uses a Current Model of Truck Performance"	Withdrawn	TAC Member	Daniel A. Gladowski
NETC 05-1, “Development of Supplemental Resistance Method for the Design of Drilled Shaft Rock Sockets”	Active	TAC Chairperson	Leo L. Fontaine
		TAC Chairperson (Alternate)	Michael F. McDonnell
NETC 05-2 (Phase 1), “Enhancing the Reflectivity of Concrete Barriers” [Formerly NETC 05-2, "Safety of Reflective Median Barriers”]	Proposed	TAC Member	David J. Kilpatrick
NETC 05-3, “Practicable Calibration Procedures to Enhance the Accuracy of Analytical and Microsimulation Software for Modern Four-Legged Single-Lane Roundabouts” [Formerly NETC 05-3, "Microscopic Simulation for Modeling Modern Roundabouts in New England: Accuracy, Sensitivity and Calibration"]	Proposed	TAC Member	Robert Kasica
NETC 05-4, “Characterization of the Rate Constant of Pozzolan Available Alkalis”	Withdrawn	TAC Member	Paul F. D’Attilio
NETC 05-5, “Measurement of Adhesion Properties Between Topcoat Paint and Metallized/Galvanized Steel with 'Surface Energy' Measurement Equipment” [Formerly NETC 05-5, “Measurement of Work of Adhesion Between Paint and Metallized/Galvanized Steel”]	Active	TAC Member	Andrew J. Mroczkowski
NETC 05-6, “Employing Graphic-Aided DMS to Assist Elder Drivers’ Message Comprehension”	Active	TAC Chairperson	Drew M. Coleman
NETC 05-7 (Phase 1), “Warrants for Exclusive Left Turn Lanes at Unsignalized Intersections and Driveways - Phase 1”	Completed	TAC Member	Eric G. Feldblum
NETC 05-7 (Phase 2), “Warrants for Exclusive Left Turn Lanes at Unsignalized Intersections and Driveways - Phase 2”	Completed	TAC Member	Eric G. Feldblum
NETC 05-8, “Evaluation and Implementation of Traffic Simulation Models for Work Zones”	Completed	TAC Chairperson	Erika B. Lindeberg (Formerly Erika B. Smith)
NETC 05-9, “Financing Intermodal Transportation in New England”	Withdrawn	TAC Member	Anne-Marie H. McDonnell
NETC 06-1, “New England Verification of NCHRP 1-37A Mechanistic-Empirical Pavement Design Guide with Level 2 & 3 Inputs”	Active	TAC Member	Edgardo D. Block
NETC 06-2, “Infrastructure Management Systems Enhancement and Integration to Support True Integrated Decision-Making”	Withdrawn	TAC Member	Colleen A. Kissane
NETC 06-3, “Establishing Default Dynamic Modulus Values for New England”	Active	TAC Chairperson	David J. Kilpatrick
NETC 06-4, “Preventative Maintenance and Timing of Applications”	Proposed	TAC Member	Louis Allegro
NETC 06-5, “The Winter Severity Index for New England” [Formerly NETC 06-5, “Winter Severity Indices for New England”]	Completed	TAC Member	Patrick F. Rodgers
NETC 07-1, "Effects of In-Place Properties of Recycled Layers Due to Temperature and Moisture Variations"	Proposed	TAC Member	David J. Kilpatrick

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New England Transportation Consortium (NETC) Projects (continued)			
NETC 07-2, "Exploring the Potential of Intelligent Intersections Deployment in New England"	Proposed	TAC Member	Donald A. Larsen
NETC 07-3, "Determining Optimum Distance for a Lane Drop Downstream from a Signalized Intersection"	Proposed	TAC Chairperson	Erika B. Lindeberg (Formerly Erika B. Smith)
		TAC Member	Charles S. Harlow
NETC 07-4, "Estimating and Predicting Traffic Conditions for Traveler Information and Emergency Response"	Withdrawn	TAC Member	Anne-Marie H. McDonnell
NETC 08-1, "Applying the Highway Safety Manual in New England"	Proposed	TAC Chairperson	James V. Moffett
NETC 08-2, "Evacuation Modeling to Assist Hazard Management and Response in Urban and Rural Areas of New England"	Proposed	TAC Member	Judy B. Raymond
NETC 08-3, "Best Management Practices for the Invasive Polygonum Cuspidatum (Japanese Knotweed) Along Transportation Corridors"	Proposed	TAC Member	Bruce R. Villwock
NETC 08-4, "An Assessment of the Implementation of NETC Research Results" [Formerly NETC 08-4, "NETC Research Implementation Survey and Synthesis"]	Proposed	TAC Member	Richard C. Hanley
NETC 08-5, "NETC/UVM-UTC Transportation Research Challenge"	Proposed	TAC Member	TBD
		Contact Person	Dionysia F. Oliveira
NETC 08-6, "Interaction Between Salinity, Soil Quality and Amendments in Roadside Plantings"	Proposed	TAC Member	TBD
NETC 09-1 (Phase 1), "Active Structural Control of Cantilevered Support Structures"	Proposed	TAC Chairperson	Alireza Jamalipour
NETC 09-2, "Effective Establishment of Native Grasses on Roadsides"	Proposed	TAC Member	TBD
NETC 09-3, "Advanced Composite Materials: Prototype Development and Demonstration"	Proposed	TAC Member	TBD
NETC 10-1, "Synthesis of Practice: Electronic Bridge Inspection Document Management Systems"	Proposed	TAC Member	TBD
NETC 10-2, "A Field Evaluation of SuperPave Hot Mix Asphalt Pavement Containing 30% RAP"	Proposed	TAC Member	TBD
NETC 10-3, "Low Temperature and Moisture Susceptibility of RAP Mixtures With Warm Mix Technology"	Proposed	TAC Member	TBD
NETC 10-4, "Field Evaluation of Corrosion Protection on Bridges With a Spray Application of Disodium Tetrapropenyl Succinate (DSS)"	Proposed	TAC Member	TBD

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Transportation Pooled Fund (TPF) Projects			
HPD-2(002), "Geographic Information System - Transportation; ISTEA Management Systems Server-Net Prototype"	Completed	TAC Member	Frank Busch
HPL-2(001), "Application of Global Positioning System (GPS) for Transportation Plannning" [Formerly HPL-0002(001)]	Completed	TAC Member	John H. Hudson
SPR-2(123), "Develop Methods and Pilot Plant to Produce Calcium Magnesium Acetate" [Formerly HPR-0002(123)]	Completed	TAC Member	Charles E. Dougan
SPR-2(125), "Traffic Control Systems Handbook" [Formerly HPR-0002(125)]	Completed	TAC Member	James J. Rice
SPR-2(126), "Integrated Drainage Design Computer System" [Formerly HPR-0002(126)]	Completed	TAC Member	Richard A. Kowalski
SPR-2(127), "Cost Effective Geometric Design Standards for 3R Projects" [Formerly HPR-0002(127)]	Completed	TAC Member	Charles E. Dougan
SPR-2(130), "Eastern Skid Test and Calibration Centers" [Formerly HPR-0002(130)]	Completed	TAC Member	Charles E. Dougan
SPR-2(133), "Culvert Repair Practices" [Formerly HPR-0002(133)]	Completed	TAC Member	Winston Dean
SPR-2(136), "FHWA Traffic Noise Model (FHWA TNM) Software, Validation, and Training" [Formerly, HPR-0002(136), "Evaluation of Performance of Experimental Highway Noise Barrier - Phase 1"]	Completed	TAC Member	Francis A. Zapatka
SPR-2(140), "Research Development Needs in Highway Construction Engineering" [Formerly, HPR-0002(140), "Research and Development Needs in Construction Engineering Management"]	Completed	TAC Member	James M. Sime
SPR-2(143), "The Effect of Bicycle Accomodations on Bicycle/Motor Vehicle Safety and Traffic Operations" [Formerly, HPR-0002(143), "Effects of Altering Speed Limits on Speed and Accidents"]	Completed	TAC Member	Not named
SPR-2(144), "Testing of Large and Small Sign Supports" [Formerly HPR-0002(144)]	Completed	TAC Member	Charles E. Dougan
		TAC Member	Eric C. Lohrey
HPR-0002(145), "Expert Systems for Highway Applications" [Formerly SPR-2(145)]	Completed	TAC Member	Not named
SPR-2(146), “Testing of Roadside Safety Systems” [Formerly HPR-0002(146)]	Completed	TAC Member	Dionysia F. Oliveira
SPR-2(147), "Disposal of Waste From Highway Materials Testing Laboratories" [Formerly, HPR-0002(147)]	Completed	TAC Member	Not named
SPR-2(150), “Design, Construction and Rehabilitation of Continuously Reinforced Concrete Pavements (CRCP)” [Formerly HPR-0002(150)]	Completed	TAC Member	Colleen A. Kissane
SPR-2(154), "Effectiveness of Demand Management Strategies" [Formerly HPR-0002(154)]	Completed	TAC Member	Not named
SPR-2(156), "A Guide for Establishing Speed Limits on Public Highways" [Formerly HPR-0002(156)]	Completed	TAC Member	Not named

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Transportation Pooled Fund (TPF) Projects (continued)			
SPR-2(158), “Evaluation of Recycled Materials for Roadside Appurtenances” [Formerly HPR-0002(158)]	Completed	TAC Member	Dionysia F. Oliveira
SPR-2(162), "Revised Planning Methodology for Signalized Intersections and Operational Analysis of Exclusive Left Turn Lanes" [Formerly HPR-0002(162)]	Completed	TAC Member	Not named
SPR-2(163), “Calcium Magnesium Acetate (CMA) at Lower Production Cost” [Formerly HPR-0002(163)]	Completed	TAC Member	Eric C. Lohrey
SPR-2(164), “Development of a Thrie Beam Bullnose Median Barrier Terminal” [Formerly HPR-0002(164)] [Incorporated into SPR-3(017)]	Completed	TAC Member	Dionysia F. Oliveira
SPR-2(165), “Updating Existing AASHTO ‘Guide Specifications for Horizontally Curved Highway Bridges, 1980’” [Formerly HPR-0002(165)]	Completed	TAC Member	Robert G. Lauzon
SPR-2(166), “Performance Evaluation of Crumb-Rubber Modified (CRM) Asphalt Pavements” [Formerly HPR-0002(166)]	Completed	TAC Member	Donald A. Larsen
SPR-2(167), “Development of Anti-Icing Treatments” [Formerly HPR-0002(167)]	Completed	TAC Member	Not named
SPR-2(171), "Predicting HOV Facility Demand" [Formerly SPR-0002(171)]	Completed	TAC Member	Not named
SPR-2(172), “Aerial Platform System for Bridge Inspection (Phase II)” [Formerly SPR-0002(171)]	Completed	TAC member	Joseph C. Kozlowski
SPR-2(176), “Validation of SHRP Asphalt and Asphalt Mixture Specifications Using Accelerated Loading” [Formerly SPR-0002(176)]	Completed	TAC Member	Nelio J. Rodrigues
SPR-2(181), “National Vehicle Detector Test Center” [Formerly SPR-0002(181)]	Completed	TAC Member	Anne-Marie H. McDonnell
SPR-2(182), “Development and Validation of Traffic Data Editing Procedures (TDEP)” [Formerly SPR-0002(182)]	Completed	TAC Member	Anne-Marie H. McDonnell
SPR-2(184), “Long Term Monitoring of Mitigating Corrosion Measures” [Formerly SPR-0002(184), “Field Evaluation of Corrosion Inhibitors for Concrete”]	Completed	TAC Member	Andrew J. Mroczkowski
SPR-2(199), “Optimal Acceptance Procedures for Statistical Construction Specifications” [Formerly SPR-0002(199)]	Completed	TAC Member	Steven A. Gage
SPR-2(203), “Truck/Pavement Economic Modeling and In-Situ Field Testing Data Analysis Applications” [Formerly SPR-0002(203)]	Completed	TAC Member	David J. Kilpatrick
SPR-2(207), “Transportation Management Center Pooled Fund Study (TMC PFS)” [Formerly SPR-0002(207)] [SPR-2(207) is TPF-5(052) for the Wahsington Department of Transportation only.]	Active	TAC Member	Harold J. Decker, Jr.

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Transportation Pooled Fund (TPF) Projects (continued)			
SPR-2(208), "Pavement Subgrade Performance Study" [Formerly SPR-0002(208)]	Active	TAC Member	Leo L. Fontaine
SPR-2(211), "Bulk Specific Gravity Round Robin Using the Corelok Vacuum Sealing Device" [Formerly SPR-0002(211)]	Completed	TAC Member	James M. Mahoney
SPR-2(800), "SHRP Implementation of Asphalt Test Equipment" [Formerly HPR-0002(800)]	Completed	TAC Member	James M. Sime
SPR-3(017), "Midwest States Pooled Fund Crash Test Program" [Formerly SPR-0003(017)]	Active	TAC Member	Dionysia F. Oliveira
SPR-3(022), "Tidal and Coastal Hydraulics – Phases 1, 2 & 3" [Formerly SPR-0003(022)]	Completed	TAC Member	Michael E. Hogan
SPR-3(029), "New England Transportation Consortium (NETC): 1995-1999" [Formerly SPR-0003(029)]	Active	Policy Committee Member	Comr. Joseph F. Marie
		Advisory Committee Member	James M. Sime
		Advisory Committee Member and Lead Engineer	Dionysia F. Oliveira
SPR-3(031), "Reusable Truck Mounted Attenuator" [Formerly SPR-0003(031)]	Completed	TAC Member	Dionysia F. Oliveira
SPR-3(035), "Travel Model Improvement Program" [Formerly SPR-0003(035)]	Completed	TAC Member	Not named
SPR-3(041), "New England Transportation Technician Certification Program (NETTCP) – Course Development" [Formerly SPR-0003(041)]	Completed	TAC Member	Keith R. Lane
SPR-3(043), "Development of a Self-Restoring Impact Attenuator" [Formerly SPR-0003(043), "Development of a New Guardrail End Treatment – Phase II"]	Completed	TAC Member	Dionysia F. Oliveira
SPR-3(050), "New England Traffic Monitoring System" [Formerly SPR-0003(050)]	Completed	TAC Member	Joseph T. Cristalli, Jr.
SPR-3(052), "Procedures for the Evaluation of Sheet Membrane Waterproofing" [Formerly SPR-0003(052)]	Completed	TAC Member	Dionysia F. Oliveira
SPR-3(056), "Superpave Implementation Support – The Northeast Superpave Center (NECEPT)" [Formerly SPR-0003(056)]	Completed	TAC Member	Keith R. Lane
SPR-3(058), "Crash Testing – Weak Post System – Phase II" [Formerly SPR-0003(058)]	Completed	TAC Member	Dionysia F. Oliveira
SPR-3(071), "A New Approach to Assessing Road User Charges" [Formerly SPR-0003(071)]	Completed	TAC Member	Charles S. Barone
SPR-3(081), "High-Speed Electromagnetic Roadway Mapping and Evaluation System (HERMES II)" [Formerly SPR-0003(081)]	Completed	TAC Member	Eric G. Feldblum
SPR-3(082), "Evaluation of PQI" [Formerly SPR-0003(082), "Evaluation of the Next Generation Pavement Quality Indicator (PQI) Device"]	Completed	TAC Member	Donald A. Larsen

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Transportation Pooled Fund (TPF) Projects (continued)			
SPR-3(084), "Use of Dynamic Modulus (E*) in Hot-Mix Asphalt Designs" [Formerly SPR-0003(084)]	Completed	TAC Member	James M. Sime
SPR-3(089), "New England Transportation Consortium (NETC): 2000-2006" [Formerly SPR-0003(089)]	Active	Policy Committee Member	Comr. Joseph F. Marie
		Advisory Committee Member	James M. Sime
		Advisory Committee Member and Lead Engineer	Dionysia F. Oliveira
TPF-5(002), "Updating 'A Guide to Standardized Highway Lighting Pole Hardware" [Formerly SPR-0003(103)]	Active	TAC Member	Jon Andrews
TPF-5(004), "Long Term Pavement Performance (LTPP) Specific Pavements Study (SPS) Traffic Data Collection" [Formerly SPR-0002(217), "LTPP Specific Pavements Study (SPS) Traffic Data Collection"]	Active	TAC Member	Anne-Marie H. McDonnell
TPF-5(008), "Development of Computer Based Training (CBT) Lessons" [Formerly SPR-2(183)]	Completed	TAC Member	James M. Sime
TPF-5(009), "Computer-Based, Self-Operating Training System on Anti-Icing/Road Weather Information Systems (AI/RWIS)" [Formerly SPR-0003(104)]	Active	TAC Member	George E. Carbonell
TPF-5(010), "Structural Improvements of Flexible Pavements Using Geosynthetics for Base Course Reinforcement"	Completed	TAC Member	Leo L. Fontaine
		TAC Member	David J. Kilpatrick
TPF-5(016), "Micropile Systems for Highway Bridges"	Completed	TAC Member	Leo L. Fontaine
TPF-5(019), "Full Scale Accelerated Performance Testing for Superpave and Structural Validation"	Active	TAC Member	Edgardo D. Block
TPF-5(024), "Next Generation Retro-Reflective Beads for Traffic Paints"	Completed	TAC Member	John P. Carey
TPF-5(026), "Durability of Segmented Retaining Wall Blocks" [Formerly SPR-0002(218)]	Completed	TAC Member	Robert G. Lauzon
TPF-5(036), "Transportation Asset Management Research Program"	Active	TAC Member	Colleen A. Kissane
TPF-5(038), "Automated Geotechnical Information and Design System (AGIDS)"	Completed	TAC Member	Leo L. Fontaine
TPF-5(045), "Performance Guidelines for the Selection of Hot-Pour Crack Sealants"	Active	TAC Member	Charles A. Drda
TPF-5(046), "Transportation Curriculum Coordination Council (TCCC) Training Management and Development"	Completed	TAC Member	Cheryl L. Malerba
TPF-5(062), "Coordination of Pavement Activities in the Northeast"	Completed	TAC Member	Keith R. Lane
TPF-5(063), "Improving the Quality of Pavement Profiler Measurement"	Active	TAC Member	David J. Kilpatrick
TP5-5(068), "Long-Term Maintenance of Load and Resistance Factor Design Specifications"	Active	TAC Member	TBD (Formerly Gordon D. Barton)
TPF-5(069), "Core Program Services for a Highway Research, Development, and Technology Program: FFY 2003-2005 (TRB FY 2004-2006)" [Formerly, TPF-5(069), "Core Program Services for a Highway Research, Development, and Technology Program: 2004-2006"]	Completed	TAC Member	James M. Sime
TPF-5(073), "Portable Non-Intrusive Technologies (PNIT)"	Completed	TAC Member	Anne-Marie H. McDonnell
TPF-5(074), "Evaluation of Pre-Stressed Losses in Long-Span Post-Tensioned Bridges"	Active	TAC Member	Paul F. D'Attilio
TPF-5(076), "Development of Geotechnical Procedures/Operations Manual"	Completed	TAC Member	Leo L. Fontaine
TPF-5(080), "Investigation of Low Temperature Cracking in Asphalt Pavements"	Completed	TAC Member	David J. Kilpatrick
TPF-5(088), "NDE/NDT for Highways and Bridges"	Active	TAC Member	David J. Kilpatrick
TPF-5(096), "Validation of NDT Results for Condition Assessment of Rock Reinforcements"	Completed	TAC Member	Leo L. Fontaine
TPF-5(099), "Evaluation of Low Cost Safety Improvements"	Active	TAC Member	John F. Carey
		TAC Member	Joseph P. Ouellette

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Transportation Pooled Fund (TPF) Projects (continued)			
TPF-5(100), "Deicer Scaling Resistance of Concrete Pavements, Bridge Decks and Other Structures Containing Slag Cement"	Completed	TAC Member	John W. Henault
TPF-5(105), "Transportation Library Connectivity"	Active	TAC Member	Betty S. Ambler
TPF-5(107), "Refinement and Field Validation of Mix Design Criteria for 4.75 mm Superpave Mixes"	Completed	TAC Member	Nelio J. Rodrigues
TPF-5(109), "Core Program Services for a Highway Research, Development and Technology Program: FFY 2006-2008 (TRB FY 2007-2009)" [Formerly, TPF-5(109), "Core Program Services for a Highway Research, Development and Technology Program: 2007-2009"]	Active	TAC Member	James M. Sime
TPF-5(111), "Development of Standards for Geotechnical Management Systems"	Active	TAC Member	Leo L. Fontaine
TPF-5(120), "Deer Vehicle Crash Information and Research (DVCIR) Center Pooled Fund Study"	Active	TAC Member	Scott C. Williams
TPF-5(132), "Investigation of Low Temperature Cracking in Asphalt Pavements – Phase II (MNRoad Study)"	Active	TAC Member	David J. Kilpatrick
TPF-5(141), "Pavement Surface Properties Consortium: A Research Program"	Active	TAC Member	John W. Henault
TPF-5(146), "Evaluation of Modified Performance Grade Binders in Thin Lift Maintenance Mixes, Surface Mix and a Reflective Crack Relief Layer Mix"	Active	TAC Member	Nelio J. Rodrigues
TPF-5(154), "Census Transportation Planning Products (CTPP) From the American Community Survey"	Active	TAC Member	Charles S. Barone
		Planning Contact	Donna L. Weaver
TPF-5(168), "New England Transportation Consortium (NETC) IV: 2007+"	Completed	Policy Committee Member	Comr. Joseph F. Marie
		Advisory Committee Member	James M. Sime
		Advisory Committee Member and Lead Engineer	Dionysia F. Oliveira
TPF-5(171), "Evaluation of Non Intrusive Traffic Detection Technologies (Phase III)"	Active	TAC Member	Anne-Marie H. McDonnell
TPF-5(178), "Implementation of the Asphalt Mixture Performance Tester (AMPT) for Superpave Validation"	Active	TAC Member	Eric D. Jackson
TPF-5(192), "Loop and Length Based Classification Pooled Fund"	Active	TAC Member	Anne-Marie H. McDonnell
TPF-5(195), "Core Program Services for a Highway RD&T Program - FFY 2009 (TRB FY 2010)"	Active	TAC Member	James M. Sime
TPF-5(196), "2009 National Asset Management Conference"	Active	TAC Member	Colleen A. Kissane
		Alternate TAC Member	Donald A. Larsen
TPF-5(201), "New England Transportation Consortium (V)"	Active	Policy Committee Member	Comr. Joseph F. Marie
		Advisory Committee Member	James M. Sime
		Advisory Committee Member and Lead Engineer	Dionysia F. Oliveira
TPF-5(220), "Accommodating Oversize/Overweight Vehicles at Roundabouts"	Active	TAC Member	William W. Britnell
TPF-5(222), "New England Transportation Consortium (VI)"	Active	Policy Committee Member	Comr. Joseph F. Marie
		Advisory Committee Member	James M. Sime
		Advisory Committee Member and Lead Engineer	Dionysia F. Oliveira
TPF-5(408), "National Cooperative Highway Research Project - FY2008"	Active	TAC Member	James M. Sime
TPF-5(409), "National Cooperative Highway Research Project - FY2009"	Active	TAC Member	James M. Sime
TPF-5(410), "National Cooperative Highway Research Project - FY2010"	Active	TAC Member	James M. Sime
Solicitation Number 924, "One Coat Paint System for a Lifetime of Corrosion Protection on New Steel Bridges"	Withdrawn	TAC Member	David J. Kilpatrick
Solicitation Number 1076, "Conversion of Geometric Training Series to English Units and Web-Based Training" [Funds have been pledged to the Solicitation No. 1076 precursor project: SPR-2(183), "Development of Computer-Based and Web-Based Training (CBT & WBT) Lessons."	Withdrawn	TAC Member	James M. Sime
Solicitation Number 1156, "Internal Curing of Concrete Bridge Decks - Demonstration of Early Age Crack Mitigation and Evaluation of Enhanced Freeze-Thaw Performance"	Withdrawn	TAC Member	John W. Henault
Transportation Pooled Fund (TPF) Projects (continued)			

PART P
Personnel Assignments to Research Committees
FY10

Project/Committee/Program	Project/Committee/Program Status	Type of Assignment	Person(s)
Solicitation Number 1267, "Demonstration and Purchase of PG Binder Testing Equipment"	Proposed	TAC Member	Ravi V. Chandran
Solicitation Number TBD, "Core Program Services for a Highway RD&T Program - FFY 2010 (TRB FY 2011)"	Proposed	TAC Member	James M. Sime
Solicitation Number TBD, "Core Program Services for a Highway RD&T Program - FFY 2011 (TRB FY 2012)"	Proposed	TAC Member	James M. Sime
Solicitation Number TBD, "Core Program Services for a Highway RD&T Program - FFY 2012 (TRB FY 2013)"	Proposed	TAC Member	James M. Sime

PART Q

Connecticut Department of Transportation Research Trading Cards

FY10

Project Number	Project Title	Date of Issue	Trading Card Title
R.P. 170-1884	CT Transit Demonstration and Evaluation of Hybrid Diesel Electric Transit Buses	July 2005	Hybrid Bus
R.P. 92-616	CASE-CT Study: "A Study of the Feasibility of Utilizing Fuel Cells to Generate Power for the New Haven Rail Line	September 2007	New Haven Rail Line - Fuel Cell Feasibility Study
SPR Part 1 Photolog Task	Connecticut Department of Transportation Photolog Program	January 2005	Photolog DigitalHIWAY Big Picture Support
SPR-0222	CASE-CT Study: A Study of Railcar Lavatories and Waste Management Systems	July 2005	Railcar Lavatories
SPR-1417	Friction Testing and Safety Evaluation Services	January 2008	Friction Testing and Safety Evaluation
SPR-2107	Management - New England Transportation Consortium (NETC)	December 2008	New England Transportation Consortium (NETC)
SPR-2108	LTPP (Long-Term Pavement Performance) Coordination in Connecticut	January 2008	FHWA - LTPP Activities in Connecticut
SPR-2216	"350" Crash Testing of Connecticut Impact-Attentuation Systems	May 2005	CIAS - Connecticut Impact-Attenuation System
SPR-2216	"350" Crash Testing of Connecticut Impact-Attentuation Systems	May 2005	CTMA - Connecticut Truck-Mounted Attenuator
SPR-2216	"350" Crash Testing of Connecticut Impact-Attentuation Systems	May 2005	NCIAS - Narrow Connecticut Impact-Attenuation System
SPR-2217	Monitoring of Highway Bridges in Connecticut	January 2008	Bridge Monitoring Network in Connecticut
SPR-2222	Development of Guidelines for Reduction of Temperature Differential Damage (TDD) for Hot Mix Asphalt Pavement Projects in Connecticut	January 2006	Thermal Imaging of HMA Pavement in CT
SPR-2223	Evaluation of Alternative Fuel Light Trucks and Automobiles	January 2008	Evaluation of Nickel Cadmium Battery Electric Vehicles
SPR-2228	Implementation of Personal Digital Assistants (PDA) Devices for Superpave Field Data Collection	July 2005	Superpave "Paperless" Field Lab
SPR-2231	Feasibility of Streaming Media for Transportation Research and Implementation	January 2007	Webcasts & Video-on-Demand
SPR-2233	Alternative Merge Signs at Signalized Intersections	May 2005	Alternative Merge Sign
SPR-2236	New Technologies for Photolog Image and Data Acquisition	January 2007	ConnDOT High Definition Photolog
SPR-2243	Enhancements to ConnDOT's Pavement Friction Testing Program	January 2008	Friction Testing Enhancements
SPR-2243	Enhancements to ConnDOT's Pavement Friction Testing Program	January 2010	Pavement Friction Testing in CT: Historical Overview - TRB Paper 10-0426
SPR-2244	Assessing ConnDOT's Portland Cement Concrete Testing Methods	January 2006	Assessing ConnDOT's Concrete Testing Methods
SPR-2247	CASE-CT Study: Hydrogen Fueled Transportation in Connecticut	January 2007	Hydrogen-Fueled Transportation

PART Q			
Connecticut Department of Transportation Research Trading Cards			
FY10			
Project Number	**Project Title**	**Date of Issue**	**Trading Card Title**
SPR-2255	Self-Consolidating and No-Slump Concretes: A Synthesis of Research Findings and Best Practices	December 2008	Synthesis: Self-Consolidatng & No-Slump Concrete
SPR-2256	Expansion and Refinement of a Bridge Monitoring Network in Connecticut	January 2010	ConnDOT Bridge Monitoring
SPR-2259	Field Evaluation of a Cold-in-Place Recycled Pavement Base Overlaid with Hot Mix Asphalt (I-395)	December 2008	Evaluation of Cold In-Place Recycled Base
SPR-2259	Field Evaluation of a Cold-in-Place Recycled Pavement Base Overlaid with Hot Mix Asphalt (I-395)	January 2010	Assessing Pavement Rehabilitation with Photolog Data - TRB Paper 10-0163
SPR-2260	Digital Preservation of a Highway Photolog Film Archive in Connecticut	January 2010	ConnDOT Photolog Image Preservation
SPR-2262	Water-Quality Monitoring and Assessment Due to Addition of a Lane on a Divided Highway in Southeastern Connecticut	January 2010	
SPR-2265	Development and Evaluation of a Dual Purpose Bridge Health Monitoring and Weigh-in-Motion System for a Steel Birder Bridge	January 2010	Development and Evaluation of a Dual-Purpose Bridge Health Monitoring & Weigh-in-Motion System
SPR-2306	Installation and Evaluation of a Weigh-In-Motion System Utilizing Quartz-Piezo Sensor Technology	January 2008	Weigh-In-Motion (WIM) Studies
TRB Paper No. 05-1299	Evaluation of Safety Benefits and Potential Crash Migration Due to Shoulder Rumble Strip Installation on Freeways in Connecticut	January 2005	Shoulder Rumble Strips
TRB Paper No. 09-1099	The 2008 Transportation Design Challenge for Connecticut High School & Middle School Students	December 2008	2008 Transportation Design Challenge for Connecticut High School & Middle School Students

PART Q
Connecticut Department of Transportation Research Trading Cards
FY10

R.P. 170-1884, "CTTRANSIT Demonstration and Evaluation of Hybrid Diesel Electric Transit Buses"

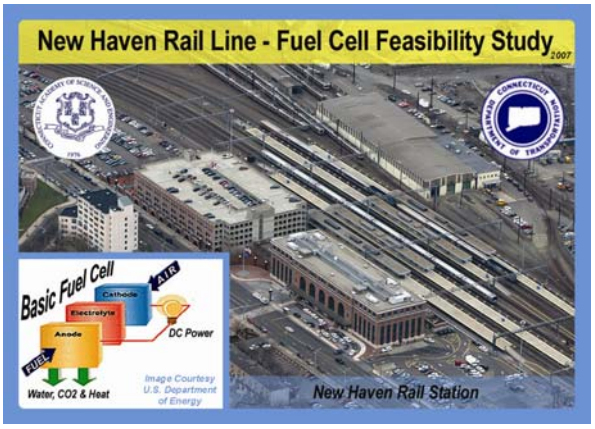
Hybrid Diesel Electric Bus

Project Title: CTTRANSIT Demonstration and Evaluation of Hybrid Diesel Electric Transit Buses
Objective: Determine and compare emissions, fuel economy, reliability, and life cycle cost of conventional diesel buses to hybrid diesel buses.
Project Description:
- Compared hybrid to conventional diesel buses over an 18 month period
- Test routes operated on: high speed, frequent stops, and steep grades
- Fuel used: standard diesel and ultra-low sulfur diesel

Conclusion:
- Hybrid bus 10% more fuel efficient than standard diesel bus
- Hybrid bus costs less to operate (e.g. less brake wear)
- Real world emissions were same for hybrid and standard buses

Use: Next generation of transit vehicles for future fleet replacement
Contact Info: Stephen W. Warren
Assistant General Manager Maintenance Services, CTTRANSIT
Phone: (860) 522-8101 ext. 223 E-mail: SWARREN@cttransit.com
http://www.ct.gov/dot/researchreports
A project in cooperation with U.S. DOT Federal Highway Administration

July 2005



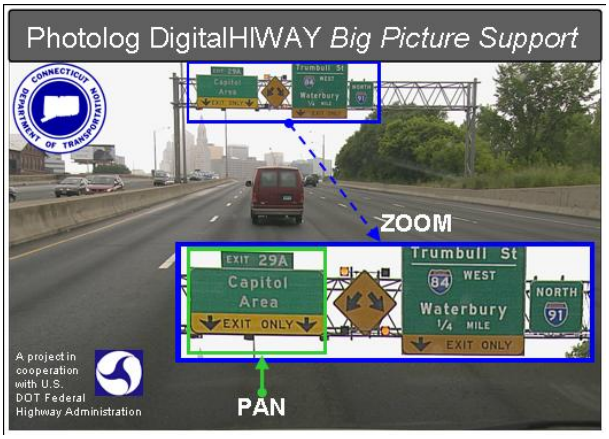
R.P. 92-616, CASE-CT Study: "A Study of the Feasibility of Utilizing Fuel Cells to Generate Power for the New Haven Rail Line

A Study of the Feasibility of Utilizing Fuel Cells to Generate Power for the New Haven Rail Line

Objective: A comprehensive assessment and recommendations for New Haven Rail Line fuel cell usage, prepared for the Connecticut General Assembly in accordance with Public Act #06-136.
Report Date: August 2007
Conclusions: Fuel cells can offer competitive options for:
- Localized power generation
- Combined Heat & Power (CHP) opportunities
- Back-up power at critical sites

Benefits: Compared to conventional power sources, fuel cells are more efficient and quieter; produce waste heat adaptable for heating (CHP); have significant tax and other incentives for new installations; are built by Connecticut manufacturers; and, can reduce power transmission demands in southwestern CT.
Challenges: Compared to conventional power sources, fuel cells may be more costly; have longer start-up times; require more space; need a constant natural-gas or hydrogen fuel supply; and, warrant timely decision-making to coincide with upcoming rail line improvements.
Recommendations: Consider using fuel cells for yard and station power, especially new facilities; where emergency power/security needs exist; and, certain traction power situations.
Principal Investigator: Richard H. Strauss / Connecticut Academy of Science and Engineering
Phone/Fax: (860) 527-2161 Email: acad@ctcase.org Website: www.ctcase.org
The full report can be found at http://www.ct.gov/dot/researchreports
A project prepared for the Connecticut General Assembly in cooperation with Connecticut DOT and Metro-North Railroad

September 2007



SPR Part 1 Photolog Task, "Connecticut Department of Transportation Photolog Program"

CONNDOT PHOTOLOG NOW OFFERS HIGH RESOLUTION (1300X1030) & HIGH DEFINITION (1920X1080) PHOTOLOG IMAGES & UPDATED SOFTWARE THAT MAKES THEM EASY TO VIEW ON ALL COMPUTER MONITORS!

BIG PICTURE SUPPORT, the latest feature in ConnDOT's ***DigitalHIWAY*** photolog viewing software, is an easy-to-learn & quick-to-execute point-and-click protocol that does not involve drop-down menus or special buttons.

A mouse-click directly on the image calls up a **BLUE ZOOM BOX** or a **GREEN PAN BOX** that can be dragged to select the portion of a big picture for high-resolution display in a small window. Simply click again to return the full image to view ("shrink to fit" feature).
-On-screen help tips are displayed at each step in the process to allow the new user to "learn by doing."
-The protocol allows for easy access to detail in a large image without the need for complicated menu dropdown options or accelerator keystrokes.

Contact Information: Connecticut Department of Transportation | Division of Research | Photolog Unit | 280 West Street, Rocky Hill, CT 06067 | Phone (860)258-0319 | Fax (860)258-0316 | Email Bradley.Overturf@po.state.ct.us

January 2005

PART Q
Connecticut Department of Transportation Research Trading Cards
FY10

SPR-0222, CASE Study: "A Study of Railcar Lavatories and Waste Management Systems"

Lavatories / Waste Management On Railcars

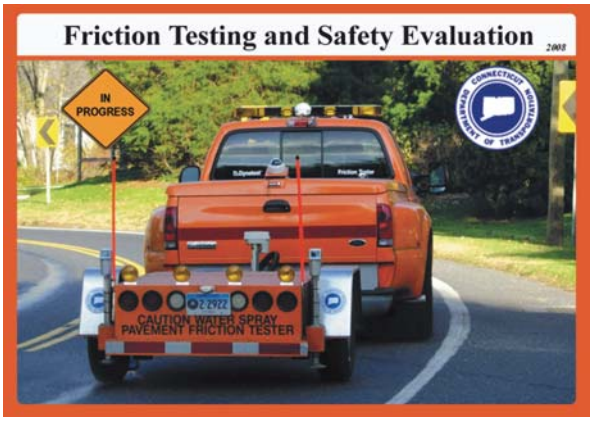
Project Title: A Study of Railcar Lavatories and Waste Management Systems
Objective: To explore and examine lavatory design and operational issues to improve lavatory cleanliness and customer satisfaction.
Report Date: May 2004
Conclusion: ConnDOT should consider the following when designing railcar lavatories:
- innovative design and engineering materials
- reliable waste management system technology
- ventilation system that effectively removes foul odors

Implementation: ConnDOT will purchase new railcars for its Metro-North fleet within next few years which will provide an opportunity to:
- integrate lavatory design changes
- address customer satisfaction with design as well as day-to-day operations, cleanliness, and maintenance of the railcar lavatory facilities/systems

Principal Investigator: Richard H. Strauss

CONNECTICUT ACADEMY OF SCIENCE AND ENGINEERING
Phone or Fax: (860) 527-2161
E-mail: acad@ctcase.org Website: www.ctcase.org
http://www.ct.gov/dot/researchreports
A project in cooperation with U.S. DOT Federal Highway Administration

July 2005



SPR-1417, "Friction Testing and Safety Evaluation Services"

FRICTION TESTING AND SAFETY EVALUATION SERVICES

FREE REPORTS AVAILABLE @ WWW.CT.GOV/DOT/RESEARCHREPORTS

Project Title: "Friction Testing and Safety Evaluation Services"
Objectives: Provide friction testing and roadway safety evaluation services to Connecticut Department of Transportation (ConnDOT) offices upon request to ensure all roadway surfaces provide an acceptable level of surface friction for prevailing traffic conditions.
Methodology: The ConnDOT's wet pavement "Suggested List of Surveillance Study Sites" (SLOSSS) high accident locations or areas suspected of having slippery pavement are identified and tested for wet-weathered skid resistance. The results are summarized, analyzed, and reported to the requester.
Equipment: 2005 ASTM E274 Dual-Sided Pavement Friction Tester (DynaTest) with a texture measurement laser device and GPS system.
Program Implementation: 1969
Principal Investigator:
John W. Henault, P.E. Phone: 860-258-0352 Email: john.henault@po.state.ct.us
SPR-1417: Project conducted in cooperation with the U.S. DOT Federal Highway Administration

January 2008

SPR-2107, "Management - New England Transportation Consortium (NETC)"

New England Transportation Consortium (NETC)

Technical Paper #09-0840 Prepared for the 2009 Transportation Research Board (TRB) Annual Meeting (Session #337)

Project Title: "New England Transportation Consortium (NETC)"
Objectives and Project Description: The six New England state transportation agencies are cooperating with the six New England state land grant universities and the Federal Highway Administration in a program of transportation research. The NETC was formed to pool the Consortium's financial, professional and academic resources to deal with common problems of the region's transportation system. Since 1994, NETC has provided over $7.5 million to fund 85 projects at the New England state land grant universities.

NETC Bridge Rail

Project Start Date: Federal Fiscal Year 1995
Final Report Anticipated: December 2009

Wizard and Student From NETC TRB Video

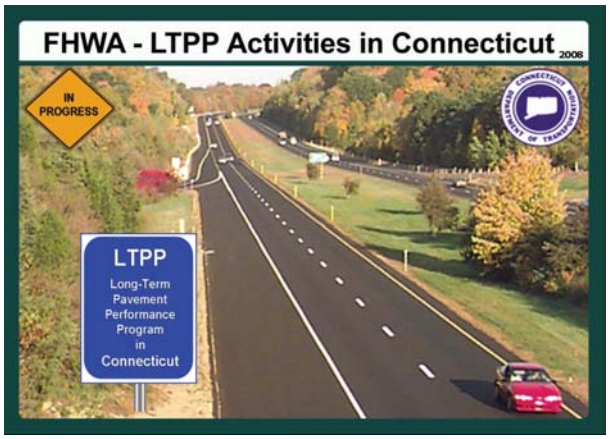
Contacts:

Barbara Breslin	860-659-6703, x3030	barbara.breslin@fhwa.dot.gov
James M. Sime	860-258-0309	james.sime@po.state.ct.us
Gerald M. McCarthy	508-910-9846	gmccarthy@umassd.edu
Dionysia F. Oliveira	860-258-0306	dionysia.oliveira@po.state.ct.us

Division of Research, Connecticut Department of Transportation (ConnDOT)
ConnDOT URL: www.ct.gov/dot/research
NETC URL: www.netc.umassd.edu
A project in cooperation with U.S. DOT Federal Highway Administration

December 2008

PART Q
Connecticut Department of Transportation Research Trading Cards
FY10



SPR-2108, "LTPP (Long-Term Pavement Performance) Coordination in Connecticut"

FHWA – LTPP Activities in Connecticut
Free Online Reports Available @ www.ct.gov/dot/researchreports

Overview: This research project was established to coordinate the State of Connecticut's participation in the FHWA Long Term Pavement Performance Program (FHWA - LTPP).

Background: The FHWA - LTPP is a comprehensive 20-year study of in-service pavements. Researchers are studying various pavement designs and rehabilitated pavement structures on over 2,400 test sections. This research includes pavement structures subjected to different loads, environments, subgrade soils and maintenance practices. The Connecticut DOT has been a stakeholder in LTPP since the onset.

Research Highlights:

- Connecticut's test sites include: 5 General Pavement Study (GPS) sites, including 1 Seasonal Monitoring Site; and 1 Specific Pavement Study (SPS-9A) test site with 6 test sections, 3 of which include reclaimed asphalt pavements.
- Traffic data collection activities include: continuous count, classification and weight data collection; field testing using trucks of known-weight; and, advancement of weigh-in-motion (WIM) practices and accuracy.
- Serving in advisory roles through TRB-LTPP task groups and committees.

Benefits: The LTPP focus on development and improvement of pavement engineering continues to be the foremost benefit to stakeholders. LTPP benefits the highway community by standardizing and improving data collection and analyses methods, as well as pavement practices.

Principal Investigator: Anne-Marie H. McDonnell, P.E.
Phone: (860) 258-0308 Email: annemarie.mcdonnell@po.state.ct.us

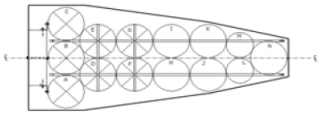
SPR-2108: Project conducted in cooperation with the U.S. DOT Federal Highway Administration

January 2008

SPR-2216, "'350' Crash Testing of Connecticut Impact-Attenuation Systems"

CIAS
Connecticut Impact-Attenuation System

Project Title: 350 Crash Testing of Connecticut Impact-Attenuation Systems
Objective: Development of a roadside safety feature
Use: End treatment to roadside hazards
Crash Testing: Passed NCHRP Report 350 standards
Device: Test level 3 redirective, gating
FHWA approval: For use along the National Highway System
Cylinders: 14 steel cylinders: all 4 ft(1200 mm) tall; 12 are 4 ft(1200 mm) in diameter & 2 are 3 ft(900 mm) in diameter
Other Components: skid rails, concrete base pad and backup wall, and vinyl cover
Implementation: Product in use in Connecticut and ready for adoption by agencies



For free downloadable plans and more information:
www.ct.gov/dot/cias

James M. Sime, P.E., Manager of Research
Connecticut Department of Transportation
280 West Street, Rocky Hill, CT 06067-3502
Phone: (860) 258-0309 E-mail: james.sime@po.state.ct.us

A project in cooperation with U.S. DOT Federal Highway Administration

May 2005

SPR-2216, "'350' Crash Testing of Connecticut Impact-Attenuation Systems"

CTMA
Connecticut Truck-Mounted Attenuator

Project Title: 350 Crash Testing of Connecticut Impact-Attenuation Systems
Objective: Development of a truck-mounted impact attenuation system to protect maintenance and construction personnel performing field duties in work zones.
Crash testing: Passed NCHRP Report 350 standards
Device: Test Level 2
Cylinders: 4 steel cylinders; 2 ft (610 mm) in diameter & 34 in (860 mm) tall
Other components: Service vehicle guidance frame, & impacting plate assembly-
Implementation: Over 130 units in service in Connecticut
Product ready for adoption by other agencies

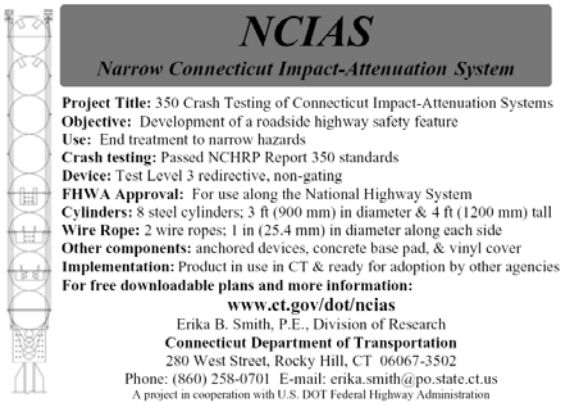
For free downloadable plans and more information:
www.ct.gov/dot/ctma

James M. Sime, P.E., Manager of Research
Connecticut Department of Transportation
280 West Street, Rocky Hill, CT 06067-3502
Phone: (860) 258-0309 E-mail: james.sime@po.state.ct.us

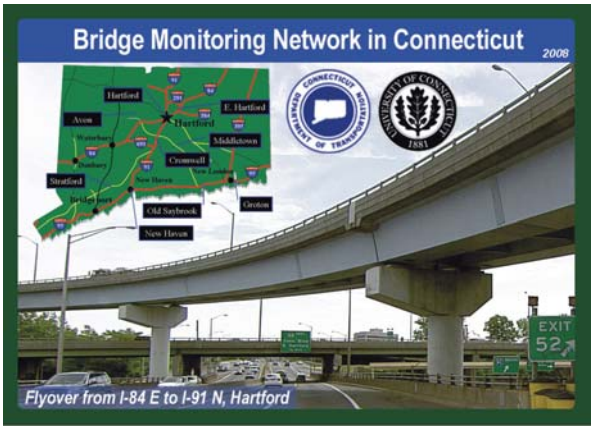
A project in cooperation with U.S. DOT Federal Highway Administration

May 2005

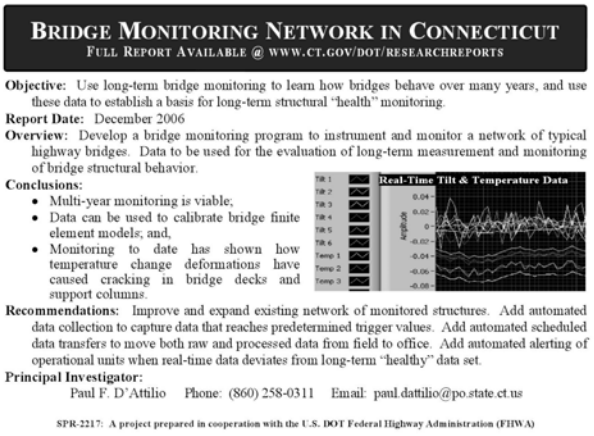
SPR-2216, "'350' Crash Testing of Connecticut Impact-Attenuation Systems"



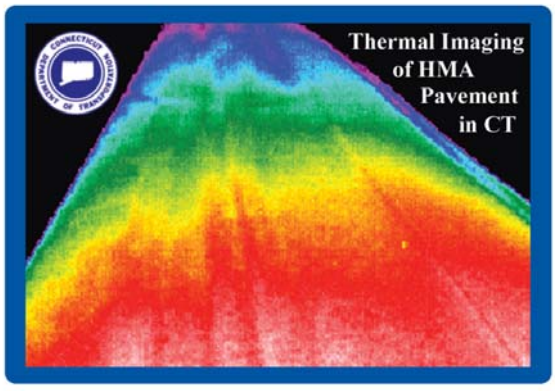
May 2005



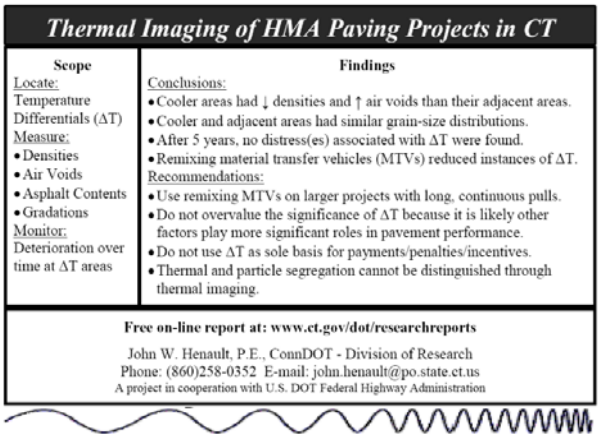
SPR-2217, "Monitoring of Highway Bridges in Connecticut"



January 2008

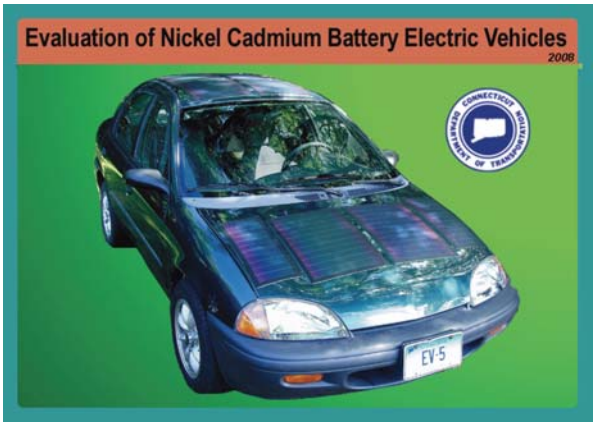


SPR-2222, "Development and Guidelines for Reduction of Temperature Differential Damage (TTD) for Hot Mix Asphalt Pavement Projects in Connecticut"

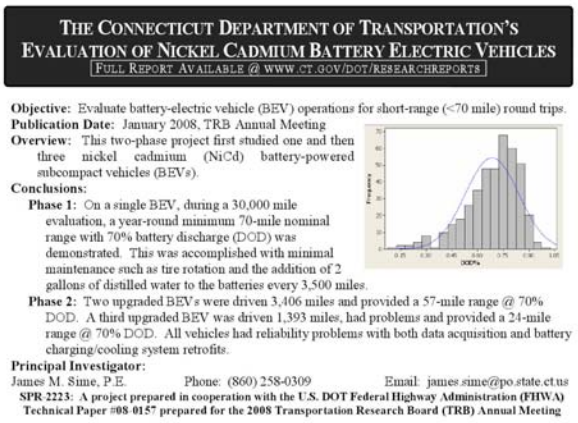


January 2006

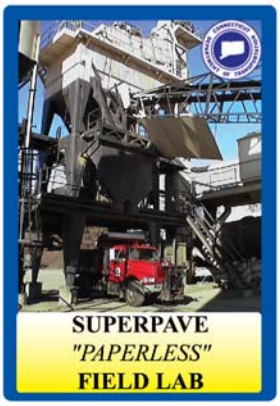
PART Q
Connecticut Department of Transportation Research Trading Cards
FY10



SPR-2223, "Evaluation of Alternative Fuel Light Trucks and Automobiles"



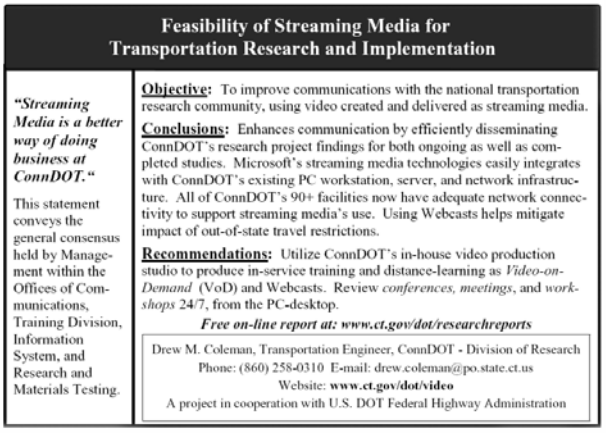
January 2008



SPR-2228, "Implementation of Personal Digital Assistant (PDA) Devices for Superpave Field Data Collection"

July 2005

SPR-2231, "Feasibility of Streaming Media for Transportation Research and Implementation"



January 2007

PART Q
Connecticut Department of Transportation Research Trading Cards
FY10

SPR-2233, "Alternative Merge Signs at Signalized Intersections"

Alternative Merge Sign

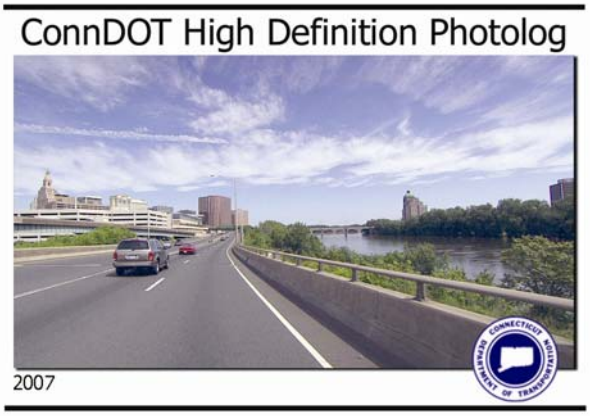
2-500(Ex)
(Exp. Sign)

W4-2
(Old Sign)

Project Title: "Alternative Merge Sign at Signalized Intersections"
Objective: To improve traffic flow and safety while merging.
Monitoring Procedure: Video cameras
Conclusion: Successful
Project Start Date: Sept. 1, 2001
Projected Final Report: May 2005
Length of Evaluation: Sign W4-2, 6 mos.
Sign 2-500(Ex), 1 yr.
2-500(Ex) Launch Date: April 1, 2003
Test Locations: Route 4 WB, Farmington, CT (36" sign)
Route 229 NB, Southington, CT (48" sign)
Principal Investigator: Eric G. Feldblum, Transportation Engineer
Division of Research
Connecticut Department of Transportation
Contact Info: Phone: (860) 258-0392
E-mail: eric.feldblum@po.state.ct.us
Website: www.ct.gov/dot/research

A project in cooperation with U.S. DOT Federal Highway Administration

May 2005



SPR-2236, "New Technologies for Photolog Image and Data Acquisition"

CONNDOT IMPLEMENTS HDTV FOR PHOTOLOG

Project Title: New Technologies for Photolog Image and Data Acquisition
Objective: To improve photolog imaging technology and subsequent image-to-client delivery.
Report Date: February 2007
Conclusions: The high quality of HDTV and improved network distribution software have led to an impressive 58% increase in photolog use and 51% increase in monetary savings to the department. Projected savings to the department in FY07 exceeding $2 million dollars represent a 3:1 benefit/cost ratio.
Photolog Used For: Familiarization, Review, Confirmation, Documentation, and Presentation
Recommendations: Savings in states with larger areas should be equally or more substantial and it appears to make sound economic sense for state DOTs to place a high priority and adequate resources to upgrade their image and data acquisition systems.
Principal Investigator: Bradley J. Overturf
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A project in cooperation with the Connecticut DOT and the U.S. DOT Federal Highway Administration

January 2007

SPR-2243, "Enhancements to ConnDOT's Pavement Friction Testing Program"

ENHANCEMENTS TO THE PAVEMENT FRICTION TESTING PROGRAM IN CONNECTICUT

RESEARCH-IN-PROGRESS (RIP)
ON THE WEB @ WWW.CT.GOV/DOT/RESEARCH

Objectives: The Connecticut Department of Transportation (DOT) is researching the relationship between pavement friction and texture; the effects of roadway geometry on friction measurements; potential use of the International Friction Index; and, development of speed correction factors for friction numbers measured at speeds below/above 40 mph.

Project Description:

1. Implement a new pavement friction tester with texture measurement capabilities;
2. Develop speed correction equations for pavement friction measurements;
3. Evaluate the effect of roadway geometry on friction measurements;
4. Compare texture measurements with those from a Circular Track Meter; and,
5. Utilize texture measurements to evaluate use of the International Friction Index (IFI).

Final Report Anticipated: June 2008
Principal Investigator:
John W. Henault, P.E. Phone: (860) 258-0352 Email: john.henault@po.state.ct.us

SPR-2243: A project prepared in cooperation with the U.S. DOT Federal Highway Administration (FHWA)

January 2008

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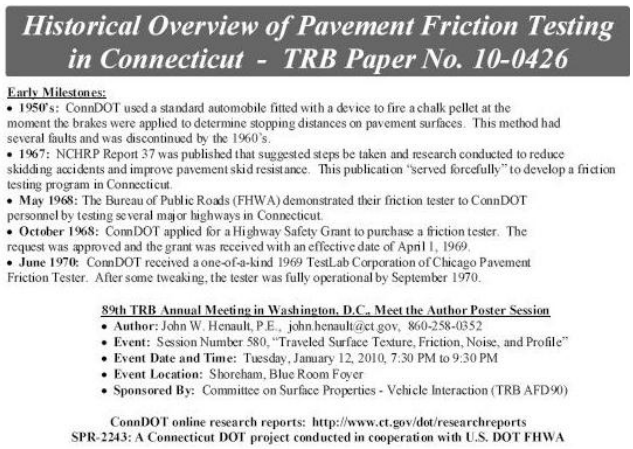
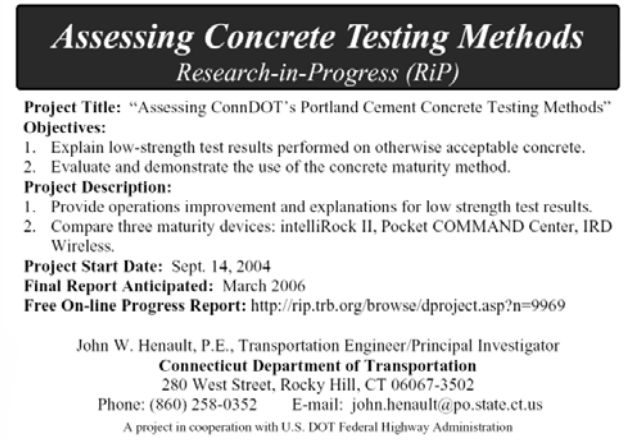
Connecticut Department of Transportation Research Trading Cards
FY10

SPR-2243, "Enhancements to ConnDOT's Pavement Friction Testing Program"



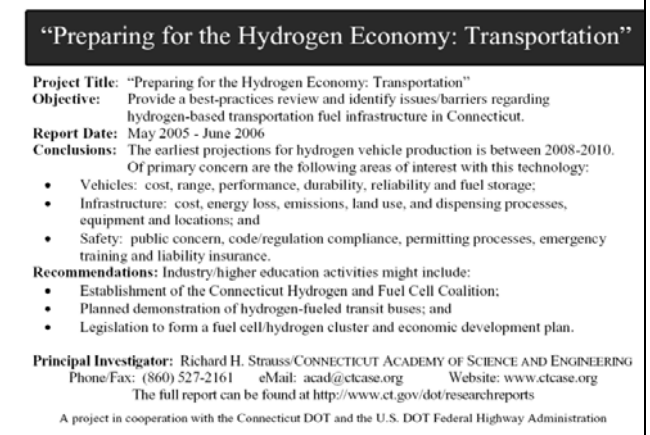
January 2010

SPR-2244, "Assessing ConnDOT's Portland Cement Concrete Testing Methods"



January 2006

SPR-2247, CASE-CT Study: "Hydrogen Fueled Transportation in Connecticut"



January 2007

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SPR -2255, "Self-Consolidating and No-Slump Concretes: A Synthesis of Research Findings and Best Practice"

Synthesis: Self-Consolidating & No-Slump Concretes
Research-in-Progress (RiP)
Free Online Reports Available @ www.ct.gov/dot/research

Objectives:
Survey and document practices in other states, document Connecticut Department of Transportation (ConnDOT) contractor/plant practices, and combine research findings on self-consolidating and no-slump concretes into one report on the best practices for pre-casting catch basins and box culverts, including quality assurance.

Project Description:
1. Visit and observe precast concrete plants in Connecticut to assess the local state of the practice for self-consolidating and no- slump concrete mix applications.
2. Document construction and inspection operations at precast plants where these materials are used.
3. Conduct surveys of other state highway agencies and perform a technical literature review to document their usage of self-consolidating and no-slump concretes.
4. Review the standard specifications of other state highway agencies to see what they are requiring when using self-consolidating and no-slump concretes.
5. Review current ConnDOT specifications and recommend revisions for self-consolidating and no-slump concretes.

Principal Investigator:
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SPR-2255: A project in cooperation with U.S. DOT Federal Highway Administration

December 2008

SPR-2256, "Expansion and Refinement of a Bridge Monitoring Network in Connecticut"

Expansion and Refinement of a Bridge Monitoring Network in Connecticut

Overview: ConnDOT has a network of instrumented bridges with permanent continuous monitoring systems that are remotely accessible from a centralized location. Data are used for the evaluation of long-term structural health assessment and monitoring of bridge structural behavior under normal traffic loading.

Objective: Expand and upgrade the network of monitored bridges in the state, collecting performance data from different sensors and refining long-term structural "health" monitoring techniques for various types of bridges.

Work Tasks:
- Stream data over Internet using a Real-Time Data viewer.
- Develop data-qualification and -quantification procedure to verify and better characterize data being collected.
- Continue data collection to refine understanding of patterns and baseline benchmarks in data.
- Collect acceleration, tilt and strain data; process and identify trigger events; and, FTP data to ConnDOT data repository.
- Develop email alert system for trigger events when data falls outside of normal parameters.

Status: Active Research in Progress
Final Report Anticipated: June 2011
Principal Investigators:
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Free Research Reports at www.ct.gov/dot/researchreports

SPR-2256: A Connecticut DOT project conducted in cooperation with the U.S. DOT FHWA and Univ. of Connecticut.

January 2010

SPR-2259, "Field Evaluation of a Cold-in-Place Recycled Pavement Base Overlaid with Hot Mix Asphalt (I-395)"

Cold In-Place Recycled Base
Research-in-Progress (RiP)
Free Reports Available @ www.ct.gov/dot/research

Objective:
Evaluate and document the performance, consistency and durability of cold-in-place recycled (CIR) pavement after ten years of service.

Problem Statement:
In 1998, a CIR method was used to pave a 3-inch base immediately followed by a conventional 2-inch hot mix asphalt (HMA) surface course on State Route (S.R.) 695 in Killingly, CT. An adjacent pavement on this highway received a conventional milling and overlay. The combination of CIR/HMA overlay was placed to learn about its performance and cost-effectiveness, relative to conventional paving methods. Now, ten years later, the pavement is still in-place, and the Connecticut State Legislature is interested in the potential for CIR to perform acceptably and be more cost-effective than conventional methods in applicable locations. There is a need to evaluate the performance of the CIR used on S.R. 695.

Principal Investigator:
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SPR-2259: A project in cooperation with U.S. DOT Federal Highway Administration

December 2008

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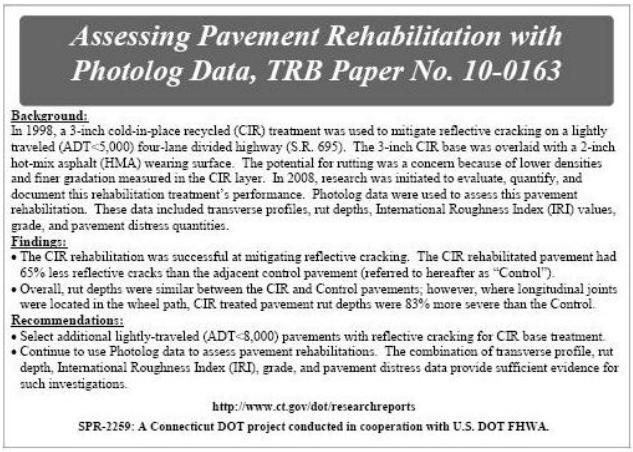
SPR-2259, "Field Evaluation of a Cold-in-Place Recycled Pavement Base Overlaid with Hot Mix Asphalt (I-395)"



Assessing Pavement Rehabilitation with Photolog Data, TRB Paper No. 10-0163

Background:
In 1998, a 3-inch cold-in-place recycled (CIR) treatment was used to mitigate reflective cracking on a lightly traveled (ADT<5,000) four-lane divided highway (S.R. 695). The 3-inch CIR base was overlaid with a 2-inch hot-mix asphalt (HMA) wearing surface. The potential for rutting was a concern because of lower densities and finer gradation measured in the CIR layer. In 2008, research was initiated to evaluate, quantify, and document this rehabilitation treatment's performance. Photolog data were used to assess this pavement rehabilitation. These data included transverse profiles, rut depths, International Roughness Index (IRI) values, grade, and pavement distress quantities.

Findings:
- The CIR rehabilitation was successful at mitigating reflective cracking. The CIR rehabilitated pavement had 65% less reflective cracks than the adjacent control pavement (referred to hereafter as "Control").
- Overall, rut depths were similar between the CIR and Control pavements; however, where longitudinal joints were located in the wheel path, CIR treated pavement rut depths were 83% more severe than the Control.

Recommendations:
- Select additional lightly-traveled (ADT<8,000) pavements with reflective cracking for CIR base treatment.
- Continue to use Photolog data to assess pavement rehabilitations. The combination of transverse profile, rut depth, International Roughness Index (IRI), grade, and pavement distress data provide sufficient evidence for such investigations.

http://www.ct.gov/dot/researchreports

SPR-2259: A Connecticut DOT project conducted in cooperation with U.S. DOT FHWA.

January 2010

SPR-2260, "Digital Preservation of a Highway Photolog Film Archive in Connecticut"

PHOTOLOG IMAGE PRESERVATION

Project Title: "Digital Preservation of a Highway Photolog Film Archive in Connecticut"

Objective: To digitize, preserve, and distribute archived photolog film images collected from 1973-1995 by ConnDOT. Film images will be scan converted to 4096 horizontal pixels or "4K" digital images to approximate original film quality. The project will also determine the feasibility of distributing "4K" images through ConnDOT's DigitalHIWAY roadway-viewing software environment for multiple operating systems.

Status: Active Research in Progress
Project Start Date: May 12, 2009
Final Report Anticipated: June 30, 2012
Principal Investigators:
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Brad Overturf, Connecticut DOT, bradley.overturf@ct.gov, 860-258-0319

Web: www.cti.uconn.edu & www.ct.gov/dot/photolog

SPR-2260: A project conducted in cooperation with the U.S. DOT Federal Highway Administration

January 2010

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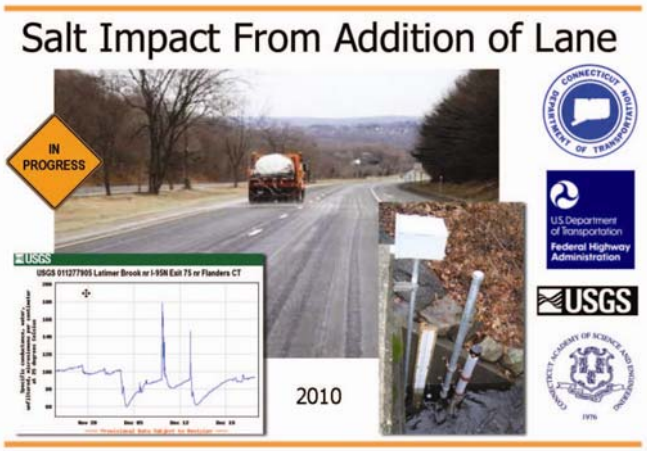

SPR-2262, "Water-Quality Monitoring and Assessment Due to Addition of a Lane on a Divided Highway in Southeastern Connecticut"

WATER-QUALITY MONITORING AND ASSESSMENT DUE TO ADDITION OF A LANE ON A DIVIDED HIGHWAY IN SOUTHEASTERN CONNECTICUT

Objectives: To provide water-quality data and interpretations to be used in the establishment of baseline water-quality conditions of the I-95 expansion in southeastern Connecticut for the development of the project Environmental Impact Statement. The analysis will primarily focus on water quality related to road deicing practices.
Project Description: USGS will engage in a 3-yr monitoring program to determine chloride concentrations and loads from streams associated with I-95 and land use, and to understand the chloride dynamics during storms and base-flow conditions. ConnDOT, FHWA and the Connecticut Academy of Science and Engineering (CASE) will provide technical input on the progress of the USGS monitoring program.
Project Status: Active Research-in-Progress
Final Report Anticipated: June 2013
Principal Investigators and Contacts:
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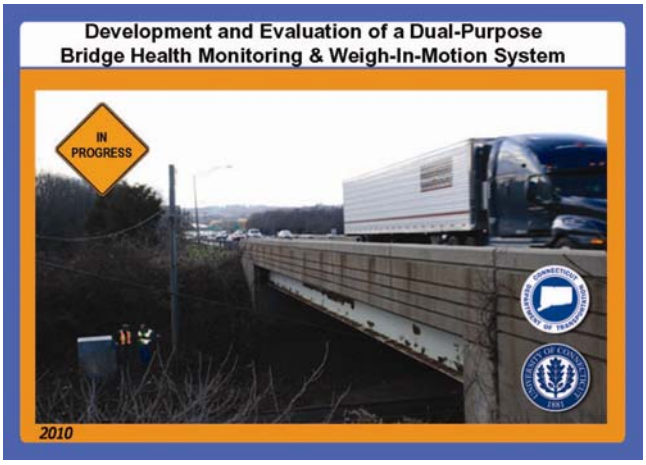
SPR-2262 - A ConnDOT project conducted in cooperation with FHWA, USGS and CASE.

January 2010



SPR-2265, "Development and Evaluation of a Dual Purpose Bridge Health Monitoring and Weigh-in-Motion System for a Steel Birder Bridge"

DEVELOPMENT AND EVALUATION OF DUAL-PURPOSE BRIDGE HEALTH MONITORING & WEIGH-IN-MOTION SYSTEM FOR A STEEL GIRDER BRIDGE

FREE ONLINE REPORTS AVAILABLE @ WWW.CT.GOV/DOT/RESEARCHREPORTS

Objective: Develop and evaluate a permanent dual-purpose Bridge Health Monitoring (BHM) / Bridge Weigh-In-Motion (BWIM) system on a short-span steel-bridge.
Evaluation Plan: A BHM system that is focused on BWIM data collection capabilities will be developed and deployed in a field evaluation. A test site location was selected on an in-service highway (I-91) in Meriden, CT. At this location, the steel-girder bridge will be instrumented and monitored in comparison to data collected at a nearby weigh station. BHM & BWIM data will be collected continuously and validated periodically throughout the project to assess system robustness and stability over an extended period of time. The system will be assessed for its ability to leverage BHM for BWIM and how the results can benefit enforcement, bridge and traffic monitoring efforts at federal, state and local agencies.
Benefits: Leveraging long-term bridge monitoring systems for BWIM will enable the non-intrusive (i.e. no sensors in or on the pavement) collection of data on a more comprehensive network. Improved load information on the transportation network will lead to better designs and efficiency as well as the ability to weigh and screen commercial vehicles in a timely manner for weight enforcement, collection of speed, weight and classification data for traffic monitoring, improved safety and timely identification of changes in the structural system.
Project Status: Active Research-in-Progress
Final Report Anticipated: August 2011
Principal Investigators:
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Anne-Marie McDonnell, P.E., Connecticut DOT, annemarie.mcdonnell@ct.gov, 860-258-0308

SPR-2265: A Connecticut DOT project conducted in cooperation with the U.S. DOT FHWA and Univ. of Connecticut.

January 2010

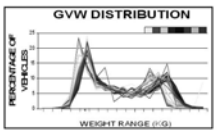
SPR -2306, "Installation and Evaluation of a Weigh-In-Motion System Utilizing Quartz-Piezo Sensor Technology"

WEIGH - IN - MOTION (WIM) STUDIES IN CONNECTICUT

FREE ONLINE REPORTS AVAILABLE @ WWW.CT.GOV/DOT/RESEARCHREPORTS

Overview: The Connecticut Department of Transportation has conducted studies to evaluate weigh-in-motion (WIM) technologies under actual traffic conditions in Connecticut's environment. (1990-present)
Research Highlights:

- First installation and evaluation of quartz piezoelectric WIM sensors on a US Highway
- Data collection for inclusion in FHWA - LTPP (Long-Term Pavement Performance Program)
- Field testing using trucks of known-weight
- Advancement of data analysis methods
- Investigation of WIM system performance at various speeds, pavements, temperatures, vehicle types and loading configurations



Summary: Field testing and evaluation of weigh-in-motion technologies under various field conditions has provided valuable information on sensor accuracy, reliability and survivability. Information from these studies has served as the basis for decisions by many agencies. The evaluation of sensors has led to a better understanding of weigh-in-motion systems field performance and limitations of current WIM technology.
Principal Investigator: Anne-Marie H. McDonnell, P.E.
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SPR-2306: Project conducted in cooperation with the U.S. DOT Federal Highway Administration

January 2008

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Connecticut Department of Transportation Research Trading Cards
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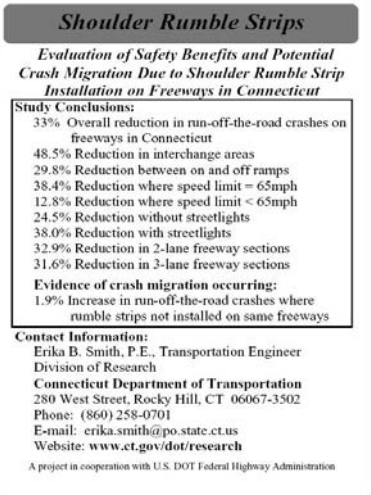
TRB Paper No. 05-1299, "Evaluation of Safety Benefits and Potential Crash Migration Due to Shoulder Rumble Strip Installation on Freeways in Connecticut"



Shoulder Rumble Strips

Evaluation of Safety Benefits and Potential Crash Migration Due to Shoulder Rumble Strip Installation on Freeways in Connecticut

Study Conclusions:

33% Overall reduction in run-off-the-road crashes on freeways in Connecticut
48.5% Reduction in interchange areas
29.8% Reduction between on and off ramps
38.4% Reduction where speed limit = 65mph
12.8% Reduction where speed limit < 65mph
24.5% Reduction without streetlights
38.0% Reduction with streetlights
32.9% Reduction in 2-lane freeway sections
31.6% Reduction in 3-lane freeway sections

Evidence of crash migration occurring:

1.9% Increase in run-off-the-road crashes where rumble strips not installed on same freeways

Contact Information:

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Website: **www.ct.gov/dot/research**

A project in cooperation with U.S. DOT Federal Highway Administration

January 2005

TRB Paper No. 09-1099, " The 2008 Transportation Design Challenge for Connecticut High School & Middle School Students"

2008 TRANSPORTATION DESIGN CHALLENGE FOR CONNECTICUT STUDENTS

In partnership with the American Association of State Highway Transportation Officials (AASHTO) **TRA**NSPORTATION AND **C**IVIL ENGINEERING (**TRAC**) PROGRAM, the Connecticut Department of Transportation (ConnDOT) launched the ***2008 Transportation Design Challenge for Connecticut High School & Middle School Students*** in January 2008. This statewide contest, open to all Connecticut secondary students, provided a realistic, engaging introduction to engineering and transportation systems. The contest culminated in a showcase of student-created displays at the 2008 AASHTO 94th Annual Meeting & Trade Show in Hartford, CT during the week of October 16-20, 2008.

THE CHALLENGE:

Three students, working as a team, put their heads together to propose a Transit-Oriented Design (TOD) project that might someday work in their community. The team analyzed the issues, refined their solution, built a model of their TOD and presented it to a team of Judges at the AASHTO Annual Meeting…and had fun doing it!

2009 Transportation Research Board (TRB) 88th Annual Meeting - Paper #09-1099 - Session #330

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December 2008