



# Transportation Curriculum Coordination Council (TCCC)

Addressing Challenges in  
Construction and  
Maintenance Workforce and  
Quality

# Topics of Discussion

- What is the TCCC
- Workforce development challenges
- TCCC Past - Present - Future



# Transportation Curriculum Coordination Council

A public/private partnership, established in 2000, that is assembling a curriculum aimed at producing the highly-skilled transportation workforce to meet our mobility demands.



# Partnership Effort

- Regional certification groups
- AASHTO subcommittees
- Local transportation agencies
- FHWA / NHI
- Industry groups
- Academia



# TCCC Mission

- Coordinate training and certification
- Establish a national core curriculum
- Develop training materials
- Support agency training efforts



# Workforce Facts

- Average age nationwide of skilled trade construction workers is 48 years
- Many born during 1945–1950 will retire in 2010–2015
- Construction careers were rated 498<sup>th</sup> out of 500 by high school students and parents



# Workforce Facts

- Technology is constantly changing
- New technology requires a competent, trained, and certified workforce



# How is TCCC Meeting the Need?





# TCCC Past-Present-Future

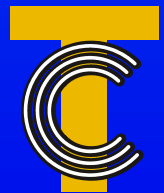
- Curriculum matrices
- National Transportation Training Resource Database
- Interactive Website
- Training development



# TCCC Past

## Core Curriculum Matrix Development

- Developed matrices listing core competencies for four skill levels in the following areas
  - Maintenance
  - Construction
  - Materials
  - Safety and Work Zone
  - Workforce Development



DISCIPLINES	COMPETENCIES BY SKILL LEVELS			
	Level I	Level II	Level III	Level IV
Surface Preparation	Assists in performing surface inspections	Inspects surface for proper preparation in accordance with contract documents	Recommends acceptance or corrective action based on inspection results	Determines contract decisions related to surface preparation acceptance and payment
			Documents and follows up on corrective actions	Recommends disciplinary action when corrective measures are not taken in a reasonable time frame
Concrete Delivery	Assists in inspections of delivery vehicles to make sure they are in good working condition	Inspects trucks to assure that all gauges, meters, etc. are in working order	Recommends acceptance or corrective action based on inspection results	Determines contract decisions related to concrete delivery acceptance and payment
		Checks for worn parts that could affect mix quality	Documents and follows up on corrective actions	Recommends disciplinary action when corrective measures are not taken in a reasonable time frame
		Collects load tickets		
		Verifies correct mix was shipped		

Increasing skill level

Competencies by skill level

# TCCC Present

## National Transportation Training Resource Database

- National Interest:
  - TCCC, NTTD, LTAP
  - AASHTO, TRB, ITE
- Identifying existing training courses
- Determining new training needs

Database will be launched in 2008



# TCCC Present

## National Transportation Training Resource Database

- Complete data on training courses
  - objectives, level, audience, tests, manuals, contacts, etc.
- Review and link to competencies by level
- Maintain online searchable training database
  - more than 50 subject areas





# Transportation Curriculum Coordination Council

## TRAINING RESOURCE DATABASE

- Home
- Search
- Add Event
- About Us
- Feedback

Welcome to the Transportation Curriculum Coordination Council (TCCC) Training Clearinghouse. The purpose of this website is to provide transportation professionals with resources needed to develop a skilled workforce and further their own professional development.

Resources available include course offerings, schedules, and contact information; web-based seminars; conferences; and other training and capacity building documentation.

### Search for Resources

In the boxes below, you can select one or more terms by holding down the Control button on your keyboard. You can also select terms in one or more of the boxes. The more terms you select, the fewer resources will be returned.

**Construction**

**Employee Development**

**Maintenance**

**Materials**

**Safety & Workzone**

**Subject Area:**

- All
- Contract Administration
- Quality Assurance
- Environment
- Construction Inspection

**Discipline:**

- All
- Right of Way (ROW) Mgt
- Contractor Payments
- Supplemental Agreements
- Force Accounts

**Skill Level:**

- All
- Level I
- Level II
- Level III
- Level IV

**Resource Type:**

- All
- Blended
- CD-ROM
- CD-ROM, Classroom Option
- Classroom Course

**Key Word Search**

This search works in combination with whatever terms are selected above.

Sample web page

# Who? When? and Where?

## WHO?

### – Users

- Training professionals in need for training resources
- Registration and a password will be needed

### – Contributors

- Persons who will input the data for the data base

# When?

**The system will open to the  
public on August 15**

# Where?

**[www.nttr.dot.gov](http://www.nttr.dot.gov)**



# The Future of the NTTR

As the NTTR evolves, more and more resources will be collected and maintained. The NTTR will assist users and stakeholders to identify training gaps in various subject areas.

It is anticipated that courses will be developed to fill those gaps and ultimately provide greater support to the comprehensive learning needs of transportation professionals at all skill levels.

# TCCC Present

## Web Based Training Courses

### 5 Free Online Training Courses Available Through Partnership with NHI

- Ethics Awareness for the Transportation Industry
- Basic Construction and Maintenance Documentation
- Improving the Daily Diary



# TCCC Present

## Web Based Training Courses

### 5 Free Online Training Courses Available Through Partnership with NHI

- Basic Materials for Highway and Structure Construction and Maintenance
- Hardened Concrete Properties (Durability)



# TCCC Present

## Web Based Training Courses

5 additional Online Training Courses  
Coming Soon

- GPS Technology
- Math
- Stormwater
- Plan Reading
- Bolt Connections



National Highway Institute : Course Description - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address [http://www.nhi.fhwa.dot.gov/training/course\\_detail.aspx?num=FWA-NHI-131117&cat=&key=TCCC&num=&loc=&sta=%25&tit=&typ=&ava=&str=&end=&drl=](http://www.nhi.fhwa.dot.gov/training/course_detail.aspx?num=FWA-NHI-131117&cat=&key=TCCC&num=&loc=&sta=%25&tit=&typ=&ava=&str=&end=&drl=)

Google

**NHI** Training Solutions for Transportation Excellence

Home My Profile My Downloads Login Contact Us Help

Training Resources About NHI

Training Catalog :: NHI Store :: Checkout :: Records and Transcripts :: Host a Course :: Web Conferencing ::

Home > Training > Training Catalog > ... > Catalog Listing > Course Description

PAVEMENTS AND MATERIALS  
**COURSE NUMBER:** FHWA-NHI-131117  
**COURSE TITLE:** TCCC Basic Materials for Highway and Structure Construction and Maintenance - WEB-BASED

FISCAL YEAR	LENGTH	CEU	FEE
2008	4 Hours	0 Units	\$0 Per Participant
2009	4 Hours	0 Units	\$0 Per Participant

**TRAINING LEVEL:** Beginner

**CLASS SIZE:** Minimum:1; Maximum:1

**DESCRIPTION:**  
 This training was developed by the Transportation Curriculum Coordination Council (TCCC) in partnership with NHI to review basic materials for highway and structure construction and maintenance. The training was prepared by State DOT personnel for State DOT personnel. It is the first training of its kind offered by NHI, and we would like to give special recognition to the TCCC for their efforts. It contains good practices from various agencies. Each State agency/company has their own specifications, which the viewer needs to review and follow.

Although there are a number of materials used in the construction and maintenance process for both highways and structures, this course is focused on the three basic materials. They are Aggregate, Portland Cement Concrete (referred to as PCC), and Hot Mix Asphalt (referred to as HMA).

This training is directed toward the entry level technician, to give them a general view of the basic materials used in construction and maintenance. The course modules will address the procedures used in the production and sampling of aggregates.

Module 1 is called Basic Aggregates and includes quarry inspection, sand operation, stockpiling, and sampling. Module 2 covers Portland cement, including the production of Portland Cement, the hydration process, as well as other cementing materials used in concrete such as water, admixtures, and aggregates. Module 3 reviews Hot Mix Asphalt, including the asphalt binder and aggregates used in the production.

NHI is hosting this and other TCCC Web-based developments to serve a critical need for training. We need your feedback to determine whether we should continue posting other Web-based trainings like this one. Please take the time to complete the evaluation form provided at the end of the training, or email [nhimarketing@dot.gov](mailto:nhimarketing@dot.gov).

**OUTCOMES:**  
 Upon completion of the course, participants will be able to:

- Identify aggregate production and sampling procedures
- Recognize the ingredients of PCC and the part each plays in concrete production
- Recognize the ingredients of HMA and the part each plays in hot mix asphalt production

**TARGET AUDIENCE:**  
 This training is designed for Level I and Level II State/local public agency personnel and their industry counterparts involved in the construction, maintenance and testing process for highways and structures. Level I or Entry refers to employees/trainees with little to no experience in the subject area and perform his/her activities under direct supervision. Level II or Intermediate refers to employees that understand and demonstrate skills in one or more areas of the entry level and perform specific tasks under general

Sample web page

Note: Course is web based

Length of the course is 4 hours

Course was developed by TCCC

Trusted sites

Start National Highway I... Microsoft PowerPoi... 7:02 AM

# TCCC Present

## Interactive Website

Website offers:

- National Transportation Training Database  
(Coming Soon)
- Direct link to Web Based Training Courses
- Listing of all TCCC training courses  
available through NHI





CONSTRUCTION AND MAINTENANCE

**COURSE NUMBER:** FHWA-NHI-134001

**COURSE TITLE:** TCCC Principles of Writing Highway Construction Specifications (2-Day)

FISCAL YEAR	LENGTH	CEU	FEE
2008	2 Days	1.2 Units	\$300 Per Participant
2009	2 Days	1.2 Units	\$320 Per Participant

**TRAINING LEVEL:** Beginner

**CLASS SIZE:** Minimum:20; Maximum:30

**DESCRIPTION:**

This course addresses the engineering and legal aspects and linguistics of writing specifications. THIS IS NOT A COURSE IN TECHNICAL WRITING! The course addresses issues of how to draft new specifications or rewrite existing ones in clear, readable, and definitive statements of contract requirements. Classroom activities include lectures, case studies, workshops, and writing assignments.

The course is available in a 2-day, 3-day and 4-day version, and can be tailored to meet the needs of the host organization. The 2-day course consists of Modules 1 and 2, and one additional module selected by the host. The course instructor will assist the host in selecting the most appropriate modules for the target audience. The course modules are:

Included:

Module 1: Definitions, Forms, and Purpose of Specifications

Module 2: Specification Writing Principles

Select one additional module from among these options:

Module 3: In-Depth Practical Writing Exercise

Module 4: Method and End-Result Specifying

Module 5: Ensuring Specification Work in the Field

Module 6: General Provisions

Module 7: Specifications for Alternative Methods to Deliver, Procure, and Manage Construction

An additional resource for highway specifications: The National Highway Specifications Web site is now available at <http://www.specs.fhwa.dot.gov>

Developed in partnership with the Transportation Curriculum Coordination Council (TCCC).

Sample web page

# TCCC Future

## Training Under Development

- Maintenance Leadership Academy
- Inspection of Bridge Rehabilitation
- Environmental Factors in Construction and Maintenance
- Advanced Emulsion Technology
- Embankment Construction Inspection
- Inspection of Pipe Installation

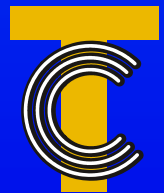




# TCCC Future

## Pooled Fund Project

- Funding source for TCCC Efforts
- Follow-up to 2002 Pooled Fund
  - Over \$1.3 million contributed over 5 years
  - Supported curriculum and training development
- Contributions are now being sought for the next five years



**For more information about  
the TCCC go to:**

**[www.nhi.fhwa.dot/tccc](http://www.nhi.fhwa.dot/tccc)**

**Or contact:**

**Christopher Newman  
FHWA Office of Asset Management  
202.366.2023**

**[christopher.newman@dot.gov](mailto:christopher.newman@dot.gov)**



# QUESTIONS?

