Connecticut Transportation Institute

Strategic Plan
June 2004
## TABLE OF CONTENTS

INTRODUCTION AND BACKGROUND ................................................................. 1
MISSION STATEMENT ......................................................................................... 3
VISION STATEMENT .......................................................................................... 3
ACTION PLANS and GOALS ............................................................................ 4
  A. CTI ADMINISTRATION ........................................................................... 4
  B. CTI FACILITIES ...................................................................................... 6
  C. RESEARCH: CAP LAB – CONNECTICUT ADVANCED PAVEMENT LABORATORY ............................................................... 7
  D. RESEARCH: PLANNING, DESIGN AND OPERATIONS .......................... 9
  E. EXTERNAL PROMOTION OF CTI ......................................................... 11
SUMMARY .......................................................................................................... 12
LIST OF ABBREVIATIONS ................................................................................ 14
APPENDIX A: Organizational Chart
APPENDIX B: Technology Transfer Center Strategic Plan
APPENDIX C: Faculty Advisory Committee Policies and Procedures
APPENDIX D: Industry Advisory Committee Policies and Procedures
INTRODUCTION AND BACKGROUND

The Connecticut Transportation Institute (CTI) was established at the University of Connecticut (UConn) in 1974, by Public Act 323 with a mission to provide education, research and service in transportation. CTI was envisioned as a multidisciplinary unit connecting many academic disciplines at the university in seeking to solve transportation-related challenges and problems. Currently, CTI has three primary faculty and eight additional faculty who conduct research in association with CTI. CTI has three administrative staff that work with all programs, in addition to three technology transfer staff, five research staff, and two part-time research staff. The support and funding for numerous graduate students is handled at CTI (includes research assistantships and scholarships).

Constituents of CTI are visible and active within the northeast region for important transportation activities. CTI manages a series of programs in collaboration with officials throughout the State and New England. CTI is directed by a faculty member appointed by the dean of engineering for a 3-year term. The current organization and staffing chart is shown in Appendix A. The following programs operate within CTI: the Connecticut Advanced Pavement Laboratory (CAP Lab), the Connecticut Cooperative Highway Research Program (CCHRP), the New England Transportation Consortium (NETC), and the Connecticut Technology Transfer (T2) Program.

The Connecticut Advanced Pavement Laboratory (CAP Lab) is a 10,000 square foot facility that is an American Association of State Highway and Transportation Officials (AASHTO) accredited Superpave lab. The CAP Lab, through funding from the Federal Highway Administration (FHWA) and the Connecticut Department of Transportation (ConnDOT), has made a significant investment in lab equipment, some unique to the entire Northeast. The senior research engineer at CAP Lab serves as its full-time operations manager.

Connecticut Cooperative Highway Research Program (CCHRP), often referred to as JHRAC, is a 42-year old competitive research program funded by the Connecticut Department of Transportation (ConnDOT) which is open to any academic discipline at the University of Connecticut for the pursuit of leading edge research in all areas of transportation. CCHRP is managed by a program staff member and the Director of CTI. Its governing Council, the Joint Highway Research Advisory Committee (JHRAC), is comprised of an equal number of UConn faculty and ConnDOT management personnel.

The New England Transportation Consortium (NETC) is a cooperative effort of the transportation agencies and land grant universities of the six New England states and is governed by multi-state advisory and policy committees. The NETC is a “pooled fund study” with ConnDOT as the lead state agency. Under the direction of an advisory committee and the NETC coordinator, CTI provides administrative management for the program. NETC specifically aims to support transportation research related to problems unique to the New England region.

The Technology Transfer Center (T2 Center) has a program director and CTI staff members, in addition to a large team of instructors from throughout the United States. The T2 Center,
funded by the FHWA and ConnDOT, has been in existence since 1983, and houses the CT Local Technical Assistance Program that is one of a network of 58 centers nationally. The T2 Programs host an average of 3,500 participants annually. The Technical Assistance, Loan Programs (including Traffic Counter and Safety Town for Children) and our resource library serve all 169 towns in Connecticut. The Technology Transfer Program routinely involves graduate and undergraduate students in their transportation related projects.

The current research and educational projects at CTI are funded by a diverse set of agencies: Connecticut Department of Transportation, CT Transit, National Science Foundation (NSF), Federal Highway Administration (FHWA), the New England University Transportation Center (NEUTC) and the New England Transportation Consortium (funding is provided by the states of Rhode Island, Vermont, New Hampshire, Massachusetts, New York and Connecticut). The research topics are also diverse, ranging from safety, pavement design and freight transportation planning to air quality and context sensitive solutions.

This is the first formal CTI strategic plan in approximately 25 years. The context for transportation research and transportation funding, as well as the composition of CTI, has changed dramatically in this time. A strategic plan was developed for the CAP Lab in 1998. Several of the actions delineated in that plan such as continued training programs, research related to Superpave and regional technical leadership, have been undertaken. However, the facility improvements and increases in staff called for in that plan have not been achieved. The direction of CAP Lab as an integrated part of CTI’s research activities necessitates that strategic planning for CAP Lab should be directly included within the CTI strategic plan.

The CTI T2 Center has a current strategic plan and planning process as required by their primary funding agencies, the FHWA and ConnDOT. This plan is included in Appendix B of this document and forms a key component of CTI’s future direction. The CTI T2 strategic plan will be updated this year to be consistent with a new national Local Technical Assistance Program (LTAP) strategic plan issued by the FHWA. The current plan defines the T2 Center’s intention to be “perceived and acknowledged as the primary source of transportation training and technology transfer for local transportation agencies in the State of Connecticut.” Furthermore, the T2 Center at CTI seeks to “be nationally recognized as a leader in LTAP for its effective and innovative programs and service.” In addition to the Road Master, Road Scholar and Legal Traffic Authority certificate programs, which are directly related to LTAP, the CTI T2 center is also increasing its offerings of professional level workshops and expanding its curriculum in all programs to meet changing needs. CTI’s T2 Center has been increasing the extent and types of communication used with its constituents as well as developing new partnerships and updated performance measures. This CTI strategic plan does not endeavor to repeat the clear mission and direction in the T2 plan but rather focuses on overall institute management and the further development of the CTI research activities, including CAP Lab.

This plan is based on the fundamental premise that a strong transportation institute must have both strong research, education and service. For CTI, our education mission includes technology transfer activities and our research mission includes research implementation. Furthermore, research and education must be integrated, as their mutual success is
interdependent. In this scenario, both theoretical and applied research is necessary as well as work to ensure that good research findings are implemented. Quality research is conducted by teams of faculty, research staff, graduate students and undergraduate students. Strong leading edge research ensures the CTI team has qualified instructors and information to provide the most relevant and timely technology transfer programs. In the course of designing and implementing technology transfer programs, both the staff and clients provide critical input on real world transportation problems and needs. This is the strongest form of research motivation. Recognition for excellence in any one of CTI’s endeavors increases the organization’s reputation and benefits us all. A strong university transportation center must have integrated research, education and service activities.

This planning document is the culmination of a full staff and faculty strategic planning session held in April 2003, an external peer exchange hosted in the summer of 2003, a CTI development project funded by the Connecticut Department of Transportation and the new directions set by senior management under a new director in fall 2003. This plan sets forth 1-year, 5-year and 10-year action plans and goals. It is intended that the document receive minor updates yearly and be completely revisited every five years starting in 2008 (four years from this plan’s publication).

MISSION STATEMENT

The mission of the Connecticut Transportation Institute (CTI) is to conduct integrated multidisciplinary 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.

ACTION PLANS and GOALS

The remainder of this plan outlines the status of key CTI program components as well as the actions needed to attain the vision outlined above. The status statements and actions are subdivided by the following categories: A) CTI administration, B) infrastructure, C) CAP Lab, D) transportation planning, design and operations, and E) external representation of CTI. In each section the goals are delineated into 1-year, and 5-year goals and actions.

A. CTI ADMINISTRATION

Status: At this time, CTI is fully supported by external funding. Most of this funding is provided by the state of Connecticut. Under the new Director, the programs at CTI have come together to focus on joint needs and policy changes. The lack of a university budget and the inability to charge administrative and financial management costs to many external grants have strained the administrative operations of CTI. In fact, the successful programs at CTI are poised for significant growth, but the lack of indirect cost return or an operating budget represent major obstacles. In FY 03, CTI generated $1.6 million in funding including $200,000 in indirect facilities and administration costs.

It has always been the intention for CTI to span across departments and include truly multidisciplinary members, research, education and service. Unfortunately, the multidisciplinary involvement at CTI has been limited. Some faculty members in departments, beyond the transportation group within the civil and environmental engineering department, use CTI for some project administration, particularly grant management (i.e. payroll and purchasing). However, these faculty (with one or two notable exceptions) do not see themselves as being affiliated with CTI. They see themselves as “having a grant at CTI”.

1-year Actions

1. Develop Comprehensive Performance Measures for all Programs

Use and tracking of performance measures is essential for CTI to demonstrate its value to the state and the university. The existing structure of CTI as a hub for members of other primary university units does not serve to fully document CTI’s contributions to the university or the transportation community. Furthermore, the categories used in the UConn annual report do not fully capture all of our activities.
Currently, CTI’s annual report information for the Chancellor’s Office documents only CTI staff activities. In May 2004, CTI will begin combining their unit annual report information with the information provided by the associated faculty to their primary unit. Furthermore, we will code the performance metrics by CTI program (CCHRP, T2 or CAP Lab for example). In this way, we will be able to track scholarly publications, graduate student support and other activities related to each of the programs at CTI that fund principle investigators with a primary unit other than CTI. Additional metrics will be used to explicitly document special CTI services, outreach and professional education programs that do not fit into the university’s standard categories. The established LTAP performance measures will be very useful in this regard.

2. Develop an Annual Report

An annual report documents a subset of the performance measures of interest externally beyond CTI and will summarize yearly activities and highlight our accomplishments to the outside world. The CTI annual report will be not only an essential marketing tool, but also useful within the university to demonstrate the value of CTI. Obtaining administrative funding from the university will require this clear communication of CTI’s activities.

3. Establish an Active Industry Advisory Committee

In the fall of 2003, the Dean of Engineering established a faculty advisory committee for CTI (composition and procedures are contained in Appendix C). Once the faculty advisory committee has approved the CTI Strategic Plan, the Director will take action to establish an Industry Advisory Committee (composition and procedures outlined in Appendix D).


In the last six months, development started on a web-based policies and procedures manual. It is expected that the set of policies included on this *e-manual* will be completed within the next year and cover all areas of program and project management, and employee procedures. This manual has already resulted in improvements in efficiency for administration and has ensured fairness between staff members and faculty.

5. Seek a Source of Support for CTI Administrative Activities

Using the annual report, performance measures and support of the advisory committees the Director will pursue sources of funding for CTI administration.

6. Define Job Description for Associate Director

The role of the individuals who carried the title of Associate Director of CTI has varied over the years. In the next year, it is critical to define the responsibilities for an Associate Director and document a job description.
7. System of Defining Associated Faculty

A formal mechanism for associating faculty with CTI is required in order to clearly delineate who is associated with CTI.

5-year Actions

1. Establish a Sustainable Operating Budget for CTI

Given the current fiscal climate and limited budget situations, it is unlikely a sustainable long-term source of funding for CTI administration will be accomplished within the next five years. However, the current strain at CTI requires that a solution be established within five years. With an appropriate funding structure, the resources for extended library services, computer support, accounts management, additional administrative support staff and a technical writer/editor could be pursued.

2. Associate Director

An Associate Director of CTI, consistent with job description developed in the planning activities described above, will be hired.

B. CTI FACILITIES

Status: The members of CTI are situated in three different locations on campus. The faculty and graduate students are on the main campus in the Castleman Building, while staff are located in the “white house” offices and CAP Lab building on the Depot campus approximately three miles from the main campus. The distance creates challenges and inefficiencies as well as presenting a barrier to team building. Furthermore, the most serious infrastructure challenge facing CTI is the physically poor conditions at both the “white house” offices and the CAP Lab building, many of which offer substandard environments for staff and clients. The trucks and vans used by CTI for field research and technology transfer activities are old and unreliable.

1-year Actions

Initial infrastructure changes will be pursued including the following:

1. Seek a sign visible from route 44 for the White House to create a sense of place for CTI within the space we currently have.

2. Install the fire alarm system in the CAP Lab.

3. Secure funding and address air quality issues in the CAP Lab.

4. Pursue acquisition of a vehicle for CTI research and activities.
5-year Actions

1. Establish an on-going funding base for support of CTI equipment acquisition and replacement, and infrastructure.

2. Undertake space improvements, including aesthetic issues, at the White House and CAP Lab for staff comfort and safety as well as for presenting a positive public image.

3. Establish a single, quality facility (preferably on main campus) to house the T2 center, CTI administrative staff, researchers and labs.

C. RESEARCH: CAP LAB – CONNECTICUT ADVANCED PAVEMENT LABORATORY

Sections C and D of this plan are related in that they encompass the major research areas at CTI. Some actions are therefore inter-related. Over a five-year time frame, it is proposed that CTI will double its external research funding in these two areas.

Status: CAP Lab is experiencing a period of increased research funding (FY04 expenditures are 1.5 times that of FY03). Current funding consists of state and regional support, as well as limited funding from private industry, for pavement mix design services and tuition from certification and technology transfer programs. Research project management, project proposals, daily lab management, teaching and outreach are all handled by the lab operations manager. An emeritus professor provides consulting and expertise as necessary. The lab has a full-time technician as well as partial time from a research engineer and computer programmer.

CAP Lab is understaffed in two ways. First, an additional research engineer is needed to carry out the current research. Second, a faculty member in the area of asphalt materials or hot mixed asphalt is needed for academic advisement to the undergraduate and graduate students who work in the lab. Over the past decade, this has meant that few thesis papers, if any, have been generated and few publications have resulted from the data and numerous experiments conducted at CAP Lab. Furthermore, extensive national and private funding exists in this research area, but without the support and assistance of a faculty member, the one lab manager is limited in terms of time and research team size in attracting more diverse funding. There is a need to pursue diverse funding agencies for CAP Lab, and to more fully disseminate the results of work conducted.

1-year Actions

1. New Research Engineer

The contracted and expected work at CAP Lab require the hiring of a new research engineer under the direction of the operations manager to conduct experiments and field work, analyze data and prepare research reports and papers.
2. Increase Recognition of the Need for a New Faculty Member

Faculty positions are limited within the university system. An effort should be undertaken immediately to market the value of CAP Lab and its research to ensure the need for a faculty member is known at all levels of administration at UConn.

5-year Actions

1. Faculty Member in Asphalt Materials / Pavement Management

As identified during the 2003 Peer Exchange, there is a critical need to hire a transportation faculty member who will work with CAP Lab. This faculty member should both be able to design and conduct experiments using the CAP Lab facilities, as well as study pavement management issues such as noise, sustainability, or the use of recycled materials in asphalt. Work in these latter areas will allow teaming with the existing transportation and environmental faculty in the civil and environmental engineering department. It is expected that a high quality faculty member could be attracted to UConn given the infrastructure investment in lab equipment, an existing lab facility and effective management structure, the presence of an experienced research engineer for collaboration, as well a full-time technician and other staff at CTI. The existing levels of federal and state funding in the asphalt materials field suggest the potential for the funding of several graduate students at CAP Lab if a faculty member is hired.

2. Proposal Development and Diversification of Funding Sources

The CAP Lab engineers, together with the CTI Director, will pursue external funding from federal and state agencies, regional transportation centers and the private sector. This funding will complement the current strong funding partnership with ConnDOT. The team will seek collaborations with academic and private partners from within the New England region to form stronger teams for large projects.

3. Diversify Research Focus

CAP Lab has the ability to work beyond hot mix asphalt (HMA) pavement design and related factors. Examples of such work might include pavement management work with metrics such as the international roughness index (IRI), or use of noise as a surrogate for pavement quality and a measure of transportation impact on community. The addition of new staff as well as collaborations with existing faculty will allow this diversification of focus.

4. Increase Graduate Students, Conference Presentations and Publications

CAP Lab will continue to provide funding to graduate students. However, in order to increase the number of graduate students whose theses are based on CAP Lab work, a new requirement must be set. Students must have the intention to work on a thesis with their CAP Lab data in order to receive a research assistantship at CAP Lab. In the absence of a faculty member, this arrangement is complicated. Students must have an advisor who is willing to team with CAP
Lab on experimental design and provide academic mentoring for the thesis and journal papers. Before a more focused pavement or materials faculty is hired, the CTI Director and other faculty are willing to act in this capacity for feasible topic areas.

Increasing the theses produced and the number of research staff at CAP lab will allow research engineers to actively pursue conference presentations and journal paper publications. Staff achievement in these areas should be rewarded.

D. RESEARCH: PLANNING, DESIGN AND OPERATIONS

Sections C and D of this plan are related in that they encompass the major research areas at CTI. Some actions are therefore inter-related. Over a five-year time frame, it is proposed that CTI will double its external research funding in these two areas.

Status: The faculty members associated with CTI have well-established reputations in these areas, including such diverse topics as traffic management, design, air quality, bridge structures, urban planning, traffic safety and freight planning. While many overlap areas exist in which CTI staff, CEE faculty and ConnDOT researchers work in teams, other strengths of the CEE faculty complement, but do not duplicate the foci of the ConnDOT Division of Research. Many of these new areas are ideal for future research growth.

CTI has recently increased its activities in non-motorized transportation research, training and outreach in Connecticut. Connecticut lacks a strong non-motorized transportation community and given the growing importance of sustainability, safe routes to school and public health concerns, CTI stands to rise as a leader for the state in the areas of walking and bicycling.

1-year Actions

1. Research and Research Implementation Roundtable Discussions

Between August and December 2004, a series of facilitated discussions is planned. These sessions will include all major divisions of ConnDOT, the FHWA and the regional planning agencies. It is intended that each session will involve members of the CTI staff and members from the DOT or other transportation/planning agencies. While these sessions are intended to involve CAP Lab and the T2 Center, the transportation safety, planning and design components of CTI are less known.

These sessions will open with a short presentation by CTI on what a transportation center can offer to a state, including specific examples of successful transportation center programs in others states. The current mission statement, staff make-up and vision for growth of CTI will be presented. A facilitated discussion on how a university-based transportation organization such as CTI could assist or lead different activities related to transportation needs throughout the state will follow. The topics will be related to the particular division, divisions or agencies being visited. The overall objective will be to build a joint vision for the research, research implementation, education and service roles that CTI can play in transportation in Connecticut.
Following each discussion a summary of the input will be prepared and circulated to participants as well as an overall project advisory team. Comments will be accepted and the record amended. The full set of recommendations and vision for programs and activities for the CTI will be compiled as a white paper.

2. “Safe Routes to School”

Pursue focal role in “Safe Routes to School” programs in the state of Connecticut. Be a regional liaison with the national “Safe Routes to School” network.

3. Explore Options for Multidisciplinary Work

CTI must establish linkages and pursue outreach to other UConn academic departments and researchers in order to establish CTI as a focal point for a multidisciplinary approach to transportation issues. There must be clearly communicated advantages and responsibilities of being a part of CTI. Expanding the current graduate student seminar series to include other disciplines as speakers and attendees will be one essential part of this effort.

5-year Actions

1. Proposal Development

In addition to the outreach describe above which will make critical contacts for increased state funding, proposals to federal agencies are needed. CTI support staff will provide administrative support, including editing, for the preparation of these proposals. One key proposal should be the competition for a federal University Transportation Center, a funding opportunity through the United States Department of Transportation. Although we seek to increase our federal funding we must recognize that most federal funding in transportation is transferred to the states and therefore partnership with the state DOT will always be key to contributing to the transportation system.

2. Hire Research Staff

In order to ensure research skill continuity as the graduate student pool turns over and to support the applied research that addresses timely needs within the state transportation system, it is necessary to ensure research engineers are on the full-time staff of CTI. As the number of faculty and graduate students increase, the number of research engineers and other professionals must also increase. GIS skills and programming are particular needs at this time.

3. Pursue Funded Multidisciplinary Work

After exploring multidisciplinary linkages, CTI should lead on development and submission of multidisciplinary transportation proposals. Others avenues for increasing two-way multidisciplinary exchange at CTI that are identified during the one-year exploratory phase should be pursued in the five-year time horizon.

CTI management will develop a strategy with ConnDOT to amend the current state statute and increase the annual CCHRP funding cap

E. EXTERNAL PROMOTION OF CTI

Status: CTI staff and associates have individual strong reputations and records for service. This is true for individual faculty, and for both T2 and CAP Lab within the region. There is a need to have CTI more widely known as a single unit that can offer transportation research and educational services. Efforts to promote CTI and its associated programs should be pursued externally, as well as on campus and within the School of Engineering. To start this effort, a new brochure and conference display booth have been designed and purchased for CTI with funding from the Connecticut Department of Transportation.

1-year Actions

1. CTI Promotion and Visibility

A schedule will be developed to use the newly acquired CTI brochure and display booth at three conferences and in several mailings in the remainder of 2004 and into 2005. A newly developed annual report will also be utilized as a tool to promote CTI.

2. Increased Technical Presentations as part of Expanded CTI Promotion and Visibility

An important part of expanding CTI is not just marketing, but includes the dissemination of technical information at conferences. A summary of CTI expertise should also be prepared and provided to the UConn public relations office.

5-year Actions

1. Expand Professional Development Training

2. Add facilitator services to the professional staff of CTI. This will increase CTI’s ability to offer to provide expert information and act as an honest broker when opportunities arise.

3. Increase new transportation workforce development projects that complement and enhance efforts to increase enrollment within the School of Engineering.

4. Increase CTI’s representation on state task forces and committees.

5. CTI will increase our targeting of undergraduate students at all New England Universities, through distribution of the new CTI brochure, in order to improve recruitment of graduate students for all areas transportation studies associated with CTI.
SUMMARY

During the past year’s planning process, numerous parties have indicated the need for a single CTI focus area, specialty or niche. Ultimately, the CTI team has decided that growth in three complementary CTI areas of strength will ensure a solid future for the unit that contributes to the transportation needs within the state. These three niche areas are ripe for sustained growth: technology transfer, paving materials and transportation planning/design.

It is the goal of the CTI team to be well known as university-based transportation specialists who can provide input to policy questions, technical expertise, service and professional programs. Marketing efforts mentioned above will help promote our reputation as an active contributor to transportation solutions. The planned growth and a series of coordinated activities for future CTI development are summarized in Table 1. (Recall the action plans for strategic growth and development for the T2 center at CTI are contained in Appendix B.)
Table 1: Summary of CTI Action Plans

<table>
<thead>
<tr>
<th>CTI ADMINISTRATION</th>
<th>1 year</th>
<th>Comprehensive Performance Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Annual Report</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Industry Advisory Committee</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Policy and Procedures Manual</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Support for CTI Administrative Activities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Define Associate Director Job Description</td>
</tr>
<tr>
<td></td>
<td></td>
<td>System of Defining Associated Faculty</td>
</tr>
<tr>
<td></td>
<td>5 year</td>
<td>Sustainable Central Budget for CTI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Associate Director</td>
</tr>
</tbody>
</table>

| 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              |
LIST OF ABBREVIATIONS

AASHTO – American Association of State Highway and Transportation Officials
CAP Lab – Connecticut Advanced Pavement Laboratory
CCHRP – Connecticut Cooperative Highway Research Program
CD-I – Compact Disk - Interactive
CEE – Civil and Environmental Engineering (Department of)
ConnDOT – Connecticut Department of Transportation
CSS – Context Sensitive Solutions
CTI – Connecticut Transportation Institute
DOT – Department of Transportation
FHWA – Federal Highway Administration
GIS – Geographic Information Systems
HMA – Hot Mix Asphalt
IRI – International Roughness Index
JHRAC – Joint Highway Research Advisory Committee
LTAP – Local Technical Assistance Program
MPO – Municipal Planning Organization
NETC – New England Transportation Consortium
NEUTC – New England University Transportation Center
RPA – Regional Planning Agency
T2 – Technology Transfer
UConn – University of Connecticut
APPENDIX A: Organizational Chart
APPENDIX B: Technology Transfer Center Strategic Plan
ACKNOWLEDGEMENTS

The considerable assistance given by the following members of the Technology Transfer Center Advisory Committee in the development of the Plan is gratefully acknowledged:

Christian Davis, Connecticut Transportation Institute
David Demchak, Connecticut Interlocal Risk Management Agency
Robert Kulacz, City of Shelton, Connecticut
Richard Miller, City of New Haven, Connecticut
Paul Mooney, Federal Highway Administration
Dionysia Oliveira, Connecticut Department of Transportation
James Sime, Connecticut Department of Transportation
Jack Stephens, Connecticut Advanced Pavement Laboratory
Sidney Swenson, Town of Woodstock, Connecticut

Complete listings of the Advisory Committee and Center staff are given in Appendix A. Policies and Procedures for the Advisory Committee are given in Appendix B.
# TABLE OF CONTENTS

(Note the original page numbers are shown here not those that apply in this reproduced version)

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledgements</td>
<td>ii</td>
</tr>
<tr>
<td>Table of Contents</td>
<td>iii</td>
</tr>
<tr>
<td>1. Introduction</td>
<td>1</td>
</tr>
<tr>
<td>2. History</td>
<td>1</td>
</tr>
<tr>
<td>3. Vision Statement</td>
<td>1</td>
</tr>
<tr>
<td>4. Mission Statement</td>
<td>1</td>
</tr>
<tr>
<td>5. Planning Assumptions</td>
<td>1</td>
</tr>
<tr>
<td>6. Goals</td>
<td>2</td>
</tr>
<tr>
<td>6.1 Strategic</td>
<td>2</td>
</tr>
<tr>
<td>6.2 Operational</td>
<td>3</td>
</tr>
<tr>
<td>7. Implementation</td>
<td>5</td>
</tr>
<tr>
<td>7.1 Actions</td>
<td>5</td>
</tr>
<tr>
<td>7.2 Schedule</td>
<td>7</td>
</tr>
<tr>
<td>7.3 Review and Revision</td>
<td>7</td>
</tr>
<tr>
<td>Appendix A – Advisory Committee and Center Staff</td>
<td>9</td>
</tr>
<tr>
<td>Appendix B – Advisory Committee Policies and Procedures</td>
<td>16</td>
</tr>
</tbody>
</table>
1. INTRODUCTION

This Plan has been developed pursuant to the requirements of the University of Connecticut and the Federal and State sponsors of the Local Technical Assistance Program. Especially pertinent references are the Strategic Plans of the University of Connecticut, the School of Engineering, the Connecticut Transportation Institute and the Local Technical Assistance Program.

It is intended that this Plan will be constantly reviewed and modified as conditions warrant. A suggested schedule for periodic review is given with the Implementation Plan.

2. HISTORY

The Technology Transfer Center is a unit of the School of Engineering’s Connecticut Transportation Institute (CTI). The activities of the Center were foreseen in the 1978 version of the Plan for the Development of a Connecticut Transportation Institute. The development of the Plan presented herein was begun in late 1997, by Center staff with considerable input from the subcommittee of the Center’s Advisory Committee.

3. VISION STATEMENT

The Technology Transfer Center will be perceived and acknowledged as the primary source of transportation training and technology transfer for local transportation agencies in the State of Connecticut. It will be nationally recognized as the leader in the Local Technical Assistance Program for its effective and innovative programs and service.

4. MISSION STATEMENT

The mission of the Technology Transfer Center is to foster the safe, efficient, environmentally sound roadway transportation 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 local transportation agencies. Although the primary mission of the Center is limited to the roadway system, both public and private, due regard will be given to intermodal considerations. The Center is dedicated to excellence in the service of its core constituencies - the local, regional, and state officials, professionals, and workers charged with transportation responsibilities.

5. PLANNING ASSUMPTIONS

For the planning horizon, the major transportation responsibilities of local agencies in Connecticut will remain primarily those associated with roadway transportation. Authority for the planning, design, construction, operation, and maintenance of local transportation facilities and systems will remain the province of the state's towns and cities. The topography, hydrography, and climate of the various regions
of the state will continue to present unique problems for local agencies. The competitiveness of Connecticut business and industries will heavily rely on efficiently transporting persons and goods. The quality of life long associated with southern New England will remain a significant attraction for the state. Although the economic climate of the state will be subject to fluctuations, agencies will always be responsible for providing services while receiving limited resources. The US and Connecticut Departments of Transportation will continue to provide the Center with resources adequate for the discharge of its mission. The Center's strategic planning will remain consistent with its position in the hierarchy of the University and the operative strategic plans of the University and its pertinent sub-units, and the Local Technical Assistance Program.

6. GOALS

There are two categories of goals: strategic and operational. By strategic we mean long-term and having continuing effects on the communities we serve. Operational goals are associated with the day-to-day operations of the Center. In short, the operational goals are used to insure that the Center operates effectively.

6.1 STRATEGIC GOALS

There are five strategic goals for the Center. While all of these must be addressed, the listing below is in order of relative importance.

1. Promote Safety
2. Promote Efficiency
3. Promote Accessibility
4. Enhance the Environment
5. Promote Quality

These goals are described below. Note that there are no measures of effectiveness given for these goals since obtaining their values would make an inordinate demand on Center resources.

Safety is the highest goal of the Center. The Center will strive to promote safety for the traveling public as well as worker safety. Safety will permeate all Center activities and will be the explicit subject of many of its programs.

Efficiency is important in two general contexts: system efficiency and agency efficiency. System efficiency refers to the overall efficiency of the transportation system in the movement of people and goods. Agency efficiency refers to the efficiency of operations of the agencies served by the Center.

Accessibility can also be taken in two contexts. In the first, it is sometimes used to mean the denominator in the gravity model for trip distribution. Simply put, in this context it is a measure of opportunities available to residents of a given traffic zone. In
the second context, accessibility refers to the functional purpose of a given roadway. In this sense, a limited access highway would provide very little accessibility to abutting land and its purpose would be to provide mobility. At the other end of the spectrum, a cul-de-sac would be completely accessible but would provide little mobility. We anticipate that the Center’s activities would be primarily directed at facilities serving mixed purposes, but more toward the accessibility end.

The environment to be enhanced is taken to include the natural, social, and economic environments.

Quality is the subject of an FHWA “Scanning Program” report\(^1\). Included in the report is the following recommendation (page 23).

> Until an increase in funding is available, it is recommended that the FHWA and the AASHTO work with industry to:

1. **promote** road quality research and development,
2. **reduce regulations** that restrict such improvements,
3. **emphasize life-cycle costing** of projects,
4. **allocate more funds to preventative maintenance**,  
5. **design quality in** rather than trying to build it in.

The Center will follow these recommendations.

### 6.2 OPERATIONAL GOALS

There are ten operational goals of the Center. These can be divided into three groups as given below. Associated measures of effectiveness are bulleted.

**Management**

1. **Provide effective and high-quality technology transfer through training and technical assistance.**
   - number of positive comments received on workshops evaluations
   - number of positive comments received on newsletter insert
   - number of positive comments received on feedback form to be sent with information materials; i.e. publications, videotapes, software, CD-I programs (to be developed)
   - number of positive comments received on feedback form sent as a follow-up to technical assistance (to be developed)

2. **Maximize cost effectiveness.**
   - number of success stories received from constituents of benefits resulting from training and information provided by the Center

---

\(^1\) Federal Highway Administration, *A Summary of the FHWA Contract Administration Techniques for Quality Enhancement Study Tour (CATQUEST)*, June 1994, 27pp
• number of hours in training time per dollar
• number of workshops per dollar
• number of seminars per dollar
• number of requests for information per dollar

3. **Promote partnering with all transportation training activities.**
   - number of partners
   - number of workshops/conferences/demonstrations presented in conjunction with other agencies

4. **Maximize audience.**
   - number of requests for information, materials, and/or technical assistance
   - number of attendees at training programs
   - newsletter circulation
   - percentage of local governments served
   - training backlog

5. **Optimize use of technology in delivering services.**
   - number of web site hits
   - number of links from web site
   - number of links to web site
   - number of attendees at distance learning programs
   - number of CD-I loans
   - number of software loans
   - number of videotape loans
   - number of automatic traffic recorder loans

Public Relations

6. **Promote public awareness and increase visibility of Center to stakeholders.**
   - number of contacts at “trade shows” in which Center participates
   - number of contacts on mailing lists
   - number of agencies and individuals utilizing the Center services
   - number of media notices

7. **Foster networking relationships with and between municipalities and planning agencies.**
   - reported number of incidences
   - size of listserv
   - number of listserv messages

---

\(^2\) A geographic distribution of these agencies is given in Appendix D.
**Professional**

The word “professional” has several definitions. The two that are most pertinent here are “following an occupation as a means of livelihood” and “engaged in one of the learned professions.” Goal 8 refers to the first definition; goal 9 refers to the second; and goal 10 refers to both.

8. **Encourage respect for transportation professionals in policy making**
   - reported number of times policy has been influenced
   - reported number of times policy has ignored professional advice

9. **Include continuing education at the postgraduate professional level.**
   - number of professional level workshops
   - number of professional level short courses
   - number of professional level newsletter articles
   - number of journal articles

10. **Foster professional behaviors and attitudes.**
    - influence of professional ethics on actions
    - number of applications of professional problem-solving approach

7. **IMPLEMENTATION**

7.1 **ACTIONS**

The following actions will be taken to implement the Plan:

A. Schedule *Roadmaster* workshops so that the program can be completed in two years
B. Schedule *Legal Traffic Authority* workshops so that the program can be completed in two years
C. Develop and present professional level workshop
D. Review and update workshop curriculum and add topics as needed
E. Communicate with Towns, RPA’s and MPO’s that are not currently attending
F. Hold workshops cooperatively with other transportation organizations/agencies
G. Update and maintain mailing list (standard and e-mail)
H. Provide technology transfer materials
I. Evaluate measures of effectiveness and adopt objectives
J. Enhance and maintain web site
K. Increase faculty involvement
L. Participate in Peer Exchange process
M. Web based training
N. Explore opportunities to work with international partners (FHWA program)
O. Enhance promotion to Technology Transfer Center activities
APPENDIX C: Faculty Advisory Committee Policies and Procedures

The Advisory Committee shall consist of:

- seven faculty members from diverse academic departments at the University of Connecticut (most, but not all, shall be engaged in transportation research or a related topic);
- a representative of the technology transfer program at CTI; and
- the Dean of the School of Engineering.

These representatives are appointed by the Dean. The committee is chaired by the Director of CTI. Meetings shall be held on a quarterly basis. During the meeting, the CTI Director will describe the work and significant developments with CTI. The committee will provide guidance on policies and strategic direction relating to the management and funding of CTI as a unit within the University, as well as the partnerships CTI forms with outside agencies, industry and the clients of CTI programs.

The committee shall review the performance and record of the Director. The Committee will report to the Dean at the last quarterly meeting in the spring semester before the Director’s terms ends. This evaluation will include formal solicitation of CTI staff input as well as input from all faculty associated with CTI. The Dean will chair this meeting.
APPENDIX D: Industry Advisory Committee Policies and Procedures

The CTI Industry Advisory Committee will oversee and guide the director of CTI on matters relating to overall management, public relations, marketing and research (including CTI’s partnership with academic units for graduate studies). The relationship between CTI’s research, education and service missions and the transportation industry and community will be the primary focus of the committee. The Technology Transfer Center (T2) and the CAP Lab at CTI have their own advisory committees working with staff on specific program activities.

Membership

The Advisory Committee shall consist of representatives from as many of the following stakeholders as feasible:

- The Connecticut Department of Transportation
- Professional organizations
- Private industry which serve the transportation sector of Connecticut
- Representatives from other University Transportation Centers (usually from the New England region)
- Representatives from other State DOT research divisions Centers (usually from the New England region)
- Federal Highway Administration (non-voting)
- Regional planning agencies
- The University of Connecticut

These representatives shall be recommended by the Director of the Connecticut Transportation Institute and invited to serve by the Dean of Engineering. The Dean may invite an agency to appoint a specific person as their representative. Members will be appointed for a 3-year term. The total number of members shall ideally be more than 10 but not more than 20. Terms shall be staggered.

The committee shall have a chair elected by the membership to serve a 3-year term, subject to the confirmation of the director of the Connecticut Transportation Institute.

Meetings shall be held on a semi-annual basis at locations throughout the state. One-third of the voting membership shall constitute a quorum. The director of CTI shall distribute a meeting agenda, minutes of the preceding meeting, and a Quarterly Progress Report at least one week prior to the meeting.

These Policies and Procedures may be revised or amended at any time by a two-thirds majority vote of the committee.