

The University of Vermont Transportation Research Center Transportation Education Development Pilot Program (TEDPP) 2008-2013 Summary Report

In 2008, the Transportation Research Center at the University of Vermont (UVM TRC) was funded to conduct a four year, subsequently extended to five year, TEDPP project. The two goals of the TEDPP were to:

- 1) Attract and retain skilled workers in the transportation sector through innovative educational programming.
- 2) Assess the capacity of community colleges nationwide to participate in transportation workforce development.

These goals were accomplished through the establishment of two distinct educational offerings, the Transportation Systems Institute and the Transportation Systems Academy, conducting outreach efforts to transportation sector employers, performing targeted assessments of needs and capacity, developing a targeted career pathway approach and framework, and assessing transportation education offerings at community colleges (nationally and regionally). The accomplishments, which align with the specific project deliverables, as outlined in the original proposal are discussed in the balance of this document.

Document of the project and the tools and materials produced are accessible at:

<http://www.uvm.edu/~transctr/workforcedev/>

This summary report focuses on the key deliverables of the project. A complimentary report is the *Developmental Evaluation of the Transportation Education Development Pilot Program* (Carol Vallett, UVM), which is available at the same web location.

Transportation Systems Institute (TSI)

The TSI had four expected deliverables. They are captured below along with accompanying activities or accomplishments that met the deliverable goal. Details and examples of TSI strategies can be found in the “Steps to Planning and Implementing the Transportation Systems Institute: a Resource for Transportation Educators”

1. *Specific examples and strategies which proved successful for the coordination, communication, and collaboration among education and training community organizations and key organizations and programs in the transportation community as well as directions to develop and sustain partnering efforts to address transportation workforce development.*

The TSI was considered a successful professional development effort by those involved including the planners, participants, instructors and state DOTs. The TSI pilot was developed with DOT employee participants from the three northern New England states of Maine, New Hampshire and Vermont. Successful strategies included:

- Building a solid three state network that allowed for professional relationships to be established between states.
 - Advocating for endorsement and support for TSI from leaders in the state AOT organizations.
 - Establishing class cohorts that had not just multi-state participants but also a cross-section of job functions represented.
 - Establishing face-to-face workshops as the primary vehicle for learning.
 - Utilizing technology, both for participant learning in face-to-face settings but also for extending communication between group participants in-between class sessions.
 - Modeling of technology use on the job.
 - Providing tools and information that were immediately relevant in the workplace.
 - Involving experienced adult trainers and educators as workshop leaders.
 - Communicating regularly via multiple channels with program developers, DOT leaders and participants.
2. *Identification of potential partner organizations for expansion of this program nationally including the role of each, the scope of the effort, the goal of the activity, and the intended or completed outcome.*

Although the TSI pilot project as conceived was intended to provide a model for national expansion, the operation of the pilot highlighted the need for commonality of transportation needs and issues of participating states. A regional model, as used in the pilot, better meets the professional development needs of the transportation employees involved.

Organizations that should be involved on a regional and national basis include:

- State Agency of Transportation officials – role is to identify and support participants, endorse the importance of the program, provide release time for employees to attend, provide opportunities for participants to utilize enhanced skills in the workplace.
- Post-secondary Educational Institutions – role is to provide instructors for the TSI that can lead the workshops, engage participants and build a professional learning community. Community or technical colleges, colleges or universities that engage in professional workforce development programs, especially those with a connection to transportation training, could all be possible providers.

- National organizations such as the National Transportation Training Directors and AASHTO will be natural partners in advancing the TSI or TSI-like programs as part of their professional development efforts nationally and regionally. In addition other professional associations with strong links to DOTs (e.g., American Society of Civil Engineers, Institute of Transportation Engineers)

3. *Identification of barriers to developing the effort on a nation-wide basis including an assessment of problems encountered during the pilot program and how to make improvements.*

As mentioned above, the TSI could be implemented on a nation-wide basis but in a regional context. Grouping states by common need such as winter road maintenance or urban transit logistics would provide for optimum learning and sharing for participants.

Barriers that have been identified for nation-wide adoption include:

- Determination of the optimal grouping of states for regional delivery.
- Identification and orientation of experienced professional development trainers who could deliver the program repeatedly and consistently in various areas of the country on an ongoing basis.
- Identification of geographical locations that would enable frequent, yet convenient travel for participants to ensure face-to-face meetings and informal conversations.
- Sustained support among supervisors and Department leadership to promote and support the program over time, acknowledge accomplishments of individuals and cohorts, allow participants clear guidelines and support for cross department activities and actions to demonstrate new competencies or introduce new practices across divisions.

4. *A list of potential major milestones necessary to implementing a program such as the Transportation Systems Institute including the appropriate geographic scope for each program.*

As previously mentioned, the appropriate geographic scope or grouping of states is a potential barrier to national implementation. It might be appropriate to follow the 10 NHTSA regions or some other similar pre-set units of similar size for further roll out. The AASHTO regions are too large for TSI to be effective. More investigation would be needed for this determination.

With this in mind, major milestones would include:

- Contacting state AOT leaders to build enthusiasm and support for involving their state in the TSI.
- Recruiting qualified workforce development trainers to conduct the TSI workshops locally.
- Identification of TSI locations.
- Refinement of curriculum based on the TSI pilot evaluation.
- Development of TSI implementation timeline, logistics and budget.
- Implementation of the TSI.
- Follow-up and evaluation of the TSI with participants and state AOT leaders.

Transportation Systems Academy (TSA)

The UVM TRC sought to develop partnerships between the Vermont Agency of Transportation (VTrans) and other transportation employers and sources of new workers to meet the need for operations and maintenance workers in transportation. The TSA was conceived as a short, hands-on program that would present a new pathway into transportation careers. The pilot program was focused in Vermont and operated in several variations with involvement of key partners, including The Community High School of Vermont (Vermont Department of Corrections), career centers and a high school technology program. The TSA had four deliverables that are discussed below. Additional information can also be found in the TSA evaluation report as well as the “Steps to Planning and Implementing the Transportation Systems Institute: a Resource for Transportation Educators”.

1. Identification and evaluation of the key education/training/professional development organizations that can provide transportation, education and training in technical high schools and Corrections.

Through the operation of several TSA variations, over multiple years and various settings, the key organizations involved were identified as:

- State Agency of Transportation – provided instructors for some TSA offerings and has also developed into a source of potential new instructors. These instructors were essential for teaching topics such as Basics of a Good Road and Winter Road Maintenance. Local District employees attended various classes and provided a context for how the content was applied in their work. In several cases DOT garages provided on-site opportunities to see workers in action, and are a future source of job-shadowing and internships as well as summer temporary and permanent employment.
- Career center and Community High School of Vermont (Department of Corrections) teachers – these instructors were able to deliver necessary, but not transportation specific, content such as First Aid/CPR, OSHA-10, construction math and workplace readiness.
- Community and/or technical college – a New Hampshire community college was able to provide an introduction to CDL with their mobile simulator and guidance on studying for the CDL.
- Private traffic control companies – a private traffic control company that has certified instructors were engaged to teach flagging. Students earned their ATSSA flagging certificate and received appropriate flagging gear. The company is also a potential source of employment for TSA graduates.
- Transportation Research Center – personnel developed and taught an introductory transportation sector overview and career course as well as provided guidance and coordination for the entire program.
- Vermont Local Roads (VT LTAP), and T2 (New Hampshire LTAP) provided curriculum development assistance and some instructional capacity early in the program. They are a potential future source of partnerships, instructors and access to employment opportunities with the career centers and high schools).

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2. *Evaluation of how this program could built on the current programs of the FHWA Professional Capacity Building Groups, the National Highway Institute, the Local Technical Assistance Program, the Transportation Curriculum Coordination Council, National Cooperative Highway Research Program studies, the work of transportation and engineering professional organizations, state departments of transportation, and other workforce and professional capacity building initiatives to assure a comprehensive National Strategy for Curriculum Development.*

- The TSA pilot effort continued up to the final days of the grant period. A set of resources were developed, including a tool kit and set of career pathway documents to aid in future replication or adaptation of the program. The toolkit provides general guidance, but a specific evaluation of its adoption by other professional development programs was not conducted.
- The programs was the subject of presentations at TRB and the National Transportation Workforce Summit.

3. *Identification of gaps in the curriculum piloted and recommendations on how the shortcomings can be addressed.*

The pilot TSA curriculum was developed to be a stand-alone program or offered in conjunction with another certificate or degree program. At its core it is a “job-readiness” program that when combined with other certificates and programs at career centers or high schools can be direct introductions to employment in the public or private sector. Gaps that were noted in the curriculum by employers included:

- Heavy equipment – an introduction to the various pieces of heavy equipment used in transportation could provide additional skills for entry level workers and enhance employment readiness. This could be accomplished by partnering with heavy equipment programs at career and technical centers, commercial operations or state AOT trainers.
- Required internship – although an internship is listed as part of the curriculum, it was optional and due to a variety of circumstances, not completed by students. All indications are that a sustained internship would help prepare students with transportation workplace skills and lead more directly to employment.
- In working with the VTrans Training Center other key first year competencies for DOT employees were identified that could be included chain saw safety, forklift training, hand and power tool safety, defensive driving, Tractor/mower operations training (TMOST). These are courses sometimes offered at career centers and through LTAP programs.

4. *An action plan for including the Academy target groups in a National Strategy for Curriculum Development – this program explicitly includes K-12th grade.*

- The TSA partners were introduced to Transportation Careers.org (another TEDPP initiative) This curriculum initiative is another opportunity to transfer the TSA programmatic framework and there is an on-going collaborative effort between the two programs.

- The TRC sponsored a National Career Pathway Certification training (National Career Pathways Network) which introduced TSA partners to this framework and national resources.

Second Careers in Transportation (SCT)

The SCT strand of TEDPP was intended to interest, train and recruit mature or retired workers over age 50 into professional positions in the transportation sector. Over the length of the pilot project, the SCT effort evolved into both a major data gathering effort and exploration of employment opportunities in transportation for the growing population of mature workers in Vermont. The outcomes of the project resulted in some key and important deliverables beyond the scope of the original TEDPP proposal and in fact, beyond the original demographic of older workers. The key outcomes are:

- Completion of a Needs Assessment that provided a snapshot of current and projected needs for both public & private transportation sector employers in Vermont. This survey, conducted by the UVM TRC and the Center for Rural Studies involved 207 respondents from a mix of both private (n=41) and public (n=166) sectors. Results provided detailed information on the project needs for full time and part time skilled labor, administrative and professional transportation positions.
- Established collaboration with the non-profit Vermont Associates for Training and Development. Vermont Associates specializes in job training and placement for workers over the age of 50. UVM TRC was successful in recruiting Vermont Associate clients into a Rutland, VT based offering of the TSA and was the catalyst to connect the organization with VTRANS employment officials.
- Created relationships with the Vermont Department of Labor officials who specialize in Veteran services. This has included a UVM TRC presence at veteran job fairs and special events. Veterans were identified as a key constituency for future transportation workforce initiatives.
- Developed relationships with a Vermont non-profit, Vermont Works for Women, which specializes in recruiting women into non-traditional employment. This resulted in women enrolling in a spring 2013 public offering of the TSA including several women who are new Americans.

These important outcomes are linked back to the overall goal of providing pathways into transportation work for workers, especially mature incumbent workers and those representing diverse groups. The use of the TSA as an entry point for many diverse populations (high school students, older adults, veterans, new Americans, offenders) highlights the success and importance of that program.

In researching opportunities to expand this effort into a formalized independent pilot as originally envisioned in the initial work plan the findings identified numerous opportunities, but few specifically oriented to the transportation industry. (See Second Careers Research & Application to Transportation Workforce Summary (TEDPP) 9-29-12). This effort focused the TEDPP work in two areas in addition to the programs detailed above. The first was working with existing mature workers in transportation jobs. These key industry people assets can both extend their career periods in age friendly workplaces, and can transition to other jobs in the transportation industry. The other area that has been increasingly supported by a number of existing initiatives is a “second careers” in

transportation approach with Veterans (national initiatives are underway in Rail and Transit) USDOT has initiated key efforts including:

- Veterans Transportation Career Center (<http://www.dot.gov/veteranstransportationcareers>) in partnership with the Veterans Administration.

Other sample initiatives include:

- Troops to Transportations & Logistics (T2TL) (<http://casy.msccn.org/JobSeekers/T2TL.htm>), a project of the Military Spouse Corporate Career Network.
- My next move for veterans (Onet) (<http://www.mynextmove.org/vets/find/browse?c=48>)

And programs that could be easily adapted to have a transportation career focus:

- Helmets to Hardhats (<http://www.helmetstohardhats.org/>)

Through the TEDPP effort an initiative was started in partnership with the Vermont Department of Labor Veterans Assistance program to develop resources that were more Vermont specific and led to a variety of possible career pathways for Veterans. One problem cited with many of the national programs was that the career focused literature was too generic and not specific enough to actual local jobs where Veterans were living and wanted to find jobs.

Transportation and Community Colleges (CC)

The TEDPP community colleges project was originally conceptualized as a summit with a focus on transportation education and training. However, this approach was altered in favor of a national survey of community colleges, in collaboration with the American Association of Community Colleges and the U.S. Department of Transportation. Outcomes from the Community College project include:

- Implemented in 2009, the survey had 167 (response rate = 15%) community college respondents.
- Provided a snapshot of offerings at the responding institutions; presentation at AACC conference; and published TRC research report 10-002 (http://www.uvm.edu/%7Etransctr/research/trc_reports/UVM-TRC-10-002.pdf).
- 2013 survey of the 35 New England community colleges (n=20 respondents, response rate = 57%)
- New England community colleges expressed an interest in 2013 in establishing more transportation related programs, particularly in aviation and transportation logistics.
- In 2011 the Community College of Vermont (CCV) established a new Associates degree in Applied Business Practices. This degree includes a concentration in transportation with courses in Transportation Systems & Operations as well as Transportation Finance, Policy & Regulations.
- CCV administrators have developed collaborative relationships with the UVM TRC, VTTrans, career and technical centers and other organizations regarding transportation education and training.

Transportation Career Pathways

While not part of the original TEDPP proposal, the pilot project was active in developing documents and training partners in the importance of transportation career pathways.

The TRC has developed a series of “Career Pathways in Transportation” documents by mode of the transportation sector. Each pathways document describes an introduction to that mode and an employer, a graphic of a career pathway from entry level to experienced worker, career biographies of people who are in that career and also a list of transportation education and training resources. Samples of these documents are attached to this report. The Career Pathways documents are used at recruiting events, distributed to CCV and Vermont career and technical centers and electronic versions are available at the TRC website. These documents are all Vermont specific, but establish a template and process that can be replicated state-by-state or regionally.

The TRC also sponsored a successful two-day Career Pathways Leadership Certificate Workshop (<http://www.ncpn.info/cpl-workshop.php>) lead by Fran Beauman and Carol Jurgens, both members of the Center for Research and Occupational Research. The 24 participants represented a broad variety of individuals involved in transportation education including secondary educators and counselors, community college instructors and administrators, State DOT managers, State of Vermont Department of Labor and Department of Commerce personnel, Regional planners, Counselors from the state higher education financial assistance program, and TRC personnel. Participants were enthusiastic about the training and in evaluation surveys felt that the material and information would lead to more partnership building and development of career pathways into transportation. This workshop supported a Vermont core, but partners from New Hampshire and Massachusetts also attended, and the model created can be replicated in other states and regions.