



CONNECTICUT DEPARTMENT OF TRANSPORTATION

Research and Implementation Activities



In-house research projects are conducted and/or administered on a wide range of topics. A representative sample is described below for the period July 1, 2000 thru June 30, 2001. For more information on these projects, please contact the staff member listed.

Automated Bridge Monitoring



In cooperation with the FHWA and the University of Connecticut, ConnDOT is developing a network of nine in-service bridges that are being retrofitted with automated monitoring systems. They will monitor a variety of structural parameters that include vibration, strain, tilt, and temperature variations in the bridges' cross-section. Monitoring of these parameters will be done on a long-term basis. The first of these systems was installed in August of 1998. Future systems will be placed on bridges of various types and sizes. Contact Robert G. Lauzon, Ph.D., P.E. at (860) 258-0327 or Robert.Lauzon@po.state.ct.us

Non-nuclear Density Pavement Quality Indicator



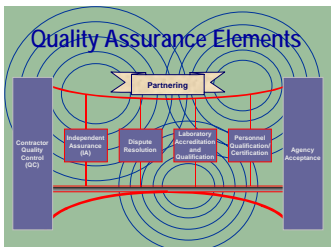
The field performance of a non-nuclear density gauge was evaluated for measuring hot mix asphalt pavement density. Ten sites were selected from ongoing paving projects. For comparison, nuclear density tests and drilled cores were obtained at the same locations as the non-nuclear gauge. A statistical analysis was performed that showed poor correlation exists between the cores and the non-nuclear density gauge. A final report is available. Contact Jeffery Scully, at (860) 258-0307 or Jeffery.Scully@po.state.ct.us

Mobile Bridge Underclearance Measurement System



In 1998, FHWA's Office of Engineering Research and Development developed a prototype device for automated measurement of the vertical distance to overhead objects from a moving vehicle. ConnDOT borrowed the device and verified its functionality. Research staff then developed a multi-laser device with three sensors instead of one. This was installed on a van and field tested at 50mph using 12 overhead structures. The results are encouraging. A report is available. Contact Robert G. Lauzon, Ph.D., P.E. at (860) 258-0327 or Robert.Lauzon@po.state.ct.us

Quality Assurance Specifications for HMA Construction



This project was initiated to dedicate resources to assist a ConnDOT Task Force in the implementation of a Quality Assurance (QA) program for Hot-mix asphalt pavement. Specific focus projects will be used to evaluate the performance of QA procedures and provide feedback for revisions to QA specifications, if needed. Criteria for measuring costs and benefits of the QA program will be developed, as well as a QA manual for use by ConnDOT Construction personnel and New England contractors doing work in Connecticut. Contact Edgardo Block at (860) 258-0303 or Edgardo.Block@po.state.ct.us

Use of Streaming Media for Research Dissemination and Training



Utilizing streaming media technologies for disseminating Research-project demonstration videos and on-line training is the focus of this three-phase study. RealNetworks, Apple and Microsoft media production tools, client players and server application software are being evaluated for their potential use in creating on-demand streaming multimedia content from existing PowerPoint presentations and MPEG video. The streaming media server software will provide accelerated delivery of video, audio, text and graphics to the desktop, while preserving network bandwidth.

Contact Drew M. Coleman, at (860) 258-0310 or Drew.Coleman@po.state.ct.us

Evaluation of Alternative Fuel Vehicles



Data and information about the performance of alternative fuel light trucks and automobiles are being acquired for analysis and to provide guidance to aid state officials that must comply with Section 5007(o) of the Energy Policy and Conservation Act of 1992 (EPACT). Vehicles powered by either compressed natural gas or electricity are being evaluated in the context of Connecticut state fleet needs. Under EPACT, in fiscal year 2001 and beyond, 75% of the state fleet new purchases of light trucks and automobiles must be for models that do not operate on either gasoline or diesel fuels. Contact James M. Sime, P.E. at (860) 258-0309 or James.Sime@po.state.ct.us

Automated Sign Identification System



ConnDOT personnel are presently testing image-processing software to automatically identify stop signs installed on the state-maintained highway system. Stop signs are an important warning sign with high tort liability potential if damaged or missing. This prototype system will filter through 1.2 million highway images collected annually by the ConnDOT photolog van to create an image subset for operator verification. Image processing using neural networks and distributed computing theory greatly reduce both computing power and time requirements. Contact Richard Hanley, P.E. at (860) 258-0374 or Richard.Hanley@po.state.ct.us

Quartz-Piezo Weigh-in-Motion



Connecticut is the first state in the nation to install a state-of-the-art Quartz-Piezo Weigh-In-Motion system on an in-service highway. In cooperation with FHWA's Priority Technology Program, sensors were installed on Route 2 in Lebanon, CT. The four lanes of installed sensors are being monitored for accuracy and survivability. The study includes the conductance of field validations using trucks of known weight. An interim report is available. Contact Anne-Marie H. McDonnell, P.E. at (860) 258-0308 or Annemarie.Mcdonnell@po.state.ct.us

Implementable Research Products

Merritt Parkway Guiderail



Digital Versatile Disk for Photolog



Connecticut Impact Attenuation System



Narrow Connecticut Impact Attenuation System



Connecticut Truck Mounted Attenuator



Cooperative Research Program

Under State statutes, the University of Connecticut (UConn) is authorized to perform research activities for ConnDOT under the guidance of the Joint Highway Research Advisory Council, a group composed of members from ConnDOT and the Civil and Environmental Engineering Department at UConn. Over 125 research studies have been performed under the Cooperative Research Program since its inception in the 1950's. A sampling of recent projects is presented below.

Questions regarding this program, as well as any of the highlighted projects, can be addressed to
Mr. James M. Sime, P.E., Manager of Research,
Voice (860) 258-0309, Fax (860) 258-0399, Email James.Sime@po.state.ct.us

For a copy of the Summary of Activities covering these programs or general information regarding the ConnDOT Research Program, contact:

Mr. Keith R. Lane, P.E.

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