PROJECT FINAL REPORT

Program Development for the Connecticut Transportation Institute

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16. Abstract

An 18-month study of the organization and structure of the Connecticut Transportation Institute (CTI) was performed. The structure and operations of other transportation research centers were studied. A Peer Exchange, held July 30-August 1, 2003, provided the core recommendations to organize, market and expand CTI research. A brochure describing CTI and a display booth were designed and obtained. A strategic plan was developed that includes specific one-and five-year actions. A series of performance measures developed in this project were recommended to the CTI director. The performance measures tabulated thus far indicate that overall research activities have increased between July 2002-June2003 and July2003-June2004. This project provided the impetus and tools needed to start this growth.

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ConnDOT Project Number SPR-2235

The following document summarizes activities and products of the subject research effort. Work was accomplished during the 18-month period, January 1, 2003 to June 30, 2004.

INTRODUCTION

This project was proposed to expand the potential range of activities that the Connecticut Transportation Institute (CTI) performs with partners in all sectors of the transportation community. Although several CTI staff have been recognized for their substantial contributions to federal, state and local research and technology transfer efforts, many elements of CTI activity are not widely known and not fully developed. The proposal governing this work outlined a series of tasks designed to set the stage for CTI growth: 1) development of background materials and establishment of an advisory team; 2) development of a CTI brochure; 3) development of a portable display booth for conference use; 4) monitoring of research solicitations; 5) proposal development; 6) strategic plan development; 7) CTI promotion at meetings and conferences; and, 8) project assessment. At the first advisory committee meeting, it was suggested that a peer exchange be conducted as an additional activity on this project. The Peer Exchange had two main goals: to address CTI administrative structure; and, to delineate avenues for CTI to expand its research programs. This event was held in July/August 2003. Because this large task was undertaken without additional resources, less explicit focus and work was possible on tasks 5 and 7, however, efforts on these items were pursued by the CTI group as part of other projects.

The original proposal governing this work required a 12-month time frame. A 6-month no-cost time extension was granted in November, 2003, the details of the request are outlined under Task 6 below.

The year 2003 was an important time for CTI growth and the CTI Development Project provided critical impetus and resources to ensure opportunities for growth and change were maximized. Coming into 2003, CTI had a very successful and growing T2 center. Two additional faculty members in Civil and Environmental Engineering with transportation related research interest had been hired. Over the previous decade, a substantial investment of capital equipment had been made by ConnDOT and FHWA for the Connecticut Advanced Pavement Laboratory (CAPLab). Through the New England Transportation Consortium (NETC) and other programs, CTI's regional leadership was growing. Moreover, in addition to these factors, which made CTI positioned for growth, the University of Connecticut (UConn) School of Engineering (SOE) was experiencing significant growth in resources, research funding, student enrollment and partnership with

industry.[1] Indeed, the conditions are ideal to pursue CTI research and service growth at this time and this project provided the focus and resources to seize the opportunities available to CTI.

TASK 1- DEVELOPMENT OF BACKGROUND MATERIALS AND ESTABLISHMENT OF AN ADVISORY TEAM

In task 1 the project team established an Advisory Panel of state, federal and university professionals to guide the research and provide constructive input. This panel included James Sime, Amy Jackson Grove, Michael Lonergan, Donna Shea, and Jack Stephens in addition to the PIs and others who attended meetings to assist with particular phases of the project.

The research team also obtained, critically reviewed and analyzed information from other transportation research centers for application at CTI. Appendix 1 presents two significant items obtained as part of this task. The first is a summary of expenditures from 35 transportation centers and documents the position of CTI nationally. The second is a number of interesting points from a comprehensive survey of 46 transportation centers by Dr. Konstadinos at Penn State University which was conducted in 2003. In summary, the most relevant points of interest from the CTI Development Project are the following:

- Some centers have faculty directors; others do not.
- Funding levels vary up to over $10 million per year (CTI is about 1.6M).
- Centers have a mix of state and federal funding.
- Almost all centers include technology transfer.
- Most centers include research professionals in addition to faculty.
- Most centers include civil engineering.
- Three quarters of the centers receive indirect cost returns from the university.

These findings impacted the Dean of Engineering's choice of Director and pursuit of indirect cost return for CTI. Furthermore, CTI is seeking to diversify its funding base

[1] In terms of enrollment, freshmen enrollment for fall '04 = 351 students; in 1997, there were just 158 freshman students. The average SAT score of admitted students in 2004 is 1280, up 15 points from last year's admits, and 2004 admits include 37 valedictorians and salutatorians compared to 26 last year. Since 1997, the School of Engineering has expanded its undergraduate degree programs from 6-12. In 1997, we had no chaired or named faculty positions in the School of Engineering. We now have 11 chaired professorships, each endowed at $1 million, and six additional named professorships endowed at $500,000 to $750,000 each. Since 2001, the School of Engineering has established three new centers in research areas of strategic importance. The Connecticut Global Fuel Cell Center has funding of $18 million and supports cutting edge research, testing and education in fuel cells. Two other centers are the Center for Optics, Sensing and Tracking in Homeland Security, initiated with startup support from DARPA and focused various facets of homeland security, from bioterrorism detection to information security and public policy. The third center is the Bioinformatics and Biocomputing Institute (BIBCI), which unites researchers working in the medical and biosciences fields with computational researchers. BIBCI was founded with initial partial support from the National Institutes of Health. Many of our faculty members collaborate with industrial partners in development of novel commercial products. Among the many companies that have funded research with faculty members are Norton/St. Gobain, General Electric, Bioclean USA, Uniroyal Corporation, Pfizer, Hamilton Sundstrand, Dapco Industries, the State of Connecticut Insurance Department, Electric Boat, Transwitch, Pitney Bowes, United Technologies Corporation, Northeast Utilities and Boeing. *{Source: Dean's Office School of Engineering, UConn}*

and add more non-faculty research professionals. Internal to UConn, effective efforts have been undertaken to promote the value of technology transfer.

TASK 2 – DEVELOPMENT OF A CTI BROCHURE

Following a solicitation of pertinent materials and brochures from other transportation research groups throughout the United States, a full-color brochure was developed.
The numerous brochures collected from other centers raised the following points which were compiled by the research team for consideration in our development process.

- Many brochures used only 2 or 3 colors.
- Unless professionally done, color pictures did not come out clear.
- Black and white pictures seemed to come out better.
- There are many options available other than a 3-fold brochure.
- Research areas and Centers mission/theme are found on most brochures.
- The quality of paper used is important for a higher quality brochure.

The best of the brochures from other centers were displayed together for CTI staff and other interested personnel to view in June 2003. People provided written comments and feedback on each brochure which have been summarized in Appendix 2. In the addition to the comments made during the review, the point was made that the target audience was very important in determining the brochure design. A brochure for a client and a brochure for recruiting students will contain different information. So before a brochure for CTI could be developed, the target audience had to be determined and the goal of the brochure defined. In this case, we elected to target other professionals, and to a lesser extent graduate students, in providing information about all programs at CTI. A photo-reduced unfolded black and white version of the resultant brochure is shown in Appendix 3. It describes CTI and is available for distribution at various functions and meetings.

TASK 3 – DEVELOPMENT OF A PORTABLE DISPLAY BOOTH

A Portable Display Booth was selected in the spring of 2003. Its function is to provide marketing information about all programs at CTI at various technical and professional meetings. Acquisition was delayed for several reasons related to graphics resolution, however, the booth has now been delivered and is shown in Figure 1. It provides a venue to present CTI activities and accomplishments at local, regional and national meetings. At this time its use will be inaugurated at the 2004 AASHTO Research Advisory Committee Meeting, to be held at Mystic, Connecticut, July 18-21, 2004. It will also be used at the National LTAP meeting in New Mexico July 31-August 4, 2004.

Figure 1: CTI Booth

TASK 4 – SOLICITATION OF RESEARCH PROPOSALS

Solicitation of calls for research proposals began at the outset of this project and continued throughout. A graduate student reviewed existing websites, i.e., Transportation Research Board (TRB), Federal Highway Administration (FHWA) and various state DOTs. Monthly, and sometimes more frequently, research solicitations were culled and distributed via E-Mail to CTI staff and University faculty for subsequent follow-up action.

In May 2004, a brief three question survey was sent to persons recieving the research solicitations. The questionnaire sought to define the usefulness of this effort. The three questions asked were:

(1) *Did you find the request for proposals E-Mails helpful in pointing out possible sources of funds?* The respondents were equally divided, pro and con, on the value of the E-mails. One comment stated that the E-Mail was "a source of information that could be passed on to other interested parties".

(2) *Did the research solicitation E-Mails result in the development of any proposals?* All respondents stated no. Comments received noted that future possibilities may exist.

(3) *Should the activity be continued?* Two to one the respondents answered in the affirmative. Comments suggested the process should be revised and continued if funding continues.

A generalized statement at the conclusion of the survey sought added comments. Those received ranged from stated that the E-Mails duplicated mailings from TRB and

other notices to a request to broaden the solicitation to customers and partners that may have ideas for innovative collaborative research with CTI. At this time, the success of this process is judged only to be marginal. The process should be reevaluated and possibly redesigned to improve its effectiveness as a CTI function.

TASK 5 – PROPOSAL DEVELOPMENT

No proposal development time was explicitly funded under this project; however, a new proposal template consisting of a cover design and statement of qualifications was developed as part of this project (see Appendix 4). Between FY 03 and FY 04 the expenditures of CTI increased from $1.2 million to $1.7 million. The number of grants grew from 26 to 35 between FY03 and FY04. The number of individual PIs holding projects through CTI grew from 10 to 14 between FY02 and FY04. The number of proposals submitted was substantial. A listing of proposals developed by CTI staff and faculty during FY03 between July 2002 and June 2003 is shown in Appendix 5 while FY04 proposals between July 2003 and June 2004 is shown in Appendix 6. The proposals listed were developed by staff and faculty outside of the scope and financing of this project. They reflect a concerted effort to expand the activities and resources of CTI. FY03 contained 27 proposals for $3.4M and FY04 contained 28 proposals for $3.8M.

TASK 6 – STRATEGIC PLAN FOR CTI

The CTI strategic planning efforts over the last year have been very productive. On March 26, 2003, a strategic planning session for CTI staff was conducted. Its focus was to assess existing strengths and weaknesses of CTI as well as the threats and opportunities for growth. The results were summarized and presented to the Project Advisory Panel on April 9, 2003.

Based on the panel's review, it was determined to conduct a Peer Exchange to provide constructive input on the management and organization of the CTI, and to provide new research venues for CTI. The Exchange was to be completed using existing project funds and staff. To accomplish this new task, work on the brochure and the booth acquisition was suspended and then resumed in winter and spring 2004 based on advice from the Exchange activities.

The Peer Exchange was held July 30 – August 1, 2003, at the Nathan Hale Inn and Conference Center. The objectives of the peer exchange were two-fold: 1) organizational improvements; and, 2) opportunities for expansion (particularly of the research program) for CTI. A listing of the nationally recognized panel members and the final agenda for the peer exchange is shown in Appendix 7.

The results were finalized in early October. The final peer exchange report was provided by team leader, Mr. Paul Toussaint (Reference 4). Implementation of the report recommendations began in September, 2003.

The following is a summary of the CURRENT CTI STRENGTHS, adapted from Reference 4.

- Established, successful and growing T2 center.
- Strong regional leadership in multi-state efforts.
- Strong support from ConnDOT, FHWA and UConn School of Engineering.
- Active faculty with growing research programs (including areas beyond traffic, safety and planning).
- CAP Lab infrastructure and staff.
- Growing interdisciplinary network through CTI.

As a result of the peer exchange, Dr. Faghri, Dean of the School of Engineering, solicited the input of all CTI constituents, and appointed Dr. Aultman-Hall for a three year term as Director of CTI. Shown below in Figure 2 is the new organizational structure that Dr. Aultman-Hall has implemented. Addition of new staff are still expected over the next 6 months. These possibilities include a new part time financial assistant, an administrative associate director, a T2 special events planner, and additional research engineers or professionals.

Below is a list of the suggestions of the peer exchange and the current status of the work towards them.

Status of Peer Exchange Recommendations

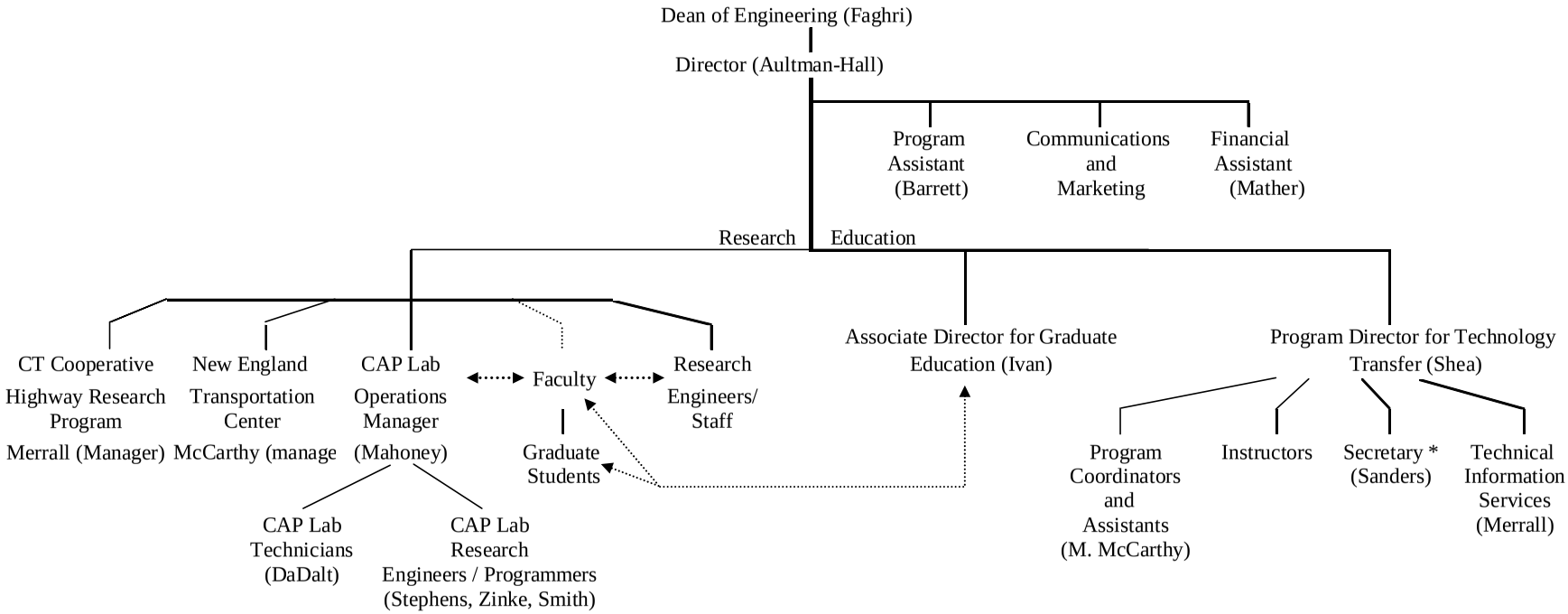
1. Create an efficient organizational structure.
   - new structure is working well
   - use of a senior management team structure works well (currently consists of Aultman-Hall, Shea and Mahoney)

2. Establish permanent leadership.
   - faculty director has been appointed
   - associate director recommendations still under consideration

3. Pursue additional funding.
   - some indirect and administrative funds are being provided to CTI while some are being routed through CEE
   - numerous CTI team-based proposals have been developed

4. Establish advisory councils.
   -faculty council in place and has met twice, including review of the strategic plan
   -T2 council meets regularly to contribute to T2 program
   -industry council waiting for OK from dean
   -CAP Lab advisory committee meets August 2004

Figure 2: Connecticut Transportation Institute - Organizational Chart



5. Develop performance measures.
   -plan in place to use newly developed existing T2 measures and expand SOE faculty measures for research staff (data collected in May 2004)
   -annual report to be produced Summer 2004

6. Develop stronger link with ConnDOT.
   -series of DOT - CTI roundtables has been proposed to start fall 2004

7. Promote existing activities and capabilities.
   -RAC conference upcoming
   -CTI has joined Council of University Transportation Centers (CUTC)
   -more promotional efforts planned especially now that booth has arrived but also presentation of research and program information at meetings and conferences

8. Establish Niche Area.
   - discussion on-going especially in context of federal UTC application

9. Pursue interdisciplinary research.
   - on-going within JHRAC and NETC and on dean's advisory committee

10. Improve utilization of CAP Lab.
   - the need for a asphalt/materials faculty member has been communicated
   - offering of the existing CE course is being pursued
   - faculty and graduate student activity for paper publication is being pursued
   - diverse projects are being sought

11. Move CTI to Main Campus.
   -problem has been communicated and is understood by SOE management

The Peer Exchange was followed with further internal planning sessions this winter. During the winter months CTI staff, led by Ms. Shea, Mr. Mahoney and Dr. Aultman-Hall drafted a CTI strategic plan (Reference 5). Recently, the CTI faculty advisory committee reviewed the plan for the Dean. At this time, the plan has been printed and is ready for distribution. The following mission and vision statements were collaboratively developed over a series of meetings.

MISSION STATEMENT - The mission of the Connecticut Transportation Institute (CTI) is to conduct integrated multi- disciplinary research, education and related services that promote safety and efficiency in multimodal passenger and freight transportation systems and, in turn, enhance livable communities, sustainable economies and the environment.

VISION STATEMENT - CTI will be recognized as a large and strong university transportation center that, in partnership with the Federal Highway Administration, Connecticut DOT, and public and private sector transportation agencies, promotes and develops Connecticut-based transportation-related activities nationally and internationally.

In this role, CTI will provide expertise for state decision makers, pursue applied research to solve existing transportation problems, and conduct cutting edge fundamental research to advance innovations for the overall transportation industry.

The decentralized nature of transportation policy in the United States distributes the majority of funding and decision-making in the realm of surface transportation to the various state transportation or highway agencies. Consequently, any strong university transportation center, by necessity, must maintain a strong partnership with its state transportation or highway agency for funding and support. CTI will to continue to grow this key partnership with ConnDOT. ConnDOT is likely to continue to be an agency where CTI seeks a significant portion of our overall funding. However, we will be viewed as a distinct independent and academic organization.

CTI will actively promote transportation workforce development and attract new talent to the transportation field as one aspect of an expanded Technology Transfer Program. CTI will be an active leader in the national LTAP arena, as well as a regional leader in the provision of professional learning within the transportation sector.

CTI will be recognized for its ability to act as an informed honest broker between communities and the DOT in context sensitive solutions (CSS) and other issues.

The proposed actions in the strategic plan are divided into five categories as shown in Table 1. Note that the CTI T2 Center has a current strategic plan and planning process, as required by their funding agency, the Federal Highway Administration. Their plan is included as an Appendix of the new CTI strategic plan and, while it forms a key component of CTI's future direction, it is not directly included in the items shown in the table below.

Table 1: Summary of CTI Action Plans

CTI ADMINISTRATION	
1 year	Comprehensive Performance Measures Annual Report Industry Advisory Committee Policy and Procedures Manual Support for CTI Administrative Activities Define Associate Director Job Description System of Defining Associated Faculty
5 year	Sustainable Central Budget for CTI Associate Director

CTI FACILITIES	
1 year	Sign on Route 44 CAP Lab Fire Alarm System CAP Lab Air Quality CTI Vehicle
5 year	Funding Base for CTI Equipment and Infrastructure Space Improvements for White House and CAP Lab Single Quality Facility for CTI

RESEARCH: CAP Lab – Connecticut Advanced Pavement Laboratory	
1 year	New Research Engineer Promote Need for CAP Lab Faculty Member
5 year	Faculty Member in Asphalt Materials / Pavement Management Proposal Development and Diversification of Funding Sources Diversify Research Focus Increase Graduate Students, Conference Presentations and Publications

RESEARCH: PLANNING, DESIGN and OPERATIONS	
1 year	CTI Roundtable Discussions Safe Routes to School Explore Options for Multidisciplinary Work
5 year	Proposal Development Research Staff Pursue Funded Multidisciplinary Work Growth of the Connecticut Cooperative Highway Research Program

EXTERNAL PROMOTION OF CTI	
1 year	CTI Promotion and Visibility Increased Technical Presentations
5 year	Expand Professional Development Training Facilitator Services Transportation Workforce Development Projects Representation on State Task Forces and Committees Graduate Student Recruiting

TASK 7 – CTI PROMOTION AT MEETINGS AND CONFERENCES

Work on this task has not progressed as projected. Originally, it was envisioned that the booth acquired in Task 3 above would be a mainstay of this function. However, work on the Peer Exchange put off early completion of the booth graphics and imagery. This was followed by back surgery on a key staff member. The Advisory Committee also recommended that the team wait until the vision for CTI was clear, based on the planning efforts to ensure the brochure and booth agreed with this vision. As efforts by ConnDOT, university staff, and searches of various websites were unsuccessful in providing photos of sufficient resolution for use on the booth, the booth will be purchased with a distinctive banner only. Each program at CTI will develop it own material for use on the booth. As a result of these delays, we have not attended any meetings or conferences, however, we are targeting the upcoming National Research Advisory Committee (RAC) Meeting as our initial promotional activity.

Many CTI staff and faculty have attended conferences and promoted CTI at these venues through a display or active presentation. These meetings and presentations are listed in Appendix 8.

TASK 8 – PROJECT ASSESSMENT

A recommended series of performance measures were developed by the research team for CTI activities in November, 2003 (See Appendix 9). The performance measures were designed to be readily obtained from existing documents, yet demonstrate and assess the responsible growth of CTI. The new administration of CTI adapted these recommendations to complement existing School of Engineering data collection efforts to minimize extra staff work. The annual report of CTI activities, which is now being developed, will be an initial effort to record and report the CTI performance measures.

TASK 9 – REPORTING

This task was included to provide required progress reporting and the development of other reports to document project activities.

REFERENCES

1. “Draft Comments from Internal Planning Meeting at CTI: 1. Opportunities; 2. Strengths; 3. Weaknesses; 4. Threats”.
2. Dougan, C.E., “Program Development for the Connecticut Transportation Institute”, June 2003.
3. “Peer Exchange Program, July 30 – August 1, 2003”.
4. Toussaint, P.,“Peer Exchange Report, July 30 – August 1, 2003” October, 2003.
5. Aulman-Hall, L. et. al. “Strategic Plan for the Connecticut Transportation Institute”, June, 2004.

Appendix 1a: Transportation Center Expenditure Statistics *

#	Institute	Expenditures	Expenditures ($) per faculty	per researcher	per employee
1	The University of Tennessee	9418000	3139333	1883600	376720
2	The Pennsylvania State University	18887262	651285	994066	174882
3	Morgan State University	2000000	666667	666667	166667
4	The University of Virginia	1811383	301897	---	164671
5	University of Kentucky	7173713	717371	326078	149452
6	University of California, Davis	10800000	270000	432000	135000
7	North Carolina State University	5402470	5402470	270124	131768
8	University of Minnesota	9979490	181445	---	124744
9	Rutgers, The State University of New Jersey	3390211	242158	1695106	121079
10	The University of Michigan	12000000	12000000	184615	113208
11	University of Missouri-Columbia	1330000	110833	---	110833
12	Purdue University	6021000	111500	6021000	102051
13	Iowa State University	5059144	337276	210798	101183
14	Montana State University	3725789	248386	248386	98047
15	The University of Alabama	3895986	102526	---	90604
16	Connecticut Transportation Institute **	1400000	466667	233333	82353
17	Tennessee Technological University (TTU)	1508756	301751	251459	79408
18	University of South Florida	4600000	---	104545	74194
19	The University of Texas at Austin	10964694	210860	249198	74086
20	University of Idaho	2287200	114360	2287200	73781
21	University of North Carolina at Chapel Hill	4700000	1566667	156667	64384
22	University of Missouri - Rolla (UMR)	1333763	83360	1333763	63513
23	The City College of New York	1740000	348000	124286	62143
24	University of Wisconsin-Madison	1778951	59298	592984	49415
25	Georgia Institute of Technology	3228198	48182	---	47474
26	University of Denver	803308	53554	---	40165
27	University of Arkansas	1973623	43858	1973623	39472
28	Northwestern University	1645000	48382	411250	33571
29	Polytechnic University	500000	125000	100000	33333
30	University of Southern California	908489	33648	---	30283
31	North Carolina A&T State University	945274	27008	---	23055
32	Massachusetts Institute of Technology	1680000	33600	98824	22105
33	San Jose State University	1283762	20706	---	20706
34	University of Central Florida	969387	51020	42147	19008
35	University of Missouri-St. Louis	156345	26058	10423	6254

* Note: Compiled from data obtained from Dr. Konstadinos Goulias at Penn State

** Note: For CTI 3 faculty, 6 researchers, and 17 employees were used

Appendix 1b: Points of Interest from Penn State's Transportation Center Research

NOTE: Information received from Dr. Konstadinos of Penn State and is still in draft form and may contain inaccuracies.

- 30 of 44 University centers received funding directly from their associated University
- 37 of 43 UTCs have Training and Technology Transfer programs
- 16 of 43 listed received at least 50% of their research funding from the state
- 12 of 43 listed received at least 50% of research funding from federal sources
- 13 of 43 listed received support from State-level legislative appropriations

Do not have Civil Engineering Students associated with the center for FY 01-02

- Assumption College
- U of North Carolina at Chapel Hill
- University of Missouri-St. Louis
- University of Denver
- San Jose State University
- University of Michigan

Received largest funds from Federal funding

- Montana State University---------- $2,605,975
- U of Minnesota---------- $2,000,000
- Morgan State University---------- $1,750,000
- U of Rhode Island---------- $1,724,600
- North Carolina State University------ $1,000,000
- University of Central Florida--------- $1,000,000

In House Researchers vs. Tenured and Tenure-Track Faculty

- Montana State University---------- 15 vs. 15
- U of Minnesota---------- 0 vs. 55
- Morgan State University---------- 3 vs. 3
- U of Rhode Island---------- 0 vs. 2
- North Carolina State University------ 20 vs. 1
- University of Central Florida--------- 23 vs. 19

- North Carolina at Chapel Hill-------- 30 vs. 3
- North Carolina A&T State Univ.---- 0 vs. 35
- Georgia Institute of Technology----- 0 vs. 65
- University of Texas at Austin-------- 44 vs. 52
- Texas A&M University System------ 196 vs. 31

Center Expenditures (research vs. T^2)

- Montana State University---------- $2,671,663 vs. $211,464
- U of Minnesota---------- $6,726,875 vs. $695,712
- Morgan State University- ---------- $580,000 vs. $140,000
- North Carolina State University----- $4,079,940 vs. $611,063
- Georgia Institute of Technology----- $3,131,200 vs. $0
- Penn State---------- $10,152,457 vs. $7,186,680
- University of California, Davis------ $10,000,000 vs. $200,000
- University of Michigan---------- $11,000,000 vs. 0

Appendix 2: Comments from Brochure Screening Process

In general, many commented they liked the use of photos as long as the photos were clear and related to the subject of the brochure. However, it was noted on several occasions that the use of too many pictures caused the brochure to look cluttered and pictures that did not relate to the text disrupted the flow of the brochure.

Many commented that the 4-panel layout was very nice because it allowed for more text and graphics space. In addition, several comments were made that the full-page brochures were very nice and stands out in a group of the smaller 3- or 4-fold brochures. However, the comment was also made that a full page is too large for a brochure. The reviews were mixed for the use of a large sized brochure instead of the traditional 3- or 4-fold type.

The use of color was another major comment from the review. While several liked the monochrome look, others preferred the use of many colors and the use (and amount) of color was an individual taste. However, it was clear the very bright colors like the orange and bright blue did not go over very well and served to bias the reviewer from even looking further into the brochure.

The quality of the paper received frequent comments. Glossy paper received bad reviews while the dulled finish and heavy card stock received mixed reviews. However, the thicker/sturdier paper proved to be well liked among the brochures that were reviewed.

Another interesting note was a comment that the use of certain photos (i.e., staff photos), talk of specific projects, could cause the brochure to become out of date quickly. So care should be used not to include pictures or text that will make the brochure become "outdated" in a short period of time.

Appendix 3: CTI Brochure

TRANSPORTATION RESEARCH ACTIVITIES

Connecticut Transportation Institute (CTI) brings together a critical mass of transportation faculty and research talent at the University of Connecticut, the top public research institution in New England. Research in traffic engineering and planning focuses on context sensitive design, the land use/transportation interaction, transportation safety, travel route choice, freight planning and non-motorized transportation issues. Other engineering faculty study air quality, bridge structural monitoring and new materials design (including asphalt and concrete). Drawing on the multidisciplinary expertise of the university community, CTI collaborates with researchers from landscape architecture, psychology, business and statistics.

CONNECTICUT COOPERATIVE HIGHWAY RESEARCH PROGRAM

The Connecticut Cooperative Highway Research Program (CCHRP) has been a continuing collaborative effort of the University of Connecticut and the Connecticut Department of Transportation since 1962. The program, administered through CTI, responds to the evolving complexity of the state's transportation needs by focusing multidisciplinary resources on research needs. The Joint Highway Research Advisory Council (JHRAC) meets quarterly to monitor the program and establish research needs. JHRAC, guided by an external peer review process, awards funds each year for two to three new research projects.

TECHNOLOGY TRANSFER CENTER

The Technology Transfer Center mission is to foster a safe, efficient, environmentally sound transportation system by improving the skill and knowledge of local transportation providers through training and technical assistance. In Connecticut, the Technology Transfer Center bridges the gap between research and practice by conducting workshops and demonstrations.

PROFESSIONAL LEARNING PROGRAMS

CTI programs include seminars, conferences, research showcases and special projects designed to enhance the continuing educational opportunities of our nation's transportation professionals and those in related disciplines.

CONNECTICUT ADVANCED PAVEMENT LABORATORY (CAP Lab)

The CAP Lab addresses current and future issues and problems in the area of paving technology. The 10,000 square foot lab is fully equipped with current Superpave® testing equipment. The staff have extensive experience with field and materials problems related to pavements and forensic evaluations, can perform a full suite of binder and HMA tests, as well as provide all required mix design services. The CAP Lab offers numerous training courses and certification programs.

CONNECTICUT TRANSPORTATION INSTITUTE

NEW ENGLAND TRANSPORTATION CONSORTIUM

The New England Transportation Consortium (NETC) is a cooperative effort of the transportation agencies and land grant universities of the six New England states. Under the direction of its Policy and Advisory Committees, NETC pools its financial, professional and academic resources to research and develop improved methods of dealing with common problems. Under an agreement with NETC, the Connecticut Transportation Institute provides NETC's management.

GRADUATE STUDIES IN TRANSPORTATION ENGINEERING

The Civil and Environmental Engineering Department at the University of Connecticut offers M.S. and Ph.D. degree programs in transportation engineering. CTI provides full or partial graduate funding to students in various departments. Graduate students have access to state-of-the-art PC and UNIX computing facilities, including Geographic Information Systems (GIS), transportation planning software, traffic simulation models and statistical analysis software.

Appendix 4:CTI Proposal Template Text

Summary of Qualifications

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

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

Connecticut Advanced Pavement Laboratory (CAP Lab)

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

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

The CAP Lab staff have recently completed a number of large research projects funded by state DOTs and industry. These projects include: *E* - Dynamic Modulus Test Protocol, Problems and Solutions, Application of Thermographic Imaging to Bituminous Concrete Pavements, Determination of the PG Binder Grade for Use in a RAP Mix as well as Connecticut Superpave® Gyratory Compactor Round Robin.* The Dynamic

Modulus project examined the testing protocol and made suggested revisions to eliminate problems encountered determining the Dynamic Modulus. As the Dynamic Modulus is being integrated into the newest Pavement Design Guide, improving the testing protocol to provide accurate and reproducible results is critical.

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

Connecticut Technology Transfer Center

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

The comprehensive services offered by the Technology Transfer Center include:

- Technical Assistance on problems relating to road and bridge design, construction, maintenance, traffic safety and operation and the latest in transportation technology.
- The Connecticut Road Master Certificate Program.
- The Connecticut Road Scholar Certificate Program
- The Connecticut Municipal Legal Traffic Authority Program
- Other workshops, seminars and conferences on a wide variety of contemporary topics related to the planning, design and operation of the local transportation system.
- A quarterly newsletter that provides members of the Connecticut transportation community with information on the latest techniques and practices being used throughout the United States for the management, construction and maintenance of local roads.
- An extensive on-line resource library with technical publications, video training tapes and technical information on CD-ROM.

- The loan of traffic counting/vehicle speed recording equipment.
- The loan of our safety town for children.
- Circuit Rider Program for municipalities to provide updated information, answer specific questions, and discuss various road and safety concerns.

In total the Connecticut Technology Transfer Center had 3500 people attend their programs in 2003.

CTI has three professional staff members who devote 100% of their time to Technology Transfer. Donna Shea, the Program Director for the center, has been with the program for five years and brings almost 20 years of leadership experience to the institute. Mary McCarthy, the center's Workshop Coordinator, and Stephanie Merrall, the Technical Information Specialist, bring many years of valuable experience to their current role of coordinating the core training and technical assistance services for the center. Numerous other CTI staff members active in technology transfer programming include: a large group of faculty and other professional instructors, program assistants, technicians, and graduate and undergraduate students.

CONNECTICUT TRANSPORTATION INSTITUTE

A Mix Design Manual for Hot Mix Asphalt

Proposal
NCHRP 9-33

Connecticut Transportation Institute
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Appendix 5: FY03 Proposals Developed

YR 2002-2003: 27 proposals reported = $3,404,264.
(information for N. Garrick not included)

John Ivan

"Methodology to Predict the Safety Performance of Urban and Suburban Arterials (NCHRP 17-26)," US DOT/Texas Transportation Institute, 3/01/03-2/28/05, $100,000.

"Crash Reduction Factors for Traffic Engineering and ITS Improvements," Texas Transportation Institute, 3/01/03-2/28/05, $27,000.

"Surrogate Safety Assessment Model and Validation," FHWA/ Texas Transportation Institute, 1/01/04-12/31/06, $64,000.

"Exploration into Using Real-time Freeway Surveillance," with D. Lord, Texas Transportation Institute, 1/01/04-6/30/05, $45,000.

James Mahoney

"Establishing the Connecticut Advanced Pavement Laboratory," Connecticut Department of Transportation, $110,000.

"Investigation into the In-place Permeability of Pavements in Connecticut," with J. E. Stephens and C. F. Davis, Connecticut Department of Transportation, $49,542.

"Coordination of Pavement Activities in the Northeast," with C. E. Dougan and J. E. Stephens, Connecticut Department of Transportation, $80,000.

"Development and Implementation of an HMA In-Place Density Specification Using the Percent Within Limits Concept," with J. E. Stephens, Connecticut Department of Transportation, $34,608.

Charles Dougan

"Field Demonstration and Evaluation of the Use of Recycled Asphalt Shibgles in Hot Mix Asphalt (HMA) Pavement," with J. E. Stephens, New Hampshire Recycled Materials resource Center, $145,545.

Gerald McCarthy

"Management of the New England Transportation Consortium," New England Transportation Consortium, $124,258.

Christian Davis

"Connecticut Cooperative Highway Research Program (Joint Highway Research Advisory Council)," Connecticut Department of Transportation, $349,473.

Donna Shea

"Technology Transfer Center Program," Connecticut Department of Transportation (FHWA), $310,172.

"Bicycle Facility and Pedestrian Design," Connecticut Department of Public Health, $30,000.

"Developing Curriculum for the Safety Town Program," New England University Transportation Center, $4,000.

Lisa Aultman-Hall

"Program Development for the Connecticut Transportation Institute," with C. E. Dougan and J. H. Hudson, Connecticut Department of Transportation, $105,240.

"Modeling Modal Transient Events for Vehicle Emission Models," with B. A. Holmen, New England University Transportation Center, $53,421.

"Collaborative Research: ADVANCE Institutional Transformation, The Women Engineering Faculty Leadership Network," with B.A. Holmen and A. MacKay, national Science Foundation, $100,000.

"Factors Affecting Young Driver Safety," Connecticut Cooperative Highway Research Program, $31,540.

"Parking Demand Management for Sustainable Development: Learning from Innovative New England Communities," with N.W. Garrick, New England University Transportation Center, $63,348.

"Connecting Land Use, Transportation Infrastructure and Emissions: Modeling the Spatial Distribution of Vehicle Fine Particulate Matter," with B.A. Holmen, Environmental Protection Agency, $390,062.

"Modeling the Spatial Distribution of Fine Particulate Matter Emissions from Transportation Vehicles," with B.A. Holmen, National Science Foundation, $318,821.

"Spatial Characterization of Fine Particulate Matter Modal Vehicle Emissions," Co-PI with B.A. Holmen, Environmental protection Agency, $301,968.

"Bicycle and Pedestrian Transportation and Safety Education," with D. Shea, Connecticut Department of Transportation, $27,432.

”Modeling Transportation System Redundancy,” with D. Novak and D. Scott, National Science Foundation, $232,974.

”National Freight Highway Network System Vulnerability,” with D. Novak and D. Scott, US Department of Transportation, Bureau of Transportation Statistics, $91,860.

”Measuring the Effect of Passengers on the Safety of Older Drivers,” with N. Stamatiadis, American Automobile Association, $60,000 ($30,000 to each of two schools).

John DeWolf

“Network of Continuous Computer-Based Bridge-Monitoring Systems in the State of Connecticut,” sole PI, Connecticut Department of Transportation (with FHWA Funds), 06/01/94-05/31/05, $154,000.

Norman Garrick

Information not available

Appendix 6: FY04 Proposals Developed

Yr 2003-2004: 28 proposals = $3,819,738.

Gerald McCarthy
"Management of the New England Transportation Consortium (NETC)," submitted to NETC, September 2003, $126,679.

James Mahoney
"A Mix Design Manual for Hot Mix Asphalt," Project 9-33, National Cooperative Highway Research Program, 24 months, $500,000.

"Coordination of Paving Activities in the Northeast," Pooled funds project, (Co-PI with D. Shea and L. Aultman-Hall), 18 months, $147,564.

"Development of a Procedure to Improve the Correlation Between Nuclear Density Gauges and Cores Cut from Compacted Roadways," Connecticut Department of Transportation, 9 months, $69,883.

"Evaluation of Long-Term Performance of Pavements Thermally Imaged During Construction," Connecticut Department of Transportation, 7 months, $27,220.

"Establishment of the Connecticut Advanced Pavement Laboratory FY05," Connecticut Department of Transportation, 12 months, $164,203.

"Evaluation of Pavement Crack Treatments-Phase I, Connecticut Department of Transportation, 04/01/04 -11/30/04, $27,220.

"Determining the Effective PG Grade of Asphalt Binder in HMA Mixes Containing RAP," New England Transportation Consortium, 30 months, $129,976.

"Pavement Crack Treatments – Emulsified vs. Hot Pour," Connecticut Cooperative Highway Research Program, 05/23/04-05/20/05, $49,975.

Donna Shea
"Technology Transfer Center Program," Connecticut Department of Transportation (FHWA), 03/01/04-06/30/05, $276,600.

"Bicycle Facility and Pedestrian Design," Connecticut Department of Public Health, 03/01/04-06/30/05, $10,833.

"Developing Curriculum for the Safety Town Program," New England University Transportation Center, 09/01/04-08/31/05, $30,664.

Stephanie Merrall
"Connecticut Cooperative Highway Research Program (Joint Highway Research Advisory Council)," Connecticut Department of Transportation, 05/23/04-05/22/05, $300,383.

John Ivan
"A Bi-national Research and Educational Cooperation in Statistical Forecasting of Travel Demand," Council for International Exchange of Scholars, $25,000.

"Road Assessment Program – US Pilot Study," AAA (American Automobile Association) Foundation, $180,000.

"Methodology to Predict the Safety Performance of Rural Multilane Highways (NCHRP 17-29)," Texas Transportation Institute (under contract to the National Research Council), $95,000.

"Locational Factors Affecting Rate and Severity of Pedestrian and Bicycle Crashes in New England," New England University Transportation Center (US DOT), $52,000.

"Investigation of a New Approach for Representing Traffic Volumes in Highway Crash Analysis and Forecasting,"$43,000.

"Network-Based Highway Crash Prediction Using Geographic Information Systems," New England Transportation Consortium (through Connecticut DOT), $130,000.

Norman Garrick
"Finding Relationships Between Land Use, Highway Geometry, Travel Speeds and Crash Incidence on Rural and Suburban Roads," with J. Ivan, Connecticut Department of Transportation, June 2004 - May 2006, $100,000.

"Developing Strategies for Mitigating Pedestrian and Bicycle Crashes in Connecticut: A Look at Locational Factors Affecting Crash Rates and Crash Severity," with J. Ivan, Connecticut Department of Transportation, June 2004 - May 2006, $100,000.

"Pedestrian and Bicycle Safety in New England," with L. Aultman-Hall, US-DOT/ New England University Transportation Center, September 2003 – August 2005, $65,000.

"Alternatives to Design Speed for Selection of Roadway Design Criteria," NAS/NCHRP, Jan 2004 – Dec 2006, $650,000.

John DeWolf
"Network of Continuous Computer-Based Bridge-Monitoring Systems in the State of Connecticut," sole PI, Connecticut Department of Transportation (with FHWA Funds), $154,000.

Lisa Aultman-Hall
"Development of an Optimal Nationwide Freight Planning Zone System,"
New England University Transportation Center, $39,741.

"Coordination of Pavement Activities in the Northeast," with J. Mahoney, Connecticut Department of Transportation, $140,000.

"Development of Internet-Based Computer Databases for the Connecticut Department of Transportation," with J. Mahoney, Connecticut Department of Transportation, $136,582.

"Evaluation of Long-Term Performance of Pavements Thermally Imaged During Construction," with J. Mahoney, Connecticut Department of Transportation, $48,215.

Appendix 7: Peer Exchange Panel

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Peer Exchange for the Connecticut Transportation Institute
University of Connecticut - Nathan Hale Inn and Conference Center
July 30, 31 and August 1, 2003

AGENDUM

Wednesday - July 30

Noon - 1:00 PM	**Lunch** Nathan Hale Inn Restaurant (Panel members, Denise Saunders, Christian Davis, John Ivan, Lisa Aultman-Hall, Norman Garrick, Charles Dougan, Mary McCarthy, and Sue Prosi)
1:00 - 1:45 PM	**Introduction** Nathan Hale Inn - Coventry Room (2nd Floor) (Panel members, Denise Saunders, Christian Davis, John Ivan, Lisa Aultman-Hall, Norman Garrick, Charles Dougan, Mary McCarthy, and Sue Prosi) Welcome from Christian F. Davis, CTI Director Travel reimbursement requirements – Deborah Barrett, Program Assistant Self-introduction and brief description of their program/center from panel members Peer Exchange Objectives and Intended Product - Denise H. Saunders, Quality Program Specialist - Federal Highway Administration,Connecticut Division Office
1:45 - 2:15 PM	**CTI Program Development Project Overview** – Lisa Aultman-Hall Associate Professor, Civil and Environmental Engineering **Current Organization and Structure of CTI** - Charles E. Dougan, Ph.D., Research Engineer
2:15 - 2:30 PM	**Presentation on the Connecticut Technology Transfer Center** - Sue Prosi, Senior Transportation Planner, Southwest Regional Planning Agency and Member of Connecticut Technology Transfer Center Advisory Group, and Mary McCarthy, Workshop Coordinator for Connecticut Technology Transfer Center.
2:30 – 3:00 PM	**Comparison of CTI with other transportation centers** (Discussion led by Denise Saunders)
3:00 - 3:15 PM	**Break**
3:15 - 4:45 PM	**Tour of CTI offices at "White House" and CAP Lab**

	(Panel members led by Jack Stephens, Mary McCarthy, and Denise Saunders – transportation by passenger van) (Lisa Aultman-Hall, and Charles Dougan meet at Nathan Hale Inn)
4:45 - 5:00 PM	**Recap and Summary** - Clarify Objectives, Nathan Hale Inn - Coventry Room (Panel members, Lisa Aultman-Hall, Charles Dougan)
5:00 PM	**Adjourn**
6:00 PM	Meet in front of the Nathan Hale Inn for **transport** to dinner
6:30 PM	**Dinner** at the Willimantic Brew Pub in Willimantic, CT (Panel members, Denise Saunders, Charles Dougan, Lisa Aultman-Hall, John Ivan, Norman Garrick)

Thursday - July 31

7:30 - 8:00 AM	**Breakfast Buffet with ConnDOT and FHWA** Nathan Hale Inn - Coventry Room (2nd Floor) (Panel members, Denise Saunders, Charles Dougan, Lisa Aultman-Hall, ConnDOT and FHWA Staff)
8:00 - 8:45 AM	**Meet with ConnDOT and FHWA Division Research Management** Each participant will self-introduce and present two things about CTI they wish to be considered: Arthur Gruhn, Michael Lonergan, Keith Lane, James Sime, Amy Jackson-Grove, and Bradley Keazer (no UConn team members present)
8:45 - 10:00 AM	**Presentation of Recent Research** (10 minute presentations by PI's) Nathan Hale Inn - Coventry Room (2nd Floor) Britt Holmén, Assistant Professor, Civil and Environmental Engineering –"*Transportation Air Quality"* Lisa Aultman-Hall, Associate Professor, Civil and Environmental Engineering – "*Travel Route Choice"* John Ivan Associate Professor, Civil and Environmental Engineering – *"Travel Exposure; Traffic Safety"* Charlie Dougan, Research Engineer, CTI, – "*E*; IRI; Pavement Coordination; Imaging"* Gerry McCarthy. Program Coordinator, CTI – "New England Transportation Consortium"
10:00 - 10:15 AM	**Break**

10:15 - 11:15 AM	**Summary of Recent Research** (continued) Norman Garrick, Associate Professor, Civil and Environmental Engineering – *"Research Needs for Context Sensitive Design"* Jack Stephens, Director CAPLab, CTI – "*CAPLab Research"* John DeWolf, Professor, Civil and Environmental Engineering – "*Bridge Monitoring Program"*
11:15 - Noon	**Informal Discussion with Research Engineers** **(**Panel members plus Jack Stephens, James Mahoney, and Gerald McCarthy)
Noon- 1:15 PM	**Lunch** New ITE Building (first level) located on Center Campus Promenade (Panel members, Denise Saunders, Lisa Aultman-Hall, Charles Dougan, Jack Stephens, James Mahoney, Gerald McCarthy) Transport from Nathan Hale Inn by walking or by van depending on weather
1:15 PM	**Depart** for afternoon meetings in the F.L. Castleman Building
1:30 - 1:50 PM	**Meet with Director of CTI** – Dr. Christian F. Davis, Professor (Room 306)
1:50 - 2:10 PM	**Meet with Head of Civil and Environmental Engineering Department** – Dr. Erling Smith, (Room 306)
2:10 - 2:30 PM	**Meet with Dean of Engineering** – Dr. Amir Faghri, in Dean's Conference Room (Castleman-Room 336)
2:30 - 3:00 PM	**Informal Discussion with Researchers from other University Departments** (Castleman-Room 306)
3:00 - 3:45 PM	**Informal Discussion with Civil Engineering Faculty/Researchers** (John DeWolf, Lisa Aultman-Hall, Norman Garrick, John Ivan, Ken Demars) (Room 306)
3:45 - 4:00 PM	**Break**
4:00 - 4:30 PM	**Informal Discussion with Graduate Students** (Room 306)
4:30 - 5:30 PM	**Daily Summary** - facilitated by Denise Saunders Meet with Christian F. Davis, John N. Ivan, Charles E. Dougan, and Lisa Aultman-Hall as needed Begin to structure the final report.

	Ask for additional information or meetings???
5:30 PM	**Adjourn** and Return to Nathan Hale Inn
6:30 PM	**Dinner** in Nathan Hale Inn Restaurant (Panel members and Denise Saunders)

Friday - August 1

7:00 - 8:00 AM	**Breakfast** in Nathan Hale Inn Restaurant (Panel members, Denise Saunders, Lisa Aultman-Hall, and Charles Dougan)
8:00 - 9:00 AM	**Facilitated Discussion on CTI Organizational Structure** Coventry Room (2nd Floor) (Panel members only)
9:00 - 10:00 AM	**Facilitated Discussion on Research Program Development** (resources, people, funding, marketing) Coventry Room (2nd Floor) (Panel members only)
10:00 - 10:30 AM	**Break**
10:30 - 11:30 AM	**Draft the Summary Report and Recommendations**
11:30 - Noon	**Close Out Session** (Panel members plus Charles Dougan, Lisa Aultman-Hall, Christian F. Davis, John Ivan, and Mary McCarthy)
Noon	**Adjourn**

Rev 7/14/03

Appendix 8: Meetings and Presentations Made by CTI Personnel

Lisa Aultman-Hall

"Towards Continental Freight Transportation Planning Models," with F. Guo, European Transport Conference, Strasbourg France, October 8-10, 2003,

"Public Perceptions of Traffic Calming Devices," with J. Du, J. Ivan, and P. Garder, 2003 Institute of Transportation Engineers Annual Meeting and Exhibit, August 2003.

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

Sustainable Transport in Europe and Links and Liaisons with America, Third Meeting of the STELLA Work Group 1, Globalization, E-economy and Trade. January 15-16, 2004, Washginton, DC. "Continental Freight Planning Models: An EU/US Comparative Perspective" by Lóri Tavasszy (The Netherlands), Lisa Aultman-Hall (United States), Arnaud Burgess (The Netherlands), José Holguin Veras (United States).

Brian Baird

"Evolution of Transportation and Land use in the Hartford Metropolitan Area," with Norman Garrick, Transportation Research Record, Transportation Research Board Annual Meeting January 2004.

Zhang Deng

"The Effect of Segment Characteristics on the Severity of Head-on Crashes on Two-lane Rural Highways," with, J. Ivan, and C. Zhang, ITE 2004 District 1 Annual Meeting, Burlington, VT, May 2004.

John DeWolf

"Development and Implementation of a Continuous Monitoring System on a Concrete Box Girder Bridge in Connecticut," with T.F. Lengyel, Proceedings of the 4th International Workshop on Structural Health Monitoring, Stanford University, Stanford, CA, pp. 262-269, 2003.

"Monitoring of Century-Old Railroad Truss Bridge," with M.R. DelGrego, M.P. Culmo, Annual Meeting of Transportation Research Board, Washington, D.C.,
20 pages, 2004.

Charles Dougan

"Status of the "Coordination of Pavement Activities in the Northeast' Project," Northeast Materials Engineers Meeting, Wilkes-Barre, PA, 2003.

"Status of the "Coordination of Pavement Activities in the Northeast' Project," Asphalt Users/Producers Meeting, Wilkes-Barre, PA, 2003.

"Status of the "Coordination of Pavement Activities in the Northeast' Project," Asphalt Users/Producers Meeting, Waterbury, CT, March 2004.

"Status of Photologging in Connecticut sand the Application of Photolog Technology by Local Government," Connecticut Technology Transfer Center Advisory Committee Meeting, Newington, CT, April 2004.

Jianhe Du

"The Impact of Passengers on Young Driver Safety in Connecticut" presented by Pat Padlo at the Institute for Transportation Engineers New England District Meeting, Burlington, Vermont, May 2004.

John Ivan

"A New Approach for Including Traffic Volumes in Crash Rate Analysis and Forecasting," Transportation Research Board Annual Meeting, Washington DC, Paper No. 04-3414, Jan. 2004.

"Statistical Challenges with Modeling Motor Vehicle Crashes: Understanding the Implications of Alternative Approaches," (with Dominique Lord and Simon P. Washington), Transportation Research Board Annual Meeting, Washington DC, Paper No. 04-3162, Jan. 2004.

"Hierarchical Bayesian Estimation of Hourly Exposure Functions for Two-lane Roads by Crash Type and Time of Day," (with Xiao Qin, Nalini Ravishanker and Donald I. Tepas), Transportation Research Board Annual Meeting, Washington DC, Paper No. 04-3155, Jan. 2004.

Interviewed for "Main Street," Connecticut Public Television, originally aired Nov. 21, 2003.

"A New Paradigm for Including Traffic Volumes in Crash Rate Analysis and Forecasting," 29th International Traffic Records Forum, Denver, CO, Jul. 2003.

Eric Jackson

“Models Relating Pavement Quality Measures,” with L. Aultman-Hall, C.E. Dougan and S.N. Choi, Transportation Research Board Annual Meeting, Washington, D.C. January 2004.

Jeffrey LaMondia

“User Safety on Shared-Use Paths” presented by Jeff LaMondia at the Institute for Transportation Engineers New England District Meeting, Burlington, Vermont, May 2004

James Mahoney

”Thermal Imaging Technology,” Connecticut Department of Transportation of District 2 Construction Inspectors Meeting, 2003.

Pat Padlo

“The Impact of Passengers on Young Driver Safety in Connecticut” , Institute for Transportation Engineers New England District Meeting, Burlington, Vermont, May 2004.

Donna Shea

Participant, FHWA Committee for Development of Performance Measurement Tools (for Local Technical Assistance Programs nationally)

”Workforce Development,” National Local Technical Assistance Program (LTAP), Honolulu, HI, August 2003.

”Connecticut Construction Career Day Program,” Connecticut Learns and Works Conference, Westbrook, CT, May 2004.

Chen Zhang

"Relative Risk Analysis for Studying the Impact of Adverse Weather Condition on Traffic Accidents," with John Ivan, W. ElDessouki, and E. Anagnostou, New England ITE (District 1) Annual Meeting, Burlington VT, May 2004.

Appendix 9: Summary Performance Measures Recommendations for CTI

PUBLICATIONS & PATENTS – Please list the checked items	
[ ]	1. Manuals (laboratory, computer, student guides).
[ ]	2. Published conference proceedings (full paper). *Full-length papers presented at learned society meetings, not abstracts. Invited presentations at conferences (keynote addresses, invited symposia) should be listed here.*
[ ]	3. Conference proceedings and presentations (short paper, abstract or poster). *Do not list abstracts given above.*
[ ]	4. Technical reports and published working papers. *Include research laboratory reports to extramural agencies.*
[ ]	5. Patent.
COMMITTEE & PRESENTATIONS– Please list the checked items	
[ ]	6. Member of federal peer review committees. *DOD, DOE, NEA, NEH, NSF, USDA, etc.*
[ ]	7. Member of other national/international peer review committees.
[ ]	8. Member of state or regional peer review committees.
[ ]	9. *Ad hoc* reviews for granting agencies, journals, publishers or other universities. *Include manuscript reviewing activities here as well as dissertation and PTR reviews for other universities. List individual reviews.*
[ ]	10. Invited scholarly colloquia, presentation or symposia *These include off-campus invitations and session chairs.*
[ ]	11. National consultancies, clinics and workshops. *Consultancies for which a form is filed with the Chancellor's Office, or comparable ones during the summer for which no form is filed, that result from your reputation in the field. Other consultancies can be listed in the appropriate item under "Service".*
FINANCIAL– Please list the checked items	
[ ]	12. Active or approved grants.
[ ]	13. Total amount of annual grant funds (direct costs). *If grants include more than one Principal investigator, report your fraction.*
[ ]	14. Grant proposals submitted.
OUTREACH & CONSULTATION– Please list the checked items	
[ ]	15. Clinical, extension or other "expert" services. *Note types of and frequency of services performed. Include radio, television, newspaper interviews, specimen identification, extension services presentations.*
[ ]	16. Consultancies for state/local government agencies.

[ ]	17. Consultancies to state/regional businesses and institutions. *Refers to businesses and schools operating primarily in the state.*
[ ]	18. Member of federal government committees (not related to scholarship). *Refers to work unrelated to oversight of scholarly efforts.*
[ ]	19. Consultancies to federal government agencies (not related to scholarship).
[ ]	20. Consultancies to national/international institutions. *Include businesses, schools, etc.*
[ ]	21. Membership on professional society committees.

Appendix 9 (Continued)

Summary Statistics of
CTI Performance Measures
Revised 10/14/03

		Research	T2	NETC	JHRAC	Total
Proposals						
Continuations	State					
	Federal					
New Projects	State					
	Federal					
CTI Outreach	National					
	Regional					
	State					
	Local					
Educational Outreach	# Workshops					
	# Participants					
Papers						
Presentations	National					
	Regional					
	State					
	Local					
Revenue Growth						
Website	Hits					
	Responses					