

Transportation Curriculum Coordination Council February 2009

Background

Today, transportation agencies are facing tough work force challenges caused by a confluence of factors, of which the most important include the retirements of skilled personnel, improved technology, new materials, and more efficient methods. To compound the challenge, all of these factors are occurring during a period of uncertain (and diminishing) resources resulting from high energy prices and structural changes in the public's demand for transportation. It is precisely at times such as the present that agencies need to be operating at peak efficiency, which in turn requires a well trained, current, and competent work force. In fact, the need for agencies to remain current makes training a necessity rather than a luxury.

Such a training need was anticipated in 2000, when the Transportation Curriculum Coordination Council (TCCC) brought together five regional training and certification groups comprised of State highway agency training officers and materials and construction engineers, along with representatives from the Federal Highway Administration (FHWA) and its National Highway Institute (NHI), several American Association of State Highway and Transportation Officials (AASHTO) subcommittees, and industry associations. The partnership's goal was to develop a curriculum that State/local highway agencies could use as a basis for their overall training and development programs, while offering enough flexibility to accommodate different departmental structures and operations.

Establishment of the Transportation Curriculum Coordination Council (TCCC) Pooled Fund Program

The Transportation Curriculum Coordination Council (TCCC) pooled fund project (TPF 5-(046)) was established in 2002 to financially support the development of the Core Curriculum Matrices, training courses that may be used by the State DOTs/Local Agencies/Industry at little to no cost, and the National Transportation Training Resource database. All funds, approximately \$1.3 million, from the original pooled fund, TPF-5 (046), have been obligated. Below is a synopsis of how the pooled funds were used.

Core Curriculum Matrix

The core curriculum matrix was developed to include the five major program areas of materials, construction, maintenance, safety/work zones, and employee development. The matrix provides training competencies for a wide variety of disciplines within each subject area at four different skill levels from entry level to the project manager/administrator level. The Curriculum Matrix is designed to be used by State and local DOT's in their efforts to establish training programs and to develop specific courses for their technical personnel. It is also being utilized by the TCCC to guide its development of course materials to be shared nationwide. The Curriculum matrices are designed to be a living document that will grow as the program continues to evolve; accordingly, the curriculum will be maintained on the TCCC website (www.nhi.fhwa.dot.gov/tccc) through an interactive, dynamic database and will be updated periodically as new disciplines, course materials, and technologies emerge.

National Transportation Training Resource (NTTR)

2008 saw the development of a national transportation resource database. After beta testing, this product was rolled out to the public in October. The **National Transportation Training Resource** (NTTR) is a database application that collects, stores, and manages training resources for the highway workforce. The application provides a central platform for exchanging and evaluating training information, and helps resource users identify transportation disciplines to meet their training needs.

The NTTR database mirrors the structure of the Transportation Curriculum Coordinating Council (TCCC) **Competency Matrices**, with resources mapped to one or more Technical Category. The application has the capability to map resources down to the Skill Level Competency. It is anticipated that in the future the NTTR will be able to identify the resource gaps that will need to be filled for various competencies.

TCCC is continuing to partner with the Volpe Center to populate this training resource database. If your agency would like to contribute your training course information to this national database, contact Gerry Flood at the Volpe Center (Gerry.flood@dot.gov) or call 617 494-3848.

Training Course Development

In the area of training course development, the TCCC has made available, through its partnerships with NHI, AASHTO, and others, well established courses such as *Hot-Mix Asphalt (HMA) Construction*, *Drilled Shaft Inspection*, and *Instructor Development for Technicians*.

Recently developed courses include *Managing Construction Workmanship*, *Bridge Construction Inspection*, *Quality Assurance Technologies*, *Pavement Preservation Online Guide and Training*, *Mechanically Stabilized Earth Walls/Reinforced Soil Slopes*, and a *Subsurface Investigation Qualification Course*.

Courses under development include *Inspection of Bridge Rehabilitation*, *Maintenance Leadership Academy*, and *Environmental Factors in Highway Construction*. The TCCC has also identified a need for courses in *Embankment Inspection*, *Basic Earthwork for Inspectors*, *Placement and Testing of Self-Consolidating Concrete*, and *Inspection of Pipe Installation*.

Besides the previously listed “face-to-face” courses, 2008 saw TCCC embrace “Web- based” course delivery. TCCC not only “embraced” this new technology but aggressively pursued this new training delivery method with ten “no cost” Web-based courses. The ten courses available for use are:

- [FHWA-NHI-131110 TCCC Pavement Preservation Treatment Construction](#)
- [FHWA-NHI-131117 TCCC Basic Materials for Highway and Structure Construction and Maintenance](#)
- [FHWA-NHI-134069 TCCC Ethics Awareness for the Transportation Industry](#)
- [FHWA-NHI-134071 TCCC Basic Construction and Maintenance Documentation – Improving the Daily Diary](#)
- [FHWA-NHI-134072 TCCC Math Module](#)
- [FHWA-NHI-134075 TCCC Hardened Concrete Properties – Durability](#)

- FHWA-NHI-134078 TCCC GPS Technology
- FWHA-NHI-134081 TCCC Plan Reading
- FWHA-NHI-134084 TCCC Fundamentals of Materials Used for Concrete Pavements
- FHWA-NHI-134085 TCCC Incompatibility in Concrete Pavement Systems
- FHWA-NHI-134087 TCCC Mix Design Principles

According to NHI, 1300 people have already taken the web based courses. Additionally, two States have adopted some of the TCCC web based courses as “prerequisites” for existing State courses. Web based courses that are universal and readily available will greatly assist any transportation agency stretch its human resource dollars and eliminate wasteful course development redundancy.

These are examples of courses that target a wide range of agency personnel including contractor project superintendents and foremen, State highway agency project engineers, and lead inspectors as well as county and municipal transportation workers.

TCCC Funding – The Future

The establishment of the TCCC and its course development have provided numerous benefits to transportation agencies across the country. Although supported by many States, the original pooled fund was heavily supplemented by the FHWA’s Office of Asset Management, Office of Pavement Technology, and National Highway Institute to cover expenses related to training development and other activities. Due to current funding levels under FHWA appropriations, a similar level of financial support from FHWA cannot be expected in the coming years. It is therefore critical that State involvement be secured for a new pooled fund so that the work that TCCC has been doing can continue.

A new 5-year pooled fund for \$5M titled “**Support of the Transportation Curriculum Coordination Council (TCCC)**” (Solicitation #1205) was posted on May 20, 2008 and is open for States to commit financial support. States are encouraged to contribute what they can to this program, with a goal of securing \$1 million per year.

The TCCC also recognizes the value of “in-kind” contributions. Many States have supported the TCCC by allowing personnel to participate in the TCCC or on course development technical panels. It is the hope of the TCCC that this level of support will also continue in the coming years.